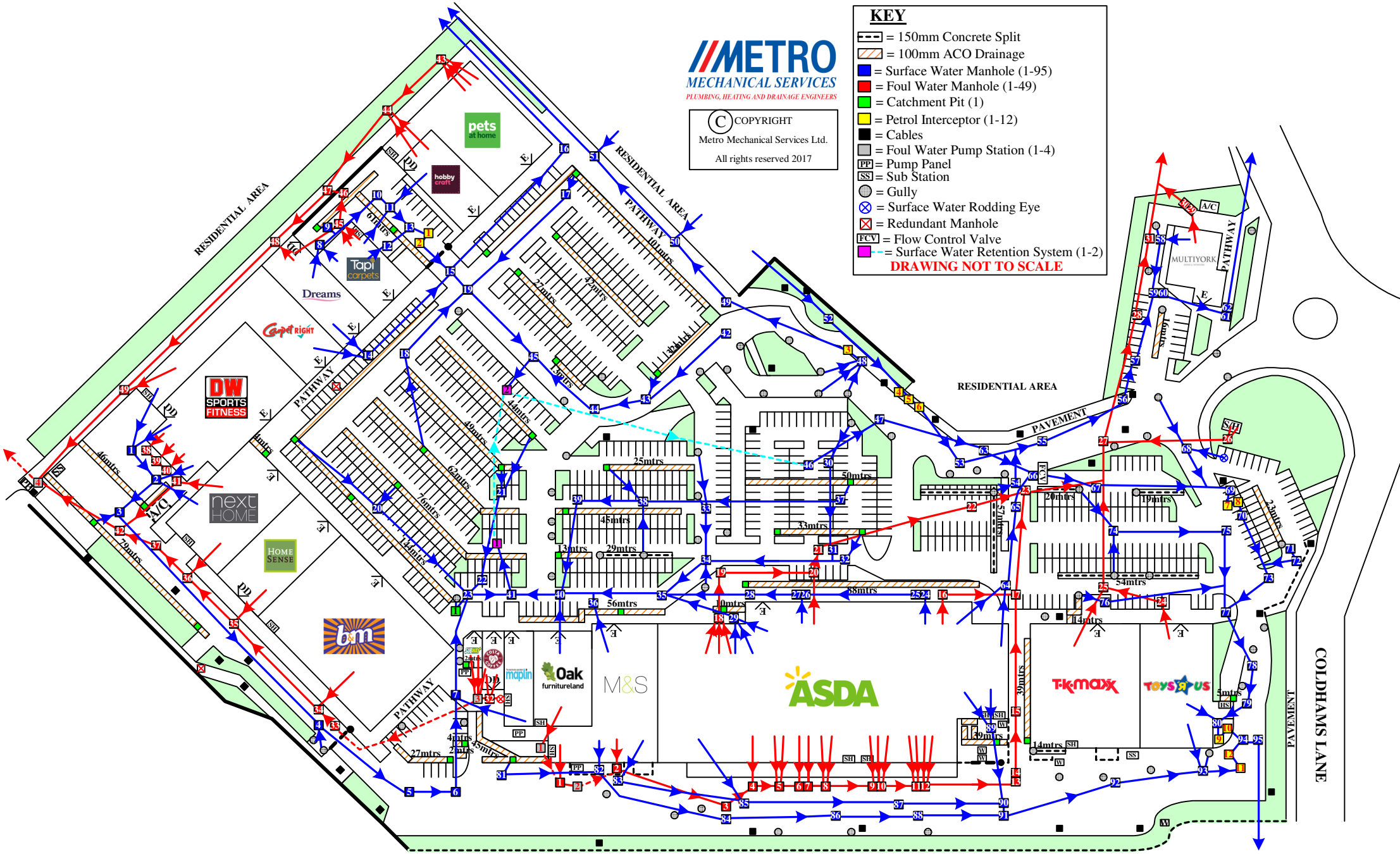
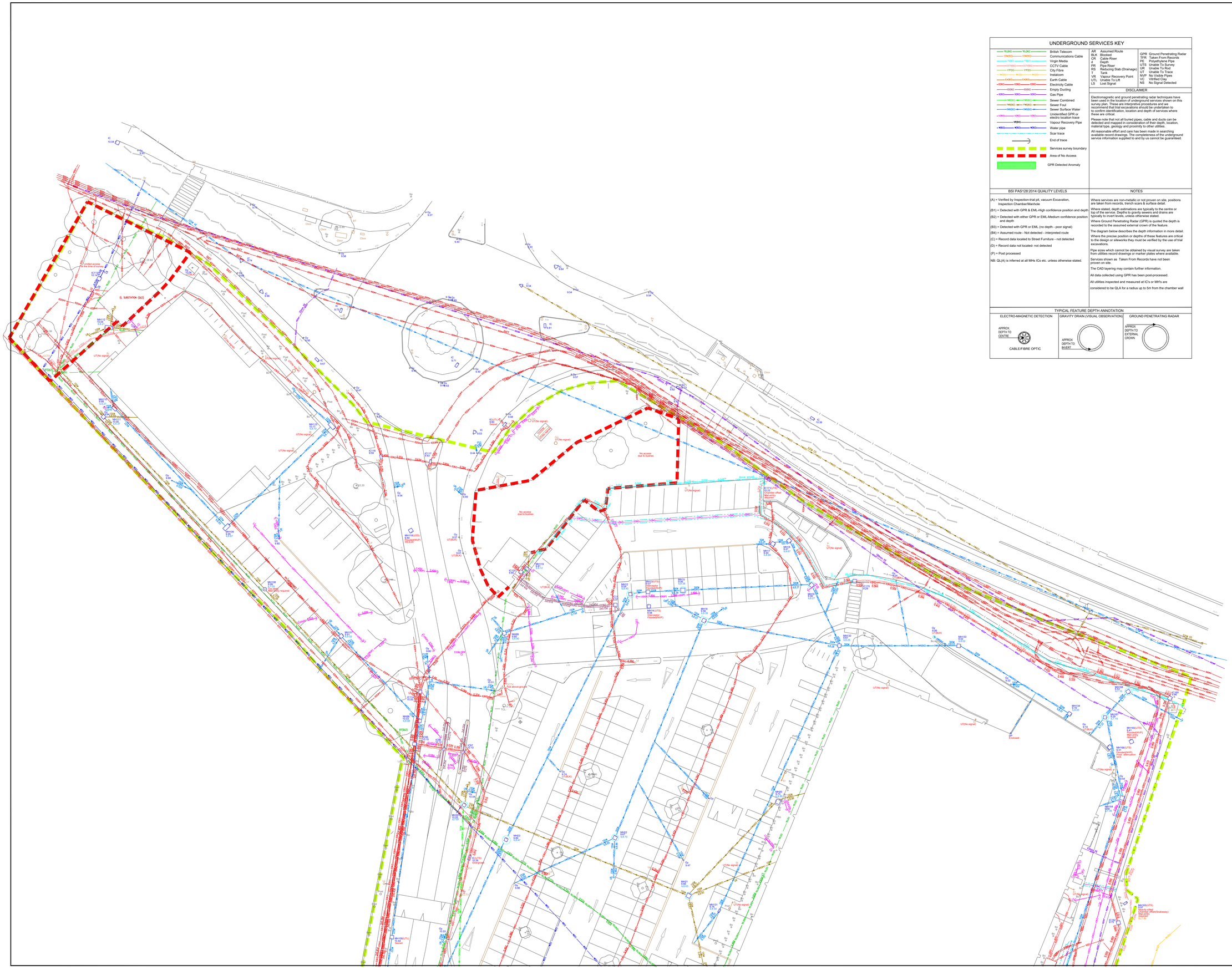
JONES LANG LASALLE
BEEHIVE CENTRE, COLDHAMS LANE, CAMBRIDGE, CAMBRIDGESHIRE, CB1 3ET

MW.JLLD.5463.C3





UNDERGROUND SERVICES KEY

- British Telecom
- Communications Cable
- Virgin Media
- CCTV Cable
- City Fibre
- Instalcom
- Earth Cable
- Electricity Cable
- Empty Ducting
- Gas Pipe
- Sewer Combined
- Sewer Foul
- Sewer Surface Water
- Unidentified GPR or electro location trace
- Vapour Recovery Pipe
- Water pipe
- Scar trace
- End of trace
- Services survey boundary
- Area of No Access
- GPR Detected Anomaly

AR	Assumed Route	GPR	Ground Penetrating Radar
BLK	Blocked	TFR	Taken From Records
CR	Cable Riser	PE	Polyethylene Pipe
d	Depth	UTS	Unable To Survey
PR	Pipe Riser	UT	Unable To Trace
RS	Reducing Slab (Drainage)	UR	Unable To Rod
T	Tank	NVP	No Visible Plate
VR	Vapour Recovery Point	VC	Vitrified Clay
UTL	Unable To Lift	NS	No Signal Detected
LS	Lost Signal		

