

Eastern Distributor

Project Report - New South Wales

Sydney's \$700 million Eastern Distributor was one of the largest civil construction projects in Australia. Designed to provide a direct link between the city's northern and southern suburbs, the massive project was completed ahead of schedule. One of the factors that contributed to the timely construction sequence was the extensive use of precast concrete throughout the project in both civil and structural applications. Humes supplied the bulk of the precast concrete components for the Eastern Distributor under a number of separate contracts. In addition to this, Holcim supplied in excess of 40,000m³ of premixed concrete to the project.

As well as providing civil concrete products such as stormwater drainage pipes, box culverts and road barriers, Humes supplied columns, beams, girders, bridge decking and architectural concrete in a variety of colours and finishes.

The project involved construction of a link between the Cahill Expressway-Sydney Harbour Tunnel beginning at Woolloomooloo, and Southern Cross Drive. Key components were a 6km long, six-lane road, mostly underground, through the inner-city suburbs of East Sydney, Darlinghurst and Surry Hills, joining up with Southern Cross Drive, the main route to Sydney Airport and the city's southern suburbs. The construction saves road users substantial amounts of time by taking through-traffic off the local streets.

The Eastern Distributor was built by Leighton Contractors, one of the joint venture partners in the project development, Airport Motorway Limited. In total,



Humes supplied more than 60,000 tonnes of precast concrete components to the project, with the volume and nature of the work necessitating the construction of a new factory at Erskine Park in Sydney's outer Western Suburbs. A major requirement for the project was that Humes had the capacity to stockpile around 40,000 tonnes of precast components at any given time because there was little space to store the products on site. While Humes' new factory at Erskine Park was developed specifically for this project, it gives the company significantly expanded production capabilities in Sydney, particularly in the manufacture of architectural and prestressed concrete.



Location	Sydney, NSW
Client	RTA
Contractor	Leighton Contractors
Engineer	Maunsell
Products supplied	Concrete and precast components including: <ul style="list-style-type: none"> • Stormwater drainage components • Box culverts and road barriers • Deck slabs and architectural components • Premixed concrete including low shrinkage • Toppings
Commencement	October 1998
Completion	July 2000

Key structural elements

The major structural components included an 8,000m² landbridge and associated tollgates, located adjacent to the Art Gallery of NSW, and a 1.7km long double-deck tunnel passing under Darlinghurst, East Sydney and Surry Hills.

Super T bridge girders and planks, spanning up to 26m between the wall were installed, with the decks acting as permanent formwork for the in situ reinforced concrete topping. Because the landbridge was designed to follow the contours of the existing parklands, there was little standardisation of components through this section of the project, which meant that many of the 320 bridge girders and planks were cast as one-offs.

The 1.7km long double-deck tunnel comprised three north-bound lanes and three south-bound lanes constructed on top of each other in a piggyback arrangement. This design solution minimised the amount of space required for the tunnel and also helped to reduce the cost of the project. At its deepest point, the tunnel is some 24m below road level at Taylor Square, with a maximum cross section 22m wide by 12m high. The upper deck road surface was built using approximately 2000 precast concrete planks, spanning 9m to 22m, between concrete sill beams or precast concrete columns and beams. The planks were placed on rubber bearing pads on the beams, with the planks varying in width from 600mm to 2.4m and in depth from 250mm to 900mm.

The precast planks worked as permanent formwork for the 150mm thick continuously reinforced concrete base, which was then topped by an asphalt wearing course to improve ride comfort and reduce noise.

