

World-1st Sliplining with Close-Fit liner around 8 Bends & CIPP of 500NB steel water pipe through 2 bends at the Valley of Waves, Sun-City.

Contractor: Orsco (PTY) Ltd & Trenchless Technologies

Specialist Consultants: Pipes cc

Client: Sun City Resort

Material Suppliers: Nu Cure & ASOE Hose



A team managed by Orsco (PTY) Ltd & Trenchless Technologies (Pty) Ltd undertook what is believed to be a World-1st Sliplining with Close-Fit liner around 8 Bends and the CIPP of 500NB steel water pipe through two 90-degree bends beneath the Valley of Waves, Sun-City, South Africa to complete a technically challenging project.

The client, Sun City Resort in the Bojanala Region of North West province of SA, used the Lock Down (announced by president Cyril Ramaphosa to begin on March 26th 2020) as the perfect time to conduct routine maintenance to the hotels, casino and water parks. Specifically, the main pipeline water supply at the Valley of the Waves was targeted due to the high level of water loss that was taking place.

After extensive investigation by means of CCTV Inspection, Pipeline Location, pressure testing and other condition assessments systems it was found that there were many misplaced joints, broken and faulty butterfly valves as well as numerous pinhole leaks and corrosion on the 28-year-old pipeline. Overall, the entire pipeline was found to be in a very bad condition and it was concluded that rehabilitation of the DN500 was necessary.

The 500mm diameter filtration pipeline runs from the pump room and right through the valley of the waves, a total length of 173meters. Excavating to replace and install a new pipeline would have meant weeks and possibly months of no water and the added expenses of the new pipeline, excavation and a longer installation period in which the Valley of Waves would have to remain closed.

The Hose close fit liner and a short length of Nu Cure CIPP Liner were offered to the client, highlighting the fast turnaround time providing a safe and environmentally friendly methodology that did not require the excavation of crucial access points and damage the park's exquisite features, Although this was the first time the Close-Fit liner was to be used in South Africa the Client accepted both methodologies in view of meeting the required technical solution as well as the economic advantages provided.

Project Summary

Transported Medium: Potable Water

Host Pipe Diameter: DN500

Host Pipe Material: Carbon Steel, Cast Iron, Rubber and Asbestos Cement.

Total Length: CIPP - 36m plus Close Fit Lining - 137m = Total 173meters

Operating Pressure: 3 bar, test pressure: 5 bar

Systems Used: Nu Cure G2 DN 500 liner, polymer epoxy & ASOE PE/PE covered press-flat Pipe-in liner DN 500

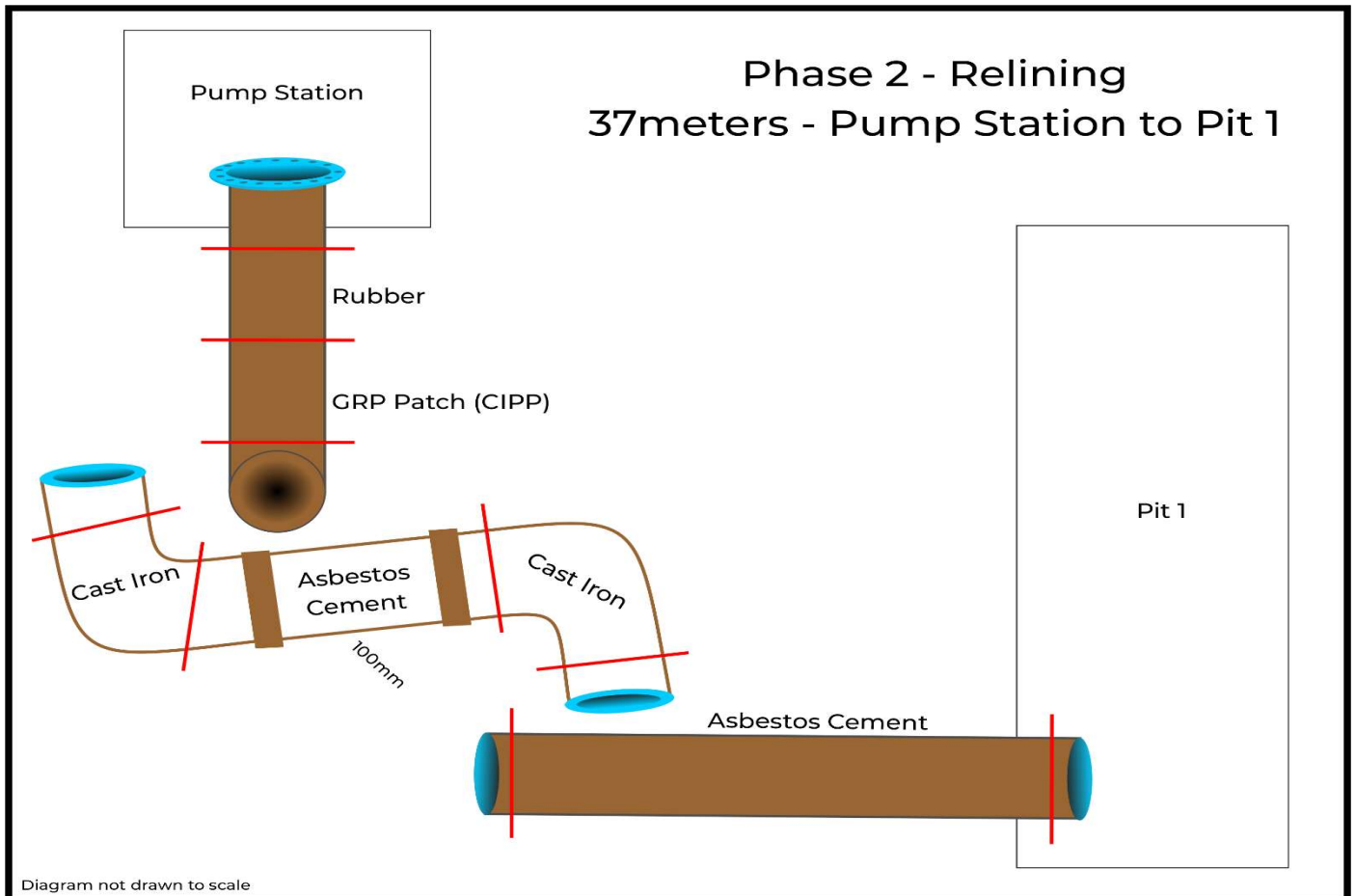
Breakdown: The project was broken up into **3 phases**, **Phase 1** condition assessment, **Phase 2** CIPP and **Phase 3** Pipe-in Liner.

This notable project is an excellent example of how different trenchless technology options can be used to address unanticipated site conditions, which allowed the project to be completed successfully without excavation and surface disruption.



Phase 2

Pump Station to pit 1 – 500ND Nu Cure CIPP – Steam Cured



Installed 500NB CIPP Liner

Phase 3

Pit 1 to pit 2 - 137meters 500NB - Close-Fit Pipe-in-Liner

Fabric reinforced flexible plastic hose (FRFPH).

