

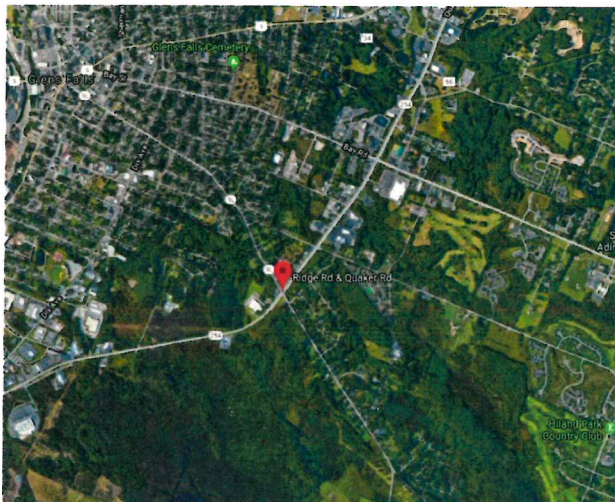


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Map and Plan for Ridge Road Water Main Rehabilitation & Lining Project

**742 Bay Road
Town of Queensbury
Warren County, New York**



Issued: March 3, 2020

Prepared for:

The Town of Queensbury
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Queensbury, New York 12804



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1.0 INTRODUCTION

The Town of Queensbury is advancing a project to improve a portion of its existing water distribution system along Route 9L/Ridge Road between Route 254/Quaker Road and Cronin Road (see Appendix A – Project Location Map). The need to upgrade this segment of watermain is driven in part by the New York State Department of Transportation's (NYSDOT) forthcoming project to resurface Route 9L and the desire of the Town to upgrade the deteriorated watermain in advance of the road resurfacing project.

Water is currently supplied to this area through vintage 1963 6- and 8-inch diameter cast iron mains that have exceeded their useful life. The section of water main along Route 9L, which lies largely under the paved shoulder, is approximately 4,500-feet in length and has become a maintenance burden to the Town. The portion of water main in focus averages about one break per year.

The purpose of this Engineer's Report is to present the water distribution system improvement project and provide an engineer's opinion of probable cost (see Appendix B – Opinion of Probable Cost).

2.0 EXISTING CONDITIONS

The existing municipal water distribution system, owned and operated by the Town of Queensbury, serves the Ridge Road area through aging 6- and 8-inch cast iron pipes. Water is supplied to this system by the Town of Queensbury, which owns and maintains a water treatment plant and the water distribution system. The area serviced by the identified water main can be characterized as residential with a few businesses. Most structures along Ridge Road are serviced by copper lines fed from the Ridge Road water main, though some houses utilize wells to meet water demands and some are fed from watermains on neighboring streets. The existing copper services and associated corporation and curb stops are reportedly in good working condition. Existing isolation valves and fire hydrants along the main vary in condition and age.

Route 9L/Ridge Road is a state highway maintained by the NYSDOT and is intermittently bound by stone walls on both sides. The stone walls are considered a historic resource and not to be disturbed. Subsurface gas lines and overhead utility lines parallel the existing water main in many locations. The gas and utility lines are owned and operated by National Grid. The Town owns and maintains a sanitary sewer system servicing a few homes within the project corridor. The remaining property owners own and maintain individual subsurface disposal systems.

On average, the existing distribution system experiences one break per year in the approximate three-quarter mile stretch between Quaker and Cronin Roads. Past water main break repairs are evidenced by numerous asphalt surface patches. Consistent, annual breaks contribute to degrading roadway conditions and are a maintenance and financial burden to the Town.

3.0 PROPOSED IMPROVEMENTS

While investigating potential improvement projects, the Town initially explored two strategies for a traditional pipe replacement project, as well as a third option involving pipe rehabilitation in lieu of replacement. The first of the traditional strategies investigated, a remove-and-relay project, involves the removal of existing water distribution infrastructure and installation of new main within the footprint of

the existing pipe. To expose and replace the existing water main, a remove-and-relay project would require trenching along the entire length of the existing pipe within the limits of the road surface. The NYSDOT, citing concerns about the long-term integrity of the roadway, concluded that pipe replacement under or encroaching the asphalt surface would not be permitted. For this reason, a remove-and-relay project was not considered feasible.

The feasibility of constructing a new main within the NYSDOT right-of-way was similarly limited by restrictions on asphalt disturbance. The presence of stone walls to be preserved and existing utility poles constrained the remaining available utility corridor. No suitable water main alignment was discovered within the non-paved portions of the right-of-way and, as such, it was determined that the only remaining utility corridor would be on private property. The Town concluded that securing easements from private property owners would not be feasible and further determined a pipe rehabilitation project as the only viable solution.

The rehabilitation project will be a Class IV structural lining of the existing water main. A Class IV structural lining is a stand-alone structural liner that can withstand all dead and live loads and internal pressures, including a vacuum, without the help of the residual strength of the existing pipe. Unlike a traditional replacement requiring extensive trenching, this strategy will require selective excavations only at valve, tee and liner section ends, thereby reducing asphalt disturbance significantly. The conceptual design for the pipe rehabilitation project was reviewed and approved by the NYSDOT.

4.0 PROJECT APPROACH

To complete the recommended improvements project, the existing water main on Ridge Road between Quaker and Cronin Roads must be removed from service. Prior to taking the existing main offline, the Town will install temporary water service to the residents and businesses impacted by the work. Temporary water service will be maintained throughout the duration of the project. Residents may experience minor inconveniences such as short-term water service interruption and slight change to water taste.

