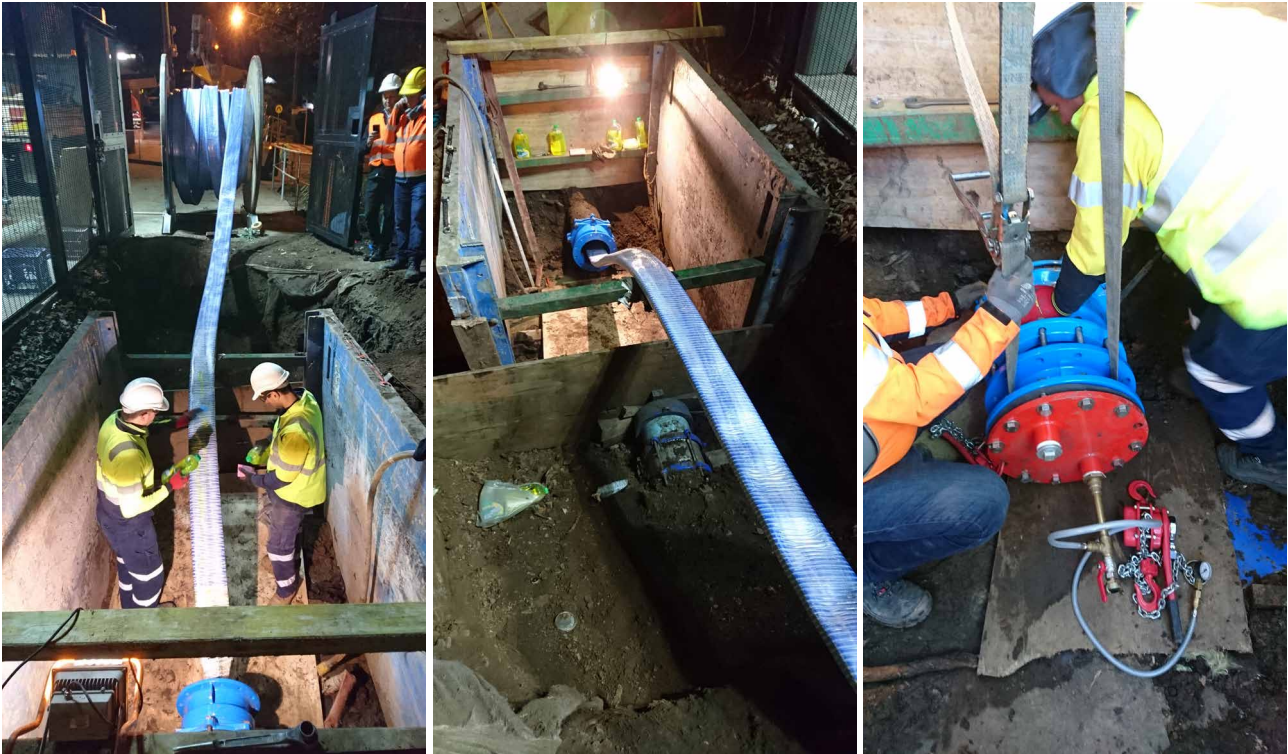


 **Job Report**



Rehabilitation of critical water main infrastructure for Sydney Water

Client:

Sydney Water Corporation (SWC), Australia

Year of construction:

June 2017

Type of construction measure:

Rehabilitation of a DN 225 CICAL water main at Pymble
Rehabilitation of a DN 300 CICAL water main at Penhurst railway station

Our Services:

- Delivery of the flexible Primus Line® system DN 200 and DN 300
- Delivery of four connectors with AS 4087 PN 16 flanges

Situation:

Sydney Water Corporation (SWC) is a New South Wales owned government corporation responsible in providing safe drinking water and sanitation services to over 5 million Sydney residents. SWC is arguably the largest water utility in the southern hemisphere and is highly regarded in Australia and around the world in innovative approaches to water management. SWC is responsible for almost 50,000 km of drinking water & waste water pipelines. In January 2017, SWC approached Primus Line in regards to the rehabilitation of two critical trunk mains.

Technical Details:

| | |
|----------------------|-----------------------------------|
| Host pipe material: | cast iron, cement lined |
| Transported medium: | potable water |
| Host pipe diameter: | DN 225, DN 300 |
| Operating pressure: | 10 bar |
| Primus Line® system: | DN 200 PN 40, DN 300 PN 25 |
| Total length: | DN 200: 47m, DN 300: 77 m |
| Bends: | multiple bends of up to 45 degree |
| Installation time: | 1 day per section |

Rehabilitation System:

The client opted to renew the leaking water main with the Primus Line® system, a proven solution for the trenchless rehabilitation of pressure pipes. The AS/NZS 4020:2005 certified three-layer composite liner consists of a PE inner coating, a Kevlar® core to accommodate the operating pressure, and an abrasion-resistant PE outer layer to protect the Kevlar® core during the installation process. The semi-structural solution is not bonded to the host pipe, can traverse bends of up to 45 degree, and can be inserted in lengths of 1,000 m and more in one single pull. Furthermore, due to the low wall thickness of only 6 mm compared to corresponding HDPE pipes, the hydraulic capacity is only reduced minimally.

Project Description:

At Pymble, a DN225 CICL main 47m in length under the Pacific Hwy with 2x45 degree bends had to be renewed. This main developed a leak in the 80's and as no technical and commercially acceptable method of rehabilitation was known, the main was isolated as traditional dig and lay was not possible given the critical nature of the Pacific Hwy as a main carriageway. In 2016, SWC were informed that one of Australia's largest retailers wanted to build a new outlet at this location and required a certain volume of water that would place a strain on the existing network. SWC engineers noted the isolated DN225 and sought out trenchless solutions. The solution was a DN200 PN40 medium pressure Primus Line® system. Given the congested nature of the Pacific Hwy, all work must take place between 9pm – 4am. Once cleaning & CCTV were performed, Primus Line was pulled through the host pipe in one night.

At Penhurst, a DN300 CICL main 77m in length under a twin track railway with 4x45 degree bends. This main was damaged by a rail authority contractor over two years ago, and as a result was leaking. And as no technical and commercially acceptable method of rehabilitation was known, the main was isolated as traditional dig and lay was not possible given the critical nature of the railway. SWC estimated that HDD was in the vicinity of over AUD 600k. The solution was a DN300 PN25 medium pressure Primus Line® system. This main was servicing a small retail area and a public amenities block, all work had to be completed during the night as the main had to be isolated. After the cleaning and CCTV were performed Primus Line was successfully pulled through in one night.

The service life of these critical water mains was extended by at least 50 years. SWC was able to renew both pipes in one week including CCTV inspection, pipe cleaning, and liner installation. Cost savings in excess of 80% could be realized compared to conventional methods.

