

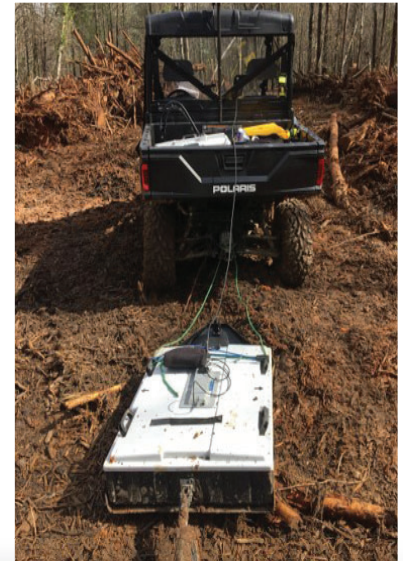
GROUND PENETRATING RADAR



Ground Penetrating Radar (GPR) systems are used for both geologic and infrastructure mapping and consist of a transmitting antenna and a receiver antenna. The transmitter pulses an EM wave at a frequency dependent on the antenna selected. Changes in the dielectric properties in the ground or other materials result in a reflection at the boundary and is received, recorded and viewed in real time unlike many other geophysical methods.

A range of antennas are used based on the application and the target resolution required. Lower frequency antennas are used for deeper penetration for applications such as bedrock profiling or other stratigraphic mapping. Mid-range antennas are often used for detection of utilities, archaeological and cultural artifacts, detection of shallow landfills, pits and graves. The highest frequency systems are used to map concrete thickness, rebar and post tension configuration, asphalt thickness, and voids.

GPR systems are deployed as single-channel or multi-channel arrays and are capable of covering a large area. They can also be towed by a vehicle or ATV at posted highway speeds. Robust processing software creates 3D images of subsurface features such as utilities, archaeological ruins, rebar or other structural members in concrete, graves, and geologic features such as stream or alluvial channels.



APPLICATIONS

- Depth to bedrock
- Mapping of soil stratigraphy including clay, sand, gravel deposits
- Imaging of buried foundations or other structures
- Cultural and archaeological ruins or artifact mapping
- Utility mapping in 2D or 3D
- Underground storage tank detection
- Karst and void detection
- Groundwater exploration
- Asphalt and concrete thickness determination
- Hydrographic bathymetric and sediment mapping

