

Town of Canandaigua

5440 Route 5 & 20 West
Canandaigua, NY 14424

ENGINEER'S REPORT

for the

CRAMER ROAD WATER DISTRICT EXTENSION TO THE TOWN OF CANANDAIGUA CONSOLIDATED WATER DISTRICT

January 2010

(Updated September 2020)

MRB Group Project No. 0300.18004.000

Prepared by:

MRB | *group*

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The following is an excerpt from the New York Education Law Article 145 Section 7209 and applies to this document.

"It is a violation of this law for any person unless he is acting under the direction of a Licensed Professional Engineer or Land Surveyor to alter an item in any way. If an item bearing the Seal of an Engineer or Land Surveyor is altered, the Altering Engineer or Land Surveyor shall affix to the item his Seal and the Notation 'Altered By' followed by his signature and the date of such alteration and a specific description of the alteration".

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I. INITIATION AND BACKGROUND

The Canandaigua Town Board has contracted with MRB Group, P.C. to prepare an engineering report, district map and legal description. These items are required by Town law to form an Extension to the Canandaigua Consolidated Water District (WB 247) as described below.

The Town of Canandaigua adopted a Water Master Plan in 2017 that comprehensively reviewed the Town's water system and provided an implementation plan, which included a timeline for future projects based on short-term or long-term needs. The Cramer Road Water District Extension, identified as a mid-term action, will interconnect two portions of the Canandaigua Consolidated Water District via Cramer Road. This loop between the two existing district areas will enhance water quality and flows within the surrounding district. Additionally, the loop would allow Middle Cheshire Road to be supplied by the Cramer Road Tank in the event that the existing watermain is shut down north of the intersection with Rock Oak Hill Road. In addition to the benefits to the surrounding district, the improvements will provide service and fire protection to the existing residences on Cramer Road, which currently have groundwater wells that produce limited quantities of poor quality water.

The proposed Cramer Road Water District will include the installation of an 8-inch main and appurtenances. The new 8-inch main will connect to the existing 8-inch main on Cramer Road, located approximately 900 feet southeasterly from the intersection of Cramer Road and Rock Oak Hill Road. The 8-inch main will then continue southeasterly along Cramer Road, approximately 3,800 lineal feet to a connection with an existing 8-inch main on Cramer Road located in WD 242, being Extension 16 to the Canandaigua Consolidated District. This connection on Cramer Road is located approximately 1,400 feet west of Middle Cheshire Road measured along Cramer Road.

II. PROJECT PLANNING AREA

A. LOCATION:

The proposed Cramer Road Water District Map is shown in Appendix G at the end of this report. Note that the westerly portions of twelve parcels located on Middle Cheshire Road have been included in the Cramer Road District. These parcels are supplied with water from Middle Cheshire Road and are currently in the Canandaigua Consolidated Water District (WD 272). The purpose of including the westerly portion of these properties is to make the two water districts contiguous and eliminate a non-included gore between the districts.

Costs for the Cramer Road Water District will be borne by the nine parcels with property frontage on Cramer Road. The westerly portion of the twelve parcels on Middle Cheshire Road will bear no additional costs for the Cramer Road District. These parcels are identified in the assessment information in Appendix I.

B. ENVIRONMENTAL RESOURCES PRESENT:

The project area is rural in nature. A review of available mapping (included in Appendix C) indicates that there are no New York State wetlands in the project area. There is a small Federal Wetland area approximately 550 feet west of Cramer Road. This project will not impact this wetland.

Approximately 105 acres of the proposed Cramer Road Water District is in Ontario County Agricultural District No. 1 (refer to Appendix D). The new 8-inch main will be installed within the right-of-way of Cramer Road and will not adversely affect the Agricultural District.

There are no mapped archaeologically sensitive areas to impact this new water district (refer to Appendix B).

The project is typical of previous water improvement projects in terms of the environmental resources present, and the associated permits that will be necessary from the NYSDEC and USACOE.

There does not appear to be any environmental or cultural resources that will be prohibitive to the development of the project. All appropriate environmental and cultural resources will be investigated and documented as part of the required State Environmental Quality Review (SEQR).

C. LONG RANGE PLANNING:

The Town of Canandaigua has maintained an accurate hydraulic model for Town's Consolidated Water District for several years. Utilizing the hydraulic model and the hydraulic analysis performed by MRB Group (last updated for the Water Master Plan in 2016), the Town has managed the expansion of the distribution system. The Cramer Road Watermain Extension was identified as a priority due to the poor water quantity and quality in this area, as well as completing a system loop that would eliminate two long dead end watermains. This Engineer's Report discusses the feasibility of the extension as well as the associated costs of the extension for the purpose of creating a district extension to provide public water to the residents along Cramer Road.

III. EXISTING FACILITIES

A. LOCATION MAP

The project area is shown on enclosed Aerial Map.

B. HISTORY

The Town of Canandaigua currently has extensive public water facilities and can be classified as a medium public water system, serving less than 50,000 people (but greater than 3,300) through approximately 2,380 services in the Town of Canandaigua. The Town owns and maintains the infrastructure, which consists of approximately 77 miles of distribution main.

C. CONDITION OF FACILITIES

The connection points for the supply of water to the proposed extension are the existing 8-inch mains at each end of Cramer Road. (All of the watermain is relatively new and reportedly in good condition).

D. FINANCIAL STATUS OF OPERATING CENTRAL FACILITIES

The Town of Canandaigua will own, operate and maintain the extension, after it is constructed, certified and approved by the New York State Department of Health (NYSDOH). The Town currently operates and maintains the existing water infrastructure within the Town Consolidated Water District and extension thereof, and the Canandaigua – Bristol Water District.

The Town's operating water budget from 2020 is approximately \$1,737,873. The Town's current water rate is approximately \$4.35 per 1,000 gallons based on a typical use of 51,000 gallons per year at the Town's rate structure. The Operation and Maintenance charge assessed to all customers of the Town of Canandaigua Consolidated Water District is \$0.65 per thousand dollars of assessed valuation.

IV. NEED FOR PROJECT

A. HEALTH AND SAFETY

The project is necessary due to continued quantity and quality problems with individual well supplies and will provide the surrounding district with redundant access to water in the event of a watermain break north of the Cramer Road water tank.

B. SYSTEM O&M

As stated previously, system operation and maintenance of the facilities will be the responsibility of the Town.

C. GROWTH

The road identified in this report is not considered to be a major growth corridor. The purpose of this project is to provide access to public water by constructing new water distribution main. Standard professional practice dictates that 8-inch is the minimum size distribution main that should be installed as confirmed by the Town's hydraulic model.

V. ALTERNATIVES CONSIDERED

A. DESCRIPTION

The only reasonable alternative for the provision of public water in the study area is to connect to the existing water supply system in the area and extend the distribution mains accordingly. A full description of the project is included in Section VI.

B. DESIGN CRITERIA

The design criteria will be as outlined in “Recommended Standards For Water Works, 2012” (Ten States Standards) and/or the requirements and approval conditions of the New York State Health Department. The system will be designed for a minimum working pressure of 35 psi, and a minimum fire flow of 500 gpm at 20 psi residual pressure.

C. SCHEMATIC LAYOUT

A schematic layout of the project is shown on the enclosed aerial map in Appendix A.

D. ENVIRONMENTAL IMPACTS

The potential environmental impacts are discussed in Section II.B.

E. LAND REQUIREMENTS

It is anticipated that the majority of the project will be constructed within Town road rights-of-way. Selected easements may be required depending upon site constraints.

F. CONSTRUCTION PROBLEMS

Based on the information presently available, no significant construction problems are anticipated. In general, the project will be constructed in open areas within the Town road rights-of-way.

G. COST ESTIMATES

Cost estimates for the project are presented in Section VI.

H. ADVANTAGES/DISADVANTAGES

The proposed project contemplates the provision of public water along a road where connections to existing water supplies are readily available. The water supply network is capable of supplying the necessary volume of water to the area, with adequate pressures and flows. The proposed watermain completes a system loop along Cramer Road identified as a priority in the Town's Water Master Plan. The loop will provide increased fire flows and more consistent pressures to this area of the Town, eliminate the potential for water service interruption, improve water quality, reduce the amount of water lost due to flushing of dead-end mains, and eliminate two long sections of dead end watermain. Each of these points can be considered advantages to proceeding in the manner prescribed. There are no discernable disadvantages, as there are no other reasonable alternatives.

VI. PROPOSED PROJECT

A. PROJECT DESIGN

1. Water Supply

Presented in Table VI.1 is a projection of the water supply requirements in the proposed service area.

Table VI.1: Water Supply Requirements

WATER SUPPLY REQUIREMENTS		
	Year	Year
	2020	2040
Number of Equivalent Dwelling Units ⁽¹⁾	7	8
Estimated Average Daily Flow (GPD) per EDU	140	140
Estimated Average Daily Flow (GPD)	980	1,120
Total Annual Requirement (MG/Y)	0.36	0.40
Estimated Maximum Day Requirement ⁽²⁾ (GPD)	1,960	2,240
⁽¹⁾ Equivalent Dwelling Units (EDU) are herein defined as being an occupied unit, with water use generally equivalent to that of a single family home. To be conservative, this will also include the residential vacant property as 1 EDU.		
⁽²⁾ Peak Factor = 2.0		

Projected water use in the year 2040 is based on population projections published by the Genesee Finger Lakes Regional Planning Council, which indicate an approximate 14% increase in population in the Town of Canandaigua by the year 2040, or the equivalent of approximately one new home in the service area.

The water supplier will be the Town of Canandaigua via the City of Canandaigua water supply. The Town will purchase water from the City at its existing metered connection on 3178 West Street at the City/Town line at a cost of \$2.37/1,000 gallons.

2. Treatment

Water treatment is the responsibility of the suppliers. No water treatment improvements are proposed as part of this project.

3. Storage

No water storage tank improvements are proposed as part of this project.

4. Pumping Stations

No pumping facilities are necessary for this project.

5. Distribution Layout

The proposed 8" PVC watermain will connect an existing 8" watermain on Cramer Road, located approximately 900 feet southeasterly from the intersection of Cramer Road and Rock Hill Road. The new main will extend approximately 3,800 LF to the southeast, along Cramer Road to connect with an existing 8" main, located in the Canandaigua Consolidated Water District.

6. Preliminary Hydraulic Calculations

Working pressures in the study area are anticipated to range between approximately 75 and 85 psi. Available fire flows are anticipated to be at least 1,000 gpm at 20 psi residual pressure.

B. HOMES, POPULATION AND BUSINESSES SERVED

It is estimated that the project will serve 7 Equivalent Dwelling Units (EDU's), which are defined as an occupied unit with anticipated water use generally equivalent to that of a single family home. Residential vacant land has also been included as an EDU to be conservative. The 2 agricultural parcels within the district were not counted towards the total EDU count. There are approximately 2.62 people per household (U.S Census Bureau data for the Town of Canandaigua indicates 2.62 per household); therefore the estimated population of the service area is about 18.

The estimated breakdown of EDU's is as follows:

Table VI.2: Equivalent Dwelling Units Summary

Property Use	Number in Proposed District	No. of EDU's Per Each	Total EDU's
Single Family Homes	6	1	6
Rural Vacant	1	1	1
Field Crops / Other Stock	2	0	0
		Total EDU's	7

C. NEW/EXISTING DISCHARGES TO OR WITHDRAWALS FROM SURFACE OR GROUNDWATERS

Other than the required flushing of the new water mains for disinfection and testing, no discharges to, or withdrawals from, surface or ground waters is anticipated.

D. VOLUME OR LOADING OF POLLUTANTS TO RECEIVING WATERS

No increases in volume or loading of pollutants from existing discharges to receiving waters are anticipated with the project.

E. CAPITAL COST ESTIMATE

The program costs have been developed using projections of 2020/2021 construction cost factors that MRB|group feels are representative of market conditions in this region and are based on 2020 material bids for similar types of projects. The construction cost estimate is based on the installation of the watermain by Town Forces.

Table VI.3 represents the cost estimate that has been prepared for the project.

Table VI.3: Preliminary Project Cost Estimate

Construction Cost Items	Quantity	Unit	Unit Cost	Total Cost
Connection to Existing	2	EA	\$1,500	\$3,000
8" DR-14 PVC Watermain	3,800	LF	\$20.00	\$76,000
8" Gate Valves	4	EA	\$1,850	\$7,400
Hydrant Assembly Units (complete)	6	EA	\$3,000	\$18,000
Water Service	7	EA	\$1,250	\$8,750
Gravel Drive Restoration	450	SF	\$3	\$1,350
Lawn/Field Restoration	1	LS	\$7,000	\$7,000
Road Restoration (Stone & Asphalt)	1	LS	\$3,500	\$3,500
Subtotal Construction Cost				\$125,000
Contingency (10%)				\$12,500
Total Construction				\$137,500
Engineering, Legal and Admin. (20%)				\$27,500
Total Project Costs				\$165,000

F. ANNUAL OPERATING BUDGET

1. Income

The Town will operate and maintain the watermain extension similar to the Town's existing water districts.

a. Water Rate

The current water usage rate for the Town of Canandaigua Consolidated Water District is approximately \$4.35 per 1,000 gallons of water (for a 1" service the minimum bill \$43.50 for up to 1,000 gallons of water and \$4.35 per 1,000 gallons for each additional thousand gallons over 10,000). Commodity charges will be made to all users on a quarterly schedule and based on their individual metered consumption times the adopted rates of the Town.

b. Operation and Maintenance Charge

An Operation and Maintenance (O&M) charge will be assessed to this extension of \$0.65 per thousand dollars of assessed valuation, which is similar to the rest of the Town's water districts. The O&M charge is collected annually.

2. Costs and Financing

Table VI.4 represents a summary of the Ad Valorem Charge Program within the Extension.

a. 202(b)

A project will be charged against the Canandaigua Consolidated Water District pursuant to NYS Town Law, which requires that the Town Board proportionately assign the cost of an extension between the benefit to the parent district and the properties within the extension. The extension will benefit the parent district by furthering the recommendations of the previous Canandaigua Hydraulic Analysis and Water Master Plan and as such, the full cost of the extension will be charged to the parent district.

b. Debt Service

No debt service is proposed for this project.

G. ANNUAL WATER CHARGE

The Annual Water Charge is the sum of the Debt Service Charge, Water Commodity Charge, and the Operation and Maintenance Charge for the highest year of the financed period. Table VI.5 represents a summary of the estimated Annual Water Charge to a "typical resident" within the Extension. The estimated Annual Water Charge is based on the average TAV of a typical resident of \$209,714 and an annual water consumption of 51,000 gallons per year (140 GPD). The estimated Annual Water Charge for the proposed extension is \$253.92 per resident (EDU).

Because of the rural setting of the proposed project, it should be noted that a few of the parcels served by the extension are currently vacant. The average TAV of an existing single family home within the Extension is \$240,916. Based on this average assessment, the average Annual Water Charge for an existing single family home for the proposed extension (excluding vacant parcels) is \$378.45 (\$156.60 as O&M and \$221.85 for water).

The New York State Dept. of Audit and Control (State Comptroller's Office) sets an annual threshold for the cost of water, O&M and debt service. This year (2020) the threshold for low cost water districts and extensions has been set at \$912. All water districts and extension projects that exceed the annual threshold must submit a full application to the State Comptroller's office for their review and approval. As demonstrated above, this extension with a total estimated annual charge of approximately \$373.63 for water does not require a review by the Comptrollers Office.

Table VI.4: Summary of the Estimated Annual Water Charge

Summary of Projected Annual Water Charge	
Estimated Debt Service	\$0.00
Estimated O & M Charge (\$0.65 / \$1,000 TAV)	\$156.60
Estimated Annual Commodity Charge @ 51,000 Gal/Year @ Town Rate Structure	\$221.85
Total Estimated Annual Charge to a Typical User (Debt Service & Water Used)	\$378.45

H. OTHER COSTS

In addition to the above annual water charge, there are associated charges for the connection to the existing watermain, a charge for water consumption, and a charge for operation and maintenance. The associated connection charges will include a hook-up charge (paid to the Town) and the cost for the installation of the water service to the house (paid to a private contractor).

The hook-up charge is a one-time charge paid to the Town of Canandaigua Water Department. This charge is currently estimated to be \$925 for a 1" water service and a 1"

meter unless otherwise approved by the Town of Canandaigua Town Board (The hook-up charge for a ¾" water service and a ¾" water meter is currently \$850). The hook-up charge includes the installation of the water service from the watermain to and including the curb-box, which is located at the right-of-way or easement line and the water meter. If the residence is located more than 500' from the road (or watermain) the Town requires the water meter to be located within a meter pit that would be located near the easement or right-of-way line. The current cost to purchase and install a meter pit is \$790. Below is an example of the hook up charge for 1" water service and meter (located within a meter pit) serving a residence that is located more than 500' from the road.

1" Water Service and Meter	\$925
1" Meter Pit	<u>\$790</u>
Total Hook-up Charge	\$1,715

The cost for installation of an individual water service from the curb box to the residence, and the cost for an individual pressure reducing valve are a one-time cost paid by the property owner to a private contractor. The cost is estimated to be approximately \$8-\$13 per foot of service, depending on local conditions and the contractor selected. The homeowner is responsible for all inside plumbing, which must include a pressure-reducing valve (PRV) as required by the Town of Canandaigua Water Ordinance. The typical cost for an installed PRV is \$150.

I. SHORT-LIVED ASSETS

The proposed project is a new water system with a design life of at least 40 years. There are no short-lived assets that would require the expenditure of capital dollars, other than the normal operation and maintenance expenses associated with operating the system. Operation and Maintenance costs are covered through the charge outlined above.

VII. CONCLUSIONS AND RECOMMENDATIONS

There is a need and a desire for public water to be supplied to the residents within the proposed extension. Additionally, these improvements will improve the hydraulics in the surrounding distribution system through the creation of a loop once Cramer Road is completed.

Based on the information provided in this report, and provided by the Town of Canandaigua, it is recommended that a water extension be created to accommodate the needs of the residents within the proposed extension, as well as the need for improvements to the Town's overall water distribution system. See Appendix G & H for the Map, Plan and Description for the proposed Cramer Road Extension to the Canandaigua Consolidated Water District.

All of the information gathered for this report will be presented at a public hearing. Following the public hearing, the Town board will pass a resolution indicating the SEQR determination for the proposed action as well as a resolution regarding the establishment of this extension.

