

CASE STUDY

BANBURY AVENUE 132KV CABLE UPGRADE

PROJECT TYPE & VOLTAGE

Banbury Avenue 132kV Cable Upgrade Cable Rating, Routing.

SCOPE

Cable Rating, Routing. Feasibility & Detailed Design

CONTRACT VALUE

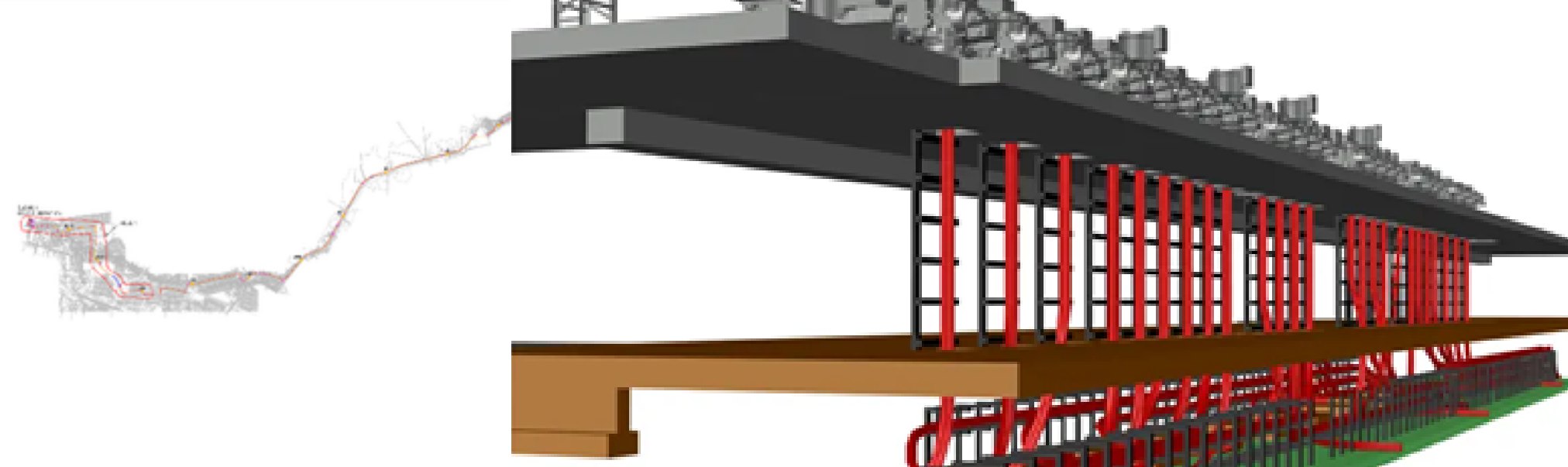
£90,000

ASSET OWNER

Scottish Southern Electricity Networks

WORKS SUBCONTRACTED

All works completed in-house



CHALLENGE

Delivering a viable route for a new 132kV cable circuit despite gaps in the existing duct network.

Groundline was appointed to undertake the feasibility and detailed design of the 12km Slough 5 132kV cable circuit, connecting Iver GSP and Slough Grid Primary Substations. The scheme planned to utilise spare duct infrastructure installed during the earlier Slough 4 project, but a review of existing drawings revealed two sections along the proposed route where ducts had not been installed — leaving a discontinuous network and threatening the deliverability of the entire scheme.

SOLUTION

Groundline undertook a comprehensive desktop study to prove the proposed route and resolve the identified constraints.

This included cable current rating analysis, cable size selection, geotechnical design specifications, and identification of joint bay locations and installation limitations. A full suite of design deliverables was produced covering route and profile drawings, joint bay layouts, cable and bonding schedules, EMF and induced voltage assessments, thermal and short-circuit ratings, installation methodology, and supporting bills of quantities. Technical assessments were carried out using CYMCAP, modelling SSEN-approved cable options including a 132kV 630mm² Cu XLPE Aluminium Sheath HDPE cable to confirm current ratings, performance, and soil dry-out limits for a trefoil ducted installation.

Construction requirements were defined including joint bay locations and a cable pulling strategy aligned with the existing duct orientation from Slough to Iver.

IMPACT

Disruption to the local community minimised through re-use of existing infrastructure despite incomplete as-built records.

By proving the existing duct routes and developing a robust detailed design for installation and pulling, Groundline enabled the project to proceed without new duct construction. This significantly reduced community disruption, lowered construction risk and cost, and overcame the challenges posed by gaps in the as-built records — delivering a reliable and efficient solution for the new 132kV cable circuit.

