



**STRUCTURAL  
SOILS LTD**

# **GROUND INVESTIGATION AND TESTING SERVICES**





**Structural Soils** is an award-winning geotechnical ground-investigation company that provides a wide variety of investigation techniques, from initial desk studies to multifaceted and complex field-based studies to establish the geotechnical and geoenvironmental characteristics of a site.

# GROUND INVESTIGATION

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**Structural Soils** is an award-winning geotechnical ground-investigation company that provides a wide variety of investigation techniques, from initial desk studies to multifaceted and complex field-based studies to establish the geotechnical and geoenvironmental characteristics of a site. The company aims to provide maximum self-delivery with minimal reliance on subcontractors, which gives greater control of health and safety; quality and competency; resources and lead-in times; programme and deliverables; and cost.

The company operates one of the largest fleets of company owned, maintained and operated drilling rigs, field plant and associated equipment in the UK. This enables investigations to be designed to suit the client's precise requirements and obtain field data and information in the safest and most-efficient manner while having minimum impact on the environment. This adaptable and client-tailored approach lends itself well to delivering site investigations across all environments and circumstances, from small-scale investigations to larger, more complex ones for major civil engineering works.

## Our services

- **Cable percussion drilling:** Cable percussion drilling is one of the most widely used techniques for investigating overburden, superficial deposits and some weak rocks.
- **Rotary drilling:** Rotary drilling techniques are used when boreholes are required in bedrock. Both openhole and cored boreholes can be formed using a variety of equipment, barrel and drill bit configuration and flush media depending on the anticipated geology and clients' requirements.
- **Dynamic sampling:** Dynamic or window sampling is carried out using either track-mounted percussive samplers or hand-held equipment. Window sampling is suited to restricted access sites and limited-depth contamination investigations.
- **Trial pitting:** We use a variety of methods from hand-dug pits to machine-excavated trenches. Trial pitting is carried out to a maximum depth of 4.5 m with standard excavation plant and, depending on soil conditions, is suitable for most low-rise developments where traditional shallow foundations are envisaged.
- **Concrete coring:** Concrete coring is the process of drilling or cutting through concrete floors, walls and ceilings, usually in a restricted environment. Cores may be obtained in many orientations and diameters.
- **Factual and interpretive reporting:** Following desk-based and intrusive works, site monitoring and laboratory testing, we provide factual or interpretive reports.
- **Constrained access capability:** Our low-headroom rotary rig (2.55 m minimum height) can fit through access points of more than 1.20 m and can undertake standard penetration tests. We use electrically powered cable percussive and window sampling rigs with low headroom masts, if required. Our modular low-headroom cable percussive rigs can fit through access points of more than 0.7 m.
- **Low-pressure rigs:** Our standard cable percussive and rotary rigs have been mounted on low-pressure track vehicles (2 psi weight distribution) to enable working in soft ground conditions.
- **Other services:** If required by the contract, our parent group RSK can offer several complementary services, such as geophysics, ecology, archaeology and service clearance.

# SOILS, ROCK AND MATERIALS TESTING

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**Structural Soils** has been undertaking laboratory testing on soil and rock samples for over 50 years. We have four UK laboratories in Bristol, Hemel Hempstead, Tonbridge and Castleford, all of which operate under a UKAS-accredited multisite status. The Bristol laboratory is the largest of these and is one of only a few geotechnical laboratories in the UK to be licensed by the Department for Environment, Food & Rural Affairs to import soil and rock from all over the world.

