

# CASE STUDY

## Feltham Resignalling Project

LOCATION: New Malden to Richmond and Whitton via Strawberry Hill - Feltham, Middlesex  
CLIENT: Network Rail Infrastructure Projects  
DATES COMPLETED: July 2017 - April 2019



### Introduction

Global Rail Construction Ltd (GRCL) delivered a compelling tender to Network Rail Infrastructure Projects (NR) and in early 2017, were awarded the Principal Contractors role for the Design and Construction of the full civil engineering scope of works for the Feltham Resignalling Project Phase 1.

This phase of works forms part of a major Re-Signalling project to renew life expired signalling, telecoms and power assets for Network Rail, comprising the renewal of 538 Signalling Equivalent Units (SEUs).

The geographical work-scope, which covers over 80 miles of railway lines also includes, for the first time, the introduction a brand new signalling system from Atkins – Elix.

Works were planned during mid-week days and nights, Saturday nights and a number of 28/52-hour railway possessions between weekend 20 - 2017 and weekend 12 - 2018.

The works were further extended to April 2019 by Network Rail during the course of the contract, whereby a number of Location Case concrete hardstandings were constructed; a number of PSP compounds were designed and constructed, 52 new signals were supplied, delivered and erected; new cable duct routes were added to a number of existing station platforms; and the installation of various new trough routes were completed including their associated design over bridge locations.

Having a multi-disciplinary workforce including rail, civil and structural installation expertise, along with in-house project management, and having previously delivered time-pressurised re-signalling schemes, allowed Global Rail Construction to provide the necessary delivery solution and works have been fully completed to meet the client's requirements.

## The Deliverables

### Original Scope (July 2017 - June 2018)

Global Rail Construction planned and delivered a fully managed project solution, one which effectively coordinated with all scheme stakeholders to achieve full compliance with all relevant quality, safety and railway standards. The work scope included:

- ① full project risk management, including coordination of relevant risk workshops with client and other appropriate stakeholders, prior to commencement of works on site
- ① preparation of a detailed programme of works to take into consideration the project milestones
- ① site mobilisation, including the erection of all relevant Vortok fencing. Delineation of the work site was a key component of the works, due to the need to incorporate working on or near the line during the day
- ① service location, survey and site investigation works; vegetation and brush clearance of the site
- ① 2221m of new glass reinforced plastic (GRP) troughing route on posts supplied and installed
- ① 1,914m of new concrete ballast boards (1 and 2 high) delivered and installed
- ① 7,382m of new concrete troughing route
- ① 8No two/three/four-track under track crossings (UTX)
- ① construction of new cable duct routes through an existing station platform (Norbiton), including locating and proving existing services and working with HV assessment
- ① provision of traffic management and road closures
- ① piling of signal bases
- ① 5,415m of existing troughing routes refurbished
- ① provision of all handover and as-built documentation

### Extended scope through until April 2019

- ① 7no location case concrete hardstanding's with walkways and handrails constructed
- ① design and build of 4No power supply point (PSP) compounds, including the associated in-situ concrete bases and walkways, constructed
- ① 52 new signals supplied, delivered and erected (both cantilever and single post types)
- ① construction of new cable duct routes through existing station platforms (Hampton, Whitton, Richmond), including locating and proving existing services and working with HV assessment
- ① Basingstoke (ROC) training centre, supply and installation of location hardstands with ballast board retaining walls
- ① supply of cranes and RRV's to crane and deliver 50no IBJ closure rails onto the Shepperton Branch
- ① design of 7no PSP sites, 13no UTX's, 2no bridges, 15no station platform duct routes
- ① supply and installation of various cable ramps
- ① design and Build of various routes at bridges

## Challenges

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

Global Rail Construction was not only faced with a site where design approvals were still being sought, they were also part of a project where a new signalling system – Elix – was being introduced for the first time. This, alongside minimal track possessions, presented a sizable challenge to GRCL's experienced team.

The scheme only provided six 28-hour and six 52-hour possessions for materials deliveries. During this time Global Rail Construction also had to complete all the UTX works.

Further challenges on the project related to the sizeable additional scope added by the client, nearly doubling the original scope value of works which had to be integrated into our programme of works.

This required great expertise and a meticulous approach to worksite planning from an experienced re-signalling civil engineering contractor, in order to keep the project on track and on programme.

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## Solutions

Using its vast proficiency in delivering similar schemes, Global Rail Construction's team set out to re-engineer 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. This provided Network Rail, with a fully co-ordinated plan of activities.

Applying this approach allowed Global Rail Construction to fully control its delivery programme at all times, which provided confidence at every project milestone.

Global Rail Construction also took the lead in negotiating access with other interfaces working in the vicinity of the works. By taking a fully collaborative approach to this co-ordination, Global Rail

Construction was able to provide Network Rail and any outside parties with a joined-up solution for each and every site, throughout the many miles of railway track – this was vital, as many of the sites were running concurrently in order to maintain the necessary progress.

The collaborative effect of GRCL's approach not only extended to clients and third-party interests; it also extended to its own workforce and those of its sub-contractors. This co-operation gave Global Rail Construction the flexibility to pinpoint its logistics for delivery of materials and plant – allowing the works to stay firmly on programme.

Fostering this spirit throughout also allowed GRCL to boost resource when needed, during peak periods of activity, which helped to ensure that both safety and quality were never compromised.

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## The Benefits

When a resignalling project is time-critical and crucial milestones have to be met, experience is a key factor in achieving success.

Having an in-house team of design engineers, project managers and installers, without doubt, enabled solutions to be quickly and effectively formed – providing programme and cost surety.

Acting as Principal Contractor provided the confidence to Network Rail that GRCL's approach would be seamless with their own. This ensured that all eventualities were covered and that GRCL's involvement facilitated a high-quality project – one that met and exceeded the new and exacting specification for this contract.

The ability to call on both its in-house resource and supply chain partners, as and when needed to keep the works on track, also evidenced the superb ethos, mentality and togetherness within Global Rail Construction.

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 and used these to great effect on this project.

Global Rail Construction is a multi-faceted, multi-disciplinary design and build contractor which works in civil engineering, electrification, mechanical and power, signalling and building, and directly employs several hundred staff for projects in both mainline and metro rail systems.