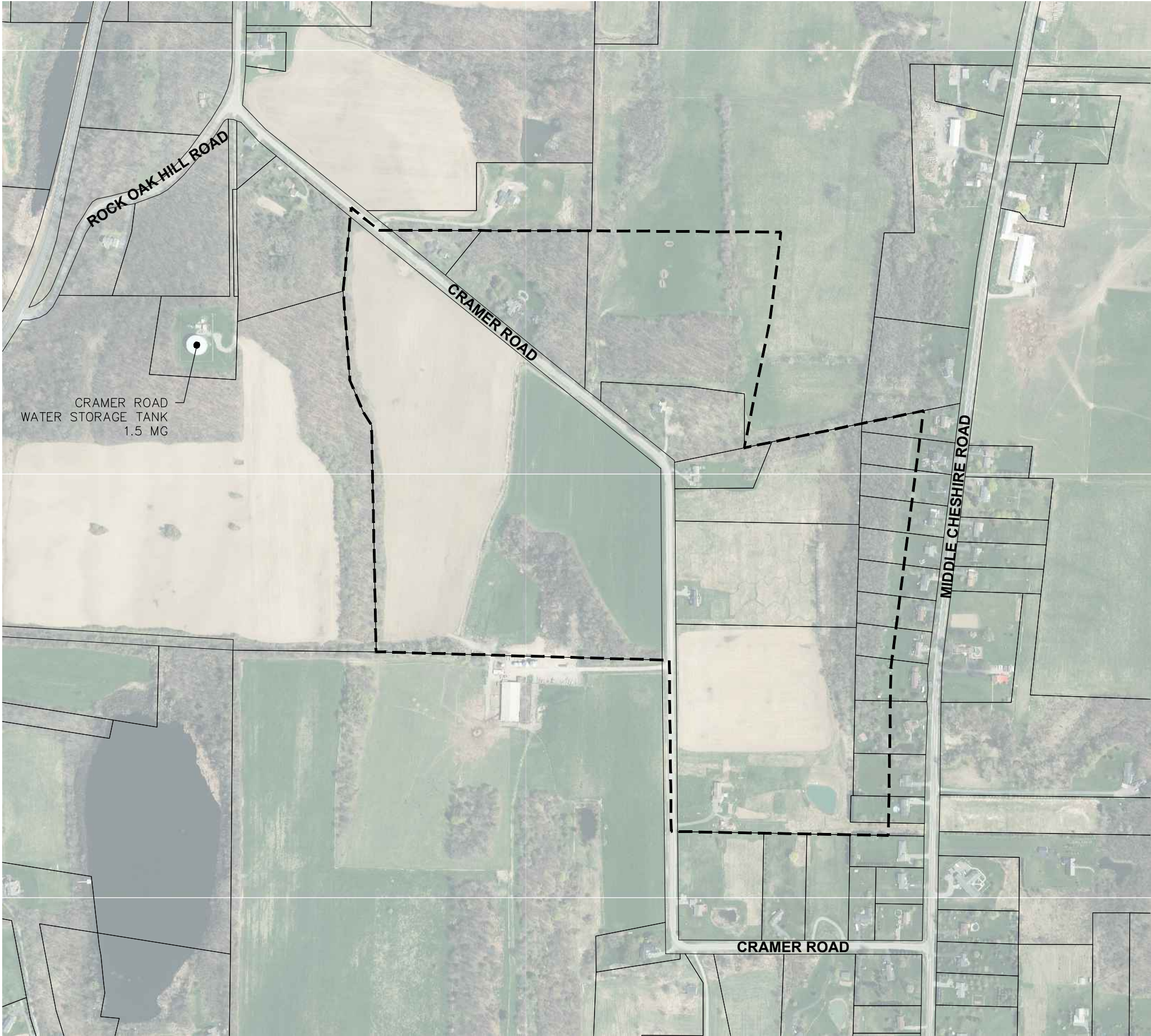
Respectfully submitted,

Gregory J. Hotaling, P.E.
MRB|group, P.C.

APPENDIX A

AERIAL MAP

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----- PROPOSED DISTRICT BOUNDARY

_____ PARCEL BOUNDARIES



DRAWING ALTERATION
THE FOLLOWING IS AN EXCERPT FROM THE NEW YORK EDUCATION LAW ARTICLE 145 SECTION 7209 AND APPLIES TO THIS DRAWING.
"IT IS A VIOLATION OF THIS LAW FOR ANY PERSON UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER OR LAND SURVEYOR TO ALTER AN ITEM IN ANY WAY. IF AN ITEM BEARING THE SEAL OF AN ENGINEER OR LAND SURVEYOR IS ALTERED, THE ALTERING ENGINEER OR LAND SURVEYOR SHALL AFFIX TO THE ITEM HIS SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY HIS SIGNATURE AND THE DATE OF SUCH ALTERATION AND A SPECIFIC DESCRIPTION OF THE ALTERATION".

Sheet No. A		MRB group Engineering, Architecture & Surveying, D.P.C. The Culver Road Armory, 145 Culver Road, Suite 100, Rochester, New York 14620 Phone: 585-381-9250 www.mrbgroup.com		Project Title: CRAMER ROAD WATER DISTRICT EXTENSION TOWN OF CANANDAIGUA ONTARIO COUNTY, NEW YORK		Project Title: CRAMER ROAD WATER DISTRICT EXTENSION TOWN OF CANANDAIGUA ONTARIO COUNTY, NEW YORK		No. REVISIONS AND DESCRIPTIONS		BY DATE	
_____ of _____		_____		_____		_____		_____		_____	
Project No. 0300.18004		_____		_____		_____		_____		Copyright © 2018 MRB Gray Engineers LLC. All Rights Reserved	

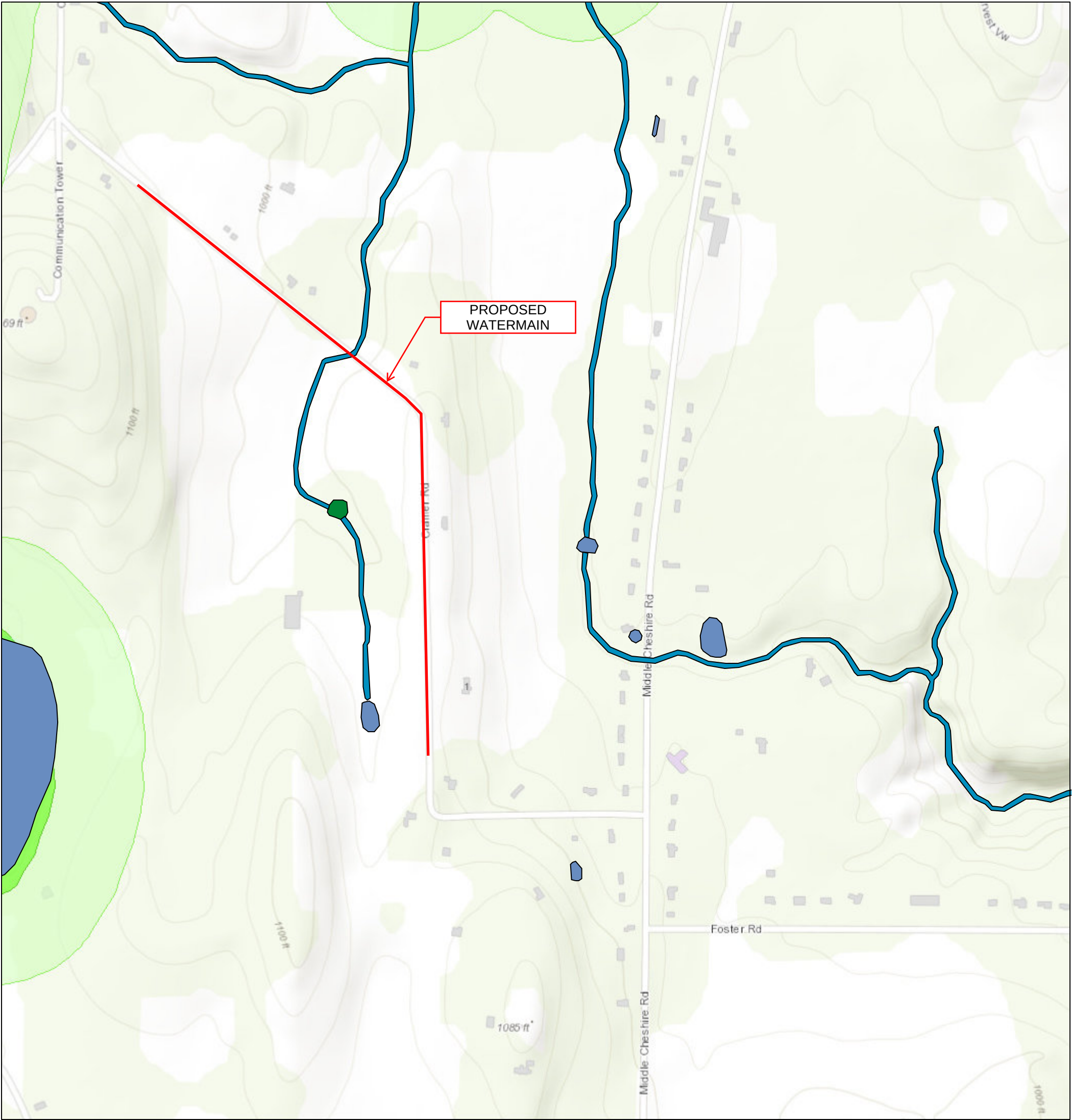
APPENDIX B

NYSHPO MAP

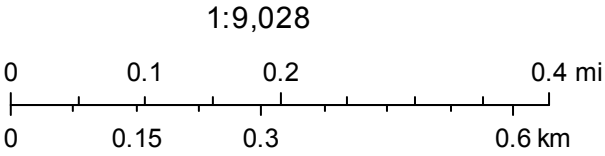
APPENDIX C

WETLANDS MAPS

Cramer Road Water District Extension



April 19, 2018



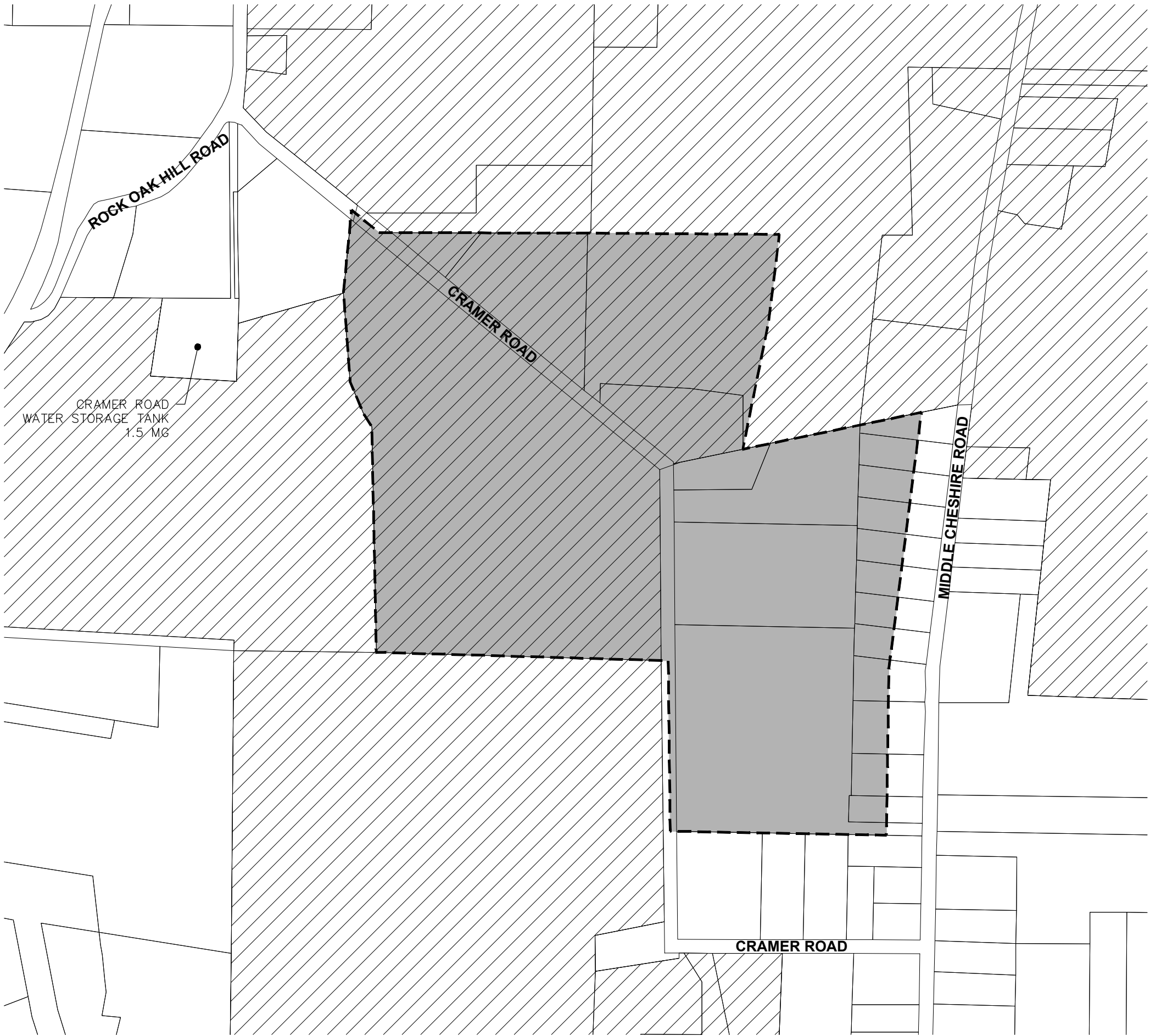
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap contributors, and the GIS User Community

Author: DAH
Not a legal document

APPENDIX D

AGRICULTURAL DISTRICT MAP

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PROPOSED DISTRICT BOUNDARY



ONTARIO COUNTY
AGRICULTURAL DISTRICT #1

DRAWING ALTERATION
THE FOLLOWING IS AN EXCERPT FROM THE NEW YORK EDUCATION LAW ARTICLE 145 SECTION 7209 AND APPLIES TO THIS DRAWING.
"IT IS A VIOLATION OF THIS LAW FOR ANY PERSON UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER OR LAND SURVEYOR TO ALTER AN ITEM IN ANY WAY. IF AN ITEM BEARING THE SEAL OF AN ENGINEER OR LAND SURVEYOR IS ALTERED, THE ALTERING ENGINEER OR LAND SURVEYOR SHALL AFFIX TO THE ITEM HIS SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY HIS SIGNATURE AND THE DATE OF SUCH ALTERATION AND A SPECIFIC DESCRIPTION OF THE ALTERATION".

Sheet No. D		Project No. 0300.18004	
_____ of _____		Project Title: CRAMER ROAD WATER DISTRICT EXTENSION TOWN OF CANANDAIGUA ONTARIO COUNTY, NEW YORK	
Drawn By: DAH		Drawing Title: AGRICULTURAL DISTRICT MAP	
Checked By: GJH		No. REVISIONS AND DESCRIPTIONS	
Scale: 1" = 500'		BY DATE	
Date: APRIL 2018		Copyright © 2018 MRB GRAY Engineers LLC. All Rights Reserved	

APPENDIX E

SEQR – SHORT FORM FOR UNLISTED PROJECT

Short Environmental Assessment Form

Part 1 - Project Information

Instructions for Completing

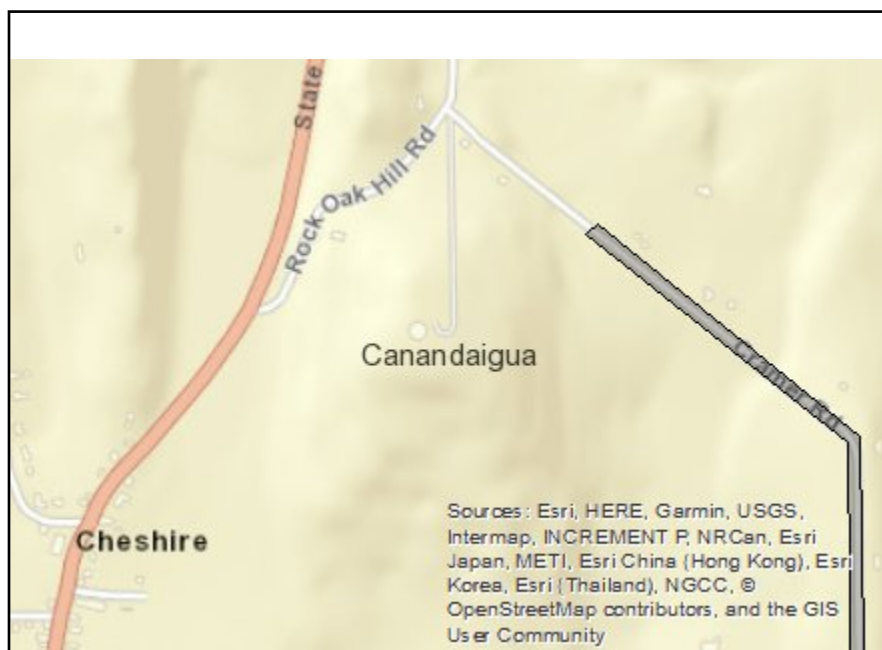
Part 1 - Project Information. The applicant or project sponsor is responsible for the completion of Part 1. Responses become part of the application for approval or funding, are subject to public review, and may be subject to further verification. Complete Part 1 based on information currently available. If additional research or investigation would be needed to fully respond to any item, please answer as thoroughly as possible based on current information.

Complete all items in Part 1. You may also provide any additional information which you believe will be needed by or useful to the lead agency; attach additional pages as necessary to supplement any item.

Part 1 - Project and Sponsor Information							
Name of Action or Project: Cramer Road Water District Extension to the Canandaigua Consolidated Water District							
Project Location (describe, and attach a location map): Town of Canandaigua - Cramer Road between Rock Oak Hill Road and Middle Cheshire Road							
Brief Description of Proposed Action: The project will include an extension of the existing Canandaigua Consolidated Water District and the installation of approximately 3,800 LF of 8-inch watermain connecting from the existing 8-inch watermain along the northern part of Cramer Road and extending along the remaining portion of Cramer Road where it will connect to an existing 8-inch watermain approximately 1,250 LF west of the Cramer Road/Middle Cheshire Road intersection.							
Name of Applicant or Sponsor: Town of Canandaigua - Town Board (Greg Westbrook, Town Supervisor)		Telephone: (585)394-1120 E-Mail: gwestbrook@townofcanandaigua.org					
Address: 5440 Route 5 & 20 West							
City/PO: Canandaigua		State: New York	Zip Code: 14424				
1. Does the proposed action only involve the legislative adoption of a plan, local law, ordinance, administrative rule, or regulation? If Yes, attach a narrative description of the intent of the proposed action and the environmental resources that may be affected in the municipality and proceed to Part 2. If no, continue to question 2.			<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">NO</td> <td style="text-align: center;">YES</td> </tr> <tr> <td style="text-align: center;">☒</td> <td style="text-align: center;">☐</td> </tr> </table>	NO	YES	☒	☐
NO	YES						
☒	☐						
2. Does the proposed action require a permit, approval or funding from any other governmental Agency? If Yes, list agency(s) name and permit or approval: Town of Canandaigua Town Board (District Formation), NYSDEC Permit (Stream Crossing), NYSDOH Plan Approval, ACOE Permit			<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">NO</td> <td style="text-align: center;">YES</td> </tr> <tr> <td style="text-align: center;">☐</td> <td style="text-align: center;">☒</td> </tr> </table>	NO	YES	☐	☒
NO	YES						
☐	☒						
3.a. Total acreage of the site of the proposed action? _____ 6.00 acres b. Total acreage to be physically disturbed? _____ 0.87 acres c. Total acreage (project site and any contiguous properties) owned or controlled by the applicant or project sponsor? _____ 6.00 acres							
4. Check all land uses that occur on, adjoining and near the proposed action. ☐ Urban ☒ Rural (non-agriculture) ☐ Industrial ☐ Commercial ☒ Residential (suburban) ☒ Forest ☒ Agriculture ☐ Aquatic ☐ Other (specify): _____ ☐ Parkland							

5. Is the proposed action, a. A permitted use under the zoning regulations?	NO	YES	N/A
	☐	☐	☒
	☐	☒	☐
6. Is the proposed action consistent with the predominant character of the existing built or natural landscape?	NO	YES	
	☐	☒	
7. Is the site of the proposed action located in, or does it adjoin, a state listed Critical Environmental Area? If Yes, identify: _____	NO	YES	
	☒	☐	
8. a. Will the proposed action result in a substantial increase in traffic above present levels? b. Are public transportation service(s) available at or near the site of the proposed action? c. Are any pedestrian accommodations or bicycle routes available on or near site of the proposed action?	NO	YES	
	☒	☐	
	☒	☐	
	☒	☐	
9. Does the proposed action meet or exceed the state energy code requirements? If the proposed action will exceed requirements, describe design features and technologies: _____	NO	YES	
	☐	☒	
10. Will the proposed action connect to an existing public/private water supply? If No, describe method for providing potable water: _____	NO	YES	
	☐	☒	
11. Will the proposed action connect to existing wastewater utilities? If No, describe method for providing wastewater treatment: _____ N/A	NO	YES	
	☒	☐	
12. a. Does the site contain a structure that is listed on either the State or National Register of Historic Places? b. Is the proposed action located in an archeological sensitive area?	NO	YES	
	☒	☐	
	☒	☐	
13. a. Does any portion of the site of the proposed action, or lands adjoining the proposed action, contain wetlands or other waterbodies regulated by a federal, state or local agency? b. Would the proposed action physically alter, or encroach into, any existing wetland or waterbody? If Yes, identify the wetland or waterbody and extent of alterations in square feet or acres: _____	NO	YES	
	☐	☒	
	☒	☐	
14. Identify the typical habitat types that occur on, or are likely to be found on the project site. Check all that apply: ☐ Shoreline ☒ Forest ☒ Agricultural/grasslands ☐ Early mid-successional ☒ Wetland ☐ Urban ☒ Suburban			
15. Does the site of the proposed action contain any species of animal, or associated habitats, listed by the State or Federal government as threatened or endangered?	NO	YES	
	☒	☐	
16. Is the project site located in the 100 year flood plain?	NO	YES	
	☒	☐	
17. Will the proposed action create storm water discharge, either from point or non-point sources? If Yes, a. Will storm water discharges flow to adjacent properties? ☐ NO ☐ YES b. Will storm water discharges be directed to established conveyance systems (runoff and storm drains)? If Yes, briefly describe: _____	NO	YES	
	☒	☐	

18. Does the proposed action include construction or other activities that result in the impoundment of water or other liquids (e.g. retention pond, waste lagoon, dam)? If Yes, explain purpose and size: _____ _____ _____	NO ☒	YES ☐
19. Has the site of the proposed action or an adjoining property been the location of an active or closed solid waste management facility? If Yes, describe: _____ _____ _____	NO ☒	YES ☐
20. Has the site of the proposed action or an adjoining property been the subject of remediation (ongoing or completed) for hazardous waste? If Yes, describe: _____ _____ _____	NO ☒	YES ☐
I AFFIRM THAT THE INFORMATION PROVIDED ABOVE IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE Applicant/sponsor name: <u>Greg Westbrook, Town Supervisor</u> Date: _____ Signature: _____		



Disclaimer: The EAF Mapper is a screening tool intended to assist project sponsors and reviewing agencies in preparing an environmental assessment form (EAF). Not all questions asked in the EAF are answered by the EAF Mapper. Additional information on any EAF question can be obtained by consulting the EAF Workbooks. Although the EAF Mapper provides the most up-to-date digital data available to DEC, you may also need to contact local or other data sources in order to obtain data not provided by the Mapper. Digital data is not a substitute for agency determinations.



