

SYDNEY YARD ACCESS BRIDGE (SYAB)
AT CENTRAL STATION

A HEAVY LIFT SOLUTION FOR A FAST PACED PROJECT

AT A GLANCE

CLIENT	LAING O'ROURKE
PROJECT	SYDNEY METRO – SYDNEY YARD ACCESS BRIDGE (SYAB) AT CENTRAL STATION
LOCATION	SYDNEY METRO CITY AND SOUTHWEST LINE
SECTOR	TRANSPORT INFRASTRUCTURE
DATE	2016

WHAT IT TOOK

CRANES	1 X M2480D
ENGINEERS	2
INSTALLATION CREW	6
OPERATIONAL CREW	3
MAINTENANCE CREW	1

THE PROJECT

Construction of the Sydney Yard Access Bridge (SYAB) at Central Station was the first early and enabling works package for Sydney Metro City & Southwest.

Laing O'Rourke was contracted by the NSW Government to design and construct the bridge and new access road to allow controlled heavy vehicle movements for construction and operational maintenance from Regent Street into Sydney Yard at Central Station to facilitate the construction of the new Sydney Metro works.

With plans to construct the bridge by lifting structural steel bridge sections and precast elements into place during restricted rail possessions over an existing network, Laing O'Rourke turned to Marr Contracting for a heavy lifting solution that could reduce complexity and de-risk the project.

THE CHALLENGE

Construction of the SYAB involved working within a restricted space, over a live rail line and during time-restrictive rail possessions.

The original craneage scheme planned for large crawler cranes to lift the bridge in two smaller sections and assemble in-situ due to limitations on load and reach capability. However, coordinating the crawler crane set up and rig time within the scheduled rail possession was deemed too risky. Laing O'Rourke needed a simpler solution and that's where we stepped in.

OUR SOLUTION

Using one of our M2480D Heavy Lift Luffers (HLL) – with its heavy lift capacity and extra reach – the bridge sections were preassembled alongside the operating rail line and lifted into place in a single lift during the scheduled rail possession. With the assembly of the sections taken off critical path and the M2480D installed onsite and ready to lift as soon as the rail possession took place, the crane was able to remain in place during installation and used out of possession times to complete pre-assembly works.

THE RESULT

Marr's solution reduced complexity and supported the project from a safety, time and cost point-of-view – supporting Laing O'Rourke to deliver the project on time.

According to Laing O'Rourke's Project Lead, Huw Griffiths, "The tower crane solution at SYAB was a unique idea that differentiated Laing O'Rourke (LOR) from other tenderers. We started with the largest challenge, worked backwards and so the journey began. To build the bridge, LOR and Marr installed the world's largest tower crane in a live rail corridor to lift in a 60t beam over a section of rail corridor utilised by more than 50% of NSW rail traffic. I rang Simon (Marr) and discussed the idea and 18 months later, we lifted in the first bridge span.

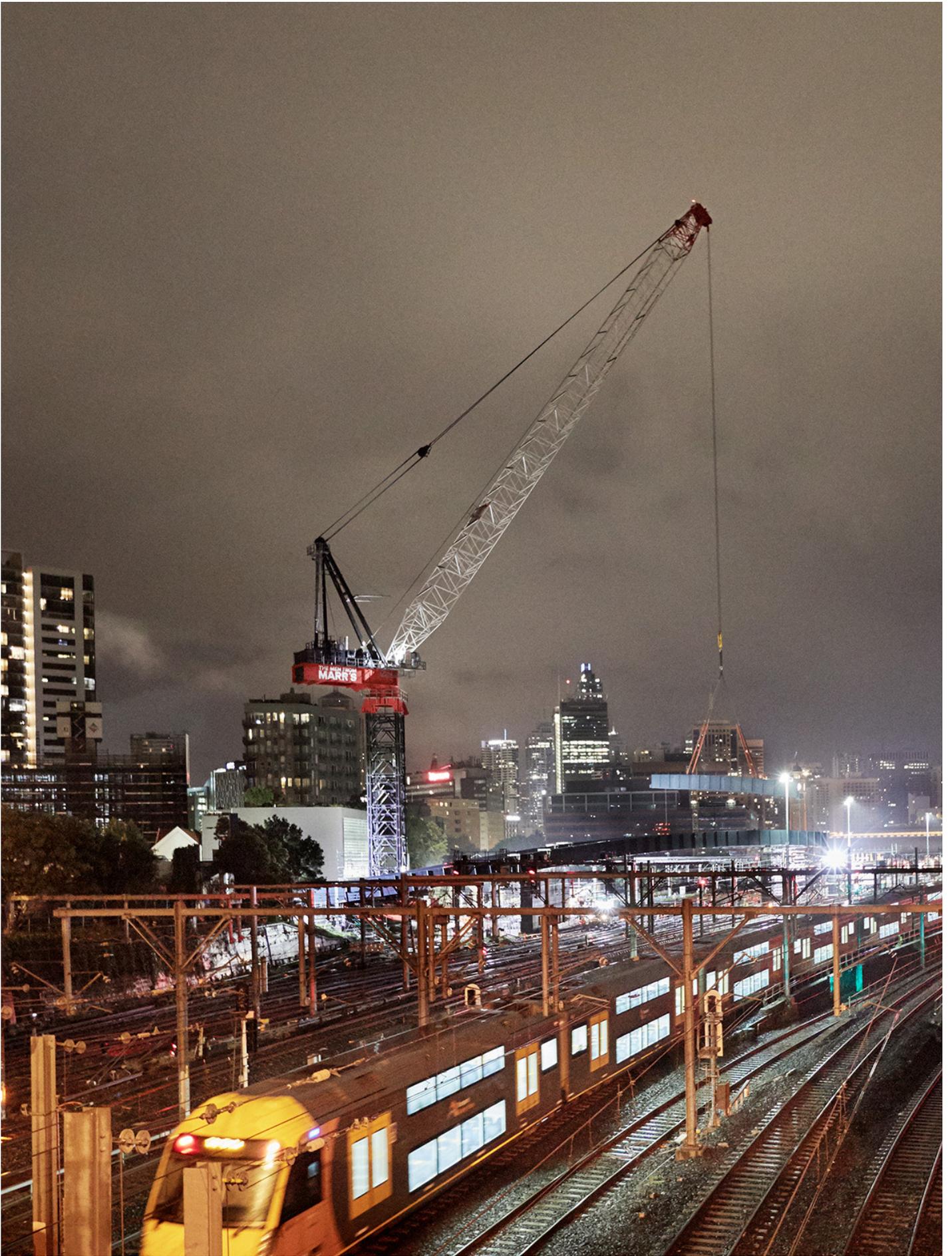
The use of the tower crane at SYAB pushed a lot of boundaries. It was the first heavy lift tower crane to get formal approval to operate in the rail corridor, something that has benefitted both LOR and Marr in more recent projects. It has allowed greater use of heavy lifting cranes in the rail environment and helped developed experience and knowledge. An idea that raised more than a few eyebrows turned out to be the best engineered solution for our client."

