Map, Plan and Report

Route 89 Water District

Town of Romulus, New York

CHA Project Number: 30782.1000.30200

Prepared for:

Town of Romulus
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November 2015
(revised May 2016)
(revised Sept 2016)

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1.0 INTRODUCTION

1.1 BACKGROUND

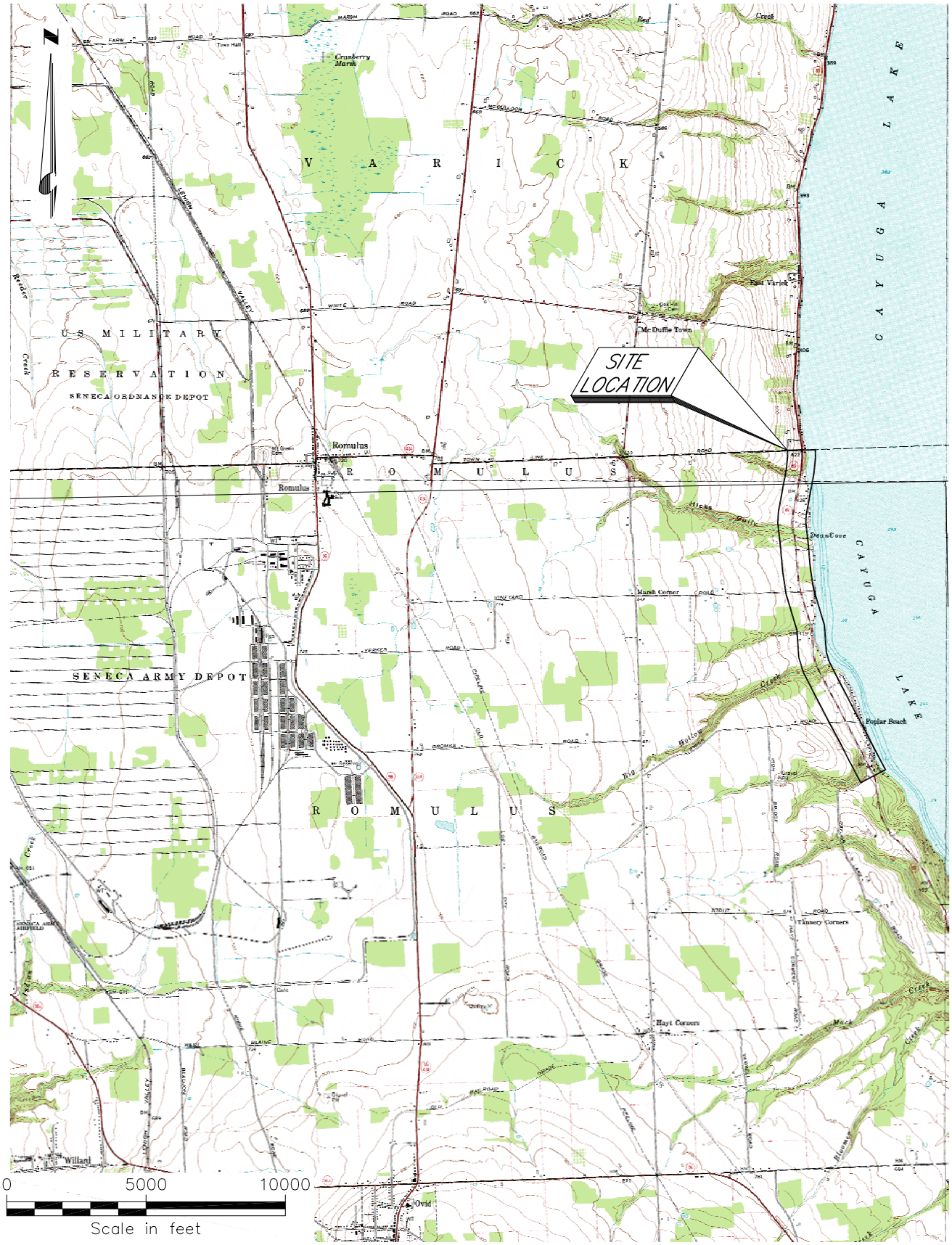
The Town of Romulus (Town) is located in central Seneca County, approximately 50 miles southwest of Syracuse, New York. The Town has proposed to create a new water district along NYS Route 89, which follows the western shore of Cayuga Lake extended from the Varick Town line south to the Poplar Shore area. A site location map of the area is shown on the following page.

Based on a recent survey, residents in the project area have expressed the need for a public water supply due to various problems with their existing individual water systems. Most systems are supplied from either Cayuga Lake or private groundwater wells. Residents that obtain water from Cayuga Lake have observed water quality problems due to turbidity, bacteria, runoff, and migratory fowl habitation. Water quantity can also be a problem as zebra mussel infestations have clogged many intakes. In addition, variations in Cayuga Lake water levels often leave private intakes dry during portions of the year. For residents with private wells, water quality and yields are often poor. Many private wells have sulfur or other inorganic quality problems.

1.2 PURPOSE AND SCOPE

The Town has authorized CHA Consulting Inc. (CHA) to prepare a Map, Plan and Report (MPR) for the proposed Route 89 Water District. The purpose of the MPR is to evaluate the feasibility of connecting to the Town of Varick water system and creating the Route 89 Water District within the Town of Romulus. This report is an updated version of the report that was first prepared in 2001 and again in 2009. This report will provide the Town with information on key issues associated with providing a new public water system to the properties within the proposed district and includes the following:

- Boundary of the proposed water district;
- Source of water to be used;
- General plan for the required facilities;
- Estimated capital cost;
- Estimated operation and maintenance costs; and
- Methods of financing for the project.



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LOCATION MAP

TOWN OF ROMULUS
NYS ROUTE 89 WATER DISTRICT
ROMULUS, NEW YORK

PROJECT NO. 30782

DATE: DEC. 2015

FIGURE 1

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2.0 EXISTING FACILITIES

Currently there is no public water system for the properties located within the proposed water district. The existing development within the proposed district is made up largely of single family homes currently served by individual groundwater wells or systems that withdraw water directly from Cayuga Lake.

3.0 PROPOSED WATER DISTRICT

3.1 DISTRICT BOUNDARY

In determining the area to be served by the proposed water district, and the required facilities needed to service this area, a number of factors were considered, including:

- Source of water supply;
- Servicing the greatest number of parcels at an affordable user cost;
- Limits of area to be served by existing available pressure; and
- Areas of need for potable water as identified by the residents of the area through the petitioning process.

As described in Section 1.1, the proposed water district will connect to the Town of Varick water system at the Varick/Romulus town line and extend south along NYS Route 89. Properties with direct frontage along NYS Route 89 and ancillary roads in the vicinity of NYS Route 89 will be included within the district boundary. A boundary map of the proposed Route 89 Water District is included as Appendix A. This map shows the area to be served by the proposed water district and each of the proposed parcels to be serviced by public water. All properties that are included in the proposed district would be able to connect to the proposed water system once constructed.

A list of all properties, based on available tax roll information, which would be included (wholly or partially) in the Route 89 Water District is included as Appendix B. Appendix C contains a description of the proposed district boundary.

3.2 WATER SUPPLY REQUIREMENTS

Water for the proposed district will be supplied through the Town of Varick's existing water system along NYS Route 89 which is supplied through the Town of Fayette by the Town Seneca Falls. Seneca Falls source of water is Cayuga Lake and is an approved surface water source by the New York State Department of Environmental Conservation (NYSDEC). It is assumed that the Town of Seneca Falls will maintain these approvals for the proposed Route 89 Water District. Based on the estimated water demands for the proposed district, the existing approved sources are sufficient to supply the proposed area.