## Our services

- **Routine soil testing:** Our laboratories have extensive soil testing capabilities that include tests such as plasticity, particle size, compaction, triaxial compression, consolidation, shear box, ring shear and particle density.
- **Advanced soil testing:** We have a stress laboratory for carrying out consolidated drained and undrained triaxial compression and triaxial cell permeability. We are adding more high-pressure cells and equipment to provide a better service for mining and offshore clients that require testing at higher than standard pressures.
- **Rock testing:** We offer UKAS-accredited rock testing capabilities that include water content, density and porosity, abrasivity, swelling, point load index, uniaxial and triaxial compressive strength, deformation and elastic properties, P- and S-wave velocity, direct shear and indirect tensile strength testing.
- **Materials testing:** Our Castleford laboratory offers a range of aggregate testing to BS 812 and BS EN 933. They can perform a comprehensive range of UKAS-accredited aggregate and concrete tests, including chemical and petrographical analyses.
- **Standards and accreditation:** Our laboratories perform most soil testing to BS 1377: Parts 1–9:1990, “Soils for civil engineering purposes” and rock testing to in-house methods based on ISRM “Suggested methods for rock characterization, testing and monitoring” and the relevant ASTM standards. We have recently introduced the new ISO 17892 standards for water content and density analysis.
- **Red laboratory:** Our red soil and materials laboratory tests asbestos and hydrocarbon-contaminated soil.

# IN SITU TESTING

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**Structural Soils** provides a broad range of in situ tests. Our trained and experienced technicians are typically available for next-day on-site deployment UK-wide, and can provide information and advice based on their in-depth industry experience. Our policy of rapid response and a very quick turnaround on processing results will support you in meeting your deadlines.

## Our services

- **California bearing ratio (CBR) testing:** A penetration test for evaluating the mechanical strength of road subgrades, which is usually carried out on-site using a vehicle-mounted machine
- **Sand replacement density testing:** A method for determining the dry density of undisturbed or compacted soil and granular materials by sand replacement
- **Plate bearing testing:** A method for testing the bearing capacity of the ground to determine settlement under load on soil, fill and sub-base. The readings can also be used to calculate other values, including an equivalent CBR on materials too coarse for standard CBR tests.
- **Nuclear density gauge testing:** A test to establish the moisture content, wet density and dry density of soil and granular construction materials
- **Soakaway and infiltration testing:** An infiltration test (permeability) to assess the drainage capabilities of any given ground material. Soakaway testing involves excavating a trial pit of sufficient size to represent a section of the design soakaway. The pit is then filled with water several times in quick succession while the rate of seepage is monitored.
- **Electrical resistivity testing:** A measure of how much the soil resists the flow of electricity. It is a critical factor in design of systems that rely on passing current through the near surface. We use this extensively on a variety of sites.
- **Geotechnical and materials testing:** We operate four UK geotechnical laboratories in Bristol, Castleford, Hemel Hempstead and Tonbridge. Soil, rock and aggregate are tested in accordance with up-to-date standard methods. All four laboratories are UKAS accredited. The tests include effective stress, triaxial testing up to 100-mm diameter, shear box testing up to 300 × 300 mm and ring shear testing.



**Structural Soils** has been undertaking laboratory testing on soil and rock samples for over 30 years. We have four UK laboratories in Bristol, Hemel Hempstead, Tonbridge and Castleford, all of which operate under a UKAS-accredited multisite status.



**8**  
OFFICES



**4**  
UKAS-  
ACCREDITED  
LABORATORIES



A GLOBALLY RECOGNISED PARENT COMPANY

## Accreditations



RISQS B2 categories  
qualified by audit  
product codes

### Product codes

04.18.01 SER  
12.12.01 SER  
12.12.02 SER  
12.12.04 SER  
  
12.12.05 SER  
12.12.07 SER

### Product names

Intrusive  
Underbridges  
Overbridges  
Bridges, culverts  
and retaining walls  
Tunnels  
Earthworks



## Staff qualifications

Chartered Geologists and Chemists / Register of Ground Engineering Professionals (RoGEP) / Site Supervisors/Management Safety Training Schemes (SSSTS and SMSTS) / Construction Skills Certification Scheme (CSCS) / NVQ Land Drilling / NEBOSH / Personal track safety (PTS) / hand trolley operator / Industry Common Induction (ICI) / OLEC 1

## Resources

Qualified ground engineers, drilling crews, site and laboratory technicians and labourers  
A number of our engineers and operators are personal track safety trained  
In-house Sentinel coordinator  
In-house drilling rigs, including ABS, WS, DP, CP and rotary  
Provision of technical information and data sheets, risk-assessment method statements and documentation to principal contractor level



## CONTACTS

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