

## Geophysical Application

### Why Use Geophysics?

Geophysics is fast, non-intrusive, and often improves resolution for project investigations.

Geophysics applies the principals of physics to measurements of the earth, or more recently structures. The use of geophysics permits a “peak” inside to see what is going on. Geophysical methods are applied to engineering, environmental, and groundwater investigations.

#### **Improved Resolution**

The use of geophysics can provide a means to see lateral and vertical changes. Did you ever wonder what is happening just beyond a well or between two borings? Geophysics can be used to measure lateral and vertical changes. The density of geophysical measurements can identify changes that would be too costly with drilling methods.

#### **Fast**

Geophysical data can be collected relatively quickly, much quicker than common drilling methods.

#### **Non-Intrusive**

Geophysical measurements can be made from the ground surface, or from within an existing well or borehole. This is extremely beneficial for environmental investigations when there is a need to minimize human or environmental exposure to hazardous materials.

| <b>Geotechnical Applications:</b>                          | <b>Environmental Applications:</b> | <b>Structure Applications:</b>         |
|--|------------------------------------|--|
| General soil/rock/hydrologic stratigraphy/characterization | UST Locating                       | Seismic Site Classification (Vs30)     |
| Location/dimensions of organic deposits                    | Utility Locating                   | Rebar spacing, cover, size             |
| Bedrock assessment (depth, topography, rippability)        | Water table identification         | Precast Concrete Box                   |
| Buried structures (boulders, utilities, fill, wells)       | Bedrock fracture                   | Beams (Number of strands, cover, size) |
| Cavity detection (karst & abandoned mines)                 | Preferential permeability          | Foundation                             |
| Sulfide Assessment   |                                    | Determination                          |
| Sand & Gravel prospecting                                  |                                    |  |
| Slope failure assessment                                   |                                    |  |
| Underwater/Marine surveying                                |                                    |  |
| Contaminant detection                                      |                                    |  |
| Liquefaction Potential                                     |                                    |  |