



WestConnex M4E Tunnel



2019

ABOUT THIS PROJECT:

Market Segment:
Tunnels and Subway
Systems

Owner:
New South Wales
Government

Products Used:
Xypex Admix C-1000 NF

Location:
Sydney, New South Wales

General Contractor:
CPB Samsung John
Holland JV

PROJECT REQUIREMENTS

The WestConnex M4E roadway tunnel project in New South Wales, Australia, aimed to develop a watertight tunnel system. Numerous options for waterproofing were evaluated, with efficacy, cost, and impact on the construction schedule being the primary deciding factors.

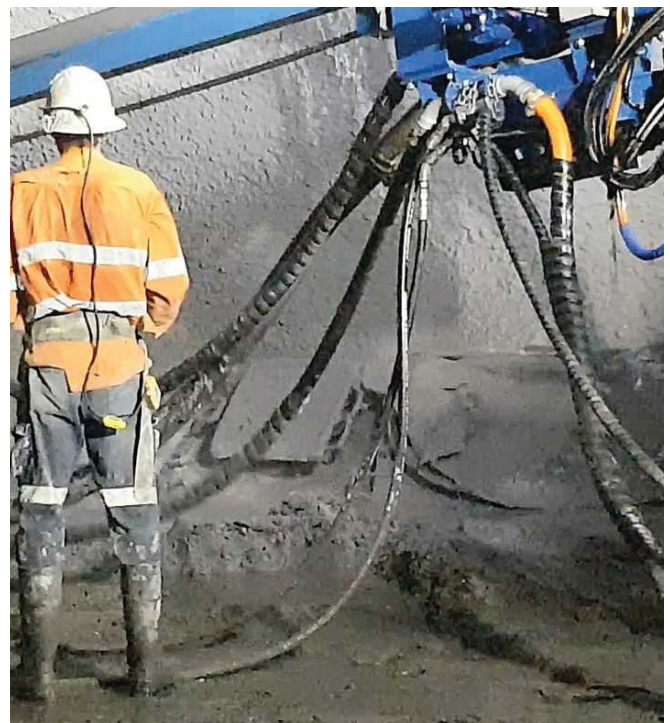


Westconnex Tunnel Construction.

THE XYPEX SOLUTION

Contractors CPB Samsung John Holland JV chose to use shotcrete treated with Xypex Crystalline Technology for the waterproofing of the tunnel. As typical, the underground excavation was first stabilized with a primary layer of shotcrete for the safety of the excavation.

After that, a layer of Xypex-treated shotcrete was applied directly onto the primary lining, which serves as both the secondary lining and the waterproofing for the tunnel. This portion of the WestConnex project used a total of 5,578 m³ of Xypex-treated shotcrete for these purposes.



Xypex treated concrete being applied using shotcrete.

Xypex is a unique chemical treatment for the waterproofing, protection, and improvement of concrete. Xypex Admix C-1000/C-1000 NF is added to the concrete mix at the time of batching and consists of various active, proprietary chemicals.

These active chemicals react with the byproducts of cement hydration in the presence of moisture to cause a catalytic reaction. This reaction generates a non-soluble crystalline lattice throughout the pores and capillary tracts of the concrete. This crystalline lattice permanently seals the concrete and prevents the penetration of water.

The incorporation of Xypex Admix C-1000NF proved highly effective. Not only did it provide a permanent waterproofing solution, but it also yielded considerable cost and time savings for the project. The Xypex-treated shotcrete waterproofing system eliminated the need for an additional shotcrete smoothing layer over the primary lining required by sprayed waterproofing membranes. It also eliminated the application of the membrane itself, cutting two additional processes from the tunnel construction.

As a result of the success of the M4E Tunnel project, CPB contractors have continued the use of the Xypex tunnel waterproofing method on future projects.

To learn more on how Xypex Crystalline Waterproofing protects tunnels, please [click here](#).