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TYPICAL FEATURE DEPTH ANNOTATION

ELECTRO-MAGNETIC DETECTION	GRAVITY DRAIN (VISUAL OBSERVATION)	GROUND PENETRATING RADAR
APPROX DEPTH TO CENTRE — CABLE/FIBRE OPTIC	APPROX DEPTH TO INVERT	APPROX DEPTH TO EXTERNAL CROWN

Survey Notes

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Levels: Graphically fitted into client's plan

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Topographical Survey Legend

BUILDINGS AND WALLS

- Building
- Building Open Sided
- Ruin (RUIN)
- Passage
- Wall with Height (WAL HTG 3m)
- Retaining Wall (R/W)

FENCE STYLES AND DESCRIPTIONS

- Close Boarded C/B
- Corrugated Iron C/I
- Chestnut Paling C/P
- Chainlink C/L
- Handrail H/R
- Interwoven IWo
- Iron Railings I/R
- Lattice L/T
- Miscellaneous Misc
- Palisade P/AL
- Post & Chain P/C
- Post & Rail P/R
- Post & Wire P/W
- Post & Barbed Wire B/W
- Wire mesh W/M
- Stile
- Gate
- Fence line/Eye

ROADS

- Kerbs
- Edge of Surfacing
- Pedestrian Crossing (PC)
- Track
- Footpath

STREET FURNITURE

- Bellaire Beacon + BB
- Bus Stop + BS
- Bollard + B
- Cats Eye + CE
- Cost Chucks + CC
- Closed Circuit TV + CCTV
- Drain + DR
- Electricity Poles + EP
- Flood Light + FL
- Flag Staff + FS
- Lamp Post + LP
- Letter Box LB
- Noise Pole (street) — NP
- Mooring Ring + MR
- Mile Post or Mooring Post + MP
- Service Marker + MK
- Mile Stone + MS
- Post + P
- Parking Meter + PM
- Reflector Post + RP
- Rodding Eye + RE
- Road Sign + RS
- Speed Camera + S/CAM
- Information Sign + SIGN
- Stoy + ST
- Traffic Light + TL
- Telegraph Pole + TP
- Traffic Light Push Button Post + TLP
- Traffic Light Control + TLC/P
- Control Box C/BOX
- British Telecom Box BT BOX
- Electricity Box EL BOX
- Gas Box GAS BOX

INSPECTION CHAMBERS AND PIPES

- Inspection Cover IC
- Inspection Cover (Elec) IC/EL
- Manhole MH
- British Telecom Cover BT
- Inspection Cover (Comms) IC/COM
- Cable TV CATV
- Inspection Cover Traffic Signals IC/TL
- Gully G
- Kerb Outlet KO
- Vent Pipe + VP
- Down Pipe + DP
- Rain Water Pipe + RWP
- Soil Pipe + SVP
- Gas Pipe + G–PIPE
- Unable to lift cover U/L
- Stop Tap + ST
- Stop Valve + SV
- Lamphole + LH
- Hydrant + HYD
- Earth Rod + ER
- Gas Valve + GV
- Water Meter + WM
- Washout + WO
- Rodding Eye + RE

GEOTECHNICAL INFORMATION

- Borehole BH
- Trial Pit TP
- Monitor Pin + MON
- Probe Hole + PH
- Window Sample + WS

GENERAL INFORMATION

- Petrol Pump PP
- Basement Light BL
- Footbridge
- Dish Type Channel
- Slot Type Channel
- Grille Type Channel
- Tactile Paving TAC
- Crash Barrier C/BR
- Bollard O/B
- Downpipe DTMD
- Car Vacuum VAC
- Offset Fill + OF
- Air Valve + AV
- Trough TR
- Chimney CHY
- Telephone Call Box TCB

OVERHEAD FEATURES

- Electricity Pylon E.P.ELON
- Electricity
- Telephone

WATER FEATURES

- Canal
- Stream
- Ditch
- Weir
- Culvert + Culv
- Drip (Land Drain) + DRN
- Spring + SPR

RELIEF AND VEGETATION

- Hedge
- Edge of wood/Bushes
- Stump STUMP
- Individual Tree
- Slopes with Height Greater than 1m
- Cliff Face
- Marsh
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LEVEL AND HEIGHT INFORMATION

- Standard Spot Height +123.45
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- Water Level + WL24.52
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- Threshold Level + THR.98
- Cover Level + CL26.45
- Invert Level + IL25.15
- Pipe Soffit Level + PSL5.00
- Floor Level + FL6.00
- Finished Floor Level + FFL6.00
- Top of Tank Level + T/T.00
- Eave Level + EL6.00
- Ridge Level + RL8.00
- Flat Top Level + FtvL8.50
- Flat Roof Level + FRL7.00
- Top of Canopy Level + TOP./C7.00
- Underside of Canopy Level + SOF./C6.50
- Window SIl Level + WSL6.00
- Window HEd Level + WHL9.00
- Springing Level + SPL8.50
- Arch Level + ALT.00
- Cable Level + CHT8.00
- Top of Wall Level + TWL10.00
- Underside of Beam Level + UBL9.55
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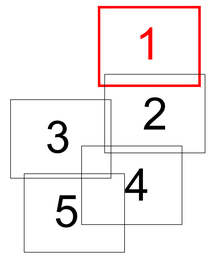
- O.S. Bench Mark

