

## CASE STUDY

# Victoria Embankment Gardens, London, UK: Ground investigation in high-profile, restricted public space



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Thames Tideway Tunnel Ltd commissioned Structural Soils Ltd (an RSK company) to construct a 75-m-deep borehole within a public park alongside the River Thames in Central London.

The Thames Tideway Tunnel is a major new sewer urgently needed to protect the tidal River Thames from increasing levels of pollution. The purpose of the borehole was to provide detailed information on the ground, groundwater and contamination conditions with particular reference to water quality for the design and construction of the scheme.

### The site

The Victoria Embankment Gardens are part of a chain of public spaces along Victoria Embankment and were designed by Sir Joseph Bazalgette, the 19th-century civil engineer who devised the sewerage scheme for London that is still largely in use today. Structural Soils carried out work in the Whitehall Gardens. The gardens, which opened in 1865, contain several Grade II listed statues and well-maintained lawns and flowerbeds. Recent improvements to the gardens include the installation of high-quality resin footpaths.

### The project and the site-specific challenges

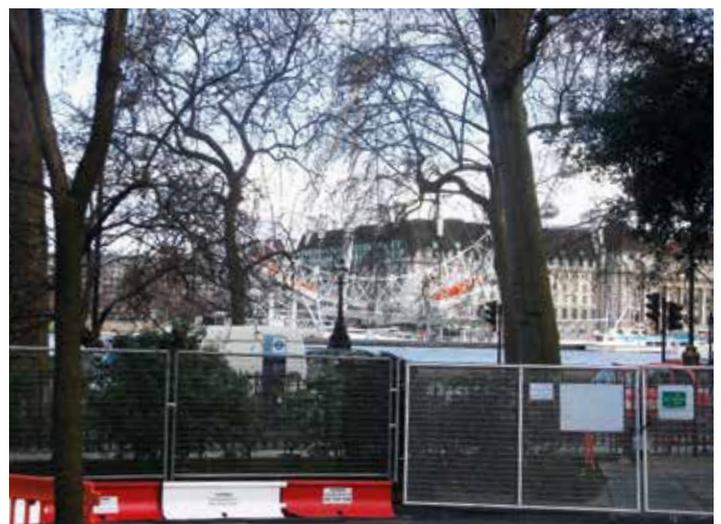
Protecting the safety and wellbeing of the public was, as always, of the upmost importance. An appropriate site hoarding system was selected and installed to secure the site. Ground protection was laid throughout the working area.

All plant and equipment entering or leaving the site had to do so via a pedestrian gate on the footpath alongside The Embankment, a busy red route road running alongside the River Thames. This equipment include a Land-Rover-towed, 8-m long, cable percussion drilling rig, an 8-t, 2.5-m-wide, tracked, rotary drilling rig and various tools, other equipment and materials. Site welfare was provided using a mobile welfare van.

Structural Soils prepared a site access and delivery plan. Owing to the particular site restrictions, major plant movements in and out of the gardens were completed during night shifts using traffic management and a temporary lane closure on The Embankment. Waste water produced by the drilling operations was pumped from the site and taken away by tanker in carefully managed stages.

The borehole, which was started using cable percussion techniques, was extended to the design depth using wireline rotary coring techniques and proved the usual London sequence of soils and finally chalk. The site was returned safely to public use on completion of the work.

Careful assessment of the particular site limitations and hazards, considered planning and design of a site access and delivery plan, and effective implementation and adherence to that plan were key to the success of this project.



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