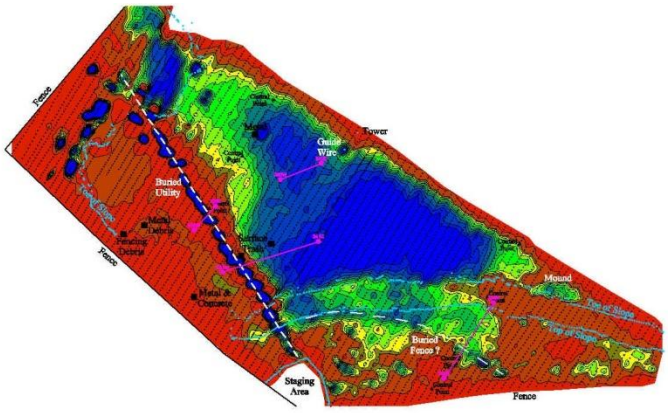
Quality Geophysics

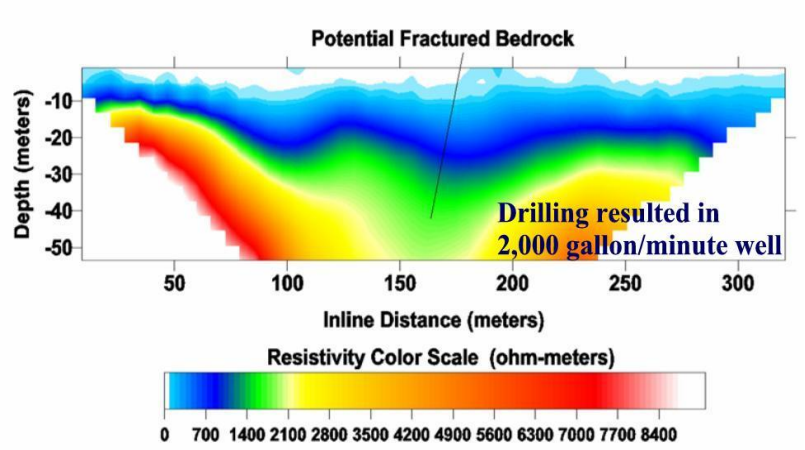
Geophysical Application

Hydrogeology

Geophysics provides insight into subsurface conditions before borings or wells are drilled. Use of this non-destructive test method permits an assessment of the physical properties of the subsurface. When concerned about shallow groundwater conditions, monitoring well locations can be defined using a reconnaissance geophysical survey. This reconnaissance survey establishes lateral conditions across a site.



When electromagnetic terrain conductivity (EM) surveys are performed, the results are often presented in map-view. Lateral variations of conductivity can be interpreted within the context of high permeability material (sands and gravels) verses low permeability material (high clay content) or shallow bedrock (thin soils) verses deep bedrock (thick soils or deeply weathered rock material).



When dealing with fractured bedrock, there is often a need to identify zones of preferential permeability. These zones may represent increased fracturing or faulting, weathering, or changes in properties due to the presence of groundwater. These are often be indentified based on changes subsurface velocity or resistivity. Seismic and resistivity information are commonly presented in cross-section fashion.

Borehole geophysics provides detailed measurements within a borehole, or between a borehole and the ground surface. These measurements are often used to develop structural and hydrologic information about a boring, lithology, or to provide recommendations for piezometer screen locations based on insitu aquifer flow between fracture zones.