Sheet Index



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SURVEY
SHEET 1/5

Drawn By	PS 02/09/22	Survey Date	JUNE 2022
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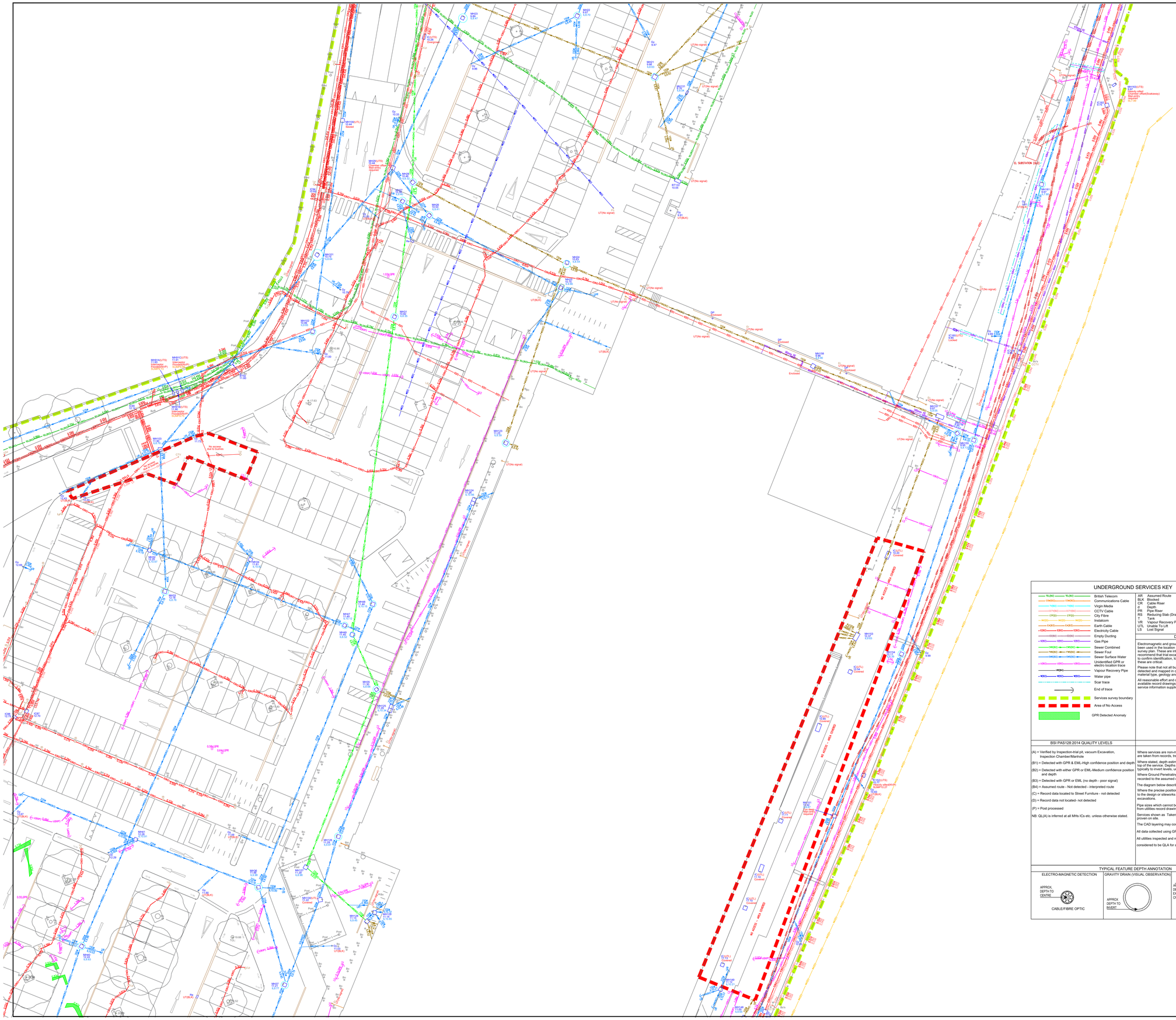
Drawing No	58742/UG1	Revision	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EL SUBSTATION (OUT)
W 42250 - 400 GENERIC
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UT(No signal)
UT(BLK)
OP Enclosed
OP Enclosed
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Pond
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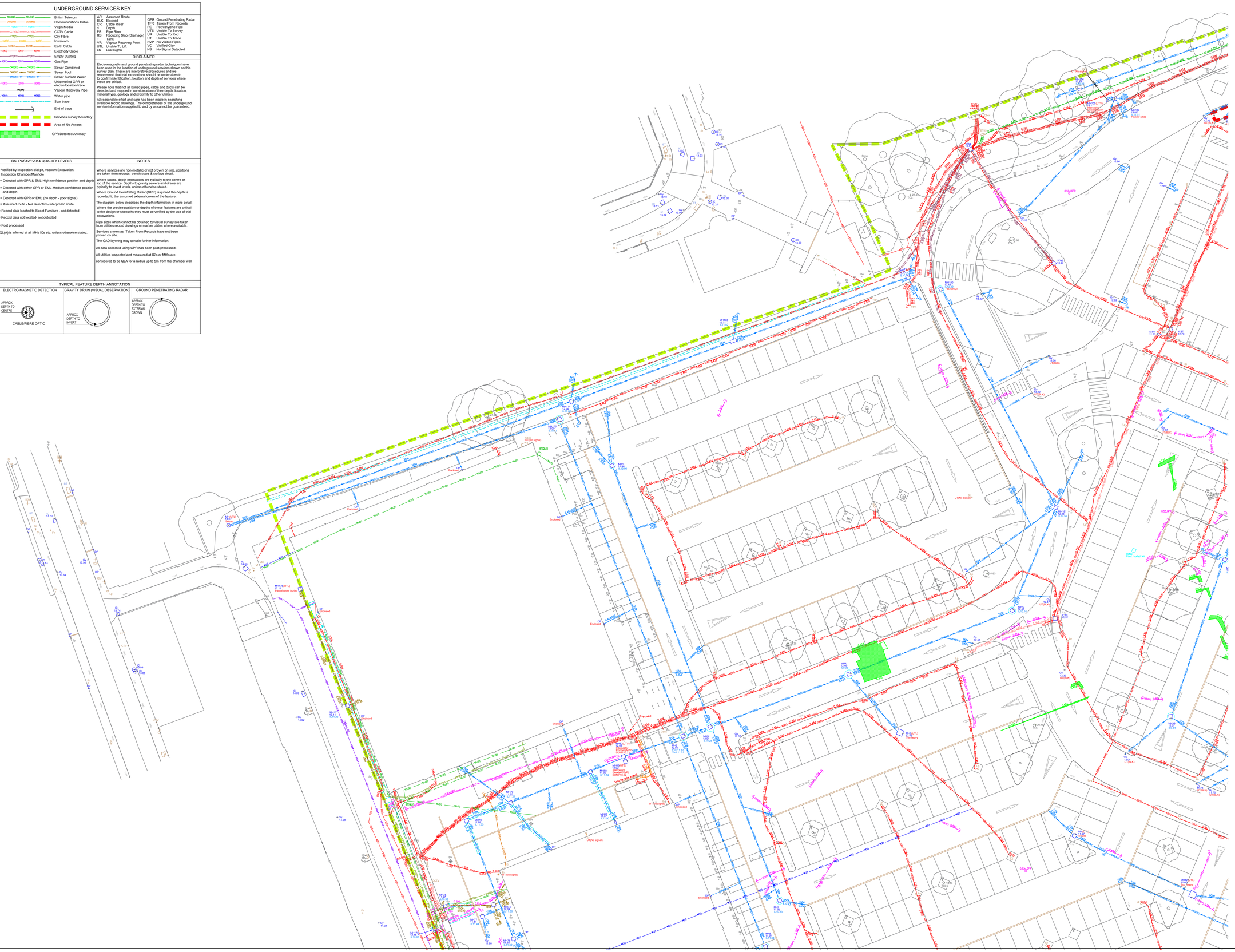

Survey Notes
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Levels: Graphically fitted into client's plan

Notes

Topographical Survey Legend

BUILDINGS AND WALLS
Building; Building Open Sided; Ruin (RUIN); Passage; Wall with Height; Retaining Wall (Wall 100.3m; RETWL)

FENCE STYLES AND DESCRIPTIONS
Close Boarded; Corrugated Iron; Chestnut Paling; Chainlink; Handrail; Interwoven; Iron Railings; Lattice; Miscellaneous; Palisade; Post & Chain; Post & Rail; Post & Wire; Post & Barbed Wire; Wire mesh; Stile; Gate; Fence Breakpts

ROADS
Kerbs; Edge of Surfacing; Pedestrian Crossing; Track; Footpath

STREET FURNITURE
Bellaire Beacon; Bus Stop; Bollard; Cats Eye; Cast Chuckle; Closed Circuit TV; Drain; Electricity Poles; Flood Light; Flag Staff; Lamp Post; Letter Box; Name Plate (street); Mooring Ring; Mile Post or Mooring Post; Service Marker; Mile Stone; Post; Parking Meter; Reflector Post; Rodding Eye; Road Sign; Speed Camera; Information Sign; Stoy; Traffic Light; Telegraph Pole; Traffic Light Push Button Post; Traffic Light Control; Control Box; British Telecom Box; Electricity Box; Gas Box

INSPECTION CHAMBERS AND PIPES
Inspection Cover; Inspection Cover (Elec); Manhole; British Telecom Cover; Inspection Cover (Comms); Cable TV; Inspection Cover Traffic Signals; Gully; Kerb Outlet; Vent Pipe; Down Pipe; Rain Water Pipe; Soil Pipe; Gas Pipe; Unable to lift cover; Stop Tap; Stop Valve; Lamphole; Hydrant; Earth Rod; Gas Valve; Water Meter; Washout; Rodding Eye

GEOTECHNICAL INFORMATION
Borehole; Trial Pit; Monitor Pin; Probe Hole; Window Sample

GENERAL INFORMATION
Petrol Pump; Basement Light; Footbridge; Dish Type Channel; Slot Type Channel; Grille Type Channel; Tactile Paving; Crash Barrier; Bollard; Staircase; Car Vacuum; Offset JN; Air Valve; Trough; Chimney; Telephone Call Box

OVERHEAD FEATURES
Electricity Pylon; Electricity; Telephone; Spring

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Canal; Stream; Ditch; River; Culvert; Drip (Land Drain); Spring

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Hedge; Edge of wood/Bushes; Stump; Individual Tree; Slopes with Height Greater than 1m; Cliff Face; Marsh; Reeds

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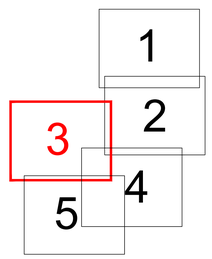
SURVEY INFORMATION SIGNS
Permanent Ground Marker; O.S. Trig Station; O.S. Bench Mark

