Engineering Report

City of Union
Water System Master Plan
Franklin County, Missouri

Project No. 12-5049

Sept. 2012

Date

Benjamin J. Kuenzel, P.E. #2006002831
State of Missouri
Registered Professional Engineer for Cochran

COCHRAN

Architecture • Civil Engineering • Land Surveying • Site Development • Geotechnical Engineering • Inspection & Materials Testing

8 East Main Street
Wentzville, Missouri 63385
Telephone: 636-332-4574
Fax: 636-327-0760

530A East Independence Drive
Union, Missouri 63084
Telephone: 636-584-0540
Fax: 636-584-0512
www.cochraneng.com

737 Rudder Road
Fenton, Missouri 63026
Telephone: 314-842-4033
Fax: 314-842-5957

TABLE OF CONTENTS

ARTICLE **PAGE**

SUMMARY OF FINDINGS

CONCLUSIONS AND RECOMMENDATIONS

1. The City of Union is located in Franklin County Missouri approximately 45 miles West of St. Louis.
2. According to the 2010 U.S. Census Bureau data, the City has population of 10,204 people. Since 1940, the City has seen an average growth rate of about 2.6% per year.
3. The City serves 3,549 residential users and 440 commercial users.
4. The City of Union operates the water system under MDNR Operating Permit #6010801.
5. The water distribution system consists of two separate water systems that are known as the West and East water system. The West system is broken up into two main zones with various smaller pressure zones serving mainly small subdivisions. The East system has one main pressure zone along with two smaller pressure zones serving residential subdivisions. All these zones are created through the use of normally closed valves and pressure reducing valves.
6. The distribution system consists of water mains varying in size from 2" to 16" with various material types. The City is aware of the issues the small and non-standard piping creates in their distribution system.
7. Existing storage in the system consists of the following:

   West Zone
   Tank site 1 - 150,000-gallon elevated storage tank located behind the fire station on Old U.S. 50
   Tank site 2 – two (2) 500,000 gallon ground storage tanks at Clearview Drive and Koko Beach Road
   Tank site 3 - 300,000-gallon ground storage tank across from CC Camp Road on Highway A

   East Zone
   Tank site 4 – 100,000 gallon elevated storage tank at the end of Monterey Court
   Tank site 5 – 500,000 gallon ground storage tank off Prairie Dell Road near Rolling Hills Drive

8. Existing supply in the system consists of the following:

   West Zone
   Well 1 on Clearview Drive and Koko Beach Road
   Well 2 on Spartan Showcase Road
   Well 3 on East State Street
   Well 6 across from CC Camp Road on Highway A

   East Zone
   Well 4 at the end of Monterey Court
   Well 5 is off Prairie Dell Road near Rolling Hills Drive

9. Wells 2, 5 and 6 all have an emergency generator in the case of power outage.
10. The West System is adequate in regards to supply and storage.
11. In regards to FIRM capacity, the East System is lacking production. This report recommends the installation of a new well on the East System. While the East System has ample storage, we recommend constructing a new ground storage tank next to the newly constructed well in order to provide chlorine contact time prior to distributing potable water to the system. Additionally, we feel the Highway 50 corridor does have potential for rapid commercial/industrial growth and a new tank would provide much needed storage if this were to occur.
12. The City has reasonable static pressures throughout the system. The only areas under 40 psi are directly adjacent to the ground storage tank on the West system. No users are connected to this section of main and therefore is not seen as a problem.

13. Available flow ranging from 500 gpm to 3,500 gpm is typical throughout the system. While the East System has existing flows primarily over 1,000 gpm, the West System has a couple areas we plan to improve flow capabilities through recommendations of this report.

14. In review of the water system available flow, a few areas in the West system that have available flow below 750 gpm. These areas are near Porterford Road, Frank Street, and East Park Avenue. Water main improvements are recommended to improve flow rates to these areas.

15. The City's water loss is around 20% which is excessive. This may be caused by a number of public buildings, public pool, and fire department use going unmetered. The City should install meters on all users of the system so the City can better analyze water loss within the system.

16. The City has a number of pressure zones throughout the system. While most of the zones are necessary, our recommendation includes eliminating one zone on the West System.

17. The City should provide dedicated fill lines for all storage facilities. The City informed us that only elevated Tank 1 and elevated Tank 4 do not have dedicated fill lines.

18. It is recommended the following improvements be implemented.

Project 1 – Immediate Construction Projects

- Project 1a - Construct a new 500 gpm well, booster station, and a ground storage tank just North of Strawberry Fields. Install a backup generator next to the new water storage tank proposed.
- Project 1b – Install a dedicated fill line from the well to the 100,000 gallon elevated storage tank No. 4 at the end of Monterey Court. Install a new fiberglass structure to house the chlorination equipment. (This project could be reduced to just the dedicated fill line if chlorine use is discontinued on the East System. Additionally, if the disinfection is required at this well, the City consider constructing a slightly larger ground storage tank in project 1a and eliminating this facility.)
- Project 1c- Construct 1,400 L.F. of 10" PVC water main along Prarie Dell Road from College Meadow Drive to College Road.

Project 2 – Various Water Main Extensions for the West System

- Project 2a - Construct 3,230 L.F. of 10" PVC water main connecting the West system to Zone 815 of the East System. Project will also consist of 1,300 L.F. of 8" PVC water main, 800 L.F. of 6" PVC water main, and a pressure reducing valve. Remove pressure reducing valve from Zone 764 of the West System and open valves to convert zone to Zone 868.
- Project 2b - Construct 1,000 L.F. of 8" PVC water main across Highway 47 from Peters Lane to East Park Avenue.
- Project 2c - Construct 1,300 L.F. of 10" PVC water main along Clearview Drive and Edwards Circle.
- Project 2d - Construct 900 L.F. of 10" PVC water main across Highway 50 and connecting to the existing 6" water main along Old Highway 50 behind the commercial property.

Project 3 –Water Main Extension for the West System

- Construct 2,300 L.F. of 8" PVC water main along Harmonie Drive, Porterford Road, and Frank Street.

Project 4 –Various water main extensions for the East System

- Project 4a - Construct 4,900 L.F. of 10" PVC water main along Progress Parkway from Denmark Road to Corporate Drive.
- Project 4b- Construct 10,500 L.F. of 12" PVC water main along Highway 50 to Interstate 44 and a 12" main along East Denmark Road.

Project 5 – Water main extension to Birch Creek Subdivision (Or Project 6)

- Construct 2,200 L.F. of 10" PVC water main from St. Andrews Place Subdivision to Birch Creek Subdivision

Project 6 – Water main extension to Birch Creek Subdivision (Or Project 5)

- Construct 6,000 L.F. of 10" PVC water main from the Well 5 site to the south end of Birch Creek Subdivision.

Project 7 – Construct a new well next to the 150,000 gallon elevated storage Tank 1

- Construct a new 500 gpm well next to the existing 150,000 gallon storage Tank 1.
- Project will include the installation of a new dedicated fill line from the well into the tank.

19. The following maintenance items can be completed by staff as time and funds become available.
    - Install fencing around Wells 2 and 3 for improved security.
    - Install meters on all public buildings that are currently not metered.
    - Install hydrant locks in rural areas.
    - Replace smaller/deficient water mains.
    - Additional internal water main replacement should be considered as needed to replace the non-standard materials and small piping; however they are not considered key to the improvement of the current system. The replacement of the non-standard materials will require significant funds which are not justifiable in the current economy. As funds become available, a plan should be prepared to rate the existing system infrastructure and organize system piping replacement based on a priority basis.
    - The City should also consider replacement of electrical components in the older well houses. A number of well houses have equipment that appears to be greater than 20 years of age including electrical components, pumps, and chemical equipment. Updating the equipment may reduce utility cost and potentially save the City money rather quickly. An inventory should be completed and costs for repairs appropriately allocated.
    - Perform an energy audit on the booster stations to determine the benefits of installing a smaller pump to handle average daily flows.
    - Consider having a firm perform an energy analysis on the system for potential ways to save the City operational costs.
20. The City of Union operated on a surplus of funds in the last three completed fiscal years and anticipates a surplus in the current year. The last three fiscals years starting in 2009 had a surplus of $457,420, $233,430 and $260,752 respectively. Surplus has been declining and therefore the City should consider raising rates.

21. The USDARD reported the City of Union having a MHI of $39,596 for 1999. Review of the City's rate structure showed they have an average annual rate of $215.88 which is only 0.5% of the City's MHI. Since federal funding typically requires a rate of near 2%, the City's current rate structure does not make them a viable candidate for federal funding.

INTRODUCTION

The City of Union is located in Franklin County Missouri, approximately 45 miles west of St. Louis. The City limit encompasses approximately 8.1 square miles and has a population of 10,204 (per 2010 census). Established in 1825 as the County Seat, Union residents enjoy rolling hills in a growing community. The City provides many services for the community and one of which is potable water which will be discussed in this report.

The City's water system operates under MoDNR identifier 6010801 and is comprised of two unconnected systems known as the West and East water systems. The West water system consists of the original area served by the City of Union which was put into service around 1934. The East Water system was originally started around 1989 and was acquired by the City in 1998 from the Public Water Supply District #3 as an opportunity for expansion. These systems are operated mainly by Jeff Voss of Union.

Union is in the process of evaluating their potable water system. The City requested we prepare this report to present the system needs as well as examine system infrastructure improvements necessary for continual growth. Our study will utilize hydraulic modeling to evaluate the existing water system during peak and fire flow demands. We will also develop a reasonable projection of future capital improvement needs to meet increased demands due to the addition of new customers. The existing system will be examined as it is today (September 2012), as well as future infrastructure improvements needed over the next thirty years to serve the projected growth.

The owner would like this report to serve as a Supervised Program in lieu of submitting plans and specifications for expansion of the existing system. Requirements of the Supervised Program, Section 1.8 of the Design Guide for Community Water Systems, are contained within this report.

EXISTING FACILITY DESCRIPTION

The infrastructure conveying potable water to the City of Union customers consists of two unconnected water systems known as the West and East systems. These systems are separated at their closest point by approximately 750 lineal feet along Highway 47 south of Highway 50. Connection of the two systems has been considered by the City and will be reviewed later in this report.

Distribution System

Approximately 223,296 linear feet of 2-inch thru 12-inch water main comprise the entire distribution system. The distribution system consists of various piping materials including standard PVC water main, glued joint pipe, plastic pipe, and other thin walled pipe. Since the West system was put into service in 1934, it does contain most of the dilapidated pipe in the system. Alternatively the East system was started in 1989 and standard PVC materials were predominately used for construction. While the actual quantity of the various materials used for installation is unknown, the chart below depicts the quantity of pipe for both systems. See the Existing Water System Map in Appendix A for system infrastructure and water main sizes.

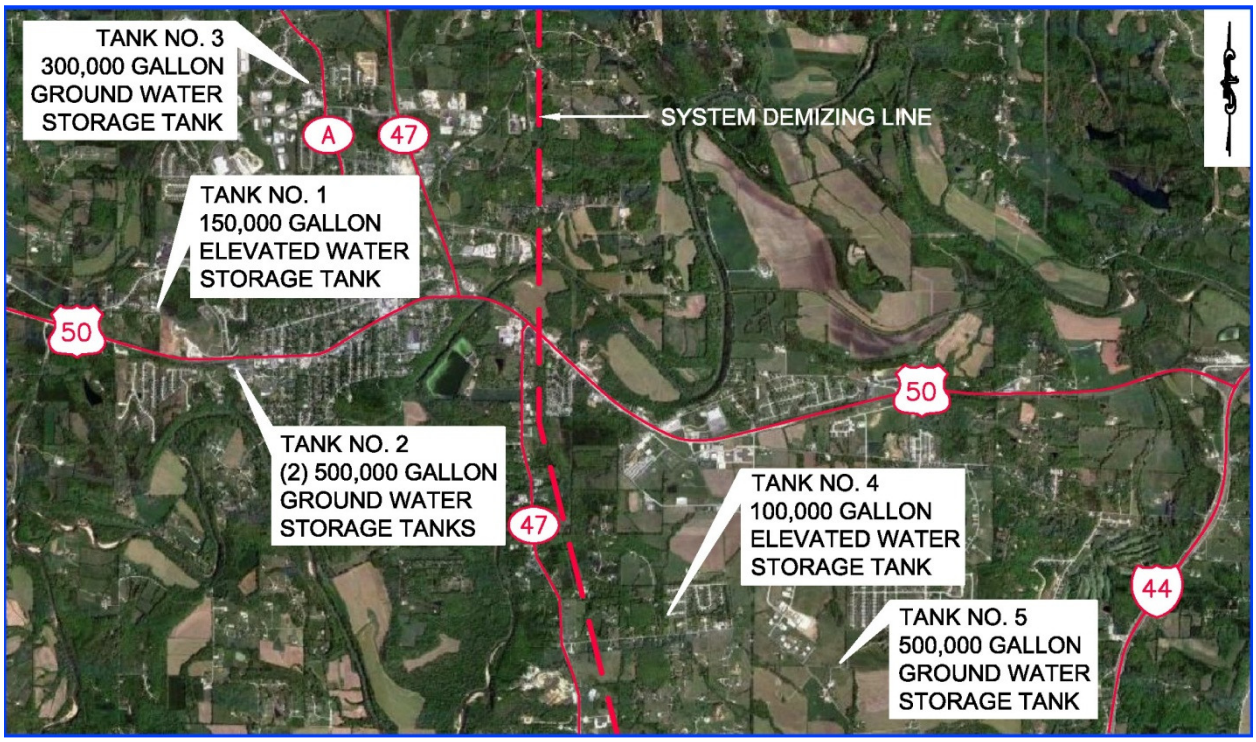
Distribution System Inventory		
Pipe Size (Inches)	**West System Length (feet)**	**East System Length (feet)**
1	791	0
2	4,415	2,945
4	81,164	6,772
6	71,838	36,210
8	60,922	59,705
10	52,235	16,150
12	13,315	34,239
16	208	0

System Pressure Zones

As discussed above, the system is currently broken up into two independent water systems known as the West and East System. Due to the City's topography, the West and the East systems consist of mainly three pressure zones that are further broken up into a number of small service areas created by the use of pressure reducing valves and normally closed gate valves. The West system consists of two main pressure zones while the East system has one. See the Pressure Zone maps in Appendix B for area and hydraulic grade of each zone noted.

Existing Storage

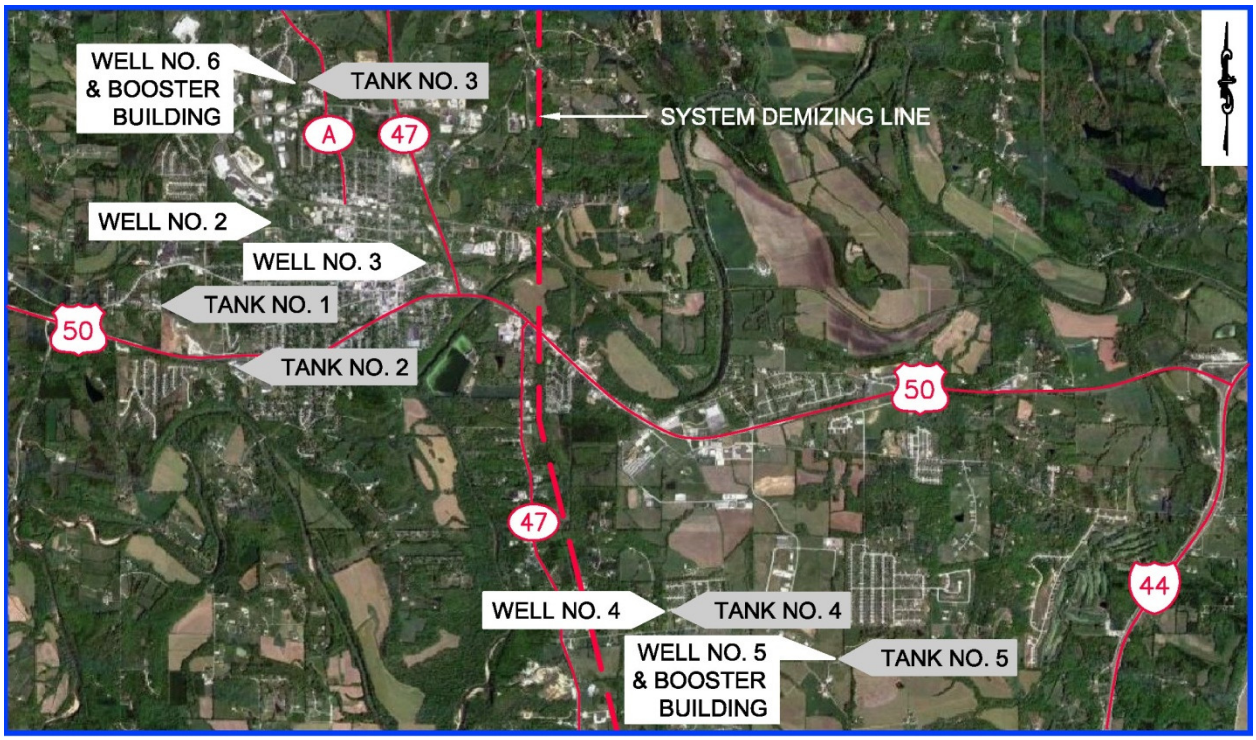
The water system has a total of just 2,050,000 gallons of storage. 1,800,000 gallons is provided by ground storage and booster stations while 250,000 gallons is provided by elevated tanks. The maps below depict location and size of water storage tanks for both systems. The West system has total storage of 1,450,000 gallons while the East system has a total of 600,000 gallons.



Existing Wells

The water system is currently supplied water by six (6) active wells. The West system is served by four wells and the East system by two. A breakdown of the individual wells and their characteristics are further detailed in the table below.

Supply Inventory					
Name	**Adjacent Storage**	**Production (GPM)**	**Year Drilled**	**Year Pump Replaced**	**Well Depth (Ft.)**
West System					
Well #1	1,000,000 gal (Tank Site 2)	350	1961	1981	1000
Well #2	No	700	1976	N/A	795
Well #3	No	550	1977	N/A	850
Well #6	300,000 gal (Tank Site 3)	1,000	2008	N/A	1000
East System					
Well #4	100,000 gal (Tank Site 4)	170	1989	N/A	1100
Well #5	500,000 gal (Tank Site 5)	800	1998	N/A	1092



Water Treatment

The City currently provides disinfection of the East system using Sodium Hypochlorite at only Well 5. Originally, Well 4 was disinfecting water prior to distribution. The Sodium Hypochlorite was destroying the controls in the well house and therefore the City elected to stop treatment. The City rarely uses well 4 and relies mostly on Well 5 at this time. Well 4 supplies less than 3% of the annual production for the system.

The City currently provides fluorination of the West system using Hydrofluosilicic Acid at wells 2 and 3. Originally Well 1 was fluorinating water prior to distribution. The Hydrofluosilicic was deteriorating the ductile iron pipe in the well house and the City elected to stop treatment at this well. Additionally, Well 6 has never received fluoride treatment. The City is in the process of discontinuing the use of fluoride and therefore, fluoride will not be discussed any further in this report.

FINANCIAL STATUS OF EXISTING SYSTEM

Overview

The City of Union operates their water system under the Waterworks Operation and Maintenance Fund. The City uses this fund to account for the billing and collection of charges for water services. Revenues are used to pay for both operating expenses and capital expenditures to maintain these services. Additionally, the bookkeeping for the water is completely segregated from the sanitary sewer. All discussions will include only the water system financial status.

Rates

Current water rates are $6.70 for the first 2,000 gallons used per month, $3.05 per 1000 gallons for the next 33,000 gallons, and $2.95 for every 1,000 gallons in excess of 35,000 gallons. These rates have gone unchanged since July 1, 2002.

The average daily production for 2012 was 941,459 gallons per day. Considering this average production and dividing among the system's 3,989 service connections, an average daily production per connection of 236 gallons is calculated. Alternatively due to water loss, the City reported selling 190 gallons per connection. This equates to a water loss of 20% which from our experience is excessive and will be discussed later in this report. Regardless, each user had an average monthly usage of 5,696 gallons per month. Applying this usage to the above rate schedule, the average monthly water bill would be $17.97 per month with a total annual water bill of $215.68 per connection.

Financial Balance Statement

The City of Union's annual budget discusses the financial status of the water systems for the last three fiscal years. A summary of this information is as follows:

	Actual	Actual	Actual	Budget
	FY 2009-10	FY 2010-11	FY 2011-2012	FY 2012-2013
Water Revenues				
Real Estate Taxes	$30,835	$53,493	$53,729	$40,000
Charges for Services	$979,456	$980,722	$1,028,355	$988,000
Miscellaneous Revenue	$169,470	$183,370	$70,236	$68,000
Total Revenues	***$1,179,761***	***$1,217,585***	***$1,152,319***	***$1,096,000***
	FY 2009-10	FY 2010-11	FY 2011-12	FY 2012-13
Water Expenses				
Personnel Services	$295,335	$286,414	$307,917	$310,765
Supplies & Materials	$8,974	$14,920	$7,314	$15,400
General Services	$251,124	$215,117	$246,768	$284,900
Maintenance & Repairs	$72,595	$82,131	$54,267	$183,000
Capital Outlay	$50,820	$344,560	$236,901	$238,000
Debt Repayment	$43,493	$41,013	$38,400	0
Total Expenses	***$722,341***	***$984,155***	***$891,567***	***$1,032,065***
Excess Revenue over Expenses	***$457,420***	***$233,430***	***$260,752***	***$63,935***

The City of Union reported a surplus for the fiscal years reported above. Additionally the City has completed payment of the current water system debt and will have additional funds available.

Delinquency Adjustment
The City's collection efforts have been very effective. Therefore, there is no need for a delinquency adjustment.

Conclusion
The City has been operating on a surplus from the water system. Additionally, the City places all excess revenue from the various City departments into one pool of money. When funds are needed for various improvements throughout the City, money is either taken from the collective pool of money or financed. Typically we do not recommend utilizing surplus from one fund to another. While we are not analyzing the other funds as a part of this report, we recommend the city earmark the revenue for water improvements only. The water system should support itself as well as acquire cash reserves to cover cost of proposed improvements. We will further review the rate structure as well as federal funding capabilities later in the report and recommend a reasonable rate for the water system to remain self-supportive and pay for the proposed improvements.

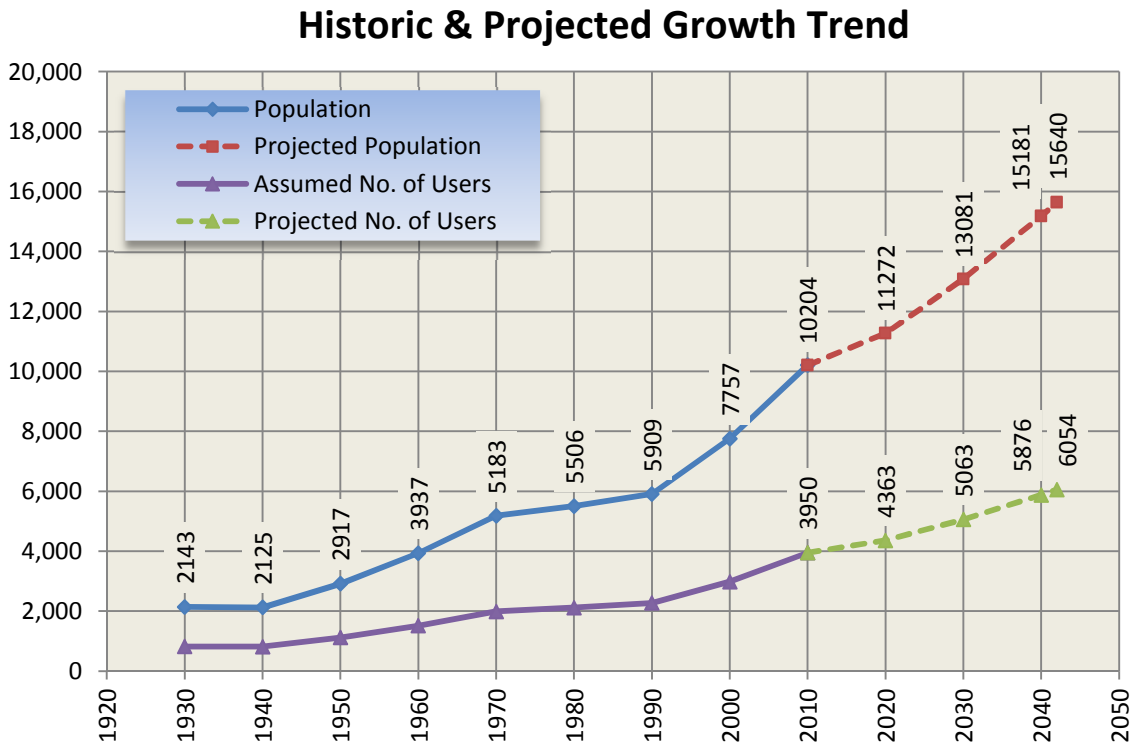
POPULATION TREND & GROWTH EXPECTATION

To better estimate the future needs of the water system and evaluate the existing system, population and water usage trends must be evaluated. Using this information, we can estimate future water usage needs in comparison to the system capabilities.

Historical population and census data have been gathered from the U.S. Census Bureau and compiled in the graph below. In examining the population trend, a 2.6% average growth rate is observed from 1940 to 2010. For the purposes of this report, we have lowered the anticipated growth rate due to the current economic situation we are experiencing. A growth rate of 1.0% per year will be used to project future populations for the City of Union up to 2020 and 1.5% thereafter.

Additionally, the City of Union reported there were 3,549 residential users and 440 commercial/industrial metered users connected to their water system in 2011. While I anticipate the City's commercial/industrial and residential growth to continue at similar rates, I have simplified calculations by basing our projections on the total number of metered connections reported of 3,989. This equates to 2.6 people per connection, which is reasonable from our experience with potable water systems. Additionally, we will discuss residential usage versus commercial/industry usage later in this report.

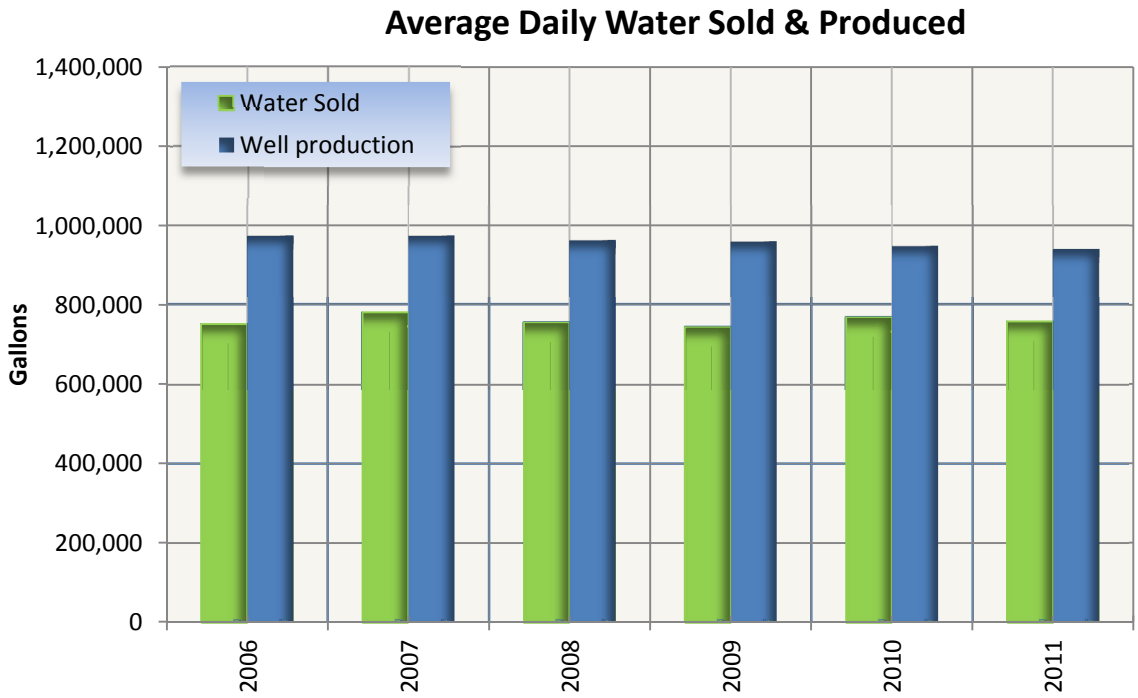
A chart showing historical and projected growth for the City of Union's population and number of water users is depicted below.



*See Appendix C for detailed numerical breakdown for the population data depicted above.

WATER USAGE & PRODUCTION

The City reported producing an average of 941,459 gallons of water and selling 757,399 gallons of water per day to the 3,989 users in 2011. On average, the City produced 236 gallons and sold 190 gallons per metered connection in 2011. The chart below depicts the 2011 data as well as the total production and usage data from 2006 to 2010 which has been provided by the City.

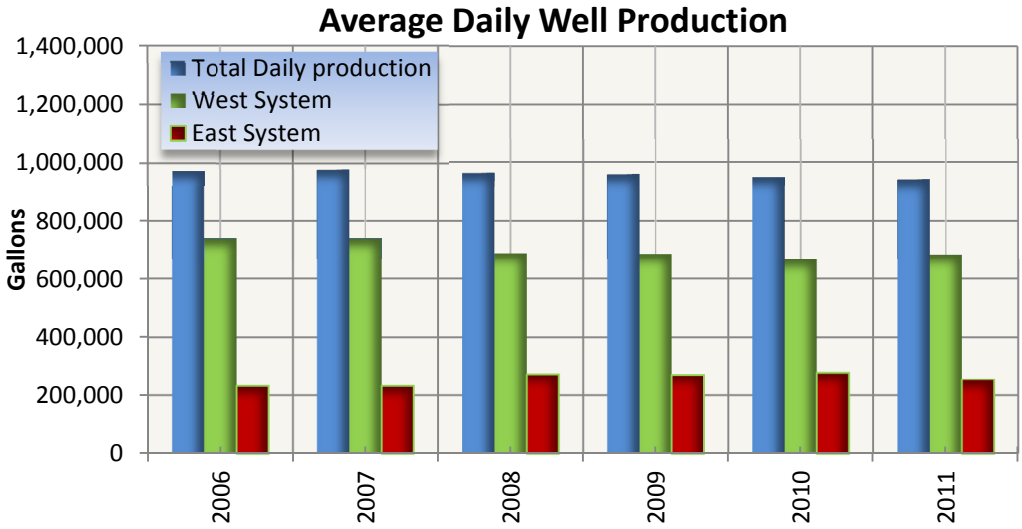


*See Appendix D for detailed numerical breakdown for the City's water production.

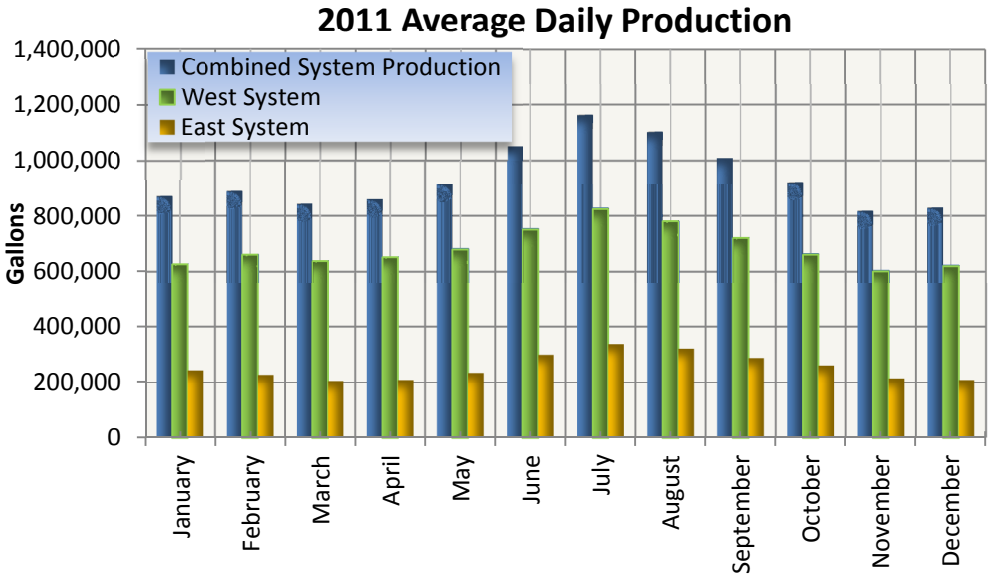
The average water usage held pretty steady over this five year time period. While we anticipate usage to gradually increase with population growth, our experience has shown us that people are starting to be more conservative with water. They are starting to utilize high efficiency appliances and water smart plumbing fixtures to reduce water usage. They are also coming to realize the current economic situation we are experiencing and are gradually being more conservative with their usage.

Additionally, in review of the City's data for 2011, commercial/industrial usage accounted for 23% of the usage while it accounted for only 10% of the total system users. However, since we are basing water system on production instead of number of users, the type of user is not pertinent.

As previously stated, the Union water system is comprised of two separate unconnected water systems. To better understand both system needs, production data should be evaluated for both individual systems. By analyzing the West and East systems as separate units, we will be able to recommend improvements for both systems. The chart below depicts the total well production for both systems.



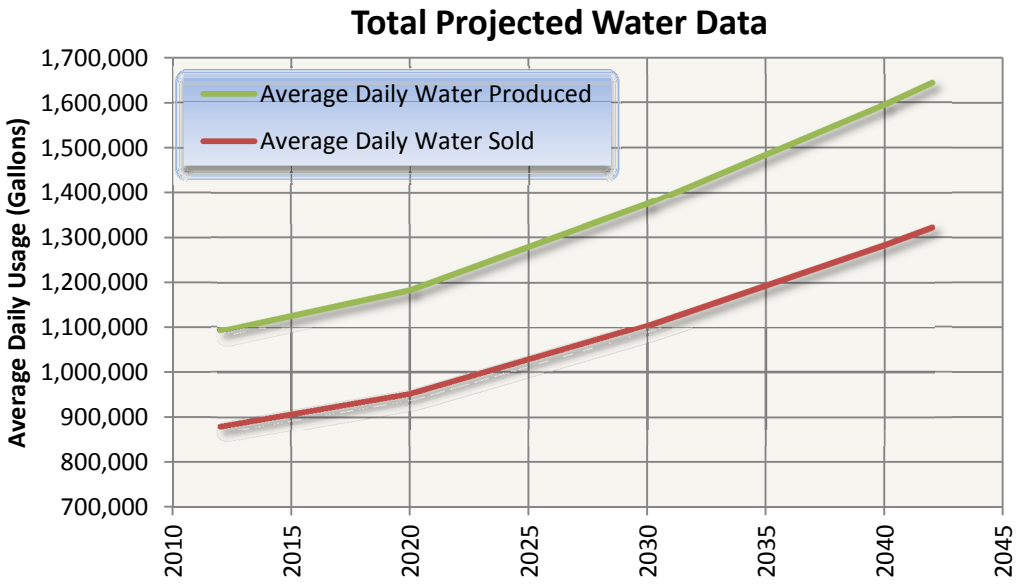
The City does not segregate users on the West system verses users on the East system. Therefore, water sold in each system is not available and any usage projections will be based on the percentages of water produced by each system's wells. Reviewing the monthly well production through 2011, there was an expected increase in water usage during the summer months of June to September on both systems. This data is compiled in the chart below.

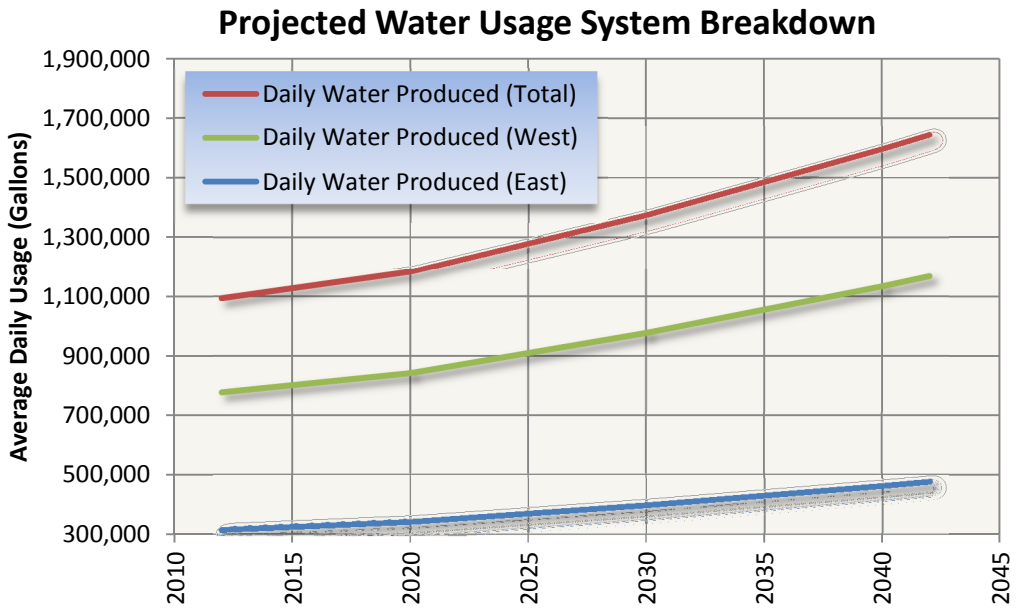


The West system had a monthly average of 685,057 gpd with a peak production of 825,497 gpd in July. Additionally, the East system had a monthly average of 255,930 gpd with a peak production of 339,226 gpd in July. Both systems had an expected spike in production during the summer months of June through September. The **West system** had a summer monthly average of **769,816 gpd** and the **East system** was at **313,066 gpd**. The summer monthly average will be used for generating projections and system needs.

WATER USAGE PROJECTIONS

Utilizing the previous charts, we will attempt to estimate future water needs for the City by projecting system well production. The well production average for the 2011 summer months will be used to project water production. While we will discuss the discrepancy on produced and sold water later in the report, we have estimated the City's water usage and production in the charts below.





*See Appendix E for detailed numerical breakdown for the data depicted above.

Consideration was given to allocate different growth rates for the two systems. In review of the City's plans to modify City wards based on population growth changes, no changes have been made to the ward boundaries. Therefore, we have set growth rates at the same projections for both systems in the chart above. However, we do feel there is

potential for the Highway 50 corridor to rapidly develop if the economy were to improve and therefore the City should consider higher growth rates than depicted when selecting system improvement projects.

As mentioned previously, many aspects can affect water usage and production trends for a community. Improved technology, economic changes, and improved construction materials and methods are just a few aspects that can cause trends to be altered. Therefore, we recommend basing system improvement needs on actual usage and/or production rather than a specific year referenced in this report.

SYSTEM EVALUATION

The current water system provides potable water to customers spread over 8 square miles in Franklin County. Currently there are approximately 3,989 water customers serviced by this system. Mr. Jeff Voss is currently providing operational, maintenance, and managerial services for the City.

Due to the City's development and topographic features, the water system is broken up into two separate systems that are further broken into three major pressure zones. The West system consists of two major pressure zones with six small pressure zones throughout. The East system is less complicated consisting of one major pressure zone with two small pressure zones. To maintain these zones, pressure reducing valves and normally closed valves are utilized to provide hydraulic relief to each zone. See Appendix B for the zone layout with appropriate hydraulic grade of each pressure zone.

The existing water system consists of water main ranging in size from 2-inch diameter to 16-inch diameter mains and consisting of various pipe materials. See the table below for pipe quantities.

Distribution System Inventory		
Pipe Size (Inches)	**West System Length (feet)**	**East System Length (feet)**
1	791	0
2	4,415	2,945
4	81,164	6,772
6	71,838	36,210
8	60,922	59,705
10	52,235	16,150
12	13,315	34,239
16	208	0

The City is aware of the problems the smaller mains create in regards to pressure and flow during peak usage. Due to the location of a majority of the smaller mains lying under pavement and sidewalks, the City should consider replacement of these mains with at least a 6" main and preferably 8" as these streets are rehabilitated. Hydraulics should be performed on each individual project in order to determine adequate size for any water mains installed. Completing installation during street rehabilitation will obviously avoid excessive costs on water main improvements. We will further analyze the infrastructure pressure and flow capabilities later in the report.

SUPPLY

The MDNR Public Drinking Water Program states in Section 3.2.1.2 of the August 29, 2003 revision of the "Design Guide for Community Water Systems" that each water system shall be capable of meeting maximum day demand with the largest producing well out of service, also known as firm capacity. As previously mentioned, the system has two separate systems with various pressure zones. Therefore, we will review both systems and pressure zones as separate entities and provide recommendation for each individual system. Additionally, we will review well capacity for the entire system if the City were to construct an interconnect between the West and East systems.

WEST SUPPLY

The West system is broken up into two major pressure zones. Wells 1, 2, and 3 are located in Zone 750.50 while Well 6 is in Zone 868. Since the installation of Well 6 on Zone 868, the booster station at Well 1 is only utilized to pump to Zone 868 in emergency situations. Regardless, all three wells on Zone 750.50 are capable of supplying water to Zone 750.50 through the booster station during emergency situations. Therefore, the entire West system can be analyzed as one system in regards to FIRM capacity. Understanding this, well production is as follows:

West Supply Inventory	
Well #1	350
Well #2	700
Well #3	550
Well #6	1,000

Since Well 6 is the most productive well, we will base FIRM capacity for the West System on the other three wells which produce 1,600 gpm.

As shown in the table, well pump run times can be predicted for the future. These run times will dictate when a new deep well is needed, which we typically recommend when run times reach 12 hours per day.

West System - Projected Pump Run Time					
Year	Water Produced (GPD)	Well Production (All Wells) (GPM)	Well Production (FIRM CAP) (GPM)	Pump Time (FIRM CAP) (GPM)	Remarks
2010	699,833	2,600	1,600	7.3	
2011	769,816	2,600	1,600	8.0	
2012	777,514	2,600	1,600	8.1	
2013	785,289	2,600	1,600	8.2	
2014	793,142	2,600	1,600	8.3	
2015	801,074	2,600	1,600	8.3	
2016	809,084	2,600	1,600	8.4	
2017	817,175	2,600	1,600	8.5	
2018	825,347	2,600	1,600	8.6	
2019	833,600	2,600	1,600	8.7	
2020	841,936	2,600	1,600	8.8	
2021	854,565	2,600	1,600	8.9	
2022	867,384	2,600	1,600	9.0	
2023	880,395	2,600	1,600	9.2	
2024	893,601	2,600	1,600	9.3	
2025	907,005	2,600	1,600	9.4	
2026	920,610	2,600	1,600	9.6	
2027	934,419	2,600	1,600	9.7	
2028	948,435	2,600	1,600	9.9	

2029	962,662	2,600	1,600	10.0	
2030	977,102	2,600	1,600	10.2	
2031	991,758	2,600	1,600	10.3	
2032	1,006,635	2,600	1,600	10.5	
2033	1,021,734	2,600	1,600	10.6	
2034	1,037,060	2,600	1,600	10.8	
2035	1,052,616	2,600	1,600	11.0	
2036	1,068,405	2,600	1,600	11.1	
2037	1,084,431	2,600	1,600	11.3	
2038	1,100,698	2,600	1,600	11.5	
2039	1,117,208	2,600	1,600	11.6	
2040	1,133,966	2,600	1,600	11.8	
2041	1,150,976	2,600	1,600	12.0	New 1,000 gpm Well
2042	1,168,240	3,600	2,600	7.5	

The pump run times in the table above are based on firm capacity of the system (largest well out of service). According to this information, the three smaller wells will run for 8.1 hours in 2012 if Well 6 is out of service. If the population trend follows the projections of this report, a well will not be needed until usage on the West system reaches around 1,150,976, which is in 2041. The City should continue to monitor water usage in the system in order to plan for future well needs. While the well production currently meets MDNR standards, the City may feel a new well is needed sooner if growth or usage patterns substantially alter from the projections above. At that time, the City will need to submit plans, specifications and engineering reports for any new wells they feel become necessary.

We also considered the case of a power outage for the entire system. Wells 6, shown below, and Well 3 both have emergency generators on site. Therefore, if a power outage were to occur, the system would have a similar production to the chart above at 1,550 gpm. This would obviously produce very similar pump run times during this scenario.

EAST SUPPLY

The East system consists of one major pressure zone, Zone 815, with both wells 4 and 5 supplying water to the system. Understanding this, well production consists of Well 4 producing 170 gpm and Well 5 producing 800 gpm. Since Well 5 is the most productive well, we will base FIRM capacity for the East System on the remaining 170 gpm of production.

As shown in the table below, well pump run times can be predicted for the future. These run times will dictate when a new deep well is needed, which we typically recommend when run times reach 12 hours per day.

West System - Projected Pump Run Time					
Year	Water Produced (GPD)	Well Production (All Wells) (GPM)	Well Production (FIRM CAP) (GPM)	Pump Time (FIRM CAP) (GPM)	Remarks
2010	284,606	970	170	27.9	
2011	313,066	970	170	30.7	
2012	316,197	970	170	31.0	
2013	319,359	1,470	670	7.9	New 500 gpm Well
2014	322,553	1,470	670	8.0	
2015	325,778	1,470	670	8.1	
2016	329,036	1,470	670	8.2	
2017	332,326	1,470	670	8.3	
2018	335,650	1,470	670	8.3	
2019	339,006	1,470	670	8.4	
2020	342,396	1,470	670	8.5	
2021	347,532	1,470	670	8.6	
2022	352,745	1,470	670	8.8	
2023	358,036	1,470	670	8.9	
2024	363,407	1,470	670	9.0	
2025	368,858	1,470	670	9.2	
2026	374,391	1,470	670	9.3	
2027	380,007	1,470	670	9.5	
2028	385,707	1,470	670	9.6	
2029	391,492	1,470	670	9.7	
2030	397,365	1,470	670	9.9	
2031	403,325	1,470	670	10.0	
2032	409,375	1,470	670	10.2	
2033	415,516	1,470	670	10.3	
2034	421,748	1,470	670	10.5	
2035	428,075	1,470	670	10.6	
2036	434,496	1,470	670	10.8	
2037	441,013	1,470	670	11.0	
2038	447,628	1,470	670	11.1	
2039	454,343	1,470	670	11.3	
2040	461,158	1,470	670	11.5	
2041	468,075	1,470	670	11.6	
2042	475,096	1,470	670	11.8	

The pump run times in the table above are based on firm capacity of the system (largest well out of service). According to this information, the smaller well will not be able to keep up with current production needs. The City is aware of this and plans to construct a new well as soon as possible. If the population trend follows the projections of this report, an additional well will not be needed until production on the East system reaches around 482,223, which is in 2043. The City should continue to monitor water usage in the system in order to plan for future well needs. The City will need to submit plans and specifications for this new well proposed.

We also considered the case of a power outage for the entire system. Well 5 does have an emergency generator on site. Therefore, if a power outage were to occur, the system would have greater production capabilities than FIRM capacity requirements and would have production capabilities of 800 gpm. This would obviously produce lower run times than the scenario shown above. See adjacent picture of well/booster house, on-site generator, and ground storage tank.

COMBINED SYSTEM SUPPLY

Both systems are broken up into multiple pressure zones. However, the structure of the system allows to install an interconnect between the West and East systems which would allow all the wells to supply water to the entire system. This is possible due to the booster station located at Well 1 which increases the HGL from 750.50 to 868 in the West System. However, the interconnect between the two systems will need to include a booster station and a pressure reducing valve in parallel to accommodate this difference in HGL. Therefore, the entire City can be analyzed as one system in regards to FIRM capacity. Understanding this, well production is as follows:

Combined Inventory	
Well #1	350
Well #2	700
Well #3	550
Well #4	170
Well #5	800
Well #6	1,000

Since Well 6 is the most productive well, we will base FIRM capacity for the entire City on the other five wells which produce 2,570 gpm.

As shown in the table on the next sheet, well pump run times can be predicted for the future. These run times will dictate when a new deep well is needed, which we typically recommend when run times reach 12 hours per day. Additionally the City has started the approval process to construct a new 500 gpm well on the East System which will be included in the data below.

Combined System - Projected Pump Run Time					
Year	Water Produced (GPD)	Well Production (All Wells) (GPM)	Well Production (FIRM CAP) (GPM)	Pump Time (FIRM CAP) (GPM)	Remarks
2010	1,072,161	3,600	2,570	7.0	
2011	1,082,882	3,600	2,570	7.0	
2012	1,093,711	3,600	2,570	7.1	
2013	1,104,648	4,100	3,070	6.0	New 500 GPM Well
2014	1,115,695	4,100	3,070	6.1	
2015	1,126,852	4,100	3,070	6.1	
2016	1,138,120	4,100	3,070	6.2	
2017	1,149,502	4,100	3,070	6.2	
2018	1,160,997	4,100	3,070	6.3	
2019	1,172,606	4,100	3,070	6.4	
2020	1,184,333	4,100	3,070	6.4	
2021	1,202,098	4,100	3,070	6.5	
2022	1,220,129	4,100	3,070	6.6	
2023	1,238,431	4,100	3,070	6.7	
2024	1,257,007	4,100	3,070	6.8	
2025	1,275,863	4,100	3,070	6.9	
2026	1,295,000	4,100	3,070	7.0	
2027	1,314,425	4,100	3,070	7.1	
2028	1,334,142	4,100	3,070	7.2	
2029	1,354,154	4,100	3,070	7.4	
2030	1,374,466	4,100	3,070	7.5	
2031	1,395,083	4,100	3,070	7.6	
2032	1,416,010	4,100	3,070	7.7	
2033	1,437,250	4,100	3,070	7.8	
2034	1,458,808	4,100	3,070	7.9	
2035	1,480,691	4,100	3,070	8.0	
2036	1,502,901	4,100	3,070	8.2	
2037	1,525,444	4,100	3,070	8.3	
2038	1,548,326	4,100	3,070	8.4	
2039	1,571,551	4,100	3,070	8.5	
2040	1,595,124	4,100	3,070	8.7	
2041	1,619,051	4,100	3,070	8.8	
2042	1,643,337	4,100	3,070	8.9	

The pump run times in the table above are based on firm capacity of the system (largest well out of service). According to this information, the five smaller wells will run for 7.1 hours in 2012 if Well 6 is out of service. If the population trend follows the projections of this report, a well will not be needed until well beyond the scope of this report. The City should continue to monitor water usage in the system in order to plan for future well needs. While the well production currently meets MDNR standards, the City may feel a new well is needed sooner if growth or usage patterns substantially alter from the projections above. At that time, the City will need to submit plans, specifications and engineering reports for any new wells they feel become necessary.

We also considered the case of a power outage for the entire system. Wells 3, 5, and 6 have emergency generators on site. Therefore, if a power outage were to occur, the system would have a production of 2,350 gpm and pump run times would increase from 7.1 to 7.8 during the 2012 year.

CONCLUSION

The City of Union is currently planning a new well for the East System that will provide reasonable run times when analyzed following FIRM capacity calculations. However, due to the benefits of a system interconnect, the City should consider connecting the two systems to reduce the need of possible interconnects in the future. Before completing this interconnect, the City will need to review the different treatment processes on the two systems and verify that connecting the systems will not be a hindrance on water quality.

WATER QUALITY

Disinfection of drinking water by use of chlorine is commonly practiced in public drinking water systems. As of now, the Missouri Department of Natural Resources is only mandating disinfection on systems with repeat microbiological violations. It is expected in the future all systems will be required to disinfect drinking water. While it is not necessary to disinfect drinking water prior to mandates from MDNR, planning for and anticipating disinfection requirements will be beneficial to the City. Disinfection by use of chlorine requires contact time for the drinking water prior to being supplied to the system and users. This is typically achieved by creating a dedicated fill line from the well to the systems storage source. This configuration allows for storage tanks to also act as contact tanks in the disinfection process. Well No. 4 and the standpipe can be configured to operate in this manner with minor modifications. Wells No. 2 and 3 are only feasible with the installation of on site storage. Obviously this would be a costly improvement. Alternatively if disinfection was mandated by MDNR, the City could consider drilling a new well next to the elevated 150,000 gallon water storage tank located behind the fire station and shutting down Wells 2 and 3. This alternative could provide a higher producing well, reduce wasteful spending on unneeded storage, and reduce operating costs for the City.

The City has not had issues in regards to water quality. However, the City does provide disinfection of the East system using Sodium Hypochlorite at only Well 5. Originally, Well 4 was disinfecting water prior to distribution but the chemicals were destroying the well house controls. This well produces less than 3% and therefore is rarely used at this time. Additionally the system was being disinfected by the previous Water District and the City continued to provide this treatment. Since the City did not report any water quality issues, we recommend attempting to coordinate with Missouri Department of Natural Recourses in order seize disinfection of this part of the system.

As previously mentioned, the City currently provides fluorination on the West system at wells 2 and 3. The City is currently in the process of discontinuing this water treatment. Therefore, since we have no issues with discontinuing use, we agree with the City terminating this treatment.

FIRE FLOW

The MDNR design guide states in Section 7.5.3 that "In general, public water supplies with populations greater than 250 persons and with densities greater than 16 service connections per 160 acres should consider providing at least the fire flow in the Table below."

Population	Fire Flow in Residential Areas	Fire Flow in Commercial Areas
250 to 999	250 gpm for 2 hours	250 gpm for 2 hours
1,000 to 9,999	1,000 gpm for 2 hours	2,500 gpm for 2 hours
10,000 and greater	1,500 gpm for 2 hours	3,500 gpm for 3 hours

The City of Union has a population of around 10,204 and has 3,989 connections over 5,184 acres. This would require them to have 1,500 gpm in residential areas and 3,500 gpm in Commercial areas. However, the City is broken up into two smaller water systems that would fall under the recommendation to have 1,000 gpm for Residential areas and 2,500 gpm for Commercial areas. Additionally since the systems are reasonably close to each other, we will provide storage analysis on both separate and connected systems.

While the system is not capable of providing fire flow to the entire system due to inadequate size and inadequate pipe within the system, we will plan system storage based on MDNR's guideline in the event the piping network is improved in the future. With the system having a good amount of commercial users, this report will plan for system storage based on commercial fire flows. Fire Flow capabilities of the system will be discussed later in the hydraulics section of this report.

STORAGE

MDNR design guide states that nominal storage capacity of a water system should be equal to or greater than one day average daily demand (ADD) plus two hours of fire flow. As previously mentioned, the systems will be analyzed as separate systems as well as one system.

WEST STORAGE

Existing storage capacity is based on MDNR's guideline to calculate nominal storage. Nominal storage is defined as the volume above the elevation, which provides 20 psig at the tower base. Since both the ground storage tanks can feed the system through booster stations, full credit will be given to all the West water storage tanks. This totals 1,450,000 gallons of storage.

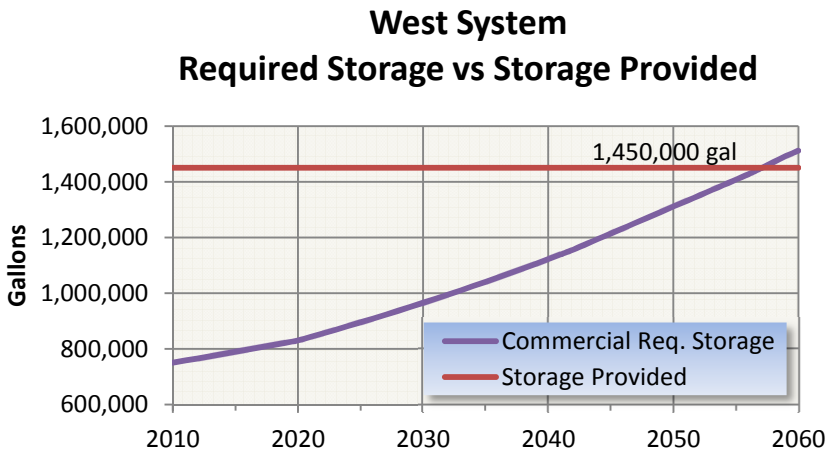
Additionally, the West system is structured in a manner that allows all the wells to supply water to Zone 868, therefore, calculations will assume credit for all the wells on the respective system.

The table below uses the commercial requirement of 2,500 gpm of storage required for fire demand. Storage requirements are detailed below.

Existing West Zone 2,500 GPM Commercial Fire Flow Storage Requirements			
Min. ADD Storage (Gal)	**Required Storage (Gal)**	**Available Storage (Gal)**	**Surplus/(Shortage) (Gal)**
769,816	757,816	1,450,000	**692,184**

*ADD+((Fire Demand-Well Yield)*2hrs)

The current storage requirements show that there is adequate storage in the West system to meet commercial fire flow requirements. Future growth will create a higher requirement for the system. The charts below depict storage needs for the West System. Data calculations for the charts below can be found in Appendix F.



The data above is based on population growth projections presented earlier in the report. As the above data shows, the West Zone has adequate storage to meet commercial fire flows till around 2058 where system production surpasses 1,462,000 gpm. The City should periodically review well production and population trends periodically and base system improvements on actual usage rather than the specific year noted above.

EAST STORAGE

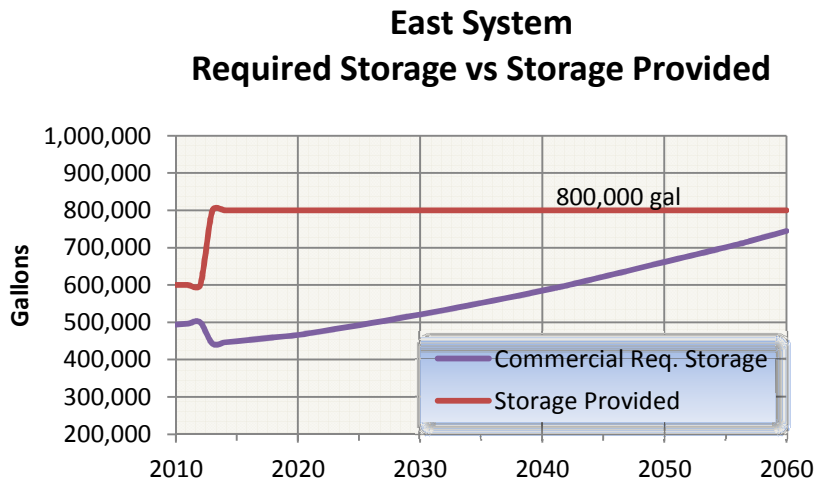
The East system also has a 500,000 ground storage tank that feeds the system through a booster station. Therefore, full credit will be given to the respective tank. Including the 100,000 gallon elevated tank at College Hills, the East system has a total credit of 600,000 gallons.

The table below uses the commercial requirement of 2,500 gpm of storage required for fire demand. Storage calculations are detailed below.

