ELECTROMAGNETIC SURVEYS

Two of the most effective and most frequently used geophysical methods for site assessment are Electromagnetic Surveys (EMS) and Ground Penetrating Radar (GPR). They are quick screening technologies that produce a rapid characterization of a site. They can readily identify geophysical conditions, buried wastes and utilities and potential migration routes. EMS as with GPR should be utilized prior to more expensive traditional site assessment techniques such as drilling, since they can dictate the best location for borehole and monitoring well installation, as well as help in the remedial investigation to determine site remediation options.

There are a number of different Electromagnetic (EM) meters which can be used to quickly cover large areas with no surface contact necessary.

By recording responses to EM fields created by the instruments, these are ideal surveys to identify changes in the subsurface such as voids, storage tanks, large pipes, ground contamination, mine workings etc.

An EM31 will measure the conductivity of the ground to a depth of 5-6m, and will highlight a range of geological, archaeological and manmade features. All data is digitally logged and a GPS antenna can be added to accurately locate the survey area.

EM38's and RM15's apply similar principles with higher resolution and less depth penetration, meaning they are widely used in archaeological surveys looking at the top 1.5m of subsurface. The speed with which large areas can be covered means any necessary intrusive investigation can be planned, massively cutting down on time and cost.

EM61 surveys detect the presence of all ferrous and non-ferrous metals to a depth of 4-6m. Again a large area can be surveyed quickly, in some cases the equipment is towed behind vehicles and tied in to GPS to increase speed. This technique is often used as part of a UXO investigation, quickly providing 'clear' areas for excavation/piling etc.

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