

Parallel Installation Highlights Differences in Material Selection

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Garney Construction Company of Kansas City, Missouri, successfully completed the installation of 25,000 feet of 30-inch DR 25 C905 side-by-side with 25,000 feet of Class 250 ductile iron pipe. This field study highlights important considerations that must be factored into the material selection process.

The project was installed for Orange County Utilities in an expanding area east of Orlando, Florida. The lines are designed to complete a large looped system providing water and wastewater service for one of the fastest growing areas in central Florida. The project conformed to Orange County Utility specifications. The specifications allowed only Green DR 25 PVC to be used for wastewater force mains but permit either Class 250 ductile or Blue DR 25 PVC for water transmission mains.

In an effort to prevent corrosion, the specification requires that ductile iron pipes be protected by bonding each joint together and wrapping the pipe in polyethylene bags. The bonding consists of welding each joint of

ductile pipe together and using wire to tie sections of the bonded pipe to buried zinc anodes that are connected in series to permanent, above ground monitoring stations.

The specifications ask that color be added to PVC during production and ductile pipe be color coded by either using blue polyethylene bags or painting stripes on the pipe. Tracer wire must be installed the length of all pipe and terminated at location stations throughout the length of the lines. Finally, two layers of 6-inch wide metallic locator/identification tape must be buried directly above the pipe and 24 inches below the surface.

In Orange County, all fittings, valves, and hydrants must be mechanically

restrained and the pipe extending out from each fitting must be restrained for a specific distance, depending upon the design variables. Factory designed restrained joints or bell-joint restraints were both acceptable.

The project designer closely evaluated using PVC throughout the project; however, because the restraints were a major consideration and the design of PVC does not offer an integral bell restraint, it appeared that PVC would be more time consuming to install. Therefore, for the 30-inch water main, the specification required Class 250 slip joint ductile iron pipe using self-restrained joints and fittings where needed. To avoid using mechanical joint fittings, wherever possible, welded outlets were used for the branch connections.



An average of 500 feet of pipe was installed per day.

materialize because these joints could not be easily pre-assembled and required care when assembling to avoid push-out.

Evaluation of the overall line cost

This project serves as another example of why PVC is more economical to install and operate, and is proof that it does not cost more to install PVC pipe.

Jason Seubert, the Project Manager for Garney, says that analysis of the time required to install the two lines shows it took the same time to install both lines. Each line was installed at an average rate of 500 feet per day. Joe Monteleone, Superintendent for Garney, said that whenever possible his crew of five pre-assembled all fittings above ground and this substantially increased production of the PVC line; on some days they installed up to 1300 feet.

Joe points out that the additional time required to install and test the cathodic protection combined with the painting of the pipe and bagging of each joint added time to the installation of the ductile iron pipe. Furthermore, the savings anticipated by using the self-restrained joints did not

would not be complete without mentioning that Orange County plans to contract with an outside service to check and maintain the cathodic protection monitoring stations throughout its system. The long-term expense associated with the cathodic protection will more than offset any possible material cost savings the county realized by allowing ductile iron as an alternate.

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30-inch PVC was installed for the wastewater force main.