Existing East Zone 2,500 GPM Commercial Fire Flow Storage Requirements			
Min. ADD Storage (Gal)	**Required Storage (Gal)**	**Available Storage (Gal)**	**Surplus/(Shortage) (Gal)**
313,066	496,666	600,000	**103,334**

*ADD+((Fire Demand-Well Yield)*2hrs)

The current storage requirements show that there is adequate storage in the East system to meet commercial fire flow requirements. Future growth will create a higher requirement for the system. The charts below depict storage needs for the East System. The drop in required storage at year 2013 is attributable to the proposed well. Data calculations for the charts below can be found in Appendix F.



The data above is based on population growth projections presented earlier in the report. The East Zone has adequate storage to meet commercial fire flows until 2066 where system production surpasses 676,400 gpm. The City should periodically review well production and population trends periodically and base system improvements on actual usage rather than the specific year noted above.

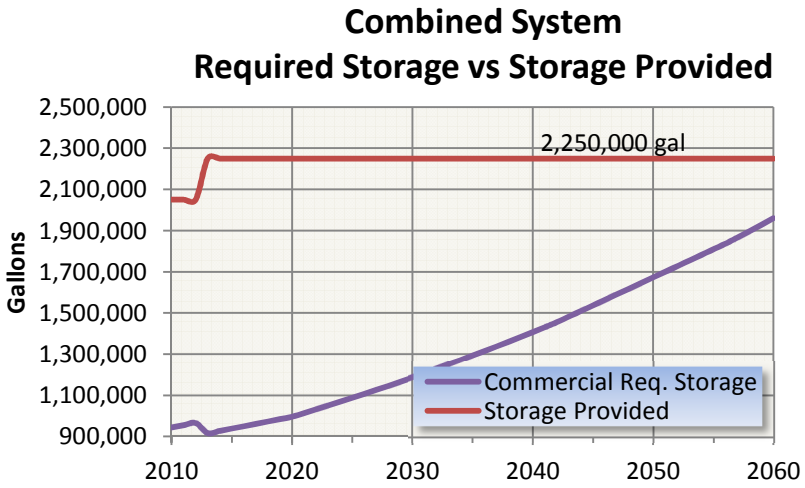
COMBINED SYSTEM STORAGE

Reviewing the entire system as one entity, full credit is given to all the ground storage tanks. Therefore, a total water storage capacity of the entire system totals 2,050,000 gallons. In order for this to be reality and due to the system's different HGL, an interconnect must be constructed which would include a PRV as well as a booster station. This will allow both systems capabilities to pump to both systems.

The table below uses the commercial requirement, totaling 3,500 gpm of storage required for fire demand. Storage calculations are detailed below.

Existing Combined Water System 3,500 GPM Commercial Fire Flow Storage Requirements			
Min. ADD Storage (Gal)	**Required Storage (Gal)**	**Available Storage (Gal)**	**Surplus/(Shortage) (Gal)**
1,082,882	1,074,482	2,050,000	**975,518**

Overall, the system obviously benefits from providing an interconnect between the two systems having a storage surplus of 975,518 gallons. However, if the systems are connected, I recommend providing the same treatment to all the wells prior to distribution. This will avoid water quality issues throughout the system. Additionally, the drop in required storage at year 2013 is attributable to the proposed well.



The data above is based on population growth projections presented earlier in the report. The entire system has adequate storage to meet commercial fire flows until 2069 where system production surpasses 2,438,400 gpm. Benefits are obvious and therefore, the City should review feasibility of the interconnect and compare costs of the improvements prior to constructing the interconnect.

CONCLUSION

In discussions with the City of Union, they are planning to install a new well, booster station, and ground storage tank to improve supply to the East System. From the charts above, I recommend the ground storage to be at least 200,000 gallons. This will provide the City with two and a half days of storage. I also recommend the City bid larger ground storage tanks as an alternate. If the budget allows for a larger size to be constructed, the larger tanks will provide additional average daily storage. However, the City should select a size that won't be a hindrance to water quality or the financial status of the water system.

PRESSURE AND FLOW

The pressures and flows in the existing system were evaluated using WaterCAD by Haestad Methods, Inc. The software uses Hazen Williams' formula to perform calculations. Due to age of the system, a Hazen Williams C factor of 130 has been used for all pipes within the system. The Hazen Williams Formula is as follows:

$$H_L = \frac{4.73^{L}\, Q^{1.85}}{C^{1.85}\, D^{4.87}}$$

H_L = Head loss due to friction (ft.)
L = Length of Pipe (ft.)
C = Hazen William coefficient
D = Pipe diameter (ft.)
Q = Flow (cfs)

The MDNR Public Drinking Water Program states in Section 8.1.1 of the August 29, 2003 revision of the "Design Guide for Community Water Systems" that water distribution systems shall be designed to maintain a minimum pressure of 35 psi at ground level at all points in the system under all conditions of design flow not including fire flow. Under fire flow conditions, a minimum pressure of 20 psi must be maintained.

The Design Guide for Community Water Systems recommends using the higher of 1 gpm per connection or the following peak flow formula.

$$\text{Peak Flow} = 12(\text{number of connections})^{0.515}$$

To calculate the system's Peak Flow based on the current 3989 connections, this formula yields a flow of 858 gpm or 0.22 gpm per connection. Therefore, we will assume 1 gpm per connection for peak flow in this report. Hydraulic analysis was prepared for peak flow conditions and results can be found in Appendix F.

The system was evaluated for flow and pressure using several different models which included:

1. Existing System (Peak Flow)
2. Existing System (Available Flow)
3. Project 2 Improvements (Available Flow)
4. Project 2 Improvements (Available Flow)
5. Project 3 Improvements (Available Flow)
6. Project 4 Improvements (Available Flow)
7. Project 5 Improvements (Available Flow)
8. Project 6 Improvements (Available Flow)
9. Project 7 Improvements (Available Flow)

The calculations in Appendix F show the system providing anywhere from 27.9 psi to 132.1 psi. The locations where pressures fall below 35 psi during the Peak Flow event were directly adjacent to the ground storage tanks at Well 1 in the West System. While this area is below MDNR's recommendation of 35 psi minimum, we do not feel this is an issue since no users are connected to the system prior to the mains static pressures reaching the 35 psi threshold.

The City has voiced concerns in regards to hydraulic capabilities of smaller mains. Various new interconnects have been recommended in the project recommendation section which will improve hydraulics throughout the City. Additionally we recommend creating an ordinance that requires any new water main constructed in residential areas to have a minimum size of 8" and in commercial areas to be 10". A hydraulic study should be prepared prior to construction to inform the City what flow is anticipated from any proposed water mains.

Additionally, the City voiced concerns about the number of pressure zones in the system. A review of the various zones depicted in Appendix B was completed and it appears the order of initial development created the various zones with similar HGLs. While we feel most of the pressure zone are reasonable, we feel zone HGL 764 can be eliminated with minimal modifications as long as the existing water main piping and existing users below the PRV can handle static pressures up to 120 psi. Additionally this area currently consists of industrial users only and additional pressure should not be an issue. We do recommend the City discussing the pressure increase with the approximately 11 users to verify existing infrastructure is in place to withstand the increase in pressure.

The City requested the report review the pressure and flow capabilities at American Plastics, near Junction J-864. American Plastics reported having a static pressure of 70 psi, residual pressure of 61 psi, and flow capabilities of 1088 gpm. In order for their sprinkler system to operate correctly, flows need to be increased to 2,000 gpm with a

residual pressure of 90 psi. In review of the system serving this area, the system has a normally closed valve on American Plastics property which provides capabilities for the user to connect to Zone 868 and Zone 750.50. We also discovered that American Plastics' service connection is connected to Zone 750.50. If a new service is connected to the system off Zone 868, static pressures for their service will increase 70 psi to 121 psi. Additionally, the requirements they desire appears to be available on Zone 868 but we recommend American Plastics Fire Flow Engineer review this scenario as we are unfamiliar with all the intricacies of their building as well as the actual fire flow connection point to the building.

The City requested the report review options to provide an additional major trunk line to serve the Birch Creek Subdivision. While existing flows and pressures are adequate in this area in regards to residential requirements, the City has been having issues with the main trunk line down Denmark Road. During events when system water hammer occurs, ie. valves or hydrants slamming shut sending energy spikes through the water body of the system, a force of energy travels through main on Denmark Road creating violent breaks. If an additional source of water was present to diminish this spike in energy, water hammer could be reduced. In review of the area with City staff, we have depicted two connections possibilities in Projects 5 and 6.

The results of each of the models are contained in Appendix G of this report.

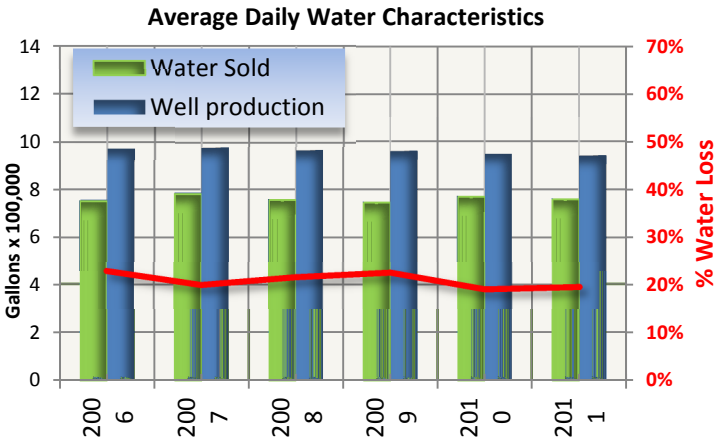
BOOSTER STATION ANALYSIS

The City of Union currently has two booster stations on the West System and one on the East. In discussions with the City of Union, the booster stations have three 100 horse power pumps that operate on variable frequency drives. When these pumps are programmed to hold a certain HGL on their respective system, energy costs substantially increase. We feel this is potentially caused by having large pumps working inefficiently. The City also mentioned that the East System has large main breaks due to hammer situations on the main trunk line feeding Birch Creek subdivision located on the far east of the City. We feel the larger booster pumps create a excessive hammer condition if a hydrant were slammed shut. Potentially, installing a smaller pump for average daily flow could help reduce this hammer situation or even eliminate this issue. Therefore, we recommend the City look at performing an energy audit. This audit should compare energy usage of the large pump verses the energy consumption of a smaller horse power pump. The City would then be able to determine if adding a smaller pump is cost effective.

ENERGY SAVINGS POTENTIAL

The City may also want to review its technical, managerial and financial needs. There are many firms that will come into a community and help a city save money in budgeting by reviewing energy savings, meter replacement needs and operational issues. The track record has proven that these firms can save the community millions of dollars over the course of 10-15 years. In some communities this money has been used to pay for projects and improvements to the system and save the need for financing. This is performed by finding energy saving ways to perform everyday operations. Many developments have occurred in water metering and distribution methods that can easily pay for themselves in a matter of just a couple years. Cochran believes the City of Union is a valid candidate for a review of this type to its system. These reviews are performed at no cost to the community.

WATER LOSS & SITE SECURITY



A major concern of water system entities is system security of which the growing concern is water loss. Industry standard is to assume water loss between 10% and 15% is acceptable. The City has seen relatively high water losses of around 20% from 2006 to 2011. The City should consider performing an audit on the system to assist in determining the cause for the higher water loss.

Water loss can occur from a number of reasons and can be broken up into two main categories per AWWA M36. These categories consist of real and apparent losses.

Apparent losses are classified as metering errors, data errors, and unauthorized consumption. An inventory of all meters, including master meters, should be performed. Inventory review of the system may show problems from non-metered connections to leaking or poorly sized meters which provide inaccurate measurements. Additionally, while thievery from hydrants cannot be prevented, hydrant locks can be installed to help deter or show where this is taking place. Material costs to place locks on existing hydrants should not exceed $250 per hydrant. There is no proof water theft from hydrants is taking place but locks would eliminate hydrant water thievery as a concern.

Real losses are classified as loss due to leaks and overflows. This type of loss can be from poorly constructed or older mains that are leaking. The most common ways to locate these issues is to visually inspect the surface around and adjacent to the existing piping which may show wet areas for an extended period of time.

Currently the City has a meter change out program. These programs also includes changing all meters to radio read units to minimize man hours necessary to gather water usage throughout the system. Additionally the City mentioned that no public buildings in the system are metered. This includes but is not limited to City Hall, the City Pool, Fire Department Building, and Fire Department practice facilities. I recommend the City install meters for all buildings regardless of ownership as well as request the Fire Department to meter flow used during practice. While it is the City's choice on if any of these entities will be billed for their water use, at least they will be able to track usage and provide a better estimate of water loss in the system.

The City should also consider installing locks on hydrants in more rural areas of town. This can be completed by staff and performed at a fairly reasonable rate. If locks are installed on the hydrants, discussion with the fire department would be necessary. Obviously such an apparatus can be a hindrance for fighting fires.

The City should then reevaluate their water loss on an annual basis and determine whether or not loss is an issue.

In regards to Site Security, many improvements can be implemented and should be considered. This items include:

- Site fencing should be installed around both Wells 2 and 3 with lockable gates. All gates should be locked with chains and tamper proof padlocks if not already in place. Fencing will help prevent thievery and vandalism directly at the site.
- All building doors, windows, and hatches should be locked to prevent access by unauthorized personnel. Doors and hinges should be constructed of heavy duty reinforced material. Hinges on all exterior doors should be located on the inside of the building. Windows should be locked or inoperable and should be reinforced with wire mesh or iron bars. Intrusion alarms should be installed on all doors and windows which permit access to critical facilities.
- All critical components of the system should be equipped with adequate exterior lighting. Lighting is a good deterrent to unauthorized access and may result in the detection or deterrence of trespassers. Flood lights activated by motion detectors also enhance security.
- Warning signs posted at the perimeter of facilities are another effective way of deterring unauthorized access. Examples of proper signage include: "Warning-Tampering With This Facility Is A Federal Offense", "Authorized Personnel Only", and "Unauthorized Access Prohibited".
- Frequent and random patrolling of the system's critical facilities is another good deterrent of potential tampering. We encourage owners to contact local law enforcement to show them critical components of the water system and request they conduct periodic patrols of the water system. Instituting a neighborhood watch program can be helpful to system security. Customers should be educated on who they should contact if they see suspicious activity.

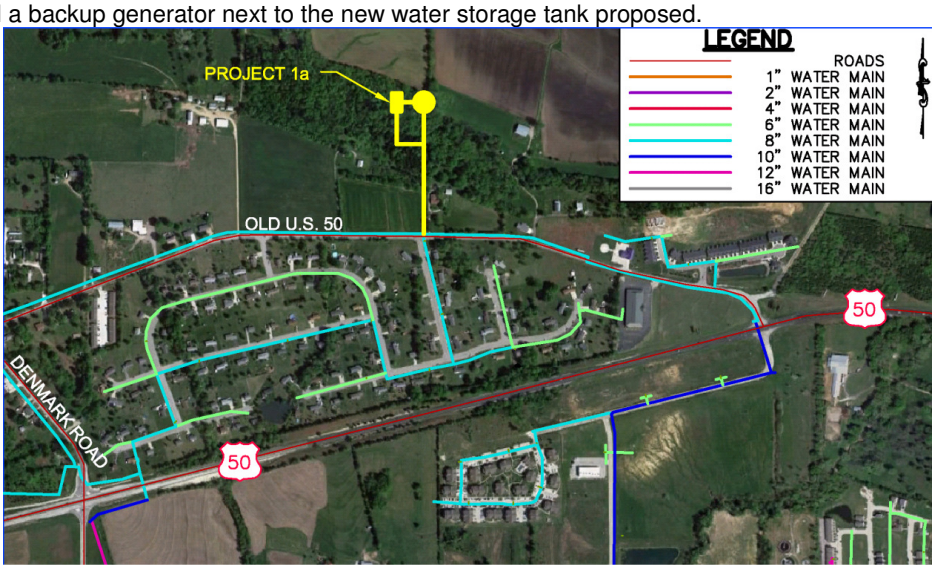
INFRASTRUCTURE RECOMMENDATIONS

The City is in dire need of additional water supply on the East system and therefore the first phase of construction will consist of constructing a new well, booster station, and ground storage tank. Additionally, recommendations will consist of piping installation and upgrades necessary to improve flow and system looping. All cost estimates are based on present worth for projects on the date of this report and exclude all associated costs for easement and property acquisition as well as rock or utility relocation.

A summary of the recommended system improvements to the distribution system described on the following pages:

Project 1 – Immediate Construction Projects

- Project 1a - Construct a new 500 gpm well, booster station, and 200,000 gallon ground storage tank just North of Strawberry Fields.
- Install a backup generator next to the new water storage tank proposed.



Project 1a Costs

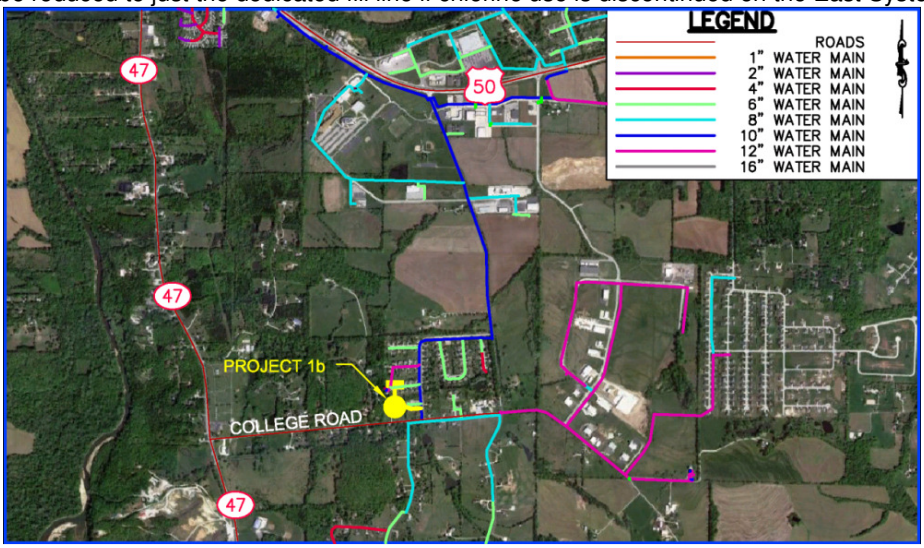
ITEM	ENGINEERING REPORT ESTIMATE
Pilot Hole	$71,577
New Deep Well	$120,000
200,000 Ground Storage Tank	$400,000
Yard Piping	$25,000
Miscellaneous Sitework	$25,000
Electrical Panel and SCADA	$75,000
Site Restoration	$10,000
Standby Diesel Generator and Automatic Transfer Switch	$85,000
New Well House	$175,000
Chain Link Fence	$15,000
Booster Skid	$125,000
SUBTOTAL	**$1,126,577**
15% Contingencies	$168,987
Engineering, Surveying, & Inspections	$143,015
TOTAL	**$1,438,579**

Constructing a new well will provide the City of Union much needed water supply to the East system. An FAA Notice Criteria has been completed and is included in Appendix H which shows that additional notification is not required for this location.

Notes:

1. Water storage tank costs are based on projects bid in 2012 and compared to budget numbers provided by tank manufacturers that same year.
2. Additionally a larger tank could be bid as an alternate.

- Project 1b - Install a dedicated fill line from the well to the 100,000 gallon elevated storage Tank 4 at the end of Monterey Court. Install a new fiberglass structure to house the chlorination equipment. (This project could be reduced to just the dedicated fill line if chlorine use is discontinued on the East System.)



Project 1b Costs

ITEM	ENGINEERING REPORT ESTIMATE
Mobilization	$10,000
Tank Modifications	$100,000
Stand alone Chlorine Housing	$30,000
Chlorine Equipment	$15,000
Miscellaneous Sitework	$20,000
Electrical Panel and SCADA modifications	$15,000
Site Restoration	$5,000
SUBTOTAL	**$195,000**
15% Contingencies	$29,250
Engineering, Surveying, & Inspections	$30,000
TOTAL	**$254,250**

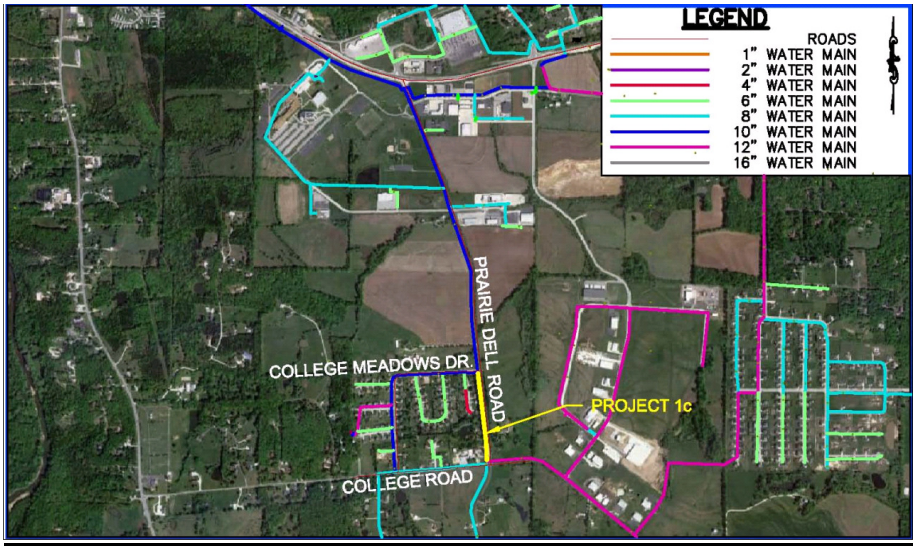
Constructing a new dedicated fill line will provide contact time for the chlorine process. Constructing the new chlorine housing will allow the City to separate the chlorine chemical from the interior of the well house which has been deteriorating the electrical components in the building. Additionally, if the City acquires approval to discontinue use of chlorine treatment on the East system, the stand alone chlorine housing and electrical and SCADA modifications will not be necessary.

The remaining items will still be necessary to avoid degradation of water quality caused by seasonal temperature changes.

Alternatively if disinfection of the East system was mandated, the City should consider completely abandoning this facility and increasing the size of the ground storage facility in Project 1a to compensate for the storage lost. Obviously the City should start coordination with MDNR to determine if eliminating disinfection on the East System is possible and modify Project 1a as needed. However, the City mentioned that energy costs for the booster station at Well 5 may become a concern if the elevated tank is removed. This potentially is a concern due to the programming and design of the Well 5 booster station. Therefore, we recommend performing an energy analysis on Well 5 and determine if the addition of a smaller pump that can handle average daily flows for the system would be beneficial. This pump would allow the system to maintain a specific hydraulic grade and allow the City to remove Well 5 and potentially Tank 5 from operation.

Additionally the City mentioned there are water hammer issues on the East system. We feel this could potentially be from the current programming of the booster station and modifying the programming as well as adding a smaller pump may alleviate this problem.

- Project 1c- Construct 1,400 L.F. of 10" PVC water main along Prarie Dell Road from College Meadow Drive to College Road.



Project 1c Costs

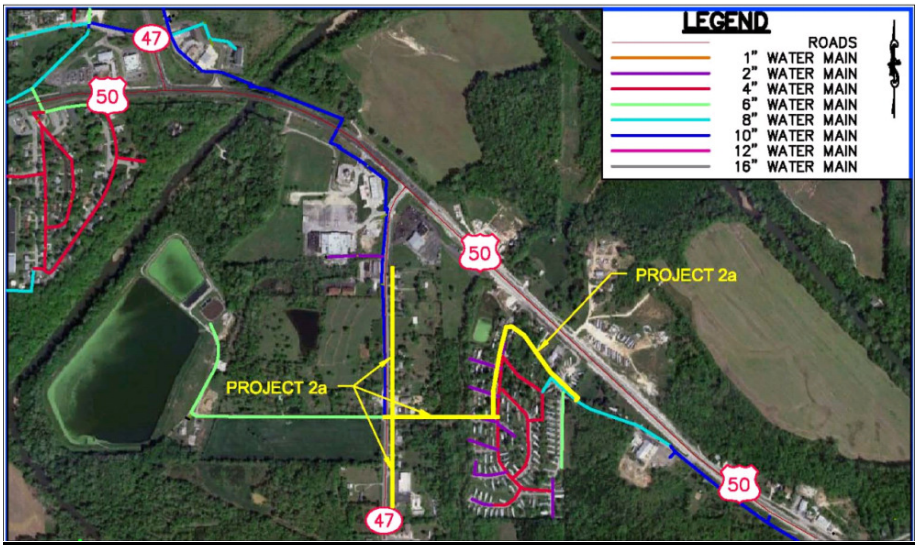
ITEM	UNIT	QUANTITY	UNIT PRICE	TOTAL
Mobilization	L.S.	1	$4,000	$4,000
10" C-900 DR 14 PVC Trench Installation	L.F.	1,400	$33	$46,200
Detail A 10" Main Connection to Existing 10"	EA	1	$6,000	$6,000
Detail B 10" Main Connection to Existing 12"	EA	1	$6,500	$6,500
Fire Hydrant Detail	EA	3	$3,750	$11,250
10" ø Bends	EA	4	$300	$1,200
Seeding/Mulching	L.S.	1	$10,000	$10,000
SUBTOTAL				**$85,150**
15% Contingencies				$12,773
Engineering, Surveying, & Inspections				$18,000
TOTAL				**$115,923**

These improvements were requested by the City in order to extend water service through a developing area of Union as well as provide additional looping for system safety from main breaks. Flows are not drastically improved but this extension does promote growth in this area.

I feel this project is needed if the existing 150,000 gallon water storage tank is disconnected from the system in Project 1b. If the said tank remains in service, this project can be completed later in the schedule.

Project 2 – Various Water Main Extensions for the West System

- Project 2a - Construct 3,230 L.F. of 10" PVC water main connecting the West system to the Zone 815 of the East System. Project will also consist of 1,300 L.F. of 8" PVC water main, 800 L.F. of 6" PVC water main, a pressure reducing valve and a booster station. Remove pressure reducing valve from Zone 764 of the West System and open valves to convert zone to Zone 868.



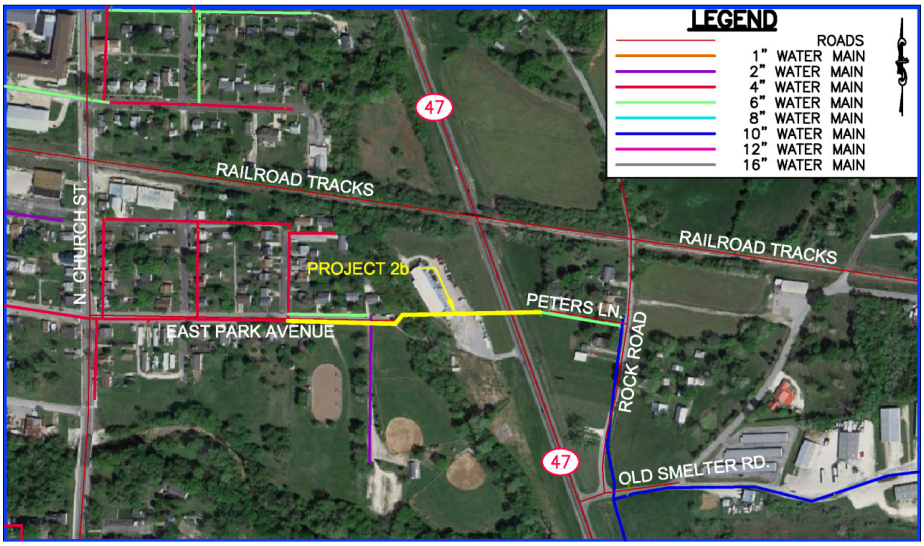
Project 2a Costs

ITEM	UNIT	QUANTITY	UNIT PRICE	TOTAL
Mobilization	L.S.	1	$20,000	$20,000
6" C-900 DR 14 PVC Trench Installation	L.F.	800	$23	$18,400
8" C-900 DR 14 PVC Trench Installation	L.F.	1,300	$29	$37,700
10" C-900 DR 14 PVC Trench Installation	L.F.	3,230	$33	$106,590
18" ø Simultaneous Bore and Encasement	L.F.	50	$300	$15,000
10" ø C-900 DR 14 Restrained Joint PVC thru Encasement	L.F.	50	$82	$4,100
Detail A 10" Main Connection to Existing 10"	EA	1	$6,000	$6,000
Detail B 10" Main Connection to Existing 8"	EA	1	$5,500	$5,500
Detail C 10" Main Connection to Existing 4"	EA	1	$5,000	$5,000
Detail D 8" Main Connection to New 10" Water Main	EA	1	$4,000	$4,000
Detail E 6" Main Connection to New 10" Water Main	EA	1	$5,000	$5,000
Fire Hydrant Detail	EA	6	$3,750	$22,500
10" ø Bends	EA	6	$300	$1,800
Driveway Crossing/Repair	EA	15	$1,500	$22,500
Relocated Pressure Reducing Valve	L.S.	1	$25,000	$25,000
Booster Skid	L.S.	1	$125,000	$125,000
Seeding/Mulching	L.S.	1	$25,000	$25,000
SUBTOTAL				**$449,090**
15% Contingencies				$67,364
Engineering, Surveying, & Inspections				$75,000
TOTAL				**$591,454**

These improvements were requested by the City to provide additional security to Zone 709.50 of the East System as well as provide shared capacity for both the West and East Systems. These improvements will provide improved security to the entire water system. Additionally, the City requested we attempt to reduce the number of system zones and Zone 764 was the only viable zone to eliminate.

Storage and supply capacity can be shared between the West and East systems if this project were completed.

- Project 2b - Construct 1,000 L.F. of 8" PVC water main across Highway 47 from Peters Lane to East Park Avenue.

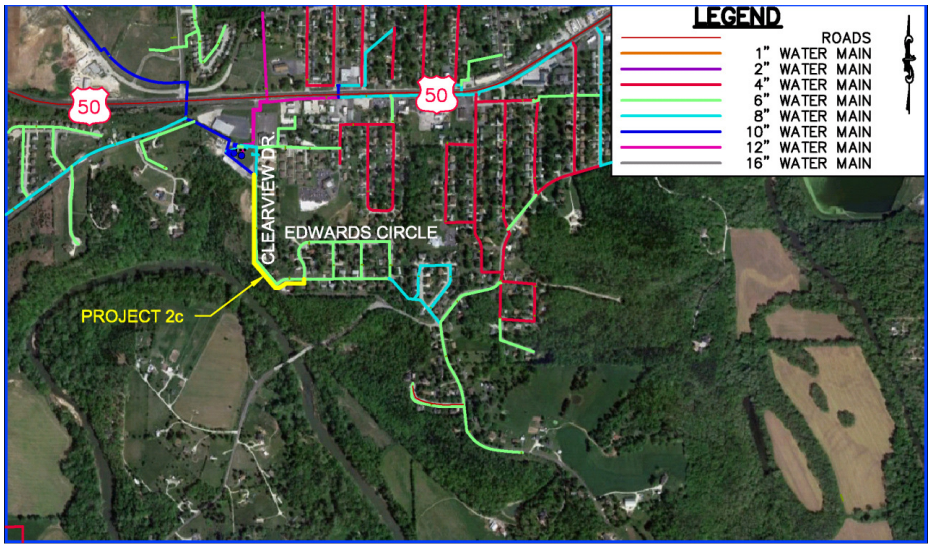


Project 2b Costs

ITEM	UNIT	QUANTITY	UNIT PRICE	TOTAL
Mobilization	L.S.	1	$5,000	$3,750
8" C-900 DR 14 PVC Trench Installation	L.F.	900	$29	$26,100
16" ø Simultaneous Bore and Encasement	L.F.	100	$300	$30,000
8" ø C-90 DR 14 Restrained Joint PVC thru Encasement	L.F.	100	$60	$6,000
Detail A 8" Main Connection to Existing 6"	EA	1	$2,000	$2,000
Detail B 8" Main Connection to Existing 4"	EA	1	$3,500	$3,500
Fire Hydrant Detail	EA	1	$3,750	$3,750
8" ø Bends	EA	2	$300	$600
Seeding/Mulching	L.S.	1	$5,000	$5,000
SUBTOTAL				**$80,700**
15% Contingencies				$12,105
Engineering, Surveying, & Inspections				$16,500
TOTAL				**$109,305**

This dramatically improves fire flow capabilities to the East Park area which is primarily residential. Flows are increased from around 500 gpm to over 1,500 gpm.

- Project 2c - Construct 1,300 L.F. of 10” PVC water main along Clearview Drive and Edwards Circle.

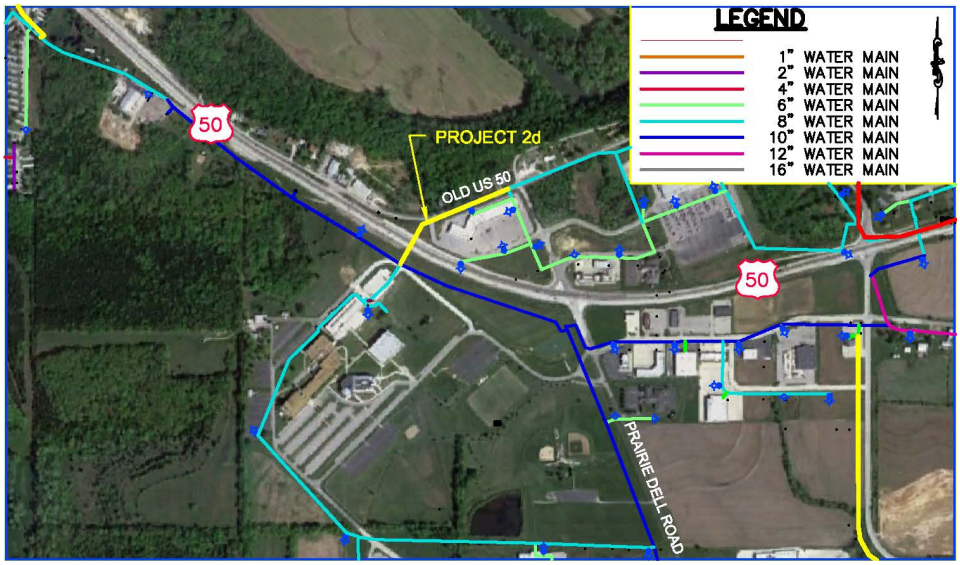


Project 2c Costs

ITEM	UNIT	QUANTITY	UNIT PRICE	TOTAL
Mobilization	L.S.	1	$3,750	$3,750
10" C-900 DR 14 PVC Trench Installation	L.F.	1,300	$33	$42,900
Detail A 10" Main Connection to Existing 10"	EA	1	$6,000	$6,000
Detail B 10" Main Connection to Existing 6"	EA	1	$5,000	$5,000
Fire Hydrant Detail	EA	3	$3,750	$11,250
10" ø Bends	EA	6	$300	$1,800
Seeding/Mulching	L.S.	1	$5,000	$5,000
SUBTOTAL				**$75,700**
15% Contingencies				$11,355
Engineering, Surveying, & Inspections				$18,000
TOTAL				**$105,055**

These improvements dramatically improve fire flow capabilities down through the Porterford Road residential area. Flows are increased from around 600 gpm to over 900 gpm.

- Project 2d - Construct 900 L.F. of 10” PVC water main across Highway 50 and connecting to the existing 6” water main along Old Highway 50 behind the commercial property.



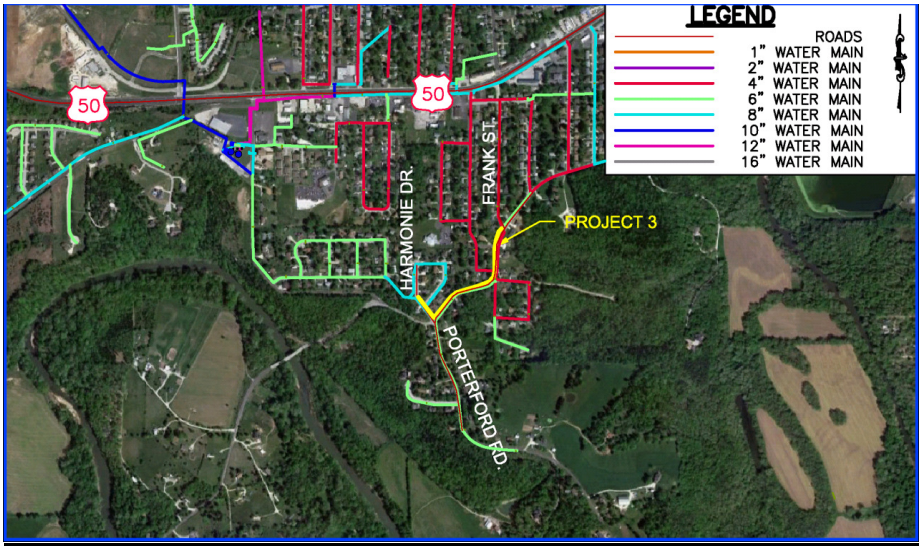
Project 2d Costs

ITEM	UNIT	QUANTITY	UNIT PRICE	TOTAL
Mobilization	L.S.	1	$4,500	$4,500
10” C-900 DR 14 PVC Trench Installation	L.F.	900	$33	$29,700
18”ø Simultaneous Bore and Encasement	L.F	150	$300	$45,000
10” ø C-900 DR14 Restrained Joint PVC thru Encasement	L.F	150	$75	$11,250
Detail A 10" Main Connection to Existing 10"	EA	1	$6,000	$6,000
Detail B 10" Main Connection to Existing 6”	EA	1	$5,500	$5,500
Fire Hydrant Detail	EA	1	$3,750	$3,750
10" ø Bends	EA	4	$300	$1,200
Seeding/Mulching	L.S.	1	$2,000	$2,000
SUBTOTAL				**$108,900**
15% Contingencies				$16,335
Engineering, Surveying, & Inspections				$22,500
TOTAL				**$147,735**

These improvements show vast improvements to a commercial region on the East System increasing the available flow over 2,500 gpm in most of the area.

Project 3 –Water Main Extension for the West System

- Construct 2,300 L.F. of 8” PVC water main along Harmonie Drive, Porterford Road, and Frank Street.



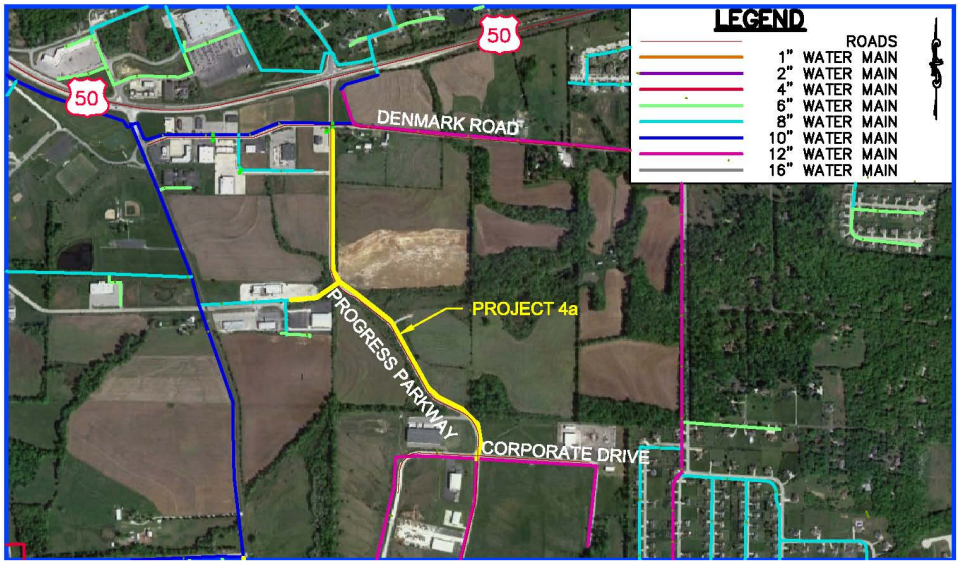
Project 3 Costs

ITEM	UNIT	QUANTITY	UNIT PRICE	TOTAL
Mobilization	L.S.	1	$5,000	$5,000
8” C-900 DR 14 PVC Trench Installation	L.F.	2,300	$29	$66,700
Detail A 8" Main Connection to Existing 8"	EA	1	$5,000	$5,000
Detail B 8” Main Connection to Existing 6”	EA	1	$3,000	$3,000
Detail C 8" Main Connection to Existing 4"	EA	2	$3,500	$7,000
Fire Hydrant Detail	EA	3	$3,750	$11,250
8" ø Bends	EA	6	$300	$1,800
Seeding/Mulching	L.S.	1	$10,000	$10,000
SUBTOTAL				**$109,750**
15% Contingencies				$16,463
Engineering, Surveying, & Inspections				$20,000
TOTAL				**$146,213**

These improvements dramatically improve fire flow capabilities down from Frank Street to Washington Avenue in Zone 825.20. Flows are increased from around 500 gpm to over 1,000 gpm in most of this area.

Project 4 –Various water main extensions for the East System

- Project 4a - Construct 4,900 L.F. of 10" PVC water main along Progress Parkway from Denmark Road to Corporate Drive.

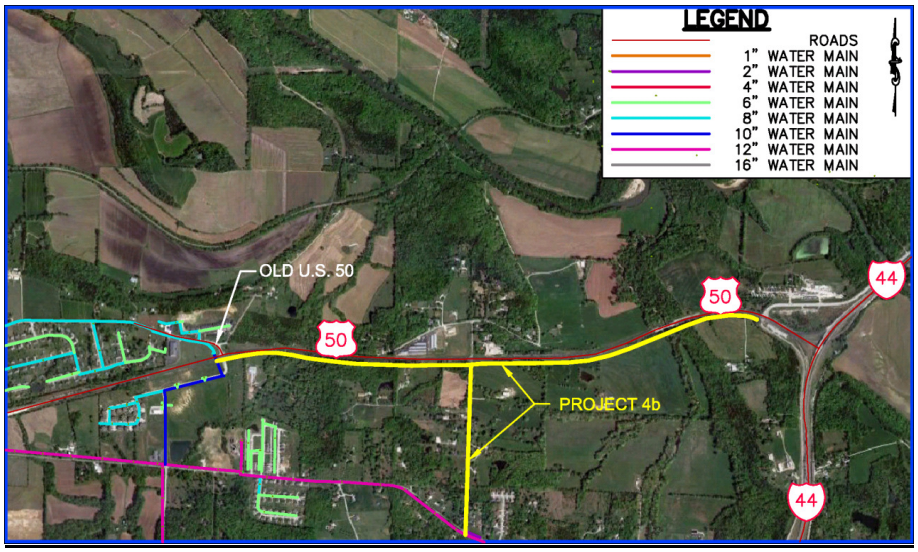


Project 4a Costs

ITEM	UNIT	QUANTITY	UNIT PRICE	TOTAL
Mobilization	L.S.	1	$10,000	$10,000
10" C-900 DR 14 PVC Trench Installation	L.F.	4,900	$33	$161,700
Detail A 10" Main Connection to Existing 12"	EA	1	$6,500	$6,500
Detail B 10" Main Connection to Existing 10"	EA	1	$6,000	$6,000
Detail C 10" Main Connection to Existing 6"	EA	2	$4,000	$8,000
Fire Hydrant Detail	EA	8	$3,750	$30,000
10" ø Bends	EA	4	$300	$1,200
Seeding/Mulching	L.S.	1	$25,000	$25,000
SUBTOTAL				**$248,400**
15% Contingencies				$37,260
Engineering, Surveying, & Inspections				$36,000
TOTAL				**$321,660**

These improvements were requested by the City in order to extend water service through a developing area of Union as well as provide additional looping for system safety from main breaks. Flows are not drastically improved but this extension does promote growth in this area.

- Project 4b- Construct 10,500 L.F. of 12” PVC water main along Highway 50 to Interstate 44 and a 12” main along East Denmark Road.
-



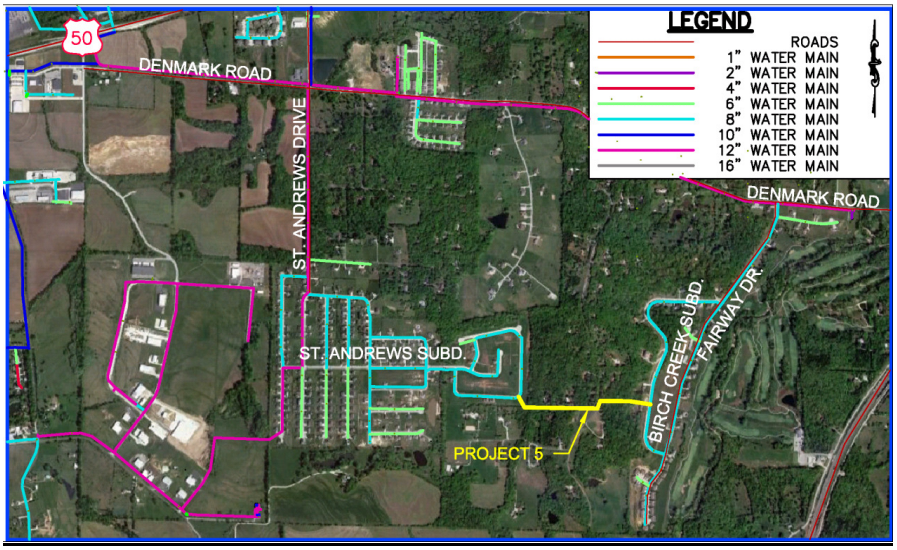
Project 4b Costs

ITEM	UNIT	QUANTITY	UNIT PRICE	TOTAL
Mobilization	L.S.	1	$45,000	$45,000
12” C-900 DR 14 PVC Trench Installation	L.F.	17,000	$43	$731,000
Detail A 12" Main Connection to Existing 10"	EA	1	$5,000	$5,000
Detail B New 12” Main Connection to New 12” Main	EA	1	$6,500	$6,500
Detail C New 12” Main Connection to Existing 12”	EA	1	$5,500	$5,500
Fire Hydrant Detail	EA	25	$3,750	$93,750
12" ø Bends	EA	20	$300	$6000
Road Crossings	EA	2	$10,000	$20,000
Driveway Crossings/Repair	EA	10	$1,500	$15,000
Seeding/Mulching	L.S.	1	$35,000	$35,000
SUBTOTAL				**$962,750**
15% Contingencies				$144,413
Engineering, Surveying, & Inspections				$111,000
TOTAL				**$1,218,163**

These improvements were requested by the City in order to extend water service through a developing area of Union as well as provide additional looping for system safety from main breaks. Flows are not drastically improved but this extension does promote growth in this area.

Project 5 – Water main extension to Birch Creek Subdivision

- Construct 2,200 L.F. of 10” PVC water main from St. Andrews Place Subdivision to Birch Creek Subdivision.



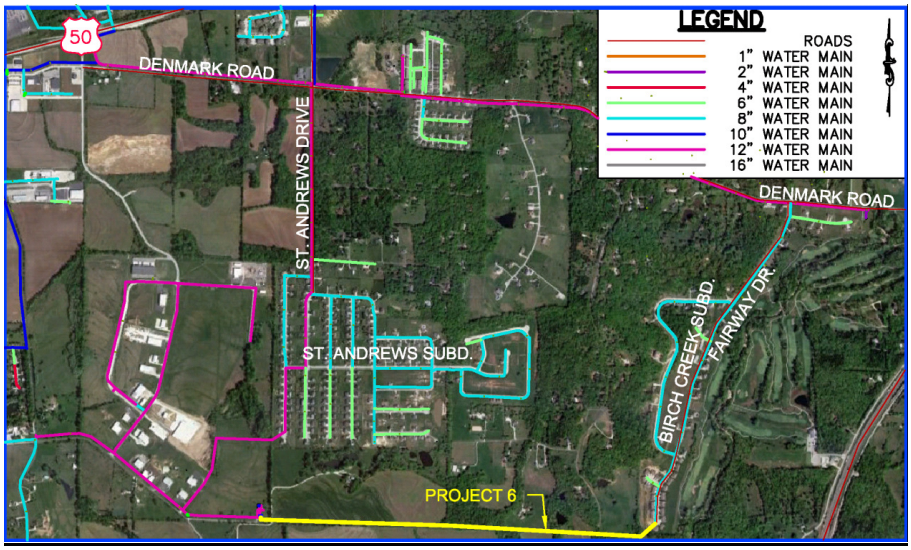
Project 5 Costs

ITEM	UNIT	QUANTITY	UNIT PRICE	TOTAL
Mobilization	L.S.	1	$5,000	$5,000
10” C-900 DR 14 PVC Trench Installation	L.F.	2,200	$33	$72,600
Detail A 10" Main Connection to Existing 8"	EA	2	$5,500	$11,000
Fire Hydrant Detail	EA	2	$3,750	$7,500
10" ø Bends	EA	6	$300	$1,800
Seeding/Mulching	L.S.	1	$15,000	$15,000
SUBTOTAL				**$112,900**
15% Contingencies				$16,935
Engineering, Surveying, & Inspections				$22,000
TOTAL				**$151,835**

These improvements were requested by the City in order to alleviate water system hammer issues from Birch Creek. There is has been various times the main along Denmark Road has burst due to the energy created from slamming closed hydrants and valves. This project will help alleviate these issues. An alternate option is shown in the next project.

Project 6 – Water main extension to Birch Creek Subdivision

- Construct 6,000 L.F. of 10” PVC water main from the Well 5 site to the south end of Birch Creek Subdivision.



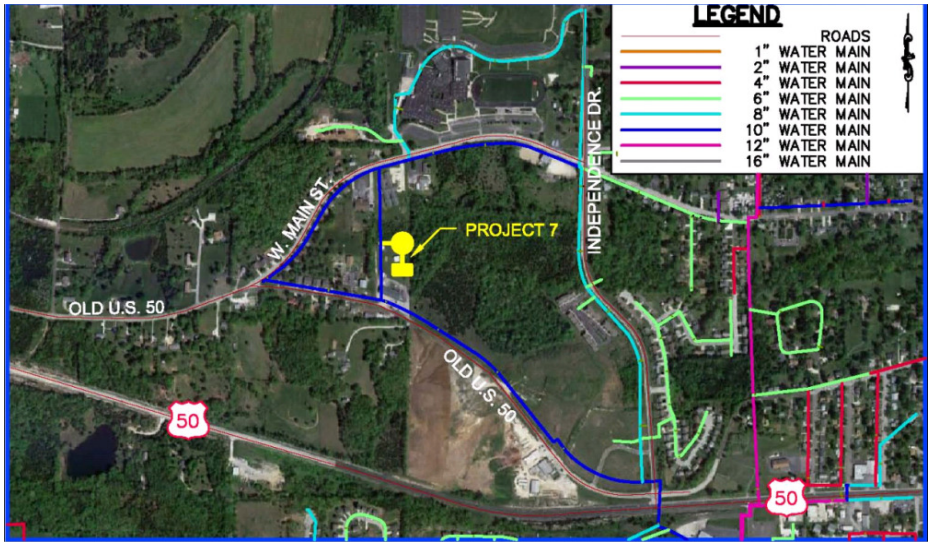
Project 6 Costs

ITEM	UNIT	QUANTITY	UNIT PRICE	TOTAL
Mobilization	L.S.	1	$12,000	$12,000
10” C-900 DR 14 PVC Trench Installation	L.F.	6,000	$33	$198,000
Detail A 10" Main Connection to Existing 10"	EA	1	$6,000	$6,000
Detail B 10" Main Connection to Existing 8"	EA	1	$5,500	$5,500
Fire Hydrant Detail	EA	5	$3,750	$18,750
10" ø Bends	EA	4	$300	$1,200
Seeding/Mulching	L.S.	1	$20,000	$20,000
SUBTOTAL				**$261,450**
15% Contingencies				$39,218
Engineering, Surveying, & Inspections				$39,000
TOTAL				**$339,668**

These improvements were requested by the City in order to alleviate water system hammer issues from Birch Creek. This option is an alternate to the previous project.

Project 7 – Construct a new well next to the 150,000 gallon elevated storage tank site 1

- Construct a new 500 gpm well next to the existing 150,000 gallon storage tank site 1.
- Project will include the installation of a new dedicated line from the well into the tank.



Project 7 Costs

ITEM	ENGINEERING REPORT ESTIMATE
Pilot Hole	$75,000
New Deep Well	$120,000
Yard Piping	$25,000
Miscellaneous Sitework	$25,000
Electrical Panel and SCADA	$75,000
Site Restoration	$10,000
New Well House	$175,000
Chain Link Fence	$15,000
SUBTOTAL	**$495,000**
15% Contingencies	$74,250
Engineering, Surveying, & Inspections	$75,000
TOTAL	**$644,250**

Constructing a new well will provide the City of Union water supply that is needed in 2041. If the City completes Project 7, an additional timeline should be reviewed to determine if this well is necessary.

MAINTENANCE ITEMS

The following maintenance items can be completed by staff as time and funds become available.

- Install fencing around Wells 2 and 3 for improved security.
- Install meters on all public buildings that are currently not metered.
- Install hydrant locks in rural areas.
- Replace smaller/deficient water mains.
- Additional internal water main replacement should be considered as needed to replace the non-standard materials and small piping; however they are not considered key to the improvement of the current system. The replacement of the non-standard materials will require significant funds which are not justifiable in the current economy. As funds become available, a plan should be prepared to rate the existing system infrastructure and organize system piping replacement based on a priority basis.
- The City should also consider replacement of electrical components in the older well houses. A number of well houses have equipment that appears to be greater than 20 years of age including electrical components, pumps, and chemical equipment. Updating the equipment may reduce utility cost and potentially save the City money rather quickly. An inventory should be completed and costs for repairs appropriately allocated.
- Perform an energy audit on the booster stations to determine the benefits of installing a smaller pump to handle average daily flows.
- Consider having a firm perform an energy analysis on the system for potential ways to save the City operational costs.

CONCLUSION

The evaluation shows the water system is lacking on water supply on the East system. Constructing a new well, booster station, and ground storage tank will alleviate this issue. Additionally the system is lacking in regards to pressure and flow available in some areas due to small diameter piping and the City should pass an ordinance requiring piping to be at least 8” in diameter in residential areas and 10” in commercial areas. The system will also benefit from additional main looping recommended above as well as provide additional security during water main breaks. Fire flow capabilities will be improved as well as providing additional storage for the City to continue to grow.

FINANCIAL PROJECTIONS

The projects contemplated in this report will result in the City of Union taking on debt. Therefore, we will review rates in order to retire this debt in a reasonable time frame.

As discussed previously, the water system has seen a surplus for the past few fiscal years. Additionally, the City has been placing this revenue into the City collective pool of revenue. While the exact cash balance to date for the water system is unknown, we recommend keeping the water fund cash reserves separate. If funding is desired in the future, the various funding agencies will require the water system to maintain totally separate accounts. Regardless, the current fiscal year has a budgeted surplus of $63,935. Rates should be evaluated to determine the feasibility of new projects based on the current rate structure.

Additionally, we recommend having cash reserves to cover expenses for 6 months. In review of the accounting for the fiscal year of 2011 to 2012, the water system had expenses totaling $891,567. Therefore, if the City had three months expenses in cash reserves, they would have a fund with at least $445,784.

RATE ANAYLSIS

As previously discussed, the rate schedule for all water users is as follows:

First 2,000 gallons	$6.70
For the next 33,000 gallons	$3.05 per 1,000 gallons of usage
For all in excess of 35,000 gallons	$2.95 per 1,000 gallons of usage

Based on 190 gallons per day per connection, a monthly usage of 5,696 gallons is anticipated. This equates to a bill of $17.97 per month and $215.68 annually. Standard industry desires a water bill towards a rate around 2% of the medium household income. This is also required by most funding agencies capable of providing financing and grant packages. These agencies typically feel if a city's rates are close to 2% and cannot provide necessary revenue to support improvements to serve the community, agencies are more apt to providing a funding vehicle to aid needed projects. Additionally, funding agencies typically require an income survey be completed for the community which can take up to a year to complete. Since time constraints do not allow this, I will use the Medium Household Income (MHI) posted by the United States Department of Agriculture Rural Development (USDARD).

The USDARD reported the City of Union having a MHI of $39,596 for 1999. While this figure was from thirteen years ago, we will utilize this number to evaluate current water rates. The annual $215.68 water rate equates to a rate right at 0.5% of the city's MHI. Therefore, the city's rates are relatively low and consideration should be given to rate increases to help retire debt incurred from the recommended construction projects. In order to stay under the 2% threshold, rates should not exceed $792 per year or $66 monthly.

RATE RECOMMENDATION

The City should start increasing the water rates to cover the increasing operating expenses the City has been incurring. In Appendix I, we recommend raising rates to $23.58 to cover the budgeted expenses for the year as well as put additional funds into cash reserves to help pay for the proposed water system improvements. Additionally, gradually raising the rates per Appendix I, will help minimize negative feedback from the citizens. If the City follows the schedule for timing and scope of the recommendations of this report, the City will have a maximum rate of $44.34 in 20 years. However, I have prepared a chart that can be used if the City chooses a different order for the projects. The equation below allows the City to bid a project and quickly determine how much rates should be raised to retire debt over the selected time frame if they choose to not pass an ordinance with the 3 % annual rate increase.

$$\frac{\text{(Total Costs to be Financed) x (Chart Factor)}}{\text{(Total Number of Users)}} = \text{Rate Increase}$$

	Year	
Rate	10	20
2.0%	0.0103666	0.0057429
2.5%	0.0106428	0.0060256
3.0%	0.0109229	0.0063158
3.5%	0.0112068	0.0066134
4.0%	0.0114946	0.0069184
4.5%	0.0117862	0.0072305
5.0%	0.0120815	0.0075497
5.5%	0.0123806	0.0078758
6.0%	0.0126834	0.0082086
6.5%	0.0129898	0.008548
7.0%	0.0132999	0.0088938
7.5%	0.0136134	0.0092458
8.0%	0.0139306	0.0096038

CONCLUSION

The water system is currently financially stable. While rates are currently low when comparing to the 2% threshold previously discussed, the City should consider raising rates in order to provide additional surplus into the City's Water Fund. Additionally, the City should start increasing rates to help retire debt anticipated to cover the recommended projects.

ENVIRONMENTAL RESOURCES

The proposed projects should not have any adverse impact on the environment. During construction, the sites will be protected by best management practices (BMP's) to prevent erosion and transportation of sediment. During design of the project(s) the proper agencies, i.e. MDNR, USACE, U.S. Fish and Wildlife, Archaeological and Historic Resources, etc. will be contacted to obtain the appropriate permits and clearances.

