

# Renewing Road and Rail Culverts in Western Australia

Corrugated metal culverts are susceptible to corrosion, particularly when the galvanised layer has worn away. Deteriorated culverts require structural renewal to avoid potential collapse of the road or railway above.

## The problem:

A recently completed contract saw Interflow renewing deteriorated corrugated metal and cast-iron culverts under roads and rail lines in a number of remote regions in Western Australia.

A total of 48 corrugated metal and cast iron culverts each around 750mm diameter and on average 28 metres in length required renewal.

Many of the culverts were fully deteriorated with holes in the inverts that had led to cavities being formed underneath. This meant the liner had to be designed to be fully structural, taking all loads including road and rail traffic.

## The solution:

Interflow lined the deteriorated culverts with Expanda.

Expanda is a spirally wound-in-place pvc liner. The liner is supplied as strips of profile which are wound and locked together using a mechanical process.

An important consideration in choosing this type of liner was that it could provide a lined culvert with maximum internal diameter.

Although these culverts had nominal diameters of 750mm, actual diameters varied because of abrasion and corrosion and also because of the different culvert materials. Interflow was able to provide a circular liner that would fit tightly, even if this diameter changed along the length of the culvert.

## The Project:

After installation of Expanda, cementitious grout was used to fill the gaps between the outside of the liner and the corrugations in the deteriorated culvert, as well as the holes that had been scoured in the inverts. Rehabilitation also included treatment of the exposed ends.

Obviously in such as remote location the cost of transport was an important cost component. The fact that Interflow can deliver Expanda liner to site as spools of profile strip meant more economical delivery costs.

The project operated under stringent time constraints. Interflow received the order in late March, with the stipulation that the work be finished by the first of June.

All components required for lining the culverts are manufactured in Australia and Rib Loc was able to produce and deliver the relevant lining materials at short notice.

Interflow commenced on site immediately after Easter. The project was completed by the 19th of May – almost 2 weeks before the end of the stipulated contract period.



Deteriorated culverts prior to renewal with Expanda.



Winding of the Expanda liner.



Culverts lined with Expanda prior to trimming of the ends.