

Trenchless TECHNOLOGY

OCTOBER 2018
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Project of the Year – NEW INSTALLATION

Valley Crossing Pipeline Direct Pipe
Method Shore Approach
Cameron County, Texas



INSIDE COVER

Rehabilitation Winner

- 36-in. CIPL Gas Main Rehabilitation
South Orange, New Jersey

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The winning project established new levels of innovation and records for a relatively new trenchless installation method — Direct Pipe — in a small segment of a 168-mile project to transport natural gas from Texas to a state-owned utility in Mexico. Direct Pipe made its North American debut in 2010.

BY SHARON M. BUENO

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To effectively manage the complexity of public infrastructure and assets, GIS must be at the heart of the data collection solution. GIS-centric technology serves as the system of record for risk-based assessments.

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In April 2016, the Toronto's Engineering and Construction Division awarded rehabilitation of the Humber sanitary trunk sewer. The goals of the rehabilitation project are to establish a corrosion protection barrier and extend the sewer service life for 100 years.

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48 CONDITION ASSESSMENT IN FOUNTAIN VALLEY, CALIFORNIA

Fountain Valley was facing the same problem as most utilities that are grappling with an aging infrastructure: having insufficient data to determine which pipe segments are the best candidates for replacement, and which pipes still have plenty of service life remaining.

BY DAVID STEWART JONES

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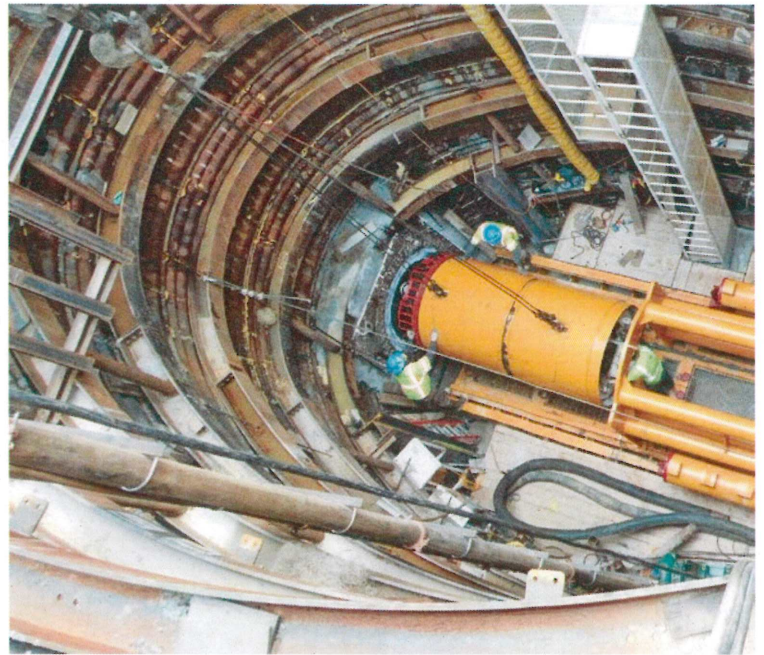
Project of the Year

NEW INSTALLATION RUNNER UP

Oregon Avenue NW Sewer Rehabilitation Project

DC Water is improving water quality in Washington, D.C., by replacing aging pipelines. The Oregon Avenue NW Sewer Rehabilitation project was constructed by Bradshaw Construction to replace and improve sewers near Rock Creek Park and Bingham Drive.

Of the project's 4,300 ft of new 24-in. sewer, 2,700 ft was installed by 60-in. microtunneling through the variable rock conditions at up to 90 ft deep. Work areas were particularly challenging as the project was located between a quiet, residential neighborhood and Rock Creek Park. Access had to be maintained for residents, emergency services and visitors to the national park. To minimize public impact, Bradshaw Construction Corp. reduced the seven designed tunnels to three including a single 1,860-ft drive and a 430-ft S-curve with a 625-ft radius. Both drives were record setting for rock microtunneling in the United States for the longest and the first curved drives, respectively. The collaboration and flexibility of the Oregon Avenue team



allowed the project to show how far we can push the push the capabilities of microtunneling.

The location's site constraints drove a great deal of innovative problem solving on the Oregon Avenue NW Sewer Rehabilitation project. One half of the project was constructed within Rock Creek Park, owned by the National Park Service, thus limiting activities to within the 20-ft wide curb lines on Bingham Drive. To protect the park, further constraints minimized tree clearing for crane and vehicles access and

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concerns about how the project would restrict travel around their homes and the impacts of a construction project like this in their front yards. These conditions led to limited access from which to build a tunnel with the only available staging area at the intersection between the two halves of the job. The three tunnels designed along Oregon Avenue were combined into a single 1,860-ft long tunnel drive using 60-in. diameter steel casing behind a microtunnel boring machine (MTBM), the longest at the time in the United States through rock.

Given the length and soil conditions, special considerations had to be made for every utility used in the tunneling operations. Also, the southbound lane of Oregon Avenue had to remain open for traffic and emergency services, therefore shafts had to be narrow enough to fit in the northbound lane and a narrow strip between the edge of pavement and the Rock Creek boundary. Three elliptical liner plate shafts were used to achieve the depths required, up to 50 ft, and avoid existing utilities that may have been damaged by pile installations.

all excavation had to be witnessed by an archeologist to inspect for items of historic interest. The west side of Rock Creek Park is bordered by Oregon Avenue, within the Chevy Chase and Barnaby Woods neighborhoods of Washington D.C., where the second half of the tunnel would be built. An active residential community had significant

While most of the Bingham Drive section was to be installed by open cut, access had to be maintained from the same, congested project staging area. The tight curvature of the of the street itself had originally required three short, straight tunnels to navigate it. An S-curve tunnel eliminated these two intermediate shafts that would have severely hampered access to the project site

The two 625-ft radius curves in opposite directions maintained the tunnel alignment along the Bingham Drive footprint within the National Park Service right of way. It also tested both the 48-in. RCP used as a casing and the MTBM.

Project Owner: District of Columbia Water and Sewer Authority (DC Water)
Engineer: Johnson, Mirmiran & Thompson
Contractor: Bradshaw Construction Corp.
Manufacturers/Suppliers: Herrenknecht, Permalok, Vianini, Jenmar, VMT and Jackcontrol
Value of Trenchless Project (US\$)
 \$16,824,115

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