TUNNELINE
BOX PROFILE

ITS PipeTech

BHP Billiton Culvert Renovation
Kemira Valley NSW

Our Message

"ITS PipeTech deliver cost effective, high quality, low risk solutions for all pipeline and culvert rehabilitation, extending the life of existing assets and infrastructure utilising environmentally responsible processes and methodologies".

Better Smarter Outcomes

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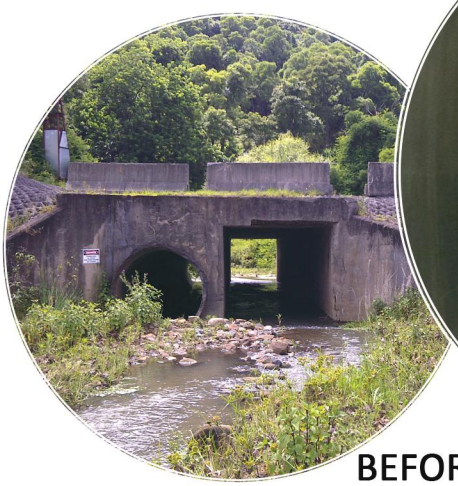

BEFORE

AFTER

Project Details

Industry: Mining
Client: BHP Billiton
Project: Kemira Valley Culvert Rennovation

ITS PipeTech has identified an innovative (patent protected) structural concrete lining system for renovating deteriorating and aging man entry pipelines, culverts and tunnels for water/wastewater, road and rail applications. Developed and widely used throughout the UK, the award winning Tunneline system is a simple in situ concrete lining technique utilising lightweight manhole accessible formwork and high strength pressure injected concrete to provide an additional 100 year service life.

The system combines high strength concrete with steel reinforcement and specialist pumping technology together with an innovative bespoke formwork system. This results in the ability to install a pressure-placed compacted reinforced in situ concrete lining that can be designed to act as a stand-alone or composite liner in accordance with relevant Australian Standards. ITS has recently entered into an exclusive license with the M3 Group (the technology owners) for the installation of Tunneline in Australia. Tunneline is a one pass operation and requires little or no pre works to stabilise the existing host condition. It is able to line all existing profiles and will also accommodate both vertical and horizontal bends as well as size and shape transitions within the existing hosts. Not only can it be designed to withhold external loading from rail and road traffic under limit state conditions and also to AS5100 and AS2566 but can also be designed to accommodate internal pressures from sewers and water mains up to 12 Bar and as such are designed as water retaining structures. In larger diameter applications, having the option to choose a fully structural, rigid solution is an attractive proposition.

The Kemira Valley project involved the rehabilitation of an existing 2400 x 2100 concrete box culvert under an internal colliery arterial access road with only 600mm of cover. The existing culvert had suffered extensive deterioration from concrete decay with large areas of exposed reinforcement and drummy concrete in evidence to the majority of the roof area. The condition had been surveyed and a temporary embargo on traffic movements had been placed over the culvert until remedial works had been undertaken. Several options had been tabled for the repairs but ITS together with M3 proposed a design and build solution that was structurally stand alone to support the required loading. Using this technology is a first for BHP Billiton Coal. This was also the first box culvert rehabilitation utilising Tunneline completed
in Australia.

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