

# THIRD HUNTER RIVER CROSSING

MAIN CONSTRUCTION COMPANY : Daracon Group  
DEVELOPER : RTA  
PROJECT END VALUE : \$65 Million  
COMPLETION : May 2011  
PROJECT DURATION : 70 weeks  
SURVEYOR : Singleton Survey Services

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## FAST WORK BEATS FLOOD RISKS

The extraordinary efficiency of Daracon's integrated civil construction abilities paid off enormously in the construction of the third Hunter River crossing between Bolwarra and East Maitland. Working in an environmentally sensitive flood zone, Daracon at all times had to be prepared for peak storm flows, however, in finishing the project six months ahead of schedule, the main construction works were complete when the anticipated Hunter River inflows hit the area in January 2011.

The Third Hunter River crossing project involved the construction of two new bridges and 5.5km of new road. The Hunter River Bridge is a 350m long 12 span concrete bridge, with 28m deep bored piles, up to 14m high squared columns and 32m long pre-cast prestressed super-T girders. The second bridge is a 49m long three span bridge across the Main Northern Rail Lines.

Constructing the rail crossing bridge involved working within an absolutely fixed time constraint, as the rail line owner, ARTC, have fixed windows called possessions to carry out the necessary construction activities. Daracon needed to have everything in readiness for 18-20 May 2010, including a 450 tonne mobile crane able to lift the six 38m long precast prestressed super-T girders into position across four tracks in just nine hours. Around the

clock shifts were worked to ensure the completion of the work before trains resumed and the track procession had elapsed.

As the site is a floodplain, with soil better suited to horticulture than bridge building, Daracon imported 350,000m<sup>3</sup> of gravels from the company's own quarries to construct the road and abutment formations. The site soil was stockpiled, then on completion respread onto batters and other disturbed areas.

The new Pitnacree road section is partly on top of the existing Hunter River levy bank, which has been widened from 6m to 11m. The formation consists of two lanes each 3.5m with 2m wide shoulders. The other section, on Flat road, had to be engineered to maintain the same height as the old road in order to meet the area's existing flood mitigation plan.

"In terms of environmental constraints, there were Heritage items we had to take into account, including mid to late 1800s bridge piers, a Heritage sandstone wall and granite kerb and guttering on the old road. These were documented to NSW Heritage Office guidelines, and the granite relocated to Maitland City Council's storage yard. Approximately 60m of the recovered heritage granite was also reintegrated into the works as an urban

design element so as to highlight the heritage significance to the area," said Daracon System's Manager, Bob Murphy.

"We were constrained on this project in relation to flood management, with the need to have well planned flood mitigation measures in place. This included the storage of materials on pallets so they could be moved at short notice. Cranes, elevated work platforms and construction plant were relocated to high ground each evening as given the right weather event the water level in the Hunter River could rise as much as 6m in a ten hour period. Everything had to be mobile and ready to be moved if and when the flood alert was activated. There were both email and SMS connections with the BOM weather service for weather warnings and flood alerts allowing our staff to have up to date information 24 hours a day. The RTA informed us that on average the river would rise twice a year to a point where our works would be inundated. We were fortunate that during the entire construction period, with less than average rainfall in the upper Hunter Valley catchment our project avoided being flooded. If works had been staged according to the original program, as opposed to finishing months ahead of the original schedule, we would have been in the middle of constructing piers and columns

when the January 2011 flood occurred", said Daracon's Project Manager, Justin Foot

The entire project including minor works in 2011 such as revegetation, tree planting, final fencing and furnishings, was completed in 18 months. A significant contributor to the success of this project has been the diversity and integration of Daracon's operations. With the majority of resource requirements being available within the company, Daracon had a major edge to many competitors in its ability to deliver, particularly in relation to time and cost.

Daracon has a workforce of approximately 930 direct employees, 225 pieces of plant/machinery and 150 heavy vehicles, with major capabilities in civil construction, mining infrastructure, quarrying, plant, haulage, property, rail, concrete and landscaping. As an example of this integration in practice, at the peak of the project Daracon had over 70 direct employees onsite working together with up to 20 of their own machines including trucks, graders, dozers, backhoes and rollers.

"Having this direct control of resources means no messing around and gives us the ability to deliver on our commitments."



