



# THE CHALLENGES OF CENTURY-OLD SEWER RENEWAL

*While modern engineers have marvelled at the efforts of the unskilled workmen who built Sydney and Melbourne's circular brick sewers as early as the 1800s, the old pipelines require renewal using cutting-edge measures if they're to see these cities into the future.*



One of the major problems facing the cities' brick circular sewers today is structural deterioration. Recent experiences have seen the leading provider of repair, restoration and renewal services for deteriorated underground pipelines and pressure mains, Interflow, focusing on the renewal of these large diameter brick sewers. In many cases, whole rows of bricks have delaminated and/or fallen away from the host pipe, compromising the structural integrity of the sewer and impacting the overall operation of the system.

## DINGY AND DARK

Difficult spaces are par for the course when it comes to sewer renewal and can present significant issues. To prepare the lines in the sewer for renewal, it is necessary to remove silt from the line, often 300 to 500mm thick and mixed with dislodged bricks and sediments.

Along with the removal of the silt, confined entry space presents challenges, including high gas levels and the risk of contaminants from years of sediment and silt buildup.

A far leap from standards in the 18 and 1900s, the atmospheric conditions require continuous monitoring and mechanical ventilation in order to enable a safe working environment.

## THE EXPERT SOLUTION

With experience in facing these challenges, Interflow is no stranger to handling the conditions of century-old brick sewers.

Using progressive methods to reinstate the sewers to their former working glory, Interflow uses an innovative approach to remove the debris. Often working with restricted time constraints due to operational requirements, a solution was recently produced which converted a remote-controlled Kanga excavator into the primary cleaning machine.

In order to get the best possible results, the unit comes with a custom-built bucket suited to the sewer, and trained operators control the unit remotely. Silt can then be transported to the hopper in the main manhole and lifted to the surface for safe disposal.

This forward-thinking approach minimises man-entry into the sewer, avoiding risk for people on-site. It also avoids manual handling through the utilisation of remote controlled units to traverse the sewer quickly and remove the silt, sediments and bricks in an efficient and safe manner. This method also means that Interflow does not need to rely on traditional jet cleaning equipment, which is less cost-effective, more disruptive and less efficient given the size of the sewer and the amount of silt being removed.

Interflow's excavator system was born from extensive research and development, as well as a successful trial of the technology in 2016, with a remote-controlled excavator able to travel up to 700m down the sewer, load up a custom-made bucket to capture silt and then bring it back to the exit point — all while limiting personnel entering the tunnel.

## A CUSTOMISED APPROACH

Interflow's NSW/ACT General Manager, Peter Camilleri, said this method is customised and risk-focused.

"Essentially, we've come up with a total remote-controlled system where the operator of the unit sits next to the site office with remote controls, TV screens, advanced camera set ups and lighting. The unit can be driven down the tunnel, load up to two tonnes of silt inside a custom-made bucket, and then drive back safely."

While the manual labour undertaken on the sewers in the 1800s and 1900s has seen Australia's capital cities through almost a century of waste and growth, the progressive methods used by Interflow will ensure that the impressive structures remain sound and operational for generations to come, with no risk posed to workers or the public. **U**