



TONKIN GAP PROJECT AND ASSOCIATED WORKS - BROUN AVE STAGE 2

Project: Tonkin Gap Project and Associated Works – Broun Ave Stage 2
Client: Tonkin Gap Alliance
Location: Perth, Western Australia

PROJECT TIMELINE

Mob commenced: 15th August 2022
Execution phase: 26th to 28th August 2022
Demob commenced: 29th August 2022

SCOPE OF WORK

Turnkey lifting service for the installation of 18 x 188t 39m long concrete bridge beams over the Tonkin Highway on both north bound and south bound carriageways.

This bridge installation was part of the Main Roads WA Tonkin Gap Project and Associated Works to provide four traffic lanes and an integrated bus interchange that will serve as a link to the future Morley Station on the median strip of Tonkin Highway.





EQUIPMENT SOLUTION

Tutt Bryant Heavy Lift & Shift (TBHLS) proposed to utilise the **Manitowoc MLC650** 700t crawler crane in 68mB VPC MAX S3 configuration and carried out the bridge span installations whilst positioned on the median strip of north & south bound traffic on Tonkin Highway.

The main reason for the suggestion of the MLC650 crawler is the small footprint (12m x 12m) compared to a conventional super-lift crawler crane. The combination of having the crane's counterweights always suspended and ability for the counterweights to travel autonomously served as the biggest financial savings in less earthworks, less build time, reduces the time and labour spent on relocating counterweights between lifts.

TBHLS engaged its JV partner Cranecorp Australia to provide a 300t all-terrain mobile crane **Demag AC300-6** for the assembly of the crane.

A total of 43 trailers were utilised to mobilise the crane to the site over a 6-days period. A day over the proposed schedule due to Perth metro curfews limiting oversized loads (greater than 3m width) to be delivered to the site prior to the 9am peak hour traffic, and on-going earthworks onsite for the crane pads.

TBHLS utilised their own rigging spreader and sourced the remaining rigging gear from local suppliers located within Perth metro region.





METHODOLOGY & CHALLENGES

The 700t crawler to be mobilised in 68mB VPC MAX S3 configuration and built within the median strip between north & south bound traffic that remained live up to installation window on the 26th August 2022.

The biggest challenge was to build the crane within a 20m wide work area whilst maintaining a 4m boundary to provide accessway for general site traffic, construction of the crane pad and crane component delivery.

The crane was configured and positioned in two locations for the whole bridge assembly. This configuration allowed for the delivery beams from the lay down area to either side of the crane, creating multiple options on transport flow when the road was closed. It also allowed greater access for the installation team to position access equipment to assist with aligning the bridge beams in their final locations.

TB HLS and Tonkin Gap Alliance (TGA) engineering team had extensive discussion around ground pressure requirements, clearance restrictions and underground service locations that need to be avoided or maintained during all stages of the crane build to bridge beam installation. The team worked to a maximum allowable GBP of 800kPa was achievable whilst utilising the crane to 85% of its lifting capacity. TGA designed, constructed and tested the crane pad to allow the crane to travel and lift without the use of load spreading crane mats.

PROJECT COMPLETION

A good relationship between TGA and TB HLS was a vital part towards the success for this project with numerous meetings held between all major stakeholders. TB HLS project team helped to develop a successful proposal that was well executed.

A total of 60 hours (5 x 12 hour work shifts running both day and night shifts) were allocated for this installation. Starting on Friday night, despite the tight clearances and cold winter conditions, the team successfully completed the installation of all 18 bridge beams within 44 hours (3.6 shifts) - 16 hours ahead of schedule.

Excellent planning and open communication throughout all phases of the project between TB HLS and TGA project team ensured that there was no problems/issues/challenges that could not be solved. An excellent showcase of teamwork and Tutt Bryant's capability to provide turnkey lifting solutions.

