Sliplining in Albuquerque

New Mexico city repairs aging interceptors.

Albuquerque's history long precedes its founding in 1706 as the Villa of San Francisco de Alburquerque. Its natural history museum displays the fossils of dinosaurs dating from 150 million years ago. And like the dinosaurs, part of its infrastructure was also on the verge of becoming extinct.

In the 19th century, it became Albuquerque and the original villa is now "Old Town," which is preserved as an historic district and is a major tourist destination. One aspect of "Old" is not so appealing, because just like many other older cities, Albuquerque is struggling with its aging infrastructure.

Mike Rocco, trenchless manager with AUI, Inc., an Albuquerque, NM, construction firm, said, "In the past ten years, AUI has been called out to repair interceptor sewer lines that have collapsed resulting in closed roads. Most of the pipes that are being repaired are old pipe installed beginning in the 1960s. We are now working on several projects that take a more proactive approach and result in a win-win situation for the installer and city.

The SAS Larger Diameter Sewer Line Renovation, detailed here, has already been followed by the San Juan Chama Slipline Project, another AUI job. Its requirements were to slipline existing 48-in. reinforced concrete pipe with 44-in. HOBAS pipe (HOBAS Pipe USA, www.hobaspipe.com). The total length of the project was 3,424 ft.

"The benefits of sliplining are many. The overall cost, disruption, and time to slipline a segment of pipe are less than traditional remove and replace methods. AUI can also open cut and install pipe, but if given the opportunity to slipline, we prefer it and find it more productive and less intrusive than traditional methods," explains Rocco.

Sliplining has been underway for the SAS Larger Diameter Sewer Line Renovation for the city. Clean-ing operations were finished before each segment was completed. The first sliplining run of about 180 linear ft was completed quickly in one morning. The second run of an additional 315 ft of 48-in. sewer line was sliplined on the following day.

The push ring is placed on the pipe.

Sliplining pipe is lowered into the trench.

The entire project of sewer line rehab consists of about 495 ft from manhole to manhole. It ranged in size from 30-in. to 48-in. diameter. This sanitary sewer sliplining was made necessary by the corroded state of the existing concrete line.

HOBAS was chosen as the pipe supplier for several reasons: The pipe's superior hydraulics would increase flow capacity, ease installation, and resist corrosion. The centrifugally cast, fiberglass reinforced, polymer mortar pipe has been performing reliably in the U.S. since 1984.

Project Designer

Boyle Engineering Corporation (Albuquerque) designed the project. Keith Reed, P.E., the project manager for Boyle, described the pipe installation and choice of products "Due to the fact that a reach of sewer involved in the current rehab known as the Edith Interceptor is a major sanitary sewer

Note the tight fit of the new pipe.

interceptor, which collects much of the flows from the north central portion of the city, capacity was a huge concern.

"If we had used a 42-in. slipliner pipe in the existing 48-in. line, we would have achieved an improvement in line capacity of between three and ten percent. This was good compared to existing capacity, but still inadequate to meet future needs. The severe corrosion in this line made us confident that we could get a 44–in. I.D. HOBAS sliplining pipe inside the existing 48-in. I.D. pipe. We determined that the capacity of the line would likely increase 11 to 19 percent or more over the existing capacity."

Since the capacity was so critical, the I.D. of the liner was maximized. The company manufactured a 44-in. diameter pipe that is not an industry standard, but exactly fills the bill for this project. The other manufacturers offered only standard sizes.

"HOBAS offers pipe diameters in two to three in. increments for the majority of the product line. This often allows for the greatest flow recovery in slipline rehabilitation," said Richard Turkopp, engineering manager for HOBAS Pipe USA.

Since the fit was so tight, a mandrel (proof section) of pipe was pulled through the line before beginning the relining process. The mandrel was an actual section of the sliplining pipe.

AUI used the pipe because Albuquerque specified it. Rocco said, "We have had many successful projects using HOBAS. Our longest push on this job was 920 linear ft in one direction. The post-CCTV inspection of the new HOBAS pipe was excellent."

The manufacturer has been supplying pipe to the sliplining market since the late 1980s and continues to be the pipe of choice for many owners, engineers, and contactors because of several unique attributes. The pipe is inherently corrosion resistant, rugged, solid-walled, and provides a long maintenance-free life. The company has a long track record in this country with nearly a million feet of pipe installed by sliplining around the U.S. Before installing each new sewer reach, the contractor noted the location of all sewer services and identified which were in service and which were not. Those no longer in service were abandoned and active services reconnected after sliplining. Closed circuit television inspection of the pipeline was completed pre–installation. After sliplining, a final video was completed.

As part of the contractor's submittals, verification of the design and past performance of the sliplining pipe was required. AUI submitted complete design calculations, joint details, and verification of the required ten-year history of successful installations for sliplined sanitary sewers in the U.S.

AUI was looking for the best pipe to slipline and complete the project on schedule and within budget. Rocco said, "AUI has experience with several products and prefers the HOBAS pipe because of its stiffness and strength that provides the ability to make long distance pushes."

AUI has been installing HOBAS in Albuquerque since 2004 by both sliplining and direct bury. Rocco has become familiar with most of these types of jobs and is responsible for overseeing those that are done by AUI's specially-trained crews

"Sliplining is a major plus for municipalities because it is completed in less time and provides a permanent solution to the problem, not just a temporary fix," Rocco concludes. GE

Gasket installation on the new pipe.