

Ovingham Level Crossing Removal



Retaining wall system innovates level crossing removal project

For the first time, a new retaining wall system being used in a level crossing removal, is set to innovate infrastructure projects across Australia.

The Ovingham Level Crossing Removal Project is the first infrastructure project in Australia to try a new system introduced to the country by National Precast Master Precaster, The Reinforced Earth Company.

Substantially improving productivity and speeding construction times, the new system consists of full-height facing panels which are manufactured and delivered to site, that come complete with pre-attached perpendicular counterforts. The integrated counterforts are jointed onsite to a structural concrete footing, which then forms a highly efficient and robust cantilever retaining wall.

Dangers of level crossings demand remedies

According to the Australian Rail Track Corporation, there are more than 23,500 railway level crossings in Australia, with 21 percent having operational boom gates or flashing lights. There are around 30 fatalities every year resulting from level crossing collisions and over 1,000 near hits annually between vehicles and trains.

Level crossing removals exemplify Australia's commitment to modernising transportation infrastructure for the betterment of communities and for the efficiency of cities. They have become a priority for governments at various levels as they collaborate with rail and transport authorities to plan, fund, and execute these projects, considering factors like community impact, cost-effectiveness, and environmental sustainability. The end goal is to enhance safety, efficiency, and traffic flow across the nation.

Master Precaster
The Reinforced Earth Company

Head Contractor
PTP Alliance (McConnell Dowell, Arup and Mott Macdonald with the SA Department for Infrastructure and Transport)

Project
Ovingham Level Crossing Removal

www.nationalprecast.com.au



These projects involve eliminating intersections between roads and railway lines by either elevating the rail lines or lowering the roads. The main objective is to reduce the risk of accidents and fatalities associated with level crossings, which are known to be high-risk areas.

Removing Ovingham's level crossing to improve safety and efficiency for 21,300 daily commuters

Ovingham - one of Adelaide's busy inner northern suburbs – has long experienced significant traffic congestion due to the presence of multiple level crossings. These often resulted in delays, increased accident risks and hindered emergency response times. The aging infrastructure and growing population exacerbated the issue, necessitating a comprehensive level crossing removal project.

The \$196 million Ovingham Level Crossing Removal Project is an infrastructure initiative to remove the level crossing at Torrens Road, Ovingham. It involves construction of a 180 metre-long bridge that connect into two approach ramps, with three lanes city-bound and two outbound lanes.

The project was executed in multiple phases, involving the removal of level crossings, construction of overpasses and underpasses and realignment of roads. Innovative engineering techniques have been employed to ensure minimal disruption and maintain safety during the construction process.

An average of 21,300 vehicles pass through the level crossing daily, so its removal would significantly impact the safety, freight productivity and connectivity and traffic flow of the area.

Taking retaining wall technology to a new level

Retaining walls have been a fundamental component of civil engineering and construction for centuries, aiding in managing slopes, preventing erosion, and creating usable spaces on uneven terrain. Over the years, advancements in materials, design, and construction techniques have revolutionised the field of retaining wall technology, leading to structures that are not only highly functional but also aesthetically pleasing.

Widely used across America and Europe, the TechWall TM system had never before been used in Australia and presents a new concept for optimising retaining walls that combines both precast concrete elements and in-situ concrete.



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Known as a counterfort retaining wall system, it consists of full-height wall facing units that are secured to a cast-in-place footing. The facing panels – which can easily feature architectural detailing and patterns – are each cast with counterforts on the rear side.

Panels are delivered with rebar dowels protruding from their bases. On site, the footing is formed, reinforcement is placed, and the panel dowels are tied in to provide the necessary embedment and development lengths. The cast-in-place footing is then poured, securing the panels in place and increasing the effectiveness of the load transfer mechanism to the ground.

According to The Reinforced Earth Company's Managing Director in Australia Riccardo Musella, the system's full height monolithic units mean no soil reinforcement is needed and it is a simple and economic replacement for traditional cast-in-place cantilever wall designs.

"It is perfect for narrow cut situations or applications with extreme obstructions within the fill zone, and offers complete aesthetic versatility, with facing panels allowing for a wide variety of surface patterns and textured if desired," he comments.

Praise for improved safety

The results speak for themselves. The walls, bridge and plaza look like works of art, thanks to the stunning urban design that translate Aboriginal stories into visual elements.

And the project has received resounding feedback from the community, praising the improved safety and convenience brought about by the upgrades.

The Ovingham Level Crossing Removal Project serves as a blueprint for similar infrastructure projects aiming to enhance safety, connectivity and overall quality of life in urban areas. Its success highlights the importance of thorough planning, stakeholder engagement, and innovative construction techniques in achieving project objectives.

Its positive outcomes demonstrate the potential for transformative infrastructure projects to enhance communities and lay the groundwork for future urban development.

Mr Musella says he is very proud that his company had the opportunity to work with the PTP Alliance to bring this technology to Australia.

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