Water supply demand estimates for the proposed district were based on a flow rate 70,000 gallon per year per equivalent dwelling unit (EDU). For the purposes of the MPR, an EDU is defined as the water demand required for a single-family residence as determined by the Town. Generally, a single family home with less than 1 acre of land will be assessed 1 EDU. In addition, commercial and industrial properties will be assessed EDUs based on the Town's EDU Assessment Schedule that is included as part of Appendix D.

The proposed district has a total of 167 EDUs (Approximately 129 homes, 3 wineries, and 28 vacant parcels), as summarized in Appendix B. Based on the total number of EDUs and the

estimated usage, the total average daily demand is estimated to be 30,000 gallons per day (gpd). The maximum day demand would be approximately two times the average daily demand or 60,000 gpd. A copy of the water demand calculations are included as Appendix E.

3.3 REQUIRED WATER SYSTEM FACILITIES

The proposed Route 89 Water District will connect to the Town of Varick water system with a tapping sleeve and valve located at the northern end of NYS Route 89 at the Varick/Romulus town line. A master meter station will be installed at this location to meter all water used by the Town. From this location, 6” C900 PVC water main will extend approximately 12,500 linear feet through the Town. An additional 5,600 linear feet of 6" diameter C900 PVC main will be installed in the Poplar Shore area and extend up portions of Swick and Vineyard Roads. Water services will be installed, ending at the right-of-way with a curb stop and meter. The proposed system will provide domestic water only to water district, however a dry hydrant is proposed to assist with fire protection. The location of the dry hydrant will be evaluated as part of the design of the distribution system. Individual water meters will be available for purchase from the Town for those property owners connecting to the system in the future. A copy of the proposed water infrastructure maps are included as Appendix F.

In addition to the infrastructure required for the water system, the Town will need to create an inter-municipal agreement (IMA) with the Town of Varick to establish an equitable share of the required payments for water purchase and operation and maintenance. The basis for this agreement will be the relative benefits realized and the actual water used by each town.

3.4 PROPOSED SYSTEM HYDRAULICS

A hydraulic model was developed to evaluate the hydraulics (pressure and flows) of the proposed water district using the software package WaterCAD V8i, as developed by Bentley Systems, Inc. The layout of the system uploaded into the modeling program was derived from the previously developed MPR and discussions with the Town of Romulus.

The hydraulic analyses of the proposed system was calibrated based on a recent hydrant flow test performed at the future connection with the Town of Varick (corner of NYS Route 89 and Varick-Romulus Townline Road). A copy of the hydrant flow test results are included as Appendix G. Based on the hydraulic model results, it is anticipated that water system pressures will range from 55 to 95 psi in most locations. Areas to the west of NYS Route 89, along Vineyard and Swick Roads, are at higher elevations and individual booster pumps will be needed to provide adequate domestic water pressure to these service connections. A copy of the hydraulic modeling results are included as Appendix H.

4.0 DISTRICT FORMATION COSTS

4.1 CAPITAL COSTS

The total estimated capital cost for the Town's Route 89 Water District is $2,677,000, including all construction costs, and legal, fiscal, engineering, and administration costs. The construction cost portion associated with water system for the Route 89 Water District, as described in this report, is $2,024,000. A copy of the detailed capital cost estimate is included as Appendix I.

4.2 OPERATION AND MAINTENANCE COSTS

Operation and maintenance costs are based on the day-to-day work involved in providing water to users within the proposed district. It should be noted that, until an IMA is reached with the Town of Varick for the purchase of bulk water, it is unknown what the approximate operation and maintenance costs will be. However, based on typical industry standards it can be assumed that each property owner who chooses to connect to the water mains will be charged a rate of approximately $3.50 per 1,000 gallons of water used.

5.0 IMPLEMENTATION PLAN

5.1 COST APPORTIONMENT

Cost apportionment for the debt service will be based on the EDU system, which was proposed in the previously submitted MPR. As discussed in Section 3.2 a copy of the Town's proposed EDU Assessment Schedule is included as Appendix D with a list of properties included in the district as Appendix B. The proposed district will include approximately 167 EDUs which results in an annual debt service charge of approximately $514.08 per EDU. This rate has been calculated based on a preliminary financing package from Rural Development assuming a 38 year loan at an interest rate of 2.25% and a potential $500,000 grant. Please note that this does not include any other potential funding sources to offset construction costs. Financing options are discussed in Section 5.2 below.

5.2 CONSTRUCTION FINANCING

As discussed in Section 4.1, the total estimated capital cost for the Route 89 Water District is $2,677,000. Based on the number EDUs included in the proposed district additional funding/financing will be needed to make this an affordable option for the residents. There are multiple funding sources available to the Town to assist with the construction of the proposed Route 89 Water District and include the following:

- Drinking Water State Revolving Fund (Administered by EFC and the NYSDOH);
- United States Department of Rural Development; and
- New York State Community Development Block Grant (low to moderately low income areas).

It is recommended that the Town further evaluate these funding options to offset potential construction costs of installing the infrastructure prior to moving forward with the formation of the proposed district.

5.3 OPERATION AND MAINTENANCE COST APPORTIONMENT

The cost of operation and maintenance would include the costs to operate, maintain, and supply the water distribution system. Based on an estimated annual usage of 70,000 gallons per year, and an existing operation and maintenance rate of $3.50 per 1,000 gallons (based on a review of current rate structures), a single family residential dwelling rated at 1 EDU would be charged approximately $267.96 per year.

5.4 USER COST SUMMARY

The combination of debt retirement charge and the annual operation and maintenance charge would be the total annual user cost per EDU. The cost to a single family residential dwelling unit, rated at 1 EDU, with an estimated water usage of 70,000 gallons per year, would be

approximately $782.04 per year. This figure is below the state comptroller's allowable water rate of $902.00 for 2016. A funding application was submitted to USDA Rural Development in April 2016 and has been accepted.

5.5 IMPLEMENTATION SCHEDULE

Because of the interest expressed by the residents within the proposed water district, the Town plans to pursue the creation of the proposed district following the provisions of Town Law Article 12 and 12-A. However, this may only occur if additional funding or approval from the NYS Comptroller is secured.

