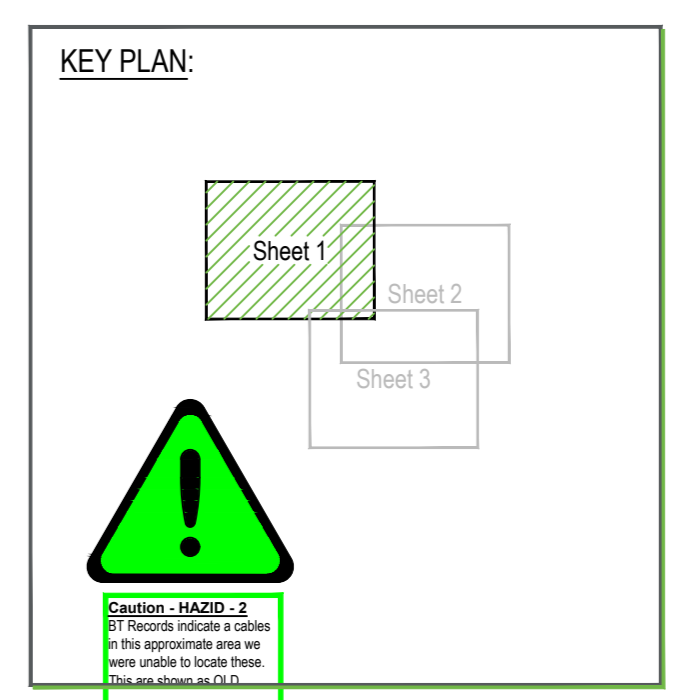


Survey Station	Survey	Method	Height
1000	1000	1000	1000
1001	1001	1001	1001
1002	1002	1002	1002
1003	1003	1003	1003
1004	1004	1004	1004
1005	1005	1005	1005
1006	1006	1006	1006
1007	1007	1007	1007
1008	1008	1008	1008
1009	1009	1009	1009
1010	1010	1010	1010
1011	1011	1011	1011
1012	1012	1012	1012
1013	1013	1013	1013
1014	1014	1014	1014
1015	1015	1015	1015
1016	1016	1016	1016
1017	1017	1017	1017
1018	1018	1018	1018
1019	1019	1019	1019
1020	1020	1020	1020



**GENERAL NOTES:**

**Distance Control:** The accuracy of the survey is dependent on the accuracy of the distance measurement. The distance measurement is dependent on the accuracy of the distance measurement. The distance measurement is dependent on the accuracy of the distance measurement.

**Method Used:** The survey was conducted using the following methods: [Detailed description of survey methods]

**Accuracy Statement:** The accuracy of the survey is dependent on the accuracy of the distance measurement. The distance measurement is dependent on the accuracy of the distance measurement.

**Warnings:** [List of warnings regarding survey accuracy and data reliability]

**LEGEND:**

Utility Features	Topographical Features
Gas	Approximate contour lines
Electric	Bank
Water	Building
Drainage	Change Channel
...	...

**ABBREVIATIONS:**

Abbreviation	Meaning
BT	British Telecom
EL	Electric
...	...

**SURVEY AND DATUM INFORMATION:**

Pseudo Distance Survey plane grid tied to National Grid via GPR observations at survey control point SH06. Bearing 3700 to SH07: 170°57'36.17". Survey control as indicated.

Station	Survey	Method	Height
1000	1000	1000	1000
1001	1001	1001	1001
1002	1002	1002	1002
1003	1003	1003	1003
1004	1004	1004	1004
1005	1005	1005	1005
1006	1006	1006	1006
1007	1007	1007	1007
1008	1008	1008	1008
1009	1009	1009	1009
1010	1010	1010	1010
1011	1011	1011	1011
1012	1012	1012	1012
1013	1013	1013	1013
1014	1014	1014	1014
1015	1015	1015	1015
1016	1016	1016	1016
1017	1017	1017	1017
1018	1018	1018	1018
1019	1019	1019	1019
1020	1020	1020	1020

**UTILITY NOTES:**

Services shown outside the survey boundary are for information only and may not be complete. If information is required outside our survey boundary, please contact a Technics Project Manager.

