

Manchester Airport Westgate

Utility Mapping Survey

Site Report

Project No. 1824

Prepared by: Leonard Burgess/Andrew Grigg 40SEVEN Limited	
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Commissioned by: Andy Jones Galliford Try	
Galliford Try – Aviation, Pinfold Lane (off Avro Way), Manchester, M90 5XA	

<p>Utility Surveyor: Leonard Burgess, Martin Walker</p> <p>Topographical Surveyor: Sarah Cummings, Paul Russel</p>
<p>Date of Survey: 16-23rd September 2019</p>
<p>Drawings Number Issued to the Client: 1824_P.dwg</p>
<p>Type of Survey: M4P Underground Utility Location, CCTV, Pit Card & Topographic Mapping Survey.</p> <p>Survey Grid: EXISTING - Related to the existing survey grid (62602-1588-01).</p> <p>Survey Datum: EXISTING - Related to the existing survey datum (62602-1588-01).</p>
<p>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.</p>
<p>Specification Notes:</p> <ol style="list-style-type: none"> 1. All survey works carried out in the areas defined by Galliford Try. 2. All drawings must be read in conjunction with record information. 3. Field distortions from any above ground metallic objects i.e. temporary Heras fences, temporary safety barriers or parked vehicles can limit the locatable signal due to interference from above ground fields. 4. 40SEVEN provided statutory authority information for Electric and BT only, but cannot be guaranteed to be the latest information available. 5. 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 on the Manchester Airport Grid and Datum (62602-1588-01).

Existing Service Records Provided to Surveyor

Service	Provider	Remarks
BT	Openreach	Map reference (centre): SJ8129484897
Electric	Electricity Northwest / Scottish Power	Map reference: 16433898 Map reference: 381261, 384918
Other		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	PDL014	SC
Ground Radar	Mala	HDR Pro	ELP005	LB
Electronic Total Station	Trimble	S5	ROB45	SC

Utility Location & Mapping Survey Results

Service	Comment Number	Successes / Problems Differences between survey & "Stats"
Drainage	1	Refer to separate CCTV drainage report.
Electric	1	Multiple electric cables within survey area. Some overhead electric within survey area.
Gas	1	No gas detected within the survey area.
Telecom	1	BT routes detected within the survey area.
	2	Multiple chambers located and surveyed.
	3	Refer to Pit Descriptions for further information.
Water	1	Stop Valves located within the survey area.
	2	UTT to trace water main due to being too deep.
	3	Some water routes potentially located using GPR, these will be labelled as GPR Unknown.
Other	1	Number of unknown routes detected, but only partially due to losses of signal.
	2	Ducting routes detected within survey area.
	3	Vehicle detector pads and associated utilities located within the area.
	4	Earth mat lines detected within survey area.
	5	Visible scarring within survey area.
	6	Pull pits surveyed within the survey area. Some were too deep to enter and survey fully or had too many cables to visually determine the routes/number of cables/number of ducts.
	7	Aviation Fuel detected in some areas, though in some locations we were unable to find a trace.
GPR Scans	1	An M4P GPR survey has been carried out across the site where possible.
	2	The coverage of the GPR was mostly successful, though where cars have been parked, we cannot guarantee the areas were covered.

Site Notes:

1. Survey was undertaken in the areas defined by Galliford Try.
2. Various utilities on site could not be proven or completed and the appropriate comments have been added to the drawing.
3. Services plotted outside survey extents should not be considered to be exhaustive.
4. 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 providers records should be checked prior to any works being carried out.

QA 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.

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.

Project Managers Comments:

1. A full electromagnetic and M4P GPR survey carried out across the site.
2. 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.
3. If the survey interacts with any above ground metallic features this may hinder the survey therefore caution should be taken within those areas while excavating.
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.
6. 2 areas within the survey area we were unable to access to due to special permits and access needing to be arranged prior to the visit.