Sheet Index



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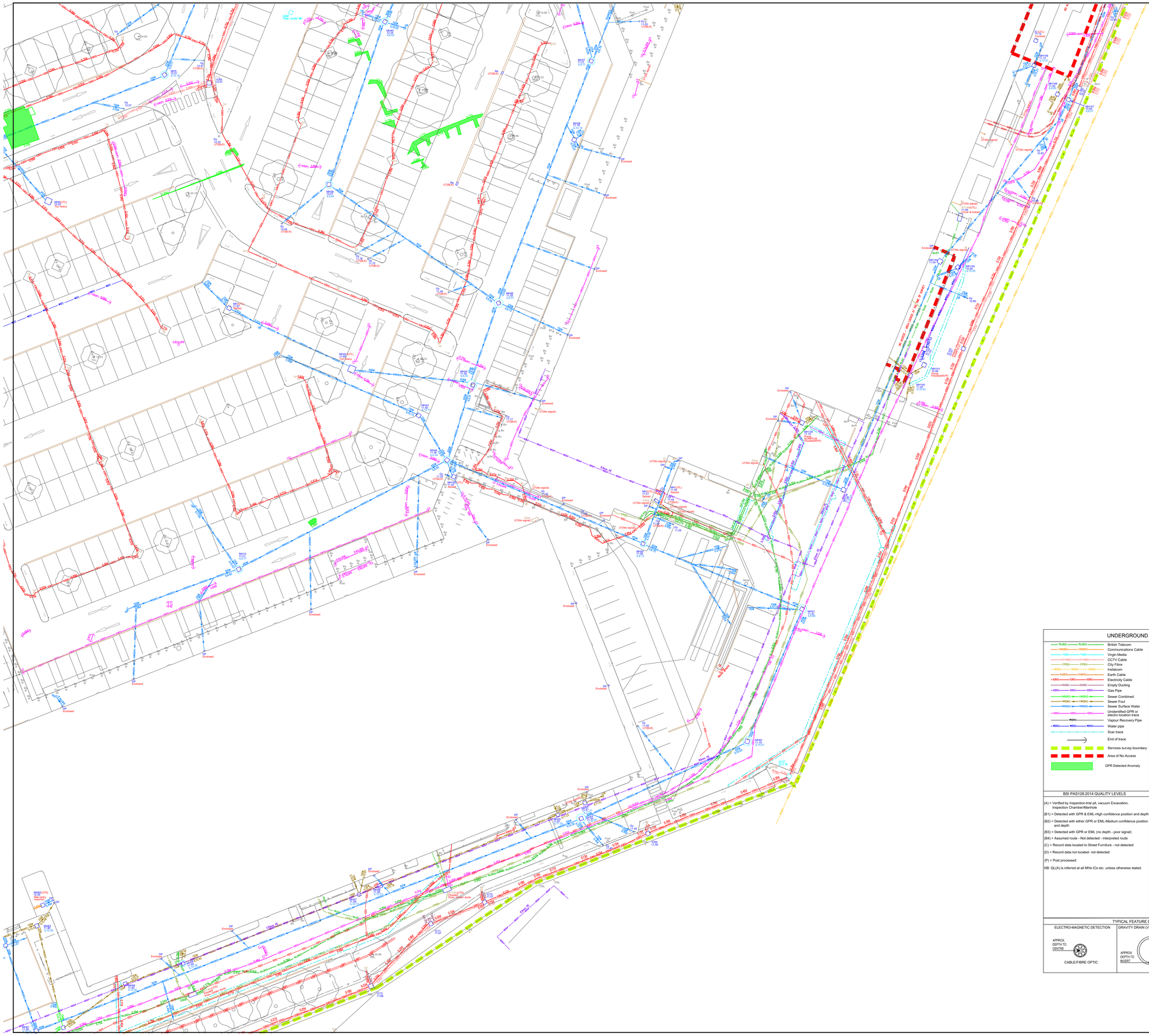

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Wire Post or Mooring Post WP
Service Marker MK
Mile Stone MS
Post P
Parking Meter PM
Reflector Post RP
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Information Sign SIGN
Stay ST
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Electricity
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- INC(C) — Instalcom
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- ELEC — Electricity Cable
- DUCT — Empty Ducting
- GAS — Gas Pipe
- SEW(C) — Sewer Combined
- FW(SK) — Sewer Foul
- SW(SK) — Sewer Surface Water
- UNID — Unidentified GPR or electro location trace
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- W(SK) — Water pipe
- Scar trace
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GRAVITY DRAIN (VISUAL OBSERVATION)

GROUND PENETRATING RADAR

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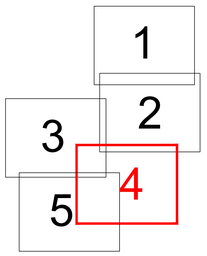

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CHARTERED LAND SURVEYORS
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Accreditations

RICS · THE SURVEY ASSOCIATION · ICES · SECTOR · ATLAS

Client

GARDINER & THEOBALD LLP
10 SOUTH CRESCENT
LONDON WC1E 7BD

Project

BEEHIVE RETAIL PARK
COLDHAMS LANE
CAMBRIDGE CB1 3ET

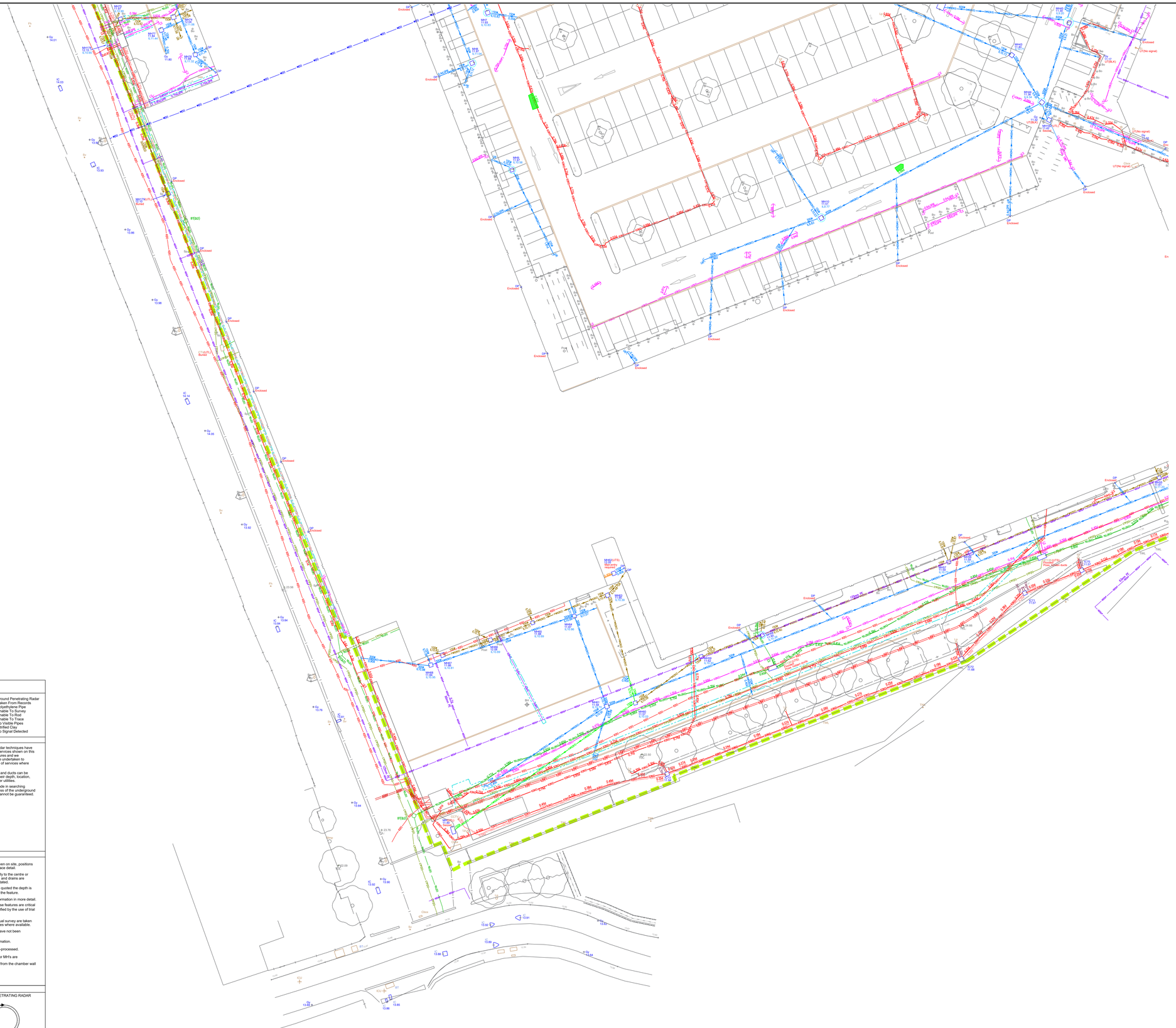
Drawing Title

UNDERGROUND SERVICES
SURVEY
SHEET 4/5

Drawn By	PS	02/09/22	Survey Date: JUNE 2022
Checked by	DJ	02/09/22	Scale: A0@1:200

Drawing No: 58742/UG4

Revision:



Survey Notes

Grid: Graphically fitted into client's plan

Levels: Graphically fitted into client's plan

Notes

Topographical Survey Legend

BUILDINGS AND WALLS

Building
Building Open Sided
Ruin (RUIN)
Passage
Wall with Height Retaining Wall (WALL HTS 3m) (R.W.)