SUPERVISED PROGRAM

The owner would like this report to serve as a Supervised Program in lieu of submitting plans and specifications for expansion of the existing system. Requirements of Section 1.8 of the Design Guide for Community Water Systems are satisfied by this report. Per those requirements, various items were required to be a part of the report. These items are as follows:

- A current layout map of the distributions system indicating main sizes and locations of valves and hydrants is included as Appendix A.
- Adoption of a minimum pipe size was discussed in a previous section of this report.
- Technical specifications covering materials, installation, and disinfection procedures for water main and appurtenances construction are included as Appendix J.
- Typical detail drawings for water main and appurtenances construction are included as Appendix K.
- All water main construction shall be inspected by a competent inspector with experience in water main construction. Daily logs of construction progress and observations should be maintained and supplied to the owner for their records.
- As-built drawings will be prepared for all water main extensions and major improvements.
- An example of an inspection form for water main inspection is included as Appendix L.

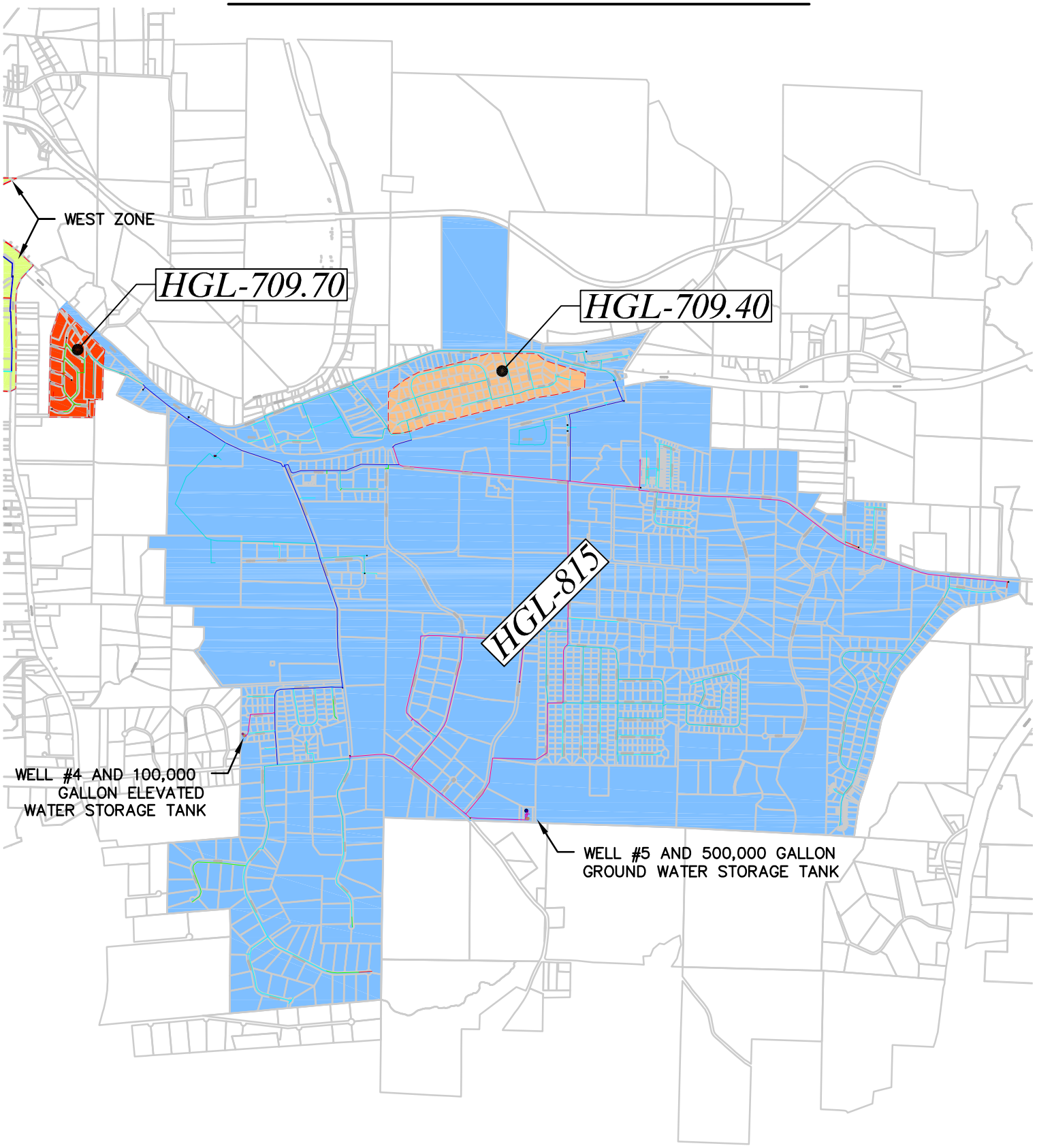
APPENDIX A

Existing System Distribution Plan

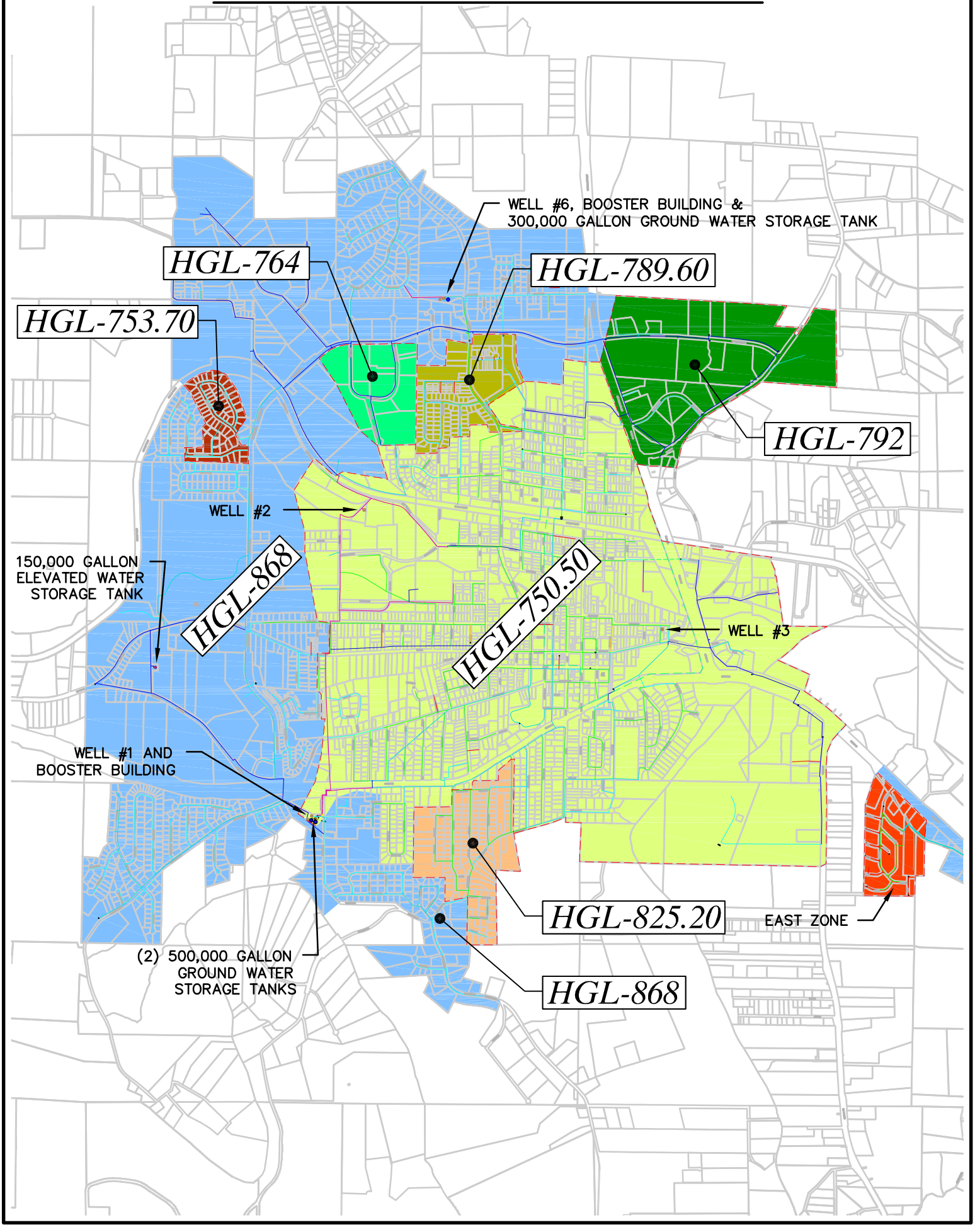
APPENDIX B

Pressure Zone Maps

PRESSURE ZONES - EAST



PRESSURE ZONES - WEST



APPENDIX C

Historical Population Growth Data

Year	Population
2010	10204
2011	10306
2012	10409
2013	10513
2014	10618
2015	10725
2016	10832
2017	10940
2018	11049
2019	11160
2020	11272
2021	11441
2022	11612
2023	11786
2024	11963
2025	12143
2026	12325
2027	12510
2028	12697
2029	12888
2030	13081
2031	13277
2032	13476
2033	13679
2034	13884
2035	14092
2036	14303
2037	14518
2038	14736
2039	14957
2040	15181
2041	15409
2042	15640

APPENDIX D

Historical Water Production Data

		2006	2007	2008	2009	2010	2011
Water sold		274,331,025	284,765,975	275,794,620	271,593,548	280,326,045	276,450,690
Daily water sold		751,592	780,181	755,602	744,092	768,017	757,399
	Well			Well production			
	1	109,345,200	109,345,200	93,559,600	78,330,200	61,910,597	49,240,300
	2	78,267,200	78,267,200	58,988,500	63,448,300	68,152,700	38,226,500
	3	83,043,300	83,043,300	99,142,000	82,167,300	56,490,200	53,770,600
	4	26,301,000	26,301,000	4,572,000	3,851,000	3,412,250	2,792,000
	5	58,754,137	58,754,137	95,514,000	95,566,000	98,718,000	90,708,000
	6				27,062,000	57,731,000	108,895,000
		355,710,837	355,710,837	351,776,100	350,424,800	346,414,747	343,632,400
				Analysis			
	Daily production	974,550	974,550	963,770	960,068	949,081	941,459
	Water Loss	222,958	194,369	208,168	215,976	181,065	184,059
	Water Loss %	22.9%	19.9%	21.6%	22.5%	19.1%	19.6%

APPENDIX E

Production for West and East Systems

Year	Users	Average Daily Water Sold	Average Daily Water Produced
2006	3571	751,592	974,550
2007	3665	780,181	974,550
2008	3760	755,602	963,770
2009	3855	755,000	960,068
2010	3950	768,017	949,081
2011	3989	871,174	1,082,882
2012	4029	879,886	1,093,711
2013	4069	888,685	1,104,648
2014	4110	897,571	1,115,695
2015	4151	906,547	1,126,852
2016	4193	915,613	1,138,120
2017	4234	924,769	1,149,502
2018	4277	934,016	1,160,997
2019	4320	943,357	1,172,606
2020	4363	952,790	1,184,333
2021	4428	967,082	1,202,098
2022	4495	981,588	1,220,129
2023	4562	996,312	1,238,431
2024	4630	1,011,257	1,257,007
2025	4700	1,026,426	1,275,863
2026	4770	1,041,822	1,295,000
2027	4842	1,057,449	1,314,425
2028	4915	1,073,311	1,334,142
2029	4988	1,089,411	1,354,154
2030	5063	1,105,752	1,374,466
2031	5139	1,122,338	1,395,083
2032	5216	1,139,173	1,416,010
2033	5294	1,156,261	1,437,250
2034	5374	1,173,605	1,458,808
2035	5454	1,191,209	1,480,691
2036	5536	1,209,077	1,502,901
2037	5619	1,227,213	1,525,444
2038	5704	1,245,621	1,548,326
2039	5789	1,264,306	1,571,551
2040	5876	1,283,270	1,595,124
2041	5964	1,302,519	1,619,051
2042	6054	1,322,057	1,643,337

APPENDIX F

Storage Calculations

West Zone Storage Requirements					
Year	**Minimum ADD Storage (Gal)**	**Well Production (GPM)**	**Commercial Req. Storage**	**Ex. Storage Capacity (Gal)**	**Remarks**
2010	762,194	2600	750,194	1,450,000	
2011	769,816	2600	757,816	1,450,000	
2012	777,514	2600	765,514	1,450,000	
2013	785,289	2600	773,289	1,450,000	
2014	793,142	2600	781,142	1,450,000	
2015	801,074	2600	789,074	1,450,000	
2016	809,084	2600	797,084	1,450,000	
2017	817,175	2600	805,175	1,450,000	
2018	825,347	2600	813,347	1,450,000	
2019	833,600	2600	821,600	1,450,000	
2020	841,936	2600	829,936	1,450,000	
2021	854,565	2600	842,565	1,450,000	
2022	867,384	2600	855,384	1,450,000	
2023	880,395	2600	868,395	1,450,000	
2024	893,601	2600	881,601	1,450,000	
2025	907,005	2600	895,005	1,450,000	
2026	920,610	2600	908,610	1,450,000	
2027	934,419	2600	922,419	1,450,000	
2028	948,435	2600	936,435	1,450,000	
2029	962,662	2600	950,662	1,450,000	
2030	977,102	2600	965,102	1,450,000	
2031	991,758	2600	979,758	1,450,000	
2032	1,006,635	2600	994,635	1,450,000	
2033	1,021,734	2600	1,009,734	1,450,000	
2034	1,037,060	2600	1,025,060	1,450,000	
2035	1,052,616	2600	1,040,616	1,450,000	
2036	1,068,405	2600	1,056,405	1,450,000	
2037	1,084,431	2600	1,072,431	1,450,000	
2038	1,100,698	2600	1,088,698	1,450,000	
2039	1,117,208	2600	1,105,208	1,450,000	
2040	1,133,966	2600	1,121,966	1,450,000	
2041	1,150,976	2600	1,138,976	1,450,000	
2042	1,168,240	2600	1,156,240	1,450,000	
2056	1,438,987	2600	1,426,987	1,450,000	
2057	1,460,572	2600	1,448,572	1,450,000	
2058	1,482,480	2600	1,470,480	1,450,000	
2059	1,504,717	2600	1,492,717	1,450,000	
2060	1,527,288	2600	1,511,600	1,450,000	

East Zone Storage Requirements					
Year	**Minimum ADD Storage (Gal)**	**Well Production (GPM)**	**Commercial Req. Storage**	**Ex. Storage Capacity (Gal)**	**Remarks**
2010	309,967	970	493,567	600,000	
2011	313,066	970	496,666	600,000	
2012	316,197	970	499,797	600,000	
2013	319,359	1470	442,959	800,000	New 200,000 tank
2014	322,553	1470	446,153	800,000	
2015	325,778	1470	449,378	800,000	
2016	329,036	1470	452,636	800,000	
2017	332,326	1470	455,926	800,000	
2018	335,650	1470	459,250	800,000	
2019	339,006	1470	462,606	800,000	
2020	342,396	1470	465,996	800,000	
2021	347,532	1470	471,132	800,000	
2022	352,745	1470	476,345	800,000	
2023	358,036	1470	481,636	800,000	
2024	363,407	1470	487,007	800,000	
2025	368,858	1470	492,458	800,000	
2026	374,391	1470	497,991	800,000	
2027	380,007	1470	503,607	800,000	
2028	385,707	1470	509,307	800,000	
2029	391,492	1470	515,092	800,000	
2030	397,365	1470	520,965	800,000	
2031	403,325	1470	526,925	800,000	
2032	409,375	1470	532,975	800,000	
2033	415,516	1470	539,116	800,000	
2034	421,748	1470	545,348	800,000	
2035	428,075	1470	551,675	800,000	
2036	434,496	1470	558,096	800,000	
2037	441,013	1470	564,613	800,000	
2038	447,628	1470	571,228	800,000	
2039	454,343	1470	577,943	800,000	
2040	461,158	1470	584,758	800,000	
2041	468,075	1470	591,675	800,000	
2042	475,096	1470	598,696	800,000	
2056	585,203	1470	708,803	800,000	
2057	593,981	1470	717,581	800,000	
2058	602,890	1470	726,490	800,000	
2059	611,934	1470	735,534	800,000	
2060	621,113	1470	744,713	800,000	
2061	630,430	1470	754,030	800,000	
2062	639,886	1470	763,486	800,000	
2063	649,484	1470	773,084	800,000	
2064	659,227	1470	782,827	800,000	
2065	669,115	1470	792,715	800,000	
2066	679,152	1470	802,752	800,000	

Combined System Storage Requirements					
Year	**Minimum ADD Storage (Gal)**	**Well Production (GPM)**	**Commercial Req. Storage**	**Ex. Storage Capacity (Gal)**	**Remarks**
2010	1,072,161	3570	943,761	2,050,000	
2011	1,082,882	3570	954,482	2,050,000	
2012	1,093,711	3570	965,311	2,050,000	
2013	1,104,648	4070	916,248	2,250,000	New 200,000 tank
2014	1,115,695	4070	927,295	2,250,000	
2015	1,126,852	4070	938,452	2,250,000	
2016	1,138,120	4070	949,720	2,250,000	
2017	1,149,502	4070	961,102	2,250,000	
2018	1,160,997	4070	972,597	2,250,000	
2019	1,172,606	4070	984,206	2,250,000	
2020	1,184,333	4070	995,933	2,250,000	
2021	1,202,098	4070	1,013,698	2,250,000	
2022	1,220,129	4070	1,031,729	2,250,000	
2023	1,238,431	4070	1,050,031	2,250,000	
2024	1,257,007	4070	1,068,607	2,250,000	
2025	1,275,863	4070	1,087,463	2,250,000	
2026	1,295,000	4070	1,106,600	2,250,000	
2027	1,314,425	4070	1,126,025	2,250,000	
2028	1,334,142	4070	1,145,742	2,250,000	
2029	1,354,154	4070	1,165,754	2,250,000	
2030	1,374,466	4070	1,186,066	2,250,000	
2031	1,395,083	4070	1,206,683	2,250,000	
2032	1,416,010	4070	1,227,610	2,250,000	
2033	1,437,250	4070	1,248,850	2,250,000	
2034	1,458,808	4070	1,270,408	2,250,000	
2035	1,480,691	4070	1,292,291	2,250,000	
2036	1,502,901	4070	1,314,501	2,250,000	
2037	,525,444	4070	1,337,044	2,250,000	
2038	1,548,326	4070	1,359,926	2,250,000	
2039	1,571,551	4070	1,383,151	2,250,000	
2040	1,595,124	4070	1,406,724	2,250,000	
2041	1,619,051	4070	1,430,651	2,250,000	
2042	1,643,337	4070	1,454,937	2,250,000	
2056	2,024,190	4070	1,835,790	2,250,000	
2057	2,054,552	4070	1,866,152	2,250,000	
2058	2,085,371	4070	1,896,971	2,250,000	
2059	2,116,651	4070	1,928,251	2,250,000	
2060	2,148,401	4070	1,960,001	2,250,000	
2061	2,180,627	4070	1,992,227	2,250,000	
2062	2,213,336	4070	2,024,936	2,250,000	
2063	2,246,537	4070	2,058,137	2,250,000	
2064	2,280,235	4070	2,091,835	2,250,000	
2065	2,314,438	4070	2,126,038	2,250,000	
2066	2,349,155	4070	2,160,755	2,250,000	
2067	2,384,392	4070	2,195,992	2,250,000	
2068	2,420,158	4070	2,231,758	2,250,000	
2069	2,456,460	4070	2,268,060	2,250,000	

APPENDIX G

Hydraulic Calculations

FlexTable: Junction Table (watercad.wtg)

Active Scenario: Existing Peak Flow Pressure

Current Time: 0.000 hours

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-1033	553.00	(N/A)	(N/A)	(N/A)
J-1035	608.39	(N/A)	(N/A)	(N/A)
J-1036	578.63	(N/A)	(N/A)	(N/A)
J-1037	553.51	(N/A)	(N/A)	(N/A)
J-1038	594.38	(N/A)	(N/A)	(N/A)
J-1039	573.07	(N/A)	(N/A)	(N/A)
J-1042	540.00	(N/A)	(N/A)	(N/A)
J-1043	493.00	(N/A)	(N/A)	(N/A)
J-1119	580.00	(N/A)	(N/A)	(N/A)
J-1120	560.00	(N/A)	(N/A)	(N/A)
J-1121	0.00	(N/A)	(N/A)	(N/A)
J-1122	542.14	(N/A)	(N/A)	(N/A)
J-853	685.90	0	750.50	27.9
J-230	685.38	0	750.51	28.2
J-229	685.35	0	750.51	28.2
J-572	684.16	0	751.13	29.0
J-573	683.99	0	751.13	29.0
J-780	682.02	0	751.13	29.9
J-218	680.24	0	751.12	30.7
J-843	679.08	0	751.13	31.2
J-212	671.50	6	752.56	35.1
J-484	659.67	6	752.39	40.1
J-728	604.30	6	704.55	43.4
J-1100	604.31	6	704.59	43.4
J-865	656.42	0	757.78	43.9
J-770	603.08	6	704.58	43.9
J-892	600.88	6	704.52	44.8
J-486	648.01	6	752.35	45.1
J-734	604.19	10	709.74	45.7
J-650	597.89	6	704.48	46.1
J-1124	602.80	0	709.72	46.3
J-174	706.13	4	815.00	47.1
J-889	678.82	7	788.65	47.5
J-339	641.94	6	752.36	47.8
J-340	641.69	6	752.36	47.9
J-1102	592.89	6	704.60	48.3
J-337	675.57	7	788.73	49.0
J-338	675.38	7	788.93	49.1
J-1099	591.01	6	704.63	49.2
J-819	643.46	0	757.78	49.5
J-401	594.99	10	709.62	49.6
J-792	641.78	0	757.78	50.2
J-302	639.12	8	755.64	50.4
J-791	641.13	0	757.78	50.5
J-301	638.84	8	755.64	50.5

FlexTable: Junction Table (watercad.wtg)
Active Scenario: Existing Peak Flow Pressure

Current Time: 0.000 hours

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-569	672.42	2	789.32	50.6
J-157	744.50	0	861.96	50.8
J-295	670.63	0	788.93	51.2
J-189	696.30	4	814.95	51.3
J-574	669.84	0	788.99	51.6
J-546	584.78	6	704.49	51.8
J-545	584.34	6	704.49	52.0
J-614	584.53	6	704.86	52.1
J-290	637.49	0	758.08	52.2
J-686	584.08	6	704.69	52.2
J-1061	740.12	7	861.93	52.7
J-398	633.84	8	755.90	52.8
J-432	634.80	6	757.81	53.2
J-485	628.07	6	751.89	53.6
J-237	664.57	4	789.32	54.0
J-1049	628.97	0	753.76	54.0
J-1101	579.82	6	704.64	54.0
J-51	626.44	6	751.88	54.3
J-98	626.01	6	751.88	54.5
J-874	578.38	6	704.52	54.6
J-841	739.49	7	865.80	54.6
J-499	629.63	8	756.03	54.7
J-52	625.44	6	751.88	54.7
J-501	629.04	8	756.33	55.1
J-727	577.07	6	704.54	55.2
J-952	627.46	0	755.62	55.4
J-840	737.43	7	865.80	55.5
J-202	627.18	0	755.67	55.6
J-814	576.22	6	704.92	55.7
J-191	625.98	0	754.73	55.7
J-815	575.84	6	704.90	55.8
J-759	627.08	8	756.46	56.0
J-97	622.30	0	751.84	56.0
J-82	731.85	7	861.63	56.2
J-687	574.88	6	704.69	56.2
J-155	624.77	0	755.05	56.4
J-719	574.02	6	704.51	56.5
J-871	622.00	6	752.57	56.5
J-669	657.76	7	788.65	56.6
J-615	573.51	6	704.86	56.8
J-696	682.58	4	814.15	56.9
J-192	623.29	0	754.93	57.0
J-424	625.88	6	757.74	57.0
J-392	620.26	0	752.50	57.2
J-253	655.64	7	788.32	57.4

FlexTable: Junction Table (watercad.wtg)

Active Scenario: Existing Peak Flow Pressure

Current Time: 0.000 hours

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-707	571.97	6	704.77	57.5
J-488	619.21	6	752.06	57.5
J-1081	623.17	6	756.67	57.8
J-254	655.01	7	788.64	57.8
J-701	620.08	15	753.73	57.8
J-694	619.42	6	753.61	58.1
J-1060	727.36	7	861.88	58.2
J-735	575.02	10	709.73	58.3
J-421	617.99	6	752.86	58.4
J-364	617.80	6	752.91	58.5
J-628	678.98	4	814.49	58.6
J-664	652.32	7	788.62	59.0
J-1095	620.99	6	758.15	59.3
J-1080	618.14	6	756.90	60.0
J-363	613.48	6	752.92	60.3
J-402	569.03	10	708.48	60.3
J-706	564.41	6	704.77	60.7
J-239	648.42	4	789.33	61.0
J-1096	616.94	6	758.19	61.1
J-131	616.44	0	757.77	61.1
J-456	647.55	0	788.93	61.2
J-62	720.40	7	861.91	61.2
J-391	610.90	0	752.50	61.3
J-234	647.59	4	789.33	61.3
J-462	610.81	6	752.57	61.3
J-61	719.89	7	861.91	61.4
J-760	723.64	7	865.83	61.5
J-710	562.19	6	704.51	61.6
J-128	671.89	4	814.49	61.7
J-420	611.13	6	753.86	61.8
J-440	611.65	0	754.40	61.8
J-463	609.47	6	752.55	61.9
J-711	721.98	0	865.69	62.2
J-33	719.70	0	863.62	62.3
J-309	612.92	6	757.74	62.7
J-1097	613.41	6	758.26	62.7
J-310	612.35	6	757.74	62.9
J-888	646.54	1	792.04	63.0
J-241	562.15	10	707.76	63.0
J-434	612.12	6	757.74	63.0
J-736	609.49	8	755.59	63.2
J-658	606.04	0	752.50	63.4
J-931	716.48	0	863.62	63.7
J-613	606.35	0	753.75	63.8
J-749	718.32	4	865.78	63.8

FlexTable: Junction Table (watercad.wtg)
Active Scenario: Existing Peak Flow Pressure

Current Time: 0.000 hours

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-861	610.66	0	758.74	64.1
J-251	640.00	7	788.31	64.2
J-279	604.71	0	753.25	64.3
J-114	712.94	7	861.86	64.4
J-278	602.20	0	753.25	65.3
J-287	606.77	6	757.91	65.4
J-951	604.14	6	755.32	65.4
J-368	601.97	6	753.46	65.5
J-491	601.82	6	753.39	65.6
J-697	662.46	4	814.15	65.6
J-704	714.06	4	865.75	65.6
J-419	601.62	6	753.54	65.7
J-1087	602.66	8	755.51	66.1
J-436	604.47	6	757.74	66.3
J-777	660.86	4	814.44	66.4
J-1090	601.20	6	755.05	66.6
J-115	707.82	0	861.93	66.7
J-637	603.02	6	757.15	66.7
J-473	670.68	0	825.26	66.9
J-641	633.65	7	788.65	67.1
J-476	598.70	6	753.82	67.1
J-627	598.33	6	753.61	67.2
J-325	669.93	0	825.26	67.2
J-483	597.44	6	752.88	67.3
J-560	633.88	2	789.33	67.3
J-132	602.30	6	757.76	67.3
J-872	600.92	0	757.16	67.6
J-129	657.72	4	814.44	67.8
J-203	599.56	0	756.31	67.8
J-1088	599.98	8	756.78	67.8
J-371	598.15	6	755.04	67.9
J-683	600.85	6	757.83	67.9
J-441	597.39	0	754.40	67.9
J-247	550.33	10	707.75	68.1
J-326	667.52	0	825.26	68.2
J-151	710.97	7	868.86	68.3
J-213	594.46	6	753.62	68.9
J-347	665.82	0	825.26	69.0
J-455	664.66	0	825.26	69.5
J-1075	704.80	7	865.80	69.7
J-1086	594.66	8	755.80	69.7
J-638	596.05	6	757.28	69.8
J-833	707.23	0	868.85	69.9
J-252	626.84	7	788.63	70.0
J-342	591.46	0	753.57	70.1

FlexTable: Junction Table (watercad.wtg)

Active Scenario: Existing Peak Flow Pressure

Current Time: 0.000 hours

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-283	593.09	6	755.21	70.1
J-517	625.99	0	788.65	70.4
J-640	625.89	0	788.65	70.4
J-458	590.07	0	752.86	70.4
J-352	594.84	6	758.03	70.6
J-723	703.51	0	866.80	70.6
J-341	545.02	10	708.38	70.7
J-846	589.73	0	753.39	70.8
J-182	649.95	4	813.89	70.9
J-751	701.81	7	865.87	71.0
J-469	704.03	0	868.11	71.0
J-1082	593.07	6	757.31	71.1
J-154	646.70	0	810.95	71.1
J-1077	624.23	7	788.61	71.1
J-702	650.04	0	814.44	71.1
J-318	590.66	6	755.20	71.2
J-794	703.68	0	868.25	71.2
J-181	649.08	4	813.89	71.3
J-795	703.16	0	868.25	71.4
J-350	542.69	10	707.79	71.4
J-832	703.73	7	868.85	71.4
J-222	648.69	4	813.89	71.5
J-454	660.02	0	825.26	71.5
J-136	589.68	6	755.05	71.5
J-249	542.14	10	708.06	71.8
J-94	700.52	0	866.80	71.9
J-444	594.55	0	761.09	72.1
J-674	590.49	6	757.16	72.1
J-523	586.99	0	753.76	72.2
J-276	541.55	10	708.52	72.2
J-137	588.03	6	755.05	72.3
J-740	694.66	0	861.94	72.4
J-1115	701.41	0	868.85	72.4
J-427	590.27	6	757.72	72.5
J-344	540.39	10	707.87	72.5
J-425	593.54	0	761.06	72.5
J-852	701.17	0	869.00	72.6
J-1067	700.15	7	867.99	72.6
J-663	620.71	7	788.62	72.6
J-88	642.68	0	810.65	72.7
J-784	643.04	0	811.00	72.7
J-845	642.98	0	810.97	72.7
J-900	589.68	6	757.74	72.7
J-90	642.44	0	810.64	72.8
J-270	539.72	10	707.92	72.8

FlexTable: Junction Table (watercad.wtg)

Active Scenario: Existing Peak Flow Pressure

Current Time: 0.000 hours

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-820	642.77	0	811.01	72.8
J-492	584.90	0	753.39	72.9
J-374	588.59	6	757.11	72.9
J-348	588.66	6	757.32	73.0
J-275	538.98	10	707.87	73.1
J-495	645.40	0	814.44	73.1
J-205	588.72	0	757.84	73.2
J-93	697.17	0	866.39	73.2
J-773	641.35	0	811.00	73.4
J-715	583.63	0	753.39	73.4
J-1	538.72	10	708.66	73.5
J-756	698.28	7	868.84	73.8
J-208	588.10	0	758.74	73.8
J-71	692.61	0	863.36	73.9
J-428	586.95	6	757.74	73.9
J-353	587.19	6	758.01	73.9
J-72	692.45	0	863.36	73.9
J-1074	694.62	7	865.78	74.1
J-470	690.81	0	863.36	74.7
J-607	637.53	5	810.18	74.7
J-493	690.64	0	863.34	74.7
J-661	637.18	0	810.42	75.0
J-86	637.42	0	810.81	75.0
J-297	581.76	6	755.19	75.0
J-349	584.13	6	757.57	75.0
J-362	579.84	6	753.38	75.1
J-720	640.40	4	814.33	75.3
J-593	690.47	0	864.64	75.4
J-804	583.63	6	757.81	75.4
J-89	636.28	0	810.65	75.4
J-367	579.07	6	753.48	75.5
J-135	640.01	4	814.56	75.5
J-85	636.16	0	810.81	75.6
J-750	690.90	4	865.78	75.7
J-805	582.53	6	757.82	75.8
J-118	582.15	6	757.76	76.0
J-623	634.06	5	810.18	76.2
J-1078	612.33	7	788.61	76.3
J-465	578.16	6	754.50	76.3
J-1094	581.31	6	757.90	76.4
J-177	638.14	0	814.99	76.5
J-178	638.09	0	814.99	76.5
J-204	580.14	0	757.16	76.6
J-660	633.10	0	810.42	76.7
J-438	580.41	6	757.99	76.8

FlexTable: Junction Table (watercad.wtg)

Active Scenario: Existing Peak Flow Pressure

Current Time: 0.000 hours

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-439	577.33	6	755.19	77.0
J-489	683.88	7	862.08	77.1
J-606	631.94	5	810.18	77.1
J-390	575.71	6	754.03	77.2
J-255	575.09	6	753.42	77.2
J-426	580.43	6	758.85	77.2
J-744	687.11	4	865.64	77.2
J-714	685.90	0	864.51	77.3
J-857	632.22	0	811.01	77.4
J-771	634.88	0	813.89	77.5
J-695	610.02	0	789.07	77.5
J-395	576.06	6	755.22	77.5
J-726	686.28	7	865.57	77.6
J-27	584.13	3	764.04	77.8
J-375	577.37	6	757.31	77.8
J-681	688.81	7	868.81	77.9
J-361	571.92	6	753.39	78.5
J-1071	684.04	7	865.63	78.6
J-168	579.99	6	761.97	78.7
J-451	575.67	6	758.20	79.0
J-712	627.82	0	810.42	79.0
J-688	605.84	7	788.63	79.1
J-651	681.05	0	864.64	79.4
J-594	680.96	0	864.64	79.5
J-496	571.00	0	754.97	79.6
J-256	569.25	0	753.42	79.7
J-643	681.34	7	865.57	79.7
J-92	577.12	0	761.46	79.8
J-397	640.57	0	825.26	79.9
J-644	680.19	7	865.58	80.2
J-869	569.35	6	755.45	80.5
J-858	678.68	7	865.70	80.9
J-466	566.20	0	753.48	81.0
J-378	574.37	0	761.70	81.0
J-662	677.98	4	865.69	81.2
J-576	674.32	0	862.12	81.3
J-1089	575.56	3	763.50	81.3
J-481	569.76	6	757.74	81.3
J-884	621.94	6	809.95	81.3
J-133	566.98	6	755.05	81.4
J-1066	678.69	7	866.98	81.5
J-388	570.07	6	758.38	81.5
J-333	566.86	6	755.19	81.5
J-741	677.28	7	865.69	81.5
J-725	677.00	7	865.58	81.6

FlexTable: Junction Table (watercad.wtg)
Active Scenario: Existing Peak Flow Pressure

Current Time: 0.000 hours

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-595	673.48	7	862.08	81.6
J-847	567.23	6	756.04	81.7
J-260	567.18	12	756.09	81.7
J-703	568.30	6	757.57	81.9
J-45	602.67	1	792.05	81.9
J-46	602.67	1	792.05	81.9
J-480	568.39	6	757.85	82.0
J-433	571.89	0	761.45	82.0
J-787	568.26	6	757.84	82.0
J-393	566.14	12	755.93	82.1
J-786	568.02	6	757.85	82.1
J-868	565.47	8	755.32	82.1
J-679	620.40	0	810.42	82.2
J-859	675.64	7	865.71	82.2
J-790	567.67	6	757.85	82.3
J-386	563.84	6	754.17	82.3
J-1083	567.30	6	757.74	82.4
J-334	564.65	6	755.20	82.4
J-1065	675.40	7	866.02	82.5
J-373	623.13	0	813.89	82.5
J-649	675.18	7	865.95	82.5
J-394	565.11	6	755.93	82.6
J-474	564.85	6	755.72	82.6
J-387	567.37	6	758.39	82.6
J-647	674.80	7	865.86	82.7
J-332	565.07	6	756.15	82.7
J-1084	566.68	6	757.96	82.8
J-648	674.25	7	865.76	82.9
J-925	564.20	6	755.73	82.9
J-604	674.57	7	866.17	82.9
J-1085	566.53	6	758.19	82.9
J-382	564.29	6	756.18	83.0
J-1073	673.79	7	865.77	83.1
J-881	618.28	0	810.42	83.1
J-1069	673.50	7	865.70	83.2
J-605	673.81	7	866.13	83.2
J-541	669.82	0	862.26	83.3
J-123	621.90	4	814.57	83.4
J-437	566.16	0	758.85	83.4
J-1068	672.97	7	865.70	83.4
J-331	563.15	6	755.95	83.4
J-194	568.20	0	761.45	83.6
J-201	567.87	0	761.41	83.7
J-642	670.53	0	864.19	83.8
J-403	563.62	6	757.38	83.8

FlexTable: Junction Table (watercad.wtg)
Active Scenario: Existing Peak Flow Pressure

Current Time: 0.000 hours

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-659	594.82	7	788.61	83.8
J-529	562.50	12	756.42	83.9
J-399	563.98	6	757.90	83.9
J-494	620.45	0	814.44	83.9
J-885	616.78	7	810.96	84.0
J-166	667.79	7	862.11	84.1
J-245	669.80	0	864.19	84.1
J-119	563.06	6	757.76	84.2
J-570	667.40	7	862.11	84.2
J-739	667.14	0	861.94	84.3
J-372	619.07	0	813.89	84.3
J-216	618.78	0	813.84	84.4
J-400	561.75	6	757.09	84.5
J-410	560.68	6	756.08	84.5
J-747	562.16	6	757.60	84.6
J-380	561.97	6	757.55	84.6
J-134	559.42	6	755.05	84.6
J-919	561.80	6	757.74	84.8
J-691	561.80	6	757.74	84.8
J-571	666.01	7	862.08	84.8
J-575	665.91	0	862.12	84.9
J-385	558.47	6	754.69	84.9
J-498	559.18	8	755.44	84.9
J-743	669.08	4	865.52	85.0
J-531	592.14	7	788.61	85.0
J-409	559.20	6	755.71	85.0
J-896	614.44	7	810.96	85.0
J-346	564.14	0	761.09	85.2
J-611	665.14	0	862.26	85.3
J-406	559.53	6	756.76	85.3
J-417	562.28	6	759.78	85.4
J-532	668.07	0	865.68	85.5
J-1052 Dave	664.44	15	862.25	85.6
J-883	612.14	0	810.42	85.8
J-345	562.73	0	761.09	85.8
J-413	665.59	0	864.29	86.0
J-542	663.06	0	862.26	86.2
J-383	556.99	6	756.21	86.2
J-377	562.34	6	761.70	86.3
J-468	558.63	6	758.20	86.3
J-1072	666.97	7	866.73	86.4
J-442	613.67	4	813.53	86.5
J-453	625.15	0	825.26	86.6
J-1098	557.71	6	758.07	86.7
J-329	555.59	6	756.16	86.8

FlexTable: Junction Table (watercad.wtg)
Active Scenario: Existing Peak Flow Pressure

Current Time: 0.000 hours

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-855	554.72	8	755.53	86.9
J-746	609.29	9	810.30	87.0
J-21	554.00	12	755.09	87.0
J-464	554.78	6	755.94	87.0
J-330	554.91	6	756.18	87.1
J-556	609.03	0	810.43	87.1
J-435	623.73	0	825.26	87.2
J-692	556.17	6	757.73	87.2
J-1056	663.84	4	865.65	87.3
J-500	553.71	8	755.53	87.3
J-457	554.55	6	756.45	87.3
J-459	555.59	6	757.57	87.4
J-724	663.36	7	865.68	87.5
J-152	561.12	3	763.50	87.6
J-1091	555.41	6	757.99	87.6
J-617	661.64	7	864.25	87.7
J-414	661.29	0	864.29	87.8
J-1070	662.63	7	865.68	87.9
J-381	554.35	6	757.55	87.9
J-116	552.81	6	756.20	88.0
J-122	610.93	4	814.33	88.0
J-74	659.51	0	863.20	88.1
J-482	553.71	6	757.65	88.2
J-479	553.41	6	757.65	88.4
J-447	552.07	6	756.53	88.5
J-75	658.73	0	863.20	88.5
J-587	660.15	0	864.64	88.5
J-882	605.87	0	810.42	88.5
J-684	552.96	6	757.58	88.5
J-1092	553.26	6	758.23	88.7
J-472	552.44	6	757.58	88.8
J-376	553.93	6	759.21	88.8
J-716	556.29	6	761.89	89.0
J-449	549.65	6	755.29	89.0
J-1093	552.02	6	757.73	89.0
J-193	607.97	0	813.78	89.0
J-713	658.42	0	864.51	89.2
J-153	556.90	3	763.08	89.2
J-811	554.52	6	760.83	89.3
J-685	551.19	6	757.58	89.3
J-893	659.24	7	865.80	89.4
J-580	551.62	12	758.35	89.4
J-379	554.06	6	760.83	89.5
J-10	607.04	0	813.82	89.5
J-762	604.34	7	811.13	89.5

FlexTable: Junction Table (watercad.wtg)

Active Scenario: Existing Peak Flow Pressure

Current Time: 0.000 hours

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-138	657.92	0	864.87	89.5
J-1062	655.03	7	862.02	89.6
J-461	552.12	6	759.15	89.6
J-324	552.68	6	759.86	89.6
J-258	549.28	6	756.76	89.8
J-676	656.74	7	864.24	89.8
J-282	548.61	6	756.57	90.0
J-215	661.01	0	869.00	90.0
J-652	657.90	7	865.94	90.0
J-609	553.85	6	761.89	90.0
J-467	547.14	6	755.66	90.2
J-801	547.09	6	755.65	90.2
J-126	583.19	1	792.04	90.4
J-901	601.46	0	810.43	90.4
J-389	545.99	6	755.07	90.5
J-323	550.67	6	759.86	90.5
J-618	654.89	7	864.25	90.6
J-184	551.68	0	761.51	90.8
J-478	547.62	6	757.57	90.8
J-354	544.90	6	755.01	90.9
J-557	600.00	0	810.43	91.0
J-448	546.01	6	756.47	91.1
J-405	614.69	0	825.26	91.1
J-117	544.83	6	756.20	91.4
J-584	653.87	0	865.26	91.5
J-356	546.83	6	758.57	91.6
J-14	543.23	6	755.01	91.6
J-708	602.56	0	814.44	91.7
J-227	544.26	6	756.15	91.7
J-142	542.64	6	755.05	91.9
J-24	555.04	6	767.49	91.9
J-636	549.53	6	762.21	92.0
J-303	542.34	6	755.11	92.1
J-1058	652.74	4	865.52	92.1
J-908	650.54	0	863.40	92.1
J-682	655.92	7	868.81	92.1
J-873	597.53	0	810.43	92.1
J-13	541.99	6	755.01	92.2
J-360	655.45	7	868.77	92.3
J-586	651.29	0	864.64	92.3
J-700	649.89	0	863.40	92.4
J-577	596.88	0	810.42	92.4
J-597	649.15	7	862.92	92.5
J-143	648.43	6	862.65	92.7
J-1113	595.69	6	809.96	92.7

FlexTable: Junction Table (watercad.wtg)

Active Scenario: Existing Peak Flow Pressure

Current Time: 0.000 hours

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-304	540.79	6	755.11	92.7
J-471	543.23	0	757.57	92.7
J-520	651.42	14	865.76	92.7
J-246	649.72	0	864.19	92.8
J-626	647.31	7	861.97	92.9
J-430	540.34	6	755.12	92.9
J-141	547.18	6	761.97	92.9
J-1051	647.45	0	862.28	92.9
J-281	542.23	6	757.26	93.0
J-23	545.11	6	760.88	93.4
J-1050	646.37	0	862.26	93.4
J-610	646.15	0	862.26	93.5
J-445	543.64	0	759.82	93.5
J-552	647.77	0	864.19	93.6
J-876	593.86	0	810.42	93.7
J-761	594.47	7	811.14	93.7
J-608	648.63	7	865.75	93.9
J-722	648.29	4	865.43	93.9
J-365	538.42	6	755.79	94.0
J-603	647.20	7	864.86	94.2
J-280	539.63	6	757.73	94.4
J-431	537.73	6	755.87	94.4
J-997	592.19	0	810.42	94.4
J-70	644.91	0	863.16	94.4
J-567	596.06	0	814.44	94.5
J-653	647.35	7	865.86	94.5
J-404	606.68	0	825.26	94.6
J-564	595.84	0	814.44	94.6
J-565	595.84	0	814.44	94.6
J-566	595.84	0	814.44	94.6
J-729	591.80	0	810.42	94.6
J-748	538.66	6	757.58	94.7
J-1064	643.74	7	863.54	95.1
J-140	594.09	4	814.01	95.1
J-69	643.17	0	863.16	95.2
J-655	572.00	1	792.03	95.2
J-408	538.50	6	758.58	95.2
J-600	645.58	4	865.67	95.2
J-504	541.76	6	761.93	95.3
J-460	538.21	6	758.38	95.3
J-366	535.44	6	755.79	95.3
J-359	648.23	7	868.78	95.4
J-654	645.23	7	865.81	95.4
J-769	643.27	7	864.12	95.6
J-639	644.49	4	865.38	95.6

FlexTable: Junction Table (watercad.wtg)
Active Scenario: Existing Peak Flow Pressure

Current Time: 0.000 hours

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-863	589.85	7	810.96	95.7
J-693	588.96	4	810.26	95.7
J-487	536.83	0	758.24	95.8
J-490	536.81	0	758.24	95.8
J-79	570.51	1	792.06	95.9
J-737	588.67	9	810.30	95.9
J-878	570.36	1	792.07	95.9
J-58	570.16	1	792.05	96.0
J-497	536.27	0	758.26	96.0
J-263	639.56	7	861.60	96.1
J-418	538.45	0	760.64	96.1
J-443	591.34	4	813.54	96.1
J-551	641.96	0	864.19	96.1
J-169	588.77	0	811.00	96.1
J-960	536.50	0	759.00	96.3
J-170	588.46	0	811.00	96.3
J-673	639.55	0	862.27	96.4
J-163	588.03	0	811.01	96.5
J-47	587.44	0	810.54	96.5
J-262	638.54	7	861.96	96.7
J-763	587.94	7	811.40	96.7
J-95	534.95	6	758.57	96.7
J-188	589.98	0	813.84	96.9
J-585	640.80	0	864.76	96.9
J-588	640.18	0	864.19	96.9
J-355	534.54	6	759.29	97.2
J-165	533.74	6	758.51	97.2
J-407	533.85	0	758.62	97.3
J-422	533.67	6	758.46	97.3
J-633	586.00	7	810.96	97.3
J-67	566.85	1	792.06	97.4
J-875	566.71	1	792.07	97.5
J-895	585.21	7	811.05	97.7
J-446	533.66	0	759.82	97.8
J-612	638.37	0	864.64	97.9
J-877	635.74	0	862.12	97.9
J-616	636.22	6	862.65	98.0
J-898	584.52	7	811.20	98.1
J-124	565.32	1	792.03	98.1
J-996	565.32	1	792.07	98.1
J-598	636.09	7	862.92	98.1
J-1063	635.60	7	862.46	98.2
J-450	528.37	6	755.27	98.2
J-162	636.04	6	862.95	98.2
J-411	530.95	6	757.99	98.2

FlexTable: Junction Table (watercad.wtg)

Active Scenario: Existing Peak Flow Pressure

Current Time: 0.000 hours

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-764	584.05	7	811.14	98.2
J-164	532.98	6	760.25	98.3
J-717	582.37	0	810.43	98.7
J-602	636.25	7	864.86	98.9
J-96	529.85	0	758.63	99.0
J-266	585.59	0	814.44	99.0
J-670	636.29	0	865.26	99.1
J-1054	636.37	4	865.38	99.1
J-822	528.61	6	757.73	99.1
J-146	562.86	1	792.07	99.2
J-130	584.54	4	813.77	99.2
J-217	584.37	0	813.84	99.3
J-860	580.95	0	810.43	99.3
J-1111	580.82	9	810.30	99.3
J-343	595.77	0	825.26	99.3
J-622	580.59	0	810.22	99.4
J-299	528.02	6	757.68	99.4
J-300	528.00	6	757.68	99.4
J-351	632.32	0	862.08	99.4
J-821	562.04	1	792.07	99.5
J-423	528.27	6	758.45	99.6
J-42	583.21	4	813.41	99.6
J-416	525.44	6	755.79	99.7
J-211	583.29	0	813.84	99.7
J-267	583.87	0	814.44	99.8
J-897	580.46	7	811.07	99.8
J-429	525.03	6	755.88	99.9
J-1076	632.76	7	864.01	100.1
J-599	634.40	4	865.67	100.1
J-167	530.64	6	762.08	100.1
J-718	578.95	0	810.43	100.2
J-99	527.04	6	758.72	100.2
J-328	524.32	6	756.08	100.3
J-327	524.16	6	756.13	100.4
J-767	578.97	7	811.05	100.4
J-838	577.98	0	810.42	100.6
J-1110	577.81	9	810.31	100.6
J-139	577.85	0	810.49	100.7
J-285	523.10	6	755.78	100.7
J-742	632.74	4	865.52	100.7
J-171	577.59	0	810.56	100.8
J-563	632.16	4	865.38	100.9
J-879	632.03	4	865.38	101.0
J-862	577.42	7	810.97	101.0
J-745	631.83	4	865.38	101.0

FlexTable: Junction Table (watercad.wtg)

Active Scenario: Existing Peak Flow Pressure

Current Time: 0.000 hours

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-109	579.99	4	813.54	101.0
J-592	628.95	7	862.83	101.2
J-591	628.88	7	862.83	101.2
J-562	631.09	4	865.38	101.4
J-412	523.58	6	757.98	101.4
J-894	576.51	7	811.01	101.5
J-634	576.32	7	810.96	101.5
J-1031	627.38	0	862.08	101.5
J-149	557.26	1	792.04	101.6
J-1030	626.93	0	862.08	101.7
J-899	575.69	7	811.07	101.8
J-699	628.46	7	863.97	101.9
J-1032	574.97	0	810.59	101.9
J-1107	575.45	7	811.27	102.0
J-19	574.42	0	810.60	102.2
J-415	519.50	6	756.11	102.4
J-477	577.31	0	814.44	102.6
J-705	587.95	0	825.26	102.7
J-772	524.39	6	761.93	102.8
J-77	524.51	6	762.08	102.8
J-672	573.67	0	811.26	102.8
J-20	572.97	0	810.60	102.8
J-782	573.41	0	811.32	102.9
J-76	523.92	6	762.08	103.0
J-53	523.53	6	761.98	103.2
J-848	571.83	26	810.28	103.2
J-54	523.43	6	761.98	103.2
J-839	572.61	0	811.32	103.3
J-849	572.53	0	811.32	103.3
J-1109	571.84	7	811.10	103.5
J-144	623.36	6	862.65	103.5
J-635	520.21	0	759.62	103.6
J-972	628.04	7	867.92	103.8
J-675	624.18	7	864.13	103.8
J-768	623.93	7	864.01	103.9
J-850	570.98	0	811.34	104.0
J-384	628.37	7	868.76	104.0
J-17	570.40	0	810.83	104.0
J-671	570.20	0	811.26	104.3
J-44	520.38	6	761.99	104.5
J-286	513.49	6	755.12	104.5
J-43	520.11	6	761.99	104.6
J-886	520.16	6	762.09	104.7
J-854	549.95	6	792.03	104.7
J-754	568.78	7	810.98	104.8

FlexTable: Junction Table (watercad.wtg)

Active Scenario: Existing Peak Flow Pressure

Current Time: 0.000 hours

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-106	549.74	1	792.03	104.8
J-890	567.89	0	810.78	105.1
J-100	519.06	6	762.09	105.1
J-680	567.24	4	810.28	105.2
J-1103	567.14	13	810.29	105.2
J-668	518.89	6	762.08	105.2
J-867	567.33	7	810.99	105.4
J-730	620.27	7	864.02	105.5
J-357	521.80	6	765.83	105.6
J-207	567.34	7	811.54	105.7
J-851	566.55	7	810.98	105.8
J-619	620.89	4	865.38	105.8
J-866	566.33	7	811.01	105.9
J-667	565.42	4	810.29	105.9
J-829	565.39	13	810.29	106.0
J-738	565.16	9	810.32	106.1
J-731	618.74	7	863.97	106.1
J-766	565.73	7	811.06	106.1
J-1112	564.53	6	809.97	106.2
J-752	565.53	7	810.98	106.2
J-105	546.39	6	792.03	106.3
J-765	565.38	7	811.15	106.3
J-210	564.28	0	810.34	106.5
J-823	564.84	7	810.99	106.5
J-870	619.15	4	865.35	106.5
J-206	564.99	7	811.40	106.6
J-656	618.80	4	865.35	106.7
J-284	514.70	6	761.39	106.7
J-824	564.16	7	810.99	106.8
J-826	618.45	8	865.35	106.8
J-1108	564.44	7	811.40	106.8
J-63	514.78	6	762.09	107.0
J-15	563.28	0	810.78	107.1
J-1055	617.65	4	865.40	107.2
J-64	514.07	6	762.09	107.3
J-370	513.92	6	762.29	107.5
J-891	561.67	0	810.78	107.8
J-31	512.72	6	762.20	107.9
J-214	619.04	7	868.60	108.0
J-224	564.24	0	813.84	108.0
J-1059	615.54	4	865.38	108.1
J-755	561.14	7	810.98	108.1
J-358	529.99	6	779.93	108.1
J-1040	559.84	6	809.95	108.2
J-110	541.83	1	792.03	108.3

FlexTable: Junction Table (watercad.wtg)
Active Scenario: Existing Peak Flow Pressure

Current Time: 0.000 hours

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-555	559.26	0	810.22	108.6
J-104	559.09	0	810.43	108.7
J-753	559.50	7	810.97	108.8
J-103	558.77	0	810.43	108.9
J-1079	540.26	1	792.03	108.9
J-87	510.30	6	762.12	109.0
J-834	612.99	8	865.35	109.2
J-645	612.97	4	865.38	109.2
J-677	557.53	0	811.49	109.9
J-678	557.50	0	811.49	109.9
J-56	507.75	6	761.99	110.0
J-112	556.02	0	810.43	110.1
J-589	555.83	4	810.31	110.1
J-111	555.71	0	810.43	110.2
J-145	507.25	6	762.08	110.3
J-65	507.14	6	762.04	110.3
J-158	608.09	0	863.06	110.3
J-101	607.73	6	862.94	110.4
J-55	506.60	6	761.99	110.5
J-797	556.34	0	811.79	110.5
J-369	527.08	6	782.53	110.5
J-601	554.82	4	810.31	110.5
J-547	554.77	4	810.28	110.5
J-631	556.19	0	811.79	110.6
J-66	505.86	6	762.04	110.8
J-554	553.94	4	810.31	110.9
J-549	554.83	0	811.79	111.2
J-553	552.87	4	810.31	111.4
J-127	552.95	0	810.43	111.4
J-548	552.74	4	810.29	111.4
J-624	604.62	0	862.28	111.5
J-550	554.13	0	811.79	111.5
J-544	552.62	0	810.45	111.6
J-1104	552.35	13	810.29	111.6
J-223	555.79	0	813.84	111.6
J-60	552.38	0	810.43	111.6
J-59	552.18	0	810.43	111.7
J-120	553.31	0	811.61	111.8
J-40	533.71	1	792.03	111.8
J-35	604.27	6	862.65	111.8
J-36	604.27	6	862.65	111.8
J-632	553.19	0	811.79	111.9
J-39	533.10	1	792.03	112.0
J-102	603.96	6	862.94	112.1
J-156	603.96	0	863.43	112.3

FlexTable: Junction Table (watercad.wtg)
Active Scenario: Existing Peak Flow Pressure

Current Time: 0.000 hours

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-733	602.18	7	861.97	112.4
J-125	602.85	6	862.65	112.4
J-543	550.11	0	810.45	112.6
J-121	551.38	0	811.79	112.7
J-113	549.90	0	810.45	112.7
J-107	531.23	1	792.03	112.8
J-148	531.17	1	792.03	112.9
J-561	549.08	0	810.45	113.1
J-581	548.78	0	810.45	113.2
J-629	547.66	6	809.95	113.5
J-665	547.66	6	809.97	113.5
J-590	547.97	4	810.31	113.5
J-800	547.79	13	810.32	113.6
J-226	547.56	5	810.21	113.6
J-108	600.28	6	862.94	113.6
J-844	546.07	13	810.31	114.3
J-831	547.40	0	811.79	114.4
J-596	545.50	4	810.32	114.6
J-161	597.26	0	862.71	114.8
J-887	544.29	6	809.99	115.0
J-1106	544.47	4	810.26	115.0
J-209	544.35	0	810.37	115.1
J-11	544.22	0	810.37	115.2
J-147	596.37	0	862.70	115.2
J-620	594.98	0	862.29	115.7
J-830	544.37	0	811.79	115.7
J-698	595.96	7	863.97	116.0
J-1053	596.34	4	865.37	116.4
J-1105	539.95	0	810.36	117.0
J-625	590.54	0	862.27	117.6
J-159	590.97	0	863.42	117.9
J-817	537.06	6	809.95	118.1
J-657	592.43	4	865.35	118.1
J-864	589.75	0	862.71	118.1
J-646	592.36	4	865.38	118.1
J-630	536.69	6	809.95	118.2
J-709	591.89	4	865.35	118.3
J-25	587.85	0	863.17	119.1
J-721	589.77	4	865.37	119.2
J-84	587.14	0	862.91	119.3
J-621	586.53	0	862.31	119.3
J-666	532.92	6	809.97	119.9
J-690	587.40	4	865.36	120.3
J-220	530.52	0	810.18	121.0
J-73	582.28	12	862.68	121.3

FlexTable: Junction Table (watercad.wtg)
Active Scenario: Existing Peak Flow Pressure

Current Time: 0.000 hours

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-558	529.11	4	810.27	121.6
J-150	581.64	6	862.95	121.7
J-559	528.79	4	810.27	121.8
J-732	580.62	0	862.37	121.9
J-179	528.36	0	810.36	122.0
J-81	579.78	12	862.68	122.4
J-183	527.30	0	810.36	122.5
J-160	527.29	0	810.54	122.5
J-186	526.67	0	810.55	122.8
J-689	525.74	4	810.32	123.1
J-91	577.34	0	862.71	123.5
J-80	576.38	0	862.96	124.0
J-49	576.22	0	862.94	124.0
J-757	520.39	6	810.15	125.4
J-880	573.20	4	865.38	126.4
J-502	570.03	0	862.42	126.5
J-758	505.45	6	810.14	131.8
J-221	501.20	0	810.18	133.7
J-243	501.20	0	810.18	133.7