Part 1 / Question 7 [Critical Environmental Area]	No
Part 1 / Question 12a [National Register of Historic Places]	No
Part 1 / Question 12b [Archeological Sites]	No
Part 1 / Question 13a [Wetlands or Other Regulated Waterbodies]	Yes - Digital mapping information on local and federal wetlands and waterbodies is known to be incomplete. Refer to EAF Workbook.
Part 1 / Question 15 [Threatened or Endangered Animal]	No
Part 1 / Question 16 [100 Year Flood Plain]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
Part 1 / Question 20 [Remediation Site]	No

APPENDIX F

SYSTEM HYDRAULICS

To: Greg Hotaling, PE

COPY:

FROM: Derek Anderson, PE

DATE: May 14, 2018

MRB GROUP PROJECT NO: 0300.18004.000

RE: CRAMER ROAD WATER DISTRICT EXTENSION

MRB Group perform a hydraulic analysis of the Town of Canandaigua water system to determine the impact of the proposed Cramer Road water district extension. The proposed water district extension is located in the Town of Canandaigua central service area.

The Cramer Road tank controls the hydraulic grade in the central service area. West Street pump station fills the tank with water purchased from City of Canandaigua. Pressures within the system are a function of system demands, tank level, and pump station operation. Demands in service areas to the north and east of the central service area, and the operation of the Pierce Park Pump Station also affect system pressures. The central service area supplies the adjoining service areas; the Pierce Park Pump station supplies water to the Canandaigua-Bristol Water District to the west.

Figure, HYD-1 (attached) shows the proposed water district extension and immediately surrounding portions of the central service area. The overall central service area extends north into West Bloomfield and south to Wells Curtice Road.

Under existing conditions, the central service area meets the Recommended Standards for Water Works (RSWW) for pressure and fire flow. The lowest system pressure, which is above 35 psi, occurs at the highest point in the existing distribution system near 2605 Nott Road. The highest pressures occur at the discharge of the West Street Pump Station. Anticipated pressure ranges within the existing central service area are listed on the attached, Existing table.

The attached tables include columns labeled "Available Flow at Hydrant," and "Design Flow." Available Flow at Hydrant is the flow available at a junction (ID) when the residual pressure at the junction is 20 psi. Design Flow is the flow available at a junction when the minimum system pressure is 20 psi. Three

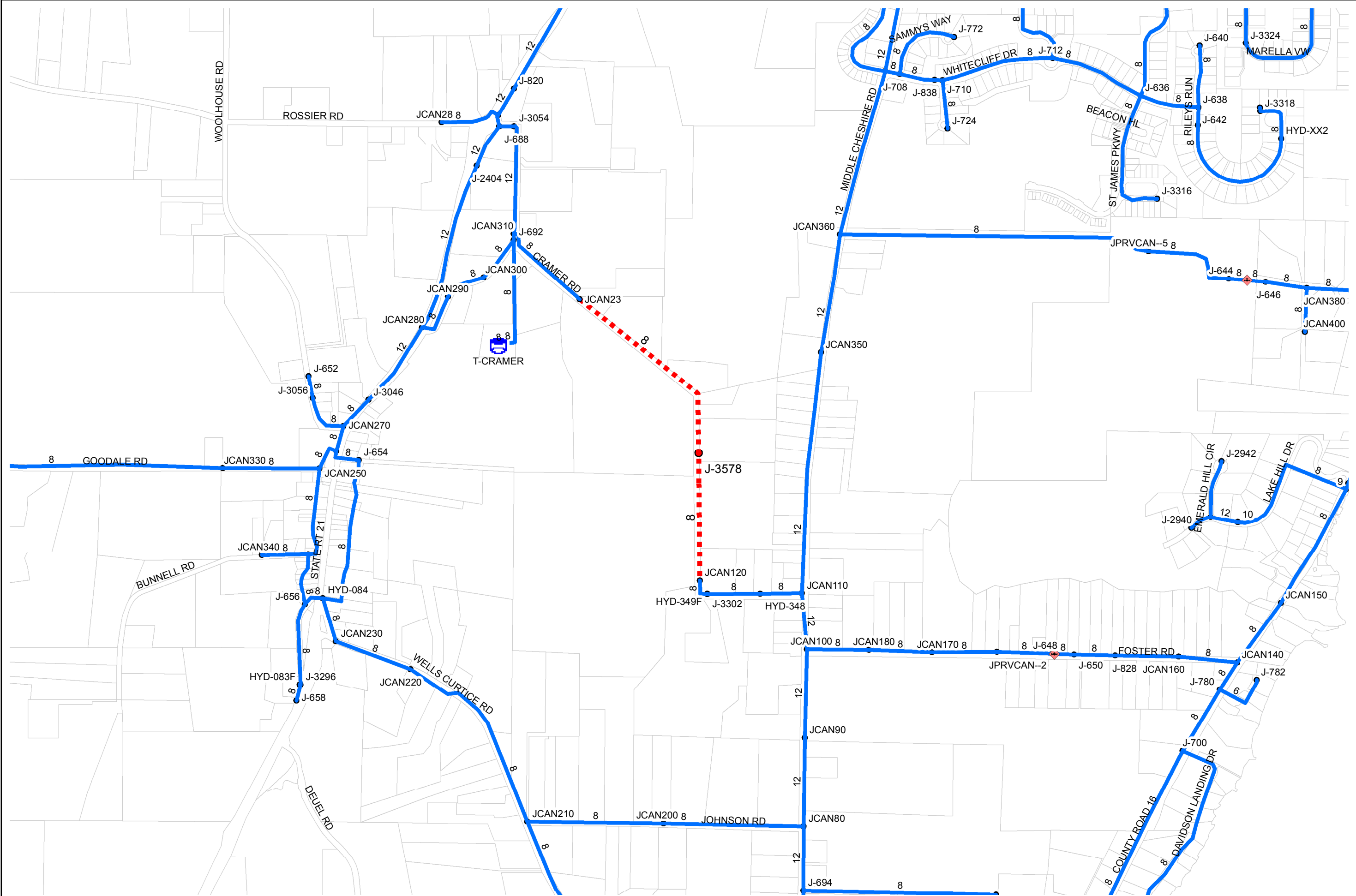
column labels start with, "Critical Node." These columns identify the junction in the service area with the lowest pressure at the listed Available Flow at Hydrant as well as its resultant pressure. The column "Design Pressure," lists the pressure at the Critical Node during the Design Flow, typically 20 psi. The last column, "Design Fire Node Pressure," lists the residual pressure at the listed junction when it is flowing at the Design Flow.

Listed Design Flow's occur when the Cramer Road Tank is low, the West Street pump is on, Pierce Park pump station is on, and system demands are approaching daily maximum. One junction located in the Town of West Bloomfield, outside the Town of Canandaigua water system but within the central service area, has an anticipated Design Flow less than 500 gpm. Review of model results indicate that Design Flows may be less than 500 gpm on Nott Road under the same conditions with the added constraint that the West Street pump station is off. Under this condition, Design Flows in the rest of the service area are still above 500 gpm. Based on this, the West Street pump station must be on in order for the existing service area to meet a 500 gpm Design Flow.

The attached Proposed tables provide the anticipated system pressures and Design Flows with the proposed water district extension. Results are similar to Existing conditions. In general, the extension improves Design Flows within the exiting service area since the extension eliminates two dead-end lines and creates an additional flow path between Cramer Road and Middle Cheshire Road. Depending on proximity to the Cramer Road tank, the increase in Design Flow can range from 10 gpm to over 100 gpm. System pressures are not affected by the water district extension.

MRB group reviewed the Town of Canandaigua water system, central service area to determine the potential impact of the proposed Cramer Road Water District Extension of the overall water system. Results indicate that the proposed extension will not change system pressures and may increase Design Flows within the system.

FIGURE HYD-1



Document Path: N:\0300.18004.000\dwg\Hydro\cra-Cramer-Hydro.mxd

CRAMER ROAD WATER DISTRICT EXTENSION TOWN OF CANANDAIGUA, NEW YORK WATER SYSTEM SCHEMATIC				Drawn By: DCA	
				Scale: 1" = 1,000'	
				Date: Month 2 X X X	
PROJECT NO. 0300.18004.000 SHEET NO.		MRB group Engineering, Architecture, Surveying, D.P.C. 145 Culver Road, Suite 160, Rochester, New York 14620 585-381-9250 FAX 585-381-1008 www.mrbgroup.com			
HYD-1					

ATTACHMENT No. 1 – EXISTING CONDITIONS

MODEL RESULTS - EXISTING

ID	Demand (gpm)	Elevation (ft)	Zone ID	Max.Value (psi)	Max.Time (hrs.)	Min.Value (psi)	Min.Time (hrs.)	Average (psi)	ID	Total Demand (gpm)	Available Flow		Critical Node ID	Critical Node Pressure (psi)	Critical Node Head (ft)	Design Flow (gpm)	Design Pressure (psi)	Design Fire Node Pressure (psi)	Notes
										at Hydrant (gpm)									
1	1.80	850.43	PZM2	160.37	480:00:00	140.91	633:00:00	154.10	1	404.12	932.54	J-2358	6.12	1,095.66	678.09	20.00	70.39		
11	2.59	1,042.18	PZM2	77.30	480:00:00	58.34	633:00:00	71.15	11	405.93	925.45	J-2124	12.04	1,125.36	708.11	20.00	33.55		
12	0.07	990.77	PZM2	99.57	480:00:00	80.62	633:00:00	93.43	12	400.16	1,417.05	J-2124	-9.77	1,075.01	702.34	20.00	60.34		
223	2.61	930.20	PZM2	125.80	480:00:00	106.30	633:00:00	119.53	223	405.98	648.85	227	16.46	976.36	633.23	20.00	23.54		
224	2.21	810.04	PZM2	177.87	480:00:00	158.35	633:00:00	171.59	224	405.06	772.67	J-3386	-39.12	856.19	560.09	20.00	79.22		
225	6.02	762.10	PZM2	198.64	480:00:00	179.13	633:00:00	192.36	225	413.79	897.37	J-3386	-59.89	808.24	601.89	20.00	100.02		
226	3.81	871.89	PZM2	151.07	480:00:00	131.64	633:00:00	144.81	226	408.72	971.25	J-2358	4.08	1,090.96	682.69	20.00	70.03		
227	1.54	938.36	PZM2	122.26	480:00:00	102.77	633:00:00	115.99	227	403.53	616.52	227	20	984.52	616.52	20.00	20.00		
228	2.21	869.26	PZM2	152.21	480:00:00	132.69	633:00:00	145.93	228	405.06	646.96	J-3386	-13.46	915.42	528.46	20.00	53.51		
229	1.60	929.01	PZM2	126.32	480:00:00	106.82	633:00:00	120.04	229	403.66	644.15	227	15.94	975.16	626.41	20.00	24.06		
230	4.81	906.56	PZM2	136.05	480:00:00	116.55	633:00:00	129.77	230	411.01	735.09	227	6.21	952.70	672.17	20.00	33.79		
231	0.20	923.94	PZM2	128.52	480:00:00	109.02	633:00:00	122.24	231	400.46	681.47	227	13.74	970.09	652.83	20.00	26.26		
5	3.88	877.84	PZM2	149.04	480:00:00	129.64	633:00:00	142.67	5	408.89	1,904.11	J-2124	-36.57	1,013.18	704.27	20.00	107.58		
8	11.20	818.18	PZM2	175.08	480:00:00	155.47	633:00:00	168.63	8	425.65	2,513.93	J-2124	-73.85	927.12	723.43	20.00	136.71		
HYD-079	-	858.78	PZM2	157.27	480:00:00	137.86	633:00:00	150.91	HYD-079	400	2,280.54	J-2124	-60.06	958.96	698.74	20.00	119.10		
HYD-080	-	849.52	PZM2	161.34	480:00:00	141.88	633:00:00	154.96	HYD-080	400	2,332.03	J-2124	-63.59	950.81	698.37	20.00	123.17		
HYD-080F	-	849.52	PZM2	161.34	480:00:00	141.88	633:00:00	154.96	HYD-080F	400	2,159.43	J-2124	-52.28	976.92	698.37	20.00	121.69		
HYD-083F	-	1,053.23	PZM2	71.37	480:00:00	54.42	633:00:00	66.17	HYD-083F	400	902.07	J-2124	15.24	1,132.74	759.69	20.00	28.58		
HYD-084	0.30	1,014.23	PZM2	88.28	480:00:00	71.31	633:00:00	83.07	HYD-084	400.69	1,424.45	J-2124	-3.91	1,088.55	759.28	20.00	51.66		
HYD-094F	-	1,005.26	PZM2	92.75	480:00:00	75.40	633:00:00	87.13	HYD-094F	400	1,451.71	J-2124	-13.08	1,067.38	685.47	20.00	58.41		
HYD-109		1,001.61	PZM2	95.15	480:00:00	76.10	633:00:00	88.92	HYD-109	400	1,210.57	J-2124	0.44	1,098.58	694.71	20.00	52.68		
HYD-109F		1,001.61	PZM2	95.15	480:00:00	76.10	633:00:00	88.92	HYD-109F	400	1,149.63	J-2124	3.14	1,104.82	694.71	20.00	51.00		
HYD-110		984.99	PZM2	102.37	480:00:00	83.27	633:00:00	96.13	HYD-110	400	1,320.90	J-2124	-4.66	1,086.82	694.67	20.00	60.29		
HYD-110F	-	984.99	PZM2	102.37	480:00:00	83.27	633:00:00	96.13	HYD-110F	400	1,251.07	J-2124	-1.41	1,094.32	694.67	20.00	58.61		
HYD-201F		843.56	PZM2	164.06	480:00:00	144.48	633:00:00	157.62	HYD-201F	400	1,965.26	J-2124	-40.66	1,003.72	696.02	20.00	121.45		
HYD-202		820.21	PZM2	174.24	480:00:00	154.60	633:00:00	167.77	HYD-202	400	2,238.04	J-2124	-57.82	964.13	696.36	20.00	133.59		
HYD-229		1,011.43	PZM2	90.61	480:00:00	71.72	633:00:00	84.49	HYD-229	400	902.23	J-2358	5.4	1,094.00	649.02	20.00	41.72		
HYD-230F	-	998.87	PZM2	96.05	480:00:00	77.16	633:00:00	89.93	HYD-230F	400	888.15	J-2358	6.28	1,096.03	649.02	20.00	43.43		
HYD-282	-	1,006.31	PZM2	92.33	480:00:00	74.78	633:00:00	86.66	HYD-282	400	1,507.33	J-2124	-14.1	1,065.02	691.21	20.00	57.84		
HYD-348	-	985.67	PZM2	101.38	480:00:00	82.69	633:00:00	95.40	HYD-348	400	1,377.37	J-2124	-6.91	1,081.62	713.82	20.00	60.03		
HYD-349F	-	1,029.00	PZM2	82.60	480:00:00	63.92	633:00:00	76.62	HYD-349F	400	969.81	J-2124	10.69	1,122.23	713.82	20.00	37.26		
HYD-XX1F	-	908.49	PZM2	134.99	480:00:00	116.23	633:00:00	128.96	HYD-XX1F	400	1,270.54	J-2124	-2.59	1,091.60	704.98	20.00	80.78		
HYD-XX2	-	908.49	PZM2	134.99	480:00:00	116.23	633:00:00	128.96	HYD-XX2	400	1,377.61	J-2124	-6.32	1,082.99	704.98	20.00	84.36		
J-2122	0.45	1,008.24	PZM2	91.44	480:00:00	74.13	633:00:00	85.84	J-2122	401.03	1,307.19	J-2124	-18.71	1,054.40	590.48	20.00	58.71		
J-2124	0.30	1,097.57	PZM2	52.73	480:00:00	35.43	633:00:00	47.13	J-2124	400.69	504.08	J-2124	20	1,143.73	504.08	20.00	20.00	5605 Nott Road (System High Point)	
J-2126	0.15	1,058.07	PZM2	69.85	480:00:00	52.54	633:00:00	64.25	J-2126	400.34	709.18	J-2124	7.84	1,115.67	503.73	20.00	34.48		
J-2320	0.07	1,017.92	PZM2	87.78	480:00:00	69.09	633:00:00	81.71	J-2320	400.16	1,183.31	J-2124	1.56	1,101.18	693.36	20.00	47.40		
J-2346	0.07	1,041.61	PZM2	77.53	480:00:00	58.68	633:00:00	71.42	J-2346	400.16	940.56	J-2358	2.79	1,087.96	647.22	20.00	37.27		
J-2358	0.08	1,081.53	PZM2	60.24	480:00:00	41.38	633:00:00	54.12	J-2358	400.18	529.21	J-2358	20	1,127.69	529.21	20.00	20.00		
J-2404	0.11	1,039.20	PZM2	77.23	480:00:00	62.06	633:00:00	72.37	J-2404	400.25	1,494.96	J-2124	-5.26	1,085.43	803.34	20.00	45.98		
J-3046		1,047.30	PZM2	73.78	480:00:00	58.07	633:00:00	68.83	J-3046	400	1,328.06	J-2124	1.75	1,101.62	789.40	20.00	40.37		
J-3048		1,071.00	PZM2	64.24	480:00:00	46.94	633:00:00	58.64	J-3048	400	665.87	J-2124	10.59	1,122.01	503.39	20.00	30.26		
J-3054		1,021.90	PZM2	84.67	480:00:00	69.80	633:00:00	79.88	J-3054	400	1,748.97	J-2124	-14.05	1,065.16	815.07	20.00	54.06		
J-3056		1,019.50	PZM2	85.87	480:00:00	69.64	633:00:00	80.84	J-3056	400	1,330.38	J-2124	-0.23	1,097.04	776.39	20.00	48.63		
J-3060		1,042.33	PZM2	77.22	480:00:00	58.37	633:00:00	71.11	J-3060	400	937.51	J-2358	3.1	1,088.69	648.34	20.00	36.96		
J-3064		1,027.12	PZM2	83.81	480:00:00	64.96	633:00:00	77.70	J-3064	400	1,041.00	J-2358	-3.45	1,073.56	651.18	20.00	43.54		
J-3196		1,061.18	PZM2	69.05	480:00:00	50.20	633:00:00	62.94	J-3196	400	606.13	J-2358	14.51	1,115.01	529.03	20.00	26.23		
J-3270		843.56	PZM2	164.06	480:00:00	144.48	633:00:00	157.62	J-3270	400	2,090.63	J-2124	-48.4	985.87	696.02	20.00	122.97		
J-3292	-	1,005.26	PZM2	92.75	480:00:00	75.40	633:00:00	87.13	J-3292	400	1,601.42	J-2124	-19.56	1,052.43	685.47	20.00	59.88		
J-3296	-	1,053.23	PZM2	71.37	480:00:00	54.42	633:00:00	66.17	J-3296	400	945.83	J-2124	13.73	1,129.27	759.69	20.00	30.39		
J-3302	-	1,029.00	PZM2	82.60	480:00:00	63.92	633:00:00	76.62	J-3302	400	1,014.28	J-2124	9.03	1,118.42	713.82	20.00	38.86		
J-3316	-	936.06	PZM2	123.04	480:00:00	104.29	633:00:00	117.01	J-3316	400	1,389.52	J-2124	-6.88	1,081.69	704.98	20.00	76.22		
J-3318	-	908.49	PZM2	134.99	480:00:00	116.23	633:00:00	128.96	J-3318	400	1,321.91	J-2124	-3.72	1,088.98	704.98	20.00	82.34		