FENCE STYLES AND DESCRIPTIONS

Close Boarded C/B
Corrugated Iron C/I
Chestnut Paling C/P
Chainlink C/L
Handrail H/R
Interwoven IWK
Iron Railings I/R
Lattice L/T
Miscellaneous Misc
Palisade P/AL
Post & Chain P/C
Post & Rail P/R
Post & Wire P/W
Post & Barbed Wire B/W
Wire mesh W/M
Stile
Gate
Fence Breakpte

ROADS

Kerbs
Edge of Surfacing
Pedestrian Crossing (PC)
Track (TRACK)
Footpath (FP)

STREET FURNITURE

Bellaire Beacon
Bus Stop BS
Bollard B
Cats Eye CE
Coal Chute CC
Closed Circuit TV CCTV
Drain DR
Electricity Pole EP
Flood Light FL
Flag Staff FS
Lamp Post LP
Letter Box LB
Name Plate (street) NP
Mooring Ring MR
Wire Post or Mooring Post WP
Service Marker MK
Mile Stone MS
Post P
Parking Meter PM
Reflector Post RP
Rodding Eye RE
Road Sign RS
Speed Camera S/CAM
Information Sign SIGN
Stoy ST
Traffic Light TL
Telegraph Pole TP
Traffic Light Push Button Post TLP
Traffic Light Control TLC/P
Control Box C/BOX
British Telecom Box BT BOX
Electricity Box EL BOX
Gas Box GAS BOX

INSPECTION CHAMBERS AND PIPES

Inspection Cover IC
Inspection Cover (Elec) IC/EL
Manhole MH
British Telecom Cover BT
Inspection Cover (Comms) IC/COM
Cable TV IC/CATV
Inspection Cover Traffic Signals IC/TL
Gully G
Kerb Outlet KO
Vent Pipe VP
Down Pipe DP
Rain Water Pipe RWP
Soil Pipe SVP
Gas Pipe G-PIPE
Unable to lift cover U/L
Stop Tap ST
Stop Valve SV
Lamphole LH
Hydrant HYD
Earth Rod ER
Gas Valve GV
Water Meter WM
Washout WO
Rodding Eye RE

GEOTECHNICAL INFORMATION

Borehole BH
Trial Pit TP
Window Pin WDN
Probe Hole PH
Window Sample WS

GENERAL INFORMATION

Petrol Pump PP
Basement Light BL
Footbridge
Dish Type Channel
Slot Type Channel
Grille Type Channel
Tactile Paving TAC
Crash Barrier C/BR
Bollard CB
Downfall DWN
Car Vacuum VAC
Offset FB
Air Valve AV
Trough TR
Chimney CHY
Telephone Call Box TCB

OVERHEAD FEATURES

Electricity Pylon E.PYLON
Electricity
Telephone

WATER FEATURES

Canal
Stream
Ditch
River
Weir
Culvert
Drip (Land Drain)
Spring SPR

RELIEF AND VEGETATION

Hedge
Edge of wood/Bushes
Stump STUMP
Individual Tree
Slopes with Height Greater than 1m
Cliff Face
Marsh
Reeds

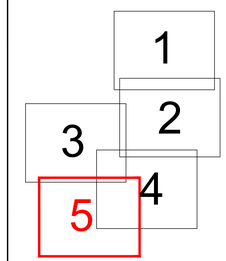
LEVEL AND HEIGHT INFORMATION

Standard Spot Height +123.45
Precision Spot Height +123.456
Bed Level +BL23.50
Meter Level +ML24.52
Sofffit Level +SL25.82
Threshold Level +THR.98
Cover Level +CL26.45
Invert Level +IL25.15
Pipe Sofffit Level +PSL5.00
Floor Level +FL6.00
Finished Floor Level +FFL6.00
Top of Tank Level +TT7.00
Eave Level +EL5.00
Ridge Level +RL8.00
Roof Up Level +RUL8.50
Flat Roof Level +FRL7.00
Top of Canopy Level +TOP/C7.00
Underside of Canopy Level +SOF/C6.50
Window SIl Level +WSL8.00
Window HEd Level +WHL9.00
Springing Level +SPL8.50
Arch Level +ALT.00
Cable Level +CHT8.00
Top of Wall Level +TWL10.00
Underside of Beam Level +UBL9.55
General Height +HT8.00

SURVEY INFORMATION SIGNS

Permanent Ground Marker
O.S. Trig Station
O.S. Bench Mark

Sheet Index



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UNDERGROUND SERVICES KEY

- YL(NC) — British Telecom
- CW(NC) — Communications Cable
- TV(NC) — Virgin Media
- CTV(NC) — CCTV Cable
- CF(C) — City Fibre
- IN(C) — Instalcom
- EA(R) — Earth Cable
- E(R) — Electricity Cable
- ED(R) — Empty Ducting
- G(R) — Gas Pipe
- CW(S) — Sewer Combined
- FW(S) — Sewer Foul
- SW(S) — Sewer Surface Water
- U(R) — Unidentified GPR or electro location trace
- VP(R) — Vapour Recovery Pipe
- W(R) — Water pipe
- Scar trace
- End of trace
- Services survey boundary
- Area of No Access
- GPR Detected Anomaly

AR	Assumed Route	GPR	Ground Penetrating Radar
BLK	Blocked	TFR	Taken From Records
CR	Cable Riser	PE	Polyethylene Pipe
d	Depth	UTS	Unable To Survey
PR	Pipe Riser	UR	Unable To Rod
RS	Reducing Slab (Drainage)	U/T	Unable To Trace
T	Tank	NVP	No Visible Pipes
VR	Vapour Recovery Point	VC	Vitrified Clay
UTL	Unable To Lift	NS	No Signal Detected
LS	Lost Signal		

DISCLAIMER

Electromagnetic and ground penetrating radar techniques have been used in the location of underground services shown on this survey plan. These are interpretive procedures and we recommend that trial excavations should be undertaken to to confirm identification, location and depth of services where these are critical.

Please note that not all buried pipes, cable and ducts can be detected and mapped in consideration of their depth, location, material type, geology and proximity to other utilities.

All reasonable effort and care has been made in searching available record drawings. The completeness of the underground service information supplied to and by us cannot be guaranteed.

BSI PAS128:2014 QUALITY LEVELS

(A) = Verified by Inspection-trial pit, vacuum Excavation, Inspection Chamber/Manhole

(B1) = Detected with GPR & EML–High confidence position and depth

(B2) = Detected with either GPR or EML-Medium confidence position and depth

(B3) = Detected with GPR or EML (no depth - poor signal)

(B4) = Assumed route - Not detected - interpreted route

(C) = Record data located to Street Furniture - not detected

(D) = Record data not located- not detected

(P) = Post processed

NB: QL(A) is inferred at all MHs ICs etc. unless otherwise stated.

NOTES

Where services are non-metallic or not proven on site, positions are taken from records, trench scans & surface detail.

Where stated, depth estimations are typically to the centre or top of the service. Depths to gravity sewers and drains are typically to invert levels, unless otherwise stated.

Where Ground Penetrating Radar (GPR) is quoted the depth is recorded to the assumed external crown of the feature.

The diagram below describes the depth information in more detail.

Where the precise position or depths of these features are critical to the design or siteworks they must be verified by the use of trial excavations.

Pipe sizes which cannot be obtained by visual survey are taken from utilities record drawings or marker plates where available.

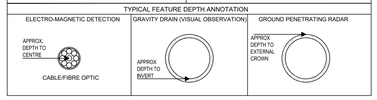
Services shown as Taken From Records have not been proven on site.

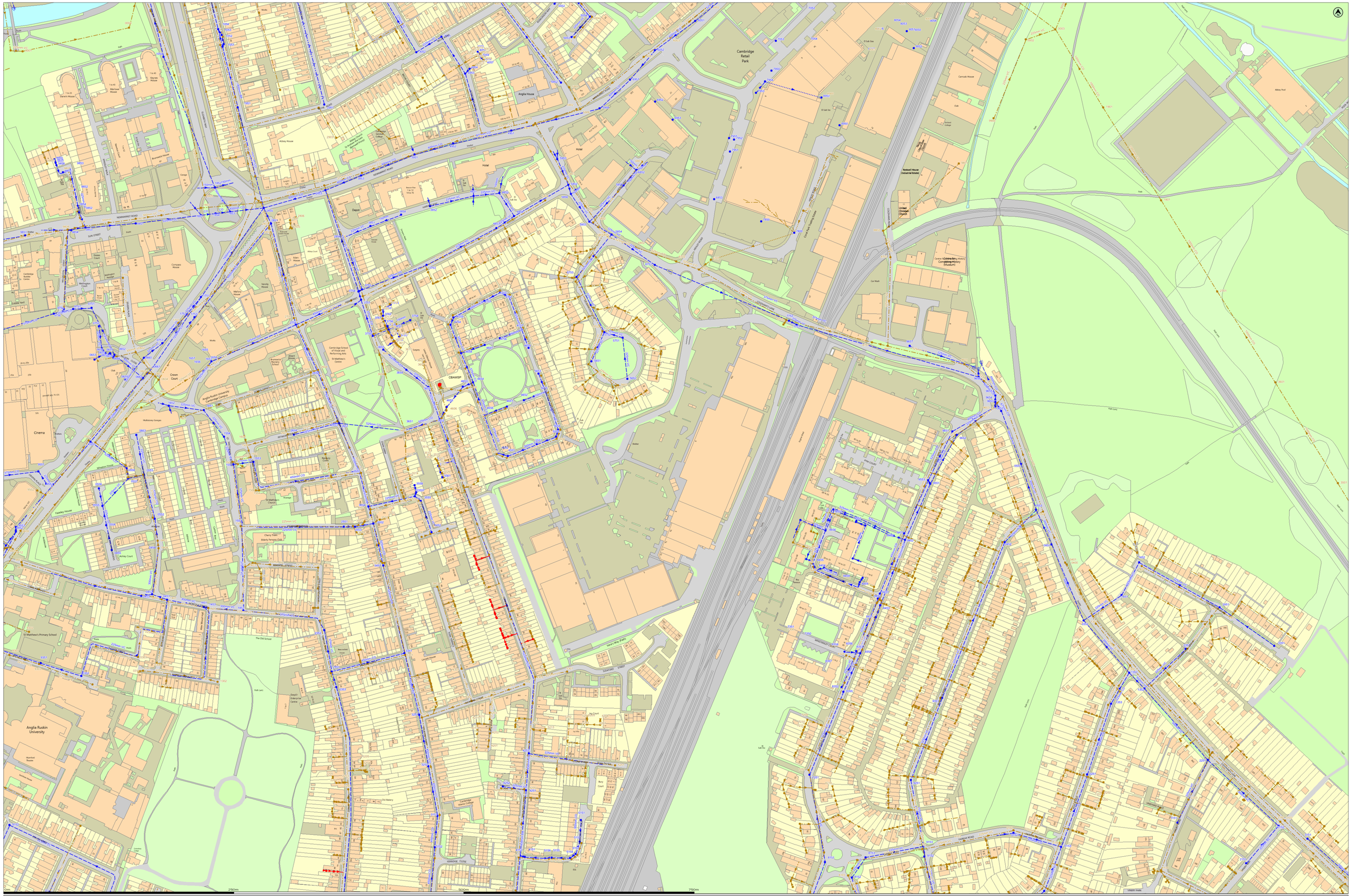
The CAD layering may contain further information.

