

# COLONIAL PINES SEWER - SPAULDING TURNPIKE CROSSING, ROCHESTER NH

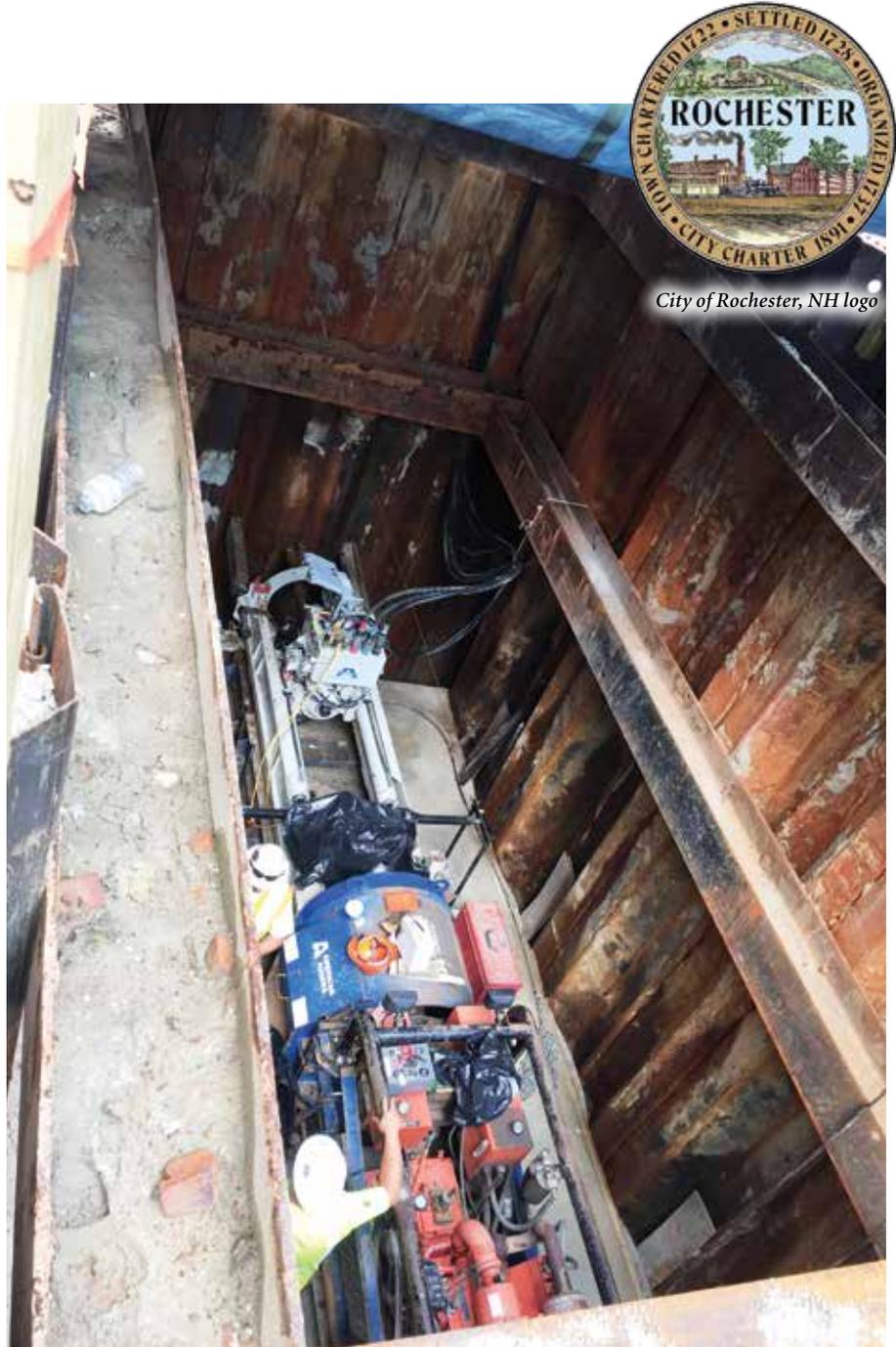
## Deep Gravity Sewer Crossing of the Spaulding Turnpike (Route 16)

By: Marty Scanlan, P.E., Underground Solutions

The city of Rochester is located in the southeastern part of New Hampshire. Rochester is one of the largest cities in New Hampshire and incorporates over 44 square miles, just a short distance from New Hampshire's famous Lakes Region, White Mountains, and seacoast.

Rochester is engaged in continuous community improvement projects, and one recent project involved the Colonial Pines neighborhood. The neighborhood collected and treated domestic wastewater with septic systems and the City evaluated expansion of public sewer into the neighborhood to replace them. After looking at either a full gravity flow system, or a pumped system, they chose a gravity sewer system to avoid long-term maintenance associated with the pumped system. The primary concern in expanding public sewer to the Colonial Pines residents was their location on the east side of the Spaulding Turnpike, or New Hampshire State Route 16, while the Rochester wastewater treatment plant was located on the west side. A critical first phase to any project required crossing the turnpike.