Technics survey was carried out using our own control network shown above as no station details were provided before the start of the project.

The results from control point number 10007 dated 30/03/2020 shown in grey have been overlaid onto our results and do not affect our responsibility for the accuracy of this survey. These results have been added to show a complete picture of the area.

Rev.	Date	Revision	By
B	24.03.2021	Deep surface water sewer added	lm

**DO NOT SCALE!**

Client: Lid GB

Project: Bankwood Way, Birstall, Batley, WF17 9TB

Survey Title: Topographical and QLTV Utility Survey

Start Date of Survey: 13/11/2020

Drawing Status: Final

Digital File: 5038-1120-01B.dwg

Drawing No: 5038-1120-01

Revision: B

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Logos for GPR, iCES, and other partners.

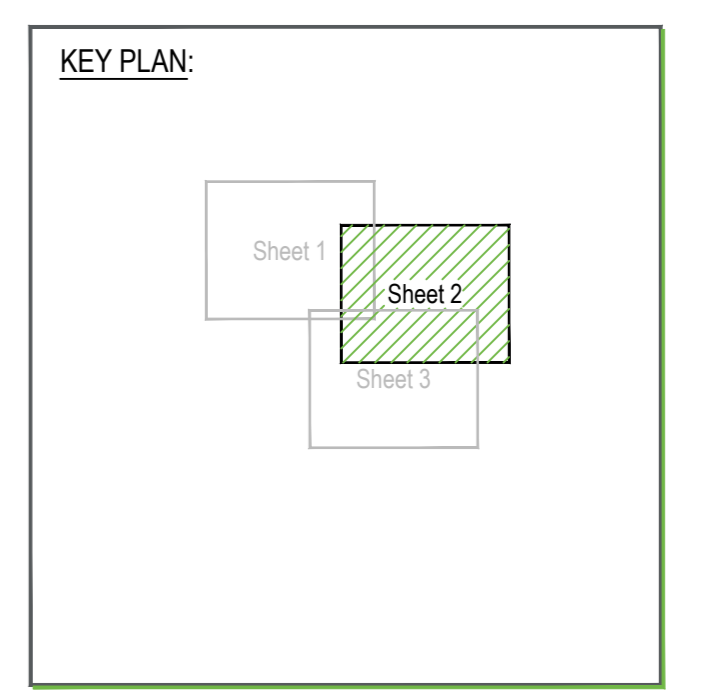
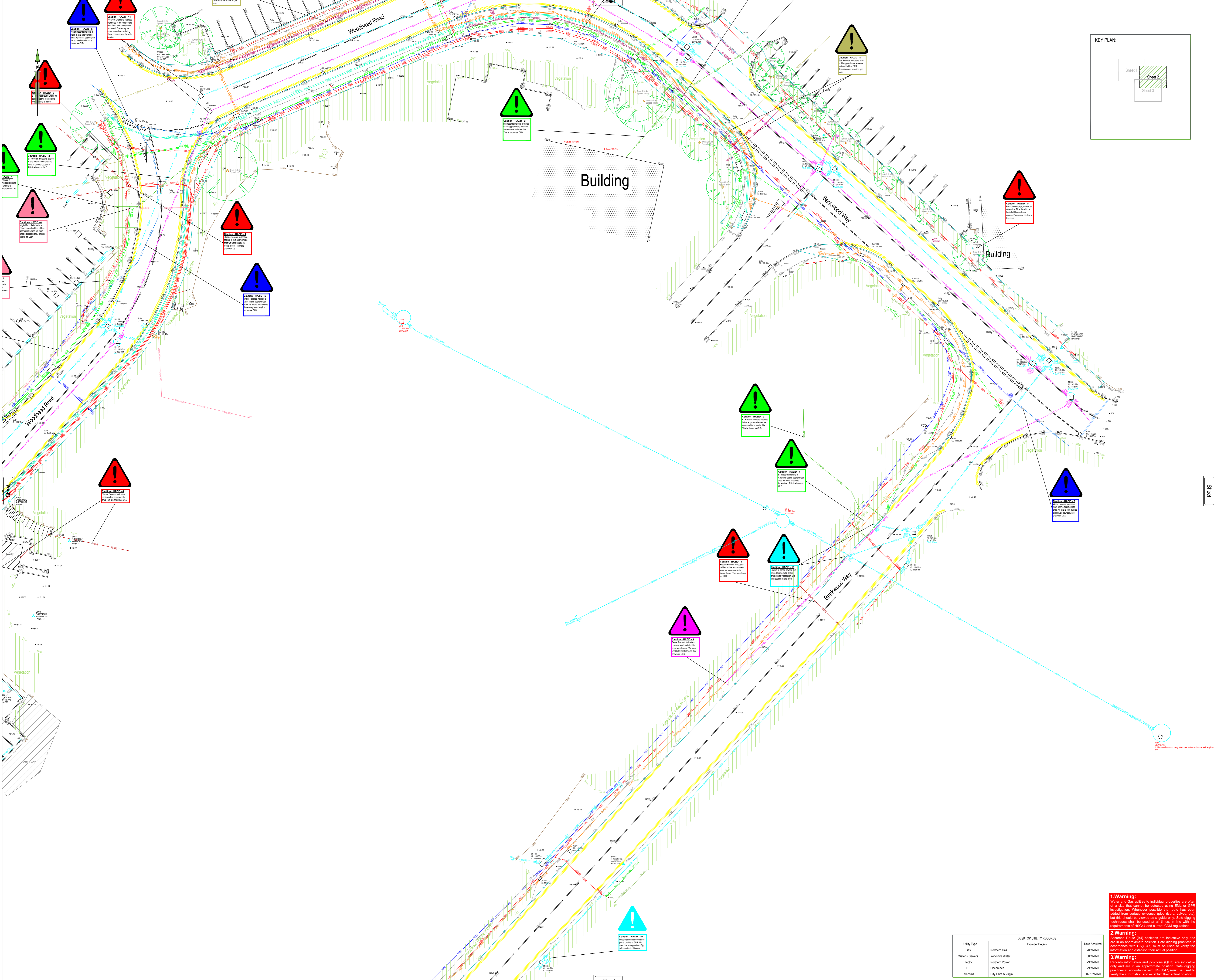
**1 Warning:** Meter and Gas utilities to individual properties are often of a size that cannot be detected using BML or GPR investigation. Whenever possible, the route has been added from surface evidence (gas pipes, valves, etc.), but this should be viewed as a guide only. Safe digging techniques shall be used at all times, in line with the requirements of BS5822 and relevant CDM regulations.

