

CASE STUDY

Feltham Resignalling Project Phases 3-4 Advanced Civils

LOCATION: Feltham to Wokingham
CLIENT: Network Rail
DATE: October 2020 - September 2022



Introduction

Principal Contractor Global Rail Construction Limited (GRCL), has completed Feltham Resignalling's largest civil engineering programme of works, on behalf of Network Rail (NR) Southern Region Capital Delivery.

In October 2020, Global Rail Construction commenced works as the Principal Contractor for the Design and Construction (D&C) of the Advanced Civil Engineering scope of works for Feltham Resignalling Project Phases 3&4. These phases form part of a major Resignalling project to renew life expired signalling, telecoms, and electrical assets for Network Rail, comprising the renewal of 538 Signalling Equivalent Units (SEUs) over 80 miles of railway lines, alongside the introduction of a brand-new signalling system from Atkins – Elix.

Design activities commenced at pace and site works were meticulously planned as part of a compelling tender methodology and approach utilising weekdays and nights, Saturday nights

and several 28 and 52-hour railway possessions during a most challenging project timeframe.

The construction works were further extended to September 2022 to include several additional location case hardstanding's, PSP compounds, new signal installations, new cable duct routes to existing station platforms and the installation of various new troughing routes – all effortlessly absorbed by GRCL's in-house D&C team.

Having a railway design and build team, including dedicated project and site management across the civil and structural engineering scope, familiarity with the scheme, having delivered several previous phases and having delivered time pressurised resignalling schemes across Network Rail infrastructure, allowed Global Rail Construction Limited to provide the necessary turnkey solution and complete the project to meet Network Rail's requirements.

Project Deliverables

GRCL planned and delivered a fully managed design and build solution, which effectively coordinated with all stakeholders to achieve full compliance with all relevant railway standards. The work scope included risk management, including coordination of relevant workshops prior to commencement of works on site and preparation of a detailed programme of works to take into consideration the required project milestones. Delineation of the work site was a key enabler due to the need to incorporate working on or near the line, as was service locating, surveying, and site investigation, so careful vegetation and brush clearance of the site was required prior to commencement of works.

The scope included:

- ① 2992m of new glass reinforced plastic (GRP) troughing route on posts supplied and installed
- ① 4788m of new concrete ballast boards (1 and 2 high) delivered and installed
- ① 4355m of new concrete troughing route delivered and installed
- ① 16No two/three/four-track under track crossings (UTX) constructed
- ① 12No new cable duct routes through an existing station platform constructed
- ① 16No under road crossings (URX) constructed
- ① 3No sheet piled retaining walls installed
- ① 14483m of existing troughing routes refurbished
- ① 26No location case concrete hardstanding's with walkways and handrails constructed
- ① 4No power supply point (PSP) compounds, including in-situ concrete bases and walkways constructed
- ① 118No new signals supplied, delivered, and erected (both cantilever and single post types) with laydown areas and king post retaining walls

Key Project Challenge

One of the major project challenges was the amount of time available for the construction works.

Global Rail Construction was not only faced with a site where outline design approval was still being sought, they were also part of a project where a new signalling system – Elix – was being introduced for the first time.

Track access was an issue, with a very minimal number of available track possessions and although there were several 28-hour and 52-hour possessions available for material deliveries, GRCL also had to complete all of the Under Track Crossing and Under Road Crossing installations simultaneously.

This all presented a sizable challenge to GRCL's experienced team.

GRCL's Solution

Using its vast proficiency in delivering similar schemes, Global Rail Construction Limited's re-engineered the scope of works with Network Rail, introducing significant savings and efficiencies to the overall programme.

A detailed review was also undertaken of the possession strategy, with GRCL providing a prioritised programme, which included a robust set of track access requirements for each site location.

Further to this, GRCL led negotiating access with other interfaces

working in the vicinity of the works.

Network Rail were provided with an enhanced delivery model and a fully co-ordinated plan of activities, providing high degrees of confidence that GRCL had maximised use of every possession and access opportunity.

Global Rail Construction controlled its construction programme and delivered its activities to meet every project milestone.

Benefits

Railway resignalling projects are time-critical, with crucial milestones to be met, so experience is a key factor in achieving success.

Having an in-house team of design engineers, project managers and installers, enabled integrated solutions to be quickly and effectively formed – providing programme and cost surety.

Acting as Principal Contractor, the team worked seamlessly with NR counterparts to ensure that all eventualities were covered and that a high-quality project, meeting and exceeding in some instances the new and exacting requirements for this contract.

Sizeable additional scope added by the client, increasing the original scope value of works was seamlessly integrated into our programme of works. This required great expertise and a meticulous approach to worksite planning from an experienced D&C civils contractor, to coordinate and keep works on track.

Stakeholder Management was key over a large geographical area. GRCL's Project and Construction Management provided both Network Rail and any interested outside party with relevant

information. This vital link to the railway community was crucial when so many sites were running concurrently, to maintain necessary communication and progress.

The collaborative effect of Global Rail Construction also extended to its own workforce and those of its sub-contractors. This co-operation gave GRCL the flexibility to increase resource when needed and create a logistics plan for 'right first time' delivery of materials and plant to keep the workforce fully occupied.

Fostering this 'one team' spirit throughout allowed GRCL to ensure that both safety and quality were never compromised.

The business also has a high pedigree in training its staff of all levels and invests in the future with a range of apprenticeships and a graduate scheme. This project epitomised that, with several new recruits joining the business during the works, including trainees, a graduate and a number of other experienced professionals to support and deliver this large civil engineering scope.

Testimonial

"Global Rail Construction were awarded the civil engineering design and delivery contract for phases 3 and 4 of the Feltham Resignalling Programme. This was the largest civil engineering contract of the programme.

"Their flexible approach meant that the demands of the project were met and potential obstacles to delivery were overcome with minimum disruption.

"They provided a very professional service and maintained the highest standards of delivery throughout the project."

**Roy Kearn - Senior Project Manager
Southern Region Capital Delivery - Signalling
Network Rail**

About Us

Global Rail Construction Limited is a UK based, multi-disciplinary design and construction railway contractor, whose activities include civil engineering, building, mechanical and electrical, signalling and track disciplines.

The company directly employs several hundred staff for projects on both mainline and metro railway systems and can deliver both as a Trackside Principal Contractor and a specialist disciplinary supplier.