London Borough of Hounslow Surveys
Site 19

Utility Mapping Survey

Site Report

Project No. 1716

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Utility Surveyor: Piotr Wegiel, Daniel Hutton, Konrad Grzymala

Topographical Surveyor: Simon Farrel

Date of Survey: November 2019

Drawings Number Issued to the Client: 1716_Site 19_P.dwg

Type of Survey: Underground Utility Location & Mapping Survey.

Survey Grid: ORDNANCE SURVEY - Related to OS Active Network using GPS.

Survey Datum: ORDNANCE SURVEY - Levels related to OS Active Network using GPS.

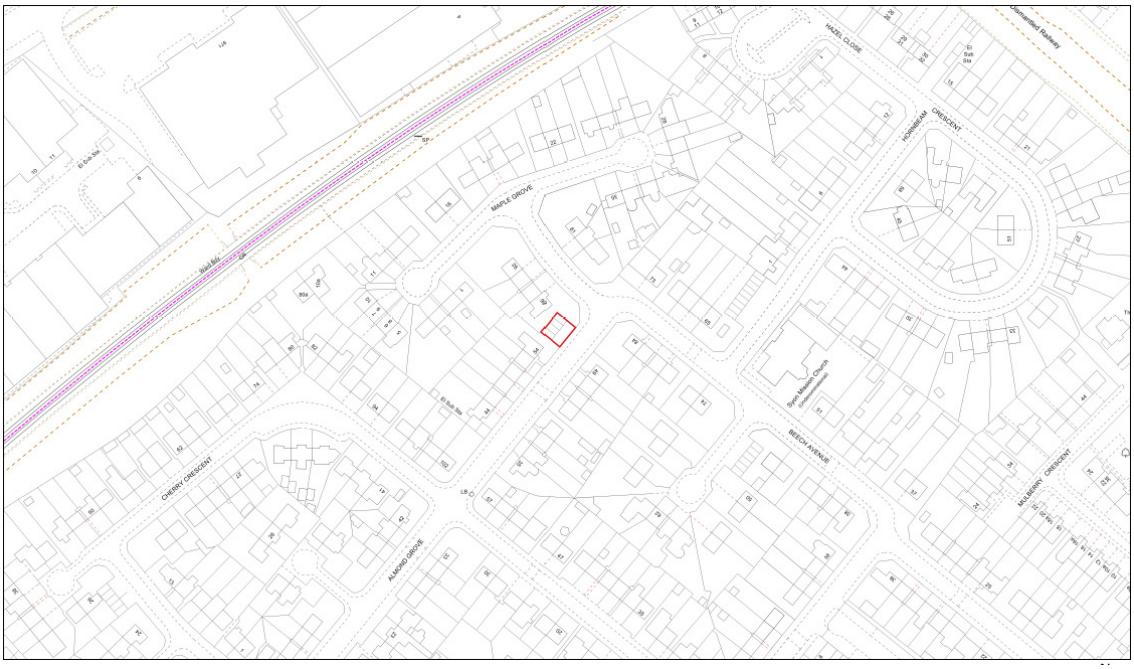
Accuracies: Depth by Electromagnetic Detection: +/- 10% of Depth.
Plan position by Electromagnetic Detection: +/- 10% of Depth.
Depth by GPR: +/- 10% of depth (in Normal Ground Conditions)
Plan position by GPR: +/- 10% of Depth.

Specification Notes:

All survey works carried out in the area defined by Arcadis Consulting Ltd

1. All drawings must be read in conjunction with record information.
2. 40Seven provided all available statutory authority information, but cannot be guaranteed to be the latest information available.
3. All services have been surveyed robustly using a combination of Electromagnetic Detection & Ground Penetrating Radar (GPR). All utility positions were surveyed in using an Electronic Total Station.

Defined Survey Extents:



Existing Service Records Provided to Field Surveyor

Service	Provider	Remarks
Telecom	BT	Map Reference: TQ1688977283
Gas	Cadent	Map Reference: TQ1677
		NOTE: Other existing statutory undertakers records were not available at the time of the survey or during the course of post processing.