All data collected using GPR has been post-processed.

All utilities inspected and measured at IC's or MH's are considered to be QLA for a radius up to 5m from the chamber wall

TYPICAL FEATURE DEPTH ANNOTATION




Cambridge Retail Park
NEWMARKET ROAD
ELIZABETH WAY
HOBSON STREET
Anglia Ruskin University
CBAWSP
Cinema
Crown Court
Cambridge Science Park
Station Road
Coldham's Lane
Cherry Hinton Road
Perne Road
Barnwell Road
Cromwell Road
Hills Road
Long Road
Trumpington Road
Lensfield Road
Regent Street
Parkside
Parkside Police Station
Parkside Pools
Jesus Green
Midsummer Common
Abbey Pool
Cambridge Leisure Park
Cineworld
Premier Inn
Travelodge
Holiday Inn
Grafton Centre
Cambridge Junction
Cambridge Sports Lake
Coldham's Common
Nuffield Hospital
Addenbrooke's Hospital
Cambridge Biomedical Campus
Cambridge Rugby Club
Cambridge Cricket Club
Fen Ditton
Fen Road
Milton Road
Histon Road
Huntingdon Road
Madingley Road
Girton Road
Grantchester Meadows
Grantchester Road
Trumpington Meadows
Hobsons Park
Nine Springs
Coldham's Brook
Vicarage Drive
Barton Road
Grange Road
Storey's Way
Chesterton Road
Victoria Road
Elizabeth Way
Station Road
Hills Road
Cherry Hinton Road
Perne Road
Coldham's Lane
Cromwell Road
Barnwell Road
Newmarket Road

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert
0002	547032	259031	F	6.903	3.468	3.435
0003	547064	259042	F	7.052	-1.648	8.7
0004	546058	259044	F	-	-	-
0005	546091	259039	F	-	-	-
0100	547050	258108	F	10.994	8.697	2.297
0101	546005	258176	F	-	-	-
0101	547068	258158	F	10.501	7.44	3.061
0102	547019	258171	F	10.359	8.107	2.252
0200	547095	258232	F	9.553	-	-
0302	546022	258371	F	11.43	9.84	1.59
0302	547099	258361	F	-	-	-
0303	546068	258360	F	11.93	9.36	2.57
0303	547095	258365	F	-	-	-
0304	546071	258390	F	12.05	9.11	2.94
0304	547092	258369	F	-	-	-
0305	546095	258385	F	12.43	8.89	3.54
0305	547089	258376	F	-	-	-
0306	546088	258353	F	12.45	10.61	1.84
0307	546073	258345	F	12.44	10.83	1.61
0308	546067	258392	F	12.04	11.02	1.02
0309	546018	258330	F	-	-	-
0310	546092	258352	F	-	-	-
0311	546068	258344	F	-	-	-
0312	546099	258327	F	-	-	-
0400	547077	258460	F	-	-	-
0401	546032	258436	F	12.2	9.23	2.97
0401	547075	258462	F	8.148	-0.174	8.322
0402	546084	258425	F	12.15	8.39	3.76
0402	547007	258485	F	-	-	-
0403	546089	258486	F	11.6	7.92	3.68
0404	546090	258478	F	11.68	7.99	3.69
0500	547027	258507	F	7.882	4.767	3.115
0501	546020	258577	F	13.81	6.18	7.63
0501	547051	258518	F	7.805	0.302	7.503
0502	546004	258581	F	13.68	10.17	3.51
0503	546014	258595	F	13.62	10	3.62
0504	546021	258593	F	13.85	6.32	7.53
0505	546057	258555	F	11.25	7.5	3.75
0506	546073	258558	F	11.19	7.55	3.64
0507	546084	258511	F	11.24	7.7	3.54
0508	546054	258568	F	11.06	7.24	3.82
0600	547007	258643	F	7.77	-0.63	8.4
0602	546065	258691	F	13.22	10.03	3.19
0603	546084	258667	F	12.83	5.92	6.91
0604	546090	258661	F	12.84	4.06	8.78
0605	546077	258669	F	12.57	8.67	3.9
0606	546071	258631	F	11.76	8.34	3.42
0607	546095	258645	F	11.6	8.04	3.56
0608	546024	258682	F	-	-	-
0701	546052	258735	F	12.88	10.54	2.34
0702	546051	258772	F	13.14	11.53	1.61
0801	546065	258836	F	12.58	9.02	3.56
0802	546093	258840	F	11.15	8.34	2.81
0803	546002	258844	F	-	-	-
0804	546008	258828	F	-	-	-
1001	546123	259048	F	9.15	7.58	1.57
1004	546157	259025	F	7.78	1.97	5.81
1005	546167	259003	F	8.22	6.15	2.07
1006	546152	259066	F	7.92	5.84	2.08
1007	546199	259060	F	6.33	5.1	1.23
1100	547179	258128	F	9.856	0.841	9.015
1101	547110	258195	F	-	-	-
1102	547111	258198	F	-	-	-
1200	547112	258202	F	-	-	-
1201	547114	258205	F	-	-	-
1202	547115	258204	F	-	-	-
1203	547116	258212	F	-	-	-
1300	547145	258351	F	8.9	0.216	8.684
1301	546138	258337	F	12.43	10.35	2.08
1301	547108	258396	F	8.869	0.077	8.792
1302	546154	258333	F	12.43	10.9	1.53
1302	547122	258308	F	9.099	6.634	2.465
1303	547168	258329	F	8.912	5.763	3.149
1316	547101	258359	F	-	-	-
1400	547105	258404	F	8.813	6.085	2.728
1401	546101	258420	F	12.2	8.6	3.6
1401	547125	258418	F	8.464	-	-
1402	546180	258420	F	13.08	11.01	2.07
1402	547158	258459	F	8.004	-	-
1403	546184	258458	F	12.3	9.97	2.33
1404	546192	258462	F	12.41	10.15	2.26
1405	546144	258413	F	12.28	8.83	3.45
1501	546179	258502	F	11.9	8.91	2.99
1502	546170	258572	F	11.25	6.62	4.63
1503	546190	258577	F	10.95	6.42	4.53
1504	546199	258541	F	10.87	6.19	4.68
1505	546186	258590	F	10.96	9.03	1.93
1506	546194	258541	F	-	-	-
1507	546181	258567	F	-	-	-
1601	546114	258621	F	10.86	8.14	2.72
1602	546198	258648	F	10.74	7.65	3.09
1603	546168	258691	F	11.65	7.39	4.26
1604	546183	258600	F	11.01	9.56	1.45
1605	546144	258676	F	11.55	7.61	3.94
1701	546151	258757	F	11.35	8.56	2.79
1702	546162	258780	F	11.93	2.09	9.84
1703	546111	258723	F	12.43	9.02	3.41
1801	547179	258856	F	7.274	-1.053	8.327
1802	546195	258858	F	12.22	1.56	10.66
1803	546136	258848	F	12.03	6.63	5.4
1804	546195	258882	F	11.3	6.72	4.58
1805	546140	258862	F	-	-	-
1901	547116	258957	F	7.553	-1.414	8.967
1901	546107	258992	F	-	-	2.1
1902	546160	258901	F	10.9	9.03	1.87
1903	546174	258903	F	10.62	10.01	0.61
1904	546179	258935	F	10.05	2.02	8.03
1905	546121	258954	F	-	-	-
2101	546291	258135	F	13.78	11.09	2.69
2102	546296	258199	F	13.19	10.66	2.53
2102	547259	258126	F	-	-	-
2200	547232	258253	F	9.054	0.543	8.511
2201	546296	258216	F	13	10.62	2.38
2201	547231	258259	F	9.118	5.475	3.643
2202	546293	258274	F	13.21	10.5	2.71
2202	547235	258256	F	9.13	5.929	3.201
2203	546291	258223	F	-	-	-
2203	547209	258205	F	-	-	-
2204	546283	258223	F	-	-	-
2205	546279	258228	F	-	-	-
2300	547208	258369	F	7.976	5.896	2.08
2301	546265	258399	F	13.33	10.7	2.63
2301	547227	258395	F	8.189	-	-
2302	546277	258342	F	12.97	10.22	2.75
2400	547240	258412	F	8.496	6.046	2.45
2401	546263	258413	F	13.57	11.58	1.99
2401	547253	258403	F	8.46	-	-
2402	546263	258457	F	13.46	11.08	2.38
2403	546258	258413	F	-	-	-
2404	546253	258404	F	13.43	10.27	3.16
2405	546217	258407	F	13.76	10.02	3.74
2406	546201	258450	F	-	-	-
2407	546201	258444	F	-	-	-
2408	546202	258436	F	-	-	-
2501	546202	258594	F	11.13	9.45	1.68
2502	546277	258557	F	9.15	4.87	4.28
2503	546223	258548	F	10.86	5.94	4.92
2504	546278	258555	F	-	-	-
2505	546271	258580	F	9.38	5.27	4.11
2601	546230	258602	F	10.58	7.6	2.98
2602	546284	258616	F	11.88	4.35	7.53
2603	546272	258651	F	11.71	3.85	7.86
2604	546263	258672	F	11.78	3.74	8.04
2605	546255	258669	F	11.48	5.56	5.92
2606	546255	258654	F	11.83	8.51	3.32
2701	546299	258747	F	12.44	7.85	4.59
2701	547240	258757	F	7.93	-0.776	8.706
2702	546250	258723	F	11.89	7.37	4.52
2703	546242	258718	F	11.86	3.18	8.68
2704	546228	258772	F	11.46	2.77	8.69

