CASE STUDY

RJ POWER RAIL

Collaborative Engineering Solutions

Scheme	Controlled Track Switches Design & Installation
Location	Wessex (9 locations)
Client	Network Rail
Completed	May 2021

RJ Power Rail successfully secured and completed a contract with Network Rail, to act as the Principal Contractor for the design and installation of Controlled Track Switches (CTS), across 9 different sites and locations for the Wessex Works Delivery team.

RJ Power Rail provided a fully managed design and build solution, delivering the design scope through long-term supply chain partner Rail Power Solutions.

The CTS devices installed were a new safety feature and method of managing power to the conductor rail system, which is fed from traction substations at 750V DC, enabling activities to be implemented from a position of safety (Electrical Control Room) and not from an on or near the line position.

The renewal was condition, reliability and safety driven and was supported by Network Rail fault data and E&P Asset Policy. The works were a continuation based upon the CP5 E&P Works Delivery Renewals Programme.

The works required careful planning in conjunction with Network Rail's Access Planning Manager and have been commissioned to meet Network Rail's desired project outcome within the required project timeframe.

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PROJECT DELIVERABLES

The project scope covered the procurement, design, installation, testing and commissioning of Controlled Track Switches at 9 different locations detailed below, to create a new primary depot supply for the new rolling stock:

- Cosham
- Eastleigh
- Fareham
- Guildford
- Ludgate Jct (Clapham)
- Queenstown Road
- Southampton
- Strawberry Hill
- Woking

Pre-commencement stage

- Undertaking site surveys of all 9 locations for the new works
- Dilapidation surveys of the existing infrastructure assets
- Undertaking ground condition surveys

Design stage

RJ Power Rail undertook the role of CEM on the project utilising our multi-disciplinary expertise in Civil Construction, Permanent Way and Electrification projects, ensuring that all engineering deliverables from design through to actual on-site works were carried out in compliance with relevant Network Rail standards.

Having a competent team with existing and developed relationships with the Network Rail Project Team, made obtaining the relevant design approvals a seamless process. All associated designs i.e. SCADA, Civils and E&P were managed and delivered by RJ Power Rail.

Implementation stage

- Survey and design
- Installation of precast concrete CTS bases
- Installation of all associated civil works including troughing and modifications to existing infrastructure
- Installation of LV power supplies
- Installation of SCADA cabling from the substation to the CTS units
- Installation of DC Track Feeder cables
- Delivery and installation of CTS units
- Installation of SCADA equipment within the relevant substations
- Pre-Commissioning and testing

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CHALLENGES AND SOLUTIONS

Critical planning

Given the nature of the works a detailed programme was developed to incorporate not just the on-site activities, but the on-track deliveries and the wheels free possession times for commissioning.

Multi-functional works

Due to the complexity of the commissioning relating to signal testing, RJ Power Rail and Network Rail's Signalling team worked collaboratively to ensure the commissioning solution was both safe and correct.

Design interface

The design was also complex, as our design team had to consider the necessary interface between the Signalling and SCADA. This was made more challenging as the SCADA interface had to liaise with the National SCADA programme, to ensure projects were not duplicating and creating unnecessary works.

Logistics management

Delivery of plant and equipment is always challenging on or about the rail infrastructure, however, as some of the delivery points for the CTS units were adjacent to, or on other stakeholders land, it meant that the rail team had to develop a liaison plan for interfacing with local residents and corporate business owners. Our approach to stakeholders, was to provide an open and honest approach, providing detailed delivery plans and programmes along with rectifying any maintenance infrastructure issues the landowners may have. RJ Power Rail has been consistently praised throughout the contract for its communication with landowners and other project stakeholders.

Additional scope of works

Given RJ Power Rail's expertise and experience as a Principal Contractor within the Railway Electrification sector, we were approached by Network Rail to develop and build a DC Traction Power training school inside Network Rail's Basingstoke training facility. Again, our design team produced all designs and liaised with all manufacturers to understand how to emulate the correct conditions. There were very tight timescales involved in these works, from agreeing the project costs to handover of this training facility. It was delivered in 8 weeks to meet the desired timeframe.

WHY RJ POWER RAIL?

RJ Power Rail has an established team that combines design, engineering and delivery expertise across all rail electrification activities and can be trusted with the most complex and demanding of projects.

The company offers the full range of rail electrification and power services from one-off cable repairs to multi-million-pound HV, LV and SCADA Design & Build projects.

The company is an experienced power solutions delivery provider, who work collaboratively with their clients and own supply chain as a reliable partner, providing exceptional expertise and proven project delivery in respect of HV Electrification and DC Switchgear schemes.