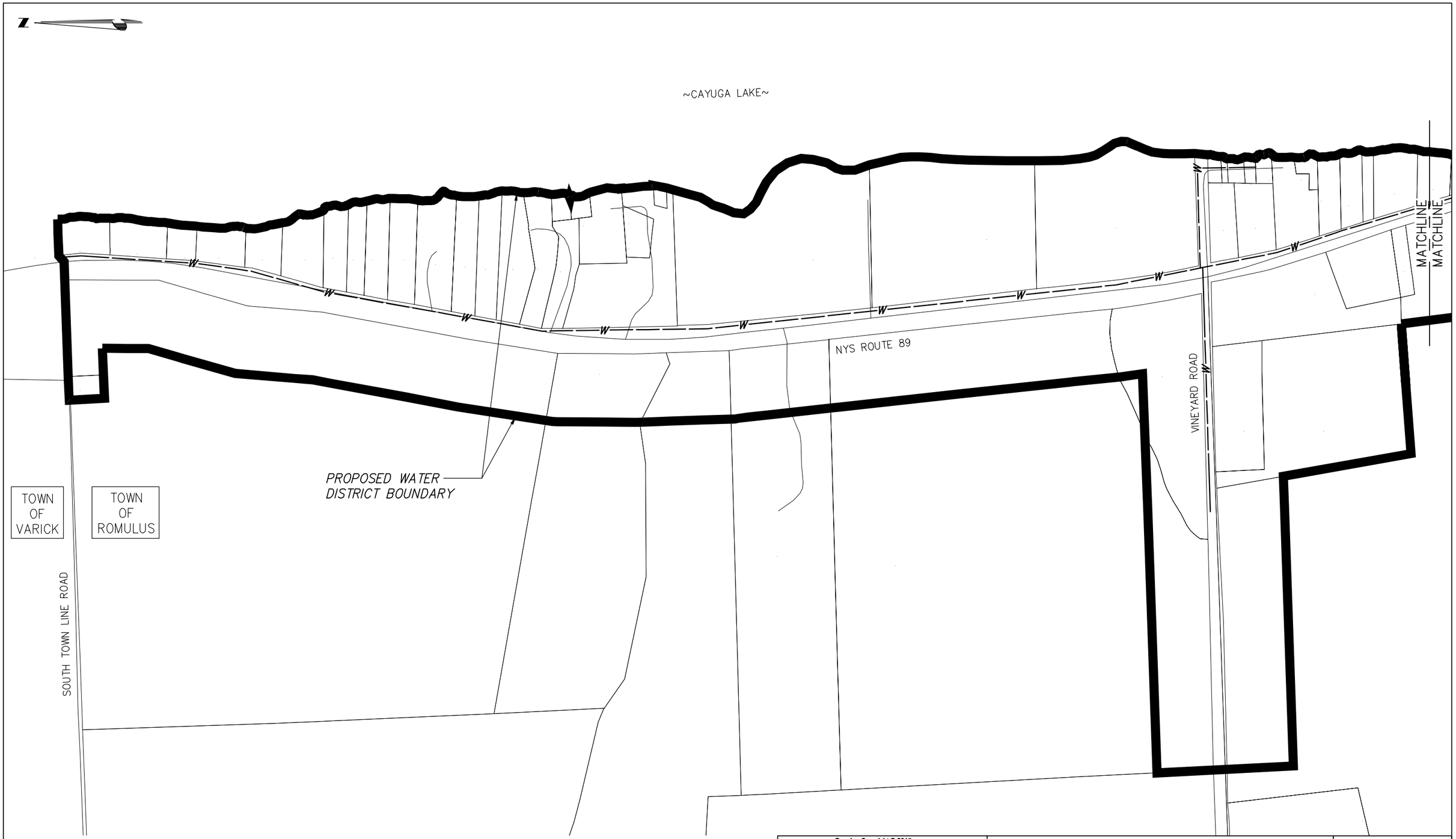
The public hearing for this project has not been scheduled yet. It is anticipated that if the project is approved and additional funding is secured, construction of this project will begin in the Spring of 2017 with completion in the Spring of 2018. Please note that this assumes additional funding and financing can be procured within the next calendar year. A preliminary project schedule outlining project milestones is included on Table 5-1 below.

Table 5-1: Anticipated Project Schedule

Task	Anticipated Date
Finalize Map, Plan and Report	December 2015
Submit Funding Application to USDA RD	March 2016
Receive Funding Decision from USDA RD	September 2016
Water District Formation and SEQRA Process	October 2016 – December 2016
Water Distribution System Design	December 2016 – February 2017
Submit Design to NYSDOH for Review	March 2017
Project Bidding	April 2017
Project Award	May 2017
Construction	June 2017 – November 2017*

*Site restoration may be completed in Spring 2018 depending on weather and existing conditions

APPENDIX A: Boundary Map



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WATER DISTRICT BOUNDARY MAP

WATER DISTRICT FORMATION
TOWN OF ROMULUS, NY

PROJECT NO. 30782

DATE: DEC. 2015

FIGURE A–1

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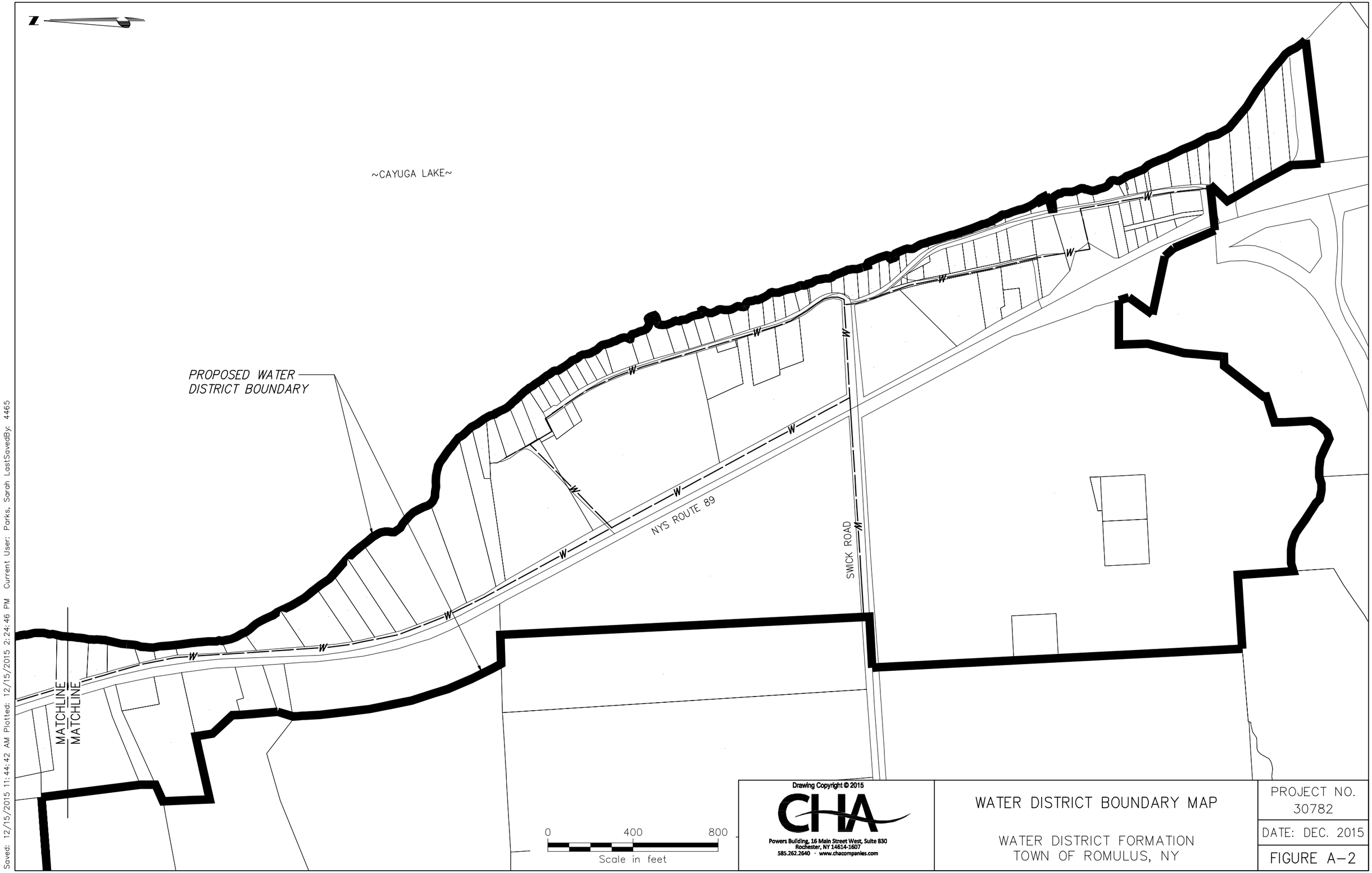