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Existing Available Flow

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-1033	553.00	(N/A)	(N/A)
J-1035	608.39	(N/A)	(N/A)
J-1036	578.63	(N/A)	(N/A)
J-1037	553.51	(N/A)	(N/A)
J-1038	594.38	(N/A)	(N/A)
J-1039	573.07	(N/A)	(N/A)
J-1042	540.00	(N/A)	(N/A)
J-1043	493.00	(N/A)	(N/A)
J-1119	580.00	(N/A)	(N/A)
J-1120	560.00	(N/A)	(N/A)
J-1121	0.00	(N/A)	(N/A)
J-1122	542.14	(N/A)	(N/A)
J-286	513.49	123	J-853
J-278	602.20	127	J-853
J-284	514.70	140	J-853
J-253	655.64	142	J-853
J-281	542.23	143	J-853
J-251	640.00	156	J-853
J-266	585.59	175	J-853
J-256	569.25	179	J-853
J-263	639.56	192	J-853
J-245	669.80	203	J-853
J-494	620.45	342	J-853
J-241	562.15	443	J-853
J-457	554.55	449	J-853
J-247	550.33	458	J-853
J-397	640.57	481	J-853
J-483	597.44	481	J-853
J-366	535.44	502	J-853
J-1030	626.93	508	J-1031
J-1031	627.38	510	J-1030
J-267	583.87	513	J-266
J-351	632.32	527	J-1031
J-456	647.55	530	J-853
J-365	538.42	545	J-366
J-458	590.07	546	J-853
J-285	523.10	559	J-365
J-463	609.47	566	J-853
J-416	525.44	566	J-365
J-350	542.69	570	J-241
J-473	670.68	571	J-853
J-415	519.50	587	J-853
J-431	537.73	587	J-365
J-466	566.20	591	J-853

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Existing Available Flow

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-429	525.03	600	J-365
J-441	597.39	624	J-853
J-726	686.28	629	J-853
J-448	546.01	635	J-457
J-344	540.39	653	J-241
J-450	528.37	656	J-853
J-650	597.89	660	J-853
J-453	625.15	660	J-473
J-275	538.98	672	J-241
J-725	677.00	673	J-726
J-328	524.32	675	J-365
J-388	570.07	679	J-853
J-345	562.73	684	J-853
J-327	524.16	690	J-365
J-643	681.34	691	J-726
J-290	637.49	695	J-853
J-566	595.84	701	J-564
J-565	595.84	701	J-564
J-564	595.84	707	J-565
J-295	670.63	712	J-853
J-373	623.13	719	J-853
J-644	680.19	724	J-726
J-270	539.72	727	J-241
J-437	566.16	733	J-853
J-427	590.27	744	J-853
J-471	543.23	746	J-703
J-545	584.34	748	J-650
J-546	584.78	748	J-650
J-346	564.14	749	J-345
J-703	568.30	752	J-853
J-445	543.64	758	J-853
J-1095	620.99	761	J-290
J-478	547.62	772	J-853
J-1096	616.94	785	J-1095
J-249	542.14	786	J-241
J-477	577.31	786	J-266
J-442	613.67	786	J-853
J-302	639.12	786	J-301
J-301	638.84	799	J-302
J-532	668.07	800	J-853
J-1071	684.04	803	J-726
J-455	664.66	805	J-454
J-1097	613.41	815	J-1096
J-433	571.89	832	J-853

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Existing Available Flow

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-343	595.77	860	J-473
J-772	524.39	865	J-853
J-454	660.02	867	J-455
J-1070	662.63	868	J-532
J-567	596.06	869	J-564
J-402	569.03	871	J-241
J-414	661.29	876	J-853
J-392	620.26	881	J-853
J-741	677.28	887	J-726
J-341	545.02	889	J-241
J-435	623.73	896	J-853
J-705	587.95	896	J-435
J-858	678.68	899	J-726
J-1069	673.50	903	J-726
J-1068	672.97	904	J-726
J-859	675.64	907	J-726
J-719	574.02	915	J-650
J-276	541.55	916	J-241
J-889	678.82	920	J-337
J-892	600.88	921	J-650
J-1087	602.66	921	J-302
J-254	655.01	927	J-889
J-648	674.25	932	J-726
J-252	626.84	933	J-889
J-1	538.72	938	J-276
J-708	602.56	938	J-567
J-688	605.84	941	J-889
J-372	619.07	947	J-373
J-364	617.80	948	J-853
J-654	645.23	951	J-726
J-1086	594.66	957	J-853
J-1084	566.68	958	J-853
J-951	604.14	960	J-853
J-647	674.80	966	J-726
J-504	541.76	968	J-772
J-371	598.15	968	J-853
J-727	577.07	968	J-728
J-653	647.35	970	J-726
J-424	625.88	974	J-853
J-663	620.71	976	J-889
J-318	590.66	977	J-283
J-1078	612.33	981	J-889
J-659	594.82	983	J-889
J-531	592.14	984	J-889

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Existing Available Flow

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-378	574.37	984	J-853
J-1077	624.23	985	J-889
J-423	528.27	986	J-853
J-517	625.99	986	J-640
J-384	628.37	987	J-853
J-640	625.89	987	J-517
J-283	593.09	988	J-318
J-387	567.37	988	J-388
J-664	652.32	990	J-889
J-735	575.02	993	J-853
J-652	657.90	995	J-726
J-421	617.99	996	J-853
J-649	675.18	999	J-726
J-381	554.35	1,002	J-853
J-693	588.96	1,013	J-853
J-669	657.76	1,014	J-889
J-641	633.65	1,014	J-889
J-710	562.19	1,015	J-650
J-1065	675.40	1,017	J-726
J-362	579.84	1,025	J-853
J-623	634.06	1,028	J-607
J-337	675.57	1,031	J-889
J-360	655.45	1,037	J-853
J-412	523.58	1,050	J-853
J-605	673.81	1,051	J-726
J-606	631.94	1,051	J-607
J-1085	566.53	1,052	J-853
J-347	665.82	1,062	J-473
J-604	674.57	1,062	J-726
J-874	578.38	1,068	J-892
J-711	721.98	1,070	J-853
J-1124	602.80	1,074	J-734
J-699	628.46	1,077	J-853
J-325	669.93	1,083	J-326
J-734	604.19	1,084	J-1124
J-401	594.99	1,084	J-734
J-436	604.47	1,094	J-853
J-607	637.53	1,099	J-623
J-326	667.52	1,103	J-325
J-569	672.42	1,111	J-237
J-698	595.96	1,111	J-699
J-731	618.74	1,111	J-699
J-390	575.71	1,112	J-853
J-1100	604.31	1,122	J-853

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Existing Available Flow

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-447	552.07	1,127	J-457
J-1098	557.71	1,139	J-853
J-297	581.76	1,140	J-853
J-728	604.30	1,158	J-892
J-309	612.92	1,162	J-310
J-865	656.42	1,162	J-853
J-24	555.04	1,163	J-853
J-310	612.35	1,167	J-309
J-338	675.38	1,168	J-337
J-404	606.68	1,175	J-473
J-701	620.08	1,180	J-853
J-237	664.57	1,182	J-569
J-420	611.13	1,196	J-853
J-750	690.90	1,206	J-853
J-574	669.84	1,213	J-338
J-282	548.61	1,229	J-853
J-1106	544.47	1,238	J-693
J-745	631.83	1,243	J-853
J-367	579.07	1,250	J-466
J-712	627.82	1,253	J-853
J-723	703.51	1,264	J-853
J-487	536.83	1,267	J-853
J-630	536.69	1,269	J-884
J-884	621.94	1,269	J-853
J-817	537.06	1,269	J-884
J-629	547.66	1,269	J-884
J-746	609.29	1,270	J-853
J-651	681.05	1,286	J-853
J-770	603.08	1,287	J-728
J-608	648.63	1,289	J-853
J-495	645.40	1,299	J-853
J-1040	559.84	1,303	J-884
J-656	618.80	1,303	J-853
J-695	610.02	1,305	J-338
J-709	591.89	1,317	J-853
J-686	584.08	1,320	J-853
J-1052 Dave	664.44	1,324	J-611
J-1099	591.01	1,325	J-1100
J-768	623.93	1,327	J-853
J-1113	595.69	1,327	J-884
J-593	690.47	1,329	J-853
J-434	612.12	1,330	J-424
J-1066	678.69	1,331	J-726
J-733	602.18	1,334	J-853

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Existing Available Flow

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-610	646.15	1,339	J-611
J-1050	646.37	1,344	J-1052 Dave
J-490	536.81	1,357	J-487
J-666	532.92	1,364	J-884
J-665	547.66	1,364	J-884
J-1112	564.53	1,366	J-884
J-611	665.14	1,367	J-1052 Dave
J-279	604.71	1,371	J-278
J-464	554.78	1,372	J-853
J-748	538.66	1,372	J-853
J-960	536.50	1,372	J-853
J-255	575.09	1,372	J-256
J-767	578.97	1,376	J-853
J-303	542.34	1,377	J-304
J-1094	581.31	1,382	J-853
J-262	638.54	1,384	J-263
J-764	584.05	1,388	J-853
J-520	651.42	1,388	J-608
J-1102	592.89	1,389	J-728
J-742	632.74	1,390	J-853
J-642	670.53	1,391	J-853
J-769	643.27	1,397	J-853
J-762	604.34	1,398	J-853
J-438	580.41	1,402	J-853
J-707	571.97	1,402	J-853
J-304	540.79	1,404	J-303
J-841	739.49	1,407	J-840
J-430	540.34	1,412	J-303
J-714	685.90	1,412	J-853
J-459	555.59	1,419	J-853
J-887	544.29	1,420	J-884
J-819	643.46	1,424	J-865
J-497	536.27	1,424	J-487
J-792	641.78	1,426	J-865
J-753	559.50	1,426	J-853
J-791	641.13	1,427	J-865
J-558	529.11	1,428	J-693
J-559	528.79	1,428	J-693
J-893	659.24	1,435	J-841
J-1075	704.80	1,435	J-841
J-840	737.43	1,435	J-841
J-660	633.10	1,437	J-853
J-239	648.42	1,442	J-569
J-763	587.94	1,443	J-853

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Existing Available Flow

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-594	680.96	1,443	J-593
J-131	616.44	1,450	J-865
J-449	549.65	1,452	J-853
J-730	620.27	1,452	J-699
J-432	634.80	1,456	J-853
J-542	663.06	1,458	J-541
J-541	669.82	1,458	J-611
J-375	577.37	1,461	J-853
J-657	592.43	1,461	J-656
J-132	602.30	1,463	J-865
J-118	582.15	1,472	J-865
J-119	563.06	1,472	J-865
J-339	641.94	1,480	J-853
J-755	561.14	1,483	J-853
J-1059	615.54	1,484	J-745
J-639	644.49	1,494	J-853
J-662	677.98	1,501	J-711
J-626	647.31	1,504	J-263
J-451	575.67	1,507	J-853
J-386	563.84	1,508	J-390
J-1054	636.37	1,511	J-853
J-573	683.99	1,514	J-572
J-1058	652.74	1,532	J-853
J-737	588.67	1,539	J-853
J-472	552.44	1,543	J-703
J-1074	694.62	1,543	J-853
J-1101	579.82	1,543	J-728
J-697	662.46	1,547	J-853
J-685	551.19	1,548	J-703
J-870	619.15	1,558	J-826
J-426	580.43	1,567	J-1097
J-684	552.96	1,572	J-478
J-359	648.23	1,572	J-360
J-600	645.58	1,589	J-711
J-599	634.40	1,589	J-711
J-21	554.00	1,591	J-853
J-758	505.45	1,594	J-853
J-552	647.77	1,623	J-642
J-551	641.96	1,623	J-642
J-826	618.45	1,628	J-870
J-1111	580.82	1,638	J-746
J-619	620.89	1,639	J-711
J-234	647.59	1,645	J-569
J-716	556.29	1,650	J-853

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Existing Available Flow

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-739	667.14	1,653	J-853
J-1053	596.34	1,654	J-1054
J-680	567.24	1,658	J-853
J-1055	617.65	1,663	J-1054
J-718	578.95	1,674	J-853
J-425	593.54	1,681	J-444
J-747	562.16	1,681	J-703
J-405	614.69	1,682	J-455
J-324	552.68	1,684	J-853
J-885	616.78	1,684	J-853
J-444	594.55	1,687	J-425
J-1056	663.84	1,690	J-711
J-14	543.23	1,699	J-13
J-168	579.99	1,699	J-853
J-646	592.36	1,699	J-711
J-694	619.42	1,702	J-853
J-679	620.40	1,704	J-712
J-834	612.99	1,710	J-870
J-340	641.69	1,717	J-339
J-563	632.16	1,738	J-639
J-1049	628.97	1,740	J-853
J-13	541.99	1,741	J-14
J-667	565.42	1,743	J-853
J-417	562.28	1,748	J-853
J-474	564.85	1,750	J-853
J-682	655.92	1,752	J-853
J-888	646.54	1,753	J-853
J-353	587.19	1,758	J-853
J-356	546.83	1,761	J-1085
J-446	533.66	1,766	J-445
J-587	660.15	1,775	J-593
J-586	651.29	1,775	J-593
J-720	640.40	1,781	J-853
J-661	637.18	1,781	J-660
J-655	572.00	1,781	J-853
J-690	587.40	1,800	J-870
J-391	610.90	1,802	J-392
J-389	545.99	1,812	J-853
J-349	584.13	1,816	J-853
J-323	550.67	1,819	J-324
J-287	606.77	1,821	J-290
J-702	650.04	1,823	J-495
J-744	687.11	1,825	J-711
J-743	669.08	1,825	J-711

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Existing Available Flow

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-722	648.29	1,825	J-711
J-721	589.77	1,825	J-711
J-880	573.20	1,825	J-711
J-645	612.97	1,825	J-711
J-879	632.03	1,825	J-711
J-562	631.09	1,825	J-711
J-634	576.32	1,826	J-853
J-687	574.88	1,836	J-728
J-461	552.12	1,838	J-388
J-403	563.62	1,849	J-853
J-560	633.88	1,852	J-569
J-246	649.72	1,859	J-642
J-896	614.44	1,885	J-853
J-141	547.18	1,890	J-168
J-704	714.06	1,897	J-711
J-399	563.98	1,898	J-853
J-1110	577.81	1,906	J-737
J-1081	623.17	1,916	J-853
J-486	648.01	1,919	J-340
J-352	594.84	1,929	J-290
J-361	571.92	1,929	J-362
J-547	554.77	1,951	J-693
J-54	523.43	1,958	J-168
J-53	523.53	1,958	J-168
J-1080	618.14	1,959	J-1081
J-749	718.32	1,960	J-711
J-489	683.88	1,966	J-853
J-1067	700.15	1,967	J-726
J-757	520.39	1,970	J-884
J-873	597.53	1,983	J-556
J-622	580.59	1,989	J-607
J-616	636.22	1,990	J-853
J-683	600.85	1,994	J-432
J-1062	655.03	1,996	J-626
J-90	642.44	2,005	J-88
J-484	659.67	2,014	J-853
J-89	636.28	2,019	J-88
J-88	642.68	2,019	J-90
J-557	600.00	2,025	J-556
J-863	589.85	2,026	J-885
J-668	518.89	2,028	J-572
J-613	606.35	2,028	J-701
J-760	723.64	2,029	J-841
J-354	544.90	2,039	J-853

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Existing Available Flow

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-548	552.74	2,039	J-693
J-771	634.88	2,040	J-373
J-881	618.28	2,041	J-661
J-633	586.00	2,045	J-896
J-614	584.53	2,050	J-853
J-577	596.88	2,062	J-661
J-43	520.11	2,066	J-168
J-44	520.38	2,066	J-168
J-673	639.55	2,067	J-541
J-589	555.83	2,077	J-853
J-556	609.03	2,085	J-557
J-678	557.50	2,088	J-853
J-376	553.93	2,091	J-572
J-124	565.32	2,092	J-888
J-106	549.74	2,092	J-888
J-1079	540.26	2,092	J-888
J-110	541.83	2,092	J-888
J-149	557.26	2,092	J-888
J-40	533.71	2,092	J-888
J-126	583.19	2,092	J-888
J-148	531.17	2,092	J-888
J-39	533.10	2,092	J-888
J-107	531.23	2,092	J-888
J-632	553.19	2,095	J-853
J-588	640.18	2,096	J-642
J-220	530.52	2,096	J-884
J-243	501.20	2,096	J-884
J-221	501.20	2,096	J-884
J-105	546.39	2,097	J-888
J-854	549.95	2,097	J-888
J-805	582.53	2,104	J-865
J-804	583.63	2,110	J-865
J-56	507.75	2,119	J-168
J-55	506.60	2,119	J-168
J-601	554.82	2,119	J-853
J-226	547.56	2,121	J-607
J-590	547.97	2,122	J-853
J-862	577.42	2,124	J-885
J-439	577.33	2,149	J-853
J-46	602.67	2,149	J-888
J-45	602.67	2,149	J-888
J-555	559.26	2,173	J-607
J-143	648.43	2,175	J-853
J-413	665.59	2,179	J-414

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Existing Available Flow

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-670	636.29	2,185	J-853
J-1051	647.45	2,198	J-853
J-380	561.97	2,200	J-381
J-689	525.74	2,200	J-853
J-628	678.98	2,201	J-853
J-523	586.99	2,203	J-1049
J-713	658.42	2,213	J-714
J-900	589.68	2,219	J-865
J-428	586.95	2,223	J-865
J-787	568.26	2,236	J-865
J-882	605.87	2,241	J-661
J-786	568.02	2,244	J-865
J-790	567.67	2,250	J-865
J-395	576.06	2,250	J-439
J-480	568.39	2,253	J-865
J-997	592.19	2,273	J-661
J-408	538.50	2,274	J-572
J-729	591.80	2,274	J-661
J-481	569.76	2,276	J-865
J-851	566.55	2,280	J-752
J-627	598.33	2,284	J-694
J-479	553.41	2,301	J-703
J-410	560.68	2,315	J-572
J-482	553.71	2,318	J-703
J-554	553.94	2,336	J-589
J-85	636.16	2,337	J-88
J-86	637.42	2,337	J-88
J-919	561.80	2,345	J-865
J-691	561.80	2,345	J-865
J-675	624.18	2,350	J-769
J-752	565.53	2,353	J-851
J-144	623.36	2,357	J-143
J-672	573.67	2,367	J-853
J-901	601.46	2,376	J-853
J-398	633.84	2,378	J-302
J-385	558.47	2,392	J-572
J-848	571.83	2,401	J-853
J-883	612.14	2,402	J-661
J-348	588.66	2,402	J-1082
J-637	603.02	2,403	J-1080
J-1091	555.41	2,407	J-865
J-58	570.16	2,418	J-888
J-377	562.34	2,423	J-444
J-79	570.51	2,431	J-888

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Existing Available Flow

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-501	629.04	2,432	J-759
J-857	632.22	2,433	J-820
J-65	507.14	2,436	J-168
J-66	505.86	2,437	J-168
J-759	627.08	2,440	J-501
J-717	582.37	2,446	J-556
J-499	629.63	2,449	J-302
J-612	638.37	2,451	J-593
J-706	564.41	2,470	J-728
J-1082	593.07	2,472	J-348
J-553	552.87	2,474	J-589
J-692	556.17	2,474	J-865
J-334	564.65	2,474	J-853
J-167	530.64	2,490	J-572
J-839	572.61	2,494	J-782
J-824	564.16	2,494	J-885
J-681	688.81	2,496	J-853
J-550	554.13	2,502	J-853
J-333	566.86	2,509	J-853
J-829	565.39	2,510	J-848
J-823	564.84	2,513	J-885
J-876	593.86	2,530	J-661
J-1088	599.98	2,535	J-759
J-820	642.77	2,543	J-784
J-782	573.41	2,547	J-839
J-784	643.04	2,552	J-820
J-155	624.77	2,557	J-853
J-773	641.35	2,566	J-784
J-1103	567.14	2,573	J-848
J-35	604.27	2,579	J-143
J-36	604.27	2,579	J-143
J-67	566.85	2,585	J-888
J-886	520.16	2,602	J-572
J-871	622.00	2,604	J-572
J-1104	552.35	2,611	J-848
J-674	590.49	2,614	J-1081
J-374	588.59	2,616	J-759
J-754	568.78	2,620	J-885
J-1090	601.20	2,620	J-155
J-891	561.67	2,620	J-853
J-797	556.34	2,623	J-631
J-638	596.05	2,624	J-1080
J-595	673.48	2,624	J-489
J-631	556.19	2,630	J-797

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Existing Available Flow

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-751	701.81	2,631	J-841
J-549	554.83	2,636	J-797
J-867	567.33	2,636	J-885
J-860	580.95	2,637	J-556
J-443	591.34	2,646	J-442
J-845	642.98	2,653	J-784
J-136	589.68	2,669	J-155
J-1093	552.02	2,673	J-865
J-355	534.54	2,673	J-388
J-866	566.33	2,674	J-885
J-1092	553.26	2,684	J-865
J-125	602.85	2,685	J-143
J-154	646.70	2,695	J-88
J-894	576.51	2,696	J-885
J-572	684.16	2,698	J-573
J-137	588.03	2,709	J-155
J-844	546.07	2,711	J-848
J-738	565.16	2,719	J-746
J-77	524.51	2,730	J-76
J-596	545.50	2,739	J-693
J-1083	567.30	2,740	J-1080
J-76	523.92	2,741	J-77
J-899	575.69	2,742	J-885
J-736	609.49	2,761	J-398
J-133	566.98	2,764	J-155
J-142	542.64	2,787	J-155
J-134	559.42	2,787	J-155
J-878	570.36	2,792	J-888
J-100	519.06	2,803	J-168
J-64	514.07	2,803	J-168
J-63	514.78	2,803	J-168
J-145	507.25	2,803	J-168
J-800	547.79	2,806	J-848
J-101	607.73	2,823	J-102
J-146	562.86	2,826	J-888
J-821	562.04	2,826	J-888
J-875	566.71	2,826	J-888
J-996	565.32	2,827	J-888
J-468	558.63	2,830	J-1081
J-104	559.09	2,845	J-556
J-780	682.02	2,855	J-572
J-210	564.28	2,856	J-607
J-615	573.51	2,865	J-728
J-280	539.63	2,866	J-865

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Existing Available Flow

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-108	600.28	2,868	J-101
J-102	603.96	2,872	J-101
J-460	538.21	2,873	J-1081
J-580	551.62	2,874	J-1081
J-103	558.77	2,877	J-556
J-895	585.21	2,881	J-885
J-766	565.73	2,882	J-885
J-383	556.99	2,891	J-572
J-838	577.98	2,897	J-661
J-815	575.84	2,903	J-661
J-814	576.22	2,903	J-661
J-95	534.95	2,905	J-1081
J-617	661.64	2,909	J-853
J-96	529.85	2,910	J-1081
J-99	527.04	2,925	J-1081
J-831	547.40	2,937	J-797
J-830	544.37	2,937	J-797
J-609	553.85	2,942	J-444
J-59	552.18	2,942	J-556
J-60	552.38	2,942	J-556
J-407	533.85	2,950	J-1081
J-897	580.46	2,952	J-885
J-209	544.35	2,973	J-607
J-1105	539.95	2,973	J-607
J-179	528.36	2,973	J-607
J-11	544.22	2,973	J-607
J-183	527.30	2,973	J-607
J-849	572.53	2,975	J-820
J-925	564.20	2,979	J-474
J-850	570.98	2,997	J-820
J-1073	673.79	3,007	J-841
J-635	520.21	3,016	J-1081
J-20	572.97	3,021	J-853
J-127	552.95	3,025	J-556
J-585	640.80	3,026	J-593
J-162	636.04	3,031	J-853
J-811	554.52	3,034	J-379
J-1109	571.84	3,056	J-885
J-379	554.06	3,060	J-811
J-561	549.08	3,067	J-853
J-576	674.32	3,073	J-853
J-602	636.25	3,076	J-853
J-597	649.15	3,095	J-853
J-139	577.85	3,108	J-661

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Existing Available Flow

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-159	590.97	3,112	J-888
J-357	521.80	3,129	J-302
J-620	594.98	3,139	J-541
J-822	528.61	3,141	J-865
J-411	530.95	3,145	J-865
J-581	548.78	3,146	J-556
J-422	533.67	3,159	J-865
J-544	552.62	3,171	J-556
J-112	556.02	3,172	J-556
J-165	533.74	3,174	J-865
J-299	528.02	3,174	J-865
J-300	528.00	3,174	J-865
J-864	589.75	3,180	J-853
J-765	565.38	3,210	J-885
J-163	588.03	3,214	J-154
J-677	557.53	3,215	J-820
J-358	529.99	3,216	J-302
J-169	588.77	3,219	J-154
J-170	588.46	3,219	J-154
J-624	604.62	3,226	J-541
J-498	559.18	3,227	J-302
J-31	512.72	3,248	J-168
J-1072	666.97	3,252	J-841
J-584	653.87	3,255	J-593
J-111	555.71	3,257	J-556
J-87	510.30	3,259	J-168
J-156	603.96	3,269	J-888
J-868	565.47	3,272	J-302
J-23	545.11	3,309	J-811
J-47	587.44	3,313	J-661
J-418	538.45	3,320	J-302
J-369	527.08	3,328	J-358
J-370	513.92	3,330	J-168
J-671	570.20	3,332	J-154
J-113	549.90	3,356	J-556
J-543	550.11	3,356	J-556
J-406	559.53	3,398	J-572
J-171	577.59	3,409	J-661
J-952	627.46	3,413	J-853
J-500	553.71	3,414	J-302
J-855	554.72	3,430	J-302
J-1032	574.97	3,447	J-661
J-17	570.40	3,451	J-154
J-15	563.28	3,456	J-891

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Existing Available Flow

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-592	628.95	3,456	J-853
J-19	574.42	3,457	J-661
J-71	692.61	3,461	J-72
J-120	553.31	3,462	J-154
J-462	610.81	3,467	J-871
J-496	571.00	3,478	J-302
J-160	527.29	3,489	J-607
J-72	692.45	3,490	J-71
J-363	613.48	3,499	J-364
J-10	607.04	3,500	J-853
J-25	587.85	3,500	J-853
J-33	719.70	3,500	J-853
J-49	576.22	3,500	J-853
J-69	643.17	3,500	J-853
J-70	644.91	3,500	J-853
J-74	659.51	3,500	J-71
J-75	658.73	3,500	J-71
J-80	576.38	3,500	J-853
J-84	587.14	3,500	J-853
J-91	577.34	3,500	J-864
J-92	577.12	3,500	J-853
J-93	697.17	3,500	J-853
J-94	700.52	3,500	J-853
J-97	622.30	3,500	J-572
J-115	707.82	3,500	J-853
J-121	551.38	3,500	J-154
J-138	657.92	3,500	J-853
J-147	596.37	3,500	J-853
J-157	744.50	3,500	J-853
J-158	608.09	3,500	J-853
J-161	597.26	3,500	J-853
J-177	638.14	3,500	J-853
J-178	638.09	3,500	J-853
J-184	551.68	3,500	J-853
J-186	526.67	3,500	J-607
J-188	589.98	3,500	J-853
J-191	625.98	3,500	J-853
J-192	623.29	3,500	J-853
J-193	607.97	3,500	J-853
J-194	568.20	3,500	J-853
J-201	567.87	3,500	J-853
J-202	627.18	3,500	J-853
J-203	599.56	3,500	J-853
J-204	580.14	3,500	J-853

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Existing Available Flow

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-205	588.72	3,500	J-853
J-208	588.10	3,500	J-853
J-211	583.29	3,500	J-853
J-215	661.01	3,500	J-853
J-216	618.78	3,500	J-853
J-217	584.37	3,500	J-853
J-218	680.24	3,500	J-572
J-223	555.79	3,500	J-853
J-224	564.24	3,500	J-853
J-229	685.35	3,500	J-853
J-230	685.38	3,500	J-853
J-342	591.46	3,500	J-572
J-440	611.65	3,500	J-853
J-469	704.03	3,500	J-853
J-470	690.81	3,500	J-71
J-492	584.90	3,500	J-572
J-493	690.64	3,500	J-71
J-502	570.03	3,500	J-853
J-575	665.91	3,500	J-853
J-621	586.53	3,500	J-853
J-625	590.54	3,500	J-853
J-658	606.04	3,500	J-572
J-700	649.89	3,500	J-71
J-715	583.63	3,500	J-572
J-732	580.62	3,500	J-853
J-740	694.66	3,500	J-853
J-794	703.68	3,500	J-853
J-795	703.16	3,500	J-853
J-833	707.23	3,500	J-853
J-843	679.08	3,500	J-572
J-846	589.73	3,500	J-572
J-852	701.17	3,500	J-853
J-853	685.90	3,500	J-229
J-861	610.66	3,500	J-853
J-872	600.92	3,500	J-853
J-877	635.74	3,500	J-853
J-890	567.89	3,500	J-154
J-908	650.54	3,500	J-71
J-931	716.48	3,500	J-853
J-1115	701.41	3,500	J-853
J-27	584.13	3,503	J-853
J-152	561.12	3,503	J-853
J-153	556.90	3,503	J-853
J-1089	575.56	3,503	J-853

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Existing Available Flow

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-42	583.21	3,504	J-853
J-109	579.99	3,504	J-853
J-122	610.93	3,504	J-853
J-123	621.90	3,504	J-853
J-128	671.89	3,504	J-853
J-129	657.72	3,504	J-853
J-130	584.54	3,504	J-853
J-135	640.01	3,504	J-853
J-140	594.09	3,504	J-853
J-174	706.13	3,504	J-853
J-181	649.08	3,504	J-853
J-182	649.95	3,504	J-853
J-189	696.30	3,504	J-853
J-222	648.69	3,504	J-853
J-696	682.58	3,504	J-853
J-777	660.86	3,504	J-853
J-51	626.44	3,506	J-572
J-52	625.44	3,506	J-572
J-98	626.01	3,506	J-572
J-116	552.81	3,506	J-853
J-117	544.83	3,506	J-853
J-150	581.64	3,506	J-853
J-164	532.98	3,506	J-865
J-212	671.50	3,506	J-853
J-213	594.46	3,506	J-853
J-227	544.26	3,506	J-853
J-258	549.28	3,506	J-865
J-329	555.59	3,506	J-853
J-330	554.91	3,506	J-853
J-331	563.15	3,506	J-853
J-332	565.07	3,506	J-853
J-368	601.97	3,506	J-572
J-382	564.29	3,506	J-572
J-394	565.11	3,506	J-572
J-400	561.75	3,506	J-865
J-409	559.20	3,506	J-572
J-419	601.62	3,506	J-572
J-465	578.16	3,506	J-572
J-467	547.14	3,506	J-302
J-476	598.70	3,506	J-572
J-485	628.07	3,506	J-572
J-488	619.21	3,506	J-572
J-491	601.82	3,506	J-572
J-636	549.53	3,506	J-853

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Existing Available Flow

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-801	547.09	3,506	J-302
J-847	567.23	3,506	J-572
J-869	569.35	3,506	J-572
J-61	719.89	3,507	J-853
J-62	720.40	3,507	J-853
J-82	731.85	3,507	J-853
J-114	712.94	3,507	J-853
J-151	710.97	3,507	J-853
J-166	667.79	3,507	J-853
J-206	564.99	3,507	J-853
J-207	567.34	3,507	J-853
J-214	619.04	3,507	J-853
J-570	667.40	3,507	J-853
J-571	666.01	3,507	J-853
J-591	628.88	3,507	J-853
J-598	636.09	3,507	J-853
J-603	647.20	3,507	J-841
J-618	654.89	3,507	J-853
J-676	656.74	3,507	J-853
J-724	663.36	3,507	J-841
J-756	698.28	3,507	J-853
J-761	594.47	3,507	J-853
J-832	703.73	3,507	J-853
J-898	584.52	3,507	J-853
J-972	628.04	3,507	J-853
J-1060	727.36	3,507	J-853
J-1061	740.12	3,507	J-853
J-1063	635.60	3,507	J-853
J-1064	643.74	3,507	J-853
J-1076	632.76	3,507	J-853
J-1107	575.45	3,507	J-853
J-1108	564.44	3,507	J-853
J-73	582.28	3,512	J-143
J-81	579.78	3,512	J-143
J-260	567.18	3,512	J-572
J-393	566.14	3,512	J-572
J-529	562.50	3,512	J-572

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 1 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-1033	553.00	(N/A)	(N/A)
J-1035	608.39	(N/A)	(N/A)
J-1036	578.63	(N/A)	(N/A)
J-1037	553.51	(N/A)	(N/A)
J-1038	594.38	(N/A)	(N/A)
J-1039	573.07	(N/A)	(N/A)
J-1042	540.00	(N/A)	(N/A)
J-1043	493.00	(N/A)	(N/A)
J-1119	580.00	(N/A)	(N/A)
J-1120	560.00	(N/A)	(N/A)
J-1121	0.00	(N/A)	(N/A)
J-1122	542.14	(N/A)	(N/A)
J-286	513.49	123	J-853
J-278	602.20	127	J-853
J-284	514.70	140	J-853
J-253	655.64	142	J-853
J-281	542.23	143	J-853
J-251	640.00	156	J-853
J-266	585.59	172	J-853
J-256	569.25	179	J-853
J-263	639.56	192	J-853
J-245	669.80	203	J-853
J-494	620.45	332	J-853
J-241	562.15	443	J-853
J-457	554.55	449	J-853
J-247	550.33	458	J-853
J-397	640.57	481	J-853
J-483	597.44	481	J-853
J-267	583.87	497	J-266
J-366	535.44	502	J-853
J-1030	626.93	508	J-1031
J-1031	627.38	510	J-1030
J-351	632.32	527	J-1031
J-456	647.55	530	J-853
J-365	538.42	545	J-366
J-458	590.07	546	J-853
J-285	523.10	559	J-365
J-463	609.47	566	J-853
J-416	525.44	566	J-365
J-350	542.69	570	J-241
J-473	670.68	571	J-853
J-415	519.50	587	J-853
J-431	537.73	587	J-365
J-466	566.20	591	J-853

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 1 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-429	525.03	600	J-365
J-441	597.39	624	J-853
J-726	686.28	629	J-853
J-448	546.01	635	J-457
J-344	540.39	653	J-241
J-450	528.37	656	J-853
J-650	597.89	660	J-853
J-453	625.15	660	J-473
J-566	595.84	669	J-564
J-565	595.84	669	J-564
J-275	538.98	672	J-241
J-725	677.00	673	J-726
J-564	595.84	675	J-565
J-328	524.32	675	J-365
J-388	570.07	679	J-853
J-345	562.73	684	J-853
J-327	524.16	690	J-365
J-643	681.34	691	J-726
J-373	623.13	695	J-853
J-290	637.49	695	J-853
J-295	670.63	712	J-853
J-644	680.19	724	J-726
J-270	539.72	727	J-241
J-437	566.16	733	J-853
J-427	590.27	744	J-853
J-471	543.23	746	J-703
J-545	584.34	748	J-650
J-546	584.78	748	J-650
J-477	577.31	749	J-266
J-346	564.14	749	J-345
J-703	568.30	752	J-853
J-445	543.64	758	J-853
J-442	613.67	759	J-853
J-1095	620.99	761	J-290
J-478	547.62	772	J-853
J-1096	616.94	785	J-1095
J-249	542.14	786	J-241
J-302	639.12	786	J-301
J-301	638.84	799	J-302
J-532	668.07	800	J-853
J-1071	684.04	803	J-726
J-455	664.66	805	J-454
J-1097	613.41	815	J-1096
J-567	596.06	820	J-564

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 1 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-433	571.89	832	J-853
J-402	569.03	857	J-241
J-343	595.77	860	J-473
J-772	524.39	865	J-853
J-454	660.02	867	J-455
J-1070	662.63	868	J-532
J-341	545.02	876	J-241
J-414	661.29	876	J-853
J-708	602.56	879	J-567
J-392	620.26	881	J-853
J-741	677.28	887	J-726
J-435	623.73	896	J-853
J-705	587.95	896	J-435
J-858	678.68	899	J-726
J-1069	673.50	903	J-726
J-276	541.55	903	J-241
J-1068	672.97	904	J-726
J-859	675.64	907	J-726
J-372	619.07	907	J-373
J-719	574.02	915	J-650
J-889	678.82	920	J-337
J-892	600.88	921	J-650
J-1087	602.66	921	J-302
J-1	538.72	925	J-276
J-254	655.01	927	J-889
J-648	674.25	932	J-726
J-252	626.84	933	J-889
J-688	605.84	941	J-889
J-364	617.80	948	J-853
J-654	645.23	951	J-726
J-1086	594.66	957	J-853
J-1084	566.68	958	J-853
J-951	604.14	960	J-853
J-647	674.80	966	J-726
J-504	541.76	968	J-772
J-371	598.15	968	J-853
J-727	577.07	968	J-728
J-653	647.35	970	J-726
J-424	625.88	974	J-853
J-735	575.02	975	J-853
J-663	620.71	976	J-889
J-318	590.66	977	J-283
J-1078	612.33	981	J-889
J-659	594.82	983	J-889

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 1 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-531	592.14	984	J-889
J-378	574.37	984	J-853
J-1077	624.23	985	J-889
J-423	528.27	986	J-853
J-517	625.99	986	J-640
J-384	628.37	987	J-853
J-640	625.89	987	J-517
J-283	593.09	988	J-318
J-387	567.37	988	J-388
J-664	652.32	990	J-889
J-652	657.90	995	J-726
J-421	617.99	996	J-853
J-649	675.18	999	J-726
J-381	554.35	1,002	J-853
J-693	588.96	1,010	J-853
J-669	657.76	1,014	J-889
J-641	633.65	1,014	J-889
J-710	562.19	1,015	J-650
J-1065	675.40	1,017	J-726
J-623	634.06	1,024	J-607
J-362	579.84	1,025	J-853
J-337	675.57	1,031	J-889
J-360	655.45	1,037	J-853
J-606	631.94	1,047	J-607
J-1124	602.80	1,049	J-734
J-412	523.58	1,050	J-853
J-605	673.81	1,051	J-726
J-1085	566.53	1,052	J-853
J-734	604.19	1,059	J-1124
J-401	594.99	1,059	J-734
J-347	665.82	1,062	J-473
J-604	674.57	1,062	J-726
J-874	578.38	1,068	J-892
J-711	721.98	1,070	J-853
J-699	628.46	1,077	J-853
J-325	669.93	1,083	J-326
J-436	604.47	1,094	J-853
J-607	637.53	1,095	J-623
J-326	667.52	1,103	J-325
J-569	672.42	1,111	J-237
J-698	595.96	1,111	J-699
J-731	618.74	1,111	J-699
J-390	575.71	1,112	J-853
J-1100	604.31	1,122	J-853

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 1 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-447	552.07	1,127	J-457
J-1098	557.71	1,139	J-853
J-297	581.76	1,140	J-853
J-495	645.40	1,143	J-853
J-728	604.30	1,158	J-892
J-309	612.92	1,162	J-310
J-865	656.42	1,162	J-853
J-24	555.04	1,163	J-853
J-310	612.35	1,167	J-309
J-338	675.38	1,168	J-337
J-404	606.68	1,175	J-473
J-701	620.08	1,180	J-853
J-237	664.57	1,182	J-569
J-420	611.13	1,196	J-853
J-750	690.90	1,206	J-853
J-574	669.84	1,213	J-338
J-282	548.61	1,229	J-853
J-1106	544.47	1,234	J-693
J-745	631.83	1,243	J-853
J-367	579.07	1,250	J-466
J-630	536.69	1,264	J-884
J-884	621.94	1,264	J-853
J-817	537.06	1,264	J-884
J-723	703.51	1,264	J-853
J-629	547.66	1,264	J-884
J-746	609.29	1,266	J-853
J-487	536.83	1,267	J-853
J-712	627.82	1,275	J-853
J-651	681.05	1,286	J-853
J-770	603.08	1,287	J-728
J-608	648.63	1,289	J-853
J-1040	559.84	1,298	J-884
J-656	618.80	1,303	J-853
J-695	610.02	1,305	J-338
J-709	591.89	1,317	J-853
J-686	584.08	1,320	J-853
J-1113	595.69	1,323	J-884
J-1052 Dave	664.44	1,324	J-611
J-1099	591.01	1,325	J-1100
J-768	623.93	1,327	J-853
J-593	690.47	1,329	J-853
J-434	612.12	1,330	J-424
J-1066	678.69	1,331	J-726
J-733	602.18	1,334	J-853

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 1 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-610	646.15	1,339	J-611
J-697	662.46	1,341	J-853
J-1050	646.37	1,344	J-1052 Dave
J-767	578.97	1,352	J-853
J-490	536.81	1,357	J-487
J-666	532.92	1,359	J-884
J-665	547.66	1,359	J-884
J-1112	564.53	1,361	J-884
J-764	584.05	1,363	J-853
J-611	665.14	1,367	J-1052 Dave
J-279	604.71	1,371	J-278
J-464	554.78	1,372	J-853
J-748	538.66	1,372	J-853
J-960	536.50	1,372	J-853
J-255	575.09	1,372	J-256
J-762	604.34	1,376	J-853
J-303	542.34	1,377	J-304
J-1094	581.31	1,382	J-853
J-262	638.54	1,384	J-263
J-520	651.42	1,388	J-608
J-1102	592.89	1,389	J-728
J-742	632.74	1,390	J-853
J-642	670.53	1,391	J-853
J-769	643.27	1,397	J-853
J-438	580.41	1,402	J-853
J-707	571.97	1,402	J-853
J-753	559.50	1,403	J-853
J-304	540.79	1,404	J-303
J-841	739.49	1,407	J-840
J-430	540.34	1,412	J-303
J-714	685.90	1,412	J-853
J-887	544.29	1,415	J-884
J-763	587.94	1,416	J-853
J-459	555.59	1,419	J-853
J-819	643.46	1,424	J-865
J-497	536.27	1,424	J-487
J-558	529.11	1,425	J-693
J-559	528.79	1,425	J-693
J-792	641.78	1,426	J-865
J-791	641.13	1,427	J-865
J-893	659.24	1,435	J-841
J-1075	704.80	1,435	J-841
J-840	737.43	1,435	J-841
J-239	648.42	1,442	J-569

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 1 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-594	680.96	1,443	J-593
J-131	616.44	1,450	J-865
J-449	549.65	1,452	J-853
J-730	620.27	1,452	J-699
J-432	634.80	1,456	J-853
J-542	663.06	1,458	J-541
J-755	561.14	1,458	J-853
J-541	669.82	1,458	J-611
J-375	577.37	1,461	J-853
J-657	592.43	1,461	J-656
J-132	602.30	1,463	J-865
J-660	633.10	1,472	J-853
J-118	582.15	1,472	J-865
J-119	563.06	1,472	J-865
J-339	641.94	1,480	J-853
J-1059	615.54	1,484	J-745
J-720	640.40	1,484	J-853
J-702	650.04	1,489	J-495
J-639	644.49	1,494	J-853
J-662	677.98	1,501	J-711
J-626	647.31	1,504	J-263
J-451	575.67	1,507	J-853
J-386	563.84	1,508	J-390
J-1054	636.37	1,511	J-853
J-573	683.99	1,514	J-572
J-1058	652.74	1,532	J-853
J-737	588.67	1,536	J-853
J-472	552.44	1,543	J-703
J-1074	694.62	1,543	J-853
J-1101	579.82	1,543	J-728
J-685	551.19	1,548	J-703
J-870	619.15	1,558	J-826
J-426	580.43	1,567	J-1097
J-628	678.98	1,569	J-174
J-684	552.96	1,572	J-478
J-359	648.23	1,572	J-360
J-600	645.58	1,589	J-711
J-599	634.40	1,589	J-711
J-21	554.00	1,591	J-853
J-758	505.45	1,592	J-853
J-552	647.77	1,623	J-642
J-551	641.96	1,623	J-642
J-826	618.45	1,628	J-870
J-1111	580.82	1,634	J-746

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 1 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-885	616.78	1,637	J-853
J-619	620.89	1,639	J-711
J-234	647.59	1,645	J-569
J-716	556.29	1,650	J-853
J-739	667.14	1,653	J-853
J-1053	596.34	1,654	J-1054
J-680	567.24	1,655	J-853
J-1055	617.65	1,663	J-1054
J-425	593.54	1,681	J-444
J-747	562.16	1,681	J-703
J-405	614.69	1,682	J-455
J-324	552.68	1,684	J-853
J-444	594.55	1,687	J-425
J-1056	663.84	1,690	J-711
J-14	543.23	1,699	J-13
J-168	579.99	1,699	J-853
J-646	592.36	1,699	J-711
J-694	619.42	1,702	J-853
J-834	612.99	1,710	J-870
J-340	641.69	1,717	J-339
J-563	632.16	1,738	J-639
J-1049	628.97	1,740	J-853
J-667	565.42	1,741	J-853
J-13	541.99	1,741	J-14
J-417	562.28	1,748	J-853
J-474	564.85	1,750	J-853
J-718	578.95	1,751	J-853
J-682	655.92	1,752	J-853
J-888	646.54	1,753	J-853
J-174	706.13	1,755	J-189
J-353	587.19	1,758	J-853
J-679	620.40	1,761	J-712
J-356	546.83	1,761	J-1085
J-189	696.30	1,764	J-174
J-446	533.66	1,766	J-445
J-587	660.15	1,775	J-593
J-586	651.29	1,775	J-593
J-634	576.32	1,781	J-853
J-655	572.00	1,781	J-853
J-690	587.40	1,800	J-870
J-391	610.90	1,802	J-392
J-389	545.99	1,812	J-853
J-349	584.13	1,816	J-853
J-323	550.67	1,819	J-324

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 1 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-287	606.77	1,821	J-290
J-744	687.11	1,825	J-711
J-896	614.44	1,825	J-853
J-743	669.08	1,825	J-711
J-722	648.29	1,825	J-711
J-645	612.97	1,825	J-711
J-721	589.77	1,825	J-711
J-879	632.03	1,825	J-711
J-562	631.09	1,825	J-711
J-880	573.20	1,825	J-711
J-771	634.88	1,835	J-373
J-687	574.88	1,836	J-728
J-461	552.12	1,838	J-388
J-123	621.90	1,847	J-174
J-403	563.62	1,849	J-853
J-560	633.88	1,852	J-569
J-661	637.18	1,852	J-660
J-246	649.72	1,859	J-642
J-135	640.01	1,865	J-174
J-90	642.44	1,878	J-88
J-122	610.93	1,887	J-174
J-89	636.28	1,890	J-88
J-88	642.68	1,890	J-90
J-141	547.18	1,890	J-168
J-128	671.89	1,895	J-174
J-704	714.06	1,897	J-711
J-399	563.98	1,898	J-853
J-1110	577.81	1,904	J-737
J-1081	623.17	1,916	J-853
J-486	648.01	1,919	J-340
J-777	660.86	1,922	J-174
J-129	657.72	1,922	J-174
J-352	594.84	1,929	J-290
J-361	571.92	1,929	J-362
J-547	554.77	1,949	J-693
J-140	594.09	1,950	J-174
J-863	589.85	1,954	J-885
J-54	523.43	1,958	J-168
J-53	523.53	1,958	J-168
J-1080	618.14	1,959	J-1081
J-749	718.32	1,960	J-711
J-489	683.88	1,966	J-853
J-1067	700.15	1,967	J-726
J-757	520.39	1,967	J-884

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 1 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-633	586.00	1,972	J-896
J-622	580.59	1,986	J-607
J-616	636.22	1,990	J-853
J-632	553.19	1,994	J-174
J-683	600.85	1,994	J-432
J-1062	655.03	1,996	J-626
J-678	557.50	1,999	J-174
J-130	584.54	2,003	J-174
J-484	659.67	2,014	J-853
J-668	518.89	2,028	J-572
J-613	606.35	2,028	J-701
J-760	723.64	2,029	J-841
J-548	552.74	2,037	J-693
J-354	544.90	2,039	J-853
J-862	577.42	2,044	J-885
J-614	584.53	2,050	J-853
J-109	579.99	2,060	J-174
J-443	591.34	2,061	J-174
J-43	520.11	2,066	J-168
J-44	520.38	2,066	J-168
J-673	639.55	2,067	J-541
J-589	555.83	2,076	J-853
J-376	553.93	2,091	J-572
J-124	565.32	2,092	J-888
J-106	549.74	2,092	J-888
J-1079	540.26	2,092	J-888
J-110	541.83	2,092	J-888
J-149	557.26	2,092	J-888
J-40	533.71	2,092	J-888
J-126	583.19	2,092	J-888
J-148	531.17	2,092	J-888
J-107	531.23	2,092	J-888
J-39	533.10	2,092	J-888
J-220	530.52	2,094	J-884
J-243	501.20	2,094	J-884
J-221	501.20	2,094	J-884
J-588	640.18	2,096	J-642
J-105	546.39	2,097	J-888
J-854	549.95	2,097	J-888
J-42	583.21	2,101	J-174
J-805	582.53	2,104	J-865
J-804	583.63	2,110	J-865
J-696	682.58	2,111	J-174
J-601	554.82	2,118	J-853

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 1 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-56	507.75	2,119	J-168
J-55	506.60	2,119	J-168
J-226	547.56	2,119	J-607
J-590	547.97	2,121	J-853
J-873	597.53	2,129	J-556
J-439	577.33	2,149	J-853
J-46	602.67	2,149	J-888
J-45	602.67	2,149	J-888
J-881	618.28	2,151	J-661
J-85	636.16	2,156	J-88
J-86	637.42	2,156	J-88
J-555	559.26	2,171	J-607
J-577	596.88	2,175	J-661
J-143	648.43	2,175	J-853
J-413	665.59	2,179	J-414
J-557	600.00	2,183	J-556
J-670	636.29	2,185	J-853
J-1051	647.45	2,198	J-853
J-689	525.74	2,199	J-853
J-380	561.97	2,200	J-381
J-523	586.99	2,203	J-1049
J-851	566.55	2,211	J-752
J-713	658.42	2,213	J-714
J-900	589.68	2,219	J-865
J-428	586.95	2,223	J-865
J-787	568.26	2,236	J-865
J-672	573.67	2,244	J-174
J-786	568.02	2,244	J-865
J-857	632.22	2,247	J-820
J-790	567.67	2,250	J-865
J-395	576.06	2,250	J-439
J-480	568.39	2,253	J-865
J-556	609.03	2,271	J-557
J-408	538.50	2,274	J-572
J-481	569.76	2,276	J-865
J-752	565.53	2,277	J-851
J-627	598.33	2,284	J-694
J-479	553.41	2,301	J-703
J-410	560.68	2,315	J-572
J-482	553.71	2,318	J-703
J-820	642.77	2,319	J-784
J-784	643.04	2,326	J-820
J-554	553.94	2,336	J-589
J-773	641.35	2,337	J-784

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 1 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-691	561.80	2,345	J-865
J-919	561.80	2,345	J-865
J-550	554.13	2,347	J-174
J-839	572.61	2,350	J-174
J-675	624.18	2,350	J-769
J-144	623.36	2,357	J-143
J-549	554.83	2,365	J-174
J-631	556.19	2,365	J-174
J-797	556.34	2,365	J-174
J-831	547.40	2,365	J-174
J-830	544.37	2,365	J-174
J-121	551.38	2,365	J-174
J-222	648.69	2,372	J-174
J-824	564.16	2,376	J-885
J-181	649.08	2,377	J-174
J-398	633.84	2,378	J-302
J-182	649.95	2,379	J-174
J-882	605.87	2,392	J-661
J-385	558.47	2,392	J-572
J-823	564.84	2,394	J-885
J-120	553.31	2,395	J-174
J-782	573.41	2,395	J-839
J-348	588.66	2,402	J-1082
J-637	603.02	2,403	J-1080
J-1091	555.41	2,407	J-865
J-845	642.98	2,409	J-784
J-58	570.16	2,418	J-888
J-377	562.34	2,423	J-444
J-997	592.19	2,427	J-661
J-729	591.80	2,428	J-661
J-677	557.53	2,431	J-174
J-79	570.51	2,431	J-888
J-501	629.04	2,432	J-759
J-65	507.14	2,436	J-168
J-154	646.70	2,437	J-174
J-66	505.86	2,437	J-168
J-759	627.08	2,440	J-501
J-850	570.98	2,445	J-174
J-849	572.53	2,445	J-174
J-499	629.63	2,449	J-302
J-612	638.37	2,451	J-593
J-671	570.20	2,452	J-174
J-706	564.41	2,470	J-728
J-848	571.83	2,472	J-174

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 1 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-1082	593.07	2,472	J-348
J-692	556.17	2,474	J-865
J-334	564.65	2,474	J-853
J-553	552.87	2,475	J-589
J-167	530.64	2,490	J-572
J-681	688.81	2,496	J-853
J-867	567.33	2,502	J-885
J-754	568.78	2,502	J-885
J-163	588.03	2,504	J-174
J-170	588.46	2,507	J-174
J-169	588.77	2,507	J-174
J-333	566.86	2,509	J-853
J-1088	599.98	2,535	J-759
J-866	566.33	2,536	J-885
J-891	561.67	2,546	J-174
J-894	576.51	2,555	J-885
J-155	624.77	2,557	J-853
J-35	604.27	2,579	J-143
J-36	604.27	2,579	J-143
J-67	566.85	2,585	J-888
J-829	565.39	2,592	J-848
J-886	520.16	2,602	J-572
J-871	622.00	2,604	J-572
J-883	612.14	2,607	J-661
J-674	590.49	2,614	J-1081
J-374	588.59	2,616	J-759
J-1090	601.20	2,620	J-155
J-17	570.40	2,621	J-174
J-638	596.05	2,624	J-1080
J-595	673.48	2,624	J-489
J-899	575.69	2,629	J-174
J-188	589.98	2,630	J-174
J-211	583.29	2,630	J-174
J-223	555.79	2,630	J-174
J-217	584.37	2,630	J-174
J-216	618.78	2,630	J-174
J-224	564.24	2,630	J-174
J-751	701.81	2,631	J-841
J-15	563.28	2,656	J-174
J-890	567.89	2,656	J-174
J-1103	567.14	2,659	J-848
J-136	589.68	2,669	J-155
J-355	534.54	2,673	J-388
J-1093	552.02	2,673	J-865

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 1 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-1092	553.26	2,684	J-865
J-125	602.85	2,685	J-143
J-572	684.16	2,698	J-573
J-1104	552.35	2,704	J-848
J-137	588.03	2,709	J-155
J-895	585.21	2,717	J-885
J-766	565.73	2,718	J-885
J-876	593.86	2,725	J-661
J-738	565.16	2,725	J-746
J-77	524.51	2,730	J-76
J-1083	567.30	2,740	J-1080
J-76	523.92	2,741	J-77
J-596	545.50	2,745	J-693
J-717	582.37	2,757	J-556
J-736	609.49	2,761	J-398
J-133	566.98	2,764	J-155
J-897	580.46	2,777	J-885
J-142	542.64	2,787	J-155
J-134	559.42	2,787	J-155
J-878	570.36	2,792	J-888
J-20	572.97	2,802	J-174
J-19	574.42	2,803	J-174
J-100	519.06	2,803	J-168
J-64	514.07	2,803	J-168
J-63	514.78	2,803	J-168
J-145	507.25	2,803	J-168
J-1032	574.97	2,810	J-174
J-844	546.07	2,815	J-848
J-101	607.73	2,823	J-102
J-146	562.86	2,826	J-888
J-821	562.04	2,826	J-888
J-875	566.71	2,826	J-888
J-996	565.32	2,827	J-888
J-468	558.63	2,830	J-1081
J-171	577.59	2,840	J-174
J-47	587.44	2,852	J-174
J-780	682.02	2,855	J-572
J-280	539.63	2,866	J-865
J-210	564.28	2,867	J-607
J-1109	571.84	2,867	J-885
J-108	600.28	2,868	J-101
J-102	603.96	2,872	J-101
J-460	538.21	2,873	J-1081
J-580	551.62	2,874	J-1081

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 1 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-139	577.85	2,879	J-174
J-383	556.99	2,891	J-572
J-95	534.95	2,905	J-1081
J-617	661.64	2,909	J-853
J-838	577.98	2,910	J-174
J-96	529.85	2,910	J-1081
J-815	575.84	2,915	J-174
J-814	576.22	2,916	J-174
J-615	573.51	2,916	J-174
J-800	547.79	2,922	J-848
J-99	527.04	2,925	J-1081
J-609	553.85	2,942	J-444
J-407	533.85	2,950	J-1081
J-925	564.20	2,979	J-474
J-186	526.67	2,981	J-174
J-179	528.36	2,982	J-174
J-1105	539.95	2,982	J-174
J-160	527.29	2,982	J-174
J-183	527.30	2,982	J-174
J-209	544.35	2,982	J-174
J-11	544.22	2,982	J-174
J-765	565.38	2,998	J-885
J-1073	673.79	3,007	J-841
J-635	520.21	3,016	J-1081
J-585	640.80	3,026	J-593
J-162	636.04	3,031	J-853
J-761	594.47	3,033	J-174
J-811	554.52	3,034	J-379
J-860	580.95	3,036	J-556
J-898	584.52	3,037	J-174
J-544	552.62	3,042	J-174
J-581	548.78	3,043	J-174
J-561	549.08	3,043	J-174
J-113	549.90	3,043	J-174
J-543	550.11	3,043	J-174
J-1107	575.45	3,045	J-174
J-1108	564.44	3,050	J-174
J-206	564.99	3,051	J-174
J-111	555.71	3,052	J-174
J-207	567.34	3,054	J-174
J-112	556.02	3,058	J-174
J-379	554.06	3,060	J-811
J-127	552.95	3,067	J-174
J-60	552.38	3,069	J-174

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 1 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-59	552.18	3,069	J-174
J-103	558.77	3,070	J-174
J-104	559.09	3,072	J-174
J-576	674.32	3,073	J-853
J-602	636.25	3,076	J-853
J-597	649.15	3,095	J-853
J-159	590.97	3,112	J-888
J-357	521.80	3,129	J-302
J-193	607.97	3,134	J-174
J-620	594.98	3,139	J-541
J-822	528.61	3,141	J-865
J-411	530.95	3,145	J-865
J-422	533.67	3,159	J-865
J-165	533.74	3,174	J-865
J-299	528.02	3,174	J-865
J-300	528.00	3,174	J-865
J-864	589.75	3,180	J-853
J-10	607.04	3,195	J-174
J-358	529.99	3,216	J-302
J-624	604.62	3,226	J-541
J-498	559.18	3,227	J-302
J-31	512.72	3,248	J-168
J-1072	666.97	3,252	J-841
J-584	653.87	3,255	J-593
J-87	510.30	3,259	J-168
J-156	603.96	3,269	J-888
J-868	565.47	3,272	J-302
J-23	545.11	3,309	J-811
J-418	538.45	3,320	J-302
J-369	527.08	3,328	J-358
J-370	513.92	3,330	J-168
J-406	559.53	3,398	J-572
J-952	627.46	3,413	J-853
J-500	553.71	3,414	J-302
J-901	601.46	3,428	J-174
J-855	554.72	3,430	J-302
J-592	628.95	3,456	J-853
J-71	692.61	3,461	J-72
J-462	610.81	3,467	J-871
J-496	571.00	3,478	J-302
J-72	692.45	3,490	J-71
J-363	613.48	3,499	J-364
J-25	587.85	3,500	J-853
J-33	719.70	3,500	J-853