MODEL RESULTS - EXISTING

ID	Demand (gpm)	Elevation (ft)	Zone ID	Max.Value (psi)	Max.Time (hrs.)	Min.Value (psi)	Min.Time (hrs.)	Average (psi)	ID	Total Demand (gpm)	Available Flow	Critical Node ID	Critical Node Pressure (psi)	Critical Node Head (ft)	Design Flow (gpm)	Design Pressure (psi)	Design Fire Node Pressure (psi)	Notes
										at Hydrant (gpm)								
J-3354	-	879.66	PZM2	148.21	480:00:00	128.92	633:00:00	141.88	J-3354	400	2,171.41	J-2124	-53.42	974.28	696.72	20.00	110.32	
J-3356	-	870.02	PZM2	152.40	480:00:00	133.09	633:00:00	146.06	J-3356	400	2,206.23	J-2124	-55.64	969.15	696.86	20.00	114.31	
J-3358	-	870.21	PZM2	152.37	480:00:00	132.96	633:00:00	146.00	J-3358	400	2,148.35	J-2124	-51.79	978.05	697.32	20.00	113.59	
J-3376	1.50	985.04	PZM2	101.92	480:00:00	83.10	633:00:00	95.85	J-3376	403.44	1,552.62	J-2124	-16.27	1,060.02	706.59	20.00	64.33	
J-3386		946.47	PZM2	118.75	480:00:00	99.23	633:00:00	112.47	J-3386	400	475.77	J-3386	20	992.63	475.77	20.00	20.02	6876 CO RD 30, East Bloomfield
J-3486		808.65	PZM2	179.27	480:00:00	159.61	633:00:00	172.79	J-3486	400	2,301.57	J-2124	-62.02	954.44	696.44	20.00	138.73	
J-3572	-	1,087.02	PZM2	57.30	480:00:00	40.00	633:00:00	51.70	J-3572	400	596.68	J-2124	15.43	1,133.18	512.52	20.00	24.57	
J-3574		1,087.02	PZM2	57.30	480:00:00	40.00	633:00:00	51.70	J-3574	400	574.89	J-2124	16.05	1,134.60	503.39	20.00	24.09	
J-3580	0.13	924.05	PZM2	128.80	480:00:00	109.64	633:00:00	122.54	J-3580	400.3	1,729.32	J-2124	-25.64	1,038.40	694.97	20.00	88.23	
J-3582		972.37	PZM2	107.98	480:00:00	88.77	633:00:00	101.68	J-3582	400	1,646.20	J-2124	-20.93	1,049.27	696.36	20.00	70.22	
J-3584	0.13	972.37	PZM2	107.59	480:00:00	88.59	633:00:00	101.43	J-3584	400.3	1,643.37	J-2124	-19.97	1,051.48	702.13	20.00	69.68	
J-3586	0.13	972.37	PZM2	107.59	480:00:00	88.59	633:00:00	101.43	J-3586	400.3	1,643.29	J-2124	-19.97	1,051.49	702.12	20.00	69.68	
J-3590	-	887.49	PZM2	144.82	480:00:00	125.52	633:00:00	138.49	J-3590	400	2,127.48	J-2124	-50.61	980.77	696.73	20.00	106.91	
J-3606	0.13	972.89	PZM2	107.31	480:00:00	88.37	633:00:00	101.17	J-3606	400.3	1,193.41	J-2358	-11.21	1,055.66	663.21	20.00	61.38	
J-3608	0.13	977.71	PZM2	105.22	480:00:00	86.33	633:00:00	99.10	J-3608	400.3	1,359.89	J-2358	-19.89	1,035.63	691.18	20.00	63.35	
J-524	0.11	1,037.00	PZM2	79.53	480:00:00	60.67	633:00:00	73.42	J-524	400.25	953.94	J-2358	0.71	1,083.16	636.09	20.00	39.30	
J-526	0.11	1,074.53	PZM2	63.27	480:00:00	44.38	633:00:00	57.14	J-526	400.25	649.93	J-2358	19.96	1,127.61	649.28	20.00	20.05	
J-528	0.11	985.96	PZM2	101.65	480:00:00	82.76	633:00:00	95.52	J-528	400.25	933.48	J-2358	3.44	1,089.46	649.28	20.00	48.64	
J-588	0.11	870.84	PZM2	151.53	480:00:00	132.58	633:00:00	145.39	J-588	400.25	1,122.18	J-2358	-4.04	1,072.22	690.92	20.00	83.61	
J-590	0.11	873.71	PZM2	150.28	480:00:00	131.33	633:00:00	144.15	J-590	400.25	1,128.37	J-2358	-3.28	1,073.97	690.92	20.00	82.83	
J-592	0.11	849.37	PZM2	160.83	480:00:00	141.88	633:00:00	154.69	J-592	400.25	1,149.07	J-2358	-5.74	1,068.29	690.92	20.00	91.11	
J-594	0.11	957.60	PZM2	113.93	480:00:00	94.95	633:00:00	107.79	J-594	400.25	1,263.77	J-2358	-15.67	1,045.37	674.22	20.00	67.48	
J-596	0.11	804.82	PZM2	181.00	480:00:00	161.26	633:00:00	174.49	J-596	400.25	2,398.96	J-2124	-68.5	939.47	697.13	20.00	141.19	
J-616	0.11	972.85	PZM2	107.33	480:00:00	88.43	633:00:00	101.20	J-616	400.25	1,400.24	J-2358	-21.49	1,031.93	690.92	20.00	65.39	
J-618	0.11	1,011.02	PZM2	90.79	480:00:00	71.96	633:00:00	84.68	J-618	400.25	1,255.23	J-2124	-1.68	1,093.68	693.58	20.00	50.82	
J-620	0.11	1,024.54	PZM2	85.14	480:00:00	66.28	633:00:00	78.97	J-620	400.25	1,280.81	J-2124	-3.98	1,088.39	695.16	20.00	48.22	
J-634	0.11	909.17	PZM2	134.70	480:00:00	115.94	633:00:00	128.67	J-634	400.25	1,221.18	J-2124	0.81	1,099.44	704.97	20.00	77.68	
J-636	0.11	983.57	PZM2	102.46	480:00:00	83.70	633:00:00	96.42	J-636	400.25	1,403.95	J-2124	-7.55	1,080.14	705.23	20.00	61.77	
J-638	0.11	946.16	PZM2	118.66	480:00:00	99.91	633:00:00	112.63	J-638	400.25	1,466.16	J-2124	-11.86	1,070.20	705.23	20.00	75.35	
J-640	0.11	951.90	PZM2	116.18	480:00:00	97.42	633:00:00	110.15	J-640	400.25	1,333.41	J-2124	-5.48	1,084.93	705.23	20.00	70.13	
J-642	0.11	947.45	PZM2	118.11	480:00:00	99.35	633:00:00	112.07	J-642	400.25	1,426.59	J-2124	-9.92	1,074.67	705.23	20.00	74.00	
J-644	0.11	920.18	PZM2	129.86	480:00:00	111.07	633:00:00	123.84	J-644	400.25	1,196.41	J-2124	2.23	1,102.71	709.29	20.00	72.14	
J-648	0.11	923.94	PZM2	128.11	480:00:00	109.43	633:00:00	122.13	J-648	400.25	1,333.02	J-2124	-4.8	1,086.50	714.77	20.00	77.11	
J-652	0.37	1,033.74	PZM2	79.70	480:00:00	63.47	633:00:00	74.67	J-652	400.85	1,180.01	J-2124	5.8	1,110.95	777.24	20.00	41.29	
J-654	0.11	1,029.66	PZM2	81.52	480:00:00	64.85	633:00:00	76.41	J-654	400.25	1,325.39	J-2124	0.82	1,099.46	767.13	20.00	45.35	
J-656	0.11	997.22	PZM2	95.64	480:00:00	78.69	633:00:00	90.44	J-656	400.25	1,537.98	J-2124	-8.88	1,077.08	759.94	20.00	58.83	
J-658	0.18	1,054.13	PZM2	70.98	480:00:00	54.03	633:00:00	65.79	J-658	400.41	918.88	J-2124	14.67	1,131.43	760.10	20.00	29.16	
J-660	0.11	852.39	PZM2	159.04	480:00:00	140.31	633:00:00	153.06	J-660	400.25	2,082.07	J-2124	-43.66	996.82	718.57	20.00	116.80	
J-682	0.11	1,037.76	PZM2	78.65	480:00:00	61.35	633:00:00	73.05	J-682	400.25	1,314.13	J-2124	-5.92	1,083.91	677.71	20.00	45.94	
J-686	0.34	1,065.30	PZM2	66.71	480:00:00	49.41	633:00:00	61.11	J-686	400.78	1,025.05	J-2124	6.02	1,111.46	674.64	20.00	34.00	
J-688	0.11	1,013.81	PZM2	88.23	480:00:00	73.15	633:00:00	83.38	J-688	400.25	1,774.77	J-2124	-17.48	1,057.23	805.72	20.00	57.47	
J-692	0.11	1,033.58	PZM2	79.19	480:00:00	65.96	633:00:00	74.86	J-692	400.25	1,773.19	J-2124	-9.8	1,074.94	900.47	20.00	49.79	Cramer Road at Rock Oak Hill Road (Tank)
J-694	0.11	986.46	PZM2	100.97	480:00:00	82.32	633:00:00	95.01	J-694	400.25	1,448.50	J-2124	-9.95	1,074.61	717.33	20.00	60.71	
J-698	0.22	1,005.83	PZM2	92.57	480:00:00	73.92	633:00:00	86.62	J-698	400.5	1,017.15	J-2124	9.07	1,118.51	717.58	20.00	43.53	
J-704	0.11	986.57	PZM2	101.16	480:00:00	82.41	633:00:00	95.13	J-704	400.25	1,531.19	J-2124	-15.09	1,062.75	705.44	20.00	63.42	
J-706	0.11	983.33	PZM2	102.54	480:00:00	83.79	633:00:00	96.52	J-706	400.25	1,541.28	J-2124	-15.46	1,061.88	706.69	20.00	64.55	
J-708	0.11	983.69	PZM2	102.39	480:00:00	83.64	633:00:00	96.36	J-708	400.25	1,536.51	J-2124	-13.9	1,065.50	706.43	20.00	64.04	
J-710	0.11	979.67	PZM2	104.13	480:00:00	85.38	633:00:00	98.11	J-710	400.25	1,520.40	J-2124	-13.14	1,067.24	706.04	20.00	65.14	
J-712	0.11	980.58	PZM2	103.75	480:00:00	84.99	633:00:00	97.72	J-712	400.25	1,497.73	J-2124	-12.08	1,069.69	705.48	20.00	64.49	
J-714	0.11	986.41	PZM2	101.23	480:00:00	82.47	633:00:00	95.20	J-714	400.25	1,415.68	J-2124	-9.37	1,075.94	705.43	20.00	61.50	
J-716	0.11	993.53	PZM2	98.14	480:00:00	79.39	633:00:00	92.11	J-716	400.25	1,377.36	J-2124	-7.53	1,080.19	705.43	20.00	58.55	
J-718	0.11	995.61	PZM2	97.24	480:00:00	78.49	633:00:00	91.21	J-718	400.25	1,410.49	J-2124	-7.84	1,079.48	705.44	20.00	58.15	
J-720	0.11	994.75	PZM2	97.61	480:00:00	78.86	633:00:00	91.58	J-720	400.25	1,381.13	J-2124	-7.71	1,079.78	705.43	20.00	58.24	

