## Key Issues

Key issues for the project related to its site location next to residential uses and a primary school. Local concerns included potential health risks associated with electromagnetic radiation from the substation, its potential massing, proximity to adjacent buildings, and lack of perceived tangible benefits to the community.

Prior to this project, Islington Council had approved a smaller head house scheme for NG on around a third of the site area. When consulted on the new substation scheme on a larger site, the loss of existing housing was required to be mitigated by provision of a new housing scheme. Space requirements therefore demanded consideration of innovative design solutions to ensure best “fit” with the surrounding area, as well as minimising local impacts of noise, visual intrusion, and sunlight and daylighting effects. The substation part of the scheme was a sensitive issue to some in the local community and therefore its design, appearance and community benefits were of particular importance.

## Purpose of the project

National Grid owns and operates the high voltage electricity transmission network in England and Wales. The London Power Tunnels (LPT) project is an asset replacement programme to enable upgrading of the ageing London electricity cable network to meet future demand in the region. New underground cable tunnels will be constructed and new connecting 400kv substations at grade are required, including one at Highbury in Islington Council area.

## Description of the project

The new 400kv substation, services building, residential block and commercial units are to be constructed on land formerly occupied by an apartment block, car wash and pub. Permitted development rights had allowed excavation of a shaft and spur tunnel to connect to the main cable tunnel being built beneath the A503. The site is adjacent to a busy road (A503), and bordered by quieter residential streets with relatively recent apartment blocks and a Grade 2 listed primary school.
Lessons learnt

Lessons learnt relate largely on the need for early consultation on the scheme design. The scheme underwent numerous design modifications following pre-application meetings with Islington Council to address issues over massing and perceived harm over such land uses adjacent to residential areas, and the need to retain an active street frontage with commercial uses. Formal written documentation from consultees is essential to ensure design-related issues can be addressed.

Public consultation on the emerging design with explanatory material with respect to site constraints and opportunities in particular helps people to understand design challenges that the project team face and how they are best being met. This is preferable to presenting numerous scheme options without providing justification for each design option. Following pre-application responses from Islington and public consultation on an earlier design, a second public consultation provided the opportunity to show what innovative design responses had been incorporated.

Lessons learnt cont.

Concerns over EMFs were addressed through optimized cable routes, resulting in levels of EMFs at a fraction of those required in government guidelines. The design mitigation included: significantly reducing massing of the substation through internal reorganisation of the substation cooling system, artificially lowering the ground level of the building footprint, and providing green roofs on the substation and other buildings. A particularly innovative sustainable design solution to reuse waste heat from the substation transformer to provide heating for the nearby primary school exemplified how waste emissions could be utilised to benefit the local community. The design iterations and an understanding of the design evolution taking account of local authority and public feedback played a significant part in the overall success of the project and the EIA that was undertaken.

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