Case Study:

Beckton HV Cable Installation – Supporting DLR Network Expansion

Project Overview

Traction Rail Electrical (TRE) was engaged to support critical High Voltage (HV) cable installation works at Beckton Substation, forming part of the wider programme to upgrade power infrastructure for the Docklands Light Railway (DLR) network expansion.

UK Power Networks Services is delivering a major multi-phase programme to enable 54 new trains on the DLR network, increasing capacity and replacing ageing rolling stock.

These upgrades include enhancements to traction power systems, substations, and DC distribution to support increased operational demand.

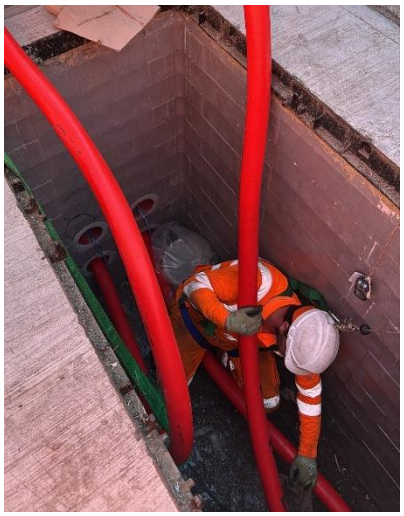
Client & Location

Client: UK Power Networks Services (UKPN) / Transport for London (TfL)
Location: Beckton

Dates: August to December 2025

About Beckton Depot

The works were undertaken at Beckton Depot and Substation in East London, a critical operational hub for the Docklands Light Railway (DLR) network.



Beckton plays a key role in:

- Housing and maintaining DLR rolling stock
- Supporting traction power distribution across the eastern section of the network
- Acting as a central point for infrastructure upgrades linked to network expansion

The location presents a highly constrained and operationally sensitive environment, requiring careful coordination and planning due to:

- Ongoing train operations and maintenance activities
- Restricted access routes and working areas
- Integration with existing live electrical infrastructure

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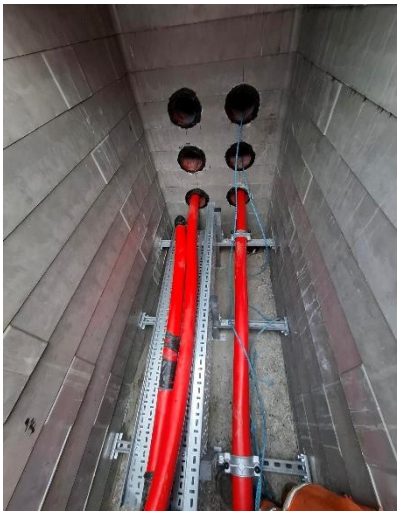
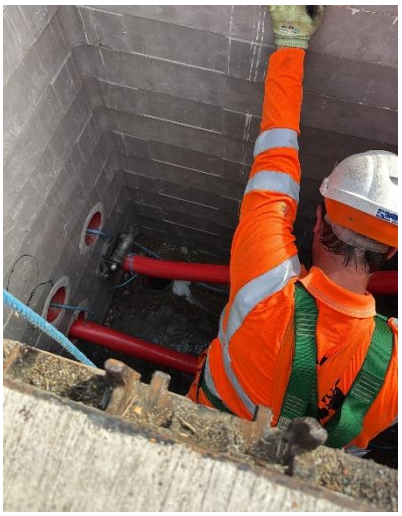
Key challenges



The Beckton HV cable works presented several technical and logistical challenges:

1. Cable Handling Complexity
    - Installation of 300sqmm 3 core copper HV cables, known for rigidity and weight
    - Increased difficulty in pulling and manoeuvring through existing infrastructure
2. Confined Space Working
    - Cable routes required access through subsurface pits and chambers
    - Strict safety controls and specialist confined space teams required
3. Live Operational Environment
    - Works undertaken within an active depot environment supporting DLR operations
    - Coordination required to minimise disruption and maintain safety compliance
4. Programme Constraints
    - Works delivered across weekend and staged shifts, aligned with possession and access restrictions

The Solution



TRE applied a structured and safety-led approach to successfully deliver the works:

Detailed Planning & Phasing

- Defined multi-stage delivery including:
    - Site setup and protection works
    - HV cable pulling operations
    - Confined space containment activities

Specialist Equipment & Techniques

- Ensured safe and controlled installation of heavy HV cables:
    - Winches and cable rollers
    - 6T weighted sledge anchoring system
    - Cable drum handling equipment and telehandler

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Skilled Workforce Deployment

- Multi-disciplinary team including:
  - Winch operators and electrical technicians
  - Confined space operatives
  - Plant operators

Safety-First Approach

- Full confined space procedures with:
  - Gas detection and rescue systems
  - Communication systems and controlled access points
- Extensive use of barriers and site segregation to maintain safe working zones

Sustainability Benefits

TREs Beckton works support a wider programme introducing 54 new DLR trains, enabling more sustainable, higher-capacity public transport. By installing critical HV infrastructure for upgraded traction power, TRE has helped improve energy efficiency, reduce network losses and strengthen Londons transport resilience, while minimising environmental impact through efficient delivery.

Outcome & Benefits

TRE successfully delivered:

- Safe and efficient installation of critical HV infrastructure
- Programme alignment with UKPN and TfL wider delivery schedule
- Enhanced readiness for future DNO connection and substation upgrades

Beckton - Docklands Light Railway