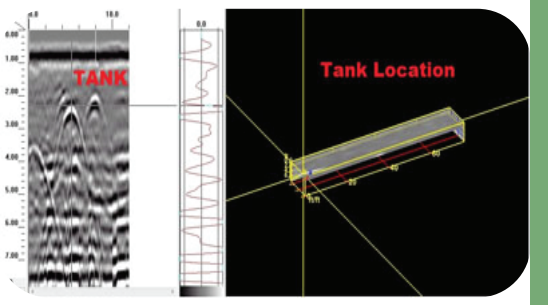
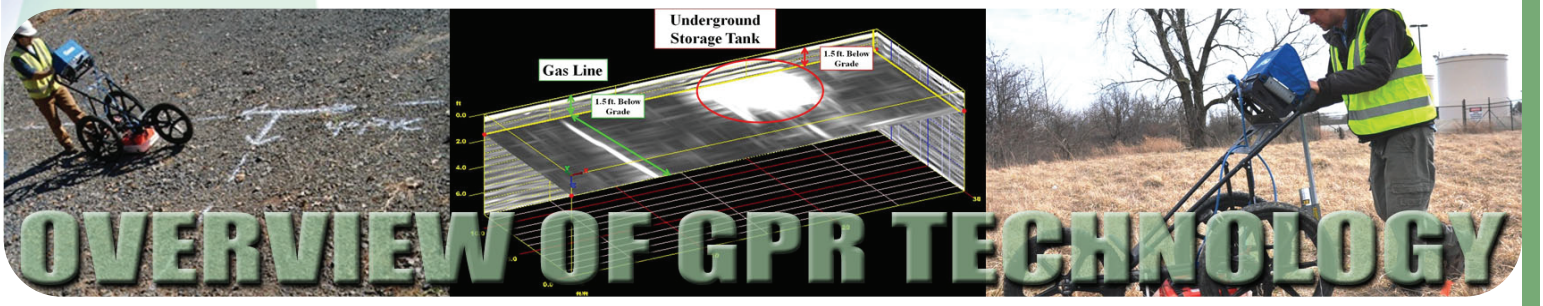
GREENSTAR
Environmental Solutions, LLC

The Environmental Problem Solvers





OVERVIEW OF GPR TECHNOLOGY

Greenstar offers reasonable half day and full day rates for GPR and EM scanning services.

For a free price quote email:

info@greenstarsolutions.com

Greenstar has the following certifications:

EDWOSB 8(m) under NAICS Codes: 541330, 541360, 541620 and 541690

Women-Owned Business Enterprise by the New York State Department of Economic Development

Disadvantaged Business Enterprise by the New York State Department of Transportation

Women-Owned Business Enterprise by the Dormitory Authority - State of New York (DASNY)

Overview of GPR Technology

Ground penetrating radar (GPR) is used during investigation and remediation of hazardous waste sites and many engineering applications. Of all geophysical techniques available it is the most highly used and successful for locating buried objects. GPR provides subsurface information ranging in depth from a few inches to several feet. GPR can be used to identify the location and depths of buried objects such as tanks, lines or utilities. It can also locate excavation boundaries, fill material, landfill boundaries and the top of shallow bedrock.

GPR uses a transmitter that emits pulses of high-frequency electromagnetic waves into the subsurface. The transmitter is attached to a small hand cart that is moved across the ground surface. The electromagnetic energy is reflected back to the surface antenna and is recorded and processed for visualization. Depth penetration of GPR is limited by attenuation and/or absorption of the transmitted electromagnetic (radar) waves into the ground. Typically, GPR can locate objects that are 1 inch in diameter for every foot of depth. For example a 4 inch diameter pipe can be located at 4 ft below ground or less. Linear objects, such as pipes or tanks show up as reflections on the GPR readout. Metallic or concrete objects, such as tanks or foundations, typically have strong reflections and can be located easily using GPR. Under optimal conditions GPR can identify changes in soil horizons or backfill boundaries, bedrock fractures, geological features, man-made buried objects, voids, and hydrologic features such as the water table.

GPR Results

GPR results provide a continuous display of data along a transect that is interpreted immediately while in the field. The real-time capability of GPR results in a rapid turnaround, and allows Greenstar to quickly evaluate subsurface site conditions. Three-dimensional views of subsurface conditions can be generated to illustrate site conditions or for site reports.

The best GPR results are obtained when the ground surface is flat, dry, and clear of any brush or debris. The quality of the data can be reduced by factors such as an uneven ground surface or buried debris in the soil. GPR can be used together with electromagnetic (EM) scanning which is highly sensitive to subsurface metal objects. EM is typically used to scan large areas for metal objects and GPR is used to pinpoint their location and depth. GPR and EM scans are often combined when looking for USTs, lines or metal objects such as buried monitoring well lids or manhole covers.

We Can Help

Greenstar owns state-of-the-art GPR, EM and radio detection equipment used to locate utilities, underground storage tanks and subsurface features. These technologies are noninvasive do not require excavation to accurately locate underground features. Greenstar specializes in utility marking, clearing drilling or excavation locations, underground storage tank locating, and 3D imaging of subsurface features. Greenstar has used GPR at many sites throughout the northeast and nationally. We own and operate GPR equipment have GPR trained specialists available to assist with your site needs.