**2 Warning:** Assumed Route (RA) positions are indicative only and are not an appropriate position. Safe digging practices in accordance with HSG247 must be used to verify the location and establish their actual position.

**3 Warning:** Records of elevation and positions (GLD) are indicative only and are in an approximate position. Safe digging practices in accordance with HSG247 must be used to verify the information and establish their actual position.

**DESKTOP/UTILITY RECORDS**

Utility Type	Supplier/Details	Date Acquired
Water	Northall Side	20/10/2020
Electric	Northall Power	20/10/2020
BT	Openreach	20/10/2020
Telecoms	City Fibre & Vign	30-31/10/2020



**GENERAL NOTES:**

**Utility Lines:** The utility lines shown on this plan have been surveyed using approved methods and the connections between them are shown as indicated. The utility lines shown on this plan are for information only and are not to be used as a basis for any design or construction work. The utility lines shown on this plan are for information only and are not to be used as a basis for any design or construction work.

**Method Used:** The utility lines shown on this plan have been surveyed using approved methods and the connections between them are shown as indicated. The utility lines shown on this plan are for information only and are not to be used as a basis for any design or construction work.

**Assessment:** The utility lines shown on this plan have been surveyed using approved methods and the connections between them are shown as indicated. The utility lines shown on this plan are for information only and are not to be used as a basis for any design or construction work.

**Warning:** The utility lines shown on this plan have been surveyed using approved methods and the connections between them are shown as indicated. The utility lines shown on this plan are for information only and are not to be used as a basis for any design or construction work.

**Information:** The utility lines shown on this plan have been surveyed using approved methods and the connections between them are shown as indicated. The utility lines shown on this plan are for information only and are not to be used as a basis for any design or construction work.

