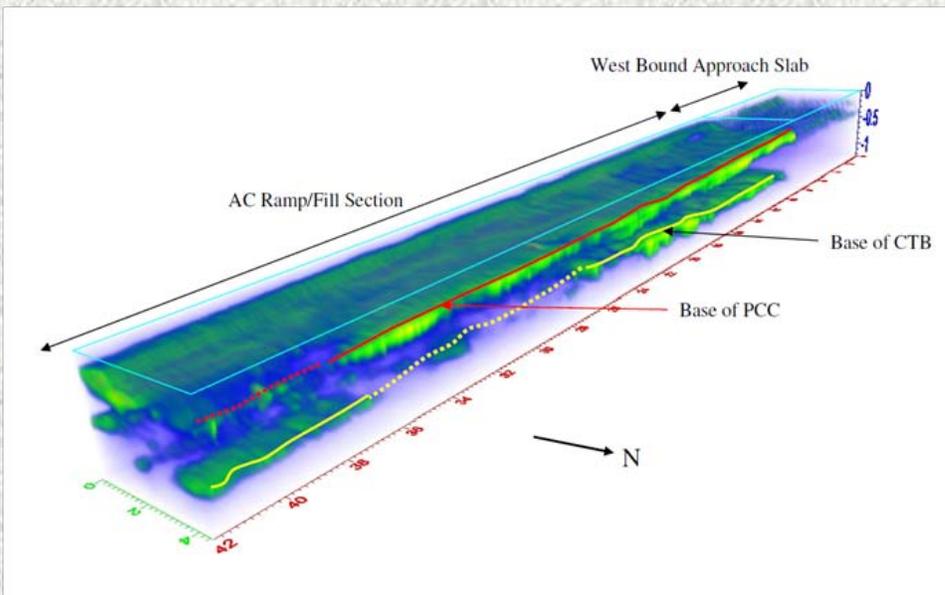


# Geophysics and Geology

## Ground Penetrating Radar

Ground penetrating radar uses high-frequency electromagnetic pulses to create profiles of the shallow subsurface. Both high-resolution profiles and plan maps may be produced with this method. 3-D renderings may also be created. Depths of investigation can range to tens of meters, but very shallow investigation depths, three meters or less, are more common.

The most beneficial uses of GPR are for investigation of very shallow features, such as underground utilities and pipelines, pavements, rebar and void detection in concrete. Under the proper conditions, GPR can also be used for deeper geologic investigations, such as bedrock mapping and water table delineation, and may also be used in fresh water to map scour holes and water bottom depth.



Because GPR attenuates rapidly with depth in the presence of conductive materials, such as clay and saline pore fluids, its use is best suited for dry, sandy soils and rock. Site-specific evaluation of the feasibility of GPR for any particular site is always required.

Example of 3D GPR animation available at the following link (opens external application):

[10-SJQ-5N-2.45\\_500.avi](#)

File size 22.5 MB  
Windows Media Player-compatible

More information on ground penetrating radar is available from the Federal Highway Administration at the following link:

<http://www.cflhd.gov/resources/agm/geoApplications/SurfaceMethods/943GroundPenetratingRadar.cfm>