MODEL RESULTS - EXISTING

ID	Demand (gpm)	Elevation (ft)	Zone ID	Max.Value (psi)	Max.Time (hrs.)	Min.Value (psi)	Min.Time (hrs.)	Average (psi)	ID	Total Demand (gpm)	Available Flow		Critical Node ID	Critical Node Pressure (psi)	Critical Node Head (ft)	Design Flow (gpm)	Design Pressure (psi)	Design Fire Node Pressure (psi)	Notes
										at Hydrant (gpm)									
J-722	0.11	993.12	PZM2	98.32	480:00:00	79.56	633:00:00	92.29	J-722	400.25	1,307.26	J-2124	-4.24	1,087.78	705.43	20.00	57.18		
J-724	0.11	990.53	PZM2	99.43	480:00:00	80.68	633:00:00	93.40	J-724	400.25	1,323.67	J-2124	-4.95	1,086.15	706.04	20.00	58.28		
J-726	0.11	1,012.38	PZM2	89.97	480:00:00	71.22	633:00:00	83.94	J-726	400.25	1,163.36	J-2124	2.21	1,102.67	705.43	20.00	48.15		
J-760	0.11	835.63	PZM2	167.40	480:00:00	147.91	633:00:00	161.00	J-760	400.25	2,406.27	J-2124	-68.68	939.06	698.36	20.00	129.24		
J-762	0.11	852.40	PZM2	160.12	480:00:00	140.65	633:00:00	153.73	J-762	400.25	2,306.44	J-2124	-61.96	954.58	698.25	20.00	121.87		
J-764	0.11	855.93	PZM2	158.58	480:00:00	139.12	633:00:00	152.20	J-764	400.25	2,261.40	J-2124	-59.02	961.35	698.03	20.00	120.12		
J-766	0.11	859.76	PZM2	156.94	480:00:00	137.46	633:00:00	150.54	J-766	400.25	2,004.52	J-2124	-42.67	999.08	698.25	20.00	115.71		
J-772	0.11	981.31	PZM2	103.42	480:00:00	84.67	633:00:00	97.39	J-772	400.25	1,358.64	J-2124	-5.3	1,085.34	706.43	20.00	61.44		
J-774	0.11	999.09	PZM2	95.73	480:00:00	76.98	633:00:00	89.70	J-774	400.25	1,300.06	J-2124	-3.91	1,088.55	705.43	20.00	55.26		
J-776	0.11	995.87	PZM2	97.13	480:00:00	78.37	633:00:00	91.10	J-776	400.25	631.19	J-776	20	1,042.03	631.19	20.00	20.00		
J-778	0.11	997.12	PZM2	96.59	480:00:00	77.83	633:00:00	90.56	J-778	400.25	807.64	J-2124	16.4	1,135.41	705.43	20.00	32.10		
J-786	0.11	880.74	PZM2	147.24	480:00:00	128.29	633:00:00	141.10	J-786	400.25	1,102.90	J-2358	-2.83	1,075.00	690.92	20.00	79.73		
J-788	0.11	993.44	PZM2	98.67	480:00:00	79.66	633:00:00	92.46	J-788	400.25	1,243.22	J-2124	-2.22	1,092.45	695.01	20.00	56.29		
J-814	0.07	998.87	PZM2	96.05	480:00:00	77.16	633:00:00	89.93	J-814	400.16	912.11	J-2358	4.79	1,092.59	649.18	20.00	44.75		
J-816	0.07	1,027.71	PZM2	83.51	480:00:00	65.05	633:00:00	77.50	J-816	400.16	1,308.96	J-2124	-4.23	1,087.82	693.21	20.00	47.57		
J-818	0.07	1,030.61	PZM2	82.19	480:00:00	63.88	633:00:00	76.22	J-818	400.16	1,273.12	J-2124	-3.81	1,088.78	692.39	20.00	46.60		
J-820	0.07	1,038.45	PZM2	77.65	480:00:00	62.30	633:00:00	72.71	J-820	400.16	1,524.39	J-2124	-6.45	1,082.69	786.93	20.00	46.57		
J-824	0.07	972.37	PZM2	107.07	480:00:00	88.42	633:00:00	101.11	J-824	400.16	1,036.00	J-2124	8.34	1,116.83	717.24	20.00	51.53		
J-826	0.07	1,000.38	PZM2	94.93	480:00:00	76.29	633:00:00	88.98	J-826	400.16	977.57	J-2124	10.58	1,122.00	717.24	20.00	42.68		
J-830	0.07	900.24	PZM2	138.57	480:00:00	119.80	633:00:00	132.54	J-830	400.16	1,558.83	J-2124	-15.2	1,062.50	704.88	20.00	92.18		
J-832	0.07	906.09	PZM2	136.71	480:00:00	117.41	633:00:00	130.39	J-832	400.16	1,766.52	J-2124	-29.14	1,030.32	695.25	20.00	95.44		
J-834	0.07	1,039.03	PZM2	78.66	480:00:00	59.71	633:00:00	72.52	J-834	400.16	906.00	J-2124	12.57	1,126.58	702.34	20.00	33.50		
J-838	0.07	979.56	PZM2	104.18	480:00:00	85.43	633:00:00	98.15	J-838	400.16	1,506.14	J-2124	-13.76	1,065.82	706.00	20.00	65.27		
J-890	0.11	1,062.76	PZM2	68.35	480:00:00	49.66	633:00:00	62.28	J-890	400.25	735.67	J-2124	18.51	1,140.29	693.45	20.00	22.76		
JCAN10	1.08	913.85	PZM2	132.41	480:00:00	113.73	633:00:00	126.45	JCAN10	402.47	1,832.55	J-2124	-29.34	1,029.85	720.79	20.00	91.19		
JCAN100	0.43	985.40	PZM2	101.48	480:00:00	82.80	633:00:00	95.50	JCAN100	400.98	1,497.04	J-2124	-11.21	1,071.69	715.50	20.00	61.90		
JCAN110	1.50	961.22	PZM2	111.97	480:00:00	93.28	633:00:00	105.99	JCAN110	403.44	1,634.31	J-2124	-19.38	1,052.84	717.26	20.00	72.52		
JCAN120	1.29	1,032.41	PZM2	81.12	480:00:00	62.44	633:00:00	75.14	JCAN120	402.95	970.86	J-2124	10.82	1,122.54	716.78	20.00	36.44		
JCAN16	3.45	954.50	PZM2	115.06	480:00:00	96.30	633:00:00	109.02	JCAN16	407.9	1,523.75	J-2124	-14.38	1,064.39	712.62	20.00	73.66		
JCAN170	0.43	951.22	PZM2	116.29	480:00:00	97.61	633:00:00	110.31	JCAN170	400.98	1,412.11	J-2124	-7.17	1,081.02	715.50	20.00	70.83		
JCAN18	0.14	1,000.38	PZM2	95.41	480:00:00	76.45	633:00:00	89.27	JCAN18	400.32	1,233.39	J-2124	0.05	1,097.68	702.50	20.00	53.04		
JCAN180	0.87	960.13	PZM2	112.43	480:00:00	93.75	633:00:00	106.45	JCAN180	401.99	1,476.06	J-2124	-11.46	1,071.12	716.51	20.00	69.92		
JCAN190	1.08	939.13	PZM2	121.42	480:00:00	102.83	633:00:00	115.50	JCAN190	402.47	1,641.02	J-2124	-17.59	1,056.98	722.74	20.00	79.15		
JCAN20	0.65	889.52	PZM2	142.95	480:00:00	124.24	633:00:00	136.98	JCAN20	401.49	1,925.93	J-2124	-34.58	1,017.77	719.81	20.00	101.10		
JCAN200	2.80	1,022.62	PZM2	85.22	480:00:00	66.74	633:00:00	79.35	JCAN200	406.41	1,147.15	J-2124	4.3	1,107.50	727.43	20.00	44.05		
JCAN210	3.45	1,021.81	PZM2	85.50	480:00:00	67.18	633:00:00	79.70	JCAN210	407.9	1,223.38	J-2124	2.56	1,103.48	732.06	20.00	45.54		
JCAN220	2.80	1,031.88	PZM2	80.82	480:00:00	63.32	633:00:00	75.39	JCAN220	406.41	1,177.71	J-2124	4.44	1,107.82	749.05	20.00	42.31		
JCAN23	0.65	1,018.35	PZM2	85.82	480:00:00	72.49	633:00:00	81.46	JCAN23	401.49	1,491.09	J-2124	0.79	1,099.39	896.62	20.00	49.66		
JCAN230	1.29	1,016.37	PZM2	87.42	480:00:00	70.26	633:00:00	82.13	JCAN230	402.95	1,338.30	J-2124	-1.77	1,093.49	755.02	20.00	49.99		
JCAN240	1.34	1,012.68	PZM2	88.92	480:00:00	72.01	633:00:00	83.75	JCAN240	403.07	1,386.32	J-2124	-3.14	1,090.33	765.27	20.00	51.92		
JCAN250	3.94	1,019.94	PZM2	85.73	480:00:00	68.90	633:00:00	80.61	JCAN250	409.02	1,377.93	J-2124	-2.26	1,092.36	775.85	20.00	49.50		
JCAN260	0.37	1,025.37	PZM2	83.37	480:00:00	66.75	633:00:00	78.27	JCAN260	400.85	1,373.11	J-2124	-2.32	1,092.21	769.77	20.00	47.95		
JCAN27	0.87	977.16	PZM2	105.46	480:00:00	86.52	633:00:00	99.32	JCAN27	401.99	1,175.65	J-2358	-9.88	1,058.73	664.68	20.00	59.56		
JCAN270	0.37	1,034.12	PZM2	79.54	480:00:00	63.30	633:00:00	74.50	JCAN270	400.85	1,374.38	J-2124	-0.74	1,095.85	777.24	20.00	44.87		
JCAN28	1.50	1,068.16	PZM2	64.70	480:00:00	49.55	633:00:00	59.83	JCAN28	403.44	1,052.20	J-2124	11.81	1,124.83	803.55	20.00	30.42		
JCAN280	1.49	1,035.43	PZM2	78.90	480:00:00	63.38	633:00:00	73.98	JCAN280	403.41	1,445.76	J-2124	-3.89	1,088.59	797.52	20.00	46.12		
JCAN290	0.07	1,045.71	PZM2	74.45	480:00:00	58.92	633:00:00	69.53	JCAN290	400.16	1,211.46	J-2124	5.47	1,110.20	794.26	20.00	39.04		
JCAN300	0.07	1,080.06	PZM2	59.06	480:00:00	45.82	633:00:00	54.72	JCAN300	400.16	1,072.34	J-2124	15	1,132.18	900.38	20.00	26.28		
JCAN310	1.08	1,029.97	PZM2	80.78	480:00:00	67.46	633:00:00	76.42	JCAN310	402.47	1,834.33	J-2124	-11.25	1,071.61	897.61	20.00	51.32		
JCAN330	1.07	1,035.97	PZM2	78.79	480:00:00	61.61	633:00:00	73.65	JCAN330	402.45	1,101.24	J-2124	9.62	1,119.78	769.10	20.00	37.54		
JCAN340	0.65	1,028.12	PZM2	82.23	480:00:00	65.32	633:00:00	77.06	JCAN340	401.49	1,199.09	J-2124	5.66	1,110.63	763.69	20.00	42.84		
JCAN350	4.74	979.56	PZM2	104.09	480:00:00	85.37	633:00:00	98.09	JCAN350	410.85	1,542.69	J-2124	-14.65	1,063.77	721.56	20.00	65.23		
JCAN360	1.08	961.57	PZM2	111.92	480:00:00	93.18	633:00:00	105.91	JCAN360	402.47	1,683.57	J-2124	-21.08	1,048.91	711.51	20.00	73.39		

MODEL RESULTS - EXISTING

ID	Demand (gpm)	Elevation (ft)	Zone ID	Max.Value (psi)	Max.Time (hrs.)	Min.Value (psi)	Min.Time (hrs.)	Average (psi)	ID	Total Demand (gpm)	Available Flow		Critical Node ID	Critical Node Pressure (psi)	Critical Node Head (ft)	Design Flow (gpm)	Design Pressure (psi)	Design Fire Node Pressure (psi)	Notes	
										at Hydrant (gpm)										
JCAN38	1.94	927.93	PZM2	127.03	480:00:00	107.85	633:00:00	120.78	JCAN38	404.44	1,895.09	J-2124	-35.4	1,015.88	705.02	20.00	88.90			
JCAN410	1.72	991.49	PZM2	99.03	480:00:00	80.28	633:00:00	93.00	JCAN410	403.94	1,520.61	J-2124	-13.01	1,067.54	709.33	20.00	61.24			
JCAN420	1.72	980.80	PZM2	103.67	480:00:00	84.92	633:00:00	97.64	JCAN420	403.94	1,605.25	J-2124	-17.41	1,057.38	708.41	20.00	66.10			
JCAN430	2.37	982.94	PZM2	102.76	480:00:00	84.01	633:00:00	96.72	JCAN430	405.43	1,599.61	J-2124	-17.13	1,058.03	709.20	20.00	65.33			
JCAN44	1.50	878.63	PZM2	148.67	480:00:00	129.36	633:00:00	142.34	JCAN44	403.44	2,174.41	J-2124	-53.38	974.37	700.21	20.00	110.70			
JCAN440	8.40	966.17	PZM2	110.02	480:00:00	91.27	633:00:00	103.99	JCAN440	419.24	1,307.19	J-2124	-3.49	1,089.52	723.01	20.00	64.54			
JCAN45	1.50	972.37	PZM2	107.98	480:00:00	88.77	633:00:00	101.68	JCAN45	403.44	1,649.60	J-2124	-20.93	1,049.28	699.80	20.00	70.22			
JCAN450	4.09	961.03	PZM2	112.13	480:00:00	93.85	633:00:00	106.24	JCAN450	409.37	1,733.19	J-2124	-24.64	1,040.71	708.93	20.00	75.25			
JCAN460	1.08	1,003.07	PZM2	93.68	480:00:00	76.37	633:00:00	88.08	JCAN460	402.47	1,603.40	J-2124	-20.95	1,049.23	687.58	20.00	60.97			
JCAN470	6.03	986.30	PZM2	101.51	480:00:00	82.56	633:00:00	95.37	JCAN470	413.81	1,544.16	J-2124	-15.44	1,061.94	715.99	20.00	63.67			
JCAN480	4.31	922.87	PZM2	129.15	480:00:00	110.04	633:00:00	122.93	JCAN480	409.87	1,933.06	J-2124	-37.2	1,011.73	710.97	20.00	91.10			
JCAN500	1.50	819.33	PZM2	174.67	480:00:00	154.98	633:00:00	168.18	JCAN500	403.44	2,477.50	J-2124	-73.21	928.60	701.02	20.00	136.19			
JCAN510	0.87	862.37	PZM2	155.74	480:00:00	136.40	633:00:00	149.39	JCAN510	401.99	2,246.57	J-2124	-58.15	963.38	698.88	20.00	117.60			
JCAN530	0.23	804.59	PZM2	181.17	480:00:00	161.36	633:00:00	174.64	JCAN530	400.53	2,546.72	J-2124	-76.83	920.26	698.03	20.00	142.44			
JCAN540	2.37	809.21	PZM2	179.02	480:00:00	159.36	633:00:00	172.55	JCAN540	405.43	2,303.64	J-2124	-61.79	954.96	701.86	20.00	138.48			
JCAN550	3.24	929.40	PZM2	126.48	480:00:00	107.33	633:00:00	120.22	JCAN550	407.42	1,694.50	J-2124	-24.75	1,040.45	702.07	20.00	85.96			
JCAN560	1.72	994.83	PZM2	97.91	480:00:00	78.97	633:00:00	91.75	JCAN560	403.94	1,288.18	J-2124	-3.01	1,090.61	697.65	20.00	56.33			
JCAN570	0.65	1,016.14	PZM2	88.57	480:00:00	69.74	633:00:00	82.46	JCAN570	401.49	1,218.45	J-2124	0.05	1,097.69	694.82	20.00	48.50			
JCAN580	0.43	1,020.45	PZM2	86.70	480:00:00	67.86	633:00:00	80.59	JCAN580	400.98	1,138.83	J-2358	-6.33	1,066.92	671.99	20.00	46.45			
JCAN590	0.07	1,010.23	PZM2	91.13	480:00:00	72.32	633:00:00	85.03	JCAN590	400.16	1,265.82	J-2124	-2.18	1,092.54	693.47	20.00	51.31			
JCAN600	0.87	1,029.35	PZM2	82.84	480:00:00	64.00	633:00:00	76.73	JCAN600	401.99	1,117.70	J-2124	4.53	1,108.02	695.32	20.00	42.47			
JCAN610	2.15	978.28	PZM2	104.98	480:00:00	86.08	633:00:00	98.85	JCAN610	404.92	1,350.22	J-2358	-17.63	1,040.84	695.59	20.00	62.45			
JCAN620	0.22	939.65	PZM2	121.71	480:00:00	102.81	633:00:00	115.59	JCAN620	400.5	1,415.74	J-2358	-22.58	1,029.41	691.17	20.00	76.06			
JCAN630	0.22	950.52	PZM2	117.00	480:00:00	98.09	633:00:00	110.88	JCAN630	400.5	1,284.37	J-2358	-13.42	1,050.57	691.17	20.00	68.84			
JCAN640	1.08	910.29	PZM2	134.43	480:00:00	115.51	633:00:00	128.30	JCAN640	402.47	1,288.91	J-2358	-13.59	1,050.17	693.14	20.00	81.06			
JCAN650	1.08	964.00	PZM2	111.16	480:00:00	92.26	633:00:00	105.04	JCAN650	402.47	1,187.91	J-2358	-6.92	1,065.57	693.14	20.00	61.73			
JCAN660	3.02	880.73	PZM2	147.24	480:00:00	128.18	633:00:00	141.08	JCAN660	406.92	1,456.11	J-2358	-28.1	1,016.67	680.88	20.00	96.47			
JCAN670	0.75	938.21	PZM2	122.34	480:00:00	103.38	633:00:00	116.20	JCAN670	401.72	1,344.94	J-2358	-21.53	1,031.84	668.21	20.00	76.01			
JCAN680	0.07	942.99	PZM2	120.26	480:00:00	101.11	633:00:00	114.08	JCAN680	400.16	1,069.67	J-2358	-2.58	1,075.59	674.13	20.00	62.92			
JCAN690	1.29	934.68	PZM2	123.87	480:00:00	104.71	633:00:00	117.68	JCAN690	402.95	1,056.48	J-2358	-1.5	1,078.06	676.92	20.00	64.05			
JCAN700	2.15	941.23	PZM2	121.02	480:00:00	101.75	633:00:00	114.80	JCAN700	404.92	938.71	J-2358	5.8	1,094.93	678.89	20.00	53.98			
JCAN710	0.65	912.18	PZM2	133.61	480:00:00	114.30	633:00:00	127.38	JCAN710	401.49	976.77	J-2358	3.3	1,089.15	675.46	20.00	63.14			
JCAN80	1.94	993.10	PZM2	98.09	480:00:00	79.45	633:00:00	92.14	JCAN80	404.44	1,442.28	J-2124	-8.21	1,078.63	721.03	20.00	58.17			
JCAN840	1.08	885.72	PZM2	145.08	480:00:00	126.13	633:00:00	138.94	JCAN840	402.47	1,113.46	J-2358	-3.35	1,073.80	693.14	20.00	79.05			
JCAN850	0.43	882.58	PZM2	146.44	480:00:00	127.49	633:00:00	140.30	JCAN850	400.98	1,103.53	J-2358	-2.82	1,075.02	691.65	20.00	79.26			
JCAN860	1.94	1,029.47	PZM2	83.03	480:00:00	64.13	633:00:00	76.85	JCAN860	404.44	1,241.80	J-2124	-1.95	1,093.07	699.55	20.00	45.97			
JCAN870	2.15	1,019.85	PZM2	86.58	480:00:00	68.87	633:00:00	80.84	JCAN870	404.92	1,440.79	J-2124	-10.74	1,072.79	693.30	20.00	52.53			
JCAN880	0.07	1,020.91	PZM2	85.18	480:00:00	70.03	633:00:00	80.31	JCAN880	400.16	1,725.06	J-2124	-14.27	1,064.64	800.28	20.00	54.32			
JCAN890	1.72	1,005.58	PZM2	92.29	480:00:00	75.81	633:00:00	86.97	JCAN890	403.94	1,661.85	J-2124	-20.02	1,051.37	726.60	20.00	60.19			
JCAN90	0.65	1,002.96	PZM2	93.85	480:00:00	75.19	633:00:00	87.88	JCAN90	401.49	1,355.60	J-2124	-5.68	1,084.46	717.05	20.00	54.10			
JCAN900	1.72	1,029.00	PZM2	82.94	480:00:00	64.50	633:00:00	76.93	JCAN900	403.94	1,281.23	J-2124	(3.97)	1,088.41	696.87	20.00	47.05			
JCAN910	0.22	1,046.19	PZM2	75.51	480:00:00	56.98	633:00:00	69.48	JCAN910	400.5	1,085.69	J-2124	4.71	1,108.43	693.55	20.00	38.42			
JCAN920	1.72	1,048.74	PZM2	74.42	480:00:00	55.74	633:00:00	68.35	JCAN920	403.94	1,010.71	J-2124	8.02	1,116.07	697.13	20.00	35.70			
JPRVCAN--2	5.61	943.14	PZM2	119.79	480:00:00	101.11	633:00:00	113.81	JPRVCAN--2	412.85	1,341.80	J-2124	-4.62	1,086.90	727.36	20.00	71.28			
JPRVCAN--3	4.31	890.03	PZM2	143.00	480:00:00	124.23	633:00:00	136.96	JPRVCAN--3	409.87	1,587.68	J-2124	-16.17	1,060.25	714.59	20.00	96.06			
JPRVCAN--5	0.22	956.57	PZM2	114.09	480:00:00	95.32	633:00:00	108.07	JPRVCAN--5	400.5	1,158.19	J-2124	3.87	1,106.51	709.54	20.00	60.94			
Total																				178.94 gpm
Minimum																				35.43
Average																				475.77
Maximum																				198.64
																				900.47

MODEL RESULTS - EXISTING

ID	Demand (gpm)	Elevation (ft)	Zone ID	Max.Value (psi)	Max.Time (hrs.)	Min.Value (psi)	Min.Time (hrs.)	Average (psi)	-	ID	Total Demand (gpm)	Available Flow at Hydrant (gpm)	Critical Node ID	Critical Node Pressure (psi)	Critical Node Head (ft)	Design Flow (gpm)	Design Pressure (psi)	Design Fire Node Pressure (psi)	Notes
NOTES: ID: Junction identification Demand: Average daily demand at the junction. Elevation: Junction ground elevation (NAD88). Zone ID: Hydraulic grade zone identificatoin. Max. Value: Maximum pressure at junction. Max. Time: Model run time corresponding to maximum value. Min. Value: Minimum pressure at junction. Min. Time: Model run time corresponding to minimum value. Average: Average prssure at junction.										NOTES: Run Time: Extended period run time utilized for fire flow analysis. ID: Junction identification Total Demand: Base fire demand plus Demand at junction at Run Time. Available Flow at Hydrant: Flow available at junction when <i>junction</i> pressure is 20 psi. Critical Node ID: Junction within the <i>System</i> with lowest pressure at Available Flow at Hydrant. Critical Node Pressure: Pressure at Crital Node. Critical Node Head: Hydraulic grade at Critical Node. Design Flow: Flow available at juntion when Critial Node (minimum <i>system</i>) pressure is 20 psi. Design Pressure: Pressure at Critical Node duirng Design Flow. Design Fire Node Pressure: Pressure at node duirng Design Flow.									