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WATER DISTRICT BOUNDARY MAP

WATER DISTRICT FORMATION
TOWN OF ROMULUS, NY

PROJECT NO. 30782

DATE: DEC. 2015

FIGURE A–2

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APPENDIX B: Service Area Parcel Identification

Town of Romulus
Water District Formation

Service Area Parcel Identification List

Section-Block-Lot	Primary Owner	Property Address	Class	Assessment	EDUs
05-1-04.1	Gere, Charles	South Townline Rd.	120	$89,900	0.25
05-1-04.2	Marriam, Michael H.	2950 South Townline Rd.	210	$118,600	1.00
05-1-05	Chicles, Aris (not in District)	5603 Rte 89	210	$370,000	0.00
05-1-06	Leahy, John & Nancy	5615 Rte 89	210	$403,000	1.00
05-1-07	Hoeschele, Michael J.	5627 Rte 89	210	$340,000	1.00
05-1-08	Oesterle, William S.	5639 Rte 89	210	$370,000	1.00
05-1-09	Benassi, Gordon	5653 Rte 89	260	$291,000	1.00
05-1-10	Stuck, Joseph & Shelley	5657 Rte 89	210	$342,000	1.00
05-1-11	Russell, Marjorie S.	5669 Rte 89	210	$237,000	1.00
05-1-12	Kenyon, Gregory & Lawrence	5673 Rte 89	260	$210,000	1.00
05-1-13	Oesterle, William S.	5677 Rte 89	312	$270,000	1.00
05-1-14	Oesterle, William	5681 Rte 89	210	$311,500	1.00
05-1-15	Gere, Dorintha	5689 Rte 89	210	$476,000	1.00
05-1-16	Sember, Paul A.	5703 Rte 89	210	$351,000	1.00
05-1-17	Gleason, Harry	5709 Rte 89	210	$271,000	1.00
05-1-18	Ostrander, Margaret V.	5715 Rte 89	210	$347,000	1.00
05-1-19	Aranda, James V.	5721-5723 Rte 89	280	$282,600	1.75
05-1-20	Kime, Lewis	5727 Rte 89	210	$201,000	1.00
05-1-21	Guinan, Robert J. & Dorothy Kondule	5729 Rte 89	210	$203,000	1.00
05-1-22.2	Troutman, David & Donna	5743 Rte 89	210	$105,000	1.00
05-1-22.3	Leahy	New construction	Unknown	Unknown	1.00
05-1-22.12	Bromka, James H. & Nancy J.	5733 Rte 89	270	$290,300	1.00
05-1-22.111	Kinsley, Christa R.	5741 Rte 89	270	$310,300	1.00
05-1-22.112	Kime, Lewis	Rte 89	312	$9,000	0.25
05-1-23	Bromka, Nancy J. & Dennis Troutman	5753 Rte 89	260	$131,000	1.00
05-1-24	NY State Parks	Rte 89	682	$493,000	1.00

Town of Romulus
Water District Formation

Service Area Parcel Identification List

Section-Block-Lot	Primary Owner	Property Address	Class	Assessment	EDUs
05-1-25	Davis, Richard Ott	5799 Rte 89	260	$644,000	1.00
05-1-26	Ginsburg, Elizabeth Mann & Hsusan Grosso	5878 Rte 89	260	$632,100	1.00
05-1-28	Jones, Debra A.	2959 Vineyard Rd.	210	$141,000	1.00
05-1-29	Charter, David J. & Ruth E.	Rte 89	105	$104,300	0.25
05-1-30	McDonald, 2nd Family	5778 Rte 89	240	$149,300	1.00
05-1-31.2	Adam, Craig D. & Rebecca V.	Rte 89	322	$52,000	1.00
10-1-04.4	Giroux, Denise M.	Rte 89	314	$12,800	1.00
10-1-04.121	Sepe Irrevocable Family Wealth	2848 Vineyard Rd.	113	$216,700	1.00
10-1-04.122	Arnold, Vaughn & Connie	2940 Vineyeard Rd.	270	$48,500	1.00
10-1-04.211	Swick, Fredrick I. & Velma G.	Rte 89	311	$2,500	1.00
10-1-04.212	Fenton, David & Deborah	5936 Rte 89	210	$223,000	1.00
10-1-04.22	Poister, Thodore H. & Mary F.	5936 Rte 89	311	$17,000	0.25
10-1-05.1	Fenton, David & Deborah A.	Rte 89	314	$3,600	0.00
10-1-05.2	Giroux, Denise M.	5920 Vineyard Rd.	210	$132,000	0.25
10-1-06	Poister, Thodore H. & Mary F.	5885 Vineyard Rd. Extn	210	$336,000	1.00
10-1-07	Poister, Thodore H. & Mary F.	Vineyard Rd. Extn	311	$40,600	0.00
10-1-08	McNicoll, Benoit	5891 Vineyard Rd. Extn	210	$256,000	1.00
10-1-09	Kellogg, Kenneth & Barbara Carter	5895 Vineyard Rd. Extn	260	$108,000	1.00
10-1-10	Swick, Fredrick I. & Velma G.	5899 Swick Rd.	260	$149,000	1.00
10-1-12	Entwistle, Joseph M. & Catherine R.	Vineyard Rd. Extn	260	$265,000	1.00
10-1-13	Hildreth, Clarence & Barbara	Vineyard Rd. Extn	210	$293,000	1.00
10-1-14	Ardoline, Catherine C.	5915 Rte 89	260	$205,000	1.00
10-1-16	Hession, Timothy J. & Suzanne L.	5919 Rte 89	210	$331,100	1.00
10-1-18	Getman, Roger & Barbara	5929 Rte 89	260	$286,000	1.00
10-1-19	Hassig, Steven & Lisa M.	5941 Rte 89	210	$432,000	1.00
10-1-20	Giroux, Denise M.	5953 Rte 89	260	$115,000	1.00

Town of Romulus
Water District Formation

Service Area Parcel Identification List

Section-Block-Lot	Primary Owner	Property Address	Class	Assessment	EDUs
10-1-21	Kirschke, Robert S.	5958 Rte 89	210	$162,000	1.00
10-1-22	Lawler, William & Mary	5964 Rte 89	210	$290,000	1.00
10-1-23.12	Frater, John S.	6017 Rte 89	210	$292,000	1.00
10-1-23.22	Sulkes, Stephen	6005 Rte 89	210	$330,000	1.00
10-1-23.111	Hoeschele, Michael J. & Ileana S.	5976 Rte 89	210	$356,000	1.00
10-1-23.112	Bell, Gary A.	5982 Rte 89	260	$240,300	1.00
10-1-23.211	Riemer, Kenneth	5984 Rte 89	152	$81,000	1.50
10-1-23.212	Robin's Vines Real Estate	5986 Rte 89	152	$280,100	10.50
10-1-24	Ingraham, Stephen & Cathy Ann	5991 Rte 89	210	$394,000	1.00
10-1-25	Gallea, Christopher	6003 Rte 89	210	$295,000	1.00
10-1-26	Patel, Leann & Harshadrai	6025 Rte 89	210	$376,000	1.00
10-27.12	Hess, Dennis Monroe	6043 Lakeview Ln.	210	$243,000	1.00
10-1-27.111	Krebbeks, Charles L. & Belinda	6037 Rte 89	210	$442,000	1.00
10-1-28	Arena, Joseph & Anthony Rafaela	6128 Rte 89	240	$389,100	5.25
10-1-47	Riemer, Kenneth & Diane	6041-6039 Lakeview Ln.	280	$471,000	1.75
10-1-52.5	Bel-Aire Apartments	Toro Run	210	$193,000	1.00
10-1-52	J&C Developers of CNY, LLC	3054 Swick Rd.	280	$339,500	10.50
10-1-52.9	Rizzo, Joe & Marjorie	6200 Toro Run Rd.	311	$28,800	1.00
10-1-52.10	Rizzo, Joe & Marjorie	6206 Toro Run Rd.	210	$206,800	1.00
10-1-53	Humulock, Alexander A. & Millicent A.	2930 Vineyard Rd.	280	$136,500	1.00
10-1-54.1	Langley, Jack & Bonnie	5959 Rte 89	312	$53,000	1.00
10-1-55	Rizzo, Joe & Marjorie	Rte 89	311	$300	0.00
10-2-01	Riemer, Kenneth	Rte 89	323	$8,800	1.00
10-2-02	Deming Family Trust	6045 Lakeview Ln.	260	$157,000	1.00
10-2-03	Hess, Dennis Oaks, Susan M.	6047 Lakeview Ln.	260	$106,000	1.00
10-2-04	Mayer, Gerard R.	6051 Lakeview Ln.	260	$233,000	1.00