Fire hydrants within the project corridor will be out of service for the duration that the existing water main is removed from service. An approximate 8-week duration of temporary water and restricted fire hydrant function is anticipated. The Fire Department should be notified in advance of construction.

After establishing temporary water service, a number of pits will be excavated to allow the contractor access to the existing main. Excavations will be located only where necessary and will disturb less asphalt surface compared to full scale trenching. Using the pits to access the existing main, the contractor will clean and inspect the existing pipe, install the liner, pressure test, disinfect, and collect/test samples to confirm that the rehabilitated pipe was installed in accordance with the approved design. The resultant pipe will be a structurally independent water main with similar hydraulic characteristics as the existing water main.

In select areas, the contractor will install new 8-inch diameter zinc-coated ductile iron pipe using conventional trenching methods. Zinc-coated ductile iron pipe offers a long design life, resistance to oxidation, and excellent hydraulic properties. After the newly rehabilitated water main passes all necessary tests, the Contractor will restore regular water service. Any concrete or grassed areas within the right-of-way that is impacted as a result of the work will be restored to pre-construction conditions.

Any pavement disturbed by the work will be restored to existing conditions in accordance with NYSDOT requirements.

Existing water service piping, corporation stops and curb stops are unaffected by the lining operation. New fire hydrants and isolation valves will be installed.

The project is anticipated to take 8 weeks to complete and will necessitate lane closures to protect travelers, pedestrians, workers, and equipment. During that time, the contractor will provide maintenance and protection of traffic. No full road closures or detours are expected.

The following permits and approvals are anticipated for project development:

- New York State Department of Transportation Perm 32 Utility Permit
- New York State Department of Health Plan Approval

It is anticipated that the Town of Queensbury will designate the action as a Type II under the State Environmental Quality Review Act (SEQRA). 6 NYCRR § 617.5 includes a list of Type II actions that are not subject to SEQRA review. § 617.5[c][1] includes "maintenance or repair involving no substantial changes in an existing structure or facility" which characterizes the project and action.

5.0 PROJECT BUDGET

The total project budget is \$1,374,000. See Appendix B - Opinion of Probable Cost.

6.0 CONCLUSIONS

The existing water main along NYS 9L/Ridge Road between Quaker Road and Cronin Road has become a maintenance issue for the Town of Queensbury Water Department and a financial burden to the Town of Queensbury. Regular water main breaks deteriorate the roadway surface, disrupt regular water service, and serve as a reminder of the diminished integrity of aging cast iron pipe. Of the three improvement projects considered to rehabilitate the water main, a structural lining project was considered the only viable option. Structurally lining the existing pipe will extend the design life of current water distribution infrastructure while reducing (or eliminating) occurrences of failure. Additionally, a structural lining project is approvable by the NYSDOT.

The rehabilitation is anticipated to take 8 weeks and has a project budget of \$1,374,000.

Appendix A: Project Location Map



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Ridge Rd Water Main Rehabilitation & Lining Project

Project Location Map

Ridge Rd, Town of Queensbury, Warren County, New York

Drawn: KLG

Date: 02/25/2020

Scale: 1:30,000

Project: 91900.06

Figure: A

Appendix B: Opinion of Probable Cost



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Town of Queensbury

Ridge Road Water Main Rehabilitation & Lining Project - Base Bid

Item No.	Description	Qty	Units	Unit Cost	Cost
1	Mobilization	1	LS	\$18,000.00	\$18,000.00
2	Professional Utility Locating Service	3	DAY	\$2,000.00	\$6,000.00
3	Record Documentation	1	LS	\$5,000.00	\$5,000.00
4	Maintenance and Protection of Traffic	1	LS	\$100,000.00	\$100,000.00
5	Erosion and Sediment Control	1	LS	\$2,250.00	\$2,250.00
6	Utility Support/Relocation Allowance	1	LS	\$40,000.00	\$40,000.00
7	Remove, Cap, and Abandon Existing Water Mains	1	LS	\$2,500.00	\$2,500.00
8	Rock Removal	25	CY	\$150.00	\$3,750.00
9	Pipe Trenching (incl. saw cuts/removals)	170	LF	\$70.00	\$11,900.00
10	Excavation Pits (incl. saw cuts/removals)	13	EA	\$5,000.00	\$65,000.00
11	Asphalt Replacement/Reconstruction (top and binder)	50	TON	\$150.00	\$7,500.00
12	Type 2 Subbase Replacement	50	CY	\$45.00	\$2,250.00
13	Cleaning & Lining Including: CCTV Inspection & Mapping Plugging of Services (1/2" - 2") Cleaning & Lining 6 & 8" Water Main Reinstatement of Services CCTV Post Inspection	1	LS	\$650,000.00	\$650,000.00
14	8" Class 52 DI Water Main	150	LF	\$90.00	\$13,500.00
15	6" Gate Valve and Valve Box	3	EA	\$1,700.00	\$5,100.00
16	8" Gate Valve and Valve Box	10	EA	\$2,200.00	\$22,000.00
17	Fire Hydrant Assembly	3	EA	\$5,000.00	\$15,000.00
18	Water Main Flushing, Disinfection, Pressure Testing	4,700	LF	\$2.00	\$9,400.00
19	Temporary Water Materials/Rentals (by Town)	1	LS	\$35,000.00	\$35,000.00
20	Site/Lawn Restoration	1	LS	\$10,000.00	\$10,000.00
CONSTRUCTION SUBTOTAL					\$1,024,000
10% Construction Contingency					\$102,000
CONSTRUCTION TOTAL					\$1,126,000
Legal, Technical, Administrative and Engineering Cost (22%)					\$248,000
TOTAL PROJECT COST					\$1,374,000

Last updated 02/25/20