



MATAGARUP BRIDGE ACROSS THE SWAN RIVER

PUSHING THE CONVENTIONAL BOUNDARIES OF BRIDGE CONSTRUCTION

PROJECT PHASES

01 SCOPE

Provide cranes, engineering and lift plans for all critical lifts required for construction of the Matagarup project.

02 CHALLENGES

High-profile project with a short delivery schedule, limited on-site space for the construction of the cranes, arch and deck units.

03 SOLUTION

Provide a total of 13 cranes, ranging from 30t rough terrains to 700t crawler crane. Working the cranes' to 95% of their lifting capacity and installing modules with millimetre clearance.

A NEW ADDITION TO PERTH'S SKYLINE

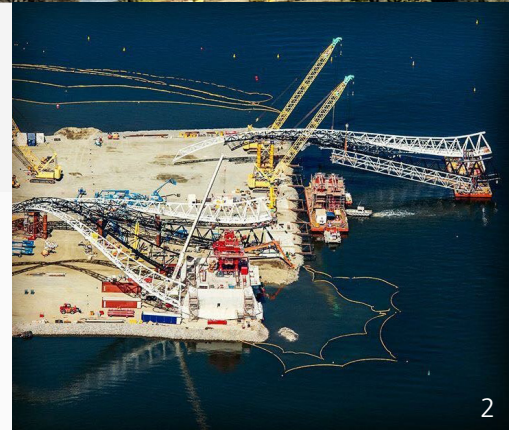
The Matagarup Bridge Project was a true engineering challenge that pushed conventional boundaries of bridge construction. With a total length of 560m spanning across the Swan River, this complex bridge design tested what Western Australia had to offer to achieve a construction feat for Australia. Built to improve and allow alternative access to another new addition to Perth's skyline, the Optus Stadium.

A total of 13 cranes were supplied over the course of the project, ranging from 30t rough terrains to 700t mobile crawler cranes. At the peak of the project in May, there were a total of 7 green hooks on the space constraint site.

Assembly and erection of the arches on either side of the shore were riddled with challenges due to tight spaces and complexity of the assembly process that required multiple dual crane lifts.

While construction of the bridge was tasked to Swan River Pedestrian Bridge Alliance, a consortium comprising of York Rizzani JV, Main Roads WA and Tutt Bryant Heavy Lift & Shift, an industry giant in Western Australia well known for their distinguished yellow & green coloured cranes or green hook, was tasked with supplying cranes and engineering expertise for all critical lifts carried out for the project.

The next stage of the critical lifts were the loading-out of the the bridge deck modules for the middle span, with the heaviest deck at 140t, putting TBHL&S' 700t Crawler (MLC650 68mB SIII VPC MAX) to the test, working it to 95% fully rigged at 46m.



Images - 1. Load-out and assembly of the Deck Modules. 2. Two SCX2800-2, 275t Hitachi Sumitomo Crawlers Cranes, carrying out dual crane operation for the load-out of Arch sections for Span 2. 3. MLC650 VPC MAX, 700t Manitowoc Crawler Crane with variable positioning counterweights, lifting a 140t deck module for load-out. 4 & 5. Construction and assembly of the arch spans. 6. (following page) MLC650 VPC MAX (700T Crawler Crane), SCX2000A-2 (200T Crawler Crane), 2 x SCX2800-2 (275t Crawler cranes).



METICULOUS PLANNING FOR SMOOTH EXECUTION

The final stage of the project saw the installation of the 5 deck modules on each side on the river. On the Burswood side decks on Span 3 we installed using the 700t crawler. Each deck unit had to be lifted over the Pier and maneuvered into position with millimeter clearance to the Arch.

Whereas, for East Perth side, the deck mass of 70t was too heavy for the 275t crawler and had to be swapped out with a 400t crawler within a 4 day window. The biggest challenge was space and having suitable ground capacity to support the loadings from the crane. This was carefully managed by SRPBA and TBHL&S to allow for all deck units to be installed within the 14 days of having the crane ready from lifting.

Overall, this was a successful project with an approximate total of 50 critical lifts completed safely and within six months from project ramp up in December 2017. This was achieved by capable management and meticulous planning by SRPBA and TBHL&S. SRPBA is currently in final stages of the project and have opened the bridge to the public.

EQUIPMENT SOLUTIONS

KATO SR-300L

30t Rough Terrain

KATO SR-700L

70t Rough Terrain

Grove GMK6300L

300t All-terrain

Hitachi Sumitomo SCX2000A-2

200t Crawler Crane

Hitachi Sumitomo SCX2800-2

275t Crawler Crane

Manitowoc M16000

400t Crawler Crane

Manitowoc MLC650 VPC MAX

700t Crawler Crane