



Geo-Environmental

# Supporting Rail Infrastructure

- Site Risk Assessment
- Environmental Consultancy
- Geotechnical Consultancy
- Remediation and Validation

Geo-Environmental Services is an International Geotechnical and Environmental Engineering Consultancy, part of the Geo-Environmental group of companies. Our consulting engineering team consists of Degree and Masters qualified consulting engineers, and include; Chartered Geologists, Chartered Environmentalists, Chartered Scientists. This experience is backed up by our use of the latest technology to support our investigations, a fully integrated management system, a range of health and safety accreditations and our membership of a range of industry bodies.

Geotechnical and environmental engineering is essential to the development and operation of a railway system. Most railways are built on the ground, and run for much of their length within or on geotechnical structures such as cuttings and embankments. The principles of soil mechanics, which underlie the practice of geotechnical engineering, may equally be applied to a ballasted trackbed. Furthermore, the industrial heritage and high usage of our railway network means that land and water contamination may be present or occur for a wide range of reasons

- Assessing the geotechnical ground conditions to evaluate ground conditions and provide design parameters or design solutions for stable embankments and cuttings, pads and footings for heavy plant used during construction, pile designs for bridges and viaducts, as well as trackbeds.
- Assessing the environmental ground conditions to evaluate the need for any remediation methods to avoid mobilisation of contaminants (for example: many older rail sites used asbestos cement and where this is identified special handling needs to be considered, there may also be historical chemical or fuel spillage, leaking fuel tanks, engineering landfills and other buried waste, coal, ash and clinker deposits).

[www.gesl.net](http://www.gesl.net)



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# Borough Viaduct | Case Study

## Services Supplied on this Project:

- Deep Cable Percussion Boreholes
- Rotary Boreholes
- Boretrak Verticality Testing
- Window Sampling
- Dynamic Probing
- Concrete/Masonry Coring
- Deep Hand Excavated Trial Pits
- Form C

## Considerations:

- Health and safety plans
- Public safety and Stakeholder communications
- Utility scanning and Enclosed spaces
- Traffic management and Trackside working

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## The Project

Geo-Environmental has undertaken a comprehensive ground and structural investigation for a new bridge and viaduct structure which forms part of the £5.5bn Thameslink Programme. The site works required intrusive investigations in busy public spaces, which included Borough Market, Southwark Street and Railway Approach (leading to London Bridge Station). With such a complex project Geo-Environmental had to work with a wide range of stakeholders which included: Network Rail, Skanska, TfL, Atkins, Museum of London, Planning Authority, and Borough Market.

## Expertise

Due to the complex nature of the site investigation and the challenging working environment, investigative method required adaptation whilst on site in order to deliver all of the required objectives for the client. Geo-Environmental's experienced team was able to advise the client on the most suitable techniques and implement them seamlessly into the scope of works, thereby avoiding any undue delays to the project.

Geo-Environmental had to comply with both the Main Contractor (Skanska) and the client's rigorous Health and Safety requirements. Geo-Environmental was able to provide in a timely fashion all the required documentation including Work Package Plans, Task Briefings and Form Cs (for temporary works design).

## Benefits

Throughout the project Geo-Environmental provided the client with a personal service and in a complex working environment, this approach produced a successful outcome under challenging conditions. Geo-Environmental professional and flexible approach to the works together with effective communication with the key stakeholders played an important role in the successful delivery of this important transport link in time for the 2012 Olympics.