ATTACHMENT No. 2 – PROPOSED CONDITIONS

MODEL RESULTS - PROPOSED

ID	Demand (gpm)	Elevation (ft)	Zone ID	Max.Value (psi)	Max.Time (hrs.)	Min.Value (psi)	Min.Time (hrs.)	Average (psi)	ID	Total	Available Flow		Critical Node ID	Critical Node Pressure (psi)	Critical Node Head (ft)	Design Flow (gpm)	Design Pressure (psi)	Design Fire Node Pressure (psi)	Notes
										Demand (gpm)	at Hydrant (gpm)								
1	1.80	850.43	PZM2	160.04	480:00:00	142.23	633:00:00	154.21	1	404.12	950.03	J-2358	8.96	1,102.22	738.81	20.00	62.54		
11	2.59	1,042.18	PZM2	76.83	480:00:00	59.84	633:00:00	71.26	11	405.93	1,009.30	J-2124	12.23	1,125.80	786.31	20.00	33.42		
12	0.07	990.77	PZM2	99.10	480:00:00	82.11	633:00:00	93.53	12	400.16	1,577.66	J-2124	-10.65	1,072.98	780.54	20.00	61.14		
223	2.61	930.20	PZM2	125.47	480:00:00	107.62	633:00:00	119.63	223	405.98	661.13	227	16.46	976.36	645.50	20.00	23.54		
224	2.21	810.04	PZM2	177.54	480:00:00	159.67	633:00:00	171.69	224	405.06	783.07	J-3386	-39.12	856.19	570.37	20.00	79.22		
225	6.02	762.10	PZM2	198.31	480:00:00	180.45	633:00:00	192.47	225	413.79	909.18	J-3386	-59.89	808.24	613.31	20.00	100.01		
226	3.81	871.89	PZM2	150.74	480:00:00	132.96	633:00:00	144.92	226	408.72	991.78	J-2358	6.87	1,097.37	743.41	20.00	63.66		
227	1.54	938.36	PZM2	121.94	480:00:00	104.09	633:00:00	116.09	227	403.53	628.27	227	20	984.52	628.27	20.00	20.00		
228	2.21	869.26	PZM2	151.88	480:00:00	134.01	633:00:00	146.03	228	405.06	656.17	J-3386	-13.46	915.42	537.70	20.00	53.52		
229	1.60	929.01	PZM2	125.99	480:00:00	108.14	633:00:00	120.15	229	403.66	656.26	227	15.94	975.16	638.51	20.00	24.06		
230	4.81	906.56	PZM2	135.72	480:00:00	117.87	633:00:00	129.88	230	411.01	748.74	227	6.21	952.70	685.72	20.00	33.79		
231	0.20	923.94	PZM2	128.19	480:00:00	110.34	633:00:00	122.35	231	400.46	694.71	227	13.74	970.09	666.03	20.00	26.26		
5	3.88	877.84	PZM2	148.68	480:00:00	131.02	633:00:00	142.78	5	408.89	2,003.34	J-2124	-34.99	1,016.82	777.91	20.00	107.13		
8	11.20	818.18	PZM2	174.69	480:00:00	156.89	633:00:00	168.74	8	425.65	2,699.20	J-2124	-74.7	925.18	797.99	20.00	137.19		
HYD-079	-	858.78	PZM2	156.87	480:00:00	139.30	633:00:00	151.02	HYD-079	400	2,452.47	J-2124	-61.57	955.47	773.94	20.00	119.69		
HYD-080	-	849.52	PZM2	160.94	480:00:00	143.31	633:00:00	155.06	HYD-080	400	2,503.19	J-2124	-64.97	947.62	773.32	20.00	123.72		
HYD-080F	-	849.52	PZM2	160.94	480:00:00	143.31	633:00:00	155.06	HYD-080F	400	2,297.50	J-2124	-52.05	977.46	773.32	20.00	121.90		
HYD-083F	-	1,053.23	PZM2	71.13	480:00:00	55.38	633:00:00	66.24	HYD-083F	400	952.62	J-2124	16.12	1,134.77	829.43	20.00	27.36		
HYD-084	0.30	1,014.23	PZM2	88.03	480:00:00	72.27	633:00:00	83.13	HYD-084	400.69	1,504.57	J-2124	-3.21	1,090.15	829.51	20.00	51.61		
HYD-094F	-	1,005.26	PZM2	92.46	480:00:00	76.42	633:00:00	87.20	HYD-094F	400	1,565.01	J-2124	-12.02	1,069.82	758.93	20.00	58.06		
HYD-109		1,001.61	PZM2	94.80	480:00:00	77.44	633:00:00	89.03	HYD-109	400	1,265.32	J-2124	1.06	1,100.02	768.41	20.00	51.89		
HYD-109F		1,001.61	PZM2	94.80	480:00:00	77.44	633:00:00	89.03	HYD-109F	400	1,197.47	J-2124	3.93	1,106.63	768.41	20.00	49.84		
HYD-110		984.99	PZM2	102.02	480:00:00	84.62	633:00:00	96.24	HYD-110	400	1,379.97	J-2124	-3.98	1,088.40	768.33	20.00	59.58		
HYD-110F	-	984.99	PZM2	102.02	480:00:00	84.62	633:00:00	96.24	HYD-110F	400	1,302.22	J-2124	-0.53	1,096.34	768.33	20.00	57.53		
HYD-201F		843.56	PZM2	163.69	480:00:00	145.88	633:00:00	157.73	HYD-201F	400	2,059.99	J-2124	-38.61	1,008.47	769.78	20.00	120.84		
HYD-202		820.21	PZM2	173.87	480:00:00	156.00	633:00:00	167.88	HYD-202	400	2,360.92	J-2124	-56.58	966.99	770.22	20.00	133.45		
HYD-229		1,011.43	PZM2	90.28	480:00:00	73.04	633:00:00	84.59	HYD-229	400	942.50	J-526	3.99	1,083.75	697.83	20.00	40.86		
HYD-230F	-	998.87	PZM2	95.72	480:00:00	78.48	633:00:00	90.04	HYD-230F	400	922.74	J-526	5.39	1,086.98	697.83	20.00	42.02		
HYD-282	-	1,006.31	PZM2	92.01	480:00:00	75.87	633:00:00	86.74	HYD-282	400	1,618.92	J-2124	-14.2	1,064.81	765.87	20.00	58.02		
HYD-348	-	985.67	PZM2	100.65	480:00:00	84.52	633:00:00	95.49	HYD-348	400	1,730.88	J-2124	-14.95	1,063.07	807.52	20.00	64.42		
HYD-349F	-	1,029.00	PZM2	81.81	480:00:00	65.95	633:00:00	76.73	HYD-349F	400	1,274.39	J-2124	5.07	1,109.28	813.95	20.00	43.11		
HYD-XX1F	-	908.49	PZM2	134.47	480:00:00	117.79	633:00:00	129.06	HYD-XX1F	400	1,350.56	J-2124	0	1,097.56	786.54	20.00	78.59		
HYD-XX2	-	908.49	PZM2	134.47	480:00:00	117.79	633:00:00	129.06	HYD-XX2	400	1,462.12	J-2124	-4.81	1,086.46	786.54	20.00	83.01		
J-2122	0.45	1,008.24	PZM2	91.15	480:00:00	75.14	633:00:00	85.91	J-2122	401.03	1,377.08	J-2124	-18.71	1,054.40	642.05	20.00	58.71		
J-2124	0.30	1,097.57	PZM2	52.45	480:00:00	36.43	633:00:00	47.20	J-2124	500.69	540.57	J-2124	20	1,143.73	540.61	20.00	20.01	5605 Nott Road (System High Point)	
J-2126	0.15	1,058.07	PZM2	69.56	480:00:00	53.55	633:00:00	64.32	J-2126	400.34	741.92	J-2124	8.27	1,116.67	540.22	20.00	34.12		
J-2320	0.07	1,017.92	PZM2	87.45	480:00:00	70.38	633:00:00	81.81	J-2320	400.16	1,240.89	J-2124	2	1,102.18	766.83	20.00	46.88		
J-2346	0.07	1,041.61	PZM2	77.21	480:00:00	60.00	633:00:00	71.53	J-2346	400.16	1,002.66	J-2358	2.8	1,087.99	702.75	20.00	37.27		
J-2358	0.08	1,081.53	PZM2	59.91	480:00:00	42.70	633:00:00	54.23	J-2358	400.18	565.50	J-2358	20	1,127.69	565.51	20.00	20.00		
J-2404	0.11	1,039.20	PZM2	77.12	480:00:00	62.54	633:00:00	72.41	J-2404	400.25	1,538.11	J-2124	-4.7	1,086.73	852.77	20.00	45.40		
J-3046		1,047.30	PZM2	73.63	480:00:00	58.69	633:00:00	68.87	J-3046	400	1,355.83	J-2124	2.12	1,102.46	841.68	20.00	40.30		
J-3048		1,071.00	PZM2	63.96	480:00:00	47.94	633:00:00	58.72	J-3048	400	701.19	J-2124	10.8	1,122.50	539.88	20.00	30.09		
J-3054		1,021.90	PZM2	84.58	480:00:00	70.20	633:00:00	79.91	J-3054	400	1,783.70	J-2124	-13.25	1,067.00	861.29	20.00	53.42		
J-3056		1,019.50	PZM2	85.70	480:00:00	70.39	633:00:00	80.89	J-3056	400	1,411.23	J-2124	0.91	1,099.66	836.05	20.00	48.20		
J-3060		1,042.33	PZM2	76.89	480:00:00	59.69	633:00:00	71.22	J-3060	400	999.79	J-2358	3.12	1,088.72	704.10	20.00	36.95		
J-3064		1,027.12	PZM2	83.48	480:00:00	66.28	633:00:00	77.81	J-3064	400	1,107.66	J-2358	-3.44	1,073.60	707.47	20.00	43.54		
J-3196		1,061.18	PZM2	68.73	480:00:00	51.52	633:00:00	63.05	J-3196	400	638.44	J-2358	14.84	1,115.79	565.32	20.00	25.90		
J-3270		843.56	PZM2	163.69	480:00:00	145.88	633:00:00	157.73	J-3270	400	2,202.37	J-2124	-46.95	989.22	769.78	20.00	122.69		
J-3292	-	1,005.26	PZM2	92.46	480:00:00	76.42	633:00:00	87.20	J-3292	400	1,716.25	J-2124	-19.56	1,052.43	758.93	20.00	59.86		
J-3296	-	1,053.23	PZM2	71.13	480:00:00	55.38	633:00:00	66.24	J-3296	400	1,001.47	J-2124	14.49	1,131.01	829.43	20.00	29.51		
J-3302	-	1,029.00	PZM2	81.81	480:00:00	65.95	633:00:00	76.73	J-3302	400	1,370.11	J-2124	1.35	1,100.68	813.95	20.00	45.19		
J-3316	-	936.06	PZM2	122.52	480:00:00	105.84	633:00:00	117.11	J-3316	400	1,477.93	J-2124	-6.73	1,082.05	786.54	20.00	75.72		
J-3318	-	908.49	PZM2	134.47	480:00:00	117.79	633:00:00	129.06	J-3318	400	1,388.09	J-2124	-2.79	1,091.13	786.54	20.00	80.52		

MODEL RESULTS - PROPOSED

ID	Demand (gpm)	Elevation (ft)	Zone ID	Max.Value (psi)	Max.Time (hrs.)	Min.Value (psi)	Min.Time (hrs.)	Average (psi)	ID	Total	Available Flow		Critical Node ID	Critical Node Pressure (psi)	Critical Node Head (ft)	Design Flow (gpm)	Design Pressure (psi)	Design Fire Node Pressure (psi)	Notes
										Demand (gpm)	at Hydrant (gpm)								
J-3354	-	879.66	PZM2	147.84	480:00:00	130.29	633:00:00	141.99	J-3354	400	2,319.90	J-2124	-53.96	973.05	770.74	20.00	110.70		
J-3356	-	870.02	PZM2	152.02	480:00:00	134.46	633:00:00	146.17	J-3356	400	2,355.06	J-2124	-56.1	968.10	770.96	20.00	114.68		
J-3358	-	870.21	PZM2	151.98	480:00:00	134.36	633:00:00	146.11	J-3358	400	2,292.08	J-2124	-52	977.55	771.83	20.00	113.89		
J-3376	1.50	985.04	PZM2	101.44	480:00:00	84.61	633:00:00	95.95	J-3376	403.44	1,756.06	J-2124	-18.84	1,054.09	786.07	20.00	65.62		
J-3386		946.47	PZM2	118.42	480:00:00	100.55	633:00:00	112.58	J-3386	400	483.55	J-3386	20	992.63	483.55	20.00	20.03	6876 CO RD 30, East Bloomfield	
J-3486		808.65	PZM2	178.90	480:00:00	161.00	633:00:00	172.90	J-3486	400	2,428.46	J-2124	-60.83	957.19	770.33	20.00	138.63		
J-3572	-	1,087.02	PZM2	57.02	480:00:00	41.00	633:00:00	51.77	J-3572	400	635.83	J-2124	15.43	1,133.18	550.42	20.00	24.57		
J-3574		1,087.02	PZM2	57.02	480:00:00	41.00	633:00:00	51.77	J-3574	400	611.04	J-2124	16.12	1,134.77	539.88	20.00	24.02		
J-3578		1,027.28	PZM2	82.37	480:00:00	67.32	633:00:00	77.51	J-3578	400	1,361.35	J-2124	1.77	1,101.66	833.30	20.00	45.62	Near 5395 Cramer Road	
J-3580	0.13	924.05	PZM2	128.45	480:00:00	111.00	633:00:00	122.65	J-3580	400.3	1,807.84	J-2124	-24.89	1,040.12	768.58	20.00	87.85		
J-3582		972.37	PZM2	107.62	480:00:00	90.13	633:00:00	101.79	J-3582	400	1,747.46	J-2124	-21.55	1,047.84	770.24	20.00	70.57		
J-3584	0.13	972.37	PZM2	107.13	480:00:00	90.08	633:00:00	101.53	J-3584	400.3	1,788.47	J-2124	-22.4	1,045.88	779.95	20.00	70.72		
J-3586	0.13	972.37	PZM2	107.13	480:00:00	90.08	633:00:00	101.53	J-3586	400.3	1,811.10	J-2124	-22.16	1,046.42	779.93	20.00	70.72		
J-3590	-	887.49	PZM2	144.45	480:00:00	126.90	633:00:00	138.60	J-3590	400	2,273.96	J-2124	-51.13	979.57	770.76	20.00	107.29		
J-3606	0.13	972.89	PZM2	106.98	480:00:00	89.69	633:00:00	101.28	J-3606	400.3	1,234.13	J-2358	-10.24	1,057.90	721.69	20.00	60.50		
J-3608	0.13	977.71	PZM2	104.89	480:00:00	87.65	633:00:00	99.20	J-3608	400.3	1,453.03	J-2358	-19.27	1,037.06	755.16	20.00	63.11		
J-524	0.11	1,037.00	PZM2	79.20	480:00:00	61.99	633:00:00	73.52	J-524	400.25	1,014.31	J-2358	0.71	1,083.16	689.58	20.00	39.31		
J-526	0.11	1,074.53	PZM2	62.94	480:00:00	45.70	633:00:00	57.25	J-526	400.25	698.06	J-526	20	1,120.69	698.08	20.00	20.01		
J-528	0.11	985.96	PZM2	101.32	480:00:00	84.08	633:00:00	95.63	J-528	400.25	968.21	J-526	2.16	1,079.52	698.08	20.00	47.19		
J-588	0.11	870.84	PZM2	151.20	480:00:00	133.89	633:00:00	145.50	J-588	400.25	1,149.32	J-2358	-1.02	1,079.17	754.87	20.00	78.77		
J-590	0.11	873.71	PZM2	149.95	480:00:00	132.65	633:00:00	144.25	J-590	400.25	1,148.83	J-2358	-1.04	1,079.13	754.87	20.00	78.08		
J-592	0.11	849.37	PZM2	160.50	480:00:00	143.20	633:00:00	154.80	J-592	400.25	1,181.16	J-2358	-1.86	1,077.24	754.87	20.00	85.95		
J-594	0.11	957.60	PZM2	113.61	480:00:00	96.26	633:00:00	107.89	J-594	400.25	1,320.07	J-2358	-14.25	1,048.64	734.94	20.00	66.53		
J-596	0.11	804.82	PZM2	180.63	480:00:00	162.67	633:00:00	174.60	J-596	400.25	2,541.12	J-2124	-67.97	940.70	771.20	20.00	141.30		
J-616	0.11	972.85	PZM2	107.00	480:00:00	89.75	633:00:00	101.31	J-616	400.25	1,476.97	J-2358	-20.95	1,033.18	754.87	20.00	65.13		
J-618	0.11	1,011.02	PZM2	90.46	480:00:00	73.28	633:00:00	84.79	J-618	400.25	1,318.39	J-2358	-10.58	1,057.12	763.45	20.00	50.60		
J-620	0.11	1,024.54	PZM2	84.79	480:00:00	67.58	633:00:00	79.07	J-620	400.25	1,408.15	J-2124	-4.05	1,088.23	768.68	20.00	48.51		
J-634	0.11	909.17	PZM2	134.19	480:00:00	117.49	633:00:00	128.77	J-634	400.25	1,283.90	J-2124	2.75	1,103.92	786.48	20.00	74.88		
J-636	0.11	983.57	PZM2	101.94	480:00:00	85.25	633:00:00	96.53	J-636	400.25	1,531.95	J-2124	-9.17	1,076.42	786.80	20.00	62.67		
J-638	0.11	946.16	PZM2	118.15	480:00:00	101.46	633:00:00	112.73	J-638	400.25	1,593.50	J-2124	-12.02	1,069.84	786.80	20.00	75.65		
J-640	0.11	951.90	PZM2	115.66	480:00:00	98.97	633:00:00	110.25	J-640	400.25	1,450.17	J-2124	-4.28	1,087.70	786.80	20.00	69.81		
J-642	0.11	947.45	PZM2	117.59	480:00:00	100.90	633:00:00	112.18	J-642	400.25	1,561.19	J-2124	-9.23	1,076.26	786.80	20.00	74.12		
J-644	0.11	920.18	PZM2	129.28	480:00:00	112.68	633:00:00	123.93	J-644	400.25	1,272.12	J-2124	3.71	1,106.13	793.02	20.00	69.95		
J-648	0.11	923.94	PZM2	127.44	480:00:00	111.08	633:00:00	122.21	J-648	400.25	1,466.57	J-2124	-3.65	1,089.15	803.32	20.00	77.20		
J-652	0.37	1,033.74	PZM2	79.53	480:00:00	64.22	633:00:00	74.72	J-652	400.85	1,253.51	J-2124	6.96	1,113.63	836.90	20.00	40.68		
J-654	0.11	1,029.66	PZM2	81.32	480:00:00	65.72	633:00:00	76.46	J-654	400.25	1,395.03	J-2124	1.39	1,100.77	832.86	20.00	45.11		
J-656	0.11	997.22	PZM2	95.40	480:00:00	79.64	633:00:00	90.50	J-656	400.25	1,618.25	J-2124	-8.06	1,078.97	829.68	20.00	58.69		
J-658	0.18	1,054.13	PZM2	70.74	480:00:00	54.99	633:00:00	65.85	J-658	400.41	972.04	J-2124	15.47	1,133.27	829.84	20.00	28.13		
J-660	0.11	852.39	PZM2	158.41	480:00:00	141.92	633:00:00	153.15	J-660	400.25	2,345.08	J-2124	-48.6	985.41	806.61	20.00	118.60		
J-682	0.11	1,037.76	PZM2	78.37	480:00:00	62.35	633:00:00	73.12	J-682	400.25	1,412.80	J-2124	-5.92	1,083.91	749.48	20.00	45.94		
J-686	0.34	1,065.30	PZM2	66.43	480:00:00	50.41	633:00:00	61.18	J-686	400.78	1,111.50	J-2124	6.02	1,111.46	745.48	20.00	34.01		
J-688	0.11	1,013.81	PZM2	88.12	480:00:00	73.61	633:00:00	83.42	J-688	400.25	1,846.82	J-2124	-16.69	1,059.05	854.30	20.00	56.86		
J-692	0.11	1,033.58	PZM2	79.23	480:00:00	65.96	633:00:00	74.87	J-692	400.25	1,803.68	J-2124	-8.98	1,076.84	927.54	20.00	49.03	Cramer Road at Rock Oak Hill Road (Tank)	
J-694	0.11	986.46	PZM2	100.33	480:00:00	83.94	633:00:00	95.10	J-694	400.25	1,676.57	J-2124	-14.15	1,064.91	805.76	20.00	63.02		
J-698	0.22	1,005.83	PZM2	91.94	480:00:00	75.55	633:00:00	86.70	J-698	400.5	1,126.98	J-2124	9	1,118.33	806.02	20.00	43.70		
J-704	0.11	986.57	PZM2	100.65	480:00:00	83.96	633:00:00	95.23	J-704	400.25	1,753.08	J-2124	-18.37	1,055.17	786.56	20.00	65.01		
J-706	0.11	983.33	PZM2	102.00	480:00:00	85.36	633:00:00	96.62	J-706	400.25	1,774.84	J-2124	-19.17	1,053.33	788.59	20.00	66.31		
J-708	0.11	983.69	PZM2	101.85	480:00:00	85.20	633:00:00	96.46	J-708	400.25	1,734.90	J-2124	-17.28	1,057.69	788.09	20.00	65.67		
J-710	0.11	979.67	PZM2	103.60	480:00:00	86.94	633:00:00	98.20	J-710	400.25	1,680.74	J-2124	-16.08	1,060.47	787.52	20.00	66.54		
J-712	0.11	980.58	PZM2	103.23	480:00:00	86.55	633:00:00	97.82	J-712	400.25	1,648.67	J-2124	-14.6	1,063.88	787.05	20.00	65.73		
J-714	0.11	986.41	PZM2	100.71	480:00:00	84.02	633:00:00	95.30	J-714	400.25	1,576.09	J-2124	-11.18	1,071.78	787.04	20.00	62.65		
J-716	0.11	993.53	PZM2	97.62	480:00:00	80.94	633:00:00	92.21	J-716	400.25	1,536.66	J-2124	-9.36	1,075.97	786.99	20.00	59.72		
J-718	0.11	995.61	PZM2	96.72	480:00:00	80.04	633:00:00	91.31	J-718	400.25	1,578.15	J-2124	-10	1,074.49	786.89	20.00	59.45		

