

CONTINUOUS TEEROFFS DELIVERING BENEFITS TO WA INFRASTRUCTURE

The Bunbury Outer Ring Road (BORR) is a new 27-kilometre, four lane ring road in Western Australia that connects the Forrest Highway with Bussell Highway. Being constructed with continuous Teeroffs, the project is part of the post-COVID-19 recovery infrastructure programme and is the largest infrastructure project ever undertaken in the state's south-west.

First proposed in 2009 – with construction beginning in 2016 – the BORR consists of dual carriageways, roundabouts, and overpasses.

Funded eighty percent by the Federal Government with the remainder coming from the State, the project's \$852 million cost included around \$450 million spent with local south-west businesses and \$30 million on Aboriginal businesses, with Aboriginal employment a priority.

The project is also an example of sustainable infrastructure development, designed with environmental considerations in mind. To minimise the impact on the surrounding flora and fauna, the road features wildlife crossings that allow animals to safely cross the road without endangering themselves or motorists.

The BORR is being constructed by the South West Gateway Alliance consortium, comprising Acciona, NRW Contracting, MACA Civil, AECOM and Aurecon.

Key to the project are 139 precast concrete Teeroff beams, weighing 191 tonne and measuring 41 metres long, 2.2 metres deep by 4.5 metres wide. They have been manufactured for the project by Australian Precast Solutions at their newly built and commissioned factory in Bunbury.

The beams are designed as continuous Teeroffs, typically used in the construction of long-span bridges and other large infrastructure projects. Similar in shape to standard Teeroffs, with a horizontal top flange and a vertical web,



Works on the Bunbury Outer Ring Road in Western Australia.

PROJECT: Bunbury Outer Ring Road (BORR)

LOCATION: Western Australia

CLIENT: Main Roads Western Australia

CONSTRUCTION: South West Gateway Alliance consortium (Acciona, NRW Contracting, MACA Civil, AECOM and Aurecon)

MASTER PRECASTER: National Precast Master Precaster Australian Precast Solutions

they are designed to be much longer, often spanning hundreds of meters. They are typically constructed as simply supported, with a link slab providing a continuous concrete running surface without any intermediate deck joints.

Their main advantage is their ability to support very heavy loads over long distances without the need for intermediate supports. This is achieved by joining multiple beams together with a series of welded or bolted connections, creating a continuous beam that can span the entire length of a bridge or other structure.

Their specification has become increasingly common in Western Australia in the last five years, primarily in response to project specific constraints such as limitations on pier

widths and structural depths, and heavily loaded edge beams on Single Point Urban Interchange (SPUI) bridges. They have been used in Perth's \$1 billion Gateway WA project that upgraded the road network around Perth Airport, the Reid Highway Duplication over the Mitchell Freeway and the northern section of NorthLink WA.

When complete, the Bunbury Outer Ring Road will be a vital artery that connects the city's northern and eastern suburbs with the South West Highway, easing traffic congestion and reducing travel times. As well as improving access to Bunbury and other regional destinations, it will alleviate the convoluted previous freight network that impeded freight and transport efficiency. ■