N

**SURVEY ORIENTATED TO REAL TIME GPS**

## LEGEND

| | |
|---|---|
| BT | — BT — BT — BT — |
| CABLE DUCT | — DUCT — DUCT — DUCT — |
| CABLE TV | — CATV — CATV — CATV — |
| CCTV | — CCTV — CCTV — CCTV — |
| COMMUNICATION CABLE | — COM — COM — COM — |
| EARTH ROD STRIP | — ER — ER — ER — |
| ELECTRIC | — ELEC — ELEC — ELEC — |
| FIBRE-OPTICS | — F/O — F/O — F/O — |
| FUEL LINE | — FL — FL — FL — |
| GPR | — GPR — GPR — GPR — |
| MAINS GAS | — GAS — GAS — GAS — |
| MAINS WATER | — W — W — W — |
| RISING MAIN | → → → → → → |
| SEWER CW | — CW — CW — CW — |
| SEWER FW | — FW — FW — FW — |
| SEWER SW | — SW — SW — SW — |
| TRAFFIC SIGNAL CABLE | — TS — TS — TS — |
| UNIDENTIFIED TRACE | — UNID — UNID — UNID — |
| UNIDENTIFIED CABLE | — UC — UC — UC — |
| UNIDENTIFIED PIPE | — UP — UP — UP — |
| VEHICLE DETECTION CABLE | — VDC — VDC — VDC — |
| SURVEY BOUNDARY | ▬ ▬ ▬ ▬ ▬ |

FROM STATUTORY AUTHORITY PLANS

| | |
|---|---|
| BT | — |
| CABLE DUCT | — |
| CATV | — |
| CCTV | — |
| TELECOMS | — |
| ELECTRIC | — |
| MAINS GAS | — |
| SEWER CW | — |
| MAINS WATER | — |
| SEWER FW | — |
| SEWER SW | — |

| | |
|---|---|
| BD | BACKDROP PIPE |
| BLK | BLOCKED |
| EOT | END OF TRACE |
| OSA | OUT OF SURVEY AREA |
| NFH | NO FURTHER GPR CONTACTS |
| NVP | NO VISIBLE PIPE |
| S/L | SIGNAL LOSS |
| TFR | TAKEN FROM RECORDS |
| TOP | TOP OF PIPE |
| US | UNKNOWN SERVICE |
| UTL | UNABLE TO LIFT |
| UTPS | UNABLE TO PUSH SONDE FURTHER |
| UTT | UNABLE TO TRACE |

UNIDENTIFIED - A buried feature or utility that has been located, but we are unable to state what it is.

UNPROVEN - The assumed location of a reported feature or utility, usually taken from records, but not found during the utility trace (due to various conditions).

CAUTION - Electric pot ended cables, even when they are live, are unable to be detected or traced.

## UNDERGROUND UTILITIES SERVICES DISCLAIMER

We have endeavoured to locate existing services using records provided by Statutory Authorities as a guide. Some apparatus were untraceable and details have therefore been taken from Utility Record Drawings, which may be of poor quality. Consequently we cannot guarantee accuracy of information taken from such records.

Where indicated, no allowance has been made for sub-surface entry into manholes, other chambers or confined spaces below ground level. Therefore any details relating to depths, sizes etc, are taken from the surface and as such will be approximate.

We have endeavoured to supply you with the most accurate data possible by using methods and equipment that are at the forefront of our industry. We have taken great care in the detection of pipework and buried features, but as with all methods of detecting underground or buried utilities the information provided is based on results obtained from electromagnetic techniques, and as such may be liable to distortion or errors beyond the reasonable control of the operator or his instruments.

It is the responsibility of the user under Health & Safety (HSG47) Guidelines to satisfy himself of the suspected location of any services prior to excavation of the services shown.

## NOTE 1

This utility survey has been undertaken using:
A: Radiodetection RD8100 + RD8100 TID
B: Mala Geoscience Ground Probing Radar

## NOTE 2

Power carrying features shown on this drawing are shown as an individual service line. This does not necessarily represent the number of cables actually present and it is possible that there could be multi numbers of cables including HV, LV and communications transmission cables following the same trace line. These could be at different depths, the trace signal from the deeper cables being masked by signal emitted from the shallower service above. Cable runs could also be present running parallel to the single line shown.

There are two main reasons that GPR can be inhibited when scanning an area one is conductive soils and the second is the dielectric constant.
Conductive soils-
One example of a conductive soil would be clay.
Clay has a large amount of ferric material in it, hence clay is considered a conductive soil type. Due to the soil's conductive nature, the GPR wave gets 'scattered' before it can return to the antenna. Other examples of conductive soils would be damp or wet soils that have a high salt content often near sources of salt or brackish water. The ions from the salts create a much more conductive soil and limits the GPR wave's resolution.

Dielectric constant-
A simple explanation would be that the dielectric constant is a measure of how permissive the soil and the targets in the soil are to the radar wave being pulsed into the ground. It is much more complicated than that, but to not over complicate, we will work with this explanation.
So if you have a sandy-mixed soil with a concrete pipe and a metal pipe in it, the GPR wave will enter the soil at a certain rate and that rate will change as it goes through differing soil layers or differing pipe structures. A metal pipe is 100% reflective so it will stand out in the image. Most utilities will actually be noticeable in a sandier soil because the radar wave meets little resistance in this soil until it hits the utilities. However, an old concrete pipe or structure may have a dielectric constant that is close to the surrounding soil. The result is that pipe or structure may fade into the background of the GPR image, making it hard to see.

| Survey category | Quality level designation | PAS 128<br>CRITERIA USED IN THE DETERMINATION OF QUALITY LEVEL |
|---|---|---|
| Desktop utility survey | QL-D | Information provided by a Utilty record |
| Site reconnaissance | QL-C | A segment of a utility whose positio is confirmed by visual reference to street furniture, topographical features or evidence of previous street works (reinstatement scar). (No detection possible) |
| Detection | QL-B4 | A utility segment which is suspected to exist but has not been detected and is therefore shown as assumed route. (No detection possible) |
| | QL-B3 | Position of the utility survey detected by one of the geophysical tecniques (Radio detection or GPR with limited confidence in depth) |
| | QL-B2 | Position of the utility survey detected by one of the geophysical tecniques (Radio detection or GPR with confident in depth) |
| | QL-B1 | Position and depth of the utility detected by multiple geophysical techniques (Radio detection and GPR) |
| Verification | QL-A | Horizontal and vertical position of the top and/or bottom of the utility.<br>Additional attribution is recorded as speified in PAS128<br>(Utility exposed - trial pit, vacuum excavtion, IC MH etc)<br>All IC's MH's where utility is confirmed<br>Only denote where utility cannot be verified at IC's MH's<br>e.g. flooded chamber/No pipes visible. |

## REVISIONS

| REV. | DESCRIPTION | SURVEYED | DRAWN | DATE |
|---|---|---|---|---|
| | | | | |

# JLP Surveying

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**PROJECT**
Fletcher Fold Road
Bury

**DRAWING TITLE**
Utility Survey

| SCALE | SHEET SIZE | No. of SHEETS | DATE | REVISION |
|---|---|---|---|---|
| 1 : 200 | A0 | 1 | 02.10.2023 | |

**DRAWING NUMBER**
S23-0938