Town of Romulus
Water District Formation

Service Area Parcel Identification List

Section-Block-Lot	Primary Owner	Property Address	Class	Assessment	EDUs
10-2-05	Niles, Raymond & Mary	6053 Lakeview Ln.	260	$140,000	1.00
10-2-06	Ritter, Hubert L. & Joan H.	6055 Lakeview Ln.	260	$136,000	1.00
10-2-07	English, Thomas	6057 Poplar Beach	260	$130,000	1.00
10-2-08	English, Thomas F.	6059 Poplar Beach	260	$180,000	1.00
10-2-09	Munch, Charles Jr. & Mary E.	6063 Poplar Beach	260	$137,000	1.00
10-2-10.1	Vanvestrout, Victor & Margaret	6067 Poplar Beach	311	$75,000	1.00
10-2-10.2	Allen, Matthew W.	6065 Poplar Beach	260	$123,000	1.00
10-2-12	Selover, Stephen J. & Jane A.	6069 Poplar Beach	260	$110,000	1.00
10-2-13	Jamison, Alan K. & Mary	6073 Poplar Beach	260	$127,000	1.00
10-2-14	Ameele, James & Susan	6075 Poplar Beach	260	$126,000	1.00
10-2-15	Foxx, Kenneth C. III	6077 Poplar Beach	210	$274,000	1.00
10-2-17	Lynd, Sandra J.	Poplar Beach	311	$93,800	1.00
10-2-18	Lynd, Sandra J.	6089 Poplar Beach	210	$329,000	1.00
10-2-19	Comins, Neil F. & Suzanne Mary	6091 Poplar Beach	260	$162,000	1.00
10-2-20	James, Molly F. & Bernard I. Finel Revocable	6095 Poplar Beach	280	$200,900	1.00
10-2-21	Battle, Kenneth E.	6101 Poplar Beach	210	$218,000	1.00
10-2-22	The Faye S Fay Revocable	6105 Poplar Beach	210	$245,000	1.75
10-2-23	Furst, Lakehouse, LLC	6111 Poplar Beach	210	$261,000	1.00
10-2-24	Brumberg, G. David & Joan	6117 Poplar Beach	260	$191,000	1.00
10-2-25	Lewis, David & Cynthia J.	6119 Poplar Beach	210	$181,000	1.00
10-2-26	Grace, Louis & Linda	6123 Poplar Beach	210	$146,000	1.00
10-2-27	Madigan, Hoyt Elizabeth & Donald	6126 Cayuga Lake Rd.	280	$149,000	1.75
10-2-28	Cimini, Ronald & Rosalie	6131 Poplar Beach	260	$247,000	1.00
10-2-29	Shaar, David	6135 Poplar Beach	260	$265,000	1.00
10-2-30	Schnoll, Barry A. & Beth E. Moskow	6141 Poplar Beach	260	$189,000	1.00
10-2-31	Whitlock, Louisa	6149 Cayuga Lake Rd.	260	$179,000	1.00

Town of Romulus
Water District Formation

Service Area Parcel Identification List

Section-Block-Lot	Primary Owner	Property Address	Class	Assessment	EDUs
10-2-32	Burns, Lester & Virginia	6153 Cayuga Lake Rd.	260	$123,000	1.00
10-2-33	Brewer, Roger & Kathryn	6155 Cayuga Lake Rd.	210	$166,000	1.00
10-2-34	Larece, Claude Nick	6157 Poplar Beach	210	$176,000	1.00
10-2-35	Robinson, Donald F.	6161 Poplar Beach Spur	260	$131,000	1.00
10-2-36	Eaton, Doris	6163 Poplar Beach Spur	260	$118,000	1.00
10-2-37	Linn, Johannes F.	6165 Poplar Beach Spur	210	$256,000	1.00
10-2-38	Linn, Johannes F.	Cayuga Lake Rd.	314	$100	0.00
10-2-39	Braund, Sharon M.	6171 Poplar Beach Spur	210	$201,000	1.00
10-2-40	Lewis, David C.	6177 Poplar Beach Spur	260	$226,000	1.00
10-2-41	Kaczka, Richard M. & Claire Crittenden	6179 Poplar Beach Spur	210	$141,000	1.00
10-2-42	Zerrillo, Jill & Dan	6185 Poplar Beach Spur	210	$243,000	1.00
10-2-43	Wertman, Lloyd Jr. & Patricia	6187 Poplar Beach Spur	210	$185,000	1.00
10-2-44	Stevens, James M. & Diane	6195 Poplar Beach Spur	210	$304,000	1.75
10-2-45	Merkle, Joseph (Living Trust)	6205 Poplar Beach Spur	210	$271,000	1.00
10-2-47	Martin, Justin Jr.	6208 Poplar Beach Spur	312	$264,500	1.00
10-2-48	Rosbaugh, Tracy & Sherol	6214 Poplar Beach Spur	210	$174,000	1.00
10-2-49	Rosbaugh, Tracy & Lewis B.	6221 Poplar Beach Spur	260	$36,700	1.00
10-2-50	Gregrow, John N. & Bonnie J.	6215 Poplar Beach Spur	260	$249,000	1.00
10-2-51	Vacca-Fennell, Susan	6221 Poplar Beach Spur	260	$66,000	1.00
10-2-52.1	Anderson, James & Donna	Poplar Beach Spur	311	$100	0.00
10-2-52.2	Kowalski, Gregory L.	6223 Poplar Beach Spur	260	$100,800	1.00
10-2-53	Dunbar, John E.	6225 Poplar Beach	210	$219,600	1.00
10-2-54	Maiolini, Robert & Irene	6226 Poplar Beach Rd.	210	$161,000	1.00
10-2-55	Jordan, Jeffery S. & Cathy L.	6229 Poplar Beach	210	$237,000	1.00
10-2-56	Jordan, Jeffery S. & Mark	6233 Poplar Beach	260	$208,000	1.00
10-2-58	Mastroleo, Nadine & Martina Baker	6239 Poplar Beach	260	$233,000	1.00