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert
2705	546237	258728	F	11.8	8.74	3.06
2801	546209	258831	F	11.62	2.01	9.61
2802	546270	258872	F	12.45	8.03	4.42
2803	546210	258822	F	11.44	8.45	2.99
2804	546201	258854	F	12.32	1.89	10.43
2805	546235	258826	F	-	-	-
2806	546239	258837	F	-	-	-
2807	546233	258834	F	-	-	-
2808	546233	258827	F	-	-	-
2901	546222	258976	F	7.75	5.24	2.51
2902	546264	258957	F	9.32	7.08	2.24
2903	546283	258924	F	9.27	7.34	1.93
3001	546355	259048	F	8.5	6.63	1.87
3002	546305	259024	F	6.72	5.64	1.08
3004	546306	259019	F	-	-	-
3100	547308	258181	F	9.258	1.795	7.463
3101	546395	258188	F	13.52	10.16	3.36
3101	547379	258113	F	9.171	2.001	7.17
3102	546390	258141	F	13.71	10.76	2.95
3102	547314	258182	F	9.255	6.7	2.555
3103	547371	258127	F	9.232	7.205	2.027
3201	546376	258294	F	11.16	9.14	2.02
3202	546315	258235	F	-	-	-
3203	546316	258235	F	-	-	-
3204	546312	258242	F	-	-	-
3205	546311	258245	F	-	-	-
3301	546358	258362	F	13.27	8.04	5.23
3302	546391	258305	F	-	-	-
3303	546391	258313	F	-	-	-
3312	546326	258339	F	-	-	-
3314	546320	258339	F	-	-	-
3315	546321	258336	F	-	-	-
3316	546325	258337	F	-	-	-
3401	546333	258462	F	13.49	10.97	2.52
3402	546335	258462	F	13.48	7.33	6.15
3403	546393	258436	F	13.73	12.28	1.45
3404	546331	258464	F	-	-	-
3405	546385	258493	F	-	-	-
3406	546376	258490	F	-	-	-
3409	546311	258494	F	-	-	-
3501	546301	258502	F	12.78	10.95	1.83
3501	547371	258549	F	7.914	-0.333	8.247
3502	546312	258504	F	13.01	11.04	1.97
3503	546320	258516	F	12.45	7.11	5.34
3504	546352	258529	F	13.05	11.03	2.02
3505	546320	258520	F	12.96	6.28	6.68
3506	546310	258560	F	12.28	4.92	7.36
3507	546314	258507	F	-	-	-
3508	546372	258530	F	-	-	-
3509	546369	258532	F	-	-	-
3510	546330	258509	F	-	-	-
3511	546339	258511	F	-	-	-
3512	546391	258539	F	-	-	-
3513	546358	258575	F	-	-	-
3514	546363	258553	F	-	-	-
3517	546357	258530	F	-	-	-
3518	546356	258534	F	-	-	-
3519	546353	258541	F	-	-	-
3523	546392	258574	F	-	-	-
3524	546394	258570	F	-	-	-
3525	546395	258567	F	-	-	-
3526	546398	258559	F	-	-	-
3601	547303	258658	F	7.726	-0.579	8.305
3601	546378	258677	F	12.02	10.26	1.76
3602	546397	258619	F	13.29	9.39	3.9
3603	546358	258604	F	13.34	9.17	4.17
3604	546336	258667	F	12.61	8.73	3.88
3605	546378	258681	F	-	-	-
3606	546330	258688	F	12.42	8.78	3.64
3607	546396	258652	F	-	-	-
3609	546349	258699	F	-	-	-
3611	546349	258699	F	-	-	-
3701	546358	258774	F	13.53	9.12	4.41
3702	546312	258752	F	12.64	8.53	4.11
3703	546324	258711	F	-	-	-
3704	546338	258717	F	-	-	-
3705	546348	258721	F	-	-	-
3709	546340	258712	F	-	-	-
3710	546346	258703	F	-	-	-
3712	546340	258712	F	-	-	-
3713	546352	258709	F	-	-	-
3714	546367	258715	F	-	-	-
3715	546345	258703	F	-	-	-
3716	546336	258720	F	-	-	-
3717	546333	258727	F	-	-	-
3718	546341	258743	F	-	-	-
3719	546330	258741	F	-	-	-
3720	546331	258737	F	-	-	-
3801	546335	258895	F	13.21	8.3	4.91
3802	546311	258886	F	12.85	8.16	4.69
3901	546386	258912	F	13.41	8.98	4.43
3902	546377	258989	F	-	-	-
3903	546368	258973	F	-	-	-
4002	546416	259002	F	10.39	7.94	2.45
4007	546444	259019	F	12.231	10.121	2.11
4012	546432	259002	F	-	-	-
4013	546435	259003	F	-	-	-
4014	546438	259005	F	-	-	-
4019	546443	259009	F	-	-	-
4020	546439	259016	F	-	-	-
4101	546479	258104	F	13.38	12.09	1.29
4102	546478	258106	F	14.01	12.3	1.71
4103	546481	258142	F	-	12.31	-
4201	546448	258262	F	13.75	11.78	1.97
4202	546450	258277	F	13.45	11.17	2.28
4203	546450	258299	F	13.76	11.14	2.62
4204	546491	258253	F	13.73	11.56	2.17
4205	546487	258216	F	13.65	11.63	2.02
4206	546462	258217	F	14.01	12.15	1.86
4210	546439	258287	F	-	-	-
4211	546436	258287	F	-	-	-
4212	546436	258276	F	-	-	-
4213	546436	258261	F	-	-	-
4214	546497	258281	F	-	-	-
4301	546419	258347	F	13.78	11.81	1.97
4302	546487	258330	F	13.96	11.52	2.44
4303	546499	258338	F	13.92	11.28	2.64
4304	546452	258318	F	-	-	-
4305	546430	258312	F	-	-	-
4401	546449	258471	F	14.02	10.45	3.57
4402	546473	258400	F	13.52	11.08	2.44
4403	546404	258499	F	-	-	-
4424	546476	258411	F	-	-	-
4501	546421	258546	F	13.71	9.9	3.81
4502	546457	258580	F	-	-	-
4503	546469	258576	F	-	-	-
4504	546426	258545	F	-	-	-
4505	546437	258551	F	-	-	-
4506	546408	258543	F	-	-	-
4507	546401	258551	F	-	-	-
4600	546431	258654	F	-	-	-
4601	546467	258630	F	-	-	-
4602	546442	258621	F	-	-	-
4603	546493	258698	F	-	-	-
4604	546416	258691	F	-	-	-
4605	546418	258649	F	-	-	-
4606	546403	258628	F	-	-	-
4700	546461	258758	F	-	-	-
4701	546486	258717	F	-	-	-
4702	546472	258753	F	-	-	-
4703	546410	258731	F	-	-	-
4704	546405	258721	F	-	-	-
4705	546440	258699	F	-	-	-
4801	546438	258814	F	12.97	10.01	2.96
4805	546479	258809	F	-	-	-
4901	546441	258929	F	12.97	9.64	3.33
4902	546490	258941	F	12.79	10.52	2.27
4903	546497	258938	F	12.87	7.94	4.93
4904	546499	258940	F	12.9	1.85	11.05
5001	546508	259013	F	11.92	4.86	7.06

