



CASE STUDY – LNE SIGNALLING POWER DISTRIBUTION RENEWALS

CLIENT – NETWORK RAIL

LOCATION – DONCASTER TO SCUNTHORPE, UK

DURATION – 2.5 YEARS



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Scope of Works

The overall project forms part of Network Rail's CP6 programme for Electrification & Plant on the LNE route and consists of the renewal of the Signalling Power Distribution System on a line of route approximately 44km in length.

The project aims to renew the Signalling Power Distribution System for the routes between Foreign Ore and Doncaster. This renewal will maintain the asset's availability to enable the continuation of route operations throughout the life of the new assets.

As a result of these works, there will be significant safety and performance benefits including:

- Existing assets not compliant with BS7671 and the Electricity at Work Regulations will be brought into compliance.
- Enhanced power supply reliability, upgraded and enhanced cabling and route.
- A dual-end feeding arrangement, together with a backup generator and UPS will improve asset availability and reliability.
- Removal of 650V power from existing Location cases to increase spatial capacity for further signalling growth

Project In Numbers

- Route: **15,600m**
- Cable: **56,700m**
- FSPs (Functional Supply Points): **180**
 - Of which REB's (Frame Only): **11**
- Level Ground Bases: **92**
- Equipment Platforms: **32**
- 650V Feeders: **11**
- Auxiliary Supply Points: **4**
- Principal Supply Points: **4**
- DNO Supplies: **4**
- Under Track Crossings: **2**
- Staging Platforms: **33**

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Our Solution

The project was executed in a phased manner, beginning with the installation of civil infrastructure along the route between Scunthorpe and Doncaster. This initial phase encompassed the installation of GRP trough routes, flat ground and minor retained bases, as well as the construction of screw piles to support raised stagings.

Following this, the project advanced to the installation of cables and the delivery of Functional Supply Points (FSPs) along the route, which necessitated the construction of a new 6+2 track Under Track Crossing (UTX). Concurrently, new Signalling Power Supplies (PSPs) and Auxiliary Signalling Power Supplies (ASPs) were installed between Scunthorpe and Doncaster. These upgrades facilitated the implementation of an enhanced 650V distribution power supply, enabling the transfer of signalling power to the new system.

A key challenge of the project was upgrading the Doncaster PSP and the existing 650V power supplies to enhance power reliability. This included commissioning signalling supplies fed from the newly established 650V distribution feeder arrangement in a carefully staged process.

Our Standards

At the forefront of our business is a commitment to sustainability and corporate social responsibility, highlighted recently in the completion of our new head office which has been designed and built to be a sustainable building for the future. We are constantly working on ways to reduce and minimise our carbon footprint, and many of our employees have been involved in a series of fundraising events for local and national charities.



Our Team

One of the fundamental principles of the business is an investment to selecting and retaining a dedicated and professional workforce, both by supporting apprenticeships and encouraging career enhancement within the company.



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Project Outcome & Successes

Successful Delivery of Phased Implementation: Executed the project in a structured, phased manner, ensuring efficient progress and clear milestones were met.

Enhanced Civil Infrastructure: Completed the installation of GRP trough routes, flat ground bases, minor retained bases, and screw piles to support raised stagings, strengthening infrastructure along the Scunthorpe-Doncaster route.

Seamless Installation of Functional Supply Points (FSPs): Delivered FSPs and completed the construction of a complex 6+2 track Under Track Crossing (UTX), ensuring robust infrastructure for future operations.

Upgraded Power Distribution Network: Successfully installed new Signalling Power Supplies (PSPs) and Auxiliary Signalling Power Supplies (ASPs) between Scunthorpe and Doncaster, implementing a modern 650V distribution power supply.

Improved Power Reliability: The Upgrade of Doncaster and Scunthorpe PSP along with new 650V power supplies, has significantly enhanced power reliability and system performance alongside the addition of new PSP's and ASP's along the route to reduce the footprint of existing longer feeders.



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Project Outcome & Successes

Smooth Commissioning of New System: Transitioned signalling supplies to the new 650V distribution feeder arrangement through a carefully staged commissioning process, minimizing disruptions.

Timely Project Completion: Delivered the project on time, meeting all technical requirements and quality standards.

Safety and Compliance Achieved: Executed all works in accordance with health, safety, and environmental regulations, ensuring a safe working environment and in line with Network Rail's ACE process.

Increased Operational Efficiency: Enabled the transfer of signalling power to the upgraded system, supporting a more reliable and efficient railway network.

Effective Management of Complex Challenges: Overcame technical complexities, particularly with Doncaster & Scunthorpe PSP upgrades, showcasing strong problem-solving around re-design due to a lack of DNO supplies and project management and engineering capabilities.



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