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Mr. LeBlanc holds a B.S. in Civil Engineering from Louisiana State University and is a Registered Professional Engineer in Louisiana. Since 2004 Mr. LeBlanc, has worked in the design, manufacture and installation of pipelines for water, sewer and hydropower utilities. He has expertise in buried flexible pipe design and long term performance of polymer pipes. He has provided the technical support for Fiberglass and Polymer Concrete pipe products across the United States and Canada. He is a participant in AWWA and ASTM standardization committees on pipe design and installation, and is a contributing editor to various ASCE's Pipeline Committees.

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Fiberglass Jacking Pipe Provides Upgrade to Las Vegas Sewers

The Paradise Whitney Interceptor (PWI) is an extensive gravity sanitary sewer pipeline being built in Las Vegas by the Clark County Water Reclamation District. The existing pipelines are currently at or above capacity, and this new pipeline will help to relieve current deficiencies and provide capacity for the future. Geological investigations at an early stage of the project revealed the variable nature of soils in the region. Areas of sticky clay, collapsible soils, dewatering-induced settlement, high groundwater, and even cemented caliche were present in the pathway of the pipeline. The main issue to be encountered, though, was to work around existing structures.

About half of the proposed 5 miles of pipeline (Package #2 of 3) was in close proximity to sensitive underground utilities and had limited surface access. Achieving an optimal path meant that trenchless

technologies would need to be implemented. Even by utilizing trenchless technologies like microtunneling and pipe jacking, some drive lengths were over 1,000 feet. These challenges could have been overwhelming for the engineers, but one manufacturer was able meet all of their needs: Flowtite® and Thompson Pipe Group. The Flowtite® filament-wound Fiberglass-Reinforced Polymer Mortar Pipe (FRPMP) was chosen for both the trenchless installation of 13,481 LF of 60- to 72-inch pipe, and an additional 13,592 LF of 30- to 66-inch pipe installed using open-cut methods. The filament wound fiberglass pipe was able to handle the project challenges as well as offering unique advantages in corrosion resistance, superior hydraulic characteristics, and ease of installation.

To combat the risk of deflection in areas with poor soil support and long jacking drive distances, the fiberglass pipe was designed with custom pipe stiffness classes in excess of 200 psi. Micro-Tunnel Boring Machines (MTBM) and Earth Pressure Balance (EPB) machines were used and the flush-fiberglass-sleeve jacking pipe was installed. To help reduce the jacking load for some of the longer drives, intermediate jacking stations were incorporated. Ports were also incorporated in the jacking pipe walls that allowed for injection of bentonite lubrication during the installation of the pipe. The bentonite played a key part in reducing friction between the smooth outer wall of the jacking pipe and the native soil through which it was passing. To protect nearby existing utilities, grout could later be injected into the soil through the grout ports to create a soil-cement mixture in-situ.