The City budgeted \$2.2M for this first phase of expansion. S.U.R. Construction was the low bidder on the project, but the overall cost was significantly higher than budgeted. Rather than throw out all bids, go into redesign and delay the entire project, the City decided to team with S.U.R. as the low bidder to develop cost saving measures and get the project completed within the allotted budget and schedule.



City of Rochester, NH logo

Steel Casing Installation by ECI using American Augers Boring Machine



*TerraBrute® CR PVC Pipe and Rings Before Assembly*

S.U.R. has a history of successful projects in the Rochester area. Jason deWildt, a licensed professional engineer who has been with S.U.R. for the last 10 years, previously worked for the City’s Department of Public Works-Engineering Division, first as an intern during college and then for three years after graduating with his Civil Engineering degree from the University of New Hampshire. John Storer, Director of Public Works and Mike Bezanson, City Engineer, were both instrumental in working with deWildt and S.U.R. to develop the scope and design changes needed to bring the project within budget. Per deWildt “We have worked closely with Rochester on many infrastructure projects and we greatly appreciated their confidence to team with us to meet their allotted budget for this critical, time sensitive project.” In addition to reducing costs on the project, S.U.R. worked hand in hand with the City of Rochester’s Department of Public Works to secure the necessary Encroachment Permit and Use and Occupancy Agreement from NHDOT required to move forward with the project.

The original design called for 12-inch Class 52 ductile iron pipe to be inserted



*Termination of the Gravity Sewer Crossing into a Junction manhole*

into a steel casing under the turnpike. Due to the necessary grades of the gravity sewer, the steel casing was to be installed 25 feet under the roadway using jack & bore methods. This segment of the sewer would then be connected to PVC gravity sewer pipe on either side of the crossing. After consulting with Don Proulx of EJ

Prescott, deWildt proposed a substitution of the ductile iron pipe with a restrained joint PVC pipe inside the casing. The restrained-joint PVC product chosen was 12-inch TerraBrute® CR PVC pipe, a mechanically restrained PVC pipe. It contains no metallic components to corrode, could be easily cartridge

assembled in the jack & bore excavation next to the steel casing, and Rochester had successfully used TerraBrute® CR PVC pipe to cross under a number of on-ramps for the Turnpike.

TerraBrute®CR is made to the AWWA C900 pressure PVC pipe standard and is assembled using a bell and spigot type connection with a full profile gasket. Additionally, it has an extended lip on the bell end, which contains holes, and these holes accept pultruded fiberglass pins that are inserted through the extended bell and engage a groove that has been cut into the spigot end of the adjoining pipe length. The result, after the pins have been engaged, is a fully restrained joint that is capable of being pushed or pulled into the steel casing. The pipe comes in standard, 20-foot lengths, similar to unrestrained bell and spigot PVC pressure pipe and can be assembled as it is inserted into the casing, eliminating the need for extensive assembly or layout areas.

S.U.R. subcontracted with Engineers

Construction (ECI) to perform the challenging 428-foot jack & bore of the steel casing under the Turnpike. The 25-foot depth required extensive dewatering for both the jacking and receiving pits on either side of the highway. S.U.R. and ECI have teamed together on numerous projects and complement each other's skill sets.

The project was successfully completed in the fall of 2017, with the new gravity line installed and ready for the next phase of construction. Per Mike Bezanson "We greatly appreciated the efforts of S.U.R. to work closely with us on this critical first phase to provide city services for the Colonial Pines residents".

With the first phase of their gravity sewer expansion completed, Rochester can now focus on extending sewer service to the 200+ homes in the Colonial Pines neighborhood. It is anticipated that additional funds will be appropriated and construction will be phased in over the next few years. †



**ABOUT THE AUTHOR:**



**Marty Scanlan** is VP of Sales for Underground Solutions and manages RSM and RSE sales activity in the Eastern and Central time zones. Marty is an

experienced engineer in the municipal field with a strong sales and applications engineering background with 12 years of experience at Underground Solutions. He holds a BS in Chemical Engineering and is a registered Professional Engineer in the state of California. He formerly worked as Technical Sales Manager for Siemens - RJ Environmental and has over 25 years of experience in the municipal field designing, marketing and selling capital equipment and pipe systems.



TRENCHLESS INSTALLATION FOR YOUR **NEW AND AGING PRESSURE PIPELINES**

InsituMain® CIPP    Tite Liner® HDPE  
Fusible PVC® pipe    Tyfo® FRP system

**SEE AEGION.**

**CONTACT US NOW**

844.619.2927

[www.aegion.com/PressurePipe](http://www.aegion.com/PressurePipe)



© 2018 Aegion Corporation | RMCTT18