

Sliplining in San Antonio



City crews decide to do it themselves.

“We can do that,” occurred to the San Antonio Water System (SAWS), and it was right. This city owned public utility now has its own crews installing pipe in utility maintenance trenchless projects around town. Years of watching contractors was a great learning experience and gave SAWS the confidence to bring some of the work in house and reduce its reliance on local contractors.

Gordon Mahan, SAWS manager of distribution and collection, summed it up, “We saw an opportunity to save time and money and we capitalized on it. We had been considering expanding our work projects to include doing live sliplining ourselves. We had the equipment and the manpower to do it.”

A group from SAWS visited the HOBAS Pipe USA (www.hobas.com) factory in Houston, TX, to watch pipe production and get a better understanding of the product and its use. They also visited a sliplining project in a neighboring city where the pipes were being installed. Although many feet of the CCFRPM pipe have been installed in the San Antonio area, this was SAWS’ first attempt at sliplining. “For this project, we needed a proven product; we didn’t consider products without a proven history,” said Dennis Laskowski, engineer II.

Structurally Sound

After the collapse of a 48-in. outfall, SAWS had the opportunity to put its knowledge to the test. Initially, the failure location was thought to be in an isolated area that included a siphon. Crews made

emergency repairs, but a thorough study determined that additional areas south of the collapsed location also needed repair, though not on an emergency basis. “We had a contract to install cured-in-place pipes in the deteriorated areas of the siphon, but wanted a more cost-effective approach to the rest of the line repairs. We decided to take our time and do it right, and do it ourselves,” said Mahan.

Laskowski, one of those responsible for the design, voiced some of the pressing concerns, “The failing line was under a roadway adjacent to a cold storage plant where 18-wheelers travel constantly. We were concerned about the

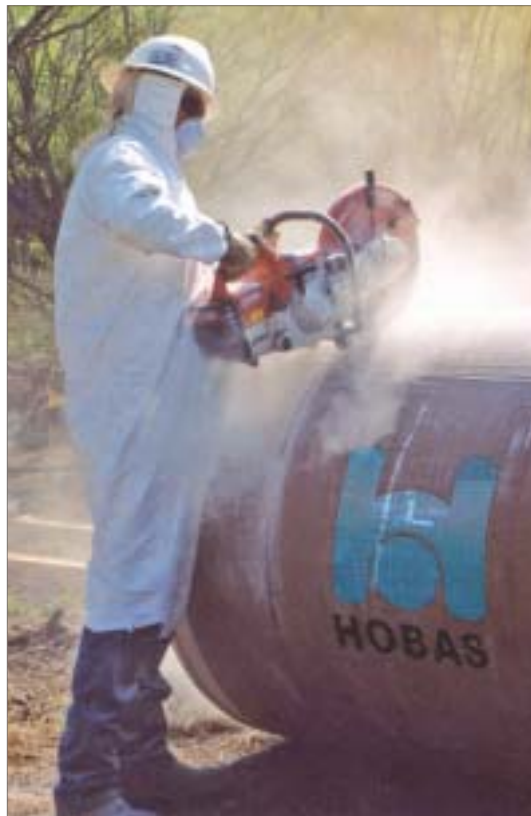
structural condition of the pipe due to these heavy traffic loads and the condition of the pipe, which could cause an immediate pipe failure. Sliplining the existing pipe would solve the structural issues, prevent further pipe corrosion, and ensure leak free joints. It would also reduce the amount of street cutting and associated downtime the cold storage plant would suffer if the pipe were to be open cut.

“Another reason we considered CCFRPM pipe is the capacity of the line. With the hydraulic characteristics, we wouldn’t see any flow reductions from the decreased diameter,” Laskowski added. A 42-in. diameter HOBAS pipe was evaluated hydraulically and met the design needs.

SAWS issued an invitation to bid/proposal for 2,666 ft of 42-in., 82-psi stiffness class, 20-ft joints of bell-spigot pipe. Because of SAWS’ positive past experience with HOBAS, the pipe’s ability to meet the design criteria, and SAWS’ confidence in the product for this application, they chose to take bids only on that material.

The SAWS operations crews began the sliplining process by evaluating the existing line. They videoed the line with remotely controlled camera equipment to assess the pipe condition and look for joint offsets or misalignments that might hamper the sliplining process. The first push was upstream, appeared relatively straight, and had been sufficiently cleaned.

Omar Carrasco, field service technician for the pipe manufacturer, described the work, “Initially, the installation of the pipe itself didn’t set any records for pace, but it was consistent and non-eventful. What



During sliplining in San Antonio, field modifications to the CCFRPM pipe were made with diamond-tipped saw blades.

more could you ask for a first time? On day one, they installed ten pipes. Production rates steadily increased and after a few days, the installation crew looked as if they had been doing this for years. By the end of the first run, pipe installation rates were up to five pipes an hour, with the first 1,000-foot run completed in only three days.

“The next run was inserted from the same pit, but downstream. There was one point, close to the end of the second push, where I thought they might have some difficulty, but they [SAWS crews] used sand bags in the pipe to divert water to the annular space, lifting the liner pipe over the obstruction.

“The crew’s preparation and knowledge, as well as the pipe’s attributes, enabled the rapid installation. The flush joint pipes had exactly the same outside diameter along their length even at the bell ends. This allowed for easy insertion into the host. The inside diameter was also very consistent along its length. The centrifugal casting process produces a dense pipe wall with a high compressive strength that allows for high jacking capacity, even with a relatively thin wall structure. The efficient design allows for an oversized inside diameter, which recovers the most flow capacity.”

Complete Package

HOBAS manufactured fittings for the pushing and receiving shaft locations. The T-base systems were either straight or mitered to fit the alignment of the existing sewer. When possible, the fittings were supplied with flush bell and spigot joints that mated perfectly to the bell-spigot joints on the adjacent sliplined reaches. The company also manufactured closure couplings that were utilized to tie in the fiberglass T-base systems.

“We chose sliplining with HOBAS pipes because it seemed very user friendly, and we didn’t have to bypass flow. Our concerns with bypassing are not only the cost but the safety,” explained Mahan. The gasket-sealed pipes allowed installation under live conditions without any disruption to the sewer service. SAWS crews are pleased with the product performance as well as the technical experience of the manufacturer’s employees.

GE



A SAWS worker applies joint lube, the only thing needed to make a quick push-together connection of the pipe.



The flush exterior joint and the high-strength yet thin-walled pipe allowed for the greatest flow recovery in the SAWS project. The flow was uninterrupted during the entire sliplining process.