

Barking Substation, stabilisation & void filling



Background

Providing electricity to most of East London, including parts of Crossrail, the National Grid-owned and operated Barking substation is an extremely important power asset.

As part of its on-going upgrading and maintenance programmes, National Grid was looking to repair and replace a number of ceramic insulators, within the substation building itself. Over time the concrete slabs supporting the ceramic insulators had become uneven, with voiding also discovered beneath them – the potash-type foundation compacting over time.

With the ceramic units each weighing in the order of 3-4 tons, together with the weight of a 7 ton crane, required to lift the units, it was deemed too much of risk to undertake any work without the slabs and voiding remediated.

Of importance was also the need to keep dust generation during any remediation works to an absolute minimum, as any significant airborne dust has the potential to cause 'shorting' of electricity and disruption to the power being distributed via the grid.

Customer Alternatives

The only alternative option available to the client would have been to pump grout into the voids, but this would have rendered the site unusable, hindering electricity supply, for as long as three weeks whilst the grout sealed. There was also the uncertainty of the voids – pumping grout into them blindly without understanding the extent of the void, the risk of grout leaking out was too great.

Geobear's geopolymer solution, being an expanding resin, would self-seal any 'leaks', preventing the geopolymer from running away, as would have been the case with grout.

Why Geobear?

Geobear was selected to undertake the work due to the known ability of its geopolymer to solve the void filling issues effectively and without significant disruption. Geobear was also able to work within the substation building itself, creating little or no dust as a consequence of its actives and any dust that was created could be easily damped down during work.