

Portobello Substation

Client: Scottish Power Energy Network

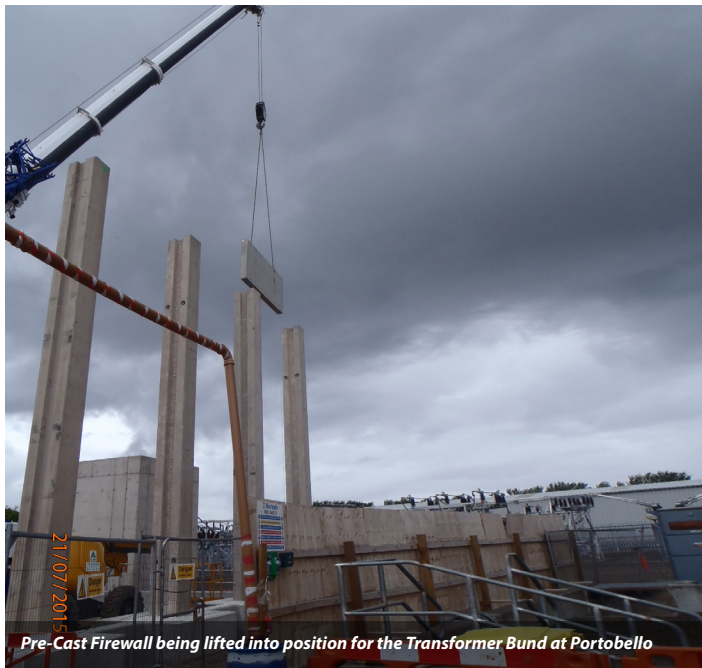
Location: Portobello, Edinburgh

Value: £435k

Duration: 3 Months



Decommissioned Transformer (100T) being jacked onto flatbed for removal from site



Pre-Cast Firewall being lifted into position for the Transformer Bund at Portobello

Customer Benefits...

- Undertook ground stabilisation techniques and monitoring to enable the works completion
- Implemented rigorous 'safety critical' control procedures through a 'Permit' approach to ensure the works activities remained safe for all parties, whilst transmission continued
- Ensured the existing facility remained operational
- Barhale maintained excellent relations with the client. The interface with SP Power Systems proved vital in the overall success of the project
- Managed the smooth phasing of the works, so that the civils and electrical works were undertaken and completed, efficiently, effectively as a seamless process

In Brief...

Barhale were required to remove, demolish and replace a SGT2A, 275/33kV, 90MVA transformer with a 120MVA unit at a substation located approximately 5km east of Edinburgh City Centre to ensure that the future maximum demand is met.

Scope of Works...

Work consisted of:

- Removal and demolition of SGT2A Transformer
- Piling works for new build foundations
- Construction works for:
 - New built bund wall
 - New built auxiliary transformer firewall with foundations
 - New built transformer firewall foundations
 - New built precast columns and horizontal panels assembling
 - New built inspection chamber
 - New built transformer sump pit
 - New built PI-SA foundation
 - New built NER foundation
 - New built diesel generation foundation
- Drainage works
- Ducting works
- Oil interceptor replacement, new Puraceptor Class 1 assembling.

Constraints...

Undertaking this work brought additional working constraints with regards to working in and around a live substation and poor ground conditions that required innovative design solutions and stakeholder liaison. Due to the adverse ground conditions, Barhale used a piling system for heavily loaded structures. Through using such expertise and experience of working in this environment Barhale were able to mitigate potential risks and facilitated the success of the project.

Technical Features...

- The transformer replacement works were constructed within the existing 275kV compound
- Removal and safe disposal of Bus bars, NER, Transformer (including waste oil) upon their safe isolation
- Facilitate the safe isolation of the existing equipment by working with other contractors employed by IEC
- Demolition of redundant structures after the safe removal of equipment. Design and installation of piled foundations for new structural bases
- Construction of new reinforced concrete foundations, bund wall, in-situ fire wall for new Aux TX, new pre-cast blast wall and supports for new main transformer bund
- Installation of new earthing system, which connects into the existing earthing grid
- Installation of new bund drainage and oil interceptor tank (4m deep excavation) and associated substation finishes