

# CONNECTING AUSTRALIA'S EAST AND WEST WITH PRODUCTIVE RAIL INFRASTRUCTURE

NATIONAL PRECAST MEMBER PERMACAST HAS MANUFACTURED AND DELIVERED PRECAST CONCRETE ELEMENTS KEY TO THE TORRENS RAIL JUNCTION PROJECT IN SOUTH AUSTRALIA.

The Torrens Rail Junction Project in South Australia was implemented to increase productivity on the Melbourne-Adelaide-Perth rail line, reduce delays at level crossings within the metropolitan road network and improve urban environment through the provision

of upgraded cycling and pedestrian linkages.

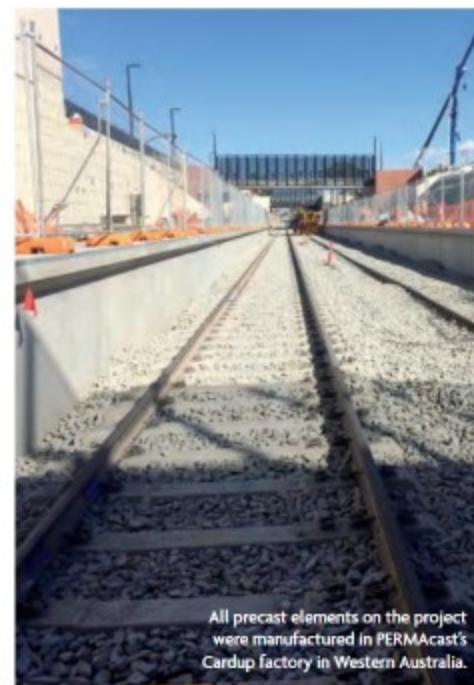
It is the second project in the separation of freight and passenger rail lines in metropolitan Adelaide, with the first being the Goodwood Rail Junction project. It has been delivered by ConneXion

Alliance, comprising the South Australian Department of Planning, Transport and Infrastructure, Laing O'Rourke, AECOM, and Kellogg, Brown & Root (KBR).

The Torrens Rail Junction is located where South Australia's interstate freight railway crosses the Outer Harbor



The Torrens Rail Junction project removed major congestion points in the freight and rail network.



All precast elements on the project were manufactured in PERMACast's Cardup factory in Western Australia.

- 58 platform retaining walls
  - 58 platform panels
  - 18 ramp retaining walls
  - 142 pad and strip footings
  - four platform end walls
  - four 18-metre prestressed prop beams.
- PERMACast Managing Director Alberto Ferraro says the precast package included a mix of architectural and structural elements.
- "We manufactured two-tone coloured platform slabs as well as retaining walls with patterns and coloured concrete," Mr. Ferraro explains.
- "Being a rail project, all reinforcement was welded and required electrical continuity for earthing purposes."

#### RAIL LINES ON TRACK

Precast was specified as the main construction method because of its speedy construction times and offsite manufacture.

"We needed to build a large number of moulds and set up the project within weeks," Mr. Ferraro explains. "A full precast design meant that there was minimal interference with live train rails."

Installation of the bridge deck demanded a team of almost 400 workers each day for 16 days, working to install a 90-metre-wide bridge, which included 950 cubic metres of concrete, 68 planks of 12 tonnes each, excavation of 22,500 cubic metres of soil and laying of the rail track.

#### AN INTERSTATE JOURNEY

All precast elements were manufactured in the precaster's Cardup factory in Western Australia – 2723 kilometres away from the project's South Australian location.

Offering extensive logistics solutions for clients and providing purpose-built transport stillages, PERMACast ensured that all elements arrived on site within tolerance specifications and without damage. "Transport of the precast had to be delivered on more than 200 semi-trailers, which was extremely challenging, as some

products weighed 33 tonnes," Mr. Ferraro says. With a highly skilled team and a 250,000-square-metre storage yard, the precaster has the capacity to manufacture and manage large-scale projects, like the Torrens Rail Junction. "Our in-house fleet of prime movers and trailers gives us additional flexibility in coordinating with and meeting our clients' required delivery schedules," Mr. Ferraro says. ■

The Goodwood Rail Junction project was the first project in the separation of freight and passenger rail lines in metropolitan Adelaide. Completed in 2014, it included an upgrade of rail infrastructure along with new pedestrian facilities for the community. Now also completed, the Torrens Rail Junction enables 1800-metre-long freight trains to operate between Adelaide and Melbourne – an increase in the maximum length of trains by approximately 20 per cent. It will also remove the need for freight and passenger trains to interact on the Outer Harbor line and will free up traffic for tens of thousands of vehicles at critical intersections. The Parklands and surrounding inner-city suburbs are already a hive of activity and the Torrens Rail Junction Project is set to bring this pocket of Adelaide to another level with improved safety and convenience.

**Project:** Torrens Rail Junction

**Precaster:** PERMACast

**Client:** Department of Planning, Transport and Infrastructure

**Design and Construction:** Laing O'Rourke, AECOM and KBR