## SWITCHING ON THE HUNTER AND BEYOND

As an accredited ASP Level 1 Contestable Works Provider for Energy Australia, Integral Energy and Country Energy, Planelec can take a blank slate site through all the necessary stages of design, installation and commissioning for high voltage and low voltage power and lighting.

For the 3rd Hunter River Crossing Project, Daracon contracted Planelec to design and install the overhead cabling and intersection lighting, a task which was complicated by the flood-prone site and alluvial soils. A compaction issue meant Planelec's installation crew had to allow all the special flood-safe power poles to settle before cabling works could occur. Another complication was the need to move the existing high voltage cabling out of the road as part of early works.

Having a flexible approach to meeting the project's needs enabled work to be delivered on schedule, even with the fast-tracked program that saw the project complete, and lights on, six months ahead of the original planned date. Planelec's team of skilled, safety-conscious electrical tradesmen and plant and equipment including light vehicles, dump truck, winching equipment, generators and access equipment were on site for three months completing the installation.

Turnkey solutions are a Planelec speciality, with level 3 Accreditation for Design from Energy Australia enabling the company to provide clients with complete electrical solutions, both overhead and underground. Their project services include Design and Installation; Management, Planning and Supervision; Tender Preparation; Electrical Appliance Testing and document

control for compliance with Australian Standards; Cost Controls; Safety Systems; Commissioning; and maintenance services including maintenance scheduling and 24 hour 365 days a year electrical maintenance.

Installation services Planelec provides include High Voltage kiosk substation installation; Subdivision (URD) underground cable, lighting, pillar & kiosk installation; Network upgrades on XLPE & Paper Lead high & low voltage systems; Excavation, conduit installation & commissioning in-house; Labour hire to accredited ASP's; and Overhead reticulation services through accredited sub-contractors.

Many of Australia's leading engineering firms and civil contractors have relied on Planelec for safe, efficient and timely electrical expertise including Downer EDI, Thomas & Coffey and Abigroup. Some of the company's current projects include the ELF Stage 1 and 2 Works for Department of Defence; Boggabri Coal Mine Expansion and Narrabri Coal.

With 105 staff, and a dedication to delivering works with the highest possible level of safety and efficiency, Planelec can switch on projects anywhere around the nation.

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## EXPERIENCED AND EFFICIENT

When Daracon needed someone to complete key sections of the kerb for the Third Hunter River Crossing project, they called in Ziggy's Kerb Company (ZKB). As Daracon's primary kerb contractor for work in the Hunter region and beyond, ZKB brought familiarity with client work practices and quality expectations to the job, and completed the kerb and gutter for the western end of the project and constructed two vee-drains near the project's centre in just one day.

ZKC had a team of seven men on site for the task, equipped with two kerb laying machines, one for the SA type Kerb and Gutter and another for the SO type Vee-Drain. The plant was delivered to the site with ZKC's Isuzu truck, which is equipped with a Ferrari hydraulic crane for loading/unloading machines.

The main challenge was access for the concrete truck at a section of the job which was situated down an embankment, this was successfully handled, and the job completed with no safety incidents or need for rectifications.

ZKC have 14 kerb machines of differing shapes, which can produce about 20 different profiles. In choosing to keep the business small, ZKC can focus on maintaining a high standard of quality.

The company's team of seven is led by Director Peter Vadas and a leading hand with 15 years experience. The more experienced members of the team pass on the skills of concrete finishing and hand forming to newer staff.

ZKC have completed projects across the Hunter Valley, and for regional projects in Tamworth, Gunnedah, Armidale and Narrabri. The calibre of their work has seen them used by Daracon for almost all the Daracon subdivisions, and for substantial ongoing work for Keller Civil Engineers. ZCB also undertook all the kerb works for Port Stephens Council.

"We do our best to provide a quality job, at a reasonable price, in the timeframe satisfactory to the client," said ZKC Director, Peter Vadas.

"My father, Ziggy Vadas, the founder of the company, started laying kerbs with formwork almost half a century ago, before kerb machines existed. Up until October, 2007, he and I worked together as partners, until he suddenly left us with a heart attack. I have been involved with the industry for just on 40 years, and I am now continuing the work he started."

"I would like to thank Daracon for trusting us to work on this project, and for their continuing trust with the majority of their projects."

### ZIGGY'S KERB COMPANY Pty Ltd

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