

A November to Remember: Two Long Distance Horizontal Directional Drills Completed with Fusible PVC[®] Pipe on the Same Day

November 18, 2013 was a day of notable accomplishments in the directional drilling world. Two long-distance horizontal directional drills (HDD) were completed simultaneously in Suffolk, Virginia and Sunset Beach, North Carolina, both utilizing 12-inch Fusible PVC[®] pipe. Each installation featured a different team of owner, contractors, and consultant, but by the end of the day both had pulled Fusible PVC[®] pipe under a major waterway to complete a critical element in each particular pipeline project.

Pipeline Details and Project Summaries		
	Sunset Beach, NC	Suffolk, VA
Project:	Water Main Second Feed	G. Robert House WTP Sewer Force Main
Pipe:	12-inch DR14	12-inch DR14
Length:	4,200 LF	3,700 LF
Owner:	Brunswick County Public Utilities	Suffolk Department of Public Utilities
Engineer:	URS Corporation - North Carolina	CDM Smith
General Contractor:	Carmichael Construction Company, Inc.	Carson Corporation
HDD Subcontractor:	Mears Group, Inc.	Self-performed
Waterway:	Intracoastal Waterway	Nansemond River

Although similar in scope, there were some notable differences in how the projects were planned during the pre-construction period. As is often the case on long drills, the most obvious and challenging aspects of the project are on the pipe side. Decisions include layout area for fusion and pipe stringing, as well as potential use of intermediate joint fusions during pullback. At Sunset Beach, the team fused the entire string. While at Suffolk, Carson Corporation chose to fuse three times during pullback.



Sunset Beach, NC



Suffolk, VA

*Underground Solutions (UGSI) provides infrastructure technologies for water/wastewater applications. UGSI's Fusible PVC[®] products, including **Fusible C-900**[®], **Fusible C-905**[®] and **FPVC**[®], contain a patented PVC formulation that, when combined with UGSI's patented fusion process, results in a monolithic, fully-restrained, gasket-free, leak-free piping system. UGSI's **Duraliner**[™] is a patented, close-fit pipeline renewal system creating a stand-alone structural liner.*

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Another difference between the two projects was pipe entry into the borehole. A basic tenet of horizontal directional drilling is that the product pipe should assume the same vertical and horizontal angle used by the pilot drill upon exit, with execution dependent upon site conditions and equipment availability. For Sunset Beach, the minimal available footprint in the paved roadway and a steep exit angle meant that the pipe had to be suspended with a pair of roller cradles well before entry in order to avoid a long entry pit. Suffolk, on the other hand, utilized a single roller cradle in combination with an entry pit.



Sunset Beach, NC

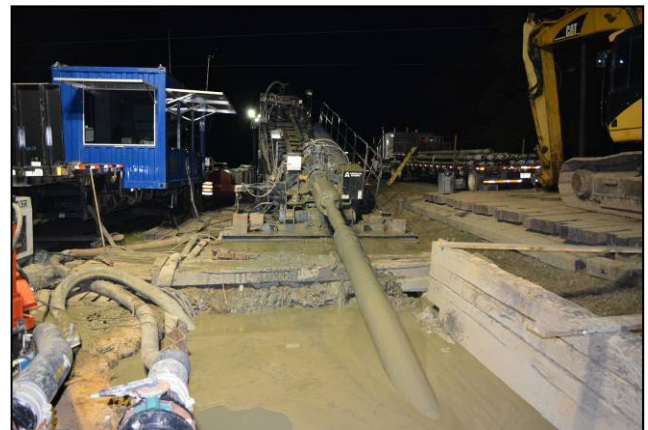


Suffolk, VA

On each project, the Fusible PVC® pipe was pulled through the borehole with a maximum pulling force of around 70,000 pounds. Despite different challenges, the final result was the same for both projects — total success attributable to good design, capable contractors, and field support from Underground Solutions fusion crews and construction managers. Fusible PVC® pipe has the characteristics required to perform under the most rigorous of installation environments such as represented by these projects, but the lesson learned repeatedly is that proper planning and execution by all team members is the key ingredient to a successful project.



12" Fusible PVC® pipe ready for hydrotest and connection on Sunset Island side



Three intermediate fused joints and 10 hours later – 12" Fusible PVC® pipe emerges from under the Nansemond River

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