**Legend:**

**Utility Lines:**

- Electric
- Gas
- Water
- Drainage
- Telecom
- Other

**Topographical Features:**

- Approximate chamber locations
- Buildings
- Vegetation
- Overhead electrical lines
- Other

**Service Details:**

**Abbreviations:**

**Survey and Datum Information:**

**Utility Notes:**

**Warning:**

**Warning:**

**Warning:**

DESKTOP UTILITY RECORDS		
Utility Type	Provider Details	Date Acquired
Gas	Northern Gas	20/10/20
Water - Sewers	Yorkshire Water	20/10/20
Electric	Northern Power	20/10/20
BT	Openreach	20/10/20
Telecoms	City Fibre & Vign	30-31/10/20

**1. Warning:** Warning and Call callouts to individual properties are often of a size that cannot be detected using BML or GPR investigation. Whenever possible, the route has been added from surface evidence (gutter pipes, valves, etc), but this should be viewed as a guide only. Safe digging techniques shall be used at all times, in line with the requirements of BS5810 and relevant CDM regulations.

**2. Warning:** Assumed Route (RA) positions are indicative only and are an approximate position. Safe digging practices in accordance with HSE/G47, must be used to verify the information and establish their actual position.

**3. Warning:** Records, information and positions (CLD) are indicative only and are in an approximate position. Safe digging practices in accordance with HSE/G47, must be used to verify the information and establish their actual position.

**ABBREVIATIONS:**

Abbreviation	Meaning	Abbreviation	Meaning
B.L.M.	Bench Mark	U.T.M.	Universal Transverse Mercator
C.A.T.V.	Cable Television	U.T.M. Zone	Universal Transverse Mercator Zone
D.A.	Depth to Air	U.T.M. Easting	Universal Transverse Mercator Easting
D.C.	Depth to Cable	U.T.M. Northing	Universal Transverse Mercator Northing
D.T.B.	Depth to Trench	U.T.M. Scale	Universal Transverse Mercator Scale
E.O.T.	End of Trench	U.T.M. Datum	Universal Transverse Mercator Datum
G.P.R.	Ground Penetrating Radar	U.T.M. Projection	Universal Transverse Mercator Projection
I.	Level	U.T.M. Spheroid	Universal Transverse Mercator Spheroid
L.	Level	U.T.M. Datum	Universal Transverse Mercator Datum
M.S.P.	Manhole Survey Point	U.T.M. Datum	Universal Transverse Mercator Datum
N.P.	Natural Point	U.T.M. Datum	Universal Transverse Mercator Datum
P.P.	Public Point	U.T.M. Datum	Universal Transverse Mercator Datum
R.P.	Road Point	U.T.M. Datum	Universal Transverse Mercator Datum
S.P.	Survey Point	U.T.M. Datum	Universal Transverse Mercator Datum
T.P.	Trench Point	U.T.M. Datum	Universal Transverse Mercator Datum
V.P.	Valve Point	U.T.M. Datum	Universal Transverse Mercator Datum
W.V.	Water Valve	U.T.M. Datum	Universal Transverse Mercator Datum

**UTILITY NOTES:**

Services shown outside the survey boundary are for information only and may not be complete. If information is required outside our survey boundary, please contact a Technical Project Manager.

Technical survey was carried out using our own control network shown above as station details were provided before the start of the project.

The results from control project number 100879 dated 3/0/2020 shown in grey have been overlaid onto our results and we accept no responsibility for the accuracy of this survey. These results have been added to show a complete picture of the area.

Rev.	Date	Revision	Signed
B	24.03.2021	Deep surface water sewer added	lm

**DO NOT SCALE!**

Client:	Lidl GB
Project:	Bankwood Way, Birstall, Batley, WF17 9TB
Survey Quality:	Topographical and QL" Utility Survey
Start Date of Survey:	13/11/2020
Drawing Status:	Final
Surveyed:	RSL/JV
Drawn:	LW
Approved:	LJM
Digital File:	5038-1120-01B.dwg
Original Size:	A0
Scale:	1:200
Sheet:	2 of 3
Drawing No.:	5038-1120-01
Revision:	B

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# PAS128 DETECTION METHODS (normative)

