

## Benefits of Conducting Geophysical Surveys for Subsurface Geologic Investigations

- Continuously Profile Subsurface Geologic Conditions- Profile Layer Thicknesses, Bedrock Highs, Channels, Fault Planes, and Other Geologic Structure and Stratigraphy- Integrate Borehole Control Directly on Profiles.
- Estimate Depth to Important Geologic Interfaces- Provide Initial Estimates of Depth to Bedrock Surface, Groundwater, and Economic Units- Conduct Pre-Drilling Subsurface Investigation.
- Map Geologic Structures Beneath Site- Use Multiple Seismic Reflection Profiles to Image Subsurface Fault Planes and Map Trend of Faulting.
- Select Best Locations and Depths for Detailed Subsurface Exploration- More Accurately Position Cone Penetrometer Tests (CPTs), Exploratory Boreholes, Wells, and Fault Trenches.
- Obtain Subsurface Data at Difficult Sites- Obtain Data on Ground Terrain Prohibiting Drill Rig Access and Sites with Environmental and Logistical Issues.
- Conduct Real-Time Subsurface Investigation- Perform In-Field Evaluation of Seismic Refraction, Ground Penetrating Radar, Magnetics, and Electromagnetic Terrain Conductivity Profiling.
- Measure In-Situ Properties of Earth Materials- Electrical Resistivity/Conductivity, Shear Wave Velocity ( $V_{s30}$ ), and Compressional Wave Velocity (Rippability).
- Reduce Overall Cost of Subsurface Investigations- Integrate Geophysical Data to Limit Number of CPTs, Exploratory Boreholes, and Wells.