

# CASE STUDY

## Lethbridge Superstructure Replacement Works

LOCATION: O Connor Road, Victoria

CLIENT: V-Line

DATE COMMISSIONED: May 2016



### Introduction

Global Rail Australia secured via competitive tender the contract on behalf of regional train operator V-Line in 2016, to provide a full turnkey civil and structural engineering service, for the fabrication and installation of a new bridge superstructure in Victoria.

The existing Railway Bridge, sits on the Ballarat passenger service line at O'Connor, serving the regional districts of Victoria.

V-Line as part of a large programme of rail upgrades, selected Global Rail Australia as the preferred contractor to replace the life expired wrought iron and timber structure with a newly fabricated concrete superstructure.

The works required careful planning and involved detailed surveys, production of detailed shop drawings for the new deck and walls, pre-installation testing of the fabricated concrete sections and the replacement of the bridge during a three-day occupation of the railway line.

Scaffolding was erected on O'Connor Road adjacent to the bridge abutments during the railway closure, the existing tracks were lifted out and the rail ballast removed, to facilitate the removal of the old structure.

The new bridge deck and walls were then lifted with a 100 tonne crane – fully facilitated on site by the Global Rail Australia's specialist civil and structural engineering crew. These were then carefully lowered into position, where Global's site engineering team could fix them into their correct positions.

Due to the railway closure alternative bus services were laid on to enable passengers affected by the closure to travel around the works.

Works were completed on time and the project was handed back on 22nd May 2016.

## The Deliverables

Global Rail Australia provided a fully managed program of works, effectively co-ordinating with V-Line and other stakeholders to achieve compliance with all relevant quality, safety and railway standards, based on the following scope of activities:

- ① Initial site surveying and measurement
- ① Preparation of a detailed fabrication program of works
- ① Crane survey undertaken and works method statement produced
- ① Preparation of shop-drawings for the approval of the precast bridge deck and concrete wing walls
- ① Fabrication of the new bridge deck and walls
- ① Preparation of an hour-by-hour program of works for the rail closure, including contingency arrangements
- ① Site mobilization including welfare facilities
- ① Minor repairs to the existing structure prior to the main railway occupation
- ① Erection of scaffolding
- ① Delivery to site of the new structure
- ① Removal of the track and ballast (by V-Line)
- ① Cutting and removing the existing bridge girders and removing the timber bridge deck
- ① Lifting in via crane and fixing new concrete superstructure into position
- ① Checking the new structure before ballast and track panels were re-laid and occupation handed back to V-Line
- ① Removal of scaffolding and demobilize from site
- ① Provision of full as-built documentation

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## Challenges and Solutions

Having established an excellent working relationship with V-Line on previous projects, the team were able to co-ordinate their activities with the client and minimise the impact of their operations on the client and their stakeholders.

Despite the tight timescales in removing and replacing a bridge superstructure in just three days, Global Rail Australia delivered the works on time. Helped by the preparation of an hour-by-hour programme, the team were able to manage each activity with high degrees of certainty.

This was also the case with contingency arrangements. Global Rail Australia, as an experienced railway contractor were in full control of their works. The site itself was in a remote location - some two hours from Melbourne – which required careful thought. Global Rail Australia, lined up stand-by crews, materials and plant to cover all eventualities, providing a full 24hr contingency plan.

Global Rail Australia, due to the nature of the works, were able to use their supply chain to support their works for key deliverables namely the crane, the superstructure panels. Global Rail Australia has a rigorous engagement process for all its suppliers, to minimize risks – and it was no different on this project.

After selecting their suppliers, Global Rail Australia provided extra project surety by utilising their own in-house engineers to verify supplier deliverables prior to works commencement onsite. All suppliers were also asked to supply compliance certification for their works.

Providing a full turnkey solution allowed Global Rail Australia to act as the single point of responsibility throughout, managing staff and specialist suppliers to ensure that the track was re-instated and the railway was fully handed back on time at the end of the occupation on 22nd May 2016.

## The Benefits

The appointment of Global Rail Australia as a single point of contact with in-house engineering expertise provided V-Line with absolute confidence in a contracting organisation that would fully manage the project and the stakeholder interfaces with them.

Having a multi-disciplinary workforce across civil and structural engineering, allowed Global Rail Australia to fully plan and co-ordinate all activities and formulate contingency arrangements around their large in-house railway resource in the event of a requirement.

Having a contracting organisation deep rooted in railway engineering, also aided planning and having management systems that work in accordance with certified bodies across safety, quality and environmental, provided the client with a high quality solution.

Global Rail Australia also have a strong pedigree in training and look to the future with local apprenticeships, using this project as a platform for mentoring and up-skilling their engineers of the future

The business also aligns closely with the communities in which they serve and provided a considerate, safe and secure environment for all staff and stakeholders during these works.