

CASE STUDY

GROUND INVESTIGATION - WILLESDEN TO TAYLOR'S LANE CABLE TUNNEL

Project Description

The Contract: Taylor's Lane Power Station was built in 1903 and was the first coal-fired facility in Great Britain. It was subsequently closed in 1972, re-opening in 1979 as an open cycle gas turbine station which still operates today. Geotechnical Engineering Ltd (GEL) was appointed as by Parsons Brinckerhoff (PB) on behalf of UK Power Networks to complete the ground investigation for the deep 400kV cable tunnels.

The Challenge: To construct six boreholes up to 50.0m deep, two of which required continuous traditional undisturbed sampling and detailed logging. The holes were required to inform the design of a scheme including 1.5km of tunnels and two deep shafts. Compliant cable percussive boring and alternative dynamic sampling and rotary drilling tender submissions were presented to PB. Our Eurocode compliant cost neutral alternative proposal using our multi-purpose Pioneer rigs was subsequently accepted.

The Solution: The holes were constructed on both private property and in public open space. We obtained Section 50 Streetwork licenses and approval from various local authority departments for the positions on Brent Council land. The holes were constructed within fenced compounds delineated by Chapter 8 style traffic management with ground surfaces protected from the works as appropriate. Site specific risk assessment and method statement were developed for each position / land owner.

One area of the project was classified RED in accordance with the SISG Guidelines for work on Contaminated Land. Additional PPE was worn by all staff, exposure to contaminants was monitored using PID and GA2000 type gas meters and a decontamination unit was provided during construction of the hole.

The original specification demanded continuous undisturbed sampling (U100s) with detailed logging of the London Clay in two holes. The technical benefits of our alternative rotary cored option were so significant that this requirement was extended to all six holes. Following discussion with PB, the technical approach was agreed. The core was photographed, sub-sampled, split and photographed again. The Class 1 sub-samples were wrapped and waxed on site and then carefully transported to the laboratory. Short 500mm sections of core were removed, photographed, inspected and logged. Individual fissure information was recorded for the entire borehole and this data was added to the engineering logs. This information has been used by PB to classify the London Clay, allowing them to determine tunnel drive horizons, shaft design, construction risks etc.

We were able to work extremely closely with PB to deliver the contract to a consistently high technical standard, within budget and to programme. This outcome would not have been possible without the effort, collaboration and teamwork ethic of all parties.

Project Overview

Project Name:

Ground Investigation - Willesden to Taylor's Lane Cable Tunnel

Project Type:

Ground investigation

Client Name:

UK Power Networks through Consulting Engineer, Parsons Brinckerhoff

Date/Duration:

June to September 2010



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