LBBD Surveys
Rainham Road

Utility Mapping Survey

Site Report

Project No. 2176

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Utility Surveyor: Piotr Wegiel

Topographical Surveyor: Grego Gati

Date of Survey: March 2021

Drawings Number Issued to the Client: 2176_P Rainham Road.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:

1. All survey works carried out in the area defined by Arcadis Consulting.
2. All drawings must be read in conjunction with record information.
3. Arcadis Consulting provided all available statutory authority information, but cannot be guaranteed to be the latest information available.
4. 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
Water	Thames Water	Map Centre: 549780,186415
Sewer	Thames Water	Map Centre: 549780,186415
Electric	UK Power Networks	Job Reference: 21564357
BT	Openreach	Map Reference (centre): TQ4977586411
Gas	Cadent	Map Reference (centre): TQ4986
		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	PDL018 TXT018	PW
Ground Penetrating Radar	Mala	HDR PRO	ELP008	PW
Electronic Total Station	Trimble	S7	Rob049	GG
GPS	Trimble	R20	Bas 032	GG

Utility Location & Mapping Survey Results

Service	Comment Number	Successes / Problems Differences between survey & "Stats"
Electric	1	Electric cable identified outside survey area. Routes traced by active induction techniques.
	2	A full passive power sweep was performed utilizing electromagnetic location equipment.
Drainage	1	Fuel interceptor located inside survey area. Route traced by sonde. Unable to trace route towards Rainham Road due to non-accessible pipe (see photo 4). Possible pipe position traced by GPR however only partially due to loss of reflection.
	2	Surface water manholes identified within survey area. Routes traced by sonde only partially due to blocked pipes.
BT	1	BT routes located and traced outside survey extents. Confirms statutory record information.
CATV	1	CATV inspection cover located outside survey area. Routes traced by direct connection to cables.
Other	1	Unknown route located and traced by active induction techniques within survey area. Possible water pipe.
GPR Scans	1	A PAS128 M3 GPR survey has been carried out across the site where possible.
	2	The radar reflects changes in the electrical properties of materials in the sub-surface. The data prevents definition of unknown targets.
	3	Two 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.
	4	Radar scans recorded to a depth of 1.5 metre.

Site Notes:

1. Survey was undertaken in the areas defined by Arcadis.
2. No access to several rooms within the building in survey extents.
3. Various utilities on site could not be proven or completed and the appropriate comments have been added to the drawing.
4. Services plotted outside survey extents should not be considered to be exhaustive.
5. 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.

Photo 3



Description: General view of survey extents. Fuel interceptor covers.

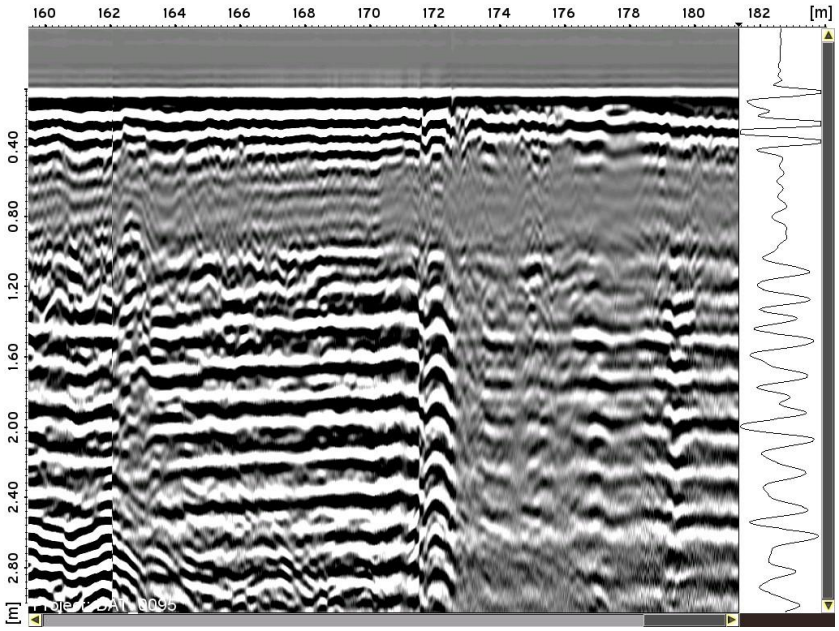
Photo 4



Description: Outlet pipe under water. Unable to trace.

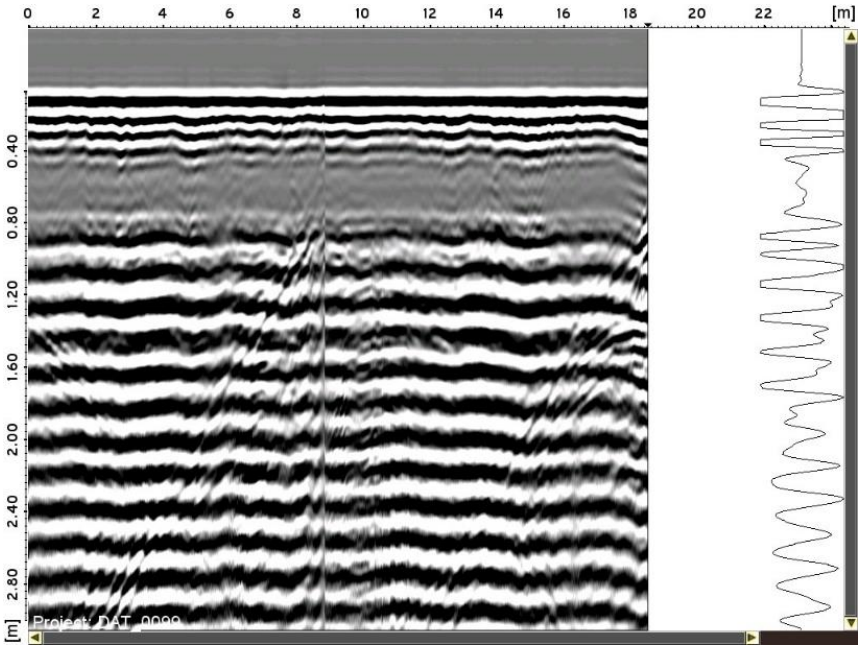
GPR Images:

GPR 1



Description: Ground Penetrating Radar Image 1.

GPR 2



`Description: Ground Penetrating Radar Image 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. Several 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.