



Geo-Environmental

# Supporting Utility 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.

From testing and monitoring earthworks for a reservoir, to investigating the ground conditions for a subsurface cable installation, we use a range of in situ and ex situ methods and techniques. Field and laboratory testing and analytical/computer methods are used to identify, evaluate and resolve geotechnical design challenges and mitigate environmental risks.

- Assessing the geotechnical ground conditions to evaluate the feasibility of various anticipated construction methods such as open-cut trenching, pipe bursting, pipe reaming, bore and jack tunnelling, or micro-tunnelling, etc. (for example; micro-tunnelling is impacted by hard clays or dense sands and gravels that contain cobbles or boulders).
- Assessing the environmental ground conditions to evaluate the need for any remediation methods to avoid mobilisation of contaminants (for example: many older utilities used asbestos cement and where this was identified special handling needs to be considered) and, in the case of water utilities, the need for installing barrier pipe to prevent the permeation of ground contaminants into the water supply.



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# Hardham Reservoir | Case Study

## Services Supplied on this Project:

- Trial pitting
- Hand pitting
- Cable percussion boreholes
- Dynamic probing
- Dynamic cone penetrometer testing
- Standpipe installation
- Cassagrade piezometer installation
- Vibrating wire piezometer installation
- Nuclear density testing
- Chemical analysis
- On site technical advise
- Regulator Client liaison

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## The Project

Geo-Environmental was appointed by Barhale Trant Utilities (BTU) to undertake the ground investigation for the Hardham Water Resource Project. Various investigative techniques were employed within the existing Hardham Water Supply Works, along the route of the pipeline and temporary access road, storage pond and other associated structures.

Geo-Environmental was again appointed by BTU under a second phase of work for ongoing monitoring and testing of the earth-works associated with the new storage pond before, during and after construction. Monitoring points were installed in the vicinity of the storage pond, whilst in situ and laboratory based testing was undertaken as the works progressed.

## Expertise

From the first stages of the site work Geo-Environmental worked in partnership with both the Client and the design team to deliver the required information within a tight time-frame during a period of exceptionally poor climatic conditions. Geo-Environmental also worked closely with land owners and other interested parties in what was, a locally sensitive scheme.

## Benefits

Geo-Environmental received excellent feedback from the Client as site works were underway within five working days of receiving instruction and critical information was presented same day, thus enabling design teams to finalise their plans without delay.

Geo-Environmental worked in partnership with the contractor, designers and utility company to deliver the required information within a tight time-frame and within the agreed budget despite the remote locations, difficult access and adverse weather conditions.