Town of Romulus
Water District Formation

Service Area Parcel Identification List

Section-Block-Lot	Primary Owner	Property Address	Class	Assessment	EDUs
10-2-59	Hale Family Camp LLC	6243 Poplar Beach	260	$131,000	1.00
10-2-60	Willson, William J.	6238 Rte 89	210	$82,000	1.00
10-2-66	Dunbar, John E.	Rte 89	314	$700	1.00
10-2-67	Gable, Nancy J.	6224 Poplar Beach	260	$39,600	1.00
10-2-68.2	Roys, Doug	6222 Poplar Beach	260	$64,000	1.00
10-2-72	Stevens, James & Diane	6191 Rte 89	312	$13,200	1.00
10-2-73	Zerillo, Jill & Dan	6184 Poplar Beach Spur	311	$13,300	0.50
10-2-74	Holcomb, Marlene Frances	6176 Poplar Beach Spur	210	$629,800	1.00
10-2-75	Alexander, Marlene	6171 Rte 89	314	$29,000	1.00
10-2-78.111	Hoyt, Donald & Maurene	6138 Rte 89	280	$138,800	1.75
10-2-78.112	Lynd, Sandra J.	Cayuga Lake Rd.	314	$1,500	1.00
10-2-80	Lynd, Sandra J.	6088 Poplar Beach	210	$105,000	1.00
10-2-81	Madigan, Donald E. & Elizabeth F.	6116 Poplar Beach	270	$26,400	1.00
14-1-10	Hale, Family Camp LLC	Rte 89	210	$336,000	1.00
14-1-11	Maiolini, Robert & Irene	6245 Rte 89	210	$291,000	1.00
14-1-12	Edson, Bruce & Joanne	6249 Rte 89	260	$217,000	1.00
14-1-13	Yaw, David & Linda	6253 Rte 89	210	$360,000	1.00
14-1-09.111	Riper	New construction			1.00
14-1-09.12	Karl Mount Family Trust	6263 Rte 89	210	$283,000	1.00
				Total EDUs	**167.00**

APPENDIX C: Boundary Description

BOUNDARY DESCRIPTION OF THE PROPOSED

TOWN OF ROMULUS WATER DISTRICT

(NEW YORK STATE ROUTE 89)

TOWN OF ROMULUS DESCRIPTION

Beginning at a point on the western shoreline of Cayuga Lake, said point being the northeast corner of TMP 05-1-05 and also being on the boundary line between the Towns of Varick and Romulus;

Thence westerly along the boundary between Varick and Romulus approximately 161 feet to the northwest corner of TMP 05-1-05; Thence southwesterly along the boundary between Varick and Romulus approximately 34 feet to a point being at the intersection of the centerline of South Town Line Road and NYS Route 89; Thence westerly along the centerline of South Town Line Road approximately 609 feet to a point being on the centerline of South Town Line Road and also being approximately 529 feet west of the westerly ROW of NYS Route 89; Thence southerly to the northwest corner of TMP 05-1-04.2 and continuing southerly a distance of 150 feet to the southwest corner of said TMP; thence running easterly a distance of 220 feet along the southern border and into TMP 05-1-04.1 to a point 300 feet west of the westerly ROW of NYS Route 89;

Thence southerly and running parallel to the westerly ROW of Route 89 and being 300 feet west of that line through TMP's 05-1-04.1, 22.3, 31.2, 30, 29 and 28 approximately 4610 feet to a point being 300 feet north of the center line of Vineyard Road, and also being 300' westerly NYS Route 89;

Thence westerly and parallel to the centerline of Vineyard Road through parcels 05-1-28 and 05-1-29 a distance of 1752 feet to the west boundary line of corner of TMP 05-1-29; Thence southerly along the westerly boundary of TMP 05-1-29 across Vineyard Road and 300 feet southerly into TMP 10-1-04.121 to a point 300 feet south of the centerline of Vineyard Road along the same bearing as the western boundary of TMP 05-1-29; thence running easterly and parallel to the centerline of Vineyard Road a distance of 1271 feet to a point in the westerly boundary of TMP 10-1-53 approximately 300 south of the centerline of Vineyard Road, thence running southerly along the western boundary of TMP 10-1-53 a distance of 569 feet to a point being the southwest corner of said TMP and also being on the boundary of TMP 10-1-4.121;

Thence continuing easterly along the southern boundary TMP 10-1-53 a distance of 571 feet to the northwest corner of TMP 10-1-04.212;

Thence southerly along the western boundary of TMP 10-1-04.212 approximately 468 feet to a point being the southwest corner of said TMP; thence southerly 71 feet to the northern boundary of TMP 10-1-22, thence westerly 86 feet to the northwest corner of said parcel, thence southerly along the western boundary of TMP 10-1-22 a distance of 220 feet; Thence easterly along the

southern boundary of TMP 10-1-22 approximately 304 feet to a point being the northwest corner of TMP 10-1-23.111;

Thence southerly along the western boundary of TMP 10-1-23.111 approximately 247 feet to a point being the southwest corner of said TMP and also being the northwest corner of TMP 10-1-23.112;

Thence southerly along the western boundary of TMP 10-1-23.112 approximately 174 feet to a point being the southwest corner of said TMP and also being on the boundary of TMP 10-1-23.211;

Thence continuing through TMP 10-1-23.211 to a point along the southern boundary of said TMP and 250 feet west of the westerly ROW line of NYS Route 89; Thence running parallel to and approximately 250 feet west of the westerly ROW line of NYS Route 89 approximately 1019 feet to a point on the southern boundary of TMP10-1-23.212;

Thence easterly along the southern boundary of TMP 10-1-23.212 for 136 feet to a point being the northwest corner of TMP 10-1-28;

Thence southerly along the western boundary of TMP 10-1-28 for 1736 feet to a point being in the centerline of Swick Road;

Thence westerly along the centerline of Swick Road approximately 240 feet to a point being 1176 feet west of the westerly ROW line of NYS Route 89;

Thence southerly 30 feet to a point being the northwest corner of TMP 10-1-52; Thence southerly along the western boundary of TMP 10-1-52 to the intersection with the northern boundary of TMP 14-1-05. Thence easterly 2709 feet along the southern boundary of TMP 10-1-52 to a point being the intersection of the boundaries for TMP 10-1-52, 14-1-09.112, and the ROW line of NYS Route 89.

Thence southerly along the eastern boundary of TMP 14-1-09.112 to the southeastern corner of said TMP and the ROW line of NYS Route 89. Thence easterly to the southwestern corner of TMP 10-2-59. Thence southwesterly along the western boundaries of TMP 14-1-10, 14-1-11, 14-1-12, 14-1-13, 14-1-09.12 a distance of 593 feet to the southwest corner of TMP 14-1-9.12, thence easterly along the southern boundary of TMP 14-1-9.12 to a point being the southeastern corner of said TMP and also along the shoreline of Cayuga Lake.

Thence north along the western shoreline of Cayuga Lake approximately 13570 feet to the point of beginning.

APPENDIX D: Equivalent Dwelling Unit Assessment Schedule

EQUIVALENT DWELLING UNIT (EDU) ASSESSMENT SCHEDULE

Residential (Year or Seasonal – Class Code 210, 240, & 260)

1.0 EDU per single family residence

Apartments (Class 280, in addition to primary residential or commercial use)

0.75 EDU per Apartment Unit

Agricultural and Vacant Land (Class Codes 100 & 300)

0.1 EDU per vacant buildable parcel
0.0 EDU per vacant non-buildable parcel
0.25 EDU per vacant lot with driveway access only

Commercial, Industrial, and all Others (Class Codes 400-900)

1.0 EDU per facility

If annual water consumption is greater than the average annual usage for a typical residential property, add 1.0 EDU each for the additional usage equal to the residential average or fraction thereof. Separate O&M charges will vary yearly, depending on the amount of water usage and the rates established by the Town.

