Geophysical Site Clearance Technology

Geophysical Operations Cart - “G.O. Cart”

Subsurface Mapping Services
For more information [www.hgigroup.com]

HGI’s G.O. Cart Technology

The Geophysical Operations Cart (G.O. Cart) is a non-metallic platform used to house a variety of geophysical sensors, and is custom designed and fabricated by HGI. The sensors are synchronized to a Global Positioning System (GPS) and a head-up navigation system to accurately track the spatial location for incoming geophysical data. The G.O. Cart can be towed by an all-terrain vehicle (ATV) or pulled by hand, providing a platform which is adaptable to any terrain.

Electromagnetic Induction (EM)

The GeoPhase GEM-210 is a lightweight electromagnetic (EM) instrument, adapted for use on the non-magnetic G.O. Cart. The EM conductivity measurement is useful in detecting contrasting electrical properties in the subsurface, including variations in soil composition and moisture content. The in-phase portion of the EM measurement is highly sensitive to buried and non-ferrous metals and is therefore useful for locating shallow metallic targets such as well heads or buried drums.

Magnetic Gradiometry

A Geometrics, Inc. G-8550 dual-sensor gradiometer is also adapted for use on the non-magnetic G.O. Cart. Dual-sensor magnetometers (gradiometers) measure the gradient of the magnetic field, while single-sensor magnetometers measure total field. The system is highly sensitive to subsurface ferrous metal (such as buried steel infrastructure) and the vertical gradiometer measurements can provide target depths. The use of the two sensors on the gradiometer allows for nulling of the earth’s magnetic field, increasing target sensitivity.

The Big Picture

The G.O. Cart system allows for rapid data acquisition at high resolution and spatial accuracy through the synchronized GPS. The multi-sensor approach makes it possible to collect more data with less field time. HGI has successfully deployed the G.O. Cart in many types of field conditions and has rapidly covered areas up to thousands of acres. Other geophysical methods can provide similar results, but the G.O. Cart provides a cost-effective, high resolution, spatially accurate solution for large scale survey areas.

Combined magnetic and EM induction

Buried infrastructure response

Landfill delineation with magnetic gradiometry

Subsurface Imaging
Innovative Solutions