

GEOTECHNICAL SOLUTIONS

Geotechnical investigations and monitoring can help clients identify potential hazards such as landslides, soil liquefaction, and sinkholes, and allow them to make informed decisions to mitigate these risks.

A business solutions partner of choice



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WHY PARTNER WITH US?

Customised, innovative and real-world relevant research and advisory services driven by scientific evidence.

Access to comprehensive knowledge resources from the University of Pretoria.

Personalised services to achieve unique business and professional development goals.

Innovative solutions for targeted training and businesses decisions support insights.

An extensive international footprint spanning six continents.

Leading domestic and international industry experts and thought leaders.

**FOR MORE INFORMATION,
CONTACT US TODAY.**



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Our experts conduct geotechnical investigations using an array of techniques including soil samples to determine the typical strength, stiffness, stability, and permeability values of the site's soil and sub-surfaces to inform risk mitigation planning.

Our geotechnical solutions include:

INDEPENDENT SITE INSPECTION

To ensure quality results, it is critical to conduct independent site inspections and review geotechnical soil tests. As a result, our engineering team performs independent wall and tailings inspections on a regular basis for geometric compliance audits and dewatering operations. These are often carried out in collaboration with the client's resident surveyor and engineers.

SOIL WATER RETENTION CURVE

Rapid soil-water retention curve results obtained with high-capacity tensiometers are used to determine the stability of soil structures for earth dams, tailings dams, and agricultural purposes (soil moisture for crops). This explains the relationship between pore water suction and soil moisture content, which is critical for understanding several processes that control unsaturated soil behaviour. It determines the water flow, water storage, and shear strength of the soil against moisture content.

TRIAXIAL TESTING

Drained and undrained Triaxial tests evaluate the shear strength of soil and rock samples for large scale infrastructure, mining, and construction projects, as well as pore water measurement in determining contractive behaviour – giving clients confidence to proceed with design and construction decisions.

SEISMIC HAZARD ANALYSIS

Expert advice, opinions and analysis on all aspects of seismic hazards, in particular;

- Assessment of the potential impact of hydraulic fracturing on seismic hazard and loss.
- Impact on loss estimation for buildings and critical infrastructures caused by seismic tsunami or hail hazards!



GEOTECHNICAL CENTRIFUGE MODELLING

Investigate the strength, stiffness, and capacity of sand and rocks used in critical infrastructure such as bridge, building, embankment, and slope foundations, as well as their stability, using advanced physical modelling techniques.

PROPRIETARY WATER LEAK DETECTION

Enterprises UP's innovative methodology detects water leaks in a reticulated pipeline system in real time. The client receives advice on how to incorporate the proprietary methodology and technologies into the planning and design phases of any water network expansion, upgrade, or maintenance project. Once the system is in place, our team can:

- conduct regular network surveillance on behalf of the client to determine whether leakages occur; and
- assist with data interpretation to aid in optimised network leak detection in self-managed client scenarios.

PIEZOMETER MONITORING

Customised piezometer designs and installations, as well as automated piezometer reporting systems based on user-defined parameters such as warning levels and other geotechnical inputs.

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