MODEL RESULTS - PROPOSED

ID	Demand (gpm)	Elevation (ft)	Zone ID	Max.Value (psi)	Max.Time (hrs.)	Min.Value (psi)	Min.Time (hrs.)	Average (psi)	ID	Total	Available Flow		Critical Node ID	Critical Node Pressure (psi)	Critical Node Head (ft)	Design Flow (gpm)	Design Pressure (psi)	Design Fire Node Pressure (psi)	Notes
										Demand (gpm)	at Hydrant (gpm)								
J-720	0.11	994.75	PZM2	97.09	480:00:00	80.41	633:00:00	91.68	J-720	400.25	1,543.52	J-2124	-9.68	1,075.23	786.94	20.00	59.48		
J-722	0.11	993.12	PZM2	97.80	480:00:00	81.12	633:00:00	92.39	J-722	400.25	1,462.82	J-2124	-4.81	1,086.47	787.04	20.00	58.00		
J-724	0.11	990.53	PZM2	98.90	480:00:00	82.24	633:00:00	93.50	J-724	400.25	1,484.25	J-2124	-5.68	1,084.45	787.52	20.00	59.20		
J-726	0.11	1,012.38	PZM2	89.45	480:00:00	72.77	633:00:00	84.04	J-726	400.25	1,286.11	J-2124	1.56	1,101.16	786.99	20.00	48.83		
J-760	0.11	835.63	PZM2	167.00	480:00:00	149.33	633:00:00	161.11	J-760	400.25	2,578.84	J-2124	-70.01	936.00	773.16	20.00	129.76		
J-762	0.11	852.40	PZM2	159.73	480:00:00	142.06	633:00:00	153.84	J-762	400.25	2,471.02	J-2124	-63.03	952.10	772.97	20.00	122.35		
J-764	0.11	855.93	PZM2	158.19	480:00:00	140.54	633:00:00	152.30	J-764	400.25	2,418.07	J-2124	-59.73	959.71	772.62	20.00	120.55		
J-766	0.11	859.76	PZM2	156.54	480:00:00	138.87	633:00:00	150.65	J-766	400.25	2,122.35	J-2124	-41.72	1,001.28	772.97	20.00	115.57		
J-772	0.11	981.31	PZM2	102.88	480:00:00	86.23	633:00:00	97.49	J-772	400.25	1,497.49	J-2124	-6.22	1,083.22	788.09	20.00	62.24		
J-774	0.11	999.09	PZM2	95.21	480:00:00	78.53	633:00:00	89.80	J-774	400.25	1,443.62	J-2124	-5.18	1,085.61	786.99	20.00	56.24		
J-776	0.11	995.87	PZM2	96.61	480:00:00	79.93	633:00:00	91.20	J-776	400.25	656.95	J-776	20	1,042.03	656.95	20.00	20.00		
J-778	0.11	997.12	PZM2	96.07	480:00:00	79.38	633:00:00	90.66	J-778	400.25	851.80	J-2124	17.86	1,138.79	786.94	20.00	27.65		
J-786	0.11	880.74	PZM2	146.91	480:00:00	129.60	633:00:00	141.21	J-786	400.25	1,130.10	J-2358	0.1	1,081.76	754.87	20.00	74.96		
J-788	0.11	993.44	PZM2	98.33	480:00:00	80.99	633:00:00	92.57	J-788	400.25	1,330.62	J-2124	-0.59	1,096.21	768.73	20.00	55.52		
J-814	0.07	998.87	PZM2	95.72	480:00:00	78.48	633:00:00	90.04	J-814	400.16	948.84	J-526	3.55	1,082.73	697.99	20.00	43.55		
J-816	0.07	1,027.71	PZM2	83.19	480:00:00	66.29	633:00:00	77.59	J-816	400.16	1,412.39	J-2124	-4.41	1,087.39	766.33	20.00	47.80		
J-818	0.07	1,030.61	PZM2	81.87	480:00:00	65.08	633:00:00	76.32	J-818	400.16	1,398.69	J-2124	-3.85	1,088.68	765.44	20.00	46.81		
J-820	0.07	1,038.45	PZM2	77.52	480:00:00	62.82	633:00:00	72.75	J-820	400.16	1,542.12	J-2124	-5.84	1,084.09	839.00	20.00	46.03		
J-824	0.07	972.37	PZM2	106.43	480:00:00	90.04	633:00:00	101.20	J-824	400.16	1,121.62	J-2124	9.17	1,118.73	805.67	20.00	50.13		
J-826	0.07	1,000.38	PZM2	94.30	480:00:00	77.91	633:00:00	89.06	J-826	400.16	1,071.49	J-2124	10.98	1,122.90	805.67	20.00	42.07		
J-830	0.07	900.24	PZM2	138.06	480:00:00	121.36	633:00:00	132.64	J-830	400.16	1,656.21	J-2124	-15.03	1,062.88	786.39	20.00	91.78		
J-832	0.07	906.09	PZM2	136.36	480:00:00	118.78	633:00:00	130.50	J-832	400.16	1,878.03	J-2124	-27.17	1,034.87	768.88	20.00	94.98		
J-834	0.07	1,039.03	PZM2	78.19	480:00:00	61.20	633:00:00	72.62	J-834	400.16	983.47	J-2124	12.97	1,127.50	780.54	20.00	33.01		
J-838	0.07	979.56	PZM2	103.65	480:00:00	86.99	633:00:00	98.25	J-838	400.16	1,711.15	J-2124	-16.2	1,060.18	787.50	20.00	66.71		
J-890	0.11	1,062.76	PZM2	68.02	480:00:00	50.95	633:00:00	62.38	J-890	400.25	784.42	J-2124	19.41	1,142.37	766.92	20.00	21.17		
JCAN10	1.08	913.85	PZM2	131.78	480:00:00	115.34	633:00:00	126.54	JCAN10	402.47	2,083.40	J-2124	-34.11	1,018.84	808.83	20.00	93.18		
JCAN100	0.43	985.40	PZM2	100.81	480:00:00	84.46	633:00:00	95.58	JCAN100	400.98	1,736.55	J-2124	-17.14	1,058.01	804.06	20.00	64.73		
JCAN110	1.50	961.22	PZM2	111.30	480:00:00	94.95	633:00:00	106.07	JCAN110	403.44	1,925.51	J-2124	-26.34	1,036.79	805.78	20.00	75.49		
JCAN120	1.29	1,032.41	PZM2	80.31	480:00:00	64.56	633:00:00	75.25	JCAN120	402.95	1,319.05	J-2124	2.48	1,103.29	819.41	20.00	43.58		
JCAN16	3.45	954.50	PZM2	114.55	480:00:00	97.85	633:00:00	109.13	JCAN16	407.9	1,670.12	J-2124	-15.33	1,062.20	794.13	20.00	74.38		
JCAN170	0.43	951.22	PZM2	115.62	480:00:00	99.26	633:00:00	110.39	JCAN170	400.98	1,579.60	J-2124	-8.6	1,077.73	804.06	20.00	72.26		
JCAN18	0.14	1,000.38	PZM2	94.94	480:00:00	77.95	633:00:00	89.37	JCAN18	400.32	1,336.61	J-2124	0.1	1,097.80	780.70	20.00	53.16		
JCAN180	0.87	960.13	PZM2	111.76	480:00:00	95.40	633:00:00	106.53	JCAN180	401.99	1,703.61	J-2124	-14.19	1,064.81	805.06	20.00	72.05		
JCAN190	1.08	939.13	PZM2	120.82	480:00:00	104.41	633:00:00	115.59	JCAN190	402.47	1,821.93	J-2124	-20.79	1,049.60	809.60	20.00	80.72		
JCAN20	0.65	889.52	PZM2	142.32	480:00:00	125.85	633:00:00	137.07	JCAN20	401.49	2,178.07	J-2124	-39.23	1,007.02	807.84	20.00	102.97		
JCAN200	2.80	1,022.62	PZM2	84.63	480:00:00	68.30	633:00:00	79.43	JCAN200	406.41	1,312.80	J-2124	2.22	1,102.69	814.08	20.00	45.76		
JCAN210	3.45	1,021.81	PZM2	84.95	480:00:00	68.67	633:00:00	79.78	JCAN210	407.9	1,382.16	J-2124	0.88	1,099.59	818.50	20.00	47.00		
JCAN220	2.80	1,031.88	PZM2	80.46	480:00:00	64.49	633:00:00	75.46	JCAN220	406.41	1,280.22	J-2124	4.31	1,107.51	827.60	20.00	42.55		
JCAN23	0.65	1,018.35	PZM2	85.97	480:00:00	72.09	633:00:00	81.44	JCAN23	401.49	1,610.99	J-2124	-5.74	1,084.33	874.20	20.00	52.09		
JCAN230	1.29	1,016.37	PZM2	87.13	480:00:00	71.30	633:00:00	82.20	JCAN230	402.95	1,429.18	J-2124	-1.45	1,094.22	828.77	20.00	50.02		
JCAN240	1.34	1,012.68	PZM2	88.69	480:00:00	72.95	633:00:00	83.81	JCAN240	403.07	1,459.78	J-2124	-2.41	1,092.01	833.78	20.00	51.63		
JCAN250	3.94	1,019.94	PZM2	85.53	480:00:00	69.81	633:00:00	80.67	JCAN250	409.02	1,479.56	J-2124	-1.64	1,093.79	841.63	20.00	49.22		
JCAN260	0.37	1,025.37	PZM2	83.17	480:00:00	67.61	633:00:00	78.33	JCAN260	400.85	1,446.63	J-2124	-1.84	1,093.33	834.03	20.00	47.87		
JCAN27	0.87	977.16	PZM2	105.13	480:00:00	87.83	633:00:00	99.43	JCAN27	401.99	1,228.28	J-2358	-8.64	1,061.59	723.11	20.00	58.68		
JCAN270	0.37	1,034.12	PZM2	79.37	480:00:00	64.06	633:00:00	74.55	JCAN270	400.85	1,441.54	J-2124	-0.26	1,096.96	836.90	20.00	44.82		
JCAN28	1.50	1,068.16	PZM2	64.59	480:00:00	50.02	633:00:00	59.87	JCAN28	403.44	1,101.91	J-2124	12.95	1,127.47	853.12	20.00	29.43		
JCAN280	1.49	1,035.43	PZM2	78.77	480:00:00	63.95	633:00:00	74.02	JCAN280	403.41	1,532.81	J-2124	-3.48	1,089.53	848.22	20.00	45.89		
JCAN290	0.07	1,045.71	PZM2	74.32	480:00:00	59.49	633:00:00	69.57	JCAN290	400.16	1,280.64	J-2124	6.26	1,112.01	844.97	20.00	38.49		
JCAN300	0.07	1,080.06	PZM2	59.09	480:00:00	45.82	633:00:00	54.73	JCAN300	400.16	1,072.32	J-2124	15.76	1,133.93	927.45	20.00	25.33		
JCAN310	1.08	1,029.97	PZM2	80.82	480:00:00	67.46	633:00:00	76.43	JCAN310	402.47	1,834.31	J-2124	-10.53	1,073.28	924.55	20.00	50.56		
JCAN330	1.07	1,035.97	PZM2	78.58	480:00:00	62.52	633:00:00	73.71	JCAN330	402.45	1,119.83	J-2124	10.6	1,122.03	835.97	20.00	36.54		
JCAN340	0.65	1,028.12	PZM2	82.00	480:00:00	66.26	633:00:00	77.12	JCAN340	401.49	1,234.92	J-2124	6.31	1,112.13	832.20	20.00	42.15		
JCAN350	4.74	979.56	PZM2	103.48	480:00:00	87.00	633:00:00	98.18	JCAN350	410.85	1,808.88	J-2124	-19.44	1,052.71	806.75	20.00	67.63		

