

Rail Tunnel Safely Decommissioned



INDUSTRY

Infrastructure

STRUCTURE

Rail tunnel

PROBLEM

Tunnel decommission

LOCATION

Geelong, VIC, Australia

DURATION / YEAR

9 days / May 2016

TECHNOLOGY

Terefil™

BUSINESS UNIT

Mainmark Australia

Summary

An old rail tunnel under Mercer Street in Geelong, formerly a major transport line for the city, had fallen into disrepair. It had become a shelter for Geelong's homeless community and was frequently vandalised.

The 6-metre wide, 5-metre tall, 40-metre long tunnel needed to be safely decommissioned to enable construction of a public carpark along the rail corridor.

Mainmark was appointed by Entracon Civil to abandon the tunnel. Using our lightweight Terefil™ solution, we quickly and cost-effectively filled the 1,200m³ tunnel in just nine days.

Objectives

The council required a fill material that would prevent access to the tunnel by vandals and drug users. The construction methodology had to ensure the safety of the homeless, who were using the tunnel as a shelter, was not compromised.

The solution was also required to minimise disruption to the general public and street traffic above.

Solution

The original plan was to fill the void with polystyrene blocks over several weeks, however as polystyrene is highly flammable, the council was concerned a spark in the tunnel may cause a fire. The possibility of a fire was a significant risk to the project and to the members of the public who were using the tunnel as a shelter.

The polystyrene system was also unable to bear heavy loads, making it less desirable for the project.

Rail Tunnel Safely Decommissioned continued

Rail tunnel before and after being decommissioned with Terefil™

Instead, Mainmark recommended its unique, engineered fill material, Terefil™, as an alternative approach.

The lightweight formula can deliver strengths of between 500 and 6,000 kPA (at 28 days). Ideal for when granular fills or aggregate material options are too heavy, site access is limited, or project schedules are tight, Terefil™ is easily-placed, and does not require pre-loading or compaction for settlement mitigation.

The Mainmark team placed Terefil™ at a rate of up to 60m³ per hour. The highly-flowable nature of Terefil™ made it fast to apply, and the strong material was able to withstand heavy loads, plus the traffic along the road above was not impacted.

By using Terefil™, Mainmark completed the project in just nine days instead of the several weeks it would have taken using the polystyrene method.

Unlike other potential grout injection systems, which would require injection holes and breathers on the road above, Terefil™ caused no disruption to traffic because it was pumped directly into the tunnel.

Sean Durston-Ryan, Project Manager at Entracon Civil said, *“This was the first time we had used Terefil™ and the first time we had worked with Mainmark. The experience was very positive: Mainmark did excellent work and we were able to fill the void as required in a timely fashion. We would certainly choose to work with Mainmark again in the future as we achieved a very strong result for this project.”*