



MODERN AND SAFE UPGRADE CALLS FOR PRECAST

Project: Pymble Station lifts
Location: Pymble, NSW
Master Precaster: Waeger Constructions
Head contractor: Laing O'Rourke

Improving accessibility was high on the agenda of a recent upgrade to the rail station at Pymble on Sydney's North Shore. A part of Transport for New South Wales' Transport Access Program, the upgrade will ultimately provide a better experience for public transport

customers by delivering modern, safe and accessible infrastructure.

As a busy suburban station, the construction of two new lifts that connect the Pacific Highway, Grandview Street and the station platforms to the existing footbridge was always going to be a challenge.

Expediting construction schedules called for the lift shafts to be manufactured offsite in precast concrete and installed overnight.

Master Precaster Waeger Constructions manufactured the lift shafts in their Hunter Valley factory, and National Precast CEO Sarah Bachmann says precast can be very useful when it comes to construction in busy public areas.

PRECAST OVERCOMES CHALLENGES ASSOCIATED WITH INSITU

"Many projects located in busy urban areas specify precast because the alternative - insitu construction - can be problematic because of the congestion and interruptions caused by site materials' deliveries, longer construction works' programmes, waste removal, noise and dust that come with it.

"They can all be overcome by using precast concrete, and this project is case in point," Ms Bachmann commented.

"By manufacturing the lift shafts offsite at the Waeger factory, construction activity was removed from the site, thereby making it safer. Installation then was able to be scheduled at night when the public - and in this case commuters - were not around," Ms Bachmann added.

Two lift shafts were manufactured for the project, in a Class 2 off-form finish with chamfered edges.

According to Waeger Managing Director, Michael Waeger, most of the elements under this contract were to be installed within the live rail corridor, within or adjacent to existing stations.

"Difficulties working close to the travelling public, close to passing trains, and near to or beneath live overhead high voltage wires were all overcome by supplying these items as precast. They were installed in a single four-hour installation session during an overnight rail shutdown," Mr Waeger said.

DELIVERY TO COMPLY WITH NATIONAL HEAVY VEHICLE (NHV) REGULATIONS

Mr Waeger added that aside from facilitating the installation, which was undertaken by the head contractor, coordinating the delivery of multiple very large precast elements within the requirements of National Heavy Vehicle law was certainly the most challenging aspect of the contract.

"We managed to comply with NHV regulations in cooperation with our experienced transport partners, who provided advice on the measures that were required to comply with NHV regulations," Mr Waeger said.

"Each of the loadbearing lift shafts weighed over 29 tonnes and measured more than three metres square at their base, by 3.3 metres high - that took some co-ordination. We needed pilot vehicles for each load, and travel times were restricted to the permitted window of 21:00 PM to 05:00 AM on the day of installation," he said.

IN-FACTORY WATERPROOFING TO SPEED PROGRAMME

To assist with timely installation, Waeger Constructions facilitated another of Laing O'Rourke's subcontractors to waterproof the lift shafts within their factory prior to loading and transporting to site.

"This saved significant time in the installation works as originally it was planned to waterproof between unloading and installing the lift shafts to their final position," Mr Waeger added.

SPEEDING CONSTRUCTION AND DELIVERING COST EFFICIENCIES

Manufacturing the lift shafts as precast certainly sped the construction programme, the savings from which - while not specifically quantified - would have been significant. The alternative logistical issues that would have accompanied efforts to deliver, place, form and pour these significant structures insitu, within the live rail corridor, beneath high voltage lines and alongside moving trains and the travelling public, would have been extreme. And so too, would have been the cost associated with overcoming these obstacles in a fashion other than specifying precast construction.

The project is expected to be completed in 2023.



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