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 1 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-49	576.22	3,500	J-853
J-69	643.17	3,500	J-853
J-70	644.91	3,500	J-853
J-74	659.51	3,500	J-71
J-75	658.73	3,500	J-71
J-80	576.38	3,500	J-853
J-84	587.14	3,500	J-853
J-91	577.34	3,500	J-864
J-92	577.12	3,500	J-853
J-93	697.17	3,500	J-853
J-94	700.52	3,500	J-853
J-97	622.30	3,500	J-572
J-115	707.82	3,500	J-853
J-138	657.92	3,500	J-853
J-147	596.37	3,500	J-853
J-157	744.50	3,500	J-853
J-158	608.09	3,500	J-853
J-161	597.26	3,500	J-853
J-177	638.14	3,500	J-853
J-178	638.09	3,500	J-853
J-184	551.68	3,500	J-853
J-191	625.98	3,500	J-853
J-192	623.29	3,500	J-853
J-194	568.20	3,500	J-853
J-201	567.87	3,500	J-853
J-202	627.18	3,500	J-853
J-203	599.56	3,500	J-853
J-204	580.14	3,500	J-853
J-205	588.72	3,500	J-853
J-208	588.10	3,500	J-853
J-215	661.01	3,500	J-853
J-218	680.24	3,500	J-572
J-229	685.35	3,500	J-853
J-230	685.38	3,500	J-853
J-342	591.46	3,500	J-572
J-440	611.65	3,500	J-853
J-469	704.03	3,500	J-853
J-470	690.81	3,500	J-71
J-492	584.90	3,500	J-572
J-493	690.64	3,500	J-71
J-502	570.03	3,500	J-853
J-575	665.91	3,500	J-853
J-621	586.53	3,500	J-853
J-625	590.54	3,500	J-853

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 1 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-658	606.04	3,500	J-572
J-700	649.89	3,500	J-71
J-715	583.63	3,500	J-572
J-732	580.62	3,500	J-853
J-740	694.66	3,500	J-853
J-794	703.68	3,500	J-853
J-795	703.16	3,500	J-853
J-833	707.23	3,500	J-853
J-843	679.08	3,500	J-572
J-846	589.73	3,500	J-572
J-852	701.17	3,500	J-853
J-853	685.90	3,500	J-229
J-861	610.66	3,500	J-853
J-872	600.92	3,500	J-853
J-877	635.74	3,500	J-853
J-908	650.54	3,500	J-71
J-931	716.48	3,500	J-853
J-1115	701.41	3,500	J-853
J-27	584.13	3,503	J-853
J-152	561.12	3,503	J-853
J-153	556.90	3,503	J-853
J-1089	575.56	3,503	J-853
J-51	626.44	3,506	J-572
J-52	625.44	3,506	J-572
J-98	626.01	3,506	J-572
J-116	552.81	3,506	J-853
J-117	544.83	3,506	J-853
J-150	581.64	3,506	J-853
J-164	532.98	3,506	J-865
J-212	671.50	3,506	J-853
J-213	594.46	3,506	J-853
J-227	544.26	3,506	J-853
J-258	549.28	3,506	J-865
J-329	555.59	3,506	J-853
J-330	554.91	3,506	J-853
J-331	563.15	3,506	J-853
J-332	565.07	3,506	J-853
J-368	601.97	3,506	J-572
J-382	564.29	3,506	J-572
J-394	565.11	3,506	J-572
J-400	561.75	3,506	J-865
J-409	559.20	3,506	J-572
J-419	601.62	3,506	J-572
J-465	578.16	3,506	J-572

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 1 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-467	547.14	3,506	J-302
J-476	598.70	3,506	J-572
J-485	628.07	3,506	J-572
J-488	619.21	3,506	J-572
J-491	601.82	3,506	J-572
J-636	549.53	3,506	J-853
J-801	547.09	3,506	J-302
J-847	567.23	3,506	J-572
J-869	569.35	3,506	J-572
J-61	719.89	3,507	J-853
J-62	720.40	3,507	J-853
J-82	731.85	3,507	J-853
J-114	712.94	3,507	J-853
J-151	710.97	3,507	J-853
J-166	667.79	3,507	J-853
J-214	619.04	3,507	J-853
J-570	667.40	3,507	J-853
J-571	666.01	3,507	J-853
J-591	628.88	3,507	J-853
J-598	636.09	3,507	J-853
J-603	647.20	3,507	J-841
J-618	654.89	3,507	J-853
J-676	656.74	3,507	J-853
J-724	663.36	3,507	J-841
J-756	698.28	3,507	J-853
J-832	703.73	3,507	J-853
J-972	628.04	3,507	J-853
J-1060	727.36	3,507	J-853
J-1061	740.12	3,507	J-853
J-1063	635.60	3,507	J-853
J-1064	643.74	3,507	J-853
J-1076	632.76	3,507	J-853
J-73	582.28	3,512	J-143
J-81	579.78	3,512	J-143
J-260	567.18	3,512	J-572
J-393	566.14	3,512	J-572
J-529	562.50	3,512	J-572

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 2 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-1033	553.00	(N/A)	(N/A)
J-1035	608.39	(N/A)	(N/A)
J-1036	578.63	(N/A)	(N/A)
J-1037	553.51	(N/A)	(N/A)
J-1038	594.38	(N/A)	(N/A)
J-1039	573.07	(N/A)	(N/A)
J-1042	540.00	(N/A)	(N/A)
J-1043	493.00	(N/A)	(N/A)
J-278	602.20	127	J-853
J-286	513.49	129	J-853
J-284	514.70	138	J-853
J-253	655.64	142	J-853
J-281	542.23	143	J-853
J-251	640.00	156	J-853
J-266	585.59	173	J-853
J-256	569.25	179	J-853
J-263	639.56	192	J-853
J-245	669.80	203	J-853
J-494	620.45	335	J-853
J-241	562.15	444	J-853
J-457	554.55	449	J-853
J-247	550.33	458	J-853
J-483	597.44	481	J-853
J-267	583.87	500	J-266
J-1030	626.93	508	J-1031
J-1031	627.38	510	J-1030
J-351	632.32	527	J-1031
J-456	647.55	530	J-853
J-397	640.57	536	J-853
J-458	590.07	546	J-853
J-463	609.47	564	J-853
J-350	542.69	571	J-241
J-466	566.20	591	J-853
J-441	597.39	624	J-853
J-448	546.01	634	J-457
J-473	670.68	653	J-853
J-344	540.39	655	J-241
J-450	528.37	656	J-853
J-650	597.89	660	J-853
J-275	538.98	674	J-241
J-566	595.84	675	J-564
J-565	595.84	675	J-564
J-388	570.07	675	J-853
J-564	595.84	681	J-565

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 2 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-345	562.73	684	J-853
J-290	637.49	694	J-853
J-373	623.13	701	J-853
J-295	670.63	712	J-853
J-270	539.72	729	J-241
J-437	566.16	733	J-853
J-453	625.15	740	J-473
J-427	590.27	744	J-853
J-471	543.23	747	J-703
J-545	584.34	748	J-650
J-546	584.78	748	J-650
J-346	564.14	748	J-345
J-703	568.30	753	J-853
J-477	577.31	755	J-266
J-445	543.64	756	J-853
J-1095	620.99	761	J-290
J-442	613.67	767	J-853
J-478	547.62	773	J-853
J-302	639.12	779	J-301
J-1096	616.94	785	J-1095
J-249	542.14	788	J-241
J-301	638.84	791	J-302
J-1097	613.41	815	J-1096
J-567	596.06	828	J-564
J-433	571.89	831	J-853
J-726	686.28	841	J-853
J-772	524.39	847	J-853
J-414	661.29	875	J-853
J-392	620.26	877	J-853
J-415	519.50	877	J-853
J-455	664.66	877	J-853
J-708	602.56	888	J-567
J-725	677.00	912	J-853
J-1087	602.66	914	J-302
J-719	574.02	915	J-650
J-372	619.07	917	J-373
J-889	678.82	920	J-337
J-892	600.88	921	J-650
J-254	655.01	927	J-889
J-252	626.84	933	J-889
J-688	605.84	941	J-889
J-364	617.80	943	J-853
J-402	569.03	945	J-241
J-366	535.44	948	J-853

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 2 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-1086	594.66	950	J-853
J-1084	566.68	951	J-853
J-454	660.02	958	J-455
J-951	604.14	960	J-853
J-504	541.76	966	J-772
J-371	598.15	968	J-853
J-727	577.07	968	J-728
J-663	620.71	976	J-889
J-318	590.66	977	J-283
J-424	625.88	978	J-853
J-1078	612.33	981	J-889
J-387	567.37	981	J-388
J-659	594.82	983	J-889
J-378	574.37	983	J-853
J-531	592.14	984	J-889
J-643	681.34	985	J-726
J-1077	624.23	985	J-889
J-343	595.77	986	J-473
J-517	625.99	986	J-640
J-384	628.37	987	J-853
J-640	625.89	987	J-517
J-283	593.09	987	J-318
J-423	528.27	988	J-853
J-341	545.02	988	J-241
J-664	652.32	990	J-889
J-705	587.95	991	J-435
J-421	617.99	992	J-853
J-381	554.35	997	J-853
J-435	623.73	1,005	J-853
J-669	657.76	1,014	J-889
J-641	633.65	1,014	J-889
J-710	562.19	1,015	J-650
J-693	588.96	1,020	J-853
J-362	579.84	1,021	J-853
J-276	541.55	1,027	J-241
J-337	675.57	1,031	J-889
J-360	655.45	1,037	J-853
J-623	634.06	1,037	J-607
J-1085	566.53	1,044	J-853
J-412	523.58	1,052	J-853
J-606	631.94	1,061	J-607
J-874	578.38	1,068	J-892
J-711	721.98	1,070	J-853
J-644	680.19	1,074	J-726

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 2 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-1	538.72	1,077	J-276
J-699	628.46	1,077	J-853
J-436	604.47	1,098	J-853
J-390	575.71	1,108	J-853
J-569	672.42	1,111	J-237
J-607	637.53	1,111	J-623
J-698	595.96	1,111	J-699
J-731	618.74	1,111	J-699
J-1100	604.31	1,122	J-853
J-447	552.07	1,127	J-457
J-1098	557.71	1,139	J-853
J-297	581.76	1,140	J-853
J-24	555.04	1,156	J-853
J-728	604.30	1,158	J-892
J-495	645.40	1,163	J-853
J-309	612.92	1,166	J-310
J-338	675.38	1,168	J-337
J-865	656.42	1,171	J-853
J-310	612.35	1,171	J-309
J-701	620.08	1,180	J-853
J-237	664.57	1,182	J-569
J-420	611.13	1,190	J-853
J-750	690.90	1,206	J-853
J-574	669.84	1,213	J-338
J-532	668.07	1,215	J-853
J-282	548.61	1,225	J-853
J-745	631.83	1,243	J-853
J-367	579.07	1,244	J-466
J-1106	544.47	1,248	J-693
J-723	703.51	1,264	J-853
J-487	536.83	1,266	J-853
J-1122	542.14	1,267	J-853
J-746	609.29	1,282	J-853
J-630	536.69	1,282	J-884
J-884	621.94	1,282	J-853
J-817	537.06	1,282	J-884
J-629	547.66	1,282	J-884
J-651	681.05	1,284	J-853
J-770	603.08	1,287	J-728
J-608	648.63	1,288	J-853
J-735	575.02	1,289	J-853
J-656	618.80	1,303	J-853
J-695	610.02	1,305	J-338
J-347	665.82	1,314	J-473

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 2 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-404	606.68	1,316	J-473
J-1040	559.84	1,317	J-884
J-709	591.89	1,317	J-853
J-686	584.08	1,320	J-853
J-1052 Dave	664.44	1,323	J-611
J-1099	591.01	1,325	J-1100
J-768	623.93	1,327	J-853
J-593	690.47	1,328	J-853
J-733	602.18	1,334	J-853
J-1071	684.04	1,334	J-726
J-434	612.12	1,336	J-424
J-610	646.15	1,338	J-611
J-365	538.42	1,339	J-366
J-1113	595.69	1,342	J-884
J-1050	646.37	1,343	J-1052 Dave
J-490	536.81	1,356	J-487
J-767	578.97	1,364	J-853
J-279	604.71	1,365	J-278
J-255	575.09	1,365	J-256
J-611	665.14	1,365	J-1052 Dave
J-697	662.46	1,368	J-853
J-960	536.50	1,371	J-853
J-464	554.78	1,371	J-853
J-764	584.05	1,375	J-853
J-748	538.66	1,376	J-853
J-303	542.34	1,376	J-304
J-666	532.92	1,380	J-884
J-665	547.66	1,380	J-884
J-1112	564.53	1,382	J-884
J-262	638.54	1,384	J-263
J-1094	581.31	1,385	J-853
J-520	651.42	1,387	J-608
J-438	580.41	1,388	J-853
J-1102	592.89	1,389	J-728
J-642	670.53	1,389	J-853
J-742	632.74	1,390	J-853
J-762	604.34	1,391	J-853
J-769	643.27	1,397	J-853
J-707	571.97	1,402	J-853
J-304	540.79	1,403	J-303
J-841	739.49	1,405	J-840
J-459	555.59	1,408	J-853
J-714	685.90	1,410	J-853
J-430	540.34	1,411	J-303

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 2 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-753	559.50	1,414	J-853
J-497	536.27	1,422	J-487
J-1070	662.63	1,429	J-532
J-763	587.94	1,429	J-853
J-893	659.24	1,433	J-841
J-1075	704.80	1,433	J-841
J-840	737.43	1,433	J-841
J-431	537.73	1,436	J-853
J-887	544.29	1,437	J-884
J-819	643.46	1,437	J-865
J-792	641.78	1,439	J-865
J-791	641.13	1,440	J-865
J-594	680.96	1,442	J-593
J-239	648.42	1,442	J-569
J-558	529.11	1,442	J-693
J-559	528.79	1,442	J-693
J-712	627.82	1,445	J-853
J-375	577.37	1,447	J-853
J-449	549.65	1,451	J-853
J-730	620.27	1,452	J-699
J-325	669.93	1,453	J-347
J-542	663.06	1,456	J-541
J-541	669.82	1,457	J-611
J-657	592.43	1,461	J-656
J-131	616.44	1,464	J-865
J-432	634.80	1,464	J-853
J-755	561.14	1,470	J-853
J-339	641.94	1,474	J-853
J-132	602.30	1,477	J-865
J-1059	615.54	1,484	J-745
J-118	582.15	1,486	J-865
J-119	563.06	1,486	J-865
J-639	644.49	1,494	J-853
J-451	575.67	1,494	J-853
J-573	683.99	1,500	J-572
J-386	563.84	1,501	J-390
J-662	677.98	1,501	J-711
J-626	647.31	1,504	J-263
J-326	667.52	1,505	J-325
J-1120	560.00	1,508	J-853
J-1054	636.37	1,511	J-853
J-720	640.40	1,516	J-853
J-702	650.04	1,521	J-495
J-1058	652.74	1,532	J-853

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 2 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-1074	694.62	1,541	J-853
J-1101	579.82	1,543	J-728
J-472	552.44	1,549	J-703
J-685	551.19	1,554	J-703
J-737	588.67	1,555	J-853
J-870	619.15	1,558	J-826
J-426	580.43	1,571	J-1097
J-359	648.23	1,572	J-360
J-684	552.96	1,578	J-478
J-600	645.58	1,589	J-711
J-599	634.40	1,589	J-711
J-21	554.00	1,590	J-853
J-758	505.45	1,606	J-853
J-327	524.16	1,612	J-415
J-628	678.98	1,618	J-174
J-328	524.32	1,620	J-327
J-552	647.77	1,621	J-642
J-551	641.96	1,621	J-642
J-826	618.45	1,628	J-870
J-429	525.03	1,637	J-853
J-619	620.89	1,639	J-711
J-234	647.59	1,645	J-569
J-716	556.29	1,650	J-853
J-739	667.14	1,653	J-853
J-1053	596.34	1,654	J-1054
J-885	616.78	1,658	J-853
J-1111	580.82	1,659	J-746
J-1055	617.65	1,663	J-1054
J-324	552.68	1,670	J-853
J-680	567.24	1,674	J-853
J-425	593.54	1,682	J-444
J-444	594.55	1,688	J-425
J-747	562.16	1,689	J-703
J-1056	663.84	1,690	J-711
J-14	543.23	1,695	J-13
J-401	594.99	1,697	J-734
J-646	592.36	1,699	J-711
J-694	619.42	1,700	J-853
J-834	612.99	1,710	J-870
J-340	641.69	1,711	J-339
J-417	562.28	1,734	J-853
J-13	541.99	1,736	J-14
J-1124	602.80	1,736	J-734
J-563	632.16	1,738	J-639

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 2 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-1121	0.00	1,738	J-1119
J-1119	580.00	1,738	J-168
J-1049	628.97	1,740	J-853
J-734	604.19	1,742	J-1124
J-741	677.28	1,746	J-726
J-474	564.85	1,749	J-853
J-356	546.83	1,751	J-1085
J-682	655.92	1,752	J-853
J-888	646.54	1,753	J-853
J-168	579.99	1,760	J-1119
J-667	565.42	1,762	J-853
J-353	587.19	1,762	J-853
J-446	533.66	1,767	J-445
J-587	660.15	1,773	J-593
J-586	651.29	1,773	J-593
J-718	578.95	1,775	J-853
J-655	572.00	1,781	J-853
J-391	610.90	1,790	J-392
J-634	576.32	1,800	J-853
J-690	587.40	1,800	J-870
J-349	584.13	1,801	J-853
J-323	550.67	1,805	J-324
J-389	545.99	1,810	J-853
J-858	678.68	1,820	J-726
J-744	687.11	1,824	J-711
J-743	669.08	1,824	J-711
J-722	648.29	1,824	J-711
J-721	589.77	1,824	J-711
J-562	631.09	1,824	J-711
J-879	632.03	1,824	J-711
J-880	573.20	1,824	J-711
J-645	612.97	1,824	J-711
J-461	552.12	1,827	J-388
J-287	606.77	1,832	J-290
J-403	563.62	1,834	J-853
J-687	574.88	1,836	J-728
J-1069	673.50	1,845	J-726
J-896	614.44	1,849	J-853
J-560	633.88	1,852	J-569
J-174	706.13	1,853	J-189
J-1068	672.97	1,855	J-726
J-246	649.72	1,856	J-642
J-189	696.30	1,864	J-174
J-771	634.88	1,870	J-373

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 2 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-859	675.64	1,871	J-726
J-399	563.98	1,881	J-853
J-1081	623.17	1,890	J-572
J-405	614.69	1,893	J-455
J-704	714.06	1,897	J-711
J-486	648.01	1,913	J-340
J-361	571.92	1,917	J-362
J-1110	577.81	1,932	J-737
J-1080	618.14	1,934	J-1081
J-352	594.84	1,936	J-290
J-123	621.90	1,957	J-174
J-749	718.32	1,960	J-711
J-489	683.88	1,965	J-853
J-135	640.01	1,977	J-174
J-141	547.18	1,978	J-1119
J-547	554.77	1,978	J-693
J-863	589.85	1,982	J-885
J-616	636.22	1,987	J-853
J-1062	655.03	1,995	J-626
J-633	586.00	2,001	J-896
J-122	610.93	2,003	J-174
J-757	520.39	2,005	J-884
J-484	659.67	2,007	J-853
J-128	671.89	2,010	J-174
J-683	600.85	2,013	J-432
J-622	580.59	2,015	J-853
J-760	723.64	2,026	J-841
J-613	606.35	2,026	J-701
J-354	544.90	2,031	J-853
J-777	660.86	2,040	J-174
J-129	657.72	2,041	J-174
J-614	584.53	2,050	J-853
J-632	553.19	2,053	J-174
J-54	523.43	2,056	J-1119
J-53	523.53	2,056	J-1119
J-648	674.25	2,060	J-726
J-673	639.55	2,065	J-541
J-548	552.74	2,069	J-693
J-376	553.93	2,074	J-572
J-678	557.50	2,074	J-853
J-862	577.42	2,074	J-885
J-140	594.09	2,077	J-174
J-124	565.32	2,089	J-888
J-106	549.74	2,089	J-888

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 2 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-1079	540.26	2,089	J-888
J-110	541.83	2,089	J-888
J-149	557.26	2,089	J-888
J-39	533.10	2,089	J-888
J-148	531.17	2,089	J-888
J-126	583.19	2,089	J-888
J-40	533.71	2,089	J-888
J-107	531.23	2,089	J-888
J-588	640.18	2,093	J-642
J-105	546.39	2,094	J-888
J-854	549.95	2,094	J-888
J-589	555.83	2,103	J-853
J-220	530.52	2,137	J-884
J-243	501.20	2,137	J-884
J-221	501.20	2,137	J-884
J-130	584.54	2,139	J-174
J-805	582.53	2,140	J-865
J-601	554.82	2,146	J-853
J-46	602.67	2,146	J-888
J-45	602.67	2,146	J-888
J-804	583.63	2,147	J-865
J-439	577.33	2,147	J-853
J-590	547.97	2,148	J-853
J-226	547.56	2,167	J-607
J-873	597.53	2,169	J-556
J-143	648.43	2,171	J-853
J-413	665.59	2,176	J-414
J-380	561.97	2,181	J-381
J-90	642.44	2,183	J-88
J-670	636.29	2,183	J-853
J-43	520.11	2,183	J-1119
J-44	520.38	2,183	J-1119
J-1051	647.45	2,196	J-853
J-89	636.28	2,199	J-88
J-88	642.68	2,199	J-90
J-523	586.99	2,201	J-1049
J-443	591.34	2,207	J-174
J-109	579.99	2,207	J-174
J-713	658.42	2,209	J-714
J-555	559.26	2,222	J-607
J-689	525.74	2,225	J-853
J-557	600.00	2,226	J-556
J-851	566.55	2,236	J-752
J-416	525.44	2,240	J-365

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 2 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-696	682.58	2,246	J-174
J-654	645.23	2,246	J-726
J-56	507.75	2,246	J-1119
J-55	506.60	2,246	J-1119
J-395	576.06	2,249	J-439
J-679	620.40	2,249	J-712
J-42	583.21	2,256	J-174
J-900	589.68	2,261	J-865
J-408	538.50	2,263	J-572
J-428	586.95	2,266	J-865
J-787	568.26	2,278	J-865
J-627	598.33	2,282	J-694
J-285	523.10	2,283	J-365
J-786	568.02	2,287	J-865
J-790	567.67	2,294	J-865
J-480	568.39	2,297	J-865
J-410	560.68	2,298	J-572
J-752	565.53	2,304	J-851
J-479	553.41	2,318	J-703
J-556	609.03	2,319	J-557
J-481	569.76	2,321	J-865
J-482	553.71	2,336	J-703
J-672	573.67	2,343	J-174
J-398	633.84	2,344	J-302
J-675	624.18	2,350	J-769
J-144	623.36	2,353	J-143
J-554	553.94	2,369	J-589
J-385	558.47	2,377	J-572
J-637	603.02	2,393	J-1080
J-919	561.80	2,394	J-865
J-691	561.80	2,394	J-865
J-647	674.80	2,395	J-726
J-501	629.04	2,404	J-759
J-348	588.66	2,413	J-1082
J-499	629.63	2,415	J-302
J-58	570.16	2,415	J-888
J-759	627.08	2,415	J-501
J-824	564.16	2,416	J-885
J-377	562.34	2,424	J-444
J-79	570.51	2,427	J-888
J-550	554.13	2,433	J-174
J-823	564.84	2,434	J-885
J-653	647.35	2,447	J-726
J-612	638.37	2,447	J-593

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 2 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-1091	555.41	2,459	J-865
J-706	564.41	2,470	J-728
J-334	564.65	2,472	J-853
J-668	518.89	2,494	J-365
J-839	572.61	2,495	J-782
J-681	688.81	2,496	J-853
J-1082	593.07	2,497	J-348
J-333	566.86	2,507	J-853
J-553	552.87	2,512	J-589
J-848	571.83	2,514	J-853
J-692	556.17	2,532	J-865
J-222	648.69	2,532	J-174
J-1088	599.98	2,536	J-759
J-181	649.08	2,538	J-174
J-182	649.95	2,539	J-174
J-797	556.34	2,544	J-631
J-867	567.33	2,545	J-885
J-754	568.78	2,546	J-885
J-782	573.41	2,549	J-839
J-85	636.16	2,551	J-88
J-86	637.42	2,551	J-88
J-631	556.19	2,551	J-797
J-857	632.22	2,552	J-174
J-155	624.77	2,553	J-853
J-549	554.83	2,556	J-797
J-35	604.27	2,574	J-143
J-36	604.27	2,574	J-143
J-866	566.33	2,580	J-885
J-67	566.85	2,581	J-888
J-871	622.00	2,583	J-572
J-830	544.37	2,583	J-174
J-831	547.40	2,583	J-174
J-121	551.38	2,583	J-174
J-894	576.51	2,600	J-885
J-891	561.67	2,610	J-174
J-1090	601.20	2,616	J-155
J-595	673.48	2,624	J-489
J-120	553.31	2,624	J-174
J-751	701.81	2,626	J-841
J-829	565.39	2,639	J-848
J-66	505.86	2,641	J-1119
J-65	507.14	2,641	J-1119
J-572	684.16	2,661	J-573
J-899	575.69	2,664	J-885

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 2 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-136	589.68	2,665	J-155
J-374	588.59	2,668	J-759
J-674	590.49	2,678	J-1081
J-125	602.85	2,679	J-143
J-677	557.53	2,680	J-174
J-820	642.77	2,692	J-784
J-638	596.05	2,696	J-1080
J-137	588.03	2,705	J-155
J-784	643.04	2,707	J-820
J-1103	567.14	2,707	J-848
J-850	570.98	2,711	J-174
J-671	570.20	2,712	J-174
J-849	572.53	2,714	J-174
J-736	609.49	2,721	J-398
J-773	641.35	2,725	J-784
J-167	530.64	2,736	J-572
J-1093	552.02	2,747	J-865
J-355	534.54	2,753	J-388
J-1104	552.35	2,754	J-848
J-1092	553.26	2,756	J-865
J-661	637.18	2,757	J-174
J-133	566.98	2,760	J-155
J-652	657.90	2,765	J-726
J-895	585.21	2,766	J-885
J-766	565.73	2,767	J-885
J-163	588.03	2,768	J-174
J-886	520.16	2,770	J-572
J-169	588.77	2,771	J-174
J-170	588.46	2,771	J-174
J-845	642.98	2,776	J-174
J-134	559.42	2,783	J-155
J-142	542.64	2,783	J-155
J-738	565.16	2,785	J-746
J-878	570.36	2,789	J-888
J-154	646.70	2,789	J-174
J-223	555.79	2,795	J-174
J-188	589.98	2,795	J-174
J-217	584.37	2,795	J-174
J-211	583.29	2,795	J-174
J-216	618.78	2,795	J-174
J-224	564.24	2,795	J-174
J-596	545.50	2,798	J-693
J-649	675.18	2,800	J-726
J-780	682.02	2,814	J-572

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 2 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-660	633.10	2,816	J-174
J-101	607.73	2,817	J-102
J-875	566.71	2,821	J-888
J-146	562.86	2,821	J-888
J-821	562.04	2,821	J-888
J-996	565.32	2,822	J-888
J-717	582.37	2,827	J-556
J-897	580.46	2,829	J-885
J-1083	567.30	2,834	J-1080
J-1065	675.40	2,835	J-853
J-17	570.40	2,855	J-174
J-108	600.28	2,863	J-101
J-102	603.96	2,866	J-101
J-383	556.99	2,868	J-572
J-844	546.07	2,870	J-848
J-15	563.28	2,876	J-174
J-890	567.89	2,876	J-174
J-617	661.64	2,909	J-853
J-1109	571.84	2,921	J-885
J-468	558.63	2,940	J-1081
J-609	553.85	2,943	J-444
J-20	572.97	2,946	J-174
J-19	574.42	2,946	J-174
J-1032	574.97	2,949	J-174
J-210	564.28	2,951	J-607
J-881	618.28	2,954	J-174
J-577	596.88	2,955	J-174
J-280	539.63	2,961	J-865
J-139	577.85	2,961	J-174
J-47	587.44	2,963	J-174
J-838	577.98	2,963	J-174
J-171	577.59	2,965	J-174
J-615	573.51	2,969	J-174
J-814	576.22	2,969	J-174
J-815	575.84	2,969	J-174
J-997	592.19	2,970	J-174
J-729	591.80	2,970	J-174
J-882	605.87	2,974	J-174
J-925	564.20	2,974	J-474
J-876	593.86	2,976	J-174
J-800	547.79	2,980	J-848
J-580	551.62	2,990	J-1081
J-460	538.21	2,992	J-1081
J-1073	673.79	3,001	J-841

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 2 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-883	612.14	3,007	J-174
J-585	640.80	3,020	J-593
J-162	636.04	3,024	J-853
J-407	533.85	3,028	J-1081
J-95	534.95	3,030	J-1081
J-96	529.85	3,036	J-1081
J-99	527.04	3,052	J-1081
J-765	565.38	3,057	J-885
J-1067	700.15	3,058	J-853
J-576	674.32	3,071	J-853
J-602	636.25	3,072	J-853
J-179	528.36	3,077	J-607
J-183	527.30	3,077	J-607
J-209	544.35	3,077	J-607
J-11	544.22	3,077	J-607
J-1105	539.95	3,077	J-607
J-597	649.15	3,095	J-853
J-159	590.97	3,106	J-888
J-186	526.67	3,111	J-174
J-160	527.29	3,112	J-174
J-860	580.95	3,121	J-556
J-100	519.06	3,134	J-1119
J-620	594.98	3,135	J-541
J-63	514.78	3,145	J-1119
J-64	514.07	3,145	J-1119
J-811	554.52	3,149	J-379
J-1066	678.69	3,151	J-853
J-543	550.11	3,158	J-174
J-113	549.90	3,158	J-174
J-544	552.62	3,158	J-174
J-581	548.78	3,158	J-174
J-561	549.08	3,159	J-174
J-111	555.71	3,164	J-174
J-112	556.02	3,169	J-174
J-77	524.51	3,172	J-76
J-127	552.95	3,172	J-174
J-635	520.21	3,173	J-1081
J-864	589.75	3,175	J-853
J-59	552.18	3,176	J-174
J-60	552.38	3,176	J-174
J-761	594.47	3,178	J-174
J-379	554.06	3,178	J-811
J-103	558.77	3,180	J-174
J-104	559.09	3,183	J-174

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 2 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-898	584.52	3,184	J-174
J-76	523.92	3,190	J-77
J-1107	575.45	3,194	J-174
J-498	559.18	3,195	J-302
J-145	507.25	3,196	J-1119
J-1108	564.44	3,201	J-174
J-206	564.99	3,202	J-174
J-207	567.34	3,207	J-174
J-624	604.62	3,222	J-541
J-868	565.47	3,235	J-302
J-1072	666.97	3,245	J-841
J-584	653.87	3,249	J-593
J-156	603.96	3,263	J-888
J-411	530.95	3,273	J-865
J-822	528.61	3,278	J-865
J-357	521.80	3,282	J-302
J-193	607.97	3,282	J-174
J-422	533.67	3,288	J-865
J-165	533.74	3,300	J-865
J-299	528.02	3,317	J-865
J-300	528.00	3,317	J-865
J-358	529.99	3,338	J-572
J-10	607.04	3,344	J-174
J-952	627.46	3,406	J-853
J-406	559.53	3,422	J-572
J-462	610.81	3,436	J-871
J-500	553.71	3,446	J-302
J-496	571.00	3,447	J-302
J-71	692.61	3,450	J-72
J-418	538.45	3,454	J-302
J-592	628.95	3,456	J-853
J-369	527.08	3,458	J-358
J-855	554.72	3,464	J-302
J-23	545.11	3,467	J-811
J-363	613.48	3,467	J-364
J-72	692.45	3,479	J-71
J-25	587.85	3,500	J-853
J-33	719.70	3,500	J-853
J-49	576.22	3,500	J-853
J-69	643.17	3,500	J-71
J-70	644.91	3,500	J-71
J-74	659.51	3,500	J-71
J-75	658.73	3,500	J-71
J-80	576.38	3,500	J-853

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 2 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-84	587.14	3,500	J-853
J-91	577.34	3,500	J-864
J-92	577.12	3,500	J-853
J-93	697.17	3,500	J-853
J-94	700.52	3,500	J-853
J-97	622.30	3,500	J-572
J-115	707.82	3,500	J-853
J-138	657.92	3,500	J-853
J-147	596.37	3,500	J-853
J-157	744.50	3,500	J-853
J-158	608.09	3,500	J-853
J-161	597.26	3,500	J-853
J-177	638.14	3,500	J-853
J-178	638.09	3,500	J-853
J-184	551.68	3,500	J-853
J-191	625.98	3,500	J-853
J-192	623.29	3,500	J-853
J-194	568.20	3,500	J-853
J-201	567.87	3,500	J-853
J-202	627.18	3,500	J-853
J-203	599.56	3,500	J-853
J-204	580.14	3,500	J-853
J-205	588.72	3,500	J-853
J-208	588.10	3,500	J-853
J-215	661.01	3,500	J-853
J-218	680.24	3,500	J-572
J-229	685.35	3,500	J-853
J-230	685.38	3,500	J-853
J-342	591.46	3,500	J-572
J-440	611.65	3,500	J-853
J-469	704.03	3,500	J-853
J-470	690.81	3,500	J-71
J-492	584.90	3,500	J-572
J-493	690.64	3,500	J-71
J-502	570.03	3,500	J-853
J-575	665.91	3,500	J-853
J-621	586.53	3,500	J-853
J-625	590.54	3,500	J-853
J-658	606.04	3,500	J-572
J-700	649.89	3,500	J-71
J-715	583.63	3,500	J-572
J-732	580.62	3,500	J-853
J-740	694.66	3,500	J-853
J-794	703.68	3,500	J-853

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 2 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-795	703.16	3,500	J-853
J-833	707.23	3,500	J-853
J-843	679.08	3,500	J-572
J-846	589.73	3,500	J-572
J-852	701.17	3,500	J-853
J-853	685.90	3,500	J-229
J-861	610.66	3,500	J-853
J-872	600.92	3,500	J-853
J-877	635.74	3,500	J-853
J-901	601.46	3,500	J-174
J-908	650.54	3,500	J-71
J-931	716.48	3,500	J-853
J-1115	701.41	3,500	J-853
J-27	584.13	3,503	J-853
J-152	561.12	3,503	J-853
J-153	556.90	3,503	J-853
J-1089	575.56	3,503	J-853
J-31	512.72	3,506	J-1081
J-51	626.44	3,506	J-572
J-52	625.44	3,506	J-572
J-87	510.30	3,506	J-1081
J-98	626.01	3,506	J-572
J-116	552.81	3,506	J-853
J-117	544.83	3,506	J-853
J-150	581.64	3,506	J-853
J-164	532.98	3,506	J-865
J-212	671.50	3,506	J-853
J-213	594.46	3,506	J-853
J-227	544.26	3,506	J-853
J-258	549.28	3,506	J-572
J-329	555.59	3,506	J-853
J-330	554.91	3,506	J-853
J-331	563.15	3,506	J-853
J-332	565.07	3,506	J-853
J-368	601.97	3,506	J-572
J-370	513.92	3,506	J-759
J-382	564.29	3,506	J-572
J-394	565.11	3,506	J-572
J-400	561.75	3,506	J-865
J-409	559.20	3,506	J-572
J-419	601.62	3,506	J-572
J-465	578.16	3,506	J-572
J-467	547.14	3,506	J-302
J-476	598.70	3,506	J-572

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 2 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-485	628.07	3,506	J-572
J-488	619.21	3,506	J-572
J-491	601.82	3,506	J-572
J-636	549.53	3,506	J-853
J-801	547.09	3,506	J-302
J-847	567.23	3,506	J-572
J-869	569.35	3,506	J-572
J-61	719.89	3,507	J-853
J-62	720.40	3,507	J-853
J-82	731.85	3,507	J-853
J-114	712.94	3,507	J-853
J-151	710.97	3,507	J-853
J-166	667.79	3,507	J-853
J-214	619.04	3,507	J-853
J-570	667.40	3,507	J-853
J-571	666.01	3,507	J-853
J-591	628.88	3,507	J-853
J-598	636.09	3,507	J-853
J-603	647.20	3,507	J-841
J-604	674.57	3,507	J-853
J-605	673.81	3,507	J-853
J-618	654.89	3,507	J-853
J-676	656.74	3,507	J-853
J-724	663.36	3,507	J-841
J-756	698.28	3,507	J-853
J-832	703.73	3,507	J-853
J-972	628.04	3,507	J-853
J-1060	727.36	3,507	J-853
J-1061	740.12	3,507	J-853
J-1063	635.60	3,507	J-853
J-1064	643.74	3,507	J-853
J-1076	632.76	3,507	J-853
J-73	582.28	3,512	J-143
J-81	579.78	3,512	J-143
J-260	567.18	3,512	J-572
J-393	566.14	3,512	J-572
J-529	562.50	3,512	J-572

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 3 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-1033	553.00	(N/A)	(N/A)
J-1035	608.39	(N/A)	(N/A)
J-1036	578.63	(N/A)	(N/A)
J-1037	553.51	(N/A)	(N/A)
J-1038	594.38	(N/A)	(N/A)
J-1039	573.07	(N/A)	(N/A)
J-1042	540.00	(N/A)	(N/A)
J-1043	493.00	(N/A)	(N/A)
J-278	602.20	127	J-853
J-286	513.49	129	J-853
J-284	514.70	138	J-853
J-253	655.64	142	J-853
J-281	542.23	143	J-853
J-251	640.00	156	J-853
J-266	585.59	173	J-853
J-256	569.25	179	J-853
J-263	639.56	192	J-853
J-245	669.80	203	J-853
J-494	620.45	335	J-853
J-241	562.15	444	J-853
J-457	554.55	449	J-853
J-247	550.33	458	J-853
J-483	597.44	481	J-853
J-267	583.87	500	J-266
J-1030	626.93	508	J-1031
J-1031	627.38	510	J-1030
J-351	632.32	527	J-1031
J-456	647.55	530	J-853
J-458	590.07	546	J-853
J-463	609.47	564	J-853
J-350	542.69	571	J-241
J-466	566.20	591	J-853
J-441	597.39	624	J-853
J-448	546.01	634	J-457
J-344	540.39	655	J-241
J-450	528.37	656	J-853
J-650	597.89	660	J-853
J-275	538.98	674	J-241
J-565	595.84	675	J-564
J-566	595.84	675	J-564
J-388	570.07	675	J-853
J-564	595.84	681	J-565
J-345	562.73	684	J-853
J-397	640.57	692	J-853

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 3 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-290	637.49	694	J-853
J-373	623.13	701	J-853
J-295	670.63	712	J-853
J-270	539.72	729	J-241
J-437	566.16	733	J-853
J-427	590.27	744	J-853
J-471	543.23	747	J-703
J-545	584.34	748	J-650
J-546	584.78	748	J-650
J-346	564.14	748	J-345
J-703	568.30	753	J-853
J-477	577.31	755	J-266
J-445	543.64	756	J-853
J-1095	620.99	761	J-290
J-442	613.67	767	J-853
J-478	547.62	773	J-853
J-302	639.12	779	J-301
J-1096	616.94	785	J-1095
J-249	542.14	788	J-241
J-301	638.84	791	J-302
J-1097	613.41	815	J-1096
J-473	670.68	827	J-853
J-567	596.06	828	J-564
J-433	571.89	831	J-853
J-726	686.28	841	J-853
J-772	524.39	847	J-853
J-414	661.29	875	J-853
J-392	620.26	877	J-853
J-415	519.50	877	J-853
J-708	602.56	888	J-567
J-453	625.15	903	J-473
J-725	677.00	912	J-853
J-1087	602.66	914	J-302
J-719	574.02	915	J-650
J-372	619.07	917	J-373
J-889	678.82	920	J-337
J-892	600.88	921	J-650
J-254	655.01	927	J-889
J-252	626.84	933	J-889
J-688	605.84	941	J-889
J-364	617.80	943	J-853
J-402	569.03	945	J-241
J-366	535.44	948	J-853
J-1086	594.66	950	J-853

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 3 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-1084	566.68	951	J-853
J-951	604.14	960	J-853
J-504	541.76	966	J-772
J-371	598.15	968	J-853
J-727	577.07	968	J-728
J-663	620.71	976	J-889
J-318	590.66	977	J-283
J-424	625.88	978	J-853
J-1078	612.33	981	J-889
J-387	567.37	981	J-388
J-659	594.82	983	J-889
J-378	574.37	983	J-853
J-531	592.14	984	J-889
J-643	681.34	985	J-726
J-1077	624.23	985	J-889
J-517	625.99	986	J-640
J-384	628.37	987	J-853
J-640	625.89	987	J-517
J-283	593.09	987	J-318
J-423	528.27	988	J-853
J-341	545.02	988	J-241
J-664	652.32	990	J-889
J-421	617.99	992	J-853
J-381	554.35	997	J-853
J-669	657.76	1,014	J-889
J-641	633.65	1,014	J-889
J-710	562.19	1,015	J-650
J-693	588.96	1,020	J-853
J-362	579.84	1,021	J-853
J-276	541.55	1,027	J-241
J-337	675.57	1,031	J-889
J-360	655.45	1,037	J-853
J-623	634.06	1,037	J-607
J-1085	566.53	1,044	J-853
J-412	523.58	1,052	J-853
J-606	631.94	1,061	J-607
J-874	578.38	1,068	J-892
J-711	721.98	1,070	J-853
J-644	680.19	1,074	J-726
J-1	538.72	1,077	J-276
J-699	628.46	1,077	J-853
J-436	604.47	1,098	J-853
J-390	575.71	1,108	J-853
J-705	587.95	1,109	J-435

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 3 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-569	672.42	1,111	J-237
J-607	637.53	1,111	J-623
J-698	595.96	1,111	J-699
J-731	618.74	1,111	J-699
J-343	595.77	1,121	J-473
J-1100	604.31	1,122	J-853
J-447	552.07	1,127	J-457
J-1098	557.71	1,139	J-853
J-297	581.76	1,140	J-853
J-24	555.04	1,156	J-853
J-728	604.30	1,158	J-892
J-435	623.73	1,159	J-853
J-495	645.40	1,163	J-853
J-309	612.92	1,166	J-310
J-338	675.38	1,168	J-337
J-865	656.42	1,171	J-853
J-310	612.35	1,171	J-309
J-701	620.08	1,180	J-853
J-237	664.57	1,182	J-569
J-420	611.13	1,190	J-853
J-750	690.90	1,206	J-853
J-574	669.84	1,213	J-338
J-282	548.61	1,225	J-853
J-745	631.83	1,243	J-853
J-367	579.07	1,244	J-466
J-1106	544.47	1,248	J-693
J-723	703.51	1,264	J-853
J-487	536.83	1,266	J-853
J-1122	542.14	1,267	J-853
J-746	609.29	1,282	J-853
J-630	536.69	1,282	J-884
J-884	621.94	1,282	J-853
J-817	537.06	1,282	J-884
J-629	547.66	1,282	J-884
J-651	681.05	1,284	J-853
J-770	603.08	1,287	J-728
J-608	648.63	1,288	J-853
J-735	575.02	1,289	J-853
J-656	618.80	1,303	J-853
J-695	610.02	1,305	J-338
J-1040	559.84	1,317	J-884
J-709	591.89	1,317	J-853
J-686	584.08	1,320	J-853
J-1052 Dave	664.44	1,323	J-611

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 3 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-1099	591.01	1,325	J-1100
J-768	623.93	1,327	J-853
J-593	690.47	1,328	J-853
J-733	602.18	1,334	J-853
J-1071	684.04	1,334	J-726
J-434	612.12	1,336	J-424
J-610	646.15	1,338	J-611
J-365	538.42	1,339	J-366
J-1113	595.69	1,342	J-884
J-1050	646.37	1,343	J-1052 Dave
J-490	536.81	1,356	J-487
J-767	578.97	1,364	J-853
J-279	604.71	1,365	J-278
J-255	575.09	1,365	J-256
J-611	665.14	1,365	J-1052 Dave
J-697	662.46	1,368	J-853
J-960	536.50	1,371	J-853
J-464	554.78	1,371	J-853
J-764	584.05	1,375	J-853
J-748	538.66	1,376	J-853
J-303	542.34	1,376	J-304
J-666	532.92	1,380	J-884
J-665	547.66	1,380	J-884
J-1112	564.53	1,382	J-884
J-262	638.54	1,384	J-263
J-1094	581.31	1,385	J-853
J-520	651.42	1,387	J-608
J-438	580.41	1,388	J-853
J-1102	592.89	1,389	J-728
J-642	670.53	1,389	J-853
J-742	632.74	1,390	J-853
J-762	604.34	1,391	J-853
J-769	643.27	1,397	J-853
J-455	664.66	1,397	J-853
J-707	571.97	1,402	J-853
J-304	540.79	1,403	J-303
J-841	739.49	1,405	J-840
J-459	555.59	1,408	J-853
J-714	685.90	1,410	J-853
J-430	540.34	1,411	J-303
J-753	559.50	1,414	J-853
J-497	536.27	1,422	J-487
J-763	587.94	1,429	J-853
J-893	659.24	1,433	J-841

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 3 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-1075	704.80	1,433	J-841
J-840	737.43	1,433	J-841
J-431	537.73	1,436	J-853
J-887	544.29	1,437	J-884
J-819	643.46	1,437	J-865
J-792	641.78	1,439	J-865
J-791	641.13	1,440	J-865
J-594	680.96	1,442	J-593
J-239	648.42	1,442	J-569
J-558	529.11	1,442	J-693
J-559	528.79	1,442	J-693
J-712	627.82	1,445	J-853
J-375	577.37	1,447	J-853
J-449	549.65	1,451	J-853
J-730	620.27	1,452	J-699
J-542	663.06	1,456	J-541
J-541	669.82	1,457	J-611
J-657	592.43	1,461	J-656
J-131	616.44	1,464	J-865
J-432	634.80	1,464	J-853
J-755	561.14	1,470	J-853
J-339	641.94	1,474	J-853
J-132	602.30	1,477	J-865
J-1059	615.54	1,484	J-745
J-118	582.15	1,486	J-865
J-119	563.06	1,486	J-865
J-639	644.49	1,494	J-853
J-451	575.67	1,494	J-853
J-404	606.68	1,499	J-473
J-573	683.99	1,500	J-572
J-386	563.84	1,501	J-390
J-662	677.98	1,501	J-711
J-626	647.31	1,504	J-263
J-1120	560.00	1,508	J-853
J-1054	636.37	1,511	J-853
J-720	640.40	1,516	J-853
J-702	650.04	1,521	J-495
J-1058	652.74	1,532	J-853
J-1074	694.62	1,541	J-853
J-1101	579.82	1,543	J-728
J-472	552.44	1,549	J-703
J-685	551.19	1,554	J-703
J-737	588.67	1,555	J-853
J-870	619.15	1,558	J-826

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 3 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-426	580.43	1,571	J-1097
J-359	648.23	1,572	J-360
J-684	552.96	1,578	J-478
J-600	645.58	1,589	J-711
J-599	634.40	1,589	J-711
J-21	554.00	1,590	J-853
J-758	505.45	1,606	J-853
J-327	524.16	1,612	J-415
J-628	678.98	1,618	J-174
J-328	524.32	1,620	J-327
J-552	647.77	1,621	J-642
J-551	641.96	1,621	J-642
J-532	668.07	1,621	J-726
J-826	618.45	1,628	J-870
J-429	525.03	1,637	J-853
J-619	620.89	1,639	J-711
J-234	647.59	1,645	J-569
J-716	556.29	1,650	J-853
J-739	667.14	1,653	J-853
J-1053	596.34	1,654	J-1054
J-885	616.78	1,658	J-853
J-1111	580.82	1,659	J-746
J-1055	617.65	1,663	J-1054
J-324	552.68	1,670	J-853
J-680	567.24	1,674	J-853
J-425	593.54	1,682	J-444
J-444	594.55	1,688	J-425
J-747	562.16	1,689	J-703
J-1056	663.84	1,690	J-711
J-14	543.23	1,695	J-13
J-401	594.99	1,697	J-734
J-646	592.36	1,699	J-711
J-694	619.42	1,700	J-853
J-834	612.99	1,710	J-870
J-340	641.69	1,711	J-339
J-1070	662.63	1,730	J-532
J-417	562.28	1,734	J-853
J-13	541.99	1,736	J-14
J-1124	602.80	1,736	J-734
J-563	632.16	1,738	J-639
J-1121	0.00	1,738	J-1119
J-1119	580.00	1,738	J-168
J-1049	628.97	1,740	J-853
J-734	604.19	1,742	J-1124

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 3 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-741	677.28	1,746	J-726
J-474	564.85	1,749	J-853
J-356	546.83	1,751	J-1085
J-682	655.92	1,752	J-853
J-888	646.54	1,753	J-853
J-168	579.99	1,760	J-1119
J-667	565.42	1,762	J-853
J-353	587.19	1,762	J-853
J-446	533.66	1,767	J-445
J-587	660.15	1,773	J-593
J-586	651.29	1,773	J-593
J-718	578.95	1,775	J-853
J-655	572.00	1,781	J-853
J-391	610.90	1,790	J-392
J-634	576.32	1,800	J-853
J-690	587.40	1,800	J-870
J-349	584.13	1,801	J-853
J-323	550.67	1,805	J-324
J-389	545.99	1,810	J-853
J-858	678.68	1,820	J-726
J-744	687.11	1,824	J-711
J-743	669.08	1,824	J-711
J-722	648.29	1,824	J-711
J-721	589.77	1,824	J-711
J-562	631.09	1,824	J-711
J-645	612.97	1,824	J-711
J-880	573.20	1,824	J-711
J-879	632.03	1,824	J-711
J-461	552.12	1,827	J-388
J-287	606.77	1,832	J-290
J-403	563.62	1,834	J-853
J-687	574.88	1,836	J-728
J-1069	673.50	1,845	J-726
J-896	614.44	1,849	J-853
J-560	633.88	1,852	J-569
J-174	706.13	1,853	J-189
J-1068	672.97	1,855	J-726
J-246	649.72	1,856	J-642
J-189	696.30	1,864	J-174
J-771	634.88	1,870	J-373
J-859	675.64	1,871	J-726
J-399	563.98	1,881	J-853
J-1081	623.17	1,891	J-572
J-704	714.06	1,897	J-711

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 3 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-486	648.01	1,913	J-340
J-454	660.02	1,914	J-455
J-361	571.92	1,917	J-362
J-1110	577.81	1,932	J-737
J-1080	618.14	1,934	J-1081
J-352	594.84	1,936	J-290
J-123	621.90	1,957	J-174
J-749	718.32	1,960	J-711
J-489	683.88	1,965	J-853
J-135	640.01	1,977	J-174
J-141	547.18	1,978	J-1119
J-547	554.77	1,978	J-693
J-863	589.85	1,982	J-885
J-616	636.22	1,987	J-853
J-325	669.93	1,994	J-326
J-1062	655.03	1,995	J-626
J-326	667.52	2,000	J-325
J-633	586.00	2,001	J-896
J-122	610.93	2,003	J-174
J-757	520.39	2,005	J-884
J-484	659.67	2,007	J-853
J-128	671.89	2,010	J-174
J-683	600.85	2,013	J-432
J-622	580.59	2,015	J-853
J-347	665.82	2,020	J-325
J-760	723.64	2,026	J-841
J-613	606.35	2,026	J-701
J-354	544.90	2,031	J-853
J-777	660.86	2,040	J-174
J-129	657.72	2,041	J-174
J-614	584.53	2,050	J-853
J-632	553.19	2,053	J-174
J-54	523.43	2,056	J-1119
J-53	523.53	2,056	J-1119
J-648	674.25	2,060	J-726
J-673	639.55	2,065	J-541
J-548	552.74	2,069	J-693
J-376	553.93	2,074	J-572
J-678	557.50	2,074	J-853
J-862	577.42	2,074	J-885
J-140	594.09	2,077	J-174
J-124	565.32	2,089	J-888
J-106	549.74	2,089	J-888
J-1079	540.26	2,089	J-888

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 3 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-110	541.83	2,089	J-888
J-149	557.26	2,089	J-888
J-126	583.19	2,089	J-888
J-107	531.23	2,089	J-888
J-39	533.10	2,089	J-888
J-40	533.71	2,089	J-888
J-148	531.17	2,089	J-888
J-588	640.18	2,093	J-642
J-105	546.39	2,094	J-888
J-854	549.95	2,094	J-888
J-589	555.83	2,103	J-853
J-243	501.20	2,137	J-884
J-220	530.52	2,137	J-884
J-221	501.20	2,137	J-884
J-130	584.54	2,139	J-174
J-805	582.53	2,140	J-865
J-601	554.82	2,146	J-853
J-46	602.67	2,146	J-888
J-45	602.67	2,146	J-888
J-804	583.63	2,147	J-865
J-439	577.33	2,147	J-853
J-590	547.97	2,148	J-853
J-226	547.56	2,167	J-607
J-873	597.53	2,169	J-556
J-143	648.43	2,171	J-853
J-413	665.59	2,176	J-414
J-380	561.97	2,181	J-381
J-90	642.44	2,183	J-88
J-670	636.29	2,183	J-853
J-44	520.38	2,183	J-1119
J-43	520.11	2,183	J-1119
J-405	614.69	2,194	J-853
J-1051	647.45	2,196	J-853
J-89	636.28	2,199	J-88
J-88	642.68	2,199	J-90
J-523	586.99	2,201	J-1049
J-443	591.34	2,207	J-174
J-109	579.99	2,207	J-174
J-713	658.42	2,209	J-714
J-555	559.26	2,222	J-607
J-689	525.74	2,225	J-853
J-557	600.00	2,226	J-556
J-851	566.55	2,236	J-752
J-416	525.44	2,240	J-365

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 3 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-696	682.58	2,246	J-174
J-654	645.23	2,246	J-726
J-55	506.60	2,246	J-1119
J-56	507.75	2,246	J-1119
J-395	576.06	2,249	J-439
J-679	620.40	2,249	J-712
J-42	583.21	2,256	J-174
J-900	589.68	2,261	J-865
J-408	538.50	2,263	J-572
J-428	586.95	2,266	J-865
J-787	568.26	2,278	J-865
J-627	598.33	2,282	J-694
J-285	523.10	2,283	J-365
J-786	568.02	2,287	J-865
J-790	567.67	2,294	J-865
J-480	568.39	2,297	J-865
J-410	560.68	2,298	J-572
J-752	565.53	2,304	J-851
J-479	553.41	2,318	J-703
J-556	609.03	2,319	J-557
J-481	569.76	2,321	J-865
J-482	553.71	2,336	J-703
J-672	573.67	2,343	J-174
J-398	633.84	2,344	J-302
J-675	624.18	2,350	J-769
J-144	623.36	2,353	J-143
J-554	553.94	2,369	J-589
J-385	558.47	2,377	J-572
J-637	603.02	2,393	J-1080
J-919	561.80	2,394	J-865
J-691	561.80	2,394	J-865
J-647	674.80	2,395	J-726
J-501	629.04	2,404	J-759
J-348	588.66	2,413	J-1082
J-499	629.63	2,415	J-302
J-58	570.16	2,415	J-888
J-759	627.08	2,415	J-501
J-824	564.16	2,416	J-885
J-377	562.34	2,424	J-444
J-79	570.51	2,427	J-888
J-550	554.13	2,433	J-174
J-823	564.84	2,434	J-885
J-653	647.35	2,447	J-726
J-612	638.37	2,447	J-593

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 3 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-1091	555.41	2,459	J-865
J-706	564.41	2,470	J-728
J-334	564.65	2,472	J-853
J-668	518.89	2,494	J-365
J-839	572.61	2,495	J-782
J-681	688.81	2,496	J-853
J-1082	593.07	2,497	J-348
J-333	566.86	2,507	J-853
J-553	552.87	2,512	J-589
J-848	571.83	2,514	J-853
J-692	556.17	2,532	J-865
J-222	648.69	2,532	J-174
J-1088	599.98	2,536	J-759
J-181	649.08	2,538	J-174
J-182	649.95	2,539	J-174
J-797	556.34	2,544	J-631
J-867	567.33	2,545	J-885
J-754	568.78	2,546	J-885
J-782	573.41	2,549	J-839
J-85	636.16	2,551	J-88
J-86	637.42	2,551	J-88
J-631	556.19	2,551	J-797
J-857	632.22	2,552	J-174
J-155	624.77	2,553	J-853
J-549	554.83	2,556	J-797
J-35	604.27	2,574	J-143
J-36	604.27	2,574	J-143
J-866	566.33	2,580	J-885
J-67	566.85	2,581	J-888
J-871	622.00	2,583	J-572
J-830	544.37	2,583	J-174
J-831	547.40	2,583	J-174
J-121	551.38	2,583	J-174
J-894	576.51	2,600	J-885
J-891	561.67	2,610	J-174
J-1090	601.20	2,616	J-155
J-595	673.48	2,624	J-489
J-120	553.31	2,624	J-174
J-751	701.81	2,626	J-841
J-829	565.39	2,639	J-848
J-66	505.86	2,641	J-1119
J-65	507.14	2,641	J-1119
J-572	684.16	2,661	J-573
J-899	575.69	2,664	J-885

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 3 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-136	589.68	2,665	J-155
J-374	588.59	2,668	J-759
J-674	590.49	2,678	J-1081
J-125	602.85	2,679	J-143
J-677	557.53	2,680	J-174
J-820	642.77	2,692	J-784
J-638	596.05	2,696	J-1080
J-137	588.03	2,705	J-155
J-784	643.04	2,707	J-820
J-1103	567.14	2,707	J-848
J-850	570.98	2,711	J-174
J-671	570.20	2,712	J-174
J-849	572.53	2,714	J-174
J-736	609.49	2,721	J-398
J-773	641.35	2,725	J-784
J-167	530.64	2,736	J-572
J-1093	552.02	2,747	J-865
J-355	534.54	2,753	J-388
J-1104	552.35	2,754	J-848
J-1092	553.26	2,756	J-865
J-661	637.18	2,757	J-174
J-133	566.98	2,760	J-155
J-652	657.90	2,765	J-726
J-895	585.21	2,766	J-885
J-766	565.73	2,767	J-885
J-163	588.03	2,768	J-174
J-886	520.16	2,770	J-572
J-169	588.77	2,771	J-174
J-170	588.46	2,771	J-174
J-845	642.98	2,776	J-174
J-134	559.42	2,783	J-155
J-142	542.64	2,783	J-155
J-738	565.16	2,785	J-746
J-878	570.36	2,789	J-888
J-154	646.70	2,789	J-174
J-224	564.24	2,795	J-174
J-211	583.29	2,795	J-174
J-223	555.79	2,795	J-174
J-188	589.98	2,795	J-174
J-216	618.78	2,795	J-174
J-217	584.37	2,795	J-174
J-596	545.50	2,798	J-693
J-649	675.18	2,800	J-726
J-780	682.02	2,814	J-572

