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▼ *Multibeam trolley on the rock-dumping barge*

Triumph of Technology

Protect 33 miles of 24-inch gas pipeline deep under water with 350,000 tons of accurately placed rock – that was the challenge for WEEKS MARINE...

The *Eastchester Extension Project* was a massive undertaking that saw the New York gas pipeline buried along a route that stretched from a landfall at Northport, through the Long Island Sound, into the East River and finally end in the city's South Bronx.

The marine portion of the project saw the pipeline given anchorage protection by burying it under that huge amount of rock, which entailed positioning a 300ft-long rock placement barge over the pipeline, surveying the seabed, placing the rocks and then surveying the coverage before moving onto the next section.

And, of course, the project schedule was every bit as demanding as the skills and equipment required.

TECHNOLOGY

Weeks Marine enlisted New Jersey firm **GEOD Corp.** to design, install and operate a real-time positioning and bathymetric survey system for the rock-placement barge. GEOD put together a team of marine professionals, including **Alpine Ocean Seismic Survey,** who designed and installed the bathymetric survey system, and **Measutronics Corp.,** who supplied **Trimble** equipment and technical assistance for the navigation and positioning system.

Weeks Marine's ***Barge 529*** was outfitted with two Trimble *MS750Tm UK* GPS receivers interfaced to *HYDROpro Construction* software. The receivers provided survey data for manoeuvring and anchoring the barge along the pipeline.

Meanwhile, the supporting anchor-handling tugboat carried two Trimble *DSM132 D13PS* receivers for positioning and heading, *HYDROpro Remote* software and a radio link with the barge – a system that enabled onboard crew to see seabed features, accept anchor drop placements and allow control of the tugboat using HYDROpro Construction on the barge.

To ensure that design requirements were met, a multibeam sonar survey system running along the length of Barge 529 received heading information from the two Trimble GPS receivers – with a gyrocompass as a system backup. With the GPS receivers providing horizontal and vertical survey control, the multibeam sonar survey transducer mapped the bottom where the rocks were placed, highlighting any deficient areas for further rock placement.

FINALLY...

The Weeks team was impressed by the navigation and positioning system and GEOD's Joe Priestner, who co-ordinated the positioning side of the project, said he was "really amazed at how intuitive the HYDROpro software was. The system, while technologically very sophisticated, was easy to learn and use and simplified the entire placement process."

The system also offered great accuracy – with fore and aft movement capability spanning 150ft and athwart ship movement of 30ft, the operator was able to accurately and efficiently place rock along the entire pipeline, precisely meeting design specifications. In doing so, the team was able to steer well clear of seabed features such as cables and other hazards.

And despite the enormity of the project and the tightness of its schedule, it was carried out on time. ▲

More info at www.trimble.com