



Lyon township is growing

HDPE potable water line extension provides solution

The project

Lyon Township in Oakland County, Michigan is growing, 2000 to 2010 census data indicates a 31.6% increase in population. Lyon Township is one of the fastest growing townships in SE Michigan. Of course, new potable water services are required. This case study involves the installation of 11,307 linear feet of 14" SDR 11 High Density Polyethylene (HDPE) water main line, gate wells, and fire hydrants along Griswold Road, Eight Mile Road and Pontiac Trail.



This newly installed extension line crossed under three wetland areas, a drainage crossing, and near several residential and commercial areas with little or no disruption to these areas. This extension will service approximately one square mile of future developments. "This was a publicly bid contract. The contractor provided pricing based on interaction with their distributors. We did not specify the distributor, but the specification called for HDPE SDR 11 that meets AWWA C906." said Jason Mayer of Giffels Webster. Giffels Webster is the Civil Engineering, Landscape Architects, Planners, Surveyors, and Environmental Specialists who designed the project. Verdetere Contracting out of Canton, MT was awarded the project based on their low bid and conduct their own fusions of HDPE, drilling and connections. The owner of the pipeline is the Charter Township of Lyon and the operator will be the Oakland County Water Resources Commissioners Office. The total construction costs were under \$1.6 million.



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The specifications

This water main located on the southwest portion of Lyon Township has been desired for many years because with water service in this area it will make the parcels more attractive to developers. Lyon Township funded this extension through bonds and water funds. This project was installed in a dedicated easement and within the right of ways of the roads mentioned above. The AWWA C906 specifications were required of the 14" DIPS line. AWWA still incorporated PE3408/PE3608 materials and the appropriate hydrostatic design basis for this material. Most of the project was to be horizontally drilled with transitions to ductile iron through gate wells, hydrant outlets, and gate valve connections. All ductile iron joints used on the project had to be restrained joints. Electrofusion or butt fusion joints were used to connect the mechanical joint adapters. No laterals were installed for this project.

The benefits

Giffels Webster has been designing projects using HDPE for over 20 years has been named a top 100 design firm for HDPE pipe installation in Trenchless Technology magazine. This indicates the success that they have encountered using HDPE for these applications. When asked if they have experienced any problems with HDPE installations, Jason's answer was, "None that he has been involved with. You don't need to worry about pipe corroding in questionable soils. The pipe has a long design life in our opinion and the fused joints make a solid pipe with less chance of leakage in the system. We also seem to get competitive construction bids with a well-designed HDPE project. There are a lot more companies in the HDPE installation and directional drilling business than a short time ago. Designers should reach out to their contractors and ask them their opinions."

As the HDPE Water and Sewer markets continue to grow, it is understood that it is beneficial to provide a trouble and leak free systems that resists corrosion and ground movements. It will not promote biological growth so tuberculation effects are nullified and maintenance costs are potentially reduced. Installations costs and timelines are reduced by not disrupting established infrastructure and carbon footprint is reduced by

smaller equipment and less operating times. As the demand for growing and replacing infrastructure increases managing costs while providing the highest quality systems will not only benefit municipalities today but long into the future to support our future generations to come.



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