APPENDIX E: Water Demand Calculations

Completed By:	KLH	**Job No**	30782
Checked By		**Page**	1 of 1
Project Name:	Rte. 89 WD	**Date:**	Dec. 2015

CLOUGH HARBOUR & ASSOCIATES LLP

Subject: Route 89 Water District Demand Calculations

Objective: Determine the average daily and maximum day demands for the proposed Route 89 Water District for the Town of Romulus

Given:
1. 1 EDU is equivalent to 70,000 gallons per year
2. The proposed water district will have approximately 167 EDUs

Calculation:

EDUs mulitiplied by 195 GPD

70,000 x 167 = 33,000

The average daily demand is approximately 33,000 gallons per day

The maximum day demand (peaking factor of 2) is approximately 66,000 gallons per day.

APPENDIX F: Proposed Water Infrastructure Maps

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Rochester, NY 14614-1607
585.262.2640 · www.chacompanies.com

PROPOSED WATER INFRASTRUCTURE MAP

WATER DISTRICT FORMATION
TOWN OF ROMULUS, NY

PROJECT NO. 30782

DATE: DEC. 2015

FIGURE F-1

File: V:\PROJECTS\ANY\K4\30782\CADD\FIGURES\2015-10 MPR FIGURES\30782_FIG-F.DWG
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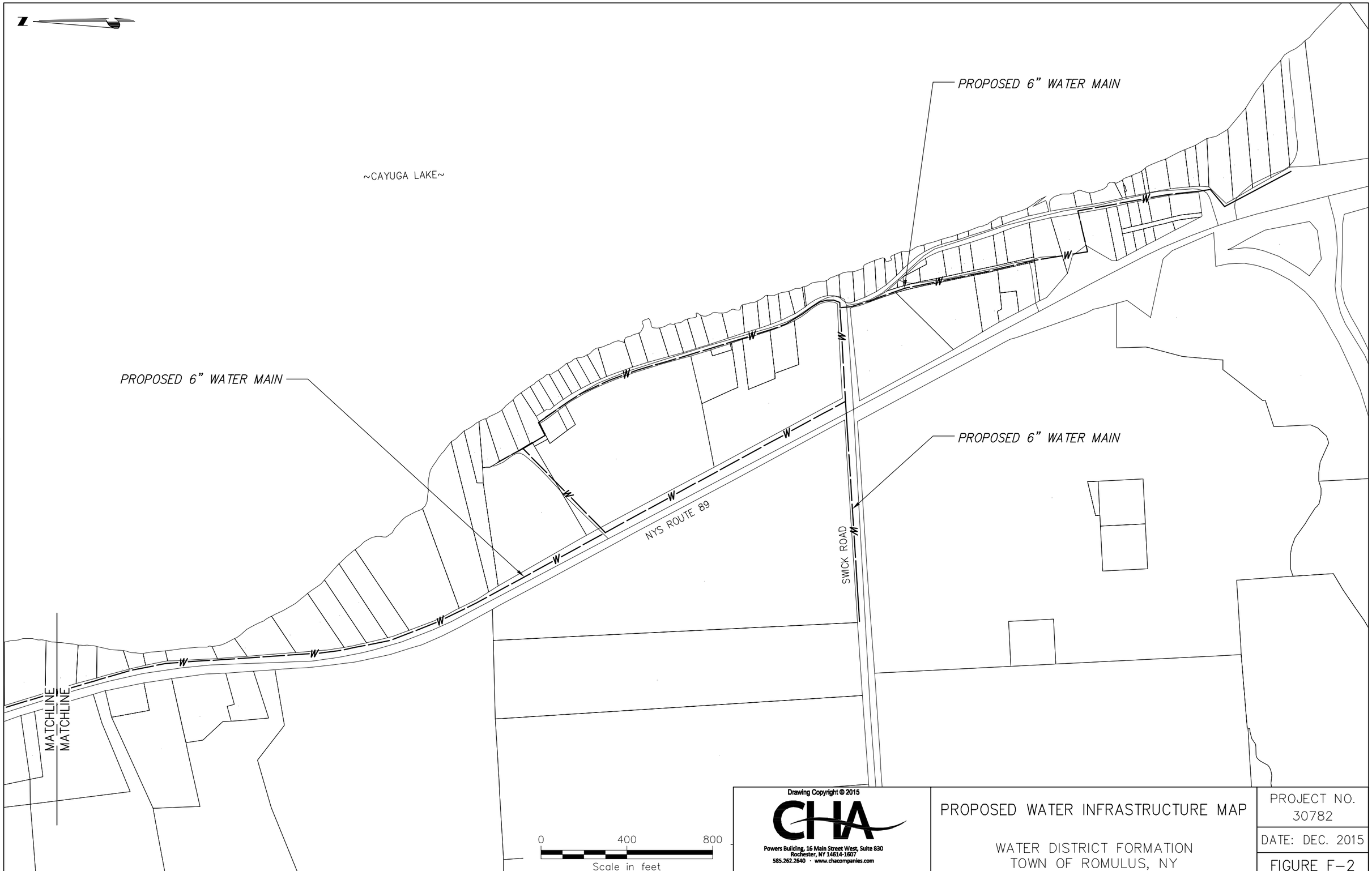

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PROPOSED WATER INFRASTRUCTURE MAP

WATER DISTRICT FORMATION
TOWN OF ROMULUS, NY

PROJECT NO. 30782

DATE: DEC. 2015

FIGURE F-2

File: V:\PROJECTS\ANY\K4\30782\CADD\FIGURES\2015-10 MPR FIGURES\30782_FIG-F.DWG
Saved: 12/15/2015 2:30:49 PM Plotted: 12/15/2015 2:31:39 PM Current User: Parks, Sarah LastSavedBy: 4465

APPENDIX G: Hydrant Flow Test Data

TEST # 1

HYDRANT FLOW TEST REPORT

LOCATION TOWN of VARICK

DATE 10-8-2015

TEST MADE BY MATT ABATTO

TIME 11 AM

REPRESENTATIVE OF CHA

WITNESS KEVIN HICKEY

STATE PURPOSE OF TEST TEST PRESSURE AND FLOW AT PROPOSED CONNECTION

CONSUMPTION RATE DURING TEST _____

IF PUMPS AFFECT TEST, INDICATE PUMPS OPERATING UNKNOWN

FLOW HYDRANTS:

Size Nozzle 2.5"

Pitot Reading _____

Discharge Coefficient _____

Flow (Q_r) 1,450 GPM

PRESSURE HYDRANT: North of WWTP

STATIC (P_s) 75 psi

RESIDUAL (P_r) 22 psi

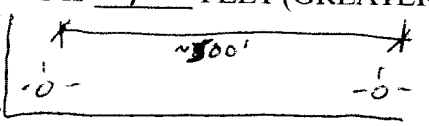
FLOW ANTICIPATED AT 20 psi = $Q_r * [(P_s - 20)/(P_s - P_r)]^{0.54}$

PROJECTED RESULTS: @ 20 psi RESIDUAL 1,480 gpm

HYDRANTS ARE AT THE SAME APPROXIMATE ELEVATION? X YES ____ NO

ELEVATION OF PRESSURE HYDRANT IS Ø FEET (GREATER / LESS) THAN FLOW HYDRANT

REMARKS:



