WE GET THE BIG PICTURE

HGI is an innovative, solution-oriented geophysical consulting company and service provider to the environmental, engineering, ground water, mining, oil & gas, and natural resource exploration industries. We specialize in the application of 3D geophysical methods for time lapse subsurface characterization and monitoring of fluid flow through geologic materials.

Innovation, quality of work, detailed focus, and flexibility are hallmarks of HGI's service. Our ability to create custom-fit solutions based on individual client needs makes us an industry leader in the field of geophysics and geosciences.

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hydroGEOPHYSICS

"Geophysical methods provide a wealth of information about the physical properties of the subsurface"
Dr. Nigel Crook Senior Geophysicist - hydroGEOPHYSICS

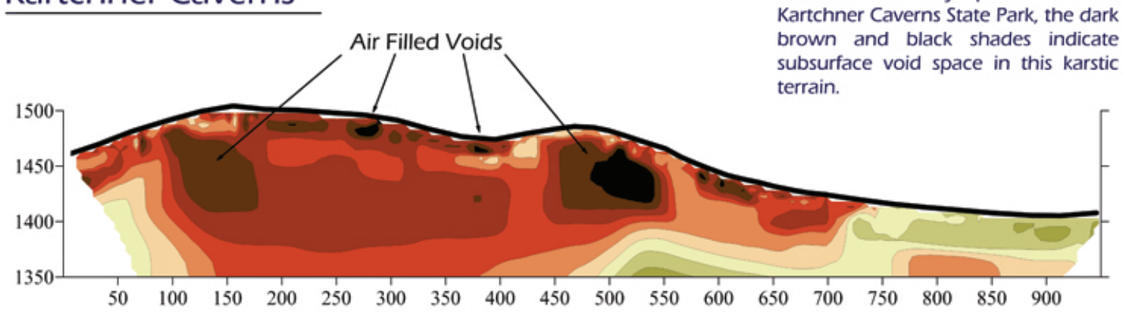
Subsurface Imaging
Innovative Solutions

Geotechnical Geophysics?

Using geophysical characterization methods for geotechnical problems has become a critical and increasing part of geotechnical engineering. Geophysical methods and technologies support geotechnical engineers with detailed information that aid in design, planning, construction, and operation of structures on or below the earth's surface. A geophysical survey is often the most cost-effective and useful means for obtaining subsurface geotechnical information.

HGI has been applying a variety of geophysical techniques to enhance engineering and construction projects for over 18 years. Whether it is to understand the physical properties of subsurface materials, identify geologic hazards, or foundation studies, the mapping of geophysical properties can provide a much greater level of confidence to your geotechnical project.

Kartchner Caverns



Electrical resistivity profile in the Kartchner Caverns State Park, the dark brown and black shades indicate subsurface void space in this karstic terrain.

The Geophysics Advantage

Geophysical methods have key advantages when related to conventional geotechnical investigations. These technologies can be applied over large areas, can explore large soil volumes, are non-intrusive, and can identify material properties, material boundaries, and subsurface contrasts in space and time. Additional advantages include site accessibility and portability of geophysical equipment, enabling data acquisition in areas inaccessible by traditional geotechnical investigations such as heavily forested spaces, steep slopes, or ecologically sensitive areas.

There are many geophysical tools available for geotechnical site investigations, including electrical resistivity, induced polarization (IP), ground penetrating radar (GPR), gravity, electromagnetic induction, magnetics and seismics. Each of these methods investigates subsurface conditions and materials to determine physical, mechanical, and chemical properties to evaluate the stability of natural and anthropogenic subsurface conditions. This information is used to design earthworks, enhance foundations, assess risks, and monitor site conditions.

Geophysics Solutions for Geotechnical Challenges

Estimating rippability	Dam & levee integrity	Identifying shear zones & faults
Locating rebar and pipes	Void & karstic mapping	Mapping foundation integrity
Determining water depths	Depth to bedrock	Evaluating landslide hazards
In-situ rock properties	Concrete inspection	Shear wave velocity measurements

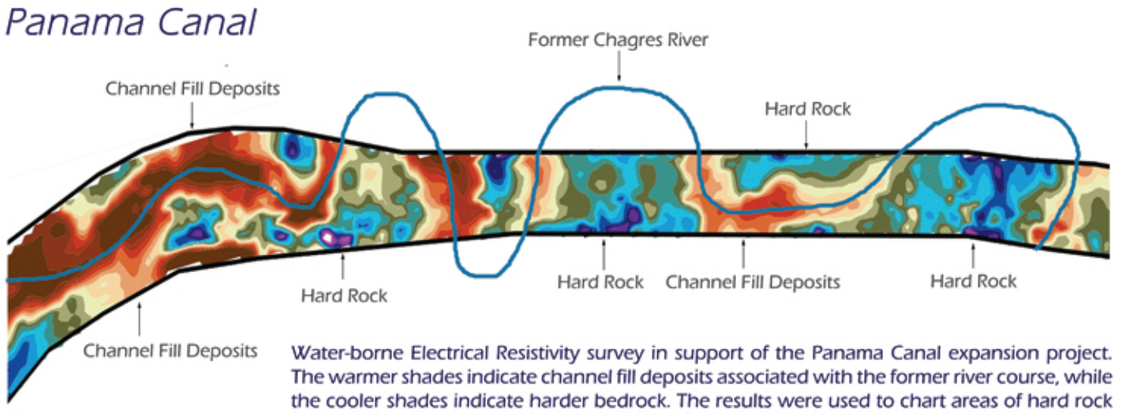
Accuracy

Performance

Solutions

Our geophysical and geological teams have a strong track record in developing, managing, and completing projects that target key geotechnical risks.

Panama Canal



Water-borne Electrical Resistivity survey in support of the Panama Canal expansion project. The warmer shades indicate channel fill deposits associated with the former river course, while the cooler shades indicate harder bedrock. The results were used to chart areas of hard rock which required drilling and blasting before dredging versus the fill deposits which could be directly suction dredged.

Our Clients

Clear Creek Consulting · ARCADIS · Freeport McMoRan · MWH · Cotter Corporation · Brown & Caldwell · SRK · Los Alamos National Lab · CH2M Hill · Montgomery & Associates · Tetra Tech · URS · KGHM · NASA · Newmont Mining · Kinross Gold · Rio Tinto · Pacific Copper