

# Sliplining Parktown's ageing water pipeline infrastructure

Subsurface pipeline construction and rehabilitation company Trenchless Technologies recently completed a 12-week contract for specialist contractor Con-Solve Civils and MPA Consulting Engineers.



**LEFT** Sample of a removed corroded section of 600 mm steel pipe

**T**HE CONTRACT saw the company slipline more than 270 m of steel piping at the Parktown Water Reservoir in Johannesburg.

Trenchless Technologies general manager, Marco Camarda, says the Parktown Water Reservoir, which was built in the 1940s, has been in need of refurbishment for many years.

As a result, Johannesburg Water put out a tender in September 2011 for the relining of Reservoir No 2 and pipework of Reservoir No 1 and No 2.

Johannesburg Water awarded the R19 million contract to MPA Consulting Engineers and Con-Solve Civils, who then subcontracted a portion of the contract to Trenchless Technologies. Camarda says Trenchless Technologies' portion of the contract involved the sliplining of 275 m of high-density polyethylene (HDPE) pipe measuring 560 mm in diameter into an existing 600 mm steel pipe, which serves as the main water feed from Rand Water to the Parktown Reservoirs No 1 and No 2.

The SASTT (Southern African Society for Trenchless Technology) technical standard for sliplining specification was used by Johannesburg Water on this contract to ensure the quality of the sliplining works. "Upon

● SASTT



**LEFT** Completion of sliplining line 1 using 60 t rod puller

commencement of the project, we conducted closed-circuit television (CCTV) investigations on the pipeline to determine its condition and look for obstructions. The investigations determined that the pipelines were badly corroded and pitted, and in dire need of refurbishment. It was also discovered that the pipeline lay at

a steep gradient and there was a tight bend at one section of the pipe. These conditions necessitated a significant amount of preparatory work, all of which had to be carried out within very short shut-down periods to avoid interrupting the supply of water to the residents of the neighboring areas, including

the Johannesburg General Hospital, which is positioned next door to the reservoir," explains Camarda.

All of the preparatory work, including the CCTV investigations, cleaning of the pipeline and sliplining test work as well as the actual sliplining work, was carried out through a small work footprint consisting of a launch pit at the southern end of the pipeline and a retrieval pit at the northern end of the pipeline.

"After having cleaned the pipeline, we had to remove any protruding objects by running a spring-loaded steel fingered cleaner through the pipeline. We then carried out sliplining test work using a 2.5 m test piece of HDPE pipe, which we ran through the entirety of the pipeline. The only obstacle that we faced was a severe bend in the pipeline, at which point we had to excavate a pit and remove this bend," explains Camarda.

Once Trenchless Technologies determined that the pipeline was clean and free of



any obstructions, it commenced the sliplining works. Four sliplining sections were undertaken in total. Additional works included installation of new 600 mm diameter fabricated tees, bends, spool pieces and valves. The contract was completed by the company in less than 12 weeks.

The only interruption experienced by Trenchless Technologies was that of having

**ABOVE** Butt-welding of 560 HDPE pipe in preparation of sliplining

**RIGHT** Welding New 600 Flange to allow tie-in for nine-hour shutdown

to lay a steel pipeline underneath the access road to Reservoir No 1, just below Reservoir No 2. Here Trenchless Technologies excavated across the road, layed the steel piping and connected it to a new steel tee piece at one



end and onto an existing 600 mm diameter flanged gate valve at the other end. The road was reinstated in just 24 hours. **35**