

Greensboro Fire District #1  
Water System Improvements  
Greensboro, VT

Contractor: Munson Earth-Moving Corp.  
85 Shunpike Road  
Williston, VT 05495

Engineer: Tata & Howard, Inc.  
36 Eastern Ave., Suite 6  
St. Johnsbury, VT 05819

Owner: Greensboro Fire District # 1  
PO Box 3  
Greensboro, VT 05481

The existing water system serving the Town of Greensboro's village area and a portion of the camps along the shores of Caspian Lake was initially installed in the early to mid 1920's. With just minor upgrades and a multitude of repairs, the deteriorating and aged system was well overdue for replacement and upgrade.

In February, Munson Earth-Moving Corp. with the low bid of \$1,430,911 was awarded the construction of the 13,620 LF water main replacement project and commenced work in April of 2013.

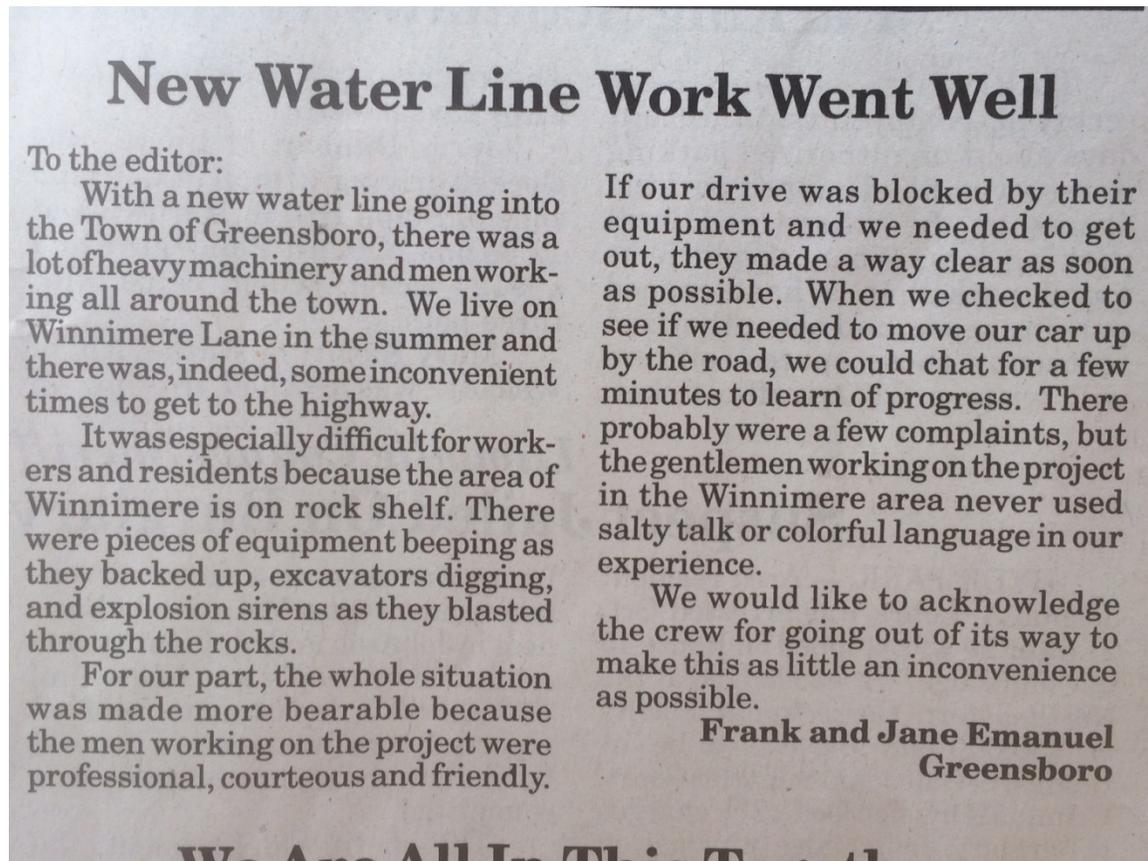
As a result of archeological requirements, the project design required the replacement of the existing lines with new lines, while staying within the existing trench limits. The construction of a temporary water line on top of the ground was necessary due to the poor condition of the existing pipe and the shallow bedrock which needed to be removed to acquire proper depth. It also required temporary water services to all of the camps, homes and businesses for the entire length.

The project had a further restriction requiring that no work could be completed on the village section between July 4<sup>th</sup> and Labor Day. This small, quiet, lakeside town swells by well over 3,000 campers and visitors each summer; the lifeblood of the community.

Munson sequenced and scheduled the project into three distinct sections and elected to complete installation of the temporary piping and services in the village section first, about 5,000 LF. One interesting note on this first section, as soon as the temporary water was complete and the old main shut down, the storage tank, which had been dropping daily, immediately started gaining daily reflecting how much water was being lost from the old lines. The sequence then required installing the new mains including drilling and blasting as necessary and reconnecting all of the individual services. Once complete, the

temporary system was disassembled and moved to the next section. As required, the Village section was completed prior to July 4<sup>th</sup>.

The last section completed along Caspian Lake required daily access and coordination with the camp owners and their guests. All was completed with minimal disruption as noted in a letter to the editor of the Hardwick Gazette:



Munson elected to utilize a new and innovative product for the water mains for this project. The product is AWWA C909 PVC pipe as manufactured by IPEX, Inc. It is the first Biaxially-Oriented PVC Pipe utilized for a large water main project in northern New England. Due to its ultra high-tech manufacturing process, which orientates the PVC molecules in both the axial and circumferential directions this pipe is stronger, lighter, and has a larger inside diameter thus increasing the flow characteristics than conventional AWWA C900 PVC water pipe.

The installation of the new 8” and 12” water mains which replaced the old 6” cast iron mains was completed ahead of schedule. The new lines increased the fire protection while decreasing the overall water consumption due to the old leaking pipes. (Oct 2012 - 48,000 gal/day usage, Oct 2013 - 12,000 gal/day usage)

Munson completed their work in a safe and workman like manner throughout the entire project while protecting the sensitivity of the community and the environment along the shores of pristine Caspian Lake.

Ken Trask, P.E. of Tata & Howard, Inc. summed up the work on this project by saying:

“This has been the most well coordinated and executed project I have been associated with in quite some time. Munson did an exceptional job executing the difficult requirements of the project schedule as well as being exceptionally courteous to all the residents and campers. I received many compliments from the Prudential Committee about how well Munson interacted with the residents.”