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 3 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-660	633.10	2,816	J-174
J-101	607.73	2,817	J-102
J-146	562.86	2,821	J-888
J-821	562.04	2,821	J-888
J-875	566.71	2,821	J-888
J-996	565.32	2,822	J-888
J-717	582.37	2,827	J-556
J-897	580.46	2,829	J-885
J-1083	567.30	2,834	J-1080
J-1065	675.40	2,835	J-853
J-17	570.40	2,855	J-174
J-108	600.28	2,863	J-101
J-102	603.96	2,866	J-101
J-383	556.99	2,868	J-572
J-844	546.07	2,870	J-848
J-890	567.89	2,876	J-174
J-15	563.28	2,876	J-174
J-617	661.64	2,909	J-853
J-1109	571.84	2,921	J-885
J-468	558.63	2,940	J-1081
J-609	553.85	2,943	J-444
J-20	572.97	2,946	J-174
J-19	574.42	2,946	J-174
J-1032	574.97	2,949	J-174
J-210	564.28	2,951	J-607
J-881	618.28	2,954	J-174
J-577	596.88	2,955	J-174
J-280	539.63	2,961	J-865
J-139	577.85	2,961	J-174
J-47	587.44	2,963	J-174
J-838	577.98	2,963	J-174
J-171	577.59	2,965	J-174
J-615	573.51	2,969	J-174
J-815	575.84	2,969	J-174
J-814	576.22	2,969	J-174
J-997	592.19	2,970	J-174
J-729	591.80	2,970	J-174
J-882	605.87	2,974	J-174
J-925	564.20	2,974	J-474
J-876	593.86	2,976	J-174
J-800	547.79	2,980	J-848
J-580	551.62	2,990	J-1081
J-460	538.21	2,992	J-1081
J-1073	673.79	3,001	J-841

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 3 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-883	612.14	3,007	J-174
J-585	640.80	3,020	J-593
J-162	636.04	3,024	J-853
J-407	533.85	3,028	J-1081
J-95	534.95	3,030	J-1081
J-96	529.85	3,036	J-1081
J-99	527.04	3,052	J-1081
J-765	565.38	3,057	J-885
J-1067	700.15	3,058	J-853
J-576	674.32	3,071	J-853
J-602	636.25	3,072	J-853
J-209	544.35	3,077	J-607
J-1105	539.95	3,077	J-607
J-183	527.30	3,077	J-607
J-11	544.22	3,077	J-607
J-179	528.36	3,077	J-607
J-597	649.15	3,095	J-853
J-159	590.97	3,106	J-888
J-186	526.67	3,111	J-174
J-160	527.29	3,112	J-174
J-860	580.95	3,121	J-556
J-100	519.06	3,134	J-1119
J-620	594.98	3,135	J-541
J-63	514.78	3,145	J-1119
J-64	514.07	3,145	J-1119
J-811	554.52	3,149	J-379
J-1066	678.69	3,151	J-853
J-543	550.11	3,158	J-174
J-113	549.90	3,158	J-174
J-544	552.62	3,158	J-174
J-581	548.78	3,158	J-174
J-561	549.08	3,159	J-174
J-111	555.71	3,164	J-174
J-112	556.02	3,169	J-174
J-77	524.51	3,172	J-76
J-127	552.95	3,172	J-174
J-635	520.21	3,173	J-1081
J-864	589.75	3,175	J-853
J-60	552.38	3,176	J-174
J-59	552.18	3,176	J-174
J-761	594.47	3,178	J-174
J-379	554.06	3,178	J-811
J-103	558.77	3,180	J-174
J-104	559.09	3,183	J-174

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 3 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-898	584.52	3,184	J-174
J-76	523.92	3,190	J-77
J-1107	575.45	3,194	J-174
J-498	559.18	3,195	J-302
J-145	507.25	3,196	J-1119
J-1108	564.44	3,201	J-174
J-206	564.99	3,202	J-174
J-207	567.34	3,207	J-174
J-624	604.62	3,222	J-541
J-868	565.47	3,235	J-302
J-1072	666.97	3,245	J-841
J-584	653.87	3,249	J-593
J-156	603.96	3,263	J-888
J-411	530.95	3,273	J-865
J-822	528.61	3,278	J-865
J-357	521.80	3,282	J-302
J-193	607.97	3,282	J-174
J-422	533.67	3,288	J-865
J-165	533.74	3,300	J-865
J-299	528.02	3,317	J-865
J-300	528.00	3,317	J-865
J-358	529.99	3,338	J-572
J-10	607.04	3,344	J-174
J-952	627.46	3,406	J-853
J-406	559.53	3,422	J-572
J-462	610.81	3,436	J-871
J-500	553.71	3,446	J-302
J-496	571.00	3,447	J-302
J-71	692.61	3,450	J-72
J-418	538.45	3,454	J-302
J-592	628.95	3,456	J-853
J-369	527.08	3,458	J-358
J-855	554.72	3,464	J-302
J-23	545.11	3,467	J-811
J-363	613.48	3,467	J-364
J-72	692.45	3,479	J-71
J-25	587.85	3,500	J-853
J-33	719.70	3,500	J-853
J-49	576.22	3,500	J-853
J-69	643.17	3,500	J-71
J-70	644.91	3,500	J-71
J-74	659.51	3,500	J-71
J-75	658.73	3,500	J-71
J-80	576.38	3,500	J-853

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 3 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-84	587.14	3,500	J-853
J-91	577.34	3,500	J-864
J-92	577.12	3,500	J-853
J-93	697.17	3,500	J-853
J-94	700.52	3,500	J-853
J-97	622.30	3,500	J-572
J-115	707.82	3,500	J-853
J-138	657.92	3,500	J-853
J-147	596.37	3,500	J-853
J-157	744.50	3,500	J-853
J-158	608.09	3,500	J-853
J-161	597.26	3,500	J-853
J-177	638.14	3,500	J-853
J-178	638.09	3,500	J-853
J-184	551.68	3,500	J-853
J-191	625.98	3,500	J-853
J-192	623.29	3,500	J-853
J-194	568.20	3,500	J-853
J-201	567.87	3,500	J-853
J-202	627.18	3,500	J-853
J-203	599.56	3,500	J-853
J-204	580.14	3,500	J-853
J-205	588.72	3,500	J-853
J-208	588.10	3,500	J-853
J-215	661.01	3,500	J-853
J-218	680.24	3,500	J-572
J-229	685.35	3,500	J-853
J-230	685.38	3,500	J-853
J-342	591.46	3,500	J-572
J-440	611.65	3,500	J-853
J-469	704.03	3,500	J-853
J-470	690.81	3,500	J-71
J-492	584.90	3,500	J-572
J-493	690.64	3,500	J-71
J-502	570.03	3,500	J-853
J-575	665.91	3,500	J-853
J-621	586.53	3,500	J-853
J-625	590.54	3,500	J-853
J-658	606.04	3,500	J-572
J-700	649.89	3,500	J-71
J-715	583.63	3,500	J-572
J-732	580.62	3,500	J-853
J-740	694.66	3,500	J-853
J-794	703.68	3,500	J-853

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 3 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-795	703.16	3,500	J-853
J-833	707.23	3,500	J-853
J-843	679.08	3,500	J-572
J-846	589.73	3,500	J-572
J-852	701.17	3,500	J-853
J-853	685.90	3,500	J-229
J-861	610.66	3,500	J-853
J-872	600.92	3,500	J-853
J-877	635.74	3,500	J-853
J-901	601.46	3,500	J-174
J-908	650.54	3,500	J-71
J-931	716.48	3,500	J-853
J-1115	701.41	3,500	J-853
J-27	584.13	3,503	J-853
J-152	561.12	3,503	J-853
J-153	556.90	3,503	J-853
J-1089	575.56	3,503	J-853
J-31	512.72	3,506	J-1081
J-51	626.44	3,506	J-572
J-52	625.44	3,506	J-572
J-87	510.30	3,506	J-1081
J-98	626.01	3,506	J-572
J-116	552.81	3,506	J-853
J-117	544.83	3,506	J-853
J-150	581.64	3,506	J-853
J-164	532.98	3,506	J-865
J-212	671.50	3,506	J-853
J-213	594.46	3,506	J-853
J-227	544.26	3,506	J-853
J-258	549.28	3,506	J-572
J-329	555.59	3,506	J-853
J-330	554.91	3,506	J-853
J-331	563.15	3,506	J-853
J-332	565.07	3,506	J-853
J-368	601.97	3,506	J-572
J-370	513.92	3,506	J-759
J-382	564.29	3,506	J-572
J-394	565.11	3,506	J-572
J-400	561.75	3,506	J-865
J-409	559.20	3,506	J-572
J-419	601.62	3,506	J-572
J-465	578.16	3,506	J-572
J-467	547.14	3,506	J-302
J-476	598.70	3,506	J-572

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 3 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-485	628.07	3,506	J-572
J-488	619.21	3,506	J-572
J-491	601.82	3,506	J-572
J-636	549.53	3,506	J-853
J-801	547.09	3,506	J-302
J-847	567.23	3,506	J-572
J-869	569.35	3,506	J-572
J-61	719.89	3,507	J-853
J-62	720.40	3,507	J-853
J-82	731.85	3,507	J-853
J-114	712.94	3,507	J-853
J-151	710.97	3,507	J-853
J-166	667.79	3,507	J-853
J-214	619.04	3,507	J-853
J-570	667.40	3,507	J-853
J-571	666.01	3,507	J-853
J-591	628.88	3,507	J-853
J-598	636.09	3,507	J-853
J-603	647.20	3,507	J-841
J-604	674.57	3,507	J-853
J-605	673.81	3,507	J-853
J-618	654.89	3,507	J-853
J-676	656.74	3,507	J-853
J-724	663.36	3,507	J-841
J-756	698.28	3,507	J-853
J-832	703.73	3,507	J-853
J-972	628.04	3,507	J-853
J-1060	727.36	3,507	J-853
J-1061	740.12	3,507	J-853
J-1063	635.60	3,507	J-853
J-1064	643.74	3,507	J-853
J-1076	632.76	3,507	J-853
J-73	582.28	3,512	J-143
J-81	579.78	3,512	J-143
J-260	567.18	3,512	J-572
J-393	566.14	3,512	J-572
J-529	562.50	3,512	J-572

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 4 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-1035	608.39	(N/A)	(N/A)
J-1036	578.63	(N/A)	(N/A)
J-1037	553.51	(N/A)	(N/A)
J-1038	594.38	(N/A)	(N/A)
J-1039	573.07	(N/A)	(N/A)
J-278	602.20	127	J-853
J-286	513.49	129	J-853
J-284	514.70	138	J-853
J-253	655.64	142	J-853
J-281	542.23	143	J-853
J-251	640.00	156	J-853
J-266	585.59	173	J-853
J-256	569.25	179	J-853
J-263	639.56	192	J-853
J-245	669.80	203	J-853
J-494	620.45	335	J-853
J-241	562.15	444	J-853
J-457	554.55	449	J-853
J-247	550.33	458	J-853
J-483	597.44	481	J-853
J-267	583.87	500	J-266
J-1030	626.93	508	J-1031
J-1031	627.38	510	J-1030
J-351	632.32	527	J-1031
J-456	647.55	530	J-853
J-458	590.07	546	J-853
J-463	609.47	564	J-853
J-350	542.69	571	J-241
J-466	566.20	591	J-853
J-441	597.39	624	J-853
J-448	546.01	634	J-457
J-344	540.39	655	J-241
J-450	528.37	656	J-853
J-650	597.89	660	J-853
J-275	538.98	674	J-241
J-388	570.07	675	J-853
J-565	595.84	675	J-564
J-566	595.84	675	J-564
J-564	595.84	681	J-565
J-345	562.73	684	J-853
J-397	640.57	692	J-853
J-290	637.49	694	J-853
J-373	623.13	701	J-853
J-295	670.63	712	J-853

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 4 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-270	539.72	729	J-241
J-437	566.16	733	J-853
J-427	590.27	744	J-853
J-471	543.23	747	J-703
J-545	584.34	748	J-650
J-546	584.78	748	J-650
J-346	564.14	748	J-345
J-703	568.30	753	J-853
J-477	577.31	756	J-266
J-445	543.64	756	J-853
J-1095	620.99	761	J-290
J-442	613.67	769	J-853
J-478	547.62	773	J-853
J-302	639.12	779	J-301
J-1096	616.94	785	J-1095
J-249	542.14	788	J-241
J-301	638.84	791	J-302
J-1097	613.41	815	J-1096
J-473	670.68	827	J-853
J-567	596.06	828	J-564
J-433	571.89	831	J-853
J-726	686.28	841	J-853
J-772	524.39	847	J-853
J-414	661.29	875	J-853
J-392	620.26	877	J-853
J-415	519.50	877	J-853
J-708	602.56	889	J-567
J-453	625.15	903	J-473
J-725	677.00	912	J-853
J-1087	602.66	914	J-302
J-719	574.02	915	J-650
J-372	619.07	917	J-373
J-889	678.82	920	J-337
J-892	600.88	921	J-650
J-254	655.01	927	J-889
J-252	626.84	933	J-889
J-688	605.84	941	J-889
J-364	617.80	943	J-853
J-402	569.03	945	J-241
J-366	535.44	948	J-853
J-1086	594.66	950	J-853
J-1084	566.68	951	J-853
J-951	604.14	960	J-853
J-504	541.76	966	J-772

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 4 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-371	598.15	968	J-853
J-727	577.07	968	J-728
J-663	620.71	976	J-889
J-318	590.66	977	J-283
J-424	625.88	978	J-853
J-1078	612.33	981	J-889
J-387	567.37	981	J-388
J-659	594.82	983	J-889
J-378	574.37	983	J-853
J-531	592.14	984	J-889
J-643	681.34	985	J-726
J-1077	624.23	985	J-889
J-517	625.99	986	J-640
J-384	628.37	987	J-853
J-640	625.89	987	J-517
J-283	593.09	987	J-318
J-423	528.27	988	J-853
J-341	545.02	988	J-241
J-664	652.32	990	J-889
J-421	617.99	992	J-853
J-381	554.35	997	J-853
J-669	657.76	1,014	J-889
J-641	633.65	1,014	J-889
J-710	562.19	1,015	J-650
J-362	579.84	1,021	J-853
J-276	541.55	1,027	J-241
J-693	588.96	1,031	J-853
J-337	675.57	1,031	J-889
J-360	655.45	1,037	J-853
J-1085	566.53	1,044	J-853
J-412	523.58	1,052	J-853
J-874	578.38	1,068	J-892
J-711	721.98	1,070	J-853
J-644	680.19	1,074	J-726
J-1	538.72	1,077	J-276
J-699	628.46	1,077	J-853
J-436	604.47	1,098	J-853
J-390	575.71	1,108	J-853
J-705	587.95	1,109	J-435
J-569	672.42	1,111	J-237
J-698	595.96	1,111	J-699
J-731	618.74	1,111	J-699
J-343	595.77	1,121	J-473
J-1100	604.31	1,122	J-853

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 4 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-447	552.07	1,127	J-457
J-1098	557.71	1,139	J-853
J-297	581.76	1,140	J-853
J-24	555.04	1,156	J-853
J-728	604.30	1,158	J-892
J-435	623.73	1,159	J-853
J-495	645.40	1,165	J-853
J-309	612.92	1,166	J-310
J-338	675.38	1,168	J-337
J-865	656.42	1,171	J-853
J-310	612.35	1,171	J-309
J-701	620.08	1,180	J-853
J-237	664.57	1,182	J-569
J-420	611.13	1,190	J-853
J-750	690.90	1,206	J-853
J-574	669.84	1,213	J-338
J-282	548.61	1,225	J-853
J-745	631.83	1,243	J-853
J-367	579.07	1,244	J-466
J-723	703.51	1,264	J-853
J-1106	544.47	1,265	J-693
J-487	536.83	1,266	J-853
J-1122	542.14	1,267	J-853
J-651	681.05	1,284	J-853
J-770	603.08	1,287	J-728
J-608	648.63	1,288	J-853
J-735	575.02	1,296	J-853
J-656	618.80	1,303	J-853
J-695	610.02	1,305	J-338
J-746	609.29	1,305	J-853
J-709	591.89	1,317	J-853
J-686	584.08	1,320	J-853
J-1052 Dave	664.44	1,323	J-611
J-1099	591.01	1,325	J-1100
J-768	623.93	1,327	J-853
J-593	690.47	1,328	J-853
J-733	602.18	1,334	J-853
J-1071	684.04	1,334	J-726
J-434	612.12	1,336	J-424
J-610	646.15	1,338	J-611
J-365	538.42	1,339	J-366
J-1050	646.37	1,343	J-1052 Dave
J-630	536.69	1,350	J-884
J-884	621.94	1,350	J-853

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 4 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-817	537.06	1,350	J-884
J-629	547.66	1,350	J-884
J-490	536.81	1,356	J-487
J-279	604.71	1,365	J-278
J-255	575.09	1,365	J-256
J-611	665.14	1,365	J-1052 Dave
J-767	578.97	1,370	J-853
J-697	662.46	1,371	J-853
J-960	536.50	1,371	J-853
J-464	554.78	1,371	J-853
J-748	538.66	1,376	J-853
J-303	542.34	1,376	J-304
J-764	584.05	1,381	J-853
J-262	638.54	1,384	J-263
J-1094	581.31	1,385	J-853
J-520	651.42	1,387	J-608
J-438	580.41	1,388	J-853
J-1102	592.89	1,389	J-728
J-642	670.53	1,389	J-853
J-1040	559.84	1,390	J-884
J-742	632.74	1,390	J-853
J-769	643.27	1,397	J-853
J-455	664.66	1,397	J-853
J-762	604.34	1,401	J-853
J-707	571.97	1,402	J-853
J-304	540.79	1,403	J-303
J-841	739.49	1,405	J-840
J-459	555.59	1,408	J-853
J-714	685.90	1,410	J-853
J-430	540.34	1,411	J-303
J-1113	595.69	1,419	J-884
J-753	559.50	1,420	J-853
J-497	536.27	1,422	J-487
J-893	659.24	1,433	J-841
J-1075	704.80	1,433	J-841
J-840	737.43	1,433	J-841
J-763	587.94	1,436	J-853
J-431	537.73	1,436	J-853
J-819	643.46	1,437	J-865
J-792	641.78	1,439	J-865
J-791	641.13	1,440	J-865
J-594	680.96	1,442	J-593
J-239	648.42	1,442	J-569
J-623	634.06	1,445	J-853

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 4 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-375	577.37	1,447	J-853
J-449	549.65	1,451	J-853
J-730	620.27	1,452	J-699
J-542	663.06	1,456	J-541
J-541	669.82	1,457	J-611
J-657	592.43	1,461	J-656
J-666	532.92	1,463	J-884
J-665	547.66	1,463	J-884
J-131	616.44	1,464	J-865
J-432	634.80	1,464	J-853
J-1112	564.53	1,465	J-884
J-558	529.11	1,467	J-693
J-559	528.79	1,467	J-693
J-339	641.94	1,474	J-853
J-755	561.14	1,476	J-853
J-132	602.30	1,477	J-865
J-712	627.82	1,478	J-853
J-1059	615.54	1,484	J-745
J-118	582.15	1,486	J-865
J-119	563.06	1,486	J-865
J-639	644.49	1,494	J-853
J-451	575.67	1,494	J-853
J-606	631.94	1,496	J-853
J-404	606.68	1,499	J-473
J-573	683.99	1,500	J-572
J-386	563.84	1,501	J-390
J-662	677.98	1,501	J-711
J-626	647.31	1,504	J-263
J-1120	560.00	1,508	J-853
J-1054	636.37	1,511	J-853
J-720	640.40	1,523	J-853
J-702	650.04	1,527	J-495
J-887	544.29	1,530	J-884
J-1058	652.74	1,532	J-853
J-1074	694.62	1,541	J-853
J-1101	579.82	1,543	J-728
J-472	552.44	1,549	J-703
J-685	551.19	1,554	J-703
J-870	619.15	1,558	J-826
J-426	580.43	1,571	J-1097
J-359	648.23	1,572	J-360
J-684	552.96	1,578	J-478
J-737	588.67	1,588	J-853
J-600	645.58	1,589	J-711

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 4 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-599	634.40	1,589	J-711
J-21	554.00	1,590	J-853
J-327	524.16	1,612	J-415
J-328	524.32	1,620	J-327
J-552	647.77	1,621	J-642
J-551	641.96	1,621	J-642
J-532	668.07	1,621	J-726
J-628	678.98	1,628	J-174
J-826	618.45	1,628	J-870
J-429	525.03	1,637	J-853
J-619	620.89	1,639	J-711
J-234	647.59	1,645	J-569
J-716	556.29	1,650	J-853
J-739	667.14	1,653	J-853
J-1053	596.34	1,654	J-1054
J-1055	617.65	1,663	J-1054
J-885	616.78	1,669	J-853
J-758	505.45	1,669	J-853
J-324	552.68	1,670	J-853
J-607	637.53	1,680	J-623
J-425	593.54	1,682	J-444
J-444	594.55	1,688	J-425
J-747	562.16	1,689	J-703
J-1056	663.84	1,690	J-711
J-14	543.23	1,695	J-13
J-646	592.36	1,699	J-711
J-694	619.42	1,700	J-853
J-1111	580.82	1,704	J-746
J-680	567.24	1,706	J-853
J-834	612.99	1,710	J-870
J-340	641.69	1,711	J-339
J-401	594.99	1,713	J-734
J-1070	662.63	1,730	J-532
J-417	562.28	1,734	J-853
J-13	541.99	1,736	J-14
J-563	632.16	1,738	J-639
J-1121	0.00	1,738	J-1119
J-1119	580.00	1,738	J-168
J-1049	628.97	1,740	J-853
J-741	677.28	1,746	J-726
J-474	564.85	1,749	J-853
J-356	546.83	1,751	J-1085
J-682	655.92	1,752	J-853
J-888	646.54	1,753	J-853

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 4 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-1124	602.80	1,754	J-734
J-734	604.19	1,759	J-1124
J-168	579.99	1,760	J-1119
J-353	587.19	1,762	J-853
J-446	533.66	1,767	J-445
J-587	660.15	1,773	J-593
J-586	651.29	1,773	J-593
J-655	572.00	1,781	J-853
J-391	610.90	1,790	J-392
J-667	565.42	1,798	J-853
J-690	587.40	1,800	J-870
J-349	584.13	1,801	J-853
J-323	550.67	1,805	J-324
J-389	545.99	1,810	J-853
J-634	576.32	1,810	J-853
J-718	578.95	1,819	J-853
J-858	678.68	1,820	J-726
J-744	687.11	1,824	J-711
J-743	669.08	1,824	J-711
J-722	648.29	1,824	J-711
J-645	612.97	1,824	J-711
J-721	589.77	1,824	J-711
J-880	573.20	1,824	J-711
J-562	631.09	1,824	J-711
J-879	632.03	1,824	J-711
J-461	552.12	1,827	J-388
J-287	606.77	1,832	J-290
J-403	563.62	1,834	J-853
J-687	574.88	1,836	J-728
J-1069	673.50	1,845	J-726
J-560	633.88	1,852	J-569
J-1068	672.97	1,855	J-726
J-246	649.72	1,856	J-642
J-896	614.44	1,863	J-853
J-859	675.64	1,871	J-726
J-771	634.88	1,875	J-373
J-174	706.13	1,878	J-189
J-399	563.98	1,881	J-853
J-189	696.30	1,889	J-174
J-1081	623.17	1,891	J-572
J-704	714.06	1,897	J-711
J-486	648.01	1,913	J-340
J-454	660.02	1,914	J-455
J-361	571.92	1,917	J-362

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 4 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-1080	618.14	1,934	J-1081
J-352	594.84	1,936	J-290
J-749	718.32	1,960	J-711
J-489	683.88	1,965	J-853
J-141	547.18	1,978	J-1119
J-123	621.90	1,987	J-174
J-616	636.22	1,987	J-853
J-1110	577.81	1,990	J-737
J-325	669.93	1,994	J-326
J-1062	655.03	1,995	J-626
J-863	589.85	1,999	J-885
J-326	667.52	2,000	J-325
J-484	659.67	2,006	J-853
J-135	640.01	2,008	J-174
J-683	600.85	2,013	J-432
J-633	586.00	2,018	J-896
J-347	665.82	2,020	J-325
J-760	723.64	2,026	J-841
J-613	606.35	2,026	J-701
J-354	544.90	2,031	J-853
J-547	554.77	2,034	J-693
J-122	610.93	2,036	J-174
J-128	671.89	2,042	J-174
J-614	584.53	2,050	J-853
J-54	523.43	2,056	J-1119
J-53	523.53	2,056	J-1119
J-648	674.25	2,060	J-726
J-673	639.55	2,065	J-541
J-777	660.86	2,073	J-174
J-129	657.72	2,073	J-174
J-376	553.93	2,074	J-572
J-124	565.32	2,089	J-888
J-106	549.74	2,089	J-888
J-1079	540.26	2,089	J-888
J-110	541.83	2,089	J-888
J-149	557.26	2,089	J-888
J-39	533.10	2,089	J-888
J-107	531.23	2,089	J-888
J-126	583.19	2,089	J-888
J-40	533.71	2,089	J-888
J-148	531.17	2,089	J-888
J-862	577.42	2,093	J-885
J-588	640.18	2,093	J-642
J-105	546.39	2,094	J-888

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 4 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-854	549.95	2,094	J-888
J-140	594.09	2,116	J-174
J-548	552.74	2,132	J-693
J-678	557.50	2,135	J-853
J-805	582.53	2,140	J-865
J-46	602.67	2,146	J-888
J-45	602.67	2,146	J-888
J-804	583.63	2,147	J-865
J-439	577.33	2,147	J-853
J-589	555.83	2,157	J-853
J-143	648.43	2,171	J-853
J-413	665.59	2,176	J-414
J-622	580.59	2,178	J-853
J-380	561.97	2,181	J-381
J-670	636.29	2,183	J-853
J-44	520.38	2,183	J-1119
J-43	520.11	2,183	J-1119
J-130	584.54	2,184	J-174
J-405	614.69	2,194	J-853
J-1051	647.45	2,196	J-853
J-523	586.99	2,201	J-1049
J-601	554.82	2,203	J-853
J-590	547.97	2,203	J-853
J-713	658.42	2,209	J-714
J-416	525.44	2,240	J-365
J-654	645.23	2,246	J-726
J-56	507.75	2,246	J-1119
J-55	506.60	2,246	J-1119
J-757	520.39	2,248	J-884
J-395	576.06	2,248	J-439
J-851	566.55	2,252	J-752
J-873	597.53	2,253	J-853
J-443	591.34	2,260	J-174
J-109	579.99	2,260	J-174
J-900	589.68	2,261	J-865
J-408	538.50	2,263	J-572
J-428	586.95	2,266	J-865
J-787	568.26	2,278	J-865
J-696	682.58	2,279	J-174
J-689	525.74	2,279	J-853
J-627	598.33	2,282	J-694
J-285	523.10	2,283	J-365
J-786	568.02	2,287	J-865
J-90	642.44	2,293	J-88

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 4 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-790	567.67	2,294	J-865
J-480	568.39	2,297	J-865
J-410	560.68	2,298	J-572
J-89	636.28	2,312	J-88
J-88	642.68	2,312	J-90
J-42	583.21	2,316	J-174
J-557	600.00	2,318	J-556
J-479	553.41	2,318	J-703
J-752	565.53	2,321	J-851
J-481	569.76	2,321	J-865
J-482	553.71	2,336	J-703
J-398	633.84	2,344	J-302
J-675	624.18	2,350	J-769
J-679	620.40	2,352	J-712
J-144	623.36	2,353	J-143
J-385	558.47	2,377	J-572
J-637	603.02	2,393	J-1080
J-691	561.80	2,394	J-865
J-919	561.80	2,394	J-865
J-647	674.80	2,395	J-726
J-501	629.04	2,404	J-759
J-348	588.66	2,413	J-1082
J-499	629.63	2,415	J-302
J-58	570.16	2,415	J-888
J-759	627.08	2,415	J-501
J-377	562.34	2,424	J-444
J-79	570.51	2,427	J-888
J-556	609.03	2,430	J-557
J-672	573.67	2,432	J-174
J-243	501.20	2,433	J-884
J-220	530.52	2,433	J-884
J-221	501.20	2,433	J-884
J-824	564.16	2,442	J-885
J-554	553.94	2,444	J-589
J-653	647.35	2,447	J-726
J-612	638.37	2,447	J-593
J-1091	555.41	2,459	J-865
J-823	564.84	2,461	J-885
J-706	564.41	2,471	J-728
J-334	564.65	2,472	J-853
J-668	518.89	2,494	J-365
J-681	688.81	2,496	J-853
J-1082	593.07	2,497	J-348
J-333	566.86	2,507	J-853

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 4 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-692	556.17	2,532	J-865
J-1088	599.98	2,536	J-759
J-155	624.77	2,553	J-853
J-632	553.19	2,571	J-174
J-222	648.69	2,571	J-174
J-35	604.27	2,574	J-143
J-36	604.27	2,574	J-143
J-867	567.33	2,575	J-885
J-754	568.78	2,575	J-885
J-181	649.08	2,578	J-174
J-182	649.95	2,579	J-174
J-67	566.85	2,581	J-888
J-871	622.00	2,583	J-572
J-848	571.83	2,595	J-174
J-553	552.87	2,599	J-589
J-839	572.61	2,600	J-174
J-866	566.33	2,610	J-885
J-1090	601.20	2,616	J-155
J-595	673.48	2,624	J-489
J-751	701.81	2,626	J-841
J-894	576.51	2,631	J-885
J-66	505.86	2,641	J-1119
J-65	507.14	2,641	J-1119
J-782	573.41	2,661	J-839
J-572	684.16	2,661	J-573
J-136	589.68	2,665	J-155
J-374	588.59	2,668	J-759
J-674	590.49	2,678	J-1081
J-125	602.85	2,679	J-143
J-899	575.69	2,689	J-174
J-638	596.05	2,696	J-1080
J-226	547.56	2,702	J-884
J-137	588.03	2,705	J-155
J-857	632.22	2,712	J-174
J-121	551.38	2,717	J-174
J-736	609.49	2,721	J-398
J-85	636.16	2,723	J-88
J-86	637.42	2,723	J-88
J-891	561.67	2,725	J-174
J-829	565.39	2,733	J-848
J-167	530.64	2,736	J-572
J-1093	552.02	2,747	J-865
J-120	553.31	2,748	J-174
J-355	534.54	2,753	J-388

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 4 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-555	559.26	2,755	J-884
J-1092	553.26	2,756	J-865
J-133	566.98	2,760	J-155
J-652	657.90	2,765	J-726
J-886	520.16	2,770	J-572
J-677	557.53	2,781	J-174
J-134	559.42	2,783	J-155
J-142	542.64	2,783	J-155
J-878	570.36	2,789	J-888
J-850	570.98	2,799	J-174
J-671	570.20	2,799	J-174
J-649	675.18	2,800	J-726
J-849	572.53	2,800	J-174
J-895	585.21	2,802	J-885
J-766	565.73	2,804	J-885
J-1103	567.14	2,805	J-848
J-780	682.02	2,814	J-572
J-101	607.73	2,817	J-102
J-146	562.86	2,821	J-888
J-821	562.04	2,821	J-888
J-875	566.71	2,821	J-888
J-996	565.32	2,822	J-888
J-1083	567.30	2,834	J-1080
J-1065	675.40	2,835	J-853
J-820	642.77	2,837	J-174
J-163	588.03	2,837	J-174
J-784	643.04	2,838	J-174
J-169	588.77	2,839	J-174
J-170	588.46	2,839	J-174
J-773	641.35	2,839	J-174
J-845	642.98	2,846	J-174
J-550	554.13	2,849	J-174
J-631	556.19	2,849	J-174
J-549	554.83	2,849	J-174
J-830	544.37	2,849	J-174
J-797	556.34	2,849	J-174
J-216	618.78	2,852	J-174
J-154	646.70	2,855	J-174
J-831	547.40	2,855	J-174
J-1104	552.35	2,860	J-848
J-108	600.28	2,863	J-101
J-217	584.37	2,865	J-174
J-102	603.96	2,866	J-101
J-897	580.46	2,867	J-885

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 4 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-383	556.99	2,868	J-572
J-211	583.29	2,868	J-174
J-188	589.98	2,869	J-174
J-1033	553.00	2,870	J-174
J-660	633.10	2,874	J-174
J-224	564.24	2,874	J-174
J-223	555.79	2,874	J-174
J-17	570.40	2,885	J-174
J-890	567.89	2,896	J-174
J-15	563.28	2,896	J-174
J-617	661.64	2,909	J-853
J-20	572.97	2,937	J-174
J-19	574.42	2,937	J-174
J-1032	574.97	2,939	J-174
J-468	558.63	2,940	J-1081
J-596	545.50	2,941	J-693
J-609	553.85	2,943	J-444
J-661	637.18	2,953	J-174
J-171	577.59	2,960	J-174
J-280	539.63	2,961	J-865
J-47	587.44	2,961	J-174
J-1109	571.84	2,962	J-885
J-139	577.85	2,969	J-174
J-738	565.16	2,969	J-746
J-925	564.20	2,974	J-474
J-838	577.98	2,980	J-174
J-615	573.51	2,986	J-174
J-815	575.84	2,986	J-174
J-814	576.22	2,986	J-174
J-844	546.07	2,988	J-848
J-580	551.62	2,990	J-1081
J-460	538.21	2,992	J-1081
J-881	618.28	2,992	J-174
J-577	596.88	2,994	J-174
J-1073	673.79	3,001	J-841
J-876	593.86	3,008	J-174
J-729	591.80	3,010	J-174
J-997	592.19	3,010	J-174
J-882	605.87	3,014	J-174
J-585	640.80	3,020	J-593
J-717	582.37	3,023	J-556
J-162	636.04	3,024	J-853
J-407	533.85	3,028	J-1081
J-95	534.95	3,030	J-1081

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 4 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-96	529.85	3,036	J-1081
J-883	612.14	3,042	J-174
J-99	527.04	3,052	J-1081
J-1067	700.15	3,058	J-853
J-576	674.32	3,071	J-853
J-602	636.25	3,072	J-853
J-597	649.15	3,095	J-853
J-765	565.38	3,103	J-885
J-159	590.97	3,106	J-888
J-800	547.79	3,112	J-848
J-1043	493.00	3,118	J-174
J-186	526.67	3,122	J-174
J-160	527.29	3,123	J-174
J-209	544.35	3,127	J-174
J-1105	539.95	3,127	J-174
J-179	528.36	3,127	J-174
J-11	544.22	3,127	J-174
J-183	527.30	3,127	J-174
J-210	564.28	3,128	J-174
J-100	519.06	3,134	J-1119
J-620	594.98	3,135	J-541
J-63	514.78	3,145	J-1119
J-64	514.07	3,145	J-1119
J-811	554.52	3,149	J-379
J-1066	678.69	3,151	J-853
J-543	550.11	3,152	J-174
J-113	549.90	3,152	J-174
J-544	552.62	3,152	J-174
J-581	548.78	3,152	J-174
J-561	549.08	3,152	J-174
J-111	555.71	3,156	J-174
J-112	556.02	3,158	J-174
J-127	552.95	3,160	J-174
J-1042	540.00	3,161	J-174
J-59	552.18	3,162	J-174
J-60	552.38	3,162	J-174
J-103	558.77	3,166	J-174
J-104	559.09	3,168	J-174
J-77	524.51	3,172	J-76
J-635	520.21	3,173	J-1081
J-864	589.75	3,175	J-853
J-379	554.06	3,178	J-811
J-76	523.92	3,190	J-77
J-761	594.47	3,191	J-174

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 4 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-498	559.18	3,195	J-302
J-145	507.25	3,196	J-1119
J-898	584.52	3,197	J-174
J-860	580.95	3,199	J-174
J-1107	575.45	3,207	J-174
J-1108	564.44	3,212	J-174
J-206	564.99	3,214	J-174
J-207	567.34	3,219	J-174
J-624	604.62	3,222	J-541
J-868	565.47	3,235	J-302
J-1072	666.97	3,245	J-841
J-584	653.87	3,249	J-593
J-156	603.96	3,263	J-888
J-411	530.95	3,273	J-865
J-822	528.61	3,278	J-865
J-357	521.80	3,282	J-302
J-193	607.97	3,287	J-174
J-422	533.67	3,288	J-865
J-165	533.74	3,300	J-865
J-299	528.02	3,317	J-865
J-300	528.00	3,317	J-865
J-358	529.99	3,338	J-572
J-10	607.04	3,349	J-174
J-952	627.46	3,406	J-853
J-406	559.53	3,422	J-572
J-462	610.81	3,436	J-871
J-500	553.71	3,446	J-302
J-496	571.00	3,447	J-302
J-71	692.61	3,450	J-72
J-418	538.45	3,454	J-302
J-592	628.95	3,456	J-853
J-369	527.08	3,458	J-358
J-855	554.72	3,464	J-302
J-23	545.11	3,467	J-811
J-363	613.48	3,467	J-364
J-72	692.45	3,479	J-71
J-25	587.85	3,500	J-853
J-33	719.70	3,500	J-853
J-49	576.22	3,500	J-853
J-69	643.17	3,500	J-71
J-70	644.91	3,500	J-71
J-74	659.51	3,500	J-71
J-75	658.73	3,500	J-71
J-80	576.38	3,500	J-853

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 4 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-84	587.14	3,500	J-853
J-91	577.34	3,500	J-864
J-92	577.12	3,500	J-853
J-93	697.17	3,500	J-853
J-94	700.52	3,500	J-853
J-97	622.30	3,500	J-572
J-115	707.82	3,500	J-853
J-138	657.92	3,500	J-853
J-147	596.37	3,500	J-853
J-157	744.50	3,500	J-853
J-158	608.09	3,500	J-853
J-161	597.26	3,500	J-853
J-177	638.14	3,500	J-853
J-178	638.09	3,500	J-853
J-184	551.68	3,500	J-853
J-191	625.98	3,500	J-853
J-192	623.29	3,500	J-853
J-194	568.20	3,500	J-853
J-201	567.87	3,500	J-853
J-202	627.18	3,500	J-853
J-203	599.56	3,500	J-853
J-204	580.14	3,500	J-853
J-205	588.72	3,500	J-853
J-208	588.10	3,500	J-853
J-215	661.01	3,500	J-853
J-218	680.24	3,500	J-572
J-229	685.35	3,500	J-853
J-230	685.38	3,500	J-853
J-342	591.46	3,500	J-572
J-440	611.65	3,500	J-853
J-469	704.03	3,500	J-853
J-470	690.81	3,500	J-71
J-492	584.90	3,500	J-572
J-493	690.64	3,500	J-71
J-502	570.03	3,500	J-853
J-575	665.91	3,500	J-853
J-621	586.53	3,500	J-853
J-625	590.54	3,500	J-853
J-658	606.04	3,500	J-572
J-700	649.89	3,500	J-71
J-715	583.63	3,500	J-572
J-732	580.62	3,500	J-853
J-740	694.66	3,500	J-853
J-794	703.68	3,500	J-853

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 4 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-795	703.16	3,500	J-853
J-833	707.23	3,500	J-853
J-843	679.08	3,500	J-572
J-846	589.73	3,500	J-572
J-852	701.17	3,500	J-853
J-853	685.90	3,500	J-229
J-861	610.66	3,500	J-853
J-872	600.92	3,500	J-853
J-877	635.74	3,500	J-853
J-901	601.46	3,500	J-174
J-908	650.54	3,500	J-71
J-931	716.48	3,500	J-853
J-1115	701.41	3,500	J-853
J-27	584.13	3,503	J-853
J-152	561.12	3,503	J-853
J-153	556.90	3,503	J-853
J-1089	575.56	3,503	J-853
J-31	512.72	3,506	J-1081
J-51	626.44	3,506	J-572
J-52	625.44	3,506	J-572
J-87	510.30	3,506	J-1081
J-98	626.01	3,506	J-572
J-116	552.81	3,506	J-853
J-117	544.83	3,506	J-853
J-150	581.64	3,506	J-853
J-164	532.98	3,506	J-865
J-212	671.50	3,506	J-853
J-213	594.46	3,506	J-853
J-227	544.26	3,506	J-853
J-258	549.28	3,506	J-572
J-329	555.59	3,506	J-853
J-330	554.91	3,506	J-853
J-331	563.15	3,506	J-853
J-332	565.07	3,506	J-853
J-368	601.97	3,506	J-572
J-370	513.92	3,506	J-759
J-382	564.29	3,506	J-572
J-394	565.11	3,506	J-572
J-400	561.75	3,506	J-865
J-409	559.20	3,506	J-572
J-419	601.62	3,506	J-572
J-465	578.16	3,506	J-572
J-467	547.14	3,506	J-302
J-476	598.70	3,506	J-572

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 4 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-485	628.07	3,506	J-572
J-488	619.21	3,506	J-572
J-491	601.82	3,506	J-572
J-636	549.53	3,506	J-853
J-801	547.09	3,506	J-302
J-847	567.23	3,506	J-572
J-869	569.35	3,506	J-572
J-61	719.89	3,507	J-853
J-62	720.40	3,507	J-853
J-82	731.85	3,507	J-853
J-114	712.94	3,507	J-853
J-151	710.97	3,507	J-853
J-166	667.79	3,507	J-853
J-214	619.04	3,507	J-853
J-570	667.40	3,507	J-853
J-571	666.01	3,507	J-853
J-591	628.88	3,507	J-853
J-598	636.09	3,507	J-853
J-603	647.20	3,507	J-841
J-604	674.57	3,507	J-853
J-605	673.81	3,507	J-853
J-618	654.89	3,507	J-853
J-676	656.74	3,507	J-853
J-724	663.36	3,507	J-841
J-756	698.28	3,507	J-853
J-832	703.73	3,507	J-853
J-972	628.04	3,507	J-853
J-1060	727.36	3,507	J-853
J-1061	740.12	3,507	J-853
J-1063	635.60	3,507	J-853
J-1064	643.74	3,507	J-853
J-1076	632.76	3,507	J-853
J-73	582.28	3,512	J-143
J-81	579.78	3,512	J-143
J-260	567.18	3,512	J-572
J-393	566.14	3,512	J-572
J-529	562.50	3,512	J-572

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 5 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-1035	608.39	(N/A)	(N/A)
J-1036	578.63	(N/A)	(N/A)
J-1037	553.51	(N/A)	(N/A)
J-278	602.20	127	J-853
J-286	513.49	129	J-853
J-284	514.70	138	J-853
J-253	655.64	142	J-853
J-281	542.23	143	J-853
J-251	640.00	156	J-853
J-266	585.59	173	J-853
J-256	569.25	179	J-853
J-263	639.56	192	J-853
J-245	669.80	203	J-853
J-494	620.45	335	J-853
J-241	562.15	444	J-853
J-457	554.55	449	J-853
J-247	550.33	458	J-853
J-483	597.44	481	J-853
J-267	583.87	500	J-266
J-1030	626.93	508	J-1031
J-1031	627.38	510	J-1030
J-351	632.32	527	J-1031
J-456	647.55	530	J-853
J-458	590.07	546	J-853
J-463	609.47	564	J-853
J-350	542.69	571	J-241
J-466	566.20	591	J-853
J-441	597.39	624	J-853
J-448	546.01	634	J-457
J-344	540.39	655	J-241
J-450	528.37	656	J-853
J-650	597.89	660	J-853
J-275	538.98	674	J-241
J-388	570.07	675	J-853
J-566	595.84	675	J-564
J-565	595.84	675	J-564
J-564	595.84	681	J-565
J-345	562.73	684	J-853
J-397	640.57	692	J-853
J-290	637.49	694	J-853
J-373	623.13	701	J-853
J-295	670.63	712	J-853
J-270	539.72	729	J-241
J-437	566.16	733	J-853

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 5 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-427	590.27	744	J-853
J-471	543.23	747	J-703
J-545	584.34	748	J-650
J-546	584.78	748	J-650
J-346	564.14	748	J-345
J-703	568.30	753	J-853
J-477	577.31	756	J-266
J-445	543.64	756	J-853
J-1095	620.99	761	J-290
J-442	613.67	769	J-853
J-478	547.62	773	J-853
J-302	639.12	779	J-301
J-1096	616.94	785	J-1095
J-249	542.14	788	J-241
J-301	638.84	791	J-302
J-1097	613.41	815	J-1096
J-473	670.68	827	J-853
J-567	596.06	829	J-564
J-433	571.89	831	J-853
J-726	686.28	841	J-853
J-772	524.39	847	J-853
J-414	661.29	875	J-853
J-392	620.26	877	J-853
J-415	519.50	877	J-853
J-708	602.56	889	J-567
J-453	625.15	903	J-473
J-725	677.00	912	J-853
J-1087	602.66	914	J-302
J-719	574.02	915	J-650
J-372	619.07	917	J-373
J-889	678.82	920	J-337
J-892	600.88	921	J-650
J-254	655.01	927	J-889
J-252	626.84	933	J-889
J-688	605.84	941	J-889
J-364	617.80	943	J-853
J-402	569.03	945	J-241
J-366	535.44	948	J-853
J-1086	594.66	950	J-853
J-1084	566.68	951	J-853
J-951	604.14	960	J-853
J-504	541.76	966	J-772
J-371	598.15	968	J-853
J-727	577.07	968	J-728

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 5 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-663	620.71	976	J-889
J-318	590.66	977	J-283
J-424	625.88	978	J-853
J-1078	612.33	981	J-889
J-387	567.37	981	J-388
J-659	594.82	983	J-889
J-378	574.37	983	J-853
J-531	592.14	984	J-889
J-643	681.34	985	J-726
J-1077	624.23	985	J-889
J-517	625.99	986	J-640
J-384	628.37	987	J-853
J-640	625.89	987	J-517
J-283	593.09	987	J-318
J-423	528.27	988	J-853
J-341	545.02	988	J-241
J-664	652.32	990	J-889
J-421	617.99	992	J-853
J-381	554.35	997	J-853
J-669	657.76	1,014	J-889
J-641	633.65	1,014	J-889
J-710	562.19	1,015	J-650
J-362	579.84	1,021	J-853
J-276	541.55	1,027	J-241
J-337	675.57	1,031	J-889
J-693	588.96	1,036	J-853
J-360	655.45	1,037	J-853
J-1085	566.53	1,044	J-853
J-412	523.58	1,052	J-853
J-874	578.38	1,068	J-892
J-711	721.98	1,070	J-853
J-644	680.19	1,074	J-726
J-1	538.72	1,077	J-276
J-699	628.46	1,077	J-853
J-436	604.47	1,098	J-853
J-390	575.71	1,108	J-853
J-705	587.95	1,109	J-435
J-569	672.42	1,111	J-237
J-698	595.96	1,111	J-699
J-731	618.74	1,111	J-699
J-1100	604.31	1,122	J-853
J-343	595.77	1,122	J-473
J-447	552.07	1,127	J-457
J-1098	557.71	1,139	J-853

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 5 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-297	581.76	1,140	J-853
J-24	555.04	1,156	J-853
J-728	604.30	1,158	J-892
J-435	623.73	1,159	J-853
J-495	645.40	1,165	J-853
J-309	612.92	1,166	J-310
J-338	675.38	1,168	J-337
J-865	656.42	1,171	J-853
J-310	612.35	1,171	J-309
J-701	620.08	1,180	J-853
J-237	664.57	1,182	J-569
J-420	611.13	1,190	J-853
J-750	690.90	1,206	J-853
J-574	669.84	1,213	J-338
J-282	548.61	1,225	J-853
J-745	631.83	1,243	J-853
J-367	579.07	1,244	J-466
J-723	703.51	1,264	J-853
J-487	536.83	1,266	J-853
J-1122	542.14	1,267	J-853
J-1106	544.47	1,274	J-693
J-651	681.05	1,284	J-853
J-770	603.08	1,287	J-728
J-608	648.63	1,288	J-853
J-735	575.02	1,297	J-853
J-656	618.80	1,303	J-853
J-695	610.02	1,305	J-338
J-709	591.89	1,317	J-853
J-746	609.29	1,319	J-853
J-686	584.08	1,320	J-853
J-1052 Dave	664.44	1,323	J-611
J-1099	591.01	1,325	J-1100
J-768	623.93	1,327	J-853
J-593	690.47	1,328	J-853
J-733	602.18	1,334	J-853
J-1071	684.04	1,334	J-726
J-434	612.12	1,336	J-424
J-610	646.15	1,338	J-611
J-365	538.42	1,339	J-366
J-1050	646.37	1,343	J-1052 Dave
J-490	536.81	1,356	J-487
J-279	604.71	1,365	J-278
J-255	575.09	1,365	J-256
J-611	665.14	1,365	J-1052 Dave

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 5 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-697	662.46	1,371	J-853
J-960	536.50	1,371	J-853
J-464	554.78	1,371	J-853
J-748	538.66	1,376	J-853
J-303	542.34	1,376	J-304
J-262	638.54	1,384	J-263
J-1094	581.31	1,385	J-853
J-520	651.42	1,387	J-608
J-438	580.41	1,388	J-853
J-1102	592.89	1,389	J-728
J-642	670.53	1,389	J-853
J-742	632.74	1,390	J-853
J-769	643.27	1,397	J-853
J-455	664.66	1,397	J-853
J-762	604.34	1,401	J-853
J-707	571.97	1,402	J-853
J-304	540.79	1,403	J-303
J-841	739.49	1,405	J-840
J-459	555.59	1,408	J-853
J-764	584.05	1,408	J-853
J-767	578.97	1,409	J-853
J-714	685.90	1,410	J-853
J-430	540.34	1,411	J-303
J-497	536.27	1,422	J-487
J-893	659.24	1,433	J-841
J-1075	704.80	1,433	J-841
J-840	737.43	1,433	J-841
J-431	537.73	1,436	J-853
J-819	643.46	1,437	J-865
J-763	587.94	1,438	J-853
J-792	641.78	1,439	J-865
J-791	641.13	1,440	J-865
J-594	680.96	1,442	J-593
J-239	648.42	1,442	J-569
J-375	577.37	1,447	J-853
J-449	549.65	1,451	J-853
J-730	620.27	1,452	J-699
J-542	663.06	1,456	J-541
J-541	669.82	1,457	J-611
J-657	592.43	1,461	J-656
J-131	616.44	1,464	J-865
J-432	634.80	1,464	J-853
J-339	641.94	1,474	J-853
J-753	559.50	1,475	J-853

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 5 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-132	602.30	1,477	J-865
J-712	627.82	1,479	J-853
J-558	529.11	1,480	J-693
J-559	528.79	1,480	J-693
J-1059	615.54	1,484	J-745
J-623	634.06	1,485	J-853
J-118	582.15	1,486	J-865
J-119	563.06	1,486	J-865
J-639	644.49	1,494	J-853
J-451	575.67	1,494	J-853
J-404	606.68	1,499	J-473
J-573	683.99	1,500	J-572
J-386	563.84	1,501	J-390
J-662	677.98	1,501	J-711
J-626	647.31	1,504	J-263
J-1120	560.00	1,508	J-853
J-1054	636.37	1,511	J-853
J-720	640.40	1,523	J-853
J-702	650.04	1,527	J-495
J-1058	652.74	1,532	J-853
J-755	561.14	1,539	J-853
J-606	631.94	1,539	J-853
J-1074	694.62	1,541	J-853
J-1101	579.82	1,543	J-728
J-472	552.44	1,549	J-703
J-685	551.19	1,554	J-703
J-870	619.15	1,558	J-826
J-426	580.43	1,571	J-1097
J-359	648.23	1,572	J-360
J-684	552.96	1,578	J-478
J-600	645.58	1,589	J-711
J-599	634.40	1,589	J-711
J-21	554.00	1,590	J-853
J-737	588.67	1,609	J-853
J-327	524.16	1,612	J-415
J-328	524.32	1,620	J-327
J-552	647.77	1,621	J-642
J-551	641.96	1,621	J-642
J-532	668.07	1,621	J-726
J-826	618.45	1,628	J-870
J-628	678.98	1,629	J-174
J-429	525.03	1,637	J-853
J-619	620.89	1,639	J-711
J-234	647.59	1,645	J-569

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 5 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-716	556.29	1,650	J-853
J-739	667.14	1,653	J-853
J-1053	596.34	1,654	J-1054
J-1055	617.65	1,663	J-1054
J-324	552.68	1,670	J-853
J-425	593.54	1,682	J-444
J-444	594.55	1,688	J-425
J-747	562.16	1,689	J-703
J-1056	663.84	1,690	J-711
J-14	543.23	1,695	J-13
J-646	592.36	1,699	J-711
J-694	619.42	1,700	J-853
J-834	612.99	1,710	J-870
J-340	641.69	1,711	J-339
J-401	594.99	1,714	J-734
J-680	567.24	1,724	J-853
J-1070	662.63	1,730	J-532
J-1111	580.82	1,733	J-746
J-417	562.28	1,734	J-853
J-13	541.99	1,736	J-14
J-563	632.16	1,738	J-639
J-1121	0.00	1,738	J-1119
J-1119	580.00	1,738	J-168
J-1049	628.97	1,740	J-853
J-607	637.53	1,743	J-623
J-741	677.28	1,746	J-726
J-474	564.85	1,749	J-853
J-356	546.83	1,751	J-1085
J-682	655.92	1,752	J-853
J-888	646.54	1,753	J-853
J-1124	602.80	1,755	J-734
J-734	604.19	1,760	J-1124
J-168	579.99	1,760	J-1119
J-353	587.19	1,762	J-853
J-446	533.66	1,767	J-445
J-587	660.15	1,773	J-593
J-586	651.29	1,773	J-593
J-655	572.00	1,781	J-853
J-758	505.45	1,782	J-853
J-391	610.90	1,790	J-392
J-690	587.40	1,800	J-870
J-349	584.13	1,801	J-853
J-323	550.67	1,805	J-324
J-389	545.99	1,810	J-853

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 5 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-667	565.42	1,818	J-853
J-858	678.68	1,820	J-726
J-718	578.95	1,824	J-853
J-744	687.11	1,824	J-711
J-743	669.08	1,824	J-711
J-722	648.29	1,824	J-711
J-562	631.09	1,824	J-711
J-721	589.77	1,824	J-711
J-645	612.97	1,824	J-711
J-879	632.03	1,824	J-711
J-880	573.20	1,824	J-711
J-461	552.12	1,827	J-388
J-287	606.77	1,832	J-290
J-403	563.62	1,834	J-853
J-687	574.88	1,836	J-728
J-1069	673.50	1,845	J-726
J-560	633.88	1,852	J-569
J-1068	672.97	1,855	J-726
J-246	649.72	1,856	J-642
J-859	675.64	1,871	J-726
J-771	634.88	1,876	J-373
J-174	706.13	1,880	J-189
J-399	563.98	1,881	J-853
J-1081	623.17	1,891	J-572
J-189	696.30	1,891	J-174
J-704	714.06	1,897	J-711
J-486	648.01	1,913	J-340
J-454	660.02	1,914	J-455
J-361	571.92	1,917	J-362
J-1080	618.14	1,934	J-1081
J-352	594.84	1,936	J-290
J-749	718.32	1,960	J-711
J-489	683.88	1,965	J-853
J-141	547.18	1,978	J-1119
J-616	636.22	1,987	J-853
J-123	621.90	1,989	J-174
J-629	547.66	1,994	J-853
J-325	669.93	1,994	J-326
J-1062	655.03	1,995	J-626
J-885	616.78	1,997	J-853
J-326	667.52	2,000	J-325
J-484	659.67	2,007	J-853
J-135	640.01	2,010	J-174
J-683	600.85	2,013	J-432

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 5 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-347	665.82	2,020	J-325
J-760	723.64	2,026	J-841
J-613	606.35	2,026	J-701
J-1110	577.81	2,029	J-737
J-354	544.90	2,031	J-853
J-122	610.93	2,038	J-174
J-128	671.89	2,044	J-174
J-614	584.53	2,050	J-853
J-54	523.43	2,056	J-1119
J-53	523.53	2,056	J-1119
J-648	674.25	2,060	J-726
J-673	639.55	2,065	J-541
J-547	554.77	2,067	J-693
J-376	553.93	2,074	J-572
J-777	660.86	2,075	J-174
J-129	657.72	2,075	J-174
J-124	565.32	2,089	J-888
J-106	549.74	2,089	J-888
J-1079	540.26	2,089	J-888
J-110	541.83	2,089	J-888
J-149	557.26	2,089	J-888
J-39	533.10	2,089	J-888
J-126	583.19	2,089	J-888
J-107	531.23	2,089	J-888
J-40	533.71	2,089	J-888
J-148	531.17	2,089	J-888
J-588	640.18	2,093	J-642
J-105	546.39	2,094	J-888
J-854	549.95	2,094	J-888
J-665	547.66	2,114	J-853
J-140	594.09	2,118	J-174
J-678	557.50	2,137	J-853
J-805	582.53	2,140	J-865
J-46	602.67	2,146	J-888
J-45	602.67	2,146	J-888
J-804	583.63	2,147	J-865
J-439	577.33	2,147	J-853
J-634	576.32	2,149	J-853
J-548	552.74	2,170	J-693
J-143	648.43	2,171	J-853
J-413	665.59	2,176	J-414
J-380	561.97	2,181	J-381
J-670	636.29	2,183	J-853
J-44	520.38	2,183	J-1119

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 5 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-43	520.11	2,183	J-1119
J-130	584.54	2,186	J-174
J-817	537.06	2,187	J-884
J-589	555.83	2,190	J-853
J-405	614.69	2,194	J-853
J-1051	647.45	2,196	J-853
J-523	586.99	2,201	J-1049
J-713	658.42	2,209	J-714
J-630	536.69	2,229	J-884
J-884	621.94	2,229	J-853
J-590	547.97	2,236	J-853
J-601	554.82	2,237	J-853
J-416	525.44	2,240	J-365
J-654	645.23	2,246	J-726
J-56	507.75	2,246	J-1119
J-55	506.60	2,246	J-1119
J-395	576.06	2,249	J-439
J-900	589.68	2,261	J-865
J-443	591.34	2,262	J-174
J-109	579.99	2,262	J-174
J-408	538.50	2,263	J-572
J-873	597.53	2,264	J-853
J-428	586.95	2,266	J-865
J-787	568.26	2,278	J-865
J-696	682.58	2,282	J-174
J-627	598.33	2,282	J-694
J-285	523.10	2,283	J-365
J-786	568.02	2,287	J-865
J-790	567.67	2,294	J-865
J-480	568.39	2,297	J-865
J-410	560.68	2,298	J-572
J-90	642.44	2,298	J-88
J-689	525.74	2,312	J-853
J-89	636.28	2,317	J-88
J-88	642.68	2,317	J-90
J-479	553.41	2,318	J-703
J-42	583.21	2,319	J-174
J-481	569.76	2,321	J-865
J-557	600.00	2,329	J-556
J-482	553.71	2,336	J-703
J-622	580.59	2,340	J-853
J-398	633.84	2,344	J-302
J-675	624.18	2,350	J-769
J-144	623.36	2,353	J-143