Method *1	Survey grid/search resolution *2			Quality levels achievable	Typical application (informative)	
	EML *3	GPR				Other techniques *4
		General	Post processing			
M1	Orthogonal search transect at $\leq 10\text{m}$ intervals and when following a utility trace, search transects at $\leq 5\text{m}$ intervals	Use as applicable	No	$\leq 5\text{m}$ survey grid	B1,B2,B3,B4	Use where the density of services is typical of an undeveloped area
M1P			Yes			
M2	Orthogonal search transect at $\leq 5\text{m}$ intervals and when following a utility trace, search transects at $\leq 2\text{m}$ intervals	Either: a) $\leq 2\text{m}$ orthogonal; or b) high density array *5	No	$\leq 2\text{m}$ survey grid	B1,B2,B3,B4	Used where the density of services is typical of a suburban area or where the utility services cross a boundary of a survey area
M2P			Yes			
M3	Orthogonal search transect at $\leq 2\text{m}$ intervals and when following a utility trace, search transects at $\leq 1\text{m}$ intervals	Either a) $\leq 1\text{m}$ orthogonal; or b) high density array *5	No	$\leq 1\text{m}$ survey grid	B1,B2,B3,B4	Used where the density of services is typical of a busy urban area or for clearance surveys prior to operations such as borehole/drilling/fencing/tree planting
M3P			Yes			
M4	Orthogonal search transect at $\leq 2\text{m}$ intervals and when following a utility trace, search transects at $\leq 0.5\text{m}$ intervals	Either a) $\leq 0.5\text{m}$ orthogonal; or b) high density array *5	No	$\leq 0.5\text{m}$ survey grid	B1,B2,B3,B4	Used where the density of services is typical of a congested city area
M4P			Yes			

NOTE 1; In general the effort increases from M1 to M4 and the addition of post processing. For areas with greater density of utilities or areas considered high risk by the client, a detection method that has a higher level of effort should be selected.

NOTE 2: "P" indicates off-site post-processing has been included.

\*1 It is a requirement that a minimum of GPR and EML techniques are used.

\*2 The tolerance for orthogonal transect centres and survey grids shall be  $\pm 0.1\text{m}$ .

\*3 It is a requirement that passive EML is deployed over the whole survey area and that where an active EML method can be used, it is used.

\*4 The transect centre depends on technique used.

\*5 A high density array comprises 100mm or closer antenna separation.

## PAS128 QUALITY LEVEL OF SURVEY OUTPUTS (normative)

Survey type		Quality level	Post processing	Location accuracy		Supporting data
				Horizontal *1	Vertical *2	
D	Desktop utility records search	QL-D	-	Undefined	Undefined	-
C	Site reconnaissance	QL-C	-	Undefined	Undefined	A segment of utility whose location is demonstrated by visual reference to street furniture, topographical features or evidence of previous street works (reinstatement scar)
B	Detection *3	QL-B4	No	Undefined	Undefined	A utility segment which is suspected to exist but has not been detected and is therefore shown as an assumed route.
		QL-B3	No	± 500mm	Undefined (No reliable depth measurement possible)	Horizontal location only of the utility detected by one of the geophysical techniques used.
		QL-B3P	Yes			
		QL-B2	No	± 250mm or ± 40% of detected depth whichever is greater	± 40% of detected depth	Horizontal and vertical location of the utility detected by one of the geophysical techniques used. *4
		QL-B2P	Yes			
		QL-B1	No	± 150mm or ± 15% of detected depth whichever is greater	± 15% of detected depth	Horizontal and vertical location of the utility detected by multiple *5 geophysical techniques used.
		QL-B1P	Yes			
A	Verification	QL-A	No	± 50mm	± 25mm	Horizontal and vertical location of the top and/or bottom of the utility. Surveyed from a Manhole/Inspection chamber/pit or excavation.

\*1 Horizontal location is to the centerline of the utility.

\*2 Vertical location is to the top of the utility.

\*3 For detection, it is a requirement that a minimum of GPR and EML techniques are used.

\*4 Electronic depth readings using EML equipment are not normally sufficient to achieve a QL-B2 or higher.

\*5 Some utilities can only be detected by one of the existing detection techniques. As a consequence, such utilities cannot be classified as a QL-B1.