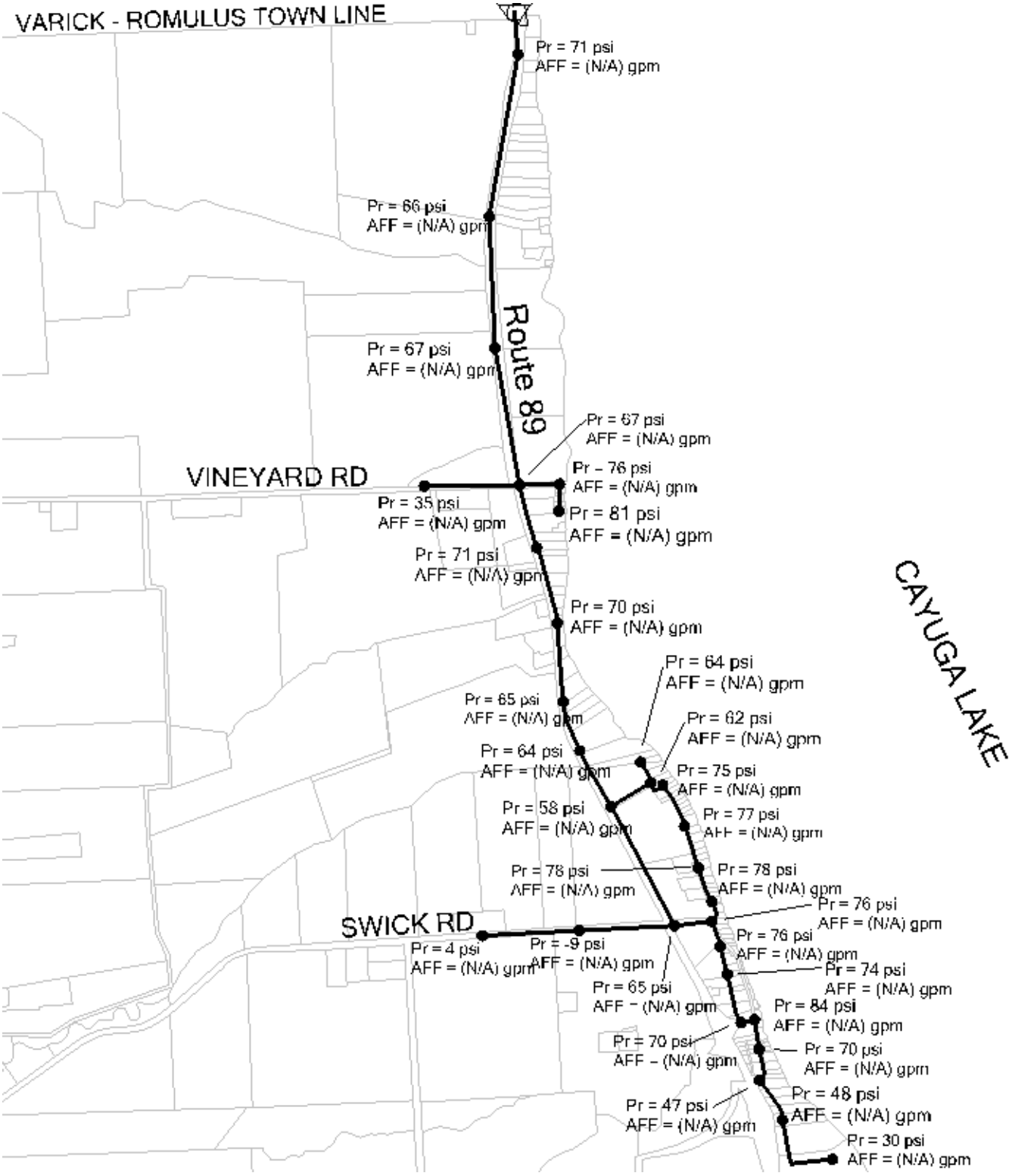
NYS RT 89

LOCATION MAP: Show lines and distance to next cross connected line. Show valves and hydrant branch size. Indicate North. Show flowing hydrants-Label 1, 2, 3 Show locations of Static and Residual-Label.

Indicate: Hydrant __ Sprinkler __ Other (Identify) _____

CLOUGH HARBOUR & ASSOCIATES LLP

APPENDIX H: Hydraulic Model Results


VARICK - ROMULUS TOWN LINE
Pr = 71 psi
AFF = (N/A) gpm
Pr = 66 psi
AFF = (N/A) gpm
Route 89
Pr = 67 psi
AFF = (N/A) gpm
Pr = 67 psi
AFF = (N/A) gpm
VINEYARD RD
Pr = 76 psi
AFF = (N/A) gpm
Pr = 35 psi
AFF = (N/A) gpm
Pr = 81 psi
AFF = (N/A) gpm
Pr = 71 psi
AFF = (N/A) gpm
Pr = 70 psi
AFF = (N/A) gpm
CAYUGA LAKE
Pr = 64 psi
AFF = (N/A) gpm
Pr = 65 psi
AFF = (N/A) gpm
Pr = 62 psi
AFF = (N/A) gpm
Pr = 64 psi
AFF = (N/A) gpm
Pr = 75 psi
AFF = (N/A) gpm
Pr = 58 psi
AFF = (N/A) gpm
Pr = 77 psi
AFF = (N/A) gpm
Pr = 78 psi
AFF = (N/A) gpm
Pr = 78 psi
AFF = (N/A) gpm
Pr = 76 psi
AFF = (N/A) gpm
SWICK RD
Pr = 4 psi
AFF = (N/A) gpm
Pr = -9 psi
AFF = (N/A) gpm
Pr = 76 psi
AFF = (N/A) gpm
Pr = 74 psi
AFF = (N/A) gpm
Pr = 65 psi
AFF = (N/A) gpm
Pr = 84 psi
AFF = (N/A) gpm
Pr = 70 psi
AFF = (N/A) gpm
Pr = 70 psi
AFF = (N/A) gpm
Pr = 48 psi
AFF = (N/A) gpm
Pr = 47 psi
AFF = (N/A) gpm
Pr = 30 psi
AFF = (N/A) gpm

APPENDIX I: Engineer’s Opinion of Probable Capital Cost Estimate

TOWN OF ROMULUS

PROPOSED NYS ROUTE 89 WATER DISTRICT (Domestic Water Only)

ENGINEER'S OPINION OF PROBABLE CAPITAL COST

Item	Unit	Quantity	Unit Price	Total Item Cost
General Conditions (3%)	LS	1	$ 49,000	$49,000
Mobilization/Demobilization (5%)	LS	1	$ 81,500	$81,500
Maintenance and Protection of Traffic	LS	1	$ 15,000	$15,000
6" C900 PVC Piping	LF	18,100	$ 60	$1,086,000
6" C900 PVC Fittings	EA	60	$ 350	$21,000
6" Gate Valve	EA	30	$ 1,000	$30,000
Flushing Hydrant	EA	4	$ 2,500	$10,000
Master Meter Station	LS	1	$ 20,000	$20,000
1" Short Side Service	EA	75	$ 1,500	$112,500
1" Long Side Service	EA	55	$ 2,000	$110,000
Connection to Existing Watermain (TS&V)	LS	1	$ 7,500	$7,500
Stream Crossings (Horizontal Directional Drill)	EA	5	$ 10,000	$50,000
Air Release Valve Vaults	EA	2	$ 15,000	$30,000
Dry Hydrant	LS	1	$ 25,000	$25,000
Topsoil and Seeding (14,100 LF)	SY	7,800	$ 10	$78,000
NYSDOT Shoulder Pavement Restoration (4,000 LF)	SY	2,300	$ 110	$253,000
Water Meters	EA	130	$ 350	$45,500
			Construction Subtotal	$2,024,000
			Construction Contingency (15%)	$304,000
			Construction Total	**$2,328,000**
			Engineering, Legal, Fiscal (15%)	$349,000
			Total Capital Cost	**$2,677,000**