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 5 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-679	620.40	2,358	J-712
J-385	558.47	2,377	J-572
J-637	603.02	2,393	J-1080
J-691	561.80	2,394	J-865
J-919	561.80	2,394	J-865
J-647	674.80	2,395	J-726
J-501	629.04	2,404	J-759
J-348	588.66	2,413	J-1082
J-499	629.63	2,415	J-302
J-58	570.16	2,415	J-888
J-759	627.08	2,415	J-501
J-377	562.34	2,424	J-444
J-79	570.51	2,427	J-888
J-672	573.67	2,435	J-174
J-556	609.03	2,443	J-557
J-653	647.35	2,447	J-726
J-612	638.37	2,447	J-593
J-1091	555.41	2,459	J-865
J-706	564.41	2,471	J-728
J-334	564.65	2,472	J-853
J-851	566.55	2,482	J-752
J-554	553.94	2,490	J-589
J-668	518.89	2,494	J-365
J-681	688.81	2,496	J-853
J-1082	593.07	2,497	J-348
J-666	532.92	2,506	J-884
J-333	566.86	2,507	J-853
J-692	556.17	2,532	J-865
J-1088	599.98	2,536	J-759
J-1113	595.69	2,540	J-884
J-155	624.77	2,553	J-853
J-1040	559.84	2,559	J-884
J-632	553.19	2,574	J-174
J-752	565.53	2,574	J-851
J-35	604.27	2,574	J-143
J-36	604.27	2,574	J-143
J-222	648.69	2,575	J-174
J-181	649.08	2,581	J-174
J-67	566.85	2,581	J-888
J-182	649.95	2,582	J-174
J-871	622.00	2,583	J-572
J-839	572.61	2,604	J-174
J-1039	573.07	2,604	J-884
J-848	571.83	2,610	J-174

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 5 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-1090	601.20	2,616	J-155
J-1112	564.53	2,620	J-884
J-595	673.48	2,624	J-489
J-751	701.81	2,626	J-841
J-863	589.85	2,628	J-885
J-66	505.86	2,641	J-1119
J-65	507.14	2,641	J-1119
J-553	552.87	2,654	J-589
J-887	544.29	2,659	J-884
J-572	684.16	2,661	J-573
J-782	573.41	2,665	J-839
J-136	589.68	2,665	J-155
J-374	588.59	2,668	J-759
J-896	614.44	2,677	J-884
J-674	590.49	2,678	J-1081
J-125	602.85	2,679	J-143
J-633	586.00	2,694	J-885
J-638	596.05	2,696	J-1080
J-137	588.03	2,705	J-155
J-1038	594.38	2,718	J-884
J-857	632.22	2,718	J-174
J-736	609.49	2,721	J-398
J-121	551.38	2,723	J-174
J-891	561.67	2,730	J-174
J-85	636.16	2,731	J-88
J-86	637.42	2,731	J-88
J-167	530.64	2,736	J-572
J-1093	552.02	2,747	J-865
J-829	565.39	2,750	J-848
J-355	534.54	2,753	J-388
J-120	553.31	2,754	J-174
J-1092	553.26	2,756	J-865
J-133	566.98	2,760	J-155
J-652	657.90	2,765	J-726
J-886	520.16	2,770	J-572
J-134	559.42	2,783	J-155
J-142	542.64	2,783	J-155
J-677	557.53	2,788	J-174
J-878	570.36	2,789	J-888
J-649	675.18	2,800	J-726
J-862	577.42	2,800	J-885
J-850	570.98	2,806	J-174
J-671	570.20	2,806	J-174
J-849	572.53	2,807	J-174

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 5 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-780	682.02	2,814	J-572
J-101	607.73	2,817	J-102
J-146	562.86	2,821	J-888
J-821	562.04	2,821	J-888
J-875	566.71	2,821	J-888
J-996	565.32	2,822	J-888
J-1103	567.14	2,823	J-848
J-1083	567.30	2,834	J-1080
J-1065	675.40	2,835	J-853
J-820	642.77	2,844	J-174
J-163	588.03	2,844	J-174
J-784	643.04	2,845	J-174
J-169	588.77	2,845	J-174
J-170	588.46	2,845	J-174
J-773	641.35	2,845	J-174
J-845	642.98	2,853	J-174
J-216	618.78	2,854	J-174
J-550	554.13	2,856	J-174
J-549	554.83	2,856	J-174
J-797	556.34	2,856	J-174
J-830	544.37	2,856	J-174
J-631	556.19	2,856	J-174
J-154	646.70	2,862	J-174
J-831	547.40	2,862	J-174
J-108	600.28	2,863	J-101
J-102	603.96	2,866	J-101
J-383	556.99	2,868	J-572
J-217	584.37	2,868	J-174
J-211	583.29	2,871	J-174
J-188	589.98	2,872	J-174
J-1033	553.00	2,878	J-174
J-224	564.24	2,879	J-174
J-223	555.79	2,879	J-174
J-1104	552.35	2,880	J-848
J-660	633.10	2,881	J-174
J-17	570.40	2,892	J-174
J-15	563.28	2,904	J-174
J-890	567.89	2,904	J-174
J-617	661.64	2,909	J-853
J-754	568.78	2,933	J-851
J-468	558.63	2,939	J-1081
J-899	575.69	2,940	J-174
J-609	553.85	2,943	J-444
J-20	572.97	2,945	J-174

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 5 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-19	574.42	2,945	J-174
J-1032	574.97	2,947	J-174
J-280	539.63	2,961	J-865
J-661	637.18	2,965	J-174
J-171	577.59	2,968	J-174
J-47	587.44	2,970	J-174
J-925	564.20	2,974	J-474
J-139	577.85	2,977	J-174
J-838	577.98	2,988	J-174
J-580	551.62	2,990	J-1081
J-460	538.21	2,992	J-1081
J-615	573.51	2,994	J-174
J-814	576.22	2,994	J-174
J-815	575.84	2,994	J-174
J-1073	673.79	3,001	J-841
J-881	618.28	3,001	J-174
J-577	596.88	3,002	J-174
J-844	546.07	3,010	J-848
J-876	593.86	3,017	J-174
J-729	591.80	3,019	J-174
J-997	592.19	3,019	J-174
J-585	640.80	3,020	J-593
J-882	605.87	3,023	J-174
J-162	636.04	3,024	J-853
J-407	533.85	3,028	J-1081
J-95	534.95	3,030	J-1081
J-596	545.50	3,035	J-693
J-96	529.85	3,036	J-1081
J-717	582.37	3,047	J-556
J-883	612.14	3,051	J-174
J-99	527.04	3,052	J-1081
J-1067	700.15	3,058	J-853
J-576	674.32	3,071	J-853
J-602	636.25	3,072	J-853
J-597	649.15	3,095	J-853
J-824	564.16	3,100	J-885
J-159	590.97	3,106	J-888
J-738	565.16	3,110	J-746
J-823	564.84	3,120	J-885
J-100	519.06	3,134	J-1119
J-620	594.98	3,135	J-541
J-186	526.67	3,135	J-174
J-160	527.29	3,137	J-174
J-800	547.79	3,137	J-848

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 5 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-1043	493.00	3,141	J-174
J-63	514.78	3,145	J-1119
J-64	514.07	3,145	J-1119
J-11	544.22	3,147	J-174
J-179	528.36	3,147	J-174
J-209	544.35	3,147	J-174
J-183	527.30	3,147	J-174
J-1105	539.95	3,147	J-174
J-210	564.28	3,149	J-174
J-811	554.52	3,149	J-379
J-1066	678.69	3,151	J-853
J-555	559.26	3,161	J-174
J-243	501.20	3,165	J-174
J-220	530.52	3,165	J-174
J-221	501.20	3,165	J-174
J-226	547.56	3,167	J-174
J-113	549.90	3,168	J-174
J-581	548.78	3,168	J-174
J-544	552.62	3,168	J-174
J-543	550.11	3,168	J-174
J-561	549.08	3,168	J-174
J-111	555.71	3,172	J-174
J-77	524.51	3,172	J-76
J-757	520.39	3,173	J-174
J-635	520.21	3,173	J-1081
J-112	556.02	3,174	J-174
J-864	589.75	3,175	J-853
J-127	552.95	3,176	J-174
J-379	554.06	3,178	J-811
J-1042	540.00	3,178	J-174
J-59	552.18	3,179	J-174
J-60	552.38	3,179	J-174
J-103	558.77	3,182	J-174
J-104	559.09	3,185	J-174
J-761	594.47	3,185	J-174
J-898	584.52	3,190	J-174
J-76	523.92	3,190	J-77
J-867	567.33	3,190	J-174
J-866	566.33	3,191	J-174
J-894	576.51	3,191	J-174
J-766	565.73	3,192	J-174
J-895	585.21	3,192	J-174
J-897	580.46	3,193	J-174
J-1109	571.84	3,194	J-174

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 5 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-765	565.38	3,194	J-174
J-498	559.18	3,195	J-302
J-145	507.25	3,196	J-1119
J-1107	575.45	3,199	J-174
J-1108	564.44	3,204	J-174
J-206	564.99	3,204	J-174
J-207	567.34	3,210	J-174
J-860	580.95	3,215	J-174
J-624	604.62	3,222	J-541
J-868	565.47	3,235	J-302
J-1072	666.97	3,245	J-841
J-584	653.87	3,249	J-593
J-156	603.96	3,263	J-888
J-411	530.95	3,273	J-865
J-822	528.61	3,278	J-865
J-357	521.80	3,282	J-302
J-193	607.97	3,287	J-174
J-422	533.67	3,288	J-865
J-165	533.74	3,300	J-865
J-300	528.00	3,317	J-865
J-299	528.02	3,317	J-865
J-358	529.99	3,338	J-572
J-10	607.04	3,349	J-174
J-952	627.46	3,406	J-853
J-406	559.53	3,422	J-572
J-462	610.81	3,436	J-871
J-500	553.71	3,446	J-302
J-496	571.00	3,447	J-302
J-71	692.61	3,450	J-72
J-418	538.45	3,454	J-302
J-592	628.95	3,456	J-853
J-369	527.08	3,458	J-358
J-855	554.72	3,464	J-302
J-23	545.11	3,467	J-811
J-363	613.48	3,467	J-364
J-72	692.45	3,479	J-71
J-25	587.85	3,500	J-853
J-33	719.70	3,500	J-853
J-49	576.22	3,500	J-853
J-69	643.17	3,500	J-71
J-70	644.91	3,500	J-71
J-74	659.51	3,500	J-71
J-75	658.73	3,500	J-71
J-80	576.38	3,500	J-853

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 5 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-84	587.14	3,500	J-853
J-91	577.34	3,500	J-864
J-92	577.12	3,500	J-853
J-93	697.17	3,500	J-853
J-94	700.52	3,500	J-853
J-97	622.30	3,500	J-572
J-115	707.82	3,500	J-853
J-138	657.92	3,500	J-853
J-147	596.37	3,500	J-853
J-157	744.50	3,500	J-853
J-158	608.09	3,500	J-853
J-161	597.26	3,500	J-853
J-177	638.14	3,500	J-853
J-178	638.09	3,500	J-853
J-184	551.68	3,500	J-853
J-191	625.98	3,500	J-853
J-192	623.29	3,500	J-853
J-194	568.20	3,500	J-853
J-201	567.87	3,500	J-853
J-202	627.18	3,500	J-853
J-203	599.56	3,500	J-853
J-204	580.14	3,500	J-853
J-205	588.72	3,500	J-853
J-208	588.10	3,500	J-853
J-215	661.01	3,500	J-853
J-218	680.24	3,500	J-572
J-229	685.35	3,500	J-853
J-230	685.38	3,500	J-853
J-342	591.46	3,500	J-572
J-440	611.65	3,500	J-853
J-469	704.03	3,500	J-853
J-470	690.81	3,500	J-71
J-492	584.90	3,500	J-572
J-493	690.64	3,500	J-71
J-502	570.03	3,500	J-853
J-575	665.91	3,500	J-853
J-621	586.53	3,500	J-853
J-625	590.54	3,500	J-853
J-658	606.04	3,500	J-572
J-700	649.89	3,500	J-71
J-715	583.63	3,500	J-572
J-732	580.62	3,500	J-853
J-740	694.66	3,500	J-853
J-794	703.68	3,500	J-853

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 5 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-795	703.16	3,500	J-853
J-833	707.23	3,500	J-853
J-843	679.08	3,500	J-572
J-846	589.73	3,500	J-572
J-852	701.17	3,500	J-853
J-853	685.90	3,500	J-229
J-861	610.66	3,500	J-853
J-872	600.92	3,500	J-853
J-877	635.74	3,500	J-853
J-901	601.46	3,500	J-174
J-908	650.54	3,500	J-71
J-931	716.48	3,500	J-853
J-1115	701.41	3,500	J-853
J-27	584.13	3,503	J-853
J-152	561.12	3,503	J-853
J-153	556.90	3,503	J-853
J-1089	575.56	3,503	J-853
J-31	512.72	3,506	J-1081
J-51	626.44	3,506	J-572
J-52	625.44	3,506	J-572
J-87	510.30	3,506	J-1081
J-98	626.01	3,506	J-572
J-116	552.81	3,506	J-853
J-117	544.83	3,506	J-853
J-150	581.64	3,506	J-853
J-164	532.98	3,506	J-865
J-212	671.50	3,506	J-853
J-213	594.46	3,506	J-853
J-227	544.26	3,506	J-853
J-258	549.28	3,506	J-572
J-329	555.59	3,506	J-853
J-330	554.91	3,506	J-853
J-331	563.15	3,506	J-853
J-332	565.07	3,506	J-853
J-368	601.97	3,506	J-572
J-370	513.92	3,506	J-759
J-382	564.29	3,506	J-572
J-394	565.11	3,506	J-572
J-400	561.75	3,506	J-865
J-409	559.20	3,506	J-572
J-419	601.62	3,506	J-572
J-465	578.16	3,506	J-572
J-467	547.14	3,506	J-302
J-476	598.70	3,506	J-572

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 5 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-485	628.07	3,506	J-572
J-488	619.21	3,506	J-572
J-491	601.82	3,506	J-572
J-636	549.53	3,506	J-853
J-801	547.09	3,506	J-302
J-847	567.23	3,506	J-572
J-869	569.35	3,506	J-572
J-61	719.89	3,507	J-853
J-62	720.40	3,507	J-853
J-82	731.85	3,507	J-853
J-114	712.94	3,507	J-853
J-151	710.97	3,507	J-853
J-166	667.79	3,507	J-853
J-214	619.04	3,507	J-853
J-570	667.40	3,507	J-853
J-571	666.01	3,507	J-853
J-591	628.88	3,507	J-853
J-598	636.09	3,507	J-853
J-603	647.20	3,507	J-841
J-604	674.57	3,507	J-853
J-605	673.81	3,507	J-853
J-618	654.89	3,507	J-853
J-676	656.74	3,507	J-853
J-724	663.36	3,507	J-841
J-756	698.28	3,507	J-853
J-832	703.73	3,507	J-853
J-972	628.04	3,507	J-853
J-1060	727.36	3,507	J-853
J-1061	740.12	3,507	J-853
J-1063	635.60	3,507	J-853
J-1064	643.74	3,507	J-853
J-1076	632.76	3,507	J-853
J-73	582.28	3,512	J-143
J-81	579.78	3,512	J-143
J-260	567.18	3,512	J-572
J-393	566.14	3,512	J-572
J-529	562.50	3,512	J-572

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 6 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-1038	594.38	(N/A)	(N/A)
J-1039	573.07	(N/A)	(N/A)
J-278	602.20	127	J-853
J-286	513.49	129	J-853
J-284	514.70	138	J-853
J-253	655.64	142	J-853
J-281	542.23	143	J-853
J-251	640.00	156	J-853
J-266	585.59	174	J-853
J-256	569.25	179	J-853
J-263	639.56	192	J-853
J-245	669.80	203	J-853
J-494	620.45	337	J-853
J-241	562.15	444	J-853
J-457	554.55	449	J-853
J-247	550.33	458	J-853
J-483	597.44	481	J-853
J-267	583.87	504	J-266
J-1030	626.93	508	J-1031
J-1031	627.38	510	J-1030
J-351	632.32	527	J-1031
J-456	647.55	530	J-853
J-458	590.07	546	J-853
J-463	609.47	564	J-853
J-350	542.69	571	J-241
J-466	566.20	591	J-853
J-441	597.39	624	J-853
J-448	546.01	634	J-457
J-344	540.39	655	J-241
J-450	528.37	656	J-853
J-650	597.89	660	J-853
J-275	538.98	674	J-241
J-388	570.07	675	J-853
J-565	595.84	682	J-564
J-566	595.84	682	J-564
J-345	562.73	684	J-853
J-564	595.84	688	J-565
J-397	640.57	692	J-853
J-290	637.49	694	J-853
J-373	623.13	710	J-853
J-295	670.63	712	J-853
J-270	539.72	729	J-241
J-437	566.16	733	J-853
J-427	590.27	744	J-853

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 6 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-471	543.23	747	J-703
J-545	584.34	748	J-650
J-546	584.78	748	J-650
J-346	564.14	748	J-345
J-703	568.30	753	J-853
J-445	543.64	756	J-853
J-1095	620.99	761	J-290
J-477	577.31	763	J-266
J-478	547.62	773	J-853
J-442	613.67	779	J-853
J-302	639.12	779	J-301
J-1096	616.94	785	J-1095
J-249	542.14	788	J-241
J-301	638.84	791	J-302
J-1097	613.41	815	J-1096
J-473	670.68	827	J-853
J-433	571.89	831	J-853
J-567	596.06	838	J-564
J-726	686.28	841	J-853
J-772	524.39	847	J-853
J-414	661.29	875	J-853
J-392	620.26	877	J-853
J-415	519.50	877	J-853
J-708	602.56	901	J-567
J-453	625.15	903	J-473
J-725	677.00	912	J-853
J-1087	602.66	914	J-302
J-719	574.02	915	J-650
J-889	678.82	920	J-337
J-892	600.88	921	J-650
J-254	655.01	927	J-889
J-372	619.07	931	J-373
J-252	626.84	933	J-889
J-688	605.84	941	J-889
J-364	617.80	943	J-853
J-402	569.03	945	J-241
J-366	535.44	948	J-853
J-1086	594.66	950	J-853
J-1084	566.68	951	J-853
J-951	604.14	960	J-853
J-504	541.76	966	J-772
J-371	598.15	968	J-853
J-727	577.07	968	J-728
J-663	620.71	976	J-889

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 6 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-318	590.66	977	J-283
J-424	625.88	978	J-853
J-1078	612.33	981	J-889
J-387	567.37	981	J-388
J-659	594.82	983	J-889
J-378	574.37	983	J-853
J-531	592.14	984	J-889
J-643	681.34	985	J-726
J-1077	624.23	985	J-889
J-517	625.99	986	J-640
J-384	628.37	987	J-853
J-640	625.89	987	J-517
J-283	593.09	987	J-318
J-423	528.27	988	J-853
J-341	545.02	988	J-241
J-664	652.32	990	J-889
J-421	617.99	992	J-853
J-381	554.35	997	J-853
J-669	657.76	1,014	J-889
J-641	633.65	1,014	J-889
J-710	562.19	1,015	J-650
J-362	579.84	1,021	J-853
J-276	541.55	1,027	J-241
J-337	675.57	1,031	J-889
J-360	655.45	1,037	J-853
J-1085	566.53	1,044	J-853
J-412	523.58	1,052	J-853
J-693	588.96	1,060	J-853
J-874	578.38	1,068	J-892
J-711	721.98	1,070	J-853
J-644	680.19	1,074	J-726
J-1	538.72	1,077	J-276
J-699	628.46	1,077	J-853
J-436	604.47	1,098	J-853
J-390	575.71	1,108	J-853
J-705	587.95	1,109	J-435
J-569	672.42	1,111	J-237
J-698	595.96	1,111	J-699
J-731	618.74	1,111	J-699
J-343	595.77	1,121	J-473
J-1100	604.31	1,122	J-853
J-447	552.07	1,127	J-457
J-1098	557.71	1,139	J-853
J-297	581.76	1,140	J-853

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 6 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-24	555.04	1,156	J-853
J-728	604.30	1,158	J-892
J-435	623.73	1,159	J-853
J-309	612.92	1,166	J-310
J-338	675.38	1,168	J-337
J-865	656.42	1,171	J-853
J-310	612.35	1,171	J-309
J-701	620.08	1,180	J-853
J-237	664.57	1,182	J-569
J-420	611.13	1,190	J-853
J-495	645.40	1,192	J-853
J-750	690.90	1,206	J-853
J-574	669.84	1,213	J-338
J-282	548.61	1,225	J-853
J-745	631.83	1,243	J-853
J-367	579.07	1,244	J-466
J-723	703.51	1,264	J-853
J-487	536.83	1,266	J-853
J-1122	542.14	1,267	J-853
J-651	681.05	1,284	J-853
J-770	603.08	1,287	J-728
J-608	648.63	1,288	J-853
J-656	618.80	1,303	J-853
J-695	610.02	1,305	J-338
J-735	575.02	1,308	J-853
J-1106	544.47	1,313	J-693
J-709	591.89	1,317	J-853
J-686	584.08	1,320	J-853
J-1052 Dave	664.44	1,323	J-611
J-1099	591.01	1,325	J-1100
J-768	623.93	1,327	J-853
J-593	690.47	1,328	J-853
J-733	602.18	1,334	J-853
J-1071	684.04	1,334	J-726
J-434	612.12	1,336	J-424
J-610	646.15	1,338	J-611
J-365	538.42	1,339	J-366
J-1050	646.37	1,343	J-1052 Dave
J-490	536.81	1,356	J-487
J-279	604.71	1,365	J-278
J-255	575.09	1,365	J-256
J-611	665.14	1,365	J-1052 Dave
J-746	609.29	1,368	J-853
J-960	536.50	1,371	J-853

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 6 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-464	554.78	1,371	J-853
J-748	538.66	1,376	J-853
J-303	542.34	1,376	J-304
J-262	638.54	1,384	J-263
J-1094	581.31	1,385	J-853
J-520	651.42	1,387	J-608
J-438	580.41	1,388	J-853
J-1102	592.89	1,389	J-728
J-642	670.53	1,389	J-853
J-742	632.74	1,390	J-853
J-769	643.27	1,397	J-853
J-455	664.66	1,397	J-853
J-767	578.97	1,399	J-853
J-707	571.97	1,402	J-853
J-304	540.79	1,403	J-303
J-841	739.49	1,405	J-840
J-459	555.59	1,408	J-853
J-714	685.90	1,410	J-853
J-430	540.34	1,411	J-303
J-764	584.05	1,412	J-853
J-697	662.46	1,415	J-853
J-497	536.27	1,422	J-487
J-893	659.24	1,433	J-841
J-1075	704.80	1,433	J-841
J-840	737.43	1,433	J-841
J-431	537.73	1,436	J-853
J-819	643.46	1,437	J-865
J-792	641.78	1,439	J-865
J-762	604.34	1,439	J-853
J-791	641.13	1,440	J-865
J-594	680.96	1,442	J-593
J-239	648.42	1,442	J-569
J-375	577.37	1,447	J-853
J-753	559.50	1,449	J-853
J-449	549.65	1,451	J-853
J-730	620.27	1,452	J-699
J-542	663.06	1,456	J-541
J-541	669.82	1,457	J-611
J-657	592.43	1,461	J-656
J-131	616.44	1,464	J-865
J-432	634.80	1,464	J-853
J-763	587.94	1,470	J-853
J-339	641.94	1,474	J-853
J-132	602.30	1,477	J-865

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 6 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-1059	615.54	1,484	J-745
J-118	582.15	1,486	J-865
J-119	563.06	1,486	J-865
J-639	644.49	1,494	J-853
J-451	575.67	1,494	J-853
J-404	606.68	1,499	J-473
J-573	683.99	1,500	J-572
J-386	563.84	1,501	J-390
J-662	677.98	1,501	J-711
J-626	647.31	1,504	J-263
J-755	561.14	1,508	J-853
J-1120	560.00	1,508	J-853
J-1054	636.37	1,511	J-853
J-712	627.82	1,525	J-853
J-1058	652.74	1,532	J-853
J-558	529.11	1,535	J-693
J-559	528.79	1,535	J-693
J-1074	694.62	1,541	J-853
J-1101	579.82	1,543	J-728
J-472	552.44	1,549	J-703
J-685	551.19	1,554	J-703
J-870	619.15	1,558	J-826
J-623	634.06	1,568	J-853
J-720	640.40	1,569	J-853
J-426	580.43	1,571	J-1097
J-359	648.23	1,572	J-360
J-684	552.96	1,578	J-478
J-702	650.04	1,578	J-495
J-600	645.58	1,589	J-711
J-599	634.40	1,589	J-711
J-21	554.00	1,590	J-853
J-327	524.16	1,612	J-415
J-328	524.32	1,620	J-327
J-551	641.96	1,621	J-642
J-552	647.77	1,621	J-642
J-532	668.07	1,621	J-726
J-606	631.94	1,628	J-853
J-826	618.45	1,628	J-870
J-429	525.03	1,637	J-853
J-619	620.89	1,639	J-711
J-234	647.59	1,645	J-569
J-716	556.29	1,650	J-853
J-739	667.14	1,653	J-853
J-1053	596.34	1,654	J-1054

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 6 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-1055	617.65	1,663	J-1054
J-324	552.68	1,670	J-853
J-737	588.67	1,676	J-853
J-425	593.54	1,682	J-444
J-444	594.55	1,688	J-425
J-747	562.16	1,689	J-703
J-1056	663.84	1,690	J-711
J-14	543.23	1,695	J-13
J-646	592.36	1,699	J-711
J-694	619.42	1,700	J-853
J-628	678.98	1,709	J-853
J-834	612.99	1,710	J-870
J-340	641.69	1,711	J-339
J-885	616.78	1,729	J-853
J-1070	662.63	1,730	J-532
J-417	562.28	1,734	J-853
J-401	594.99	1,736	J-734
J-13	541.99	1,736	J-14
J-563	632.16	1,738	J-639
J-1121	0.00	1,738	J-1119
J-1119	580.00	1,738	J-168
J-1049	628.97	1,740	J-853
J-741	677.28	1,746	J-726
J-474	564.85	1,749	J-853
J-356	546.83	1,751	J-1085
J-682	655.92	1,752	J-853
J-888	646.54	1,753	J-853
J-168	579.99	1,760	J-1119
J-353	587.19	1,762	J-853
J-446	533.66	1,767	J-445
J-587	660.15	1,773	J-593
J-586	651.29	1,773	J-593
J-1124	602.80	1,781	J-734
J-655	572.00	1,781	J-853
J-734	604.19	1,785	J-1124
J-391	610.90	1,790	J-392
J-680	567.24	1,793	J-853
J-690	587.40	1,800	J-870
J-349	584.13	1,801	J-853
J-323	550.67	1,805	J-324
J-389	545.99	1,810	J-853
J-858	678.68	1,820	J-726
J-744	687.11	1,824	J-711
J-743	669.08	1,824	J-711

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 6 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-722	648.29	1,824	J-711
J-879	632.03	1,824	J-711
J-562	631.09	1,824	J-711
J-721	589.77	1,824	J-711
J-880	573.20	1,824	J-711
J-645	612.97	1,824	J-711
J-1111	580.82	1,825	J-746
J-461	552.12	1,827	J-388
J-287	606.77	1,832	J-290
J-403	563.62	1,834	J-853
J-687	574.88	1,836	J-728
J-1069	673.50	1,845	J-726
J-560	633.88	1,852	J-569
J-1068	672.97	1,855	J-726
J-246	649.72	1,856	J-642
J-758	505.45	1,864	J-853
J-634	576.32	1,866	J-853
J-607	637.53	1,870	J-623
J-859	675.64	1,871	J-726
J-399	563.98	1,881	J-853
J-718	578.95	1,885	J-853
J-1081	623.17	1,890	J-572
J-667	565.42	1,896	J-853
J-704	714.06	1,897	J-711
J-486	648.01	1,913	J-340
J-454	660.02	1,914	J-455
J-361	571.92	1,917	J-362
J-1080	618.14	1,934	J-1081
J-352	594.84	1,936	J-290
J-896	614.44	1,939	J-853
J-771	634.88	1,946	J-373
J-749	718.32	1,960	J-711
J-489	683.88	1,965	J-853
J-141	547.18	1,978	J-1119
J-616	636.22	1,987	J-853
J-325	669.93	1,994	J-326
J-1062	655.03	1,995	J-626
J-326	667.52	2,000	J-325
J-484	659.67	2,006	J-853
J-683	600.85	2,013	J-432
J-347	665.82	2,020	J-325
J-760	723.64	2,026	J-841
J-613	606.35	2,026	J-701
J-354	544.90	2,031	J-853

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 6 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-614	584.53	2,050	J-853
J-174	706.13	2,055	J-189
J-54	523.43	2,056	J-1119
J-53	523.53	2,056	J-1119
J-648	674.25	2,060	J-726
J-673	639.55	2,065	J-541
J-189	696.30	2,068	J-174
J-376	553.93	2,074	J-572
J-124	565.32	2,089	J-888
J-106	549.74	2,089	J-888
J-1079	540.26	2,089	J-888
J-110	541.83	2,089	J-888
J-149	557.26	2,089	J-888
J-39	533.10	2,089	J-888
J-40	533.71	2,089	J-888
J-107	531.23	2,089	J-888
J-126	583.19	2,089	J-888
J-148	531.17	2,089	J-888
J-863	589.85	2,090	J-885
J-588	640.18	2,093	J-642
J-105	546.39	2,094	J-888
J-854	549.95	2,094	J-888
J-633	586.00	2,110	J-896
J-805	582.53	2,140	J-865
J-46	602.67	2,146	J-888
J-45	602.67	2,146	J-888
J-804	583.63	2,147	J-865
J-439	577.33	2,147	J-853
J-1110	577.81	2,148	J-737
J-143	648.43	2,171	J-853
J-413	665.59	2,176	J-414
J-380	561.97	2,181	J-381
J-670	636.29	2,183	J-853
J-43	520.11	2,183	J-1119
J-44	520.38	2,183	J-1119
J-547	554.77	2,189	J-693
J-123	621.90	2,190	J-174
J-405	614.69	2,194	J-853
J-862	577.42	2,195	J-885
J-1051	647.45	2,196	J-853
J-523	586.99	2,201	J-1049
J-678	557.50	2,203	J-853
J-713	658.42	2,209	J-714
J-135	640.01	2,217	J-174

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 6 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-416	525.44	2,240	J-365
J-654	645.23	2,246	J-726
J-55	506.60	2,246	J-1119
J-56	507.75	2,246	J-1119
J-395	576.06	2,249	J-439
J-122	610.93	2,253	J-174
J-128	671.89	2,259	J-174
J-900	589.68	2,261	J-865
J-408	538.50	2,263	J-572
J-428	586.95	2,266	J-865
J-787	568.26	2,278	J-865
J-627	598.33	2,282	J-694
J-285	523.10	2,283	J-365
J-786	568.02	2,287	J-865
J-790	567.67	2,294	J-865
J-480	568.39	2,297	J-865
J-410	560.68	2,298	J-572
J-777	660.86	2,299	J-174
J-129	657.72	2,300	J-174
J-589	555.83	2,306	J-853
J-548	552.74	2,308	J-693
J-479	553.41	2,318	J-703
J-481	569.76	2,321	J-865
J-665	547.66	2,331	J-853
J-482	553.71	2,336	J-703
J-851	566.55	2,340	J-752
J-398	633.84	2,344	J-302
J-675	624.18	2,350	J-769
J-144	623.36	2,353	J-143
J-590	547.97	2,354	J-853
J-140	594.09	2,355	J-174
J-601	554.82	2,359	J-853
J-385	558.47	2,377	J-572
J-873	597.53	2,378	J-853
J-637	603.02	2,393	J-1080
J-691	561.80	2,394	J-865
J-919	561.80	2,394	J-865
J-647	674.80	2,395	J-726
J-501	629.04	2,404	J-759
J-348	588.66	2,413	J-1082
J-499	629.63	2,415	J-302
J-58	570.16	2,415	J-888
J-759	627.08	2,415	J-501
J-752	565.53	2,416	J-851

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 6 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-377	562.34	2,424	J-444
J-689	525.74	2,427	J-853
J-79	570.51	2,427	J-888
J-443	591.34	2,433	J-442
J-90	642.44	2,441	J-88
J-130	584.54	2,444	J-174
J-653	647.35	2,447	J-726
J-612	638.37	2,447	J-593
J-557	600.00	2,454	J-556
J-1091	555.41	2,459	J-865
J-88	642.68	2,463	J-90
J-89	636.28	2,463	J-88
J-706	564.41	2,470	J-728
J-334	564.65	2,472	J-853
J-668	518.89	2,494	J-365
J-679	620.40	2,496	J-712
J-681	688.81	2,496	J-853
J-1082	593.07	2,497	J-348
J-333	566.86	2,507	J-853
J-692	556.17	2,532	J-865
J-672	573.67	2,534	J-853
J-1088	599.98	2,536	J-759
J-109	579.99	2,545	J-174
J-622	580.59	2,547	J-853
J-155	624.77	2,553	J-853
J-696	682.58	2,569	J-174
J-35	604.27	2,574	J-143
J-36	604.27	2,574	J-143
J-67	566.85	2,581	J-888
J-871	622.00	2,583	J-572
J-824	564.16	2,593	J-885
J-556	609.03	2,593	J-557
J-823	564.84	2,614	J-885
J-1090	601.20	2,616	J-155
J-42	583.21	2,621	J-174
J-595	673.48	2,624	J-489
J-751	701.81	2,626	J-841
J-66	505.86	2,641	J-1119
J-65	507.14	2,641	J-1119
J-554	553.94	2,652	J-589
J-572	684.16	2,661	J-573
J-136	589.68	2,665	J-155
J-374	588.59	2,668	J-759
J-632	553.19	2,674	J-853

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 6 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-629	547.66	2,677	J-853
J-674	590.49	2,678	J-1081
J-125	602.85	2,679	J-143
J-638	596.05	2,696	J-1080
J-754	568.78	2,700	J-851
J-137	588.03	2,705	J-155
J-839	572.61	2,720	J-782
J-736	609.49	2,721	J-398
J-1113	595.69	2,728	J-853
J-167	530.64	2,736	J-572
J-1093	552.02	2,747	J-865
J-867	567.33	2,748	J-885
J-355	534.54	2,753	J-388
J-1092	553.26	2,756	J-865
J-133	566.98	2,760	J-155
J-652	657.90	2,765	J-726
J-848	571.83	2,768	J-853
J-886	520.16	2,770	J-572
J-134	559.42	2,783	J-155
J-142	542.64	2,783	J-155
J-782	573.41	2,788	J-839
J-878	570.36	2,789	J-888
J-866	566.33	2,789	J-885
J-649	675.18	2,800	J-726
J-894	576.51	2,814	J-885
J-780	682.02	2,814	J-572
J-101	607.73	2,817	J-102
J-146	562.86	2,821	J-888
J-821	562.04	2,821	J-888
J-875	566.71	2,821	J-888
J-996	565.32	2,822	J-888
J-899	575.69	2,834	J-853
J-1083	567.30	2,834	J-1080
J-1065	675.40	2,835	J-853
J-553	552.87	2,845	J-589
J-891	561.67	2,858	J-174
J-108	600.28	2,863	J-101
J-102	603.96	2,866	J-101
J-383	556.99	2,868	J-572
J-617	661.64	2,909	J-853
J-857	632.22	2,916	J-174
J-829	565.39	2,934	J-848
J-468	558.63	2,939	J-1081
J-609	553.85	2,943	J-444

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 6 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-85	636.16	2,953	J-88
J-86	637.42	2,953	J-88
J-280	539.63	2,961	J-865
J-1040	559.84	2,965	J-1113
J-222	648.69	2,972	J-174
J-925	564.20	2,974	J-474
J-181	649.08	2,980	J-174
J-182	649.95	2,982	J-174
J-580	551.62	2,990	J-1081
J-460	538.21	2,992	J-1081
J-1073	673.79	3,001	J-841
J-884	621.94	3,002	J-853
J-1103	567.14	3,014	J-848
J-895	585.21	3,018	J-885
J-766	565.73	3,019	J-885
J-585	640.80	3,020	J-593
J-162	636.04	3,024	J-853
J-407	533.85	3,028	J-1081
J-95	534.95	3,030	J-1081
J-96	529.85	3,036	J-1081
J-1112	564.53	3,039	J-1113
J-99	527.04	3,052	J-1081
J-1067	700.15	3,058	J-853
J-576	674.32	3,071	J-853
J-602	636.25	3,072	J-853
J-1104	552.35	3,087	J-848
J-597	649.15	3,095	J-853
J-897	580.46	3,096	J-885
J-159	590.97	3,106	J-888
J-100	519.06	3,134	J-1119
J-620	594.98	3,135	J-541
J-63	514.78	3,145	J-1119
J-64	514.07	3,145	J-1119
J-811	554.52	3,149	J-379
J-1066	678.69	3,151	J-853
J-820	642.77	3,167	J-784
J-77	524.51	3,172	J-76
J-635	520.21	3,173	J-1081
J-864	589.75	3,175	J-853
J-379	554.06	3,178	J-811
J-76	523.92	3,190	J-77
J-784	643.04	3,191	J-820
J-498	559.18	3,195	J-302
J-145	507.25	3,196	J-1119

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 6 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-121	551.38	3,205	J-174
J-1109	571.84	3,211	J-885
J-773	641.35	3,219	J-784
J-624	604.62	3,222	J-541
J-661	637.18	3,235	J-174
J-868	565.47	3,235	J-302
J-666	532.92	3,242	J-884
J-844	546.07	3,244	J-848
J-1072	666.97	3,245	J-841
J-584	653.87	3,249	J-593
J-120	553.31	3,254	J-174
J-156	603.96	3,263	J-888
J-411	530.95	3,273	J-865
J-822	528.61	3,278	J-865
J-357	521.80	3,282	J-302
J-422	533.67	3,288	J-865
J-630	536.69	3,295	J-884
J-165	533.74	3,300	J-865
J-677	557.53	3,308	J-174
J-717	582.37	3,313	J-556
J-1043	493.00	3,314	J-174
J-299	528.02	3,317	J-865
J-300	528.00	3,317	J-865
J-850	570.98	3,337	J-174
J-671	570.20	3,337	J-174
J-358	529.99	3,338	J-572
J-849	572.53	3,339	J-174
J-596	545.50	3,373	J-693
J-216	618.78	3,373	J-174
J-765	565.38	3,382	J-885
J-163	588.03	3,394	J-174
J-217	584.37	3,395	J-174
J-170	588.46	3,396	J-174
J-169	588.77	3,396	J-174
J-800	547.79	3,397	J-848
J-211	583.29	3,399	J-174
J-887	544.29	3,399	J-884
J-188	589.98	3,400	J-174
J-952	627.46	3,406	J-853
J-845	642.98	3,410	J-174
J-797	556.34	3,411	J-174
J-549	554.83	3,411	J-174
J-550	554.13	3,411	J-174
J-830	544.37	3,411	J-174

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 6 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-631	556.19	3,411	J-174
J-224	564.24	3,414	J-174
J-223	555.79	3,414	J-174
J-831	547.40	3,421	J-174
J-406	559.53	3,422	J-572
J-154	646.70	3,423	J-174
J-462	610.81	3,436	J-871
J-500	553.71	3,446	J-302
J-496	571.00	3,447	J-302
J-1033	553.00	3,450	J-174
J-71	692.61	3,450	J-72
J-418	538.45	3,454	J-302
J-660	633.10	3,455	J-174
J-592	628.95	3,456	J-853
J-369	527.08	3,458	J-358
J-855	554.72	3,464	J-302
J-23	545.11	3,467	J-811
J-363	613.48	3,467	J-364
J-17	570.40	3,472	J-174
J-72	692.45	3,479	J-71
J-15	563.28	3,491	J-174
J-890	567.89	3,491	J-174
J-10	607.04	3,500	J-174
J-11	544.22	3,500	J-174
J-19	574.42	3,500	J-174
J-20	572.97	3,500	J-174
J-25	587.85	3,500	J-853
J-33	719.70	3,500	J-853
J-47	587.44	3,500	J-174
J-49	576.22	3,500	J-853
J-59	552.18	3,500	J-174
J-60	552.38	3,500	J-174
J-69	643.17	3,500	J-71
J-70	644.91	3,500	J-71
J-74	659.51	3,500	J-71
J-75	658.73	3,500	J-71
J-80	576.38	3,500	J-853
J-84	587.14	3,500	J-853
J-91	577.34	3,500	J-864
J-92	577.12	3,500	J-853
J-93	697.17	3,500	J-853
J-94	700.52	3,500	J-853
J-97	622.30	3,500	J-572
J-103	558.77	3,500	J-174

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 6 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-104	559.09	3,500	J-174
J-111	555.71	3,500	J-174
J-112	556.02	3,500	J-174
J-113	549.90	3,500	J-174
J-115	707.82	3,500	J-853
J-127	552.95	3,500	J-174
J-138	657.92	3,500	J-853
J-139	577.85	3,500	J-174
J-147	596.37	3,500	J-853
J-157	744.50	3,500	J-853
J-158	608.09	3,500	J-853
J-160	527.29	3,500	J-174
J-161	597.26	3,500	J-853
J-171	577.59	3,500	J-174
J-177	638.14	3,500	J-853
J-178	638.09	3,500	J-853
J-179	528.36	3,500	J-174
J-183	527.30	3,500	J-174
J-184	551.68	3,500	J-853
J-186	526.67	3,500	J-174
J-191	625.98	3,500	J-853
J-192	623.29	3,500	J-853
J-193	607.97	3,500	J-174
J-194	568.20	3,500	J-853
J-201	567.87	3,500	J-853
J-202	627.18	3,500	J-853
J-203	599.56	3,500	J-853
J-204	580.14	3,500	J-853
J-205	588.72	3,500	J-853
J-208	588.10	3,500	J-853
J-209	544.35	3,500	J-174
J-210	564.28	3,500	J-174
J-215	661.01	3,500	J-853
J-218	680.24	3,500	J-572
J-220	530.52	3,500	J-853
J-221	501.20	3,500	J-853
J-229	685.35	3,500	J-853
J-230	685.38	3,500	J-853
J-243	501.20	3,500	J-853
J-342	591.46	3,500	J-572
J-440	611.65	3,500	J-853
J-469	704.03	3,500	J-853
J-470	690.81	3,500	J-71
J-492	584.90	3,500	J-572

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 6 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-493	690.64	3,500	J-71
J-502	570.03	3,500	J-853
J-543	550.11	3,500	J-174
J-544	552.62	3,500	J-174
J-555	559.26	3,500	J-853
J-561	549.08	3,500	J-174
J-575	665.91	3,500	J-853
J-577	596.88	3,500	J-174
J-581	548.78	3,500	J-174
J-621	586.53	3,500	J-853
J-625	590.54	3,500	J-853
J-658	606.04	3,500	J-572
J-700	649.89	3,500	J-71
J-715	583.63	3,500	J-572
J-729	591.80	3,500	J-174
J-732	580.62	3,500	J-853
J-740	694.66	3,500	J-853
J-794	703.68	3,500	J-853
J-795	703.16	3,500	J-853
J-833	707.23	3,500	J-853
J-838	577.98	3,500	J-174
J-843	679.08	3,500	J-572
J-846	589.73	3,500	J-572
J-852	701.17	3,500	J-853
J-853	685.90	3,500	J-229
J-860	580.95	3,500	J-174
J-861	610.66	3,500	J-853
J-872	600.92	3,500	J-853
J-876	593.86	3,500	J-174
J-877	635.74	3,500	J-853
J-881	618.28	3,500	J-174
J-882	605.87	3,500	J-174
J-883	612.14	3,500	J-174
J-901	601.46	3,500	J-853
J-908	650.54	3,500	J-71
J-931	716.48	3,500	J-853
J-997	592.19	3,500	J-174
J-1032	574.97	3,500	J-174
J-1035	608.39	3,500	J-853
J-1036	578.63	3,500	J-853
J-1037	553.51	3,500	J-853
J-1042	540.00	3,500	J-174
J-1105	539.95	3,500	J-174
J-1115	701.41	3,500	J-853

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 6 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-27	584.13	3,503	J-853
J-152	561.12	3,503	J-853
J-153	556.90	3,503	J-853
J-1089	575.56	3,503	J-853
J-226	547.56	3,505	J-853
J-31	512.72	3,506	J-1081
J-51	626.44	3,506	J-572
J-52	625.44	3,506	J-572
J-87	510.30	3,506	J-1081
J-98	626.01	3,506	J-572
J-116	552.81	3,506	J-853
J-117	544.83	3,506	J-853
J-150	581.64	3,506	J-853
J-164	532.98	3,506	J-865
J-212	671.50	3,506	J-853
J-213	594.46	3,506	J-853
J-227	544.26	3,506	J-853
J-258	549.28	3,506	J-572
J-329	555.59	3,506	J-853
J-330	554.91	3,506	J-853
J-331	563.15	3,506	J-853
J-332	565.07	3,506	J-853
J-368	601.97	3,506	J-572
J-370	513.92	3,506	J-759
J-382	564.29	3,506	J-572
J-394	565.11	3,506	J-572
J-400	561.75	3,506	J-865
J-409	559.20	3,506	J-572
J-419	601.62	3,506	J-572
J-465	578.16	3,506	J-572
J-467	547.14	3,506	J-302
J-476	598.70	3,506	J-572
J-485	628.07	3,506	J-572
J-488	619.21	3,506	J-572
J-491	601.82	3,506	J-572
J-615	573.51	3,506	J-174
J-636	549.53	3,506	J-853
J-757	520.39	3,506	J-853
J-801	547.09	3,506	J-302
J-814	576.22	3,506	J-174
J-815	575.84	3,506	J-174
J-817	537.06	3,506	J-884
J-847	567.23	3,506	J-572
J-869	569.35	3,506	J-572

Fire Flow Node FlexTable: Fire Flow Report (watercad.wtg)
Active Scenario: Available Flow after Phase 6 Improvements

Current Time: 0.000 hours

Label	Elevation (ft)	Flow (Total Available) (gpm)	Junction w/ Minimum Pressure (Zone)
J-61	719.89	3,507	J-853
J-62	720.40	3,507	J-853
J-82	731.85	3,507	J-853
J-114	712.94	3,507	J-853
J-151	710.97	3,507	J-853
J-166	667.79	3,507	J-853
J-206	564.99	3,507	J-174
J-207	567.34	3,507	J-174
J-214	619.04	3,507	J-853
J-570	667.40	3,507	J-853
J-571	666.01	3,507	J-853
J-591	628.88	3,507	J-853
J-598	636.09	3,507	J-853
J-603	647.20	3,507	J-841
J-604	674.57	3,507	J-853
J-605	673.81	3,507	J-853
J-618	654.89	3,507	J-853
J-676	656.74	3,507	J-853
J-724	663.36	3,507	J-841
J-756	698.28	3,507	J-853
J-761	594.47	3,507	J-174
J-832	703.73	3,507	J-853
J-898	584.52	3,507	J-174
J-972	628.04	3,507	J-853
J-1060	727.36	3,507	J-853
J-1061	740.12	3,507	J-853
J-1063	635.60	3,507	J-853
J-1064	643.74	3,507	J-853
J-1076	632.76	3,507	J-853
J-1107	575.45	3,507	J-174
J-1108	564.44	3,507	J-174
J-738	565.16	3,509	J-746
J-73	582.28	3,512	J-143
J-81	579.78	3,512	J-143
J-260	567.18	3,512	J-572
J-393	566.14	3,512	J-572
J-529	562.50	3,512	J-572

APPENDIX H

FAA Notice Criteria

Federal Aviation Administration

« OE/AAA

Notice Criteria Tool

The requirements for filing with the Federal Aviation Administration for proposed structures vary based on a number of factors: height, proximity to an airport, location, and frequencies emitted from the structure, etc. For more details, please reference CFR Title 14 Part 77.9.

You must file with the FAA at least 45 days prior to construction if:

- your structure will exceed 200ft above ground level
- your structure will be in proximity to an airport and will exceed the slope ratio
- your structure involves construction of a traverseway (i.e. highway, railroad, waterway etc...)
- your structure will emit frequencies, and does not meet the conditions of the FAA Co-location Policy
- your structure will be in an instrument approach area and might exceed part 77 Subpart C
- your structure will be on an airport or heliport

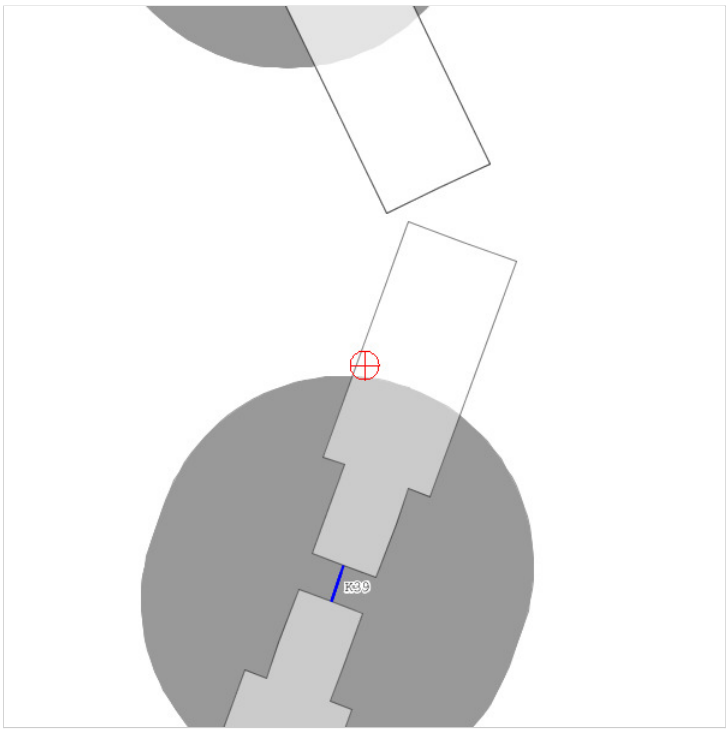
If you require additional information regarding the filing requirements for your structure, please identify and contact the appropriate FAA representative using the Air Traffic Areas of Responsibility map for Off Airport construction, or contact the FAA Airports Region / District Office for On Airport construction.

The tool below will assist in applying Part 77 Notice Criteria.

Latitude:	38 Deg 26 M 23 S N
Longitude:	90 Deg 57 M 42 S W
Horizontal Datum:	NAD83
Site Elevation (SE):	635 (nearest foot)
Structure Height (AGL):	40 (nearest foot)
Traverseway:	No Traverseway (Additional height is added to certain structures under 77.9(c))
Is structure on airport:	(•) No ( ) Yes

Results

You do not exceed Notice Criteria.



APPENDIX I

Debt Retirement for Future Improvements

Union

PROPOSED PROJECT - FINANCIAL PROJECTIONS

September 28, 2012

		Year 2012	Year 2013	Year 2014	Year 2015	Year 2016	Year 2017	Year 2018	Year 2019	Year 2020	Year 2021	Year 2022	Year 2023	Year 2024	Year 2025	Year 2026	Year 2027	Year 2028	Year 2029	Year 2030	Year 2031	Year 2032
Users		3989	4029	4069	4110	4151	4193	4234	4277	4320	4363	4428	4495	4562	4630	4700	4770	4842	4915	4988	5063	5139
Recommended Rate (5)		$23.58	$25.29	$26.05	$26.83	$27.63	$28.46	$29.32	$30.20	$31.10	$32.03	$33.00	$33.99	$35.00	$36.05	$37.14	$38.25	$39.40	$40.58	$41.80	$43.05	$44.34
Payment if Rate was 2% of 1999 MHI		$66.00	$66.00	$66.00	$66.00	$66.00	$66.00	$66.00	$66.00	$66.00	$66.00	$66.00	$66.00	$66.00	$66.00	$66.00	$66.00	$66.00	$66.00	$66.00	$66.00	$66.00
Revenue																						
Water Billed		1,128,766	1,222,635	1,271,817	1,323,171	1,376,461	1,432,100	1,489,487	1,549,752	1,612,293	1,677,191	1,753,244	1,833,165	1,916,304	2,003,214	2,094,505	2,189,471	2,289,195	2,393,419	2,501,836	2,615,638	2,734,548
Fund subsidy																						
Delinquency adjustment		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Revenue		1,128,766	1,222,635	1,271,817	1,323,171	1,376,461	1,432,100	1,489,487	1,549,752	1,612,293	1,677,191	1,753,244	1,833,165	1,916,304	2,003,214	2,094,505	2,189,471	2,289,195	2,393,419	2,501,836	2,615,638	2,734,548
Operating Expenses (1)																						
2%	Personnel Services	310,765	316,980	323,320	329,786	336,382	343,110	349,972	356,971	364,111	371,393	378,821	386,397	394,125	402,008	410,048	418,249	426,614	435,146	443,849	452,726	461,780
2%	Supplies and Maintenance	15,400	15,708	16,022	16,343	16,669	17,003	17,343	17,690	18,044	18,404	18,773	19,148	19,531	19,922	20,320	20,726	21,141	21,564	21,995	22,435	22,884
2%	General Services	284,900	290,598	296,410	302,338	308,385	314,553	320,844	327,261	333,806	340,482	347,292	354,237	361,322	368,549	375,919	383,438	391,107	398,929	406,907	415,046	423,346
2%	Maintenance & Repairs	183,000	186,660	190,393	194,201	198,085	202,047	206,088	210,209	214,414	218,702	223,076	227,537	232,088	236,730	241,465	246,294	251,220	256,244	261,369	266,596	271,928
2%	Capital Outlay	238,000	242,760	247,615	252,568	257,619	262,771	268,027	273,387	278,855	284,432	290,121	295,923	301,842	307,878	314,036	320,317	326,723	333,257	339,923	346,721	353,655
2%	Previous Debt Repayment	3,500	3,570	3,641	3,714	3,789	3,864	3,942	4,020	4,101	4,183	4,266	4,352	4,439	4,528	4,618	4,711	4,805	4,901	4,999	5,099	5,201
O & M Short Lived Asset Replacement Costs (4)																						
2%	O & M SLAR Costs - Tank 1 Painting				79,568																	
2%	O & M SLAR Costs - Tank 2 Painting												134,392									
2%	O & M SLAR Costs - Tank 3 Painting					54,636																
2%	O & M SLAR Costs - Tank 5 Painting					54,636																
2%	O & M SLAR Costs - Tank 6 Painting																					135,458
Debt Service Payments (3)																						
Debt Service Project 1a			48,394	48,394	48,394	48,394	48,394	48,394	48,394	48,394	48,394	48,394	48,394	48,394	48,394	48,394	48,394	48,394	48,394	48,394	48,394	48,394
Debt Service Phase 1b			35,124	35,124	35,124	35,124	35,124	35,124	35,124	35,124	35,124	35,124										
Debt Service Phase 1c			115,923																			
Debt Service Phase 2a						91,964	91,964	91,964	91,964	91,964	91,964	91,964	91,964	91,964	91,964							
Debt Service Phase 2b								126,714														
Debt Service Phase 2c									125,441													
Debt Service Phase 2d										181,695												
Debt Service Phase 3											185,218											
Debt Service Phase 4a											55,689	55,689	55,689	55,689	55,689	55,689	55,689	55,689	55,689	55,689		
Debt Service Phase 4b												141,947	141,947	141,947	141,947	141,947	141,947	141,947	141,947	141,947	141,947	
Debt Service Phase 5																						
Debt Service Phase 6													63,063	63,063	63,063	63,063	63,063	63,063	63,063	63,063	63,063	63,063
Debt Service Phase 7																						
Total Expenses		**1,035,565**	**1,255,717**	**1,160,920**	**1,262,036**	**1,405,683**	**1,318,829**	**1,468,410**	**1,490,462**	**1,570,506**	**1,653,985**	**1,635,466**	**1,823,044**	**1,714,404**	**1,740,671**	**1,675,499**	**1,702,827**	**1,730,702**	**1,759,134**	**1,788,135**	**1,762,027**	**1,785,710**
Excess Revenue over Expense		**93,201**	**(33,082)**	**110,897**	**61,135**	**(29,221)**	**113,271**	**21,076**	**59,290**	**41,786**	**23,206**	**117,778**	**10,121**	**201,900**	**262,543**	**419,006**	**486,644**	**558,493**	**634,285**	**713,701**	**853,611**	**948,838**
Total Revenue from beginning of report		93,201	60,119	171,016	232,151	202,929	316,200	337,276	396,566	438,353	461,559	579,337	589,458	791,358	1,053,901	1,472,907	1,959,550	2,518,044	3,152,329	3,866,030	4,719,641	5,668,479

(1) See UNION - Current Financial Status

(2) The City of Union has maintained separate accounting for the water and sewer services. Due to the minimal expenses, the City has created cash reserves that could be utilized for the improvements needed.

(3) See Appendix I for debt service calculations. Additionally, all projects under $250,000 have been assigned to be paid out of cash reserves by the City of Union.

(4) No additional operational costs are anticipated for the water main improvements. We have allocated various funds for tank maintenance and painting based on discussion with the City. Tank 4 has not been included as I have assumed it will be taken out of service during Project 1.

(5) Rates have been raised to cover current costs of expenses as well as place additional funds into cash reserves. In 2013, rates were raised 3% plus $1. After 2013, we recommend raising rates 3% per year to keep up with the cost of living as well as place additional funds into cash reserves.

