

High-Tech Sewer Rehab in New Orleans

The city will be using pipe bursting to replace aging sewer lines and simultaneously laying fiber-optic conduit.

By Sharon M. Bueno

The central business district (CBD) in the City of New Orleans is getting an underground facelift as approximately 42,000 ft of its sanitary sewer lines are being replaced simultaneously with new HDPE sewer pipe and a series of completely separate smaller fiber-optic conduits that surround the new HDPE sewer pipe.

The estimated \$5.5 million, two-year project is being done as part of the New Orleans Sewerage and Water Board (S&WB)'s Sewer System Evaluation and Rehabilitation Program (SSERP). The design phase is expected to begin this spring, with construction projected to begin sometime in the fall. In addition to the main line sewer replacement and fiber conduit installation, the project also includes the full replacement of approximately 400 lateral connections where fiber conduit will also be laid.

The SSERP is being done in conjunction with a consent decree, signed in 1998 with the U.S. Environmental Protection Agency (EPA), that mandates that New Orleans rehabilitate its sewer system completely by December 2010. The price tag for the

entire program is \$624 million; approximately 25 percent of this extensive project is completed.

"The rehabilitation of our aging sewerage system is one of the most massive infrastructure projects the board has ever undertaken and one



"The benefits are two-fold. You have a comprehensive, rehabilitated sewer, as well as the huge potential for back-end revenue in the form of lease fees on the conduit."

— New Orleans Mayor Ray Nagin

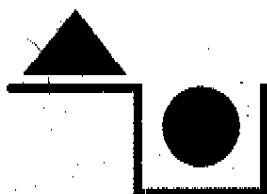
of the costliest," says New Orleans Mayor Ray Nagin, who is also the board's president and a strong proponent of trenchless technologies. "And now, with this cutting edge opportunity to run fiber-optic cable on the outside of the many new sewer lines we are installing, we can build an

ultra-speed [fiber] network in the heart of the City's central business district with minimal extra effort."

To rehab the CBD's sewer lines, the board recently contracted with Renaissance Integrated Solutions (RIS), Armonk, N.Y., utilizing its unique and proprietary technology that offers the S&WB the opportunity to recoup some of its hefty expenses via leasing the fiber conduit system to telecommunication service providers. The CBD encompasses 14 square blocks and is described as tight and congested with narrow streets and heavy traffic.

"This process utilizes pipe bursting technology to rehab the sewer and at the same time pull in the fiber-optic conduit," says Nagin. "The benefits are two-fold. You have a comprehensive, rehabilitated sewer, as well as the huge potential for back-end revenue in the form of lease fees on the conduit."

Marty Dorward, consultant engineer for the board and with Montgomery Watson Harza, describes the condition of the CBD sewers as old in age (with some being at least 100 years old), made of vitrified clay and in a generally poor state. Over the



K. R. SWERDFEGER CONSTRUCTION, INC.

421 E Industrial Blvd. Pueblo West, CO 81007

(800) 369-6432 www.krswerd.com

- Sliplining
- Pipebursting
- HDD
- Raven Certified Applicator
- Quadex Certified Applicator
- Infrastructure Development
- Auger Boring
- Pipe Ramming
- Joint Seals

years the pipes have incurred joint failures, cracks and tree-root infestation, among other things. Maintenance has become a challenge due to the amount of rainfall and topography of the city.

"The City is protected on [its] north and south by levies and every drop of rain that falls has to be pumped out," Dorward says. "It's also a very flat area and there's not a lot of slope on the pipes to maintain velocity, so there is a lot of debris settlement."

The board learned of RIS and its technology through the financial institution of Morgan Stanley when it was researching how to reduce its bond debt. With the city in the throes of a \$624 million sewer rehabilitation program, it has raised rates significantly over the last several years and is looking for any viable method that rehabs the sewers and minimizes the impact on the ratepayers.

The CBD project does not involve upsizing the sewers, which range from 8 to 24 in. in diameter. Expected completion date is December 2005.

RIS

The S&WB will be utilizing a new technology that combines two markets: pipeline rehabilitation and last-mile fiber. RIS and its co-founder and CEO Stephen Paletta, who has a strong trenchless background, developed the process.

Paletta co-founded the company in February 2002 but has been developing the technology for approximately four years. In 1989, Paletta founded Westmoreland Construction, a leading fiber network deployment company in the New York area, specializing in building access laterals to establish last-mile connectivity with end-users. Paletta later founded Pipelining Products Inc. (PPI) in 1992, a company based on Paletta's patented Sure-Line Pipe System that grew into one of the leading trenchless technology companies in the United States, specializing in the rehabilitation of sewer and water lines without excavation. RePipe Inc., a national trenchless rehabilitation corporation, acquired PPI in 2000.

About three and a half years ago, Paletta co-invented what is now called Dual Purpose Rehab (DPR) — technology that combines pipeline rehabilitation involving laterals and last-mile fiber. RIS recently received the patent for the technology. New Orleans is the first major city to utilize



The fiber-optic conduit isn't connected to new sewer, water or gas pipe and is dragged in a parallel fashion.

