



Scheme CP5 HV Feeder Renewals Kent Route
Location IP Southern – F1607 Northfleet and F1608B Stone Crossing to Ebbsfleet
Client BCM Construction Ltd
Completed August 2017

Collaborative Engineering Solutions



As part of a five-year framework on behalf of Network Rail Infrastructure Projects (NR), to deliver electrification and plant upgrades and renewals in the southern region, RJ Power Rail was awarded a contract for the replacement of HV and Pilot cables at Feeder 1607 Northfleet Grid to Northfleet Substation and 1608B Stone Crossing Substation to Ebbsfleet Substation.

RJ Power Rail as a specialist rail electrification contractor with in-house jointing, test and commissioning resource, was approached by civil engineer and long term strategic partner BCM Construction – one of the framework contractors – to specifically deliver the full electrical scope, which included the refurbishment and replacement of high voltage feeder cables between the substations, replacing existing 185mm Aluminium cabling with new 300mm Copper 33kV cabling, renewing pilot cables and installing optical fibre telecommunication cables.

Working in collaboration with both BCM's civil engineering team and the project designers RPS, RJ Power Rail has been successfully delivering HV feeder renewals throughout the South and was seen again as the partner of choice for these works.

These E&P upgrades and renewals, form part of Network Rail's investment programme to enhance the rail infrastructure to cope with future requirements of increased train frequency and also higher capacity services.



Project Deliverables

RJ Power provided a full GRIP 6-8 construct, test, commission and handback service, delivering a fully project managed offering on time and to budget. The company had to prepare a prioritised programme of works to meet the client's requirements, incorporating delivery milestones in order to meet other key stakeholder requirements. This encompassed detailed hour-by-hour schedules of installation, test and commission activities across concurrent working locations, which took into consideration track access availability and the asset condition. RJ Power supplied all necessary logistics management and co-ordination of all resources to support the project programme in accordance with the following rail electrification work scope:

F1607 Northfleet Grid to Northfleet Substation

This site location includes the replacement, renewal and disposal of life expired cables in respect of F1607, between Northfleet Grid and Northfleet Substation in respect of the HV feeder renewals project. The principal objective was to replace the existing 3x single core 185mm² Al XLPE cable with a new 3x single core 300mm² Cu XLPE LSZH cable and then install a new modern equivalent 20-pair pilot cable to replace the existing 30-pair pilot cable for control and indication.

F1608B Stone Crossing Substation to Ebbsfleet Substation

This site incorporated the partial renewal of F1608B and the installation of a new pilot cable to encompass Stone Crossing substation, Swanscombe TP Hut (proposed substation) and Ebbsfleet substation for the HV feeder renewals project. Swanscombe TP Hut was then to be converted in to a substation where F1608B was to be terminated. The principal objective of this scope of work was to replace life-expired cables with modern equivalents, which involved the replacement and subsequent recovery of the existing HV oil filled cables with brand new XLPE cables and the installation of a new modern equivalent 20-pair pilot cable to replace the existing 48-core pilot cable for control and indication.



Challenges and Solutions

There were numerous access issues that were identified. These were primarily based around lack of working space on site and also restricted track access availability.

To overcome the lack of access – particularly in areas of railway cutting and embankments for cable installations – RJ Power Rail worked with BCM to re-route cables to the very top of embankments. This lessened the need for track access and also allowed the programme to accelerate.

Having their own Level A testing resource also allowed RJ Power Rail to maintain a consistent delivery approach in terms of quality and supply availability for key test and commissioning activities and provided them with the ability to flex their resource pool to meet the challenging track access arrangements without impacting the completion date.

A strong collaborative approach to this project enabled RJ Power Rail to successfully complete the project and this, coupled with their thorough understanding of the interdisciplinary nature of other parties works, enabled them to deliver an efficaciously managed project with a high degree of quality.



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 D&B projects.

They are 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.

Testimonial

“Whilst managing these HV feeder projects, I found RJ Power’s team to be very professional and proactive with their works and when assisting BCM with the commissioning and liaison with the grid engineers. There was also a good relationship with between respective Construction Managers’ and PMs, which helped to get Package 2 over the line.

“They submitted paper work (WPPs’) on time for approval and attended construction/look ahead meetings to help with the progress on site.

“Site operatives were also easy to approach to discuss and help overcome any site issues, providing us with both design and health and safety support.”

John Allum, Project Manager, BCM Construction