UNION PHASE 1a

Debt Service Calculations

20 year term @ 5.50%

Actual Cost Estimate - $1,438,579

Phase I Cost (1)	**550,773**
Const Period Interest (2)	**22,719**
Debt Service Reserve (3)	**4,840**
Principal	**578,332**
Owner Equity	**0**
Adjusted Principal	**578,332**
Term	**20**
Int Rate	**5.50%**
Annual Pymnt	**48,394**

(1) Cost Estimate Cochran September 2012

(2) Construction Period Interest
($550,773 X .75 = Avg Balance $413,080 X 5.50%)

(3) 10% of annual debt service payment

(4) The Phase 1 Cost has been adjusted to reflect the $829,013 balance on the Recovery Zone Bond. As well as design fees that have been taken out of cash in the amount of $58,793

Period	Principal	Interest	Total	Cumulative Interest	Outstanding Principal	Cumulative Equity
1	16,586	31,808	48,394	31,808	561,746	904,392
2	17,498	30,896	48,394	62,704	544,247	921,891
3	18,461	29,934	48,394	92,638	525,787	940,351
4	19,476	28,918	48,394	121,556	506,310	959,828
5	20,547	27,847	48,394	149,403	485,763	980,375
6	21,677	26,717	48,394	176,120	464,086	1,002,052
7	22,870	25,525	48,394	201,645	441,216	1,024,922
8	24,128	24,267	48,394	225,912	417,088	1,049,050
9	25,455	22,940	48,394	248,852	391,634	1,074,504
10	26,855	21,540	48,394	270,391	364,779	1,101,359
11	28,332	20,063	48,394	290,454	336,448	1,129,690
12	29,890	18,505	48,394	308,959	306,558	1,159,580
13	31,534	16,861	48,394	325,820	275,024	1,191,114
14	33,268	15,126	48,394	340,946	241,756	1,224,382
15	35,098	13,297	48,394	354,243	206,658	1,259,480
16	37,028	11,366	48,394	365,609	169,630	1,296,508
17	39,065	9,330	48,394	374,938	130,565	1,335,573
18	41,213	7,181	48,394	382,119	89,352	1,376,786
19	43,480	4,914	48,394	387,034	45,872	1,420,266
20	45,872	2,523	48,394	389,557	(0)	1,466,138

UNION PHASE 1b

Debt Service Calculations

10 year term @ 5.50%

Project II Costs (1)	**254,250**
Const Period Interest (2)	**6,992**
Debt Service Reserve (3)	**3,512**
Principal	**264,754**
Owner Equity	**0**
Adjusted Principal	**264,754**
Term	**10**
Int Rate	**5.50%**
Annual Pymnt	**35,124**

(1) Cost Estimate Cochran September 2012

(2) Construction Period Interest
($254,250 X .5 = Avg Balance $127,125 X 5.50%)

(3) 10% of annual debt service payment

Period	Principal	Interest	Total	Cumulative Interest	Outstanding Principal	Cumulative Equity
1	20,563	14,561	35,124	14,561	244,191	20,563
2	21,694	13,431	35,124	27,992	222,497	42,257
3	22,887	12,237	35,124	40,229	199,610	65,144
4	24,146	10,979	35,124	51,208	175,465	89,289
5	25,474	9,651	35,124	60,858	149,991	114,763
6	26,875	8,249	35,124	69,108	123,116	141,638
7	28,353	6,771	35,124	75,879	94,763	169,991
8	29,912	5,212	35,124	81,091	64,851	199,903
9	31,558	3,567	35,124	84,658	33,293	231,461
10	33,293	1,831	35,124	86,489	0	264,754

UNION PHASE 2a

Debt Service Calculations

10 year term @ 5.50%

Project II Costs (1)	**591,454**
Const Period Interest (2)	**16,265**
Debt Service Reserve (3)	**8,171**
Principal	**615,890**
Owner Equity	**0**
Adjusted Principal	**615,890**
Term	**10**
Int Rate	**5.50%**
Annual Pymnt	**81,709**
Adjusted Annual Payment	**91,964**

(1) Cost Estimate Cochran September 2012
(2) Construction Period Interest
($591,454 X .50 = Avg Balance $295,727 X 5.50%)
(3) 10% of annual debt service payment
(4) Rate adjusted 3% per year for material price increase
(Start date in 2016)

Period	Principal	Interest	Total	Cumulative Interest	Outstanding Principal	Cumulative Equity
1	47,835	33,874	81,709	33,874	568,055	47,835
2	50,466	31,243	81,709	65,117	517,589	98,301
3	53,241	28,467	81,709	93,584	464,348	151,542
4	56,170	25,539	81,709	119,124	408,179	207,711
5	59,259	22,450	81,709	141,573	348,920	266,970
6	62,518	19,191	81,709	160,764	286,401	329,489
7	65,957	15,752	81,709	176,516	220,445	395,445
8	69,584	12,124	81,709	188,640	150,860	465,030
9	73,411	8,297	81,709	196,938	77,449	538,441
10	77,449	4,260	81,709	201,198	0	615,890

UNION PHASE 4a

Debt Service Calculations

10 year term @ 5.50%

Project II Costs (1)	**321,660**
Const Period Interest (2)	**5,307**
Debt Service Reserve (3)	**4,396**
Principal	**331,363**
Owner Equity	**0**
Adjusted Principal	**331,363**
Term	**10**
Int Rate	**5.50%**
Annual Pymnt	**43,961**
Adjusted Annual Paymen	**55,689**

(1) Cost Estimate Cochran September 2012
(2) Construction Period Interest
($321,660 X .3 = Avg Balance $96,498 X 5.50%)
(3) 10% of annual debt service payment
(4) Rate adjusted 3% per year for material price increase
(Start date in 2021)

Period	Principal	Interest	Total	Cumulative Interest	Outstanding Principal	Cumulative Equity
1	25,736	18,225	43,961	18,225	305,627	25,736
2	27,152	16,809	43,961	35,034	278,475	52,888
3	28,645	15,316	43,961	50,351	249,830	81,533
4	30,221	13,741	43,961	64,091	219,609	111,754
5	31,883	12,079	43,961	76,170	187,727	143,636
6	33,636	10,325	43,961	86,495	154,091	177,272
7	35,486	8,475	43,961	94,970	118,604	212,759
8	37,438	6,523	43,961	101,493	81,166	250,197
9	39,497	4,464	43,961	105,957	41,669	289,694
10	41,669	2,292	43,961	108,249	0	331,363

UNION PHASE 4b

Debt Service Calculations

20 year term @ 5.50%

Project II Costs (1)	**1,218,163**
Const Period Interest (2)	**33,499**
Debt Service Reserve (3)	**10,562**
Principal	**1,262,224**
Owner Equity	**0**
Adjusted Principal	**1,262,224**
Term	**20**
Int Rate	**5.50%**
Annual Pymnt	**105,622**
Adjusted Annual Paymen	**141,947**

(1) Cost Estimate Cochran September 2012
(2) Construction Period Interest
($1,218,163 X .5 = Avg Balance $609,082 X 5.50%)
(3) 10% of annual debt service payment
(4) Rate adjusted 3% per year for material price increase (Start date in 2022)

Period	Principal	Interest	Total	Cumulative Interest	Outstanding Principal	Cumulative Equity
1	36,200	69,422	105,622	69,422	1,226,024	36,200
2	38,191	67,431	105,622	136,854	1,187,834	74,390
3	40,291	65,331	105,622	202,184	1,147,542	114,682
4	42,507	63,115	105,622	265,299	1,105,035	157,189
5	44,845	60,777	105,622	326,076	1,060,190	202,034
6	47,312	58,310	105,622	384,387	1,012,878	249,346
7	49,914	55,708	105,622	440,095	962,965	299,259
8	52,659	52,963	105,622	493,058	910,306	351,918
9	55,555	50,067	105,622	543,125	854,750	407,474
10	58,611	47,011	105,622	590,136	796,140	466,084
11	61,834	43,788	105,622	633,924	734,305	527,919
12	65,235	40,387	105,622	674,311	669,070	593,154
13	68,823	36,799	105,622	711,109	600,247	661,977
14	72,608	33,014	105,622	744,123	527,638	734,586
15	76,602	29,020	105,622	773,143	451,036	811,188
16	80,815	24,807	105,622	797,950	370,221	892,003
17	85,260	20,362	105,622	818,312	284,961	977,263
18	89,949	15,673	105,622	833,985	195,012	1,067,212
19	94,896	10,726	105,622	844,711	100,116	1,162,108
20	100,116	5,506	105,622	850,217	0	1,262,224

UNION PHASE 6

Debt Service Calculations

10 year term @ 5.50%

Project II Costs (1)	**339,668**
Const Period Interest (2)	**9,341**
Debt Service Reserve (3)	**4,693**
Principal	**353,702**
Owner Equity	**0**
Adjusted Principal	**353,702**
Term	**10**
Int Rate	**5.50%**
Annual Pymnt	**46,925**
Adjusted Annual Paymen	**63,063**

(1) Cost Estimate Cochran September 2012
(2) Construction Period Interest
($339,668 X .5 = Avg Balance $169,834 X 5.50%)
(3) 10% of annual debt service payment
(4) Rate adjusted 3% per year for material price increase
(Start date in 2023)

Period	Principal	Interest	Total	Cumulative Interest	Outstanding Principal	Cumulative Equity
1	27,471	19,454	46,925	19,454	326,231	27,471
2	28,982	17,943	46,925	37,396	297,249	56,453
3	30,576	16,349	46,925	53,745	266,672	87,030
4	32,258	14,667	46,925	68,412	234,415	119,287
5	34,032	12,893	46,925	81,305	200,382	153,320
6	35,904	11,021	46,925	92,326	164,479	189,223
7	37,879	9,046	46,925	101,372	126,600	227,102
8	39,962	6,963	46,925	108,335	86,638	267,064
9	42,160	4,765	46,925	113,100	44,479	309,223
10	44,479	2,446	46,925	115,547	0	353,702

UNION PHASE 7

Debt Service Calculations

10 year term @ 5.50%

Project II Costs (1)	**644,250**
Const Period Interest (2)	**17,717**
Debt Service Reserve (3)	**8,900**
Principal	**670,867**
Owner Equity	**0**
Adjusted Principal	**670,867**
Term	**10**
Int Rate	**5.50%**
Annual Pymnt	**89,002**
Adjusted Annual Paymen	**156,066**

(1) Cost Estimate Cochran September 2012
(2) Construction Period Interest
($644,250 X .5 = Avg Balance $322,125 X 5.50%)
(3) 10% of annual debt service payment
(4) Rate adjusted 3% per year for material price increase
(Start date in 2041)

Period	Principal	Interest	Total	Cumulative Interest	Outstanding Principal	Cumulative Equity
1	52,105	36,898	89,002	36,898	618,762	52,105
2	54,971	34,032	89,002	70,930	563,792	107,075
3	57,994	31,009	89,002	101,938	505,798	165,069
4	61,184	27,819	89,002	129,757	444,614	226,253
5	64,549	24,454	89,002	154,211	380,066	290,801
6	68,099	20,904	89,002	175,114	311,967	358,900
7	71,844	17,158	89,002	192,273	240,123	430,744
8	75,796	13,207	89,002	205,479	164,327	506,540
9	79,964	9,038	89,002	214,517	84,362	586,505
10	84,362	4,640	89,002	219,157	0	670,867

APPENDIX J

Supervised Program Standard Specifications

WATER MAIN SUPPLY PIPING, VALVES AND FITTINGS

1. MATERIALS OF CONSTRUCTION

Piping, valves, and fittings shall be furnished and installed in accordance with the manufacturer's requirements. All pipe and materials shall be new and in a condition satisfactory to the Owner. Materials of construction for water supply pipes and fittings shall be as follows:

WATER MAIN

A. C900 PVC WATER MAINS (4-inch and larger). Water mains shall conform to AWWA C900 DR Class 200. Pipe must bear the seal of approval of the National Sanitation Foundation. Net laying lengths must be 20 feet. Joints shall be integral bell position joints with single rubber gasket, making a pressure tight seal, as listed in the C900 Standard.

B. CLASS 200 PVC WATER MAINS (Less than 4-inch). Water mains shall be PVC Class 200. Pipe shall conform to ASTM D2241 and shall be pressure rated at 200 psi at 73°F with a standard dimension ratio of SDR 21. PVC pipe must bear the seal of approval of the National Sanitation Foundation. Net laying lengths must be 20 feet. Joints shall be integral bell push-on joints with single rubber gasket, making a pressure tight seal. Said pipe shall be in accordance with ANSI/ASTM D2241-78 or the latest revision thereof.

C. FITTINGS FOR PVC MAINS. Mechanical joint and or flanged ductile iron fittings for PVC pipe shall be used and shall meet the requirements of ANSI A21.11 (AWWA C111). Fittings shall include appropriate transition gaskets.

D. VALVES FOR PVC. Valves for water lines shall be Mueller Model A-2360 flanged or mechanical joint, non-rising stem, resilient wedge, gate valves or approved equal. Each valve shall include the required Mueller mechanical joint accessories. Said valves shall be of the size and joint type required in the approved plans. All valves shall be manufactured in accordance with AWWA Standards C-509.

E. VALVE BOXES. Valve boxes shall be Tyler Pipe, Model 564-S adjustable type with lid as manufactured by the Tyler Pipe or approved equal.

F. FIRE HYDRANTS. Fire hydrants shall comply with American Water Works Association specifications. Hydrants shall have: two-piece standpipe; compression type main valve; 5-1/4 inch valve opening; two 2 ½-inch hose nozzles and one 4 ½-inch pumper nozzle; mechanical joint inlet with cast iron retainer glands; 7/8 inch square operating nut to open counter clockwise. Cast iron fitting shall be cement mortar lines with bituminous seal coat inside and out. Inlet connection shall be 6 inch mechanical joint. Fire hydrants shall be Model A-423 as manufactured by the Mueller Company, or approved equal. Said hydrants shall be equipped with auxiliary gate valve and valve box and Mueller transition gland (A-399).

G. TAPPING SLEEVE. Tapping sleeves for water lines shall be Smith-Blair Model 665, with stainless steel full circumference band and stainless steel flanged outlet as manufactured by the Smith-Blair Company or approved equal.

H. TAPPING VALVE. Tapping valves for water lines shall be Mueller flanged to mechanical joint Model T-2360-16, non-rising stem, resilient wedge seat, tapping valves or approved equal. Each

valve shall include the required Mueller transition glands (A-399). Said valves shall be of the size required in the approved plans. All valves shall be manufactured in accordance with AWWA Standards C-509.

I. DETECTABLE LOCATOR TAPE. Detectable locator tape shall be 3 inches wide, bonded layer plastic with magnetic foil core, Terra Tape Detectable, as manufactured by Griffolyn Company of Houston, Texas, and shall have the words "Caution: Water Main Buried Below," or approved equal.

J. WATERLINE LOCATOR WIRE. Waterline locator wire shall be #12 solid copper wire, insulated for 600 V, with splice points at valve boxes.

WATER SERVICE

A. SERVICE SADDLES. Service saddle for ¾" service line shall be Mueller Bronze, H-13433 for 8" water main, or approved equal, with tapped "CC" thread outlet as manufactured by the Mueller Company or approved equal.

B. CORPORATION STOPS. Corporation stops for ¾" service connection shall be Mueller B-25008 or approved equal, "CC" Thread with compression connections. Larger sizes to be approved by the Owner.

C. CURB VALVES. Curb valve for ¾" service connection shall be Mueller H-15219 or an approved equal, compression connections both ends. Larger sizes to be approved by the Owner.

D. CURB BOX. Curb box for ¾" service connection shall be Mueller H-10316 or an approved equal, 36" - 40" bury, larger sizes to be approved by the owner.

E. SERVICE PIPING. Potable service piping shall be Type K - copper tubing 3/4" diameter with 30" of minimum cover.

Prior to backfilling, service lines must be inspected by the Owner.

All pipe and materials described above shall be of new materials in a condition satisfactory to the Owner.

All pipe and fittings shall be unloaded, hauled, and handled with care to prevent injury to the pipe. Proper methods and equipment shall be used for safe handling. Should a defect, gouge, or crack be discovered in any pipe, the crack or defective portion shall be cut off before being installed so that the pipe will be perfectly sound. The cut shall be made in the sound barrel at a point at least 12 inches beyond the visible limit of the defect.

The interior of the pipe shall be thoroughly cleaned of all foreign matter and shall be kept clean during operations by means of plugs or other approved methods. At all times when work is not in progress, all open ends of pipes and fittings shall be securely closed. Tees and fittings at bends in pipe shall be properly braced with substantial concrete thrust blocks.

2. EXCAVATION OF TRENCHES

A. GENERAL. The Contractor shall control the grading in the vicinity of pipe trenches so that the surface of the ground will be properly sloped to prevent water from running into the excavated

areas. Any water or other liquid wastes, which accumulate in the excavations, shall be removed promptly.

The Contractor shall perform all excavation work necessary for and incidental to the proper construction of the water lines as shown on the approved plans or directed by the Owner. Excavation shall include the removal of trees, shrubs, and undesirable material. Excavation shall be done along the lines indicated on the Approved plans and shall be continuous and straight without improper bends and kinks. Trenches shall be only of sufficient width to provide a free working space on each side of the pipe. During excavation, material suitable for backfilling shall be stockpiled in an orderly manner a sufficient distance from the banks of the trenches to avoid overloading which might cause slides or cave-ins. All excavated material not suitable for backfill shall be removed by the Contractor and disposed of in a manner approved by the Owner. The Contractor shall provide all barricades, lights, temporary crossings, warning signs, etc. that may be necessary to properly protect the public and the work from injury or damage.

B. DEPTH. Trenches for water pipe shall be opened to a sufficient depth to obtain a minimum of 42 inches of cover over the top of the pipe. All excavation shall be made so as to provide a continuous bearing for the barrel of the pipe. Bell holes shall be excavated to sufficient size to permit ample room for making joints. The bottom of trenches shall be free from rocks, clods, debris and other unsuitable material and shall consist of properly shaped earth or tamped granular material as specified herein. The Contractor shall be careful not to excavate below grade except to remove undesirable material or as directed by the Owner.

C. WIDTH. No excavated trench shall be wider than 1-4/10 times the pipe diameter in inches plus 12 inches (width = 1.4d" + 12") or two feet wide or as designated by the Owner.

D. TRENCH EXCAVATION CLASSIFICATIONS. All excavation shall consist of two classifications, Vis: Class "A" and Class "B."

1. CLASS "A" EXCAVATION. Class "A" excavation shall consist of all other materials not to be mentioned in Class "B." The decisions of the Consultants shall be final in the determination of the proper classification.

2. CLASS "B" EXCAVATION. Any materials shall be considered Class "B" excavation, which, in the opinion of the Consultant, cannot be excavated by an excavator with an operating weight of at least 52,600 pounds and flywheel horsepower of at least 153 hp. Said material to require drilling and blasting or drilling and wedging. The classification shall not be extended to include the materials, which can be removed by other means, but which, for reasons of economy in drilling and wedging. Such excavation shall include detached pieces of rock or boulders one cubic yard or more in content and masses of solid, well-defined ledges of stone or masses or rock, slate, shale, or soapstone and other similar substances. Class "B" excavation shall be stripped for measurement in sections of such length as the Consultant may direct, and no rock excavated or blasted before such measurements will be allowed. Stripping shall mean the removal of all other materials so as to expose the surface of the rock.

a. EXPLOSIVES. Explosives shall only be used of such character and strength and in such manner as may be permitted by the Owner. All necessary precautions shall be taken to prevent accidents and injury or damage to adjacent buildings. Blasts shall be completely and carefully covered with heavy timbers or other adequate protection and shall be made only between such hours as may be designated by the Owner. The Contractor shall be

liable for all injuries or deaths of persons or damages to property caused by blasting or explosives. All blasting operations shall be performed in accordance with Section 9 of the Earthwork Article of these Specifications.

b. MEASUREMENT. All Class "B" excavations shall be measured in place by the cubic yard. No loose, shaken or previously blasted rock will be allowed as Class "B" excavation, nor shall any excavation exterior to the maximum limits of measurements be allowed. Pay width for trench shall not be wider than 1-4/10 times the pipe diameter in inches plus 12 inches (width = 1.4d" + 12") or 2.5 feet wide or as designated by the Owner.

3. PIPE LAYING

A. GENERAL. Laying of the pipe shall be commenced immediately after the excavation is started, and the Contractor must use every means at his command to keep pipe laying closely behind the trenching. The Owner may stop the trenching when, in his opinion, the trench is open too far in advance of the pipe laying operation. The Contractor may lay pipe in the best manner adapted to securing speed and good results. It shall, however, be in accordance with the manufacturer's instructions and recommendations, and in a manner that will not damage the pipe.

B. THRUST BLOCKING. Lines shall be thrust blocked at bends, tees, caps, and hydrants to prevent movement of lines under pressure. The concrete blocking shall be placed between solid ground and the fitting to be anchored in such a manner that the pipe and fitting joints will be accessible for repairs. Thrust blocks shall be constructed with the required bearing surface in accordance with the following table:

Pipe Size	Dead End Tee Or In-Line Valve	90° Elbow	45° Elbow	22-1/2° Elbow
2"	Min.	Min.	Min.	Min.
4"	Min.	Min.	Min.	Min.
6"	Min.	Min.	Min.	Min.
8"	2'3" X 2'3"	2'8" X 2'8"	Min.	Min.
10"	2'10" X 2'10"	3'6" X 3'6"	2'6" X 2'6"	Min.
Minimum thrust block bearing to be 2 Sq. Ft.				

C. LAYING. Damaged or unsound pipe or fittings will be rejected. Pipe shall be laid with bells facing in the direction of laying. Joints shall be made as specified above. Before joining the pipe, all lumps, blisters, excess coating material, and any grease or oil shall be removed from gaskets and the bell and spigot ends of the pipes.

D. PIPE BEDDING. Pipe shall be laid in a flat bottom trench with backfill material approved by the Owner deposited into the trench uniformly at both sides of the pipeline for the full width of the trench, up to the horizontal diameter of the pipeline.

4. BACKFILLING FOR TRENCHES

A. GENERAL. When the pipe is laid, the Contractor shall backfill under and around the pipe until the pipe is covered with sufficient material to hold the pipe in position when firmly tamped. The remainder of the trench shall then be carefully backfilled simultaneously on both sides of the pipe. Broken concrete or pavement, blasted rock and large boulders shall not be used as backfill materials. Any trenches improperly backfilled, or where settlement occurs shall be repaired as directed by the Owner. The ground shall be graded to a reasonable uniformity and the required amount of mounding over the trenches left in a uniform and neat condition. Before final acceptance is made, the Contractor shall travel the line with the Owner and any settled places shall be repaired as directed by the Owner. It is the intent of these Specifications to secure a condition where no further settlement of trenches will occur after backfilling is completed.

B. BACKFILLING FOR TRENCHES IN UNPAVED AREAS. The entire backfill for trenches in areas other than areas to be paved as indicated in the Approved plans shall be repaired as directed by the Owner. It is the intent of these Specifications to secure a condition where no further settlement of trenches will occur after backfilling is completed.

C. BACKFILL IN PAVED AREAS. In areas of existing or proposed pavement or rock surfaces, the entire backfill shall consist of well-graded 1" minus crushed limestone. The backfill material shall be compacted by an acceptable method to insure that no settlement of the completed backfill will occur. All areas of existing pavement damaged during construction shall be repaved with three inches of Type C asphaltic pavement and installed in accordance with the latest edition of the Missouri Standard Specifications for Highway Construction. Edges of the existing pavement shall be neatly cut in a straight line, removing all damaged pavement, prior to repaving.

D. RESPONSIBILITY OF CONTRACTOR FOR BACKFILL SETTLEMENT. The Contractor shall be responsible for the satisfactory compaction of backfill material described. If any trenches or other excavation are found to have settled, they shall be immediately reworked by the Contractor and restored to the specified grades. In addition, the Contractor shall be responsible for all damage or damages which might result from settlement of backfill made by him of the fulfillment of his contract within and during the period of one year from and after the date of final acceptance thereof by the Owner.

E. FINISH GRADING. The finishing of side slopes, cuts, and fills shall be reasonably smooth uniform surfaces that will merge with the adjacent terrain without noticeable break.

F. PROTECTION OF EXISTING SEWERS, STRUCTURES, OR UTILITIES. Where new lines approach, cross, connect to, or run parallel to existing sewer, structures, or other utilities, the Contractor shall be held completely responsible for protecting, preserving, and otherwise maintaining existing improvements during construction of the new lines. Any damage inflicted must be promptly repaired to the satisfaction of the Owner. Costs involved for any and all repairs shall be at the Contractor's expense.

G. TESTING WATERLINES. All newly laid lines shall be tested before being placed in service. Trenches may be backfilled as the pipe is laid; or where practicable, trenches or bell holes may be left open for visual inspection during tests. Prior to making tests, all air shall be expelled from the pipe. If hydrants or blow-offs are not available at high points of the lines, suitable taps shall be provided at such points.

A two (2) hour hydrostatic test shall be made on the pipeline between valves or temporary lugs at a test pressure of at least 50 percent (50%) in excess or normal operating pressure. Any open trench or bell holes may over dry joints may be backfilled following this test. Where trenches have been

backfilled prior to making the test, any leaks evident at the surface shall be remade and retested. All pipes, fittings, valves, hydrants, and other materials found defective under this test shall be removed and replaced. Allowance pressure drop during the two (2) hour test shall be limited to 3% of the test pressure.
After hydrostatic tests have been satisfactorily completed, a two (2) hour leakage test shall be made on the pipeline valves or temporary plugs at a constant test pressure of 75 pounds per square inch.

Leakage in the test system shall be measured through a meter or approved measuring device. The allowable leakage shall not be greater than 10 gallons per 24-hour day per mile of pipe per inch nominal diameter of pipe. Should tests disclose leakage greater than the allowable amount, locate and repair defective joint(s) until the leakage is within the specified allowance.

5. WATER MAINS NEAR SEWERS

A. HORIZONTAL SEPARATION. Water mains shall be laid at least ten feet (edge to edge) horizontally from any sanitary sewer, storm sewer or sanitary manhole. When local conditions prevent a lateral separation of ten (10) feet, the Missouri Department of Natural resources may allow deviation on a case-by-case basis, provided the data from the design engineer supports the deviation. Such deviation may allow installation of the water main closer than ten (10) feet to a sanitary or storm sewer, provided that the water main is laid in a separate trench, or on an undisturbed earth self located on one side of the sewer at such an elevation that the bottom of the water main is at least 18 inches above the top of the sewer. When it is impossible to obtain proper horizontal and vertical separation as stipulated above, either the water main or sewer must be constructed of mechanical joint pipe or encased in a continuous casing.

B. VERTICAL SEPARATION. Whenever water main must cross sanitary sewers, house sewers, or storm drains, the water main shall be laid to provide a minimum vertical clear distance of 18 inches between the outside of the water main and the outside of the sewer. This shall be the case where the water main is either above or below the sewer. At crossings, the full length of water pipe shall be located so both joints will be as far from the sewer as possible but in no case less than ten (10) feet. Special structural support for the water and sewer pipes may be required. In areas where the recommended separations cannot be obtained either the waterline or the sewer line shall be constructed of mechanical joint pipe or cased in a continuous casing that extends no less than ten (10) feet on both sides of the crossing.

C. UNUSUAL CONDITIONS. Where conditions prevent the minimum vertical separation set forth above from being maintained, a variance must be submitted to the Missouri Department of Natural Resources for approval.

D. FORCE MAINS. There shall be minimum horizontal separation of ten (10) feet between water mains and sanitary sewer force mains and they shall be in separate trenches. Where conditions prevent the minimum horizontal separation, either the water main or the force main shall be encased in a continuous casing.

E. DISPOSAL FACILITIES. Water mains shall be laid at least twenty-five (25) feet from any on-site wastewater disposal facility, agricultural waste disposal facility, or landfill.

6. DISINFECTING WATER LINES

A. GENERAL. The interior of all pipe, fittings, and other accessories shall be kept free as possible from dirt and foreign matter at all times.

Every precaution shall be used to protect the pipe against the entrance of foreign material before the pipe is placed in the new line. At the close of the day's work or whenever the workmen are absent from the job, the end of the last laid section of pipe shall be plugged, capped or otherwise tightly closed to prevent the entry of foreign material of any nature. If the pipe laying crew cannot put the pipe into the trench and in place without getting earth into it, the Owner may require that before lowering the pipe into the trench, a heavy, tightly-woven canvas bag of suitable size shall be placed over each end, and left there until the connection is to be made to the adjacent pipe.

At times when pipe laying is not in progress, the open ends of pipe shall be closed by a watertight plug or other means approved by the Owner. Joints of pipe in the trench shall be made before the work is stopped. This provision shall apply during the noon hour as well as overnight.

B. FLUSHING AND DISINFECTING COMPLETED PIPELINES. The following method, or a method preferred by the owner of the water system, shall be utilized. Disinfecting of the completed line shall be done in a manner approved and recommended by the Missouri Division of Health, and in accordance with the latest edition of the AWWA Standards.

Prior to chlorination, the main shall be flushed as thoroughly as possible with the water pressure and outlets available. Flushing shall be done after the pressure tests are made. It must be understood that such flushing removes only the lighter solids and cannot be relied upon to remove heavy material allowed to get into the main during laying.

Unless extreme care and thorough inspection is practiced during the laying of water mains, small stones, pieces of concrete, particles of metal, or other foreign material may gain access to mains newly laid. If it is believed that such foreign material may be in the main, it shall be thoroughly flushed and valves carefully inspected after flushing to see that the entire valve operating mechanism is in good condition.

Subsequent to flushing, the following procedure shall be followed in disinfecting the water mains.

1. Close off section of distribution system that is to be disinfected.

2. Prepare 1% chlorine solution as shown in the following table:

Product	Amount of Compound	Quantity of Water to Add to Make 1% Solution
High Test Calcium Hypo-Chlorite (65-70% Chlorine, HTH Parachloron, etc.)	1 lb.	7.5 gal.
Chlorinated Lime (32-35% Chlorine)	2 lbs.	7.5 gal.
Liquid Laundry Bleach (Purex or Clorox)	1 gal.	4.25 gal.

3. The amount of chlorine required per 100 foot length of various pipe sizes is as shown in the following table:

Pipe Size (in)	Volume of 100 ft. Length (gal)	Amount Required to Give 25 ppm Chlorine	
		100% Chlorine (lb)	1% Chlorine/Water (gal)
2	16.4	0.0034	1/24
4	65.3	0.0135	1/6
6	146.5	0.0305	3/8
8	261.0	0.054	2/3
10	408.0	0.085	1
12	588.7	0.123	1½

4. Introduce the chlorine solution with a positive displacement type pump at the same point where the water will be introduced into the section to be disinfected.

5. Fill the pipe slowly and be sure not to trap any air in the pipe. Close the section off that is to be disinfected when the pipe is full and under slight pressure. The solution should be allowed to remain in the pipe for 24 hours.

   NOTE: The detention time may be cut to three hours, provided a 100 ppm chlorine solution is used in place of the 25 ppm chlorine solution.

6. All valves or other appurtenances in the line being disinfected should be operated while the system is being filled with the chlorine solution.

   Following disinfection, all treated water shall be thoroughly flushed from the newly laid pipeline at its extremities until the replacement water throughout its length shall, upon test, be proved comparable to the quality of water approved by the Public Health authority having jurisdiction. The contractor or his representative shall arrange for any bacteriological testing of water samples that may be required. Collect and submit two (2) separate standard bacteriological samples, taken a minimum of 24 hours apart, for analysis to a State of Missouri certified laboratory. This quality of water delivered by the new main should continue for a period of at least two full days, as demonstrated by laboratory examination of samples taken from a tap located and installed in such a way as to prevent outside contamination. Samples should never be taken from an unsterilized hose or from a hydrant, because such samples seldom meet current bacteriological standards.

   Should the initial treatment fail to result in the condition specified in the preceding paragraph, the disinfection procedure shall be repeated until such results are obtained.

7. CLEANING OF THE GROUNDS

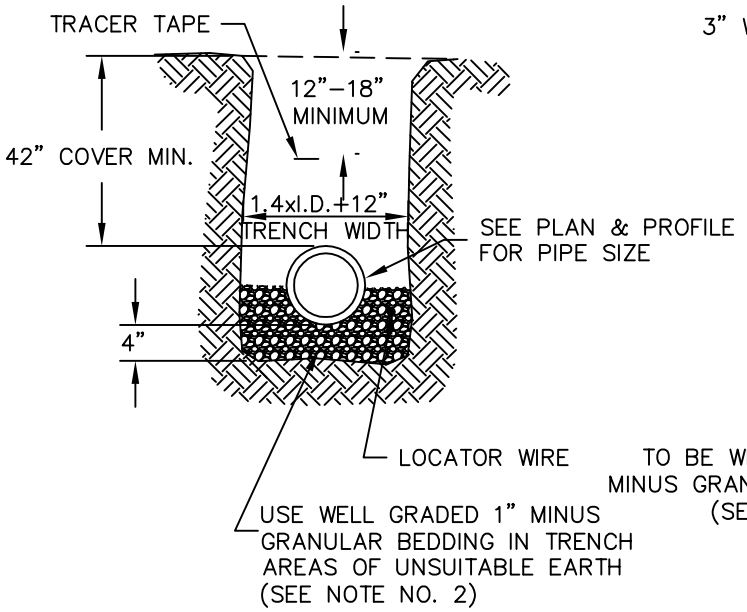
During the progress of the work, the Contractor shall remove and properly dispose of all debris and waste material. Upon completion and acceptance of the work, remove from the property of the Owner all equipment and facilities and unused materials provided by him in connection with the work and leave the grounds in a clean and orderly condition.

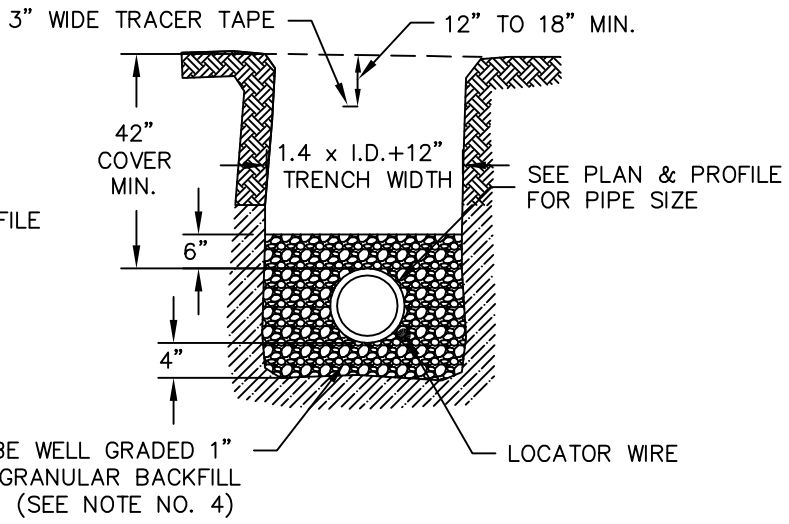
8. RESTORATION OF DISTURBED AREA

Any and all areas that are disturbed as a result of construction shall be restored to an "as good or better" condition as existed prior to being disturbed.

APPENDIX K

Supervised Program Standard Details





SOLID ROCK EXCAVATION

TYPICAL WATER MAIN
TRENCHING AND BEDDING DETAIL

NO SCALE

1. Backfill material for water main shall be suitable earth, free from large rocks or stones.

2. All trenches in areas of unsuitable earth used for water main shall have a bedding of well–graded, 1" minus, granular backfill from 4" below the bottom of the pipe to one–half the diameter of the pipe compacted to 95% of the Standard Proctor Density. (ASTM D–698)

3. In areas of clean dirt cuts outside of paved areas, trench may be backfilled with same material and compacted to 95% of the Standard Proctor Density. (ASTM D–698)

4. In areas of rock cut, the trench shall be backfilled with well–graded granular compacted material to six inches above top of pipe.

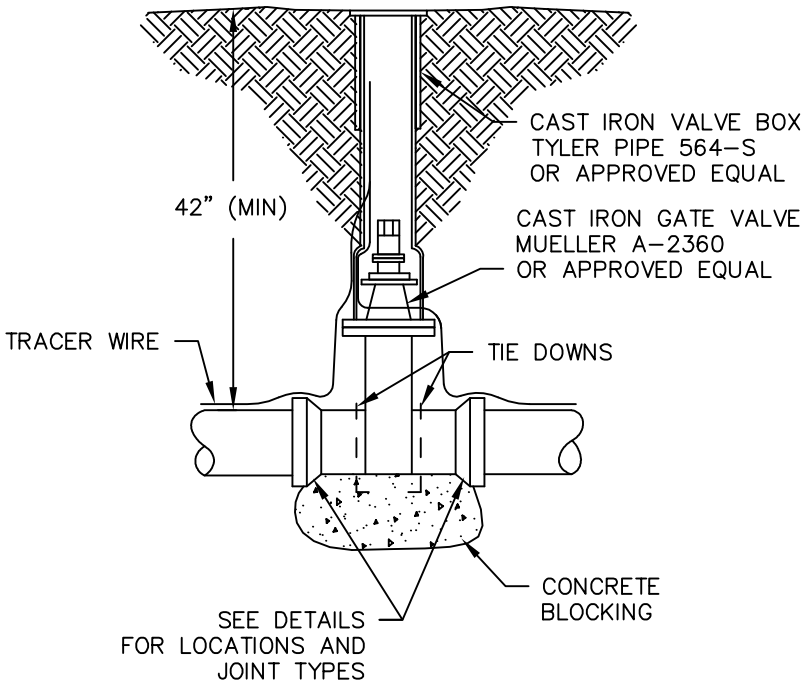
5. Contractor shall be responsible for trench settlement.

6. Well–graded 1" minus granular compacted backfill to be used in all areas to be paved.

7. Locator wire shall be #12 solid copper wire, insulated for 600 v. with splice points at valve boxes.

8. Tracer tape shall be 3" wide, bonded layer plastic with magnetic foil core, Terra Tape Detectable, manufactured by Griffolyn Co. of Houston, Texas, and shall have the words "Caution: WATER MAIN BURIED BELOW"

COCHRAN
530A E. Independence Dr.
Union, Missouri 63084
636–584–0540 (tel.)
636–584–0512 (fax)
mail@cochraneng.com
• Civil Engineering
• Land Surveying
• Architecture
• Site Development
• General Consulting
• Master Planning



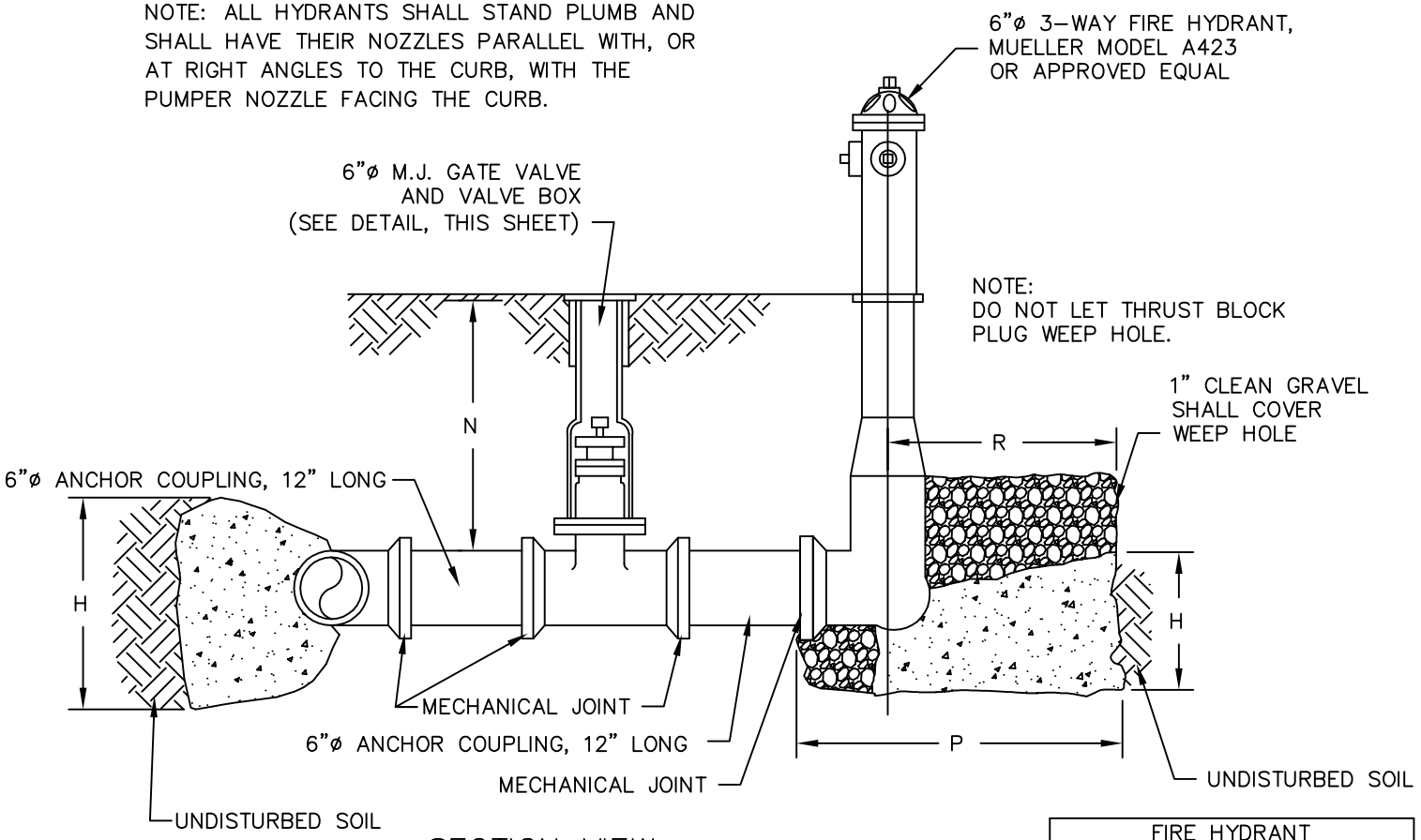
GATE VALVE & VALVE BOX DETAIL

NO SCALE

COCHRAN
530A E. Independence Dr.
Union, Missouri 63084
636-584-0540 (tel.)
636-584-0512 (fax)
mail@cochraneng.com
• Civil Engineering
• Land Surveying
• Architecture
• Site Development
• General Consulting
• Master Planning

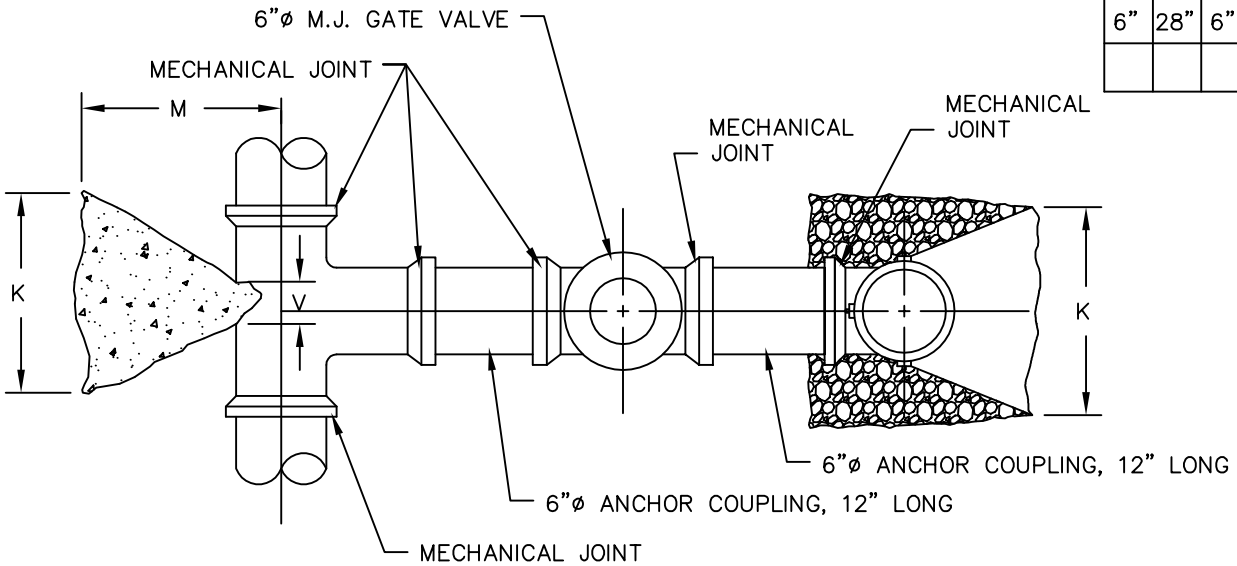
WRAP VALVE TO BOTTOM OF OPERATING NUT IN POLYETHYLENE ENCASEMENT AND SECURE.

NOTE: ALL HYDRANTS SHALL STAND PLUMB AND SHALL HAVE THEIR NOZZLES PARALLEL WITH, OR AT RIGHT ANGLES TO THE CURB, WITH THE PUMPER NOZZLE FACING THE CURB.



SECTION VIEW

FIRE HYDRANT THRUST BLOCK DIMENSIONS							
D	K	V	M	H	N	P	R
6"	28"	6"	24"	24"	42"	36"	30"



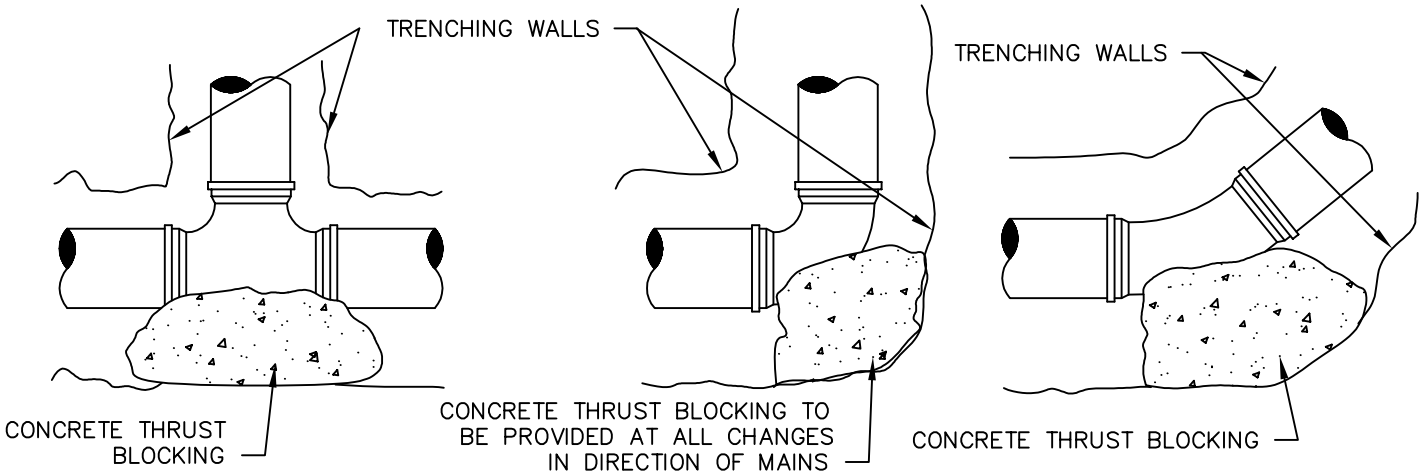
PLAN VIEW–FIRE HYDRANT, AUXILIARY VALVE AND VALVE BOX

PLAN VIEW

FIRE HYDRANT DETAIL

NO SCALE

COCHRAN
530A E. Independence Dr.
Union, Missouri 63084
636–584–0540 (tel.)
636–584–0512 (fax)
mail@cochraneng.com
• Civil Engineering
• Land Surveying
• Architecture
• Site Development
• General Consulting
• Master Planning



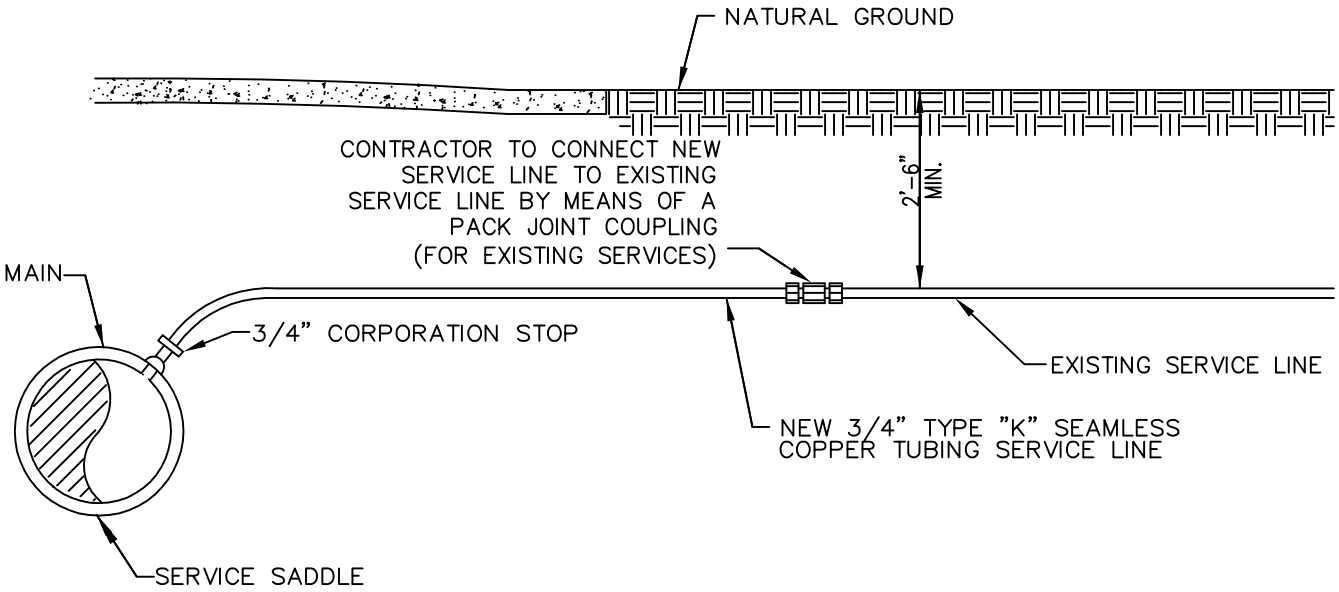
SQ. FT. OF THRUST BLOCK AREA REQ'D				
PIPE SIZE	DEAD END TEE OR IN-LINE VLV.	90° ELBOW	45° ELBOW	22-1/2" ELBOW
4"	MIN.	MIN.	MIN.	MIN.
6"	MIN.	MIN.	MIN.	MIN.
8"	2'3"x 2'3"	2'8"x 2'8"	MIN.	MIN.
10"	2'10"x 2'10"	3'6"x 3'6"	2'6"x 2'6"	1'6"x 2'
12"	3'x 7'3"	3'x 10'3"	2'x 3'6"	1'6"x 2'6"

MIN. THRUST BLOCK BEARING TO BE 2 SQ. FT

THRUST BLOCKING DETAIL

NO SCALE

COCHRAN
530A E. Independence Dr.
Union, Missouri 63084
636-584-0540 (tel.)
636-584-0512 (fax)
mail@cochraneng.com
• Civil Engineering
• Land Surveying
• Architecture
• Site Development
• General Consulting
• Master Planning

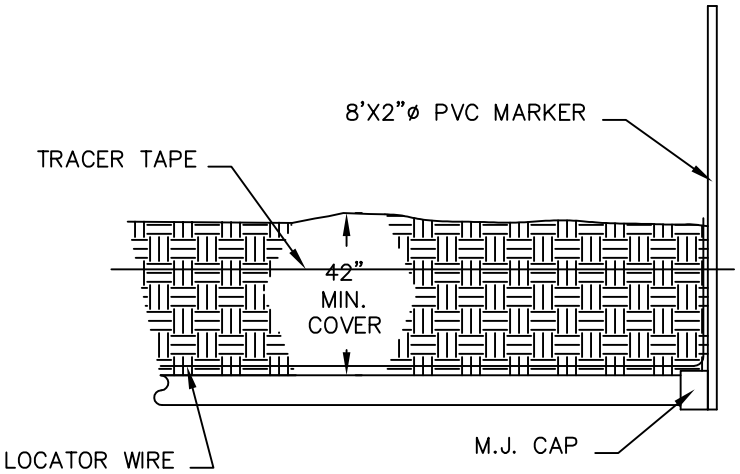


1) SERVICE SADDLE TO BE A MUELLER MODEL H-13433 FOR 8"ø WATER MAIN, H-13434 FOR 10"ø WATER MAIN OR APPROVED EQUAL.
2) CORPORATION STOP TO BE A MUELLER MODEL B-25008 OR APPROVED EQUAL
3) PACK JOINT COUPLING TO BE A FORD MODEL C44-33, OR APPROVED EQUAL (FOR EXISTING SERVICES)

WATER SERVICE CONNECTION DETAIL

NO SCALE

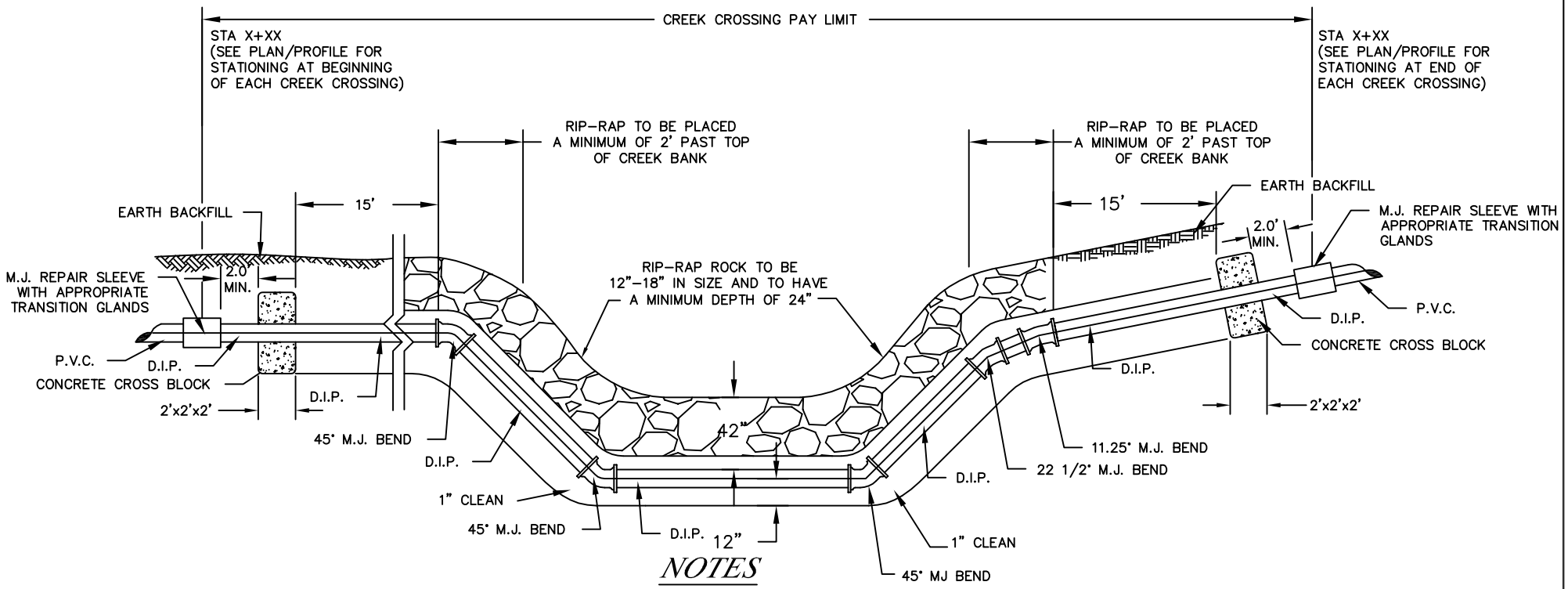
530A E. Independence Dr.
Union, Missouri 63084
636-584-0540 (tel.)
636-584-0512 (fax)
mail@cochraneng.com
COCHRAN
• Civil Engineering
• Land Surveying
• Architecture
• Site Development
• General Consulting
• Master Planning



WATER MAIN CAP AND MARK DETAIL

NO SCALE

COCHRAN
530A E. Independence Dr.
Union, Missouri 63084
636-584-0540 (tel.)
636-584-0512 (fax)
mail@cochraneng.com
• Civil Engineering
• Land Surveying
• Architecture
• Site Development
• General Consulting
• Master Planning



NOTES

A. INSTALL CROSS BLOCKS OUTSIDE LIMITS OF CREEK CROSSING.
(SEE TYPICAL CROSS BLOCK DETAIL)

B. NO JOINTS TO BE CONCRETE ENCASED.

C. PROVIDE "MEGALUG" RETAINER GLANDS FOR ALL BENDS

D. ALL D.I.P. JOINTS TO USE FIELD LOK GASKETS

CREEK CROSSING DETAIL

NOT TO SCALE

COCHRAN
530A E. Independence Dr.
Union, Missouri 63084
636-584-0540 (tel.)
636-584-0512 (fax)
mail@cochraneng.com
• Civil Engineering
• Land Surveying
• Architecture
• Site Development
• General Consulting
• Master Planning

APPENDIX L

Sample Inspection Form

COCHRAN

Architecture ● Civil Engineering ● Land Surveying ● Site Development ● Geotechnical Engineering ● Inspection & Materials Testing

DAILY CONSTRUCTION PROGRESS & INSPECTION / FIELD OBSERVATION REPORT

Representative: _____ Client Project No.: _____ Cochran Project No.: _____

Equipment & ID No.: _____ Project Name: _____

Vehicle: _____ Client: _____ Date: _____

Weather: _____ Contractor: _____

TIME: Arrive: _____ Depart: _____ Travel: _____ Total: _____

Equipment Working: _____

Site Activity / Observations / Contacts / Notes: _____

Brief Weather Summary Today including Approximate Rainfall and Periods of Below Freezing Temperature. (On earthwork jobs, include soil conditions.)

Summary of Laboratory and Field Testing Today. (Note failing tests and any retests. Summarize out-of-tolerance material.)

Describe Anticipated Work by Contractor for Next Period.

Problem Areas/Other Comments. (Revisions to Plans and Specifications Approved or Denied, Delays, Difficulties, etc. and Actions Taken.)

Notice: The Cochran representative is onsite to solely observe operations of the contractor identified, form opinions about the accuracy of those operations and report those opinions to the client. The presence and activities of the Cochran field representative do not relieve the contractor's obligation to meet contractual requirements. The contractor retains sole responsibility for site safety and the methods and sequences of construction.

Contractor Representative	Company
Signature	Date
Cochran Field Representative	Date
Engineer's Signature	Date

ORIGINAL: PM/File **COPIES:** 1-Job Site 1-CMT Manager

8 East Main Street
Wentzville, Missouri 63385
Telephone: 636-332-4574
Fax: 636-327-0760

530A East Independence Drive
Union, Missouri 63084
Telephone: 636-584-0540
Fax: 636-584-0512
www.cochraneng.com

737 Rudder Road
Fenton, Missouri 63026
Telephone: 314-842-4033
Fax: 314-842-5957

APPENDIX M

Updated Map of System

PROPOSED PRESSURE ZONES - WEST