MODEL RESULTS - PROPOSED

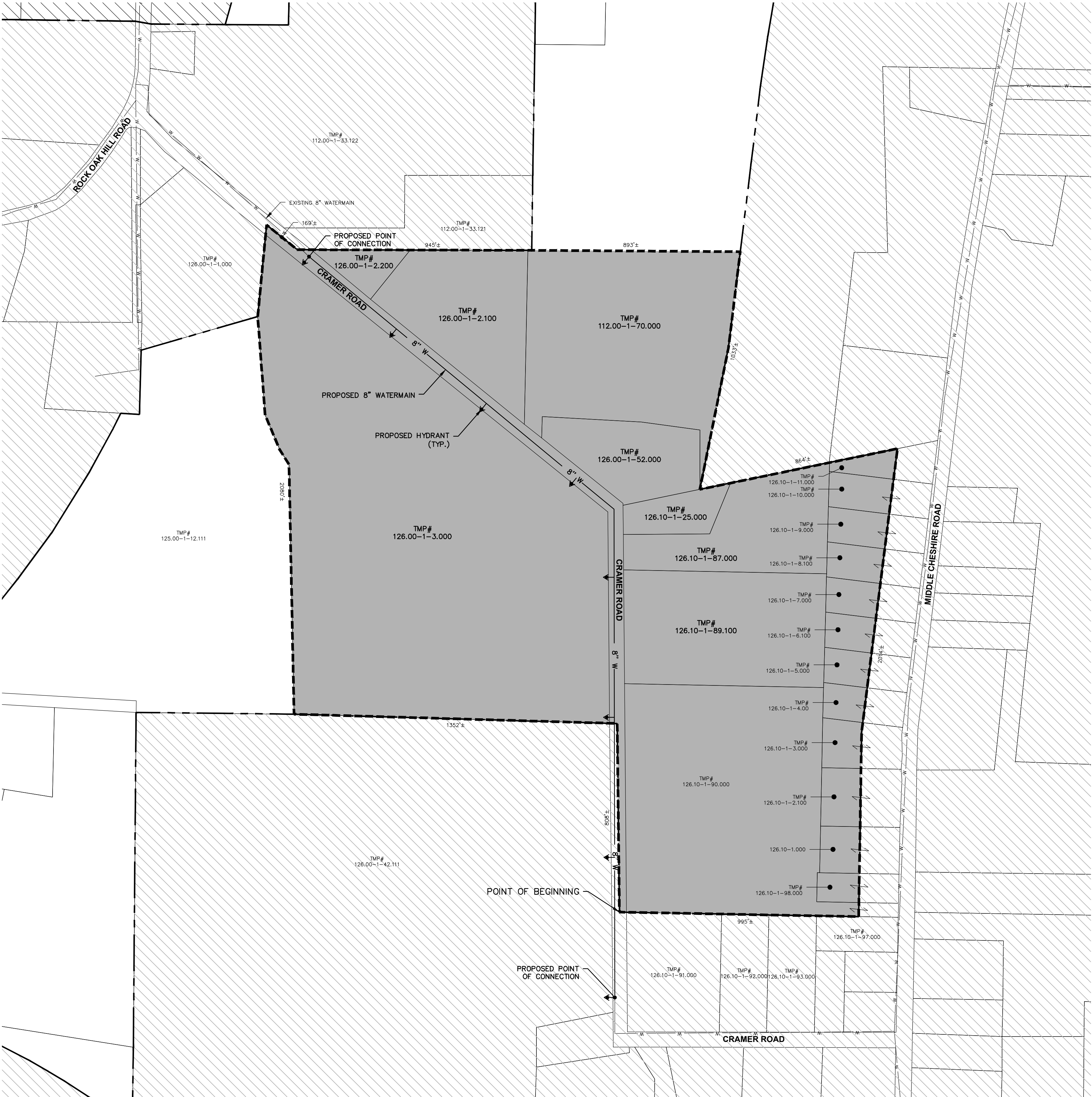
ID	Demand (gpm)	Elevation (ft)	Zone ID	Max.Value (psi)	Max.Time (hrs.)	Min.Value (psi)	Min.Time (hrs.)	Average (psi)	ID	Total	Available Flow		Critical Node Pressure (psi)	Critical Node Head (ft)	Design Flow (gpm)	Design Pressure (psi)	Node Pressure (psi)	Notes	
										Demand (gpm)	at Hydrant (gpm)	Critical Node ID							
JCAN360	1.08	961.57	PZM2	111.34	480:00:00	94.79	633:00:00	106.00	JCAN360	402.47	1,904.77	J-2124	-26.38	1,036.69	795.24	20.00	75.53		
JCAN38	1.94	927.93	PZM2	126.59	480:00:00	109.33	633:00:00	120.88	JCAN38	404.44	2,064.06	J-2124	-37.36	1,011.35	781.54	20.00	89.76		
JCAN410	1.72	991.49	PZM2	98.51	480:00:00	81.83	633:00:00	93.10	JCAN410	403.94	1,718.17	J-2124	-16.45	1,059.61	790.57	20.00	62.85		
JCAN420	1.72	980.80	PZM2	103.17	480:00:00	86.46	633:00:00	97.74	JCAN420	403.94	1,803.69	J-2124	-20.86	1,049.44	789.13	20.00	67.60		
JCAN430	2.37	982.94	PZM2	102.26	480:00:00	85.53	633:00:00	96.83	JCAN430	405.43	1,768.12	J-2124	-20.53	1,050.20	789.58	20.00	66.75		
JCAN44	1.50	878.63	PZM2	148.30	480:00:00	130.73	633:00:00	142.44	JCAN44	403.44	2,322.48	J-2124	-53.89	973.21	774.26	20.00	111.07		
JCAN440	8.40	966.17	PZM2	109.53	480:00:00	92.79	633:00:00	104.09	JCAN440	419.24	1,419.96	J-2124	-2.35	1,092.14	803.39	20.00	64.26		
JCAN45	1.50	972.37	PZM2	107.62	480:00:00	90.13	633:00:00	101.79	JCAN45	403.44	1,772.66	J-2124	-21.29	1,048.43	773.68	20.00	70.57		
JCAN450	4.09	961.03	PZM2	111.71	480:00:00	95.20	633:00:00	106.33	JCAN450	409.37	1,862.13	J-2124	-26.29	1,036.90	785.78	20.00	76.01		
JCAN460	1.08	1,003.07	PZM2	93.39	480:00:00	77.38	633:00:00	88.15	JCAN460	402.47	1,744.36	J-2124	-20.95	1,049.23	761.27	20.00	60.94		
JCAN470	6.03	986.30	PZM2	101.04	480:00:00	84.05	633:00:00	95.47	JCAN470	413.81	1,732.33	J-2124	-17.43	1,057.34	794.18	20.00	64.80		
JCAN480	4.31	922.87	PZM2	128.70	480:00:00	111.53	633:00:00	123.04	JCAN480	409.87	2,110.34	J-2124	-39.49	1,006.44	788.01	20.00	92.04		
JCAN500	1.50	819.33	PZM2	174.29	480:00:00	156.39	633:00:00	168.29	JCAN500	403.44	2,658.90	J-2124	-73.91	927.00	775.46	20.00	136.65		
JCAN510	0.87	862.37	PZM2	155.36	480:00:00	137.77	633:00:00	149.50	JCAN510	401.99	2,397.07	J-2124	-58.6	962.32	772.99	20.00	117.97		
JCAN530	0.23	804.59	PZM2	180.79	480:00:00	162.78	633:00:00	174.75	JCAN530	400.53	2,714.68	J-2124	-77.56	918.57	772.42	20.00	142.86		
JCAN540	2.37	809.21	PZM2	178.65	480:00:00	160.76	633:00:00	172.66	JCAN540	405.43	2,430.29	J-2124	-60.6	957.72	775.75	20.00	138.37		
JCAN550	3.24	929.40	PZM2	126.13	480:00:00	108.68	633:00:00	120.33	JCAN550	407.42	1,789.88	J-2124	-23.58	1,043.16	775.67	20.00	85.58		
JCAN560	1.72	994.83	PZM2	97.58	480:00:00	80.30	633:00:00	91.86	JCAN560	403.94	1,346.08	J-2124	-2.37	1,092.10	771.13	20.00	55.64		
JCAN570	0.65	1,016.14	PZM2	88.24	480:00:00	71.06	633:00:00	82.57	JCAN570	401.49	1,298.42	J-2358	-8.36	1,062.24	762.25	20.00	48.38		
JCAN580	0.43	1,020.45	PZM2	86.37	480:00:00	69.18	633:00:00	80.70	JCAN580	400.98	1,210.34	J-2358	-6.31	1,066.97	731.99	20.00	46.44		
JCAN590	0.07	1,010.23	PZM2	90.80	480:00:00	73.63	633:00:00	85.13	JCAN590	400.16	1,348.32	J-2124	-1.49	1,094.13	766.95	20.00	50.95		
JCAN600	0.87	1,029.35	PZM2	82.52	480:00:00	65.32	633:00:00	76.84	JCAN600	401.99	1,175.14	J-2358	-2	1,076.91	761.94	20.00	42.34		
JCAN610	2.15	978.28	PZM2	104.65	480:00:00	87.40	633:00:00	98.96	JCAN610	404.92	1,407.15	J-2358	-17.1	1,042.07	759.54	20.00	62.10		
JCAN620	0.22	939.65	PZM2	121.38	480:00:00	104.12	633:00:00	115.69	JCAN620	400.5	1,478.61	J-2358	-21.05	1,032.96	755.12	20.00	75.17		
JCAN630	0.22	950.52	PZM2	116.68	480:00:00	99.41	633:00:00	110.98	JCAN630	400.5	1,326.01	J-2358	-12.03	1,053.77	755.12	20.00	67.80		
JCAN640	1.08	910.29	PZM2	134.11	480:00:00	116.83	633:00:00	128.41	JCAN640	402.47	1,331.66	J-2358	-11.09	1,055.93	757.09	20.00	78.79		
JCAN650	1.08	964.00	PZM2	110.84	480:00:00	93.57	633:00:00	105.14	JCAN650	402.47	1,225.33	J-2358	-5.52	1,068.79	757.09	20.00	60.17		
JCAN660	3.02	880.73	PZM2	146.92	480:00:00	129.50	633:00:00	141.18	JCAN660	406.92	1,495.49	J-2358	-26.23	1,020.99	741.60	20.00	94.86		
JCAN670	0.75	938.21	PZM2	122.01	480:00:00	104.70	633:00:00	116.30	JCAN670	401.72	1,400.38	J-2358	-20	1,035.37	727.38	20.00	75.07		
JCAN680	0.07	942.99	PZM2	119.94	480:00:00	102.43	633:00:00	114.18	JCAN680	400.16	1,105.83	J-2358	-0.36	1,080.70	734.85	20.00	60.28		
JCAN690	1.29	934.68	PZM2	123.54	480:00:00	106.03	633:00:00	117.78	JCAN690	402.95	1,089.31	J-2358	0.81	1,083.39	737.64	20.00	60.99		
JCAN700	2.15	941.23	PZM2	120.70	480:00:00	103.07	633:00:00	114.91	JCAN700	404.92	965.62	J-2358	8.13	1,100.30	739.61	20.00	49.82		
JCAN710	0.65	912.18	PZM2	133.28	480:00:00	115.61	633:00:00	127.49	JCAN710	401.49	1,002.07	J-2358	5.86	1,095.06	736.18	20.00	58.44		
JCAN80	1.94	993.10	PZM2	97.45	480:00:00	81.08	633:00:00	92.23	JCAN80	404.44	1,676.22	J-2124	-12.65	1,068.39	809.56	20.00	60.60		
JCAN840	1.08	885.72	PZM2	144.75	480:00:00	127.45	633:00:00	139.05	JCAN840	402.47	1,141.96	J-2358	-0.43	1,080.54	757.09	20.00	74.55		
JCAN850	0.43	882.58	PZM2	146.11	480:00:00	128.81	633:00:00	140.41	JCAN850	400.98	1,130.81	J-2358	0.08	1,081.72	755.60	20.00	74.55		
JCAN860	1.94	1,029.47	PZM2	82.68	480:00:00	65.44	633:00:00	76.95	JCAN860	404.44	1,367.39	J-2124	-2.02	1,092.91	773.15	20.00	46.26		
JCAN870	2.15	1,019.85	PZM2	86.29	480:00:00	69.96	633:00:00	80.92	JCAN870	404.92	1,547.34	J-2124	-10.75	1,072.75	766.23	20.00	52.64		
JCAN880	0.07	1,020.91	PZM2	85.07	480:00:00	70.50	633:00:00	80.34	JCAN880	400.16	1,768.30	J-2124	-13.53	1,066.33	849.85	20.00	53.74		
JCAN890	1.72	1,005.58	PZM2	92.08	480:00:00	76.61	633:00:00	87.03	JCAN890	403.94	1,753.89	J-2124	-19.86	1,051.74	791.54	20.00	59.95		
JCAN90	0.65	1,002.96	PZM2	93.20	480:00:00	76.83	633:00:00	87.97	JCAN90	401.49	1,589.27	J-2124	(10.23)	1,073.96	805.61	20.00	56.72		
JCAN900	1.72	1,029.00	PZM2	82.62	480:00:00	65.73	633:00:00	77.03	JCAN900	403.94	1,383.93	J-2124	-4.16	1,087.96	769.97	20.00	47.29		
JCAN910	0.22	1,046.19	PZM2	75.18	480:00:00	58.23	633:00:00	69.57	JCAN910	400.5	1,175.04	J-2124	4.75	1,108.53	766.92	20.00	38.49		
JCAN920	1.72	1,048.74	PZM2	74.10	480:00:00	57.03	633:00:00	68.46	JCAN920	403.94	1,089.97	J-2124	8.33	1,116.78	770.61	20.00	35.51		
JPRVCAN--2	5.61	943.14	PZM2	119.12	480:00:00	102.76	633:00:00	113.90	JPRVCAN--2	412.85	1,479.34	J-2124	-4.94	1,086.16	815.92	20.00	71.99		
JPRVCAN--3	4.31	890.03	PZM2	142.48	480:00:00	125.78	633:00:00	137.06	JPRVCAN--3	409.87	1,696.06	J-2124	-15.15	1,062.61	796.10	20.00	95.59		
JPRVCAN--5	0.22	956.57	PZM2	113.51	480:00:00	96.93	633:00:00	108.17	JPRVCAN--5	400.5	1,234.30	J-2124	4.11	1,107.05	793.27	20.00	59.78		
Total										178.94 gpm									
Minimum												36.43				483.55			
Average																			
Maximum																927.54			

MODEL RESULTS - PROPOSED

ID	Demand (gpm)	Elevation (ft)	Zone ID	Max.Value (psi)	Max.Time (hrs.)	Min.Value (psi)	Min.Time (hrs.)	Average (psi)	-	ID	Total Demand (gpm)	Available Flow at Hydrant (gpm)	Critical Node ID	Critical Node Pressure (psi)	Critical Node Head (ft)	Design Flow (gpm)	Design Pressure (psi)	Design Fire Node Pressure (psi)	Notes
NOTES: ID: Junction identification Demand: Average daily demand at the junction. Elevation: Junction ground elevation (NAD88). Zone ID: Hydraulic grade zone identificatoin. Max. Value: Maximum pressure at junction. Max. Time: Model run time corresponding to maximum value. Min. Value: Minimum pressure at junction. Min. Time: Model run time corresponding to minimum value. Average: Average prssure at junction.										NOTES: Run Time: Extended period run time utilized for fire flow analysis. ID: Junction identification Total Demand: Base fire demand plus Demand at junction at Run Time. Available Flow at Hydrant: Flow available at junction when <i>junction</i> pressure is 20 psi. Critical Node ID: Junction within the <i>System</i> with lowest pressure at Available Flow at Hydrant. Critical Node Pressure: Pressure at Crital Node. Critical Node Head: Hydraulic grade at Critical Node. Design Flow: Flow available at juntion when Critial Node (minimum <i>system</i>) pressure is 20 psi. Design Pressure: Pressure at Critical Node duirng Design Flow. Design Fire Node Pressure: Pressure at node duirng Design Flow.									

APPENDIX G

DISTRICT MAP



LEGEND

CANANDAIGUA CONSOLIDATED WATER DISTRICT

PROPOSED CRAMER ROAD WATER DISTRICT EXTENSION

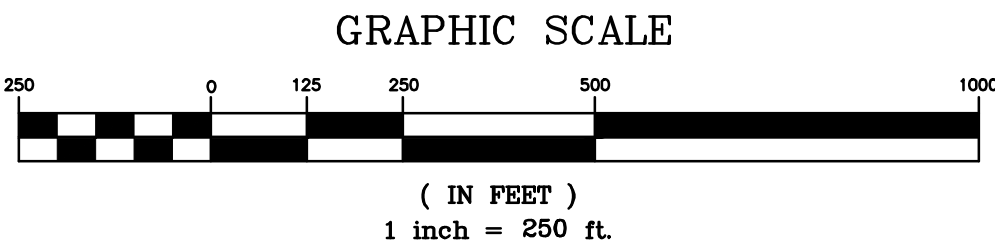
EXISTING WATER DISTRICT BOUNDARY

PROPOSED WATER DISTRICT BOUNDARY

EXISTING WATERMAIN

PROPOSED WATERMAIN

PROPOSED HYDRANT



DRAWING ALTERATION:
THE FOLLOWING IS AN EXCERPT FROM THE NEW YORK EDUCATION LAW ARTICLE 145 SECTION 7209 AND APPLIES TO THIS DRAWING.
"IT IS A VIOLATION OF THIS LAW FOR ANY PERSON UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER OR LAND SURVEYOR TO ALTER AN ITEM IN ANY WAY, IF AN ITEM BEARING THE SEAL OF AN ENGINEER OR LAND SURVEYOR IS ALTERED, THE ALTERING ENGINEER OR LAND SURVEYOR SHALL AFFIX TO THE ITEM HIS SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY HIS SIGNATURE AND THE DATE OF SUCH ALTERATION AND A SPECIFIC DESCRIPTION OF THE ALTERATION".

Project Title: CRAMER ROAD WATER DISTRICT EXTENSION TOWN OF CANANDAIGUA ONTARIO COUNTY, NEW YORK		Drawing Title: DISTRICT MAP AND PLAN	
Drawn By: DAH	Checked By: GJH	Scale: 1" = 250'	
Date: APRIL 2018		Date: APRIL 2018	
Sheet No. G		Project No. 0300.18004	
1 of 1		No. Revisions and Descriptions By Date Copyright © 2018 MRB Group All Rights Reserved	

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APPENDIX H

DISTRICT DESCRIPTION

SCHEDULE A

DESCRIPTION OF PROPOSED CRAMER RD WATER DISTRICT EXTENSION

ALL THAT TRACT OR PARCEL OF LAND, situate in the Town of Canandaigua, County of Ontario, and State of New York, as shown on a map prepared by MRB Group, P.C. dated 04/2018, entitled “Cramer Road Water District Extension – District Map and Plan” and being more particularly bounded and described as follows:

Beginning at a point marking the intersection of the existing northerly boundary line of the existing Canandaigua Consolidated Water District and the existing centerline of Cramer Road; thence,

- (1) Northerly, along the existing centerline of Cramer Road to a point marking the existing northeast corner of the existing Canandaigua Consolidated Water District; thence,
- (2) Westerly, along the existing common division line between the existing Canandaigua Consolidated Water District and Tax Map Parcel (TMP) 126.00-1-3.000, to a point marking the existing southwest corner of TMP 126.00-1-3.000; thence,
- (3) Northerly, along the existing westerly boundary line of TMP 126.00-1-3.00, said also being the existing easterly boundary line of TMP 125.00-1-12.111 and TMP 126.00-1-1.000, to a point at its intersection with the existing centerline of Cramer Road; thence,
- (4) Southeasterly, along the last mentioned existing centerline to a point marking the existing northwest corner of TMP 126.00-1-2.2000; thence,
- (5) Easterly, along the existing southerly boundary line of the Canandaigua Consolidated Water District, said also being the existing northerly boundary line of TMP 126.00-1-2.2000, and TMP 126.00-1-2.100 and through the lands of TMP 112.00-1-70.000 to a point at its intersection with the existing westerly boundary of the Canandaigua Consolidated Water District; thence,
- (6) Southerly, along the last mentioned existing westerly boundary to a point at its intersection with the existing northerly boundary of TMP 126.10-1-25.000; thence,
- (7) Easterly, along the last mentioned existing northerly boundary, said also being the existing southerly boundary line of the Canandaigua Consolidated Water District, to a point at its intersection with the existing westerly boundary line of the Canandaigua Consolidated Water District; thence,
- (8) Southerly, along the existing westerly boundary line of the Canandaigua Consolidated Water District and through the lands of TMP 126.10-1-11.000, TMP 126.10-1-

10.000, TMP 126.10-1-9.000, TMP 126.10-1-8.100, TMP 126.10-1-7.000, TMP 126.10-1-6.100, TMP 126.10-1-5.000, TMP 126.10-1-4.000, TMP 126.10-1-3.000, TMP 126.10-1-2.100, TMP 126.10-1-1.000, TMP 126.10-1-98.000, and TMP 126.10-1-90.000, to a point at its intersection with the existing northerly boundary line of the existing Canandaigua Consolidated Water District; thence,

- (9) Westerly, along the last mentioned northerly boundary line to the Point and Place of Beginning, containing 5,409,443 $\pm$ square feet or 124 $\pm$ acres of land, more or less

HEREBY INTENDING TO DESCRIBE IN ITS ENTIRETY, all those parcels of land, in the Town of Canandaigua, Ontario County, New York, to be collectively known and identified as Cramer Road Watermain Extension.

APPENDIX I

ASSESSMENT INFORMATION

Cramer Road Watermain Extension to the Town of Canandaigua Consolidated Water District

Tax Account Number	Name	Address	Total Assessed Value (\$)	Structure Assessed Value (\$)	Land Assessed Value (\$)	Acreage	Ag. Dist Exempt (Y or N)	Property Class Code	Taxable Assessed Value	Percent in District	Total TAV
<u>Properties Benefiting from District Extension</u>											
126.00-1-2.200	Roberts, Jonathan E	5425 Cramer Rd	128,800.00	109,000.00	19,800.00	1.1	N	210 - 1 family residence	128,800.00	100%	128,800.00
126.00-1-2.100	James B Oliver, Toni Stevens-Oliver	5431 Cramer Rd	357,800.00	328,100.00	29,700.00	7.1	N	210 - 1 family residence	357,800.00	100%	357,800.00
126.00-1-52.000	Dehond, Pieter	5411 Cramer Rd	168,200.00	141,800.00	26,400.00	4.1	N	210 - 1 family residence	168,200.00	100%	168,200.00
126.10-1-25.000	D'Antonio, Michael & Penelope	5403 Cramer Rd	211,700.00	189,400.00	22,300.00	1.6	N	210 - 1 family residence	211,700.00	100%	211,700.00
126.10-1-87.000	D'Antonio, Michael & Penelope	Cramer Rd	22,500.00	-	22,500.00	6.0	N	322 - Rural vacant >10 ac	22,500.00	100%	22,500.00
126.10-1-89.100	Chad Cleveland, Laura J Daily	5395 Cramer Road	314,000.00	257,900.00	56,100.00	9.6	N	210 - 1 family residence	314,000.00	100%	314,000.00
126.10-1-90.000	Spychalski, Dean & Deborah	5365 Cramer Road	265,000.00	180,000.00	85,000.00	19.3	N	240 - Rural residential	265,000.00	100%	265,000.00
112.00-1-70.000	K & P Associates, Ltd.	3990 Middle Cheshire R	308,000.00	28,000.00	280,000.00	103.7	Y	116 - Other stock	95,880.00	0%	-
126.00-1-3.000	Pleasure Acres, LLC	5420 Cramer Rd	103,800.00	-	103,800.00	47.2	Y	120 - Field crops	30,030.00	0%	-
<u>Properties Fronting Middle Cheshire Road Excluded From District Costs</u>											
126.10-1-11.000	VanNorman, Timothy D	4154 Middle Cheshire R	126,000	99,800.00	26,200	1.2	N	210 - 1 family residence	126,000.00	0%	-
126.10-1-10.000	Kelley, Keith	4158 Middle Cheshire R	195,000	167,700.00	27,300	1.5	N	210 - 1 family residence	195,000.00	0%	-
126.10-1-9.000	Proper, Brian	4160 Middle Cheshire R	122,000	95,100.00	26,900	1.4	N	210 - 1 family residence	122,000.00	0%	-
126.10-1-8.100	Hayes, Daniel T	4162 Middle Cheshire R	161,000	134,100.00	26,900	1.4	N	210 - 1 family residence	161,000.00	0%	-
126.10-1-7.000	Buchholz, Timothy J	4170 Middle Cheshire R	169,000	142,100.00	26,900	1.4	N	210 - 1 family residence	169,000.00	0%	-
126.10-1-6.100	Federal Home Loan Mortgage	4188 Middle Cheshire R	172,000	145,400.00	26,600	1.3	N	210 - 1 family residence	172,000.00	0%	-
126.10-1-5.000	Morrison, June M	4192 Middle Chehsire R	176,000	149,400.00	26,600	1.3	N	210 - 1 family residence	176,000.00	0%	-
126.10-1-4.000	Nemitz, Steven G	4230 Middle Cheshire R	196,000	169,800.00	26,200	1.2	N	210 - 1 family residence	196,000.00	0%	-
126.10-1-3.000	Rundt, George B	4240 Middle Cheshire R	230,000	202,700.00	27,300	1.5	N	210 - 1 family residence	230,000.00	0%	-
126.10-1-2.100	Malley, Theodore	4260 Middle Cheshire R	187,000	158,300.00	28,700	1.9	N	210 - 1 family residence	187,000.00	0%	-
126.10-1-1000	Davis, Lawrence	4280 Middle Cheshire R	130,600	102,900.00	27,700	1.6	N	210 - 1 family residence	130,600.00	0%	-
126.10-1-98.000	Hoven, Gary	4320 Middle Cheshire R	177,000	151,500.00	25,500	1.0	N	210 - 1 family residence	177,000.00	0%	-

Total **\$1,468,000.00**
Average **\$209,714.29**
Average TAV Single Family Home **\$240,916.67**