

Cold Work, Hot Result in Dunedin

Interflow has endured working in extremely cold conditions to successfully complete a \$1.6 million sewer rehabilitation contract for Dunedin City Council in New Zealand.

The project involved the rehabilitation of 5687 metres of sewer pipe ranging in size from 150mm to 600mm in diameter (the majority in the 225mm and 300mm size range) and included the sealing of 124 laterals.

The geographical location and timing of the project presented a unique set of challenges.

The city of Dunedin lies on the southern tip of New Zealand's Southern Island. The client required that the work be completed before the end of June 2010, which meant Interflow's crews had to perform the work in winter. This often meant working in below freezing conditions with temperatures commonly reaching minus 3°C.

The first stage of the rehabilitation process involved cleaning the existing sewer pipelines. This was challenging because not only did the pipes vary in size, but they were made of different materials, and their condition varied considerably.

For example some of the 375mm diameter clay pipes that ran below roads had tar inside them. Interflow used a bucket and winch system to collect the tar from inside the pipeline and bring it up to the surface for disposal. The cleaning process ensured that the pipeline was in a suitable condition to be lined.

For this project Interflow used Expanda®, a structural close-fit, spirally wound liner developed by Sekisui Rib Loc Australia.

One of the benefits of Expanda is that it provides a full bore structural liner without the need for curing, which was very advantageous given the climatic conditions.

Another benefit of Expanda is that the plastic profile and the installation machine are located on the same truck which makes the site setup fast and the size of the site footprint small. Given that a large number of the access chambers on this project were located in the middle of roads, this meant the relining work could be performed with minimal disruption to the road users and the local community.



The small footprint of the Expanda installation site meant that work could be performed from access chambers located on roads whilst the road remained open to traffic

To deal with the extremely cold conditions Interflow devised a simple yet effective method for keeping the Expanda PVC profile warm so that the installation process could be performed smoothly and without interruption.

This involved fabricating a special thermal cover and support frame which was placed over the spool of PVC profile on the truck. The cover ensured the spool of PVC profile was maintained at or above 15° in all conditions. In addition a profile heater was specially built and fitted in-line in between the profile and the winding machine so that the profile could be warmed up as it was being fed into the winding machine in the access chamber below.



A thermal cover and frame were fabricated and placed over the spool of profile to maintain the temperature of the PVC liner above 15°C

After the pipelines were relined, the lateral connections were reinstated by robotic cutting. A separate sealing crew then followed the Expanda lining crew and installed Interfit™¹ seals in the lateral connections. This ensured the pipeline was completely renewed and sealed against infiltration and root ingress.



A CCTV crew performs a final survey of the pipeline after the pipe has been lined.

Dunedin City Council's Project manager for this work, Janan Theiva, said "we were very pleased with Interflow's adaptability and prompt responses to some very demanding situations and extreme weather conditions on what was initially thought to be a relatively straightforward sewer refurbishment".

Despite the challenges of the project and of working in extremely cold conditions, the project was completed on time and without incident.