AMerik Supplies Inc. Trenchless Technology



TOP HAT Lateral Sealing System

UV-Light cured fiberglass insert permanently seals lateral cuts in relined pipelines—economical, quick installation. Included is a UV-Light cured sectional liner system manufactured by:

Cosmic Sondermaschinenbau Austria



AM-Cutter system

Two cutters cover 6 to 24 inch pipes. Powerful air motors remove protruding elements and reopen laterals. Range up to 780 feet. Compatible with all TV equipment. Rugged stainless steel construction. 420 degree rotation. 6 inches up/down & forward/backward.

Fiber Spot Repair system

Steam cured sectional liner from 6 to 36 inches. Up to 150 feet in one installation. High Strength—45 min. curing time. Corrosion resistant Advantex fiberglass. No bulky plugs—plastic bag inflation. Smooth transition to existing pipe. No license fee.

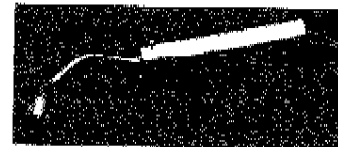


H-Expander

Rerounds pipes with up to 25% deformation. Controlled circular expansion. Stainless ratchet-locking ring remains in place. Available in sizes 6 to 16 inches. 70,000 lb. lift capacity.

AM-Slugger

Newly developed! Removes pesky resin slugs found in laterals with inverted liners. Capable of reaching 1 foot into the lateral in 8 inch pipes. Works with a 1/2" jet and a camera.



AMerik Supplies Inc.

2600 Ainsley Ct., Marietta GA 3006

Phone: 770-924-2899 • FAX: 770-924-2301

Web: www.AMerikSupplies.com

the RIS technology, which can be used for sewer, water or gas pipe. With last-mile work picking up, RIS expects its technology to help out cities with both its infrastructure upgrades, as well as with its last-mile connections.

How It Works

The DPR technology is based on trenchless pipe bursting methods. A winch drags a pipe bursting head through existing pipe, shattering it and pulling behind it a new, long life, leak-proof HDPE pipe. Surrounding that pipe are eight to twelve 1/4- to 1/2-in. fiber-optic conduits capable of carrying fiber directly to every building. This conduit is attached to the bursting head but isn't connected to the new sewer, water or gas pipe and is dragged in a parallel fashion.

"Instead of dragging in just one new pipe, you are dragging in one new pipe for the initial use, which is the sewer, water or gas, plus a series of smaller fiber-optic conduits that are on the outside, but are not connected to the new pipe," explains David Rubenstein, RIS senior vice president. "One of the key distinctions between

our technology vs. other technologies that are similar is that ours is not what you would call 'a pipe within a pipe' system. Almost every other attempt that we are aware of has taken the fiber conduit and put it inside the sewer pipe. Our fiber conduits aren't even attached to the sewer pipe."



Here, the pipe bursting head is shown with the fiber-optic conduit attached to it.

The RIS methodology allows cities and telecommunications service providers access to both systems (sewer and fiber-optic) without disrupting, harming or touching the

other. Other similar processes run the conduit inside the pipe, which has caused some concern for municipalities and telecom service providers when it comes time to do high-powered pipe cleaning and general maintenance, Rubenstein says.

Life expectancy of the pipe and conduit is 100 years, Rubenstein says.

Once the pipe and conduit are in the ground, RIS becomes a leasing agent for the cities, finding telecom service providers for the conduit. Depending on the deal with the individual cities, RIS gets a percentage of the revenue generated. In the case of New Orleans, the S&W board will receive 85 percent of the leasing revenue and RIS will receive 15 percent.

A decision whether to extend use of the RIS technology in other parts of New Orleans will be made after the board reviews the success of the CBD project, S&WB officials say, including the returns on the conduit leasing.

More Trenchless Planned

The City's sewage collection system services an area of approximately 86 sq miles and a population of nearly 500,000. The system consists of more than 1,400 miles of gravity collection and trunk sewers, ranging in size from 8 to 84 in. in diameter and more than 100 miles of force mains ranging in size from 6 to 72 in. in diameter.

The use of trenchless technologies is not uncommon in New Orleans, with the S&WB having used them in the past. In implementing its current SSERP, both traditional and trenchless methods are being utilized, including pipe and manhole relining.

According to S&WB engineers, to date approximately 260,000 ft of sewer pipe has been rehabbed using cured-in-place pipe (CIPP), with Insituform and National Liner products. Boh Brothers Construction, New Orleans, was the contractor for the National Liner work. An additional 180,000 ft has been excavated through point repairs and full-length line replacement. More than 4,400 manholes have been renovated using cementitious lining methods.

Past projects have included fold-and-form, pipe bursting and CIPP. To date, the S&WB has issued more than 30 different contracts of various project packages.

Sharon M. Bueno is managing editor of *Trenchless Technology*.

**Fast and reliable connections for
sliplining or pipe bursting**

INSERTA TEE
Easy, Fast & Watertight

The Lateral Connection Solution®

INSERTA FITTINGS CO.
TEL 503/357-2110 FAX 503/958-6417
www.insertatee.com/ut