20km HV renewed Portsmouth to London Waterloo
Critical dates met
No train delays
Day work with trains operating for troughs/ducts
Covid – social distancing at all times.
Everyone home safe every day

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Case Study

E&P HV Feeder Renewals – Fast track to completion

PROJECT	HV Feeder Renewal
CUSTOMER	Network Rail
LOCATION	Wessex Route
CONTRACT	IP Southern SMD Framework
COMPLETION	2021

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Need

Renewal of high voltage feeder cables is a significant ongoing programme for improving resilience of the rail network. On the Portsmouth to London Waterloo line, possessions had been booked over two years ahead to lay a 20km stretch of cabling.

Our Electrification and Plant (E&P) Team took the scheme from initial concept through detailed design, as one of the first E&P projects delivered under the new Southern Multi-Discipline Framework (SMDF).

To meet the critical cable laying dates, 20km of troughing and ducting had to be ready on time to receive the cables. With limited availability of advance track possessions, it would require agile design and logistical planning for these activities to be safely completed in advance of the cable train dates.

Added to the project risk was the need for 'just in time' delivery of cable to prevent theft and the work restrictions imposed by the Covid-19 pandemic.

Solution

The strength of delivering E&P activities within the SMD Framework is the support each project receives from the core team of in-house designers, P6 planners, possession planners and technical specialists.

Design

The troughs and ducts receiving the cables run along and under the track, platforms and level crossings. To overcome the limited availability for track access, the team applied different thinking to move worksites outside of the operational railway and enable daytime working by:

- Realigning ducts on platforms and at level crossings to achieve a safe working distance away from the track.
- Installing Vortok protection fencing between the trough and the track to separate the worksite from the trains.

These early decisions provided a safe solution by enabling daytime work with trains running and crucially de-risked the programme by increasing productivity.

Logistics

Where segregation of worksites was not feasible, our framework planners created opportunities to complete multiple activities at multiple sites on the route which maximised output during each possession or line block.

Added to the logistical constraints was the mitigation of health risks imposed by the global pandemic. A spotlight on cable laying identified the danger for the two people needed to lift concrete troughs and the team responded with dexterity, designing a bespoke lifting tool.

Outcome

Using the highly collaborative SMD framework for the HV Feeder Renewals has brought significant benefits:

- Agile support from the core functional experts has delivered a more efficient design; faster approvals; lean planning, methods, and performance.
- The two critical programmed dates for cable installation were achieved with no train delays.

Going forward, the large E&P programme including switchgear renewals, 3rd rail upgrades, negative short circuit devices, and transformer rectifier renewals will all benefit from this specialist 'one team' approach.