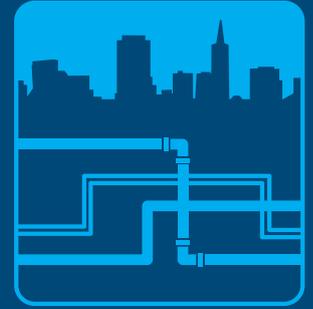


REMOTE INSPECTION GUIDES



Utilities Surveying



THE SMARTER WAY TO SURVEY



Sky Revolutions' Inspection Guides are intended to give an overview of the key aspects of conducting a variety of inspections and surveys. Each guide in the series outlines the basic steps in a specific inspection process.

“As demand on infrastructure continues to grow, it is imperative that we gather accurate information on the existence and location of our underground utilities.”

Knowing where underground services are located helps mitigate risk for developers, engineers, constructors and utility owners. This knowledge minimises potential project delay, damage to third party assets, and risk to the safety of public and workers.

Sky Revolutions uses Ground Penetrating Radar (GPR) where necessary to supplement Rigid SR20 Locators. GPR is used to trace non-metallic services and to confirm depth and position of metallic services where possible. We conduct Type A, B and C surveys as defined by PAS128 and undertake all GPR post-processing to deliver complete 3D models where required.

WHAT LIES BELOW?

High quality underground surveys can show the location of:

- Cables
- Pipework
- Gas and sewer lines
- Cavities
- Culverts
- Land drain systems

Services identified are spray-painted using Arco Survey paint which typically wears away in 2-3 months depending on ground and weather conditions.

- **Data:** Underground utility surveys help deliver a complete record for future development and achieve confirmation of existing as-built records.
- **Damage & delay reduction:** Full below-ground surveys help developers, engineers and constructors reduce utility and asset damage, and minimise project delay.
- **Time-saving:** Working with the full below-ground picture helps reduce cost, save time, and avoid the need for intrusive investigations.
- **Safety:** Knowledge of underground utility positions means better-planned utility diversions and reduced safety risk to workers and members of the public.





TOOLS

There are several tools that can be deployed to map the location of underground utilities. The key systems used by Sky Revolutions are:

- **Ground Penetrating Radar (GPR):** GPR sends radio signals into the ground to create an image of the subsurface without drilling or digging. An experienced eye can read the data returned by the GPR to provide a complete below-ground picture.
- **Radio Frequency Locator (RFL) and Signal Generator (Genny) Tools:** Used together, the RFL and Genny can help locate cable services below ground and avoid damage to buried cables and other utility lines.
- **Accuracy:** To improve the accuracy of an underground survey, we reference the absolute geospatial location of utilities to three dimensions using a national coordinate grid system and datum – the Ordnance Survey's National Grid and Ordnance Datum Newlyn coordinates.

PLANNING

Good results in utility surveying are returned when the execution with the most appropriate tools is matched by experience and effective planning.

We work closely with our clients to identify:

- The specific project requirements
- Survey techniques and methodologies
- Existing records
- Mapping and ground marking requirements
- Output formats
- Legal rights and permissions for existing base-mapping
- Location definition and geophysical investigation suitability
- Areas of concern
- Land ownership, relationships and access planning
- Health & Safety and hazard issues
- Detail of post-processing required

“Our surveyors have a high success rate of providing detailed information that has positively influenced projects and saved developers significant cost and time.”

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CAA Permission for Aerial Work, No.928



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