LandScope Engineering Ltd

Underground Services and Utility Mapping

Whether our customers are planning a land purchase, designing a scheme or preparing to excavate a site they are comforted by the reassurance that LandScope has provided an understanding of what lies below. In addition to subterranean natural features we provide a service that maps man-made features - from primitive culvert and land drain systems to contemporary polyethylene gas pipelines. Statutory service data is often incomplete, inaccurate or in some cases non-existent which can be at best inconvenient or, at worst, dangerous.

Our underground infrastructure surveys are increasingly used during the project design stage so that appropriate measures are taken to avoid service conflicts and quantify the scope of any service re-alignment works.

Electro-Magnetic Location and Ground Penetrating Radar techniques are also used to confirm and complement existing as-built drawings and other records prior to development and excavation operations. LandScope's robust and thorough field procedure employed with the dual technology approach - EML and GPR - ensures that our customers benefit from the best available results. Various service levels are offered to meet most situations however we will always take time to design a campaign and deliverable specifically for a customer's need.

Applications Include:

- New Scheme and Development Design
- Utility Installations And Re-Routing - Conflict Avoidance
- Pre-Demolition Survey
- Land Remediation Survey
- Pre-Invasive Site Investigation - Eg. Boreholes
- Foundation Design - Eg. Lighting Columns, Sign Posts
- Contaminant Path-Way Survey

LandScope have invested in the best available electro-magnetic location, ground penetrating radar and positioning technology to ensure the highest possible accuracy is delivered to our customers.

Electro-Magnetic Location Survey

Electro-magnetic location, also known as radio location systems enable the surveyor to accurately locate, trace and map conducting (i.e. metallic based) services such as power cables, cast iron water and gas pipes. Electro-magnetic location technology has evolved rapidly and nowadays allows the surveyor to unambiguously detect most conducting services using both active and passive techniques. Invaluable knowledge and experience of various detection modes and techniques gives the surveyor a comprehensive tool-kit in isolating individual services and ensuring accurate tracing of such.

Electro-magnetic location systems may be used in conjunction with various frequency sonde (transmitter) devices that facilitate the accurate mapping of open drainage systems.

LandScope use Radiodetection RD8000 locators which have proven themselves as the most rigorous and robust locators available.

Land Survey / Geomatics • 3D Scanning & Modelling • Underground Service Mapping • Monitoring of Structural Movement
Structural Imaging - Radar • Geophysical Survey • Site Investigation • Hydrographic Survey

Ground Penetrating Radar Survey

Ground Penetrating Radar (GPR) is a geophysical sub-surface 'imaging' system which has the potential to detect and map all underground services irrespective of their composition material. GPR may therefore provide an independent check on survey results derived from electro-magnetic location techniques and also enable the surveyor to map non conducting (non-metallic) services such as polyethylene water and gas, PVC ducting / fibre optics and vitreous clay drainage systems.

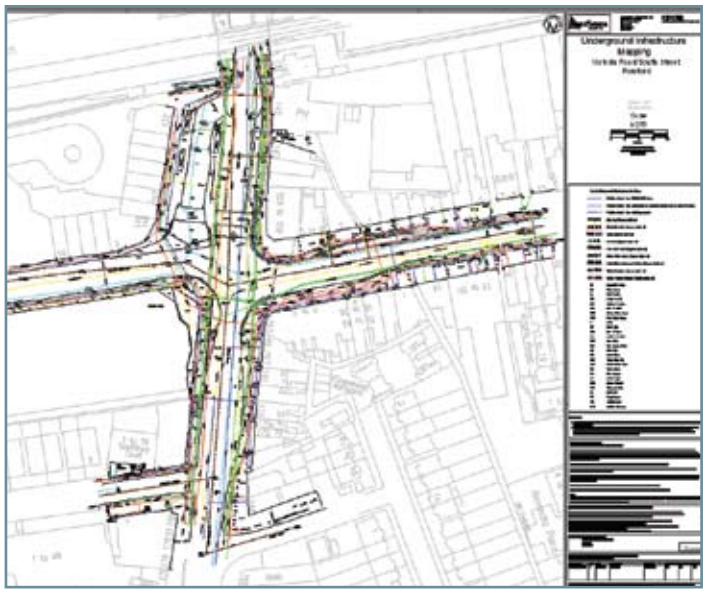
As with all geophysical survey systems key success factors include the accurate geo-referencing of acquired data and robust processing and interpretation of such. LandScope differentiates itself from others in ensuring that all GPR data is recorded and geo-referenced at site thus allowing full post-processing, modelling, 3D viewing and interpretation and subsequently more accurate results.

Survey Standards Include:

- TSA - Guide to Utility Surveys - Levels 1-6
- PAS 128 - Specification for Underground Utility Detection, Verification and Location

Deliverable Options Include:

- 2D And 3D Autocad Geo-Referenced Drawing Files
- Integrated Topographical and Sub-Surface Infrastructure Plans
- Sub-Surface Cross Sections, Long Sections and 'Virtual Trial Holes'
- Ground Surface Marking
- Record Verification and Drawing Mark-Up



Survey Design

LandScope has developed a full utility and service mapping service of which various levels may be selected by the customer depending on specific survey requirements.

A typical survey would comprise:

- Desk study - statutory service records and other site specific data, either customer supplied or compiled by LandScope, is reviewed and used in the planning of the survey campaign
- Topographical survey - may be customer supplied
- Field inspection of each utility infrastructure inspection cover, man-hole, valve etc. All attributes are measured, recorded and photographed
- Electro-magnetic tracing and marking of all power and conducting lines (e.g. telecom, CATV, cast iron water and gas)
- Radio sonde survey of open lines including major drainage
- Ground Penetrating Radar (GPR) survey employing various transect spacings to identify and resolve any non conducting services e.g. PE gas or water, PVC ducting, asbestos cement water etc.
- Vacuum Excavation Service Verification
- Coordinate ground trace markings and GPR grids within the topographical survey reference framework
- Post process GPR data utilising GSSI Radan software
- Produce a model or drawing of the results in accordance with customer specifications

Related Inserts Available

Ground Penetrating Radar

Utility Record Search and Compilation

Drainage Mapping and CCTV Survey

Midlands & Northern Office
Shrewsbury

Southern Office
Romford

South West Office
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