Field Equipment

Type	Make	Model	Company I.D No.	Operator(s) Initials
Electrolocation Instrument	RD	8100	N/A	PW
Ground Radar	Mala	HDR Pro	N/A	DH
Electronic Total Station	Trimble	S6	Rob 21	SF
GPS	Trimble	R10	BAS25	SF

Utility Location & Mapping Survey Results

Service	Comment Number	Successes / Problems Differences between survey & "Stats"
Drainage	1	No surface water or foul sewer drainage located within the survey extents.
	2	No statutory record information available at time of survey.
Electric	1	Electric route located and traced by direct connection to lamppost.
	2	A full passive power sweep was performed utilizing radio frequency equipment.
	3	No statutory record information available at time of survey.
CATV	1	Inspection chamber identified outside survey area in the footpath on Beech Avenue. Unable to generate radio frequency response due to fibre optic cables. Routes traced by flexi tracing the cable ducts.
	2	No statutory record information available at time of survey.
Other	1	Unknown service located and traced within survey area. Unable to associate a fitting in the vicinity to help establish utility type.
GPR Scans	1	The radar reflects changes in the electrical properties of materials in the sub-surface. The data prevents definition of unknown targets.
	2	Parked vehicles in front of garages prevented complete area coverage resulting in gaps in the data (see photo 2)
	3	A PAS128 M3P GPR survey has been carried out across the site where possible.
	4	Several unknown targets detected within the survey extents although only partially in some areas due to losses of reflection. Unable to associate any fittings or features in the vicinity to help establish utility types.
	5	Poor quality image results encountered within reinforced areas. Limited data may occur.
	6	GPR images shown within this report are not necessarily indicative of actual routes / anomalies detected.

Site Notes:

1. **Survey was undertaken in the areas defined by Arcadis Consulting Ltd.**
2. **No access to any buildings in survey extents.**
3. **No access to any substations in survey extents.**
4. **Various utilities on site that could not be proven or completed have the appropriate comments added to the drawing.**
5. **Services plotted outside survey extents should not be considered to be exhaustive.**
6. **Through non-intrusive surveying techniques it always remains possible that there are additional services within the survey boundary that we have not been able to detect. We recommend that care is taken on site and that all service.**

Site Photos:

Photo 1



Description: General view of survey extents.

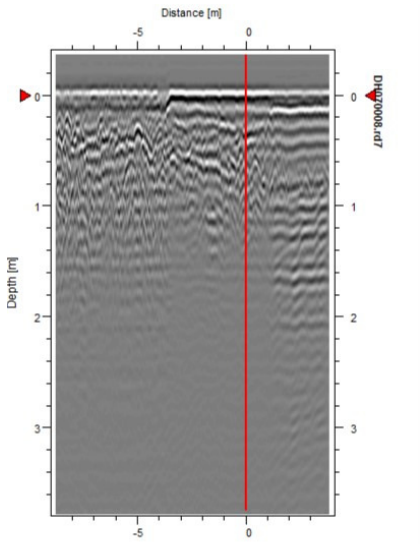
Photo 2



Description: General view of survey extents.

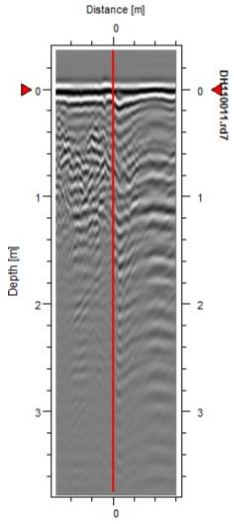
GPR Images:

GPR 1



Description: Ground Penetrating Radar Scan 1.

GPR 2



Description: Ground Penetrating Radar Scan 2.

CAD Operators Comments:

1. Survey work corresponds to Utility Surveyor's fieldwork.
2. All record information added where necessary.
3. Services shown outside the survey extents should not be considered to be exhaustive.

QA Managers Comments:

1. All procedures have been followed.
2. Checked that all topographical features have utilities connected, or if not are appropriately notated.
3. Checked all guided information has been transferred correctly where appropriate.
4. Services shown outside the survey extents should not be considered to be exhaustive.

Project Managers Comments:

1. All statutory authority records should be checked prior to commencing any work.
2. A full electromagnetic and GPR survey carried out across the site.
3. GPR works by emitting electromagnetic signals into the ground and analysing signal returns. The use of GPR is strongly dependent upon local soil properties. Depth of penetration is limited by the presence of clays or other highly conductive materials. There must be a significant electrical contrast between the target and the host materials.
4. Numerous unknown routes were detected by GPR, although it was not possible to decipher function. Future intrusive works (eg: trial pits) are recommended to gather further information.
5. It is recommended that statutory authority records are acquired and read in conjunction with this information, as no guarantee can be made for the completeness of this drawing.