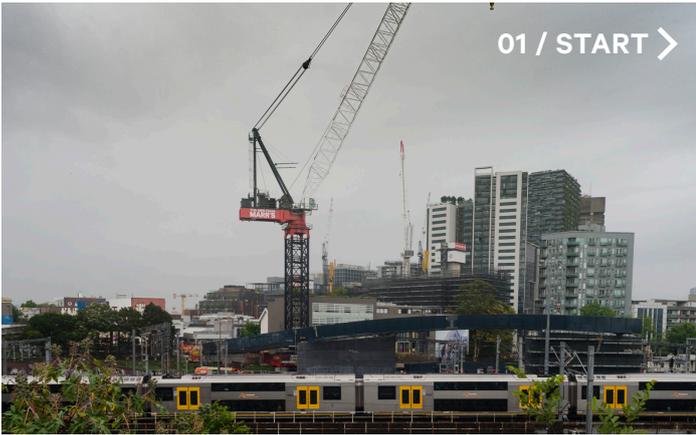


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HUW GRIFFITHS, PROJECT LEAD,
LAING O'ROURKE





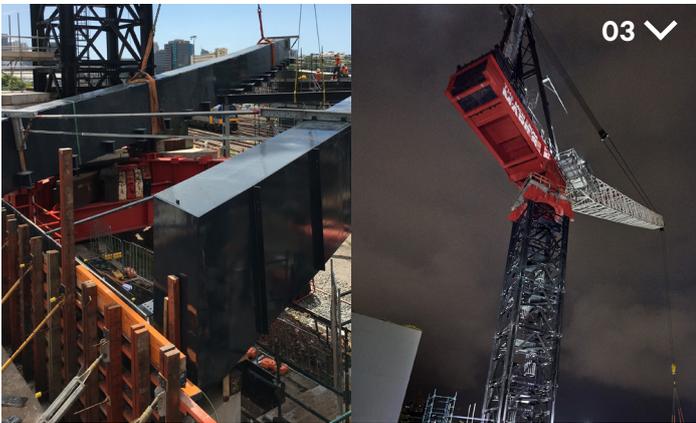
01 / START >

Construction of the Sydney Yard Access Bridge (SYAB) at Central Station involved working within a restricted space, over live rail lines and during time-restrictive rail possessions at Australia's busiest railway station.



02 >

The heavy lifting capacity and reach of Marr's M2480D Heavy Lift Luffer (HLL) allowed construction partners, Laing O'Rourke, to install the crane at sufficient distance for the M2480D to remain in place during scheduled rail possessions for the installation of the bridge sections and during time-restrictive off-peak rail possessions at Australia's busiest railway station.



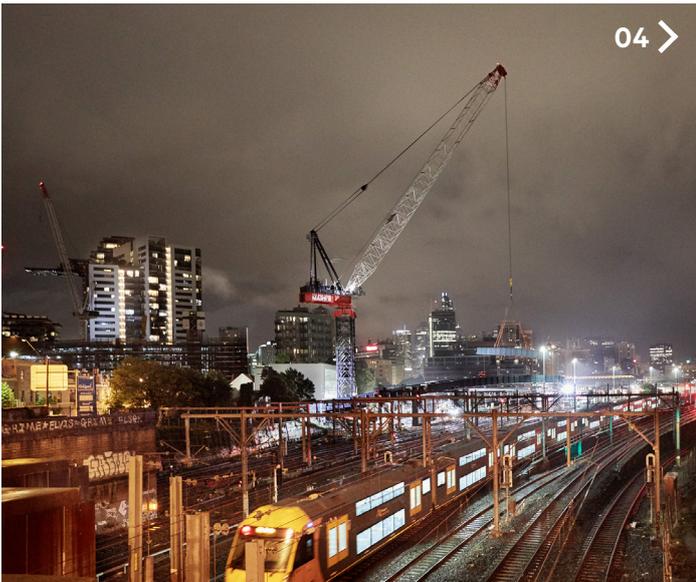
03 >

Marr's solution enabled the bridge sections weighing 60 tonnes to be assembled off-track and installed in a single lift.



05 / FINISH —

As the first time a tower crane of this size has been used on a major rail infrastructure project, Laing O'Rourke and Marr have paved the way for a new approach to the construction of similar projects across Sydney and around the world.



04 >

With the M2480D installed onsite the crane was ready to lift as soon as the rail possession took place. The same crane was also used during out of possession times to complete preassembly works.