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert
5003	546542	259033	F	12.033	10.766	1.267
5004	546561	259056	F	12.088	10.355	1.733
5100	546512	258139	F	-	-	-
5101	546514	258140	F	-	-	-
5102	546519	258140	F	-	-	-
5103	546539	258140	F	-	-	-
5104	546545	258145	F	-	-	-
5105	546549	258157	F	-	-	-
5201	546586	258242	F	13.83	12.48	1.35
5202	546536	258287	F	-	-	-
5203	546555	258287	F	-	-	-
5204	546555	258289	F	-	-	-
5205	546555	258293	F	-	-	-
5207	546570	258286	F	-	-	-
5208	546570	258290	F	-	-	-
5213	546510	258279	F	-	-	-
5301	546534	258344	F	13.92	12.3	1.62
5500	546522	258597	F	-	-	-
5602	546589	258655	F	11.43	9.33	2.1
5603	546587	258654	F	-	-	-
5604	546557	258678	F	11.36	8.95	2.41
5605	546526	258607	F	-	-	-
5606	546513	258647	F	-	-	-
5607	546505	258665	F	-	-	-
5701	546592	258716	F	11.03	8.72	2.31
5702	546572	258714	F	11.12	8.63	2.49
5703	546543	258768	F	11.09	8.35	2.74
5725	546538	258702	F	-	-	-
5801	546574	258821	F	10.96	1.82	9.14
5802	546562	258832	F	10.9	8.89	2.01
5803	546532	258880	F	12.18	1.92	10.26
5804	546510	258856	F	12.32	10.61	1.71
5805	546578	258817	F	-	-	-
5902	546544	258955	F	12.52	8.32	4.2
5905	546536	258979	F	12.14	5.42	6.72
5906	546548	258955	F	12.49	1.74	10.75
6001	546617	259012	F	11.98	6.2	5.78
6002	546689	259069	F	11.98	6.23	5.75
6003	546646	259033	F	11.99	8.9	3.09
6701	546677	258781	F	10.31	7.13	3.18
6702	546652	258790	F	10.02	6.14	3.88
6707	546690	258791	F	-	-	-
6801	546615	258898	F	10.74	9.37	1.37
6802	546608	258805	F	9.91	4.71	5.2
7106	546779	258110	F	-	-	-
7201	546796	258237	F	11.12	9.4	1.72
7209	546795	258292	F	-	-	-
7210	546792	258284	F	-	-	-
7211	546790	258280	F	-	-	-
7400	546799	258462	F	-	-	-
7701	546769	258721	F	10.12	8.13	1.99
7702	546772	258726	F	-	-	-
7801	546790	258845	F	-	-	-
8101	546813	258147	F	11.53	10.16	1.37
8102	546849	258139	F	11.52	9.45	2.07
8103	546839	258122	F	11.88	10.16	1.72
8218	546815	258216	F	-	-	-
8301	546835	258332	F	9.75	8.05	1.7
8302	546848	258351	F	9.41	7.78	1.63
8303	546846	258358	F	-	-	-
8304	546837	258361	F	-	-	-
8312	546882	258378	F	-	-	-
8401	546870	258418	F	8.51	7.86	0.65
8402	546875	258421	F	8.45	6.73	1.72
8403	546873	258422	F	-	-	-
8404	546889	258464	F	-	-	-
8405	546874	258425	F	-	-	-
8406	546866	258428	F	-	-	-
8407	546803	258452	F	-	-	-
8408	546833	258440	F	-	-	-
8409	546804	258475	F	-	-	-
8601	546882	258698	F	9.02	0.61	8.41
8701	546865	258702	F	8.79	4.32	4.47
8702	546885	258794	F	8.56	5.24	3.32
8801	546888	258831	F	9.11	6.09	3.02
8802	546877	258823	F	8.73	5.71	3.02
9001	545942	259018	F	5.32	1.06	4.26
9002	545929	259019	F	5.24	1.44	3.8
9102	546920	258151	F	11.18	8.87	2.31
9103	546965	258160	F	11.32	9.34	1.98
9104	546915	258175	F	10.77	8.83	1.94
9201	546904	258229	F	10.3	8.17	2.13
9203	545943	258208	F	13.52	11.3	2.22
9204	545948	258205	F	-	-	-
9301	545928	258362	F	11.63	8.6	3.03
9301	546939	258315	F	9.57	7.71	1.86
9302	545949	258387	F	13	9.02	3.98
9302	546972	258399	F	-	-	-
9303	545960	258352	F	11.93	8.83	3.1
9401	545977	258428	F	13.38	9.3	4.08
9402	545941	258439	F	13.21	9.22	3.99
9405	545929	258479	F	14.06	6.59	7.47
9409	545940	258497	F	12.94	10.74	2.2
9410	545942	258458	F	-	-	-
9411	545923	258478	F	-	-	-
9412	545935	258475	F	-	-	-
9413	545941	258463	F	-	-	-
9427	546966	258446	F	-	-	-
9501	546941	258591	F	7.45	5.64	1.81
9502	545958	258541	F	13.91	11.94	1.97
9502	546903	258501	F	7.75	6.1	1.65
9504	545967	258536	F	-	-	-
9601	546965	258678	F	7.57	0.84	6.73
9602	546972	258612	F	7.34	5.28	2.06
9603	546996	258630	F	7.13	4.96	2.17
9701	545987	258740	F	13.45	11.13	2.32
9801	545941	258817	F	-	-	-
9801	546959	258896	F	9.54	7.24	2.3
9802	545949	258819	F	13.37	10.5	2.87
9803	545967	258821	F	13.33	10.28	3.05
9805	545989	258807	F	13.17	10.26	2.91
9806	545996	258869	F	-	-	-
9807	545992	258887	F	-	-	-
9808	545991	258824	F	-	-	-
9810	545969	258896	F	-	-	-
9900	545964	258908	F	-	-	-
9900	546997	258945	F	6.888	4.003	2.885
9901	545975	258912	F	-	-	-
9902	545980	258914	F	-	-	-
0151	547052	258105	S	10.943	-	-
0152	547019	258169	S	-	-	-
0153	547070	258153	S	10.282	7.894	2.388
0251	547099	258232	S	9.556	7.491	2.065
0351	546006	258339	S	11.75	8.74	3.01
0351	547095	258400	S	8.677	6.602	2.075
0451	546099	258422	S	12.16	8.52	3.64
0451	547060	258482	S	-	-	-
0452	546083	258428	S	12.13	9.36	2.77
0452	547009	258485	S	-	-	-
0453	546071	258426	S	12.07	9.52	2.55
0454	546090	258478	S	11.72	9.26	2.46
0455	546039	258476	S	11.35	9.86	1.49
0551	546016	258594	S	13.7	6.14	7.56
0551	547027	258570	S	7.558	6.158	1.4
0552	546086	258510	S	11.17	8.9	2.27
0553	547043	258520	S	7.706	6.286	1.42
0553	546074	258558	S	11.22	8.86	2.36
0554	546033	258503	S	11.18	9.4	1.78
0555	546029	258524	S	11.1	8.48	2.62
0556	546025	258543	S	11.14	9.3	1.84
0557	546057	258554	S	11.11	7.98	3.13
0558	546055	258565	S	11.26	8.75	2.51
0652	546042	258688	S	13.38	7.66	5.72
0652	547005	258627	S	7.437	5.742	1.695
0653	546020	258683	S	13.46	12.32	1.14
0654	546028	258695	S	13.41	12.05	1.36
0655	546032	258690	S	13.58	11.95	1.63
0656	546034	258688	S	13.58	11.91	1.67
0657	546037	258690	S	13.57	11.84	1.73
0658	546039	258687	S	13.57	11.78	1.79

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert
0659	546054	258661	S	12.9	11.25	1.65
0660	546074	258685	S	12.91	10.78	2.13
0661	546083	258674	S	12.95	5.88	7.07
0662	546073	258663	S	13.07	5.98	7.09
0663	546066	258601	S	11.19	10.28	0.91
0664	546041	258685	S	13.57	8.96	4.61
0751	546017	258739	S	13.31	7.79	5.52
0752	546025	258719	S	13.76	12.29	1.47
0753	546094	258701	S	12.57	10.68	1.89
0851	546065	258831	S	12.65	9.77	2.88
0852	546004	258843	S	-	-	-
0853	546010	258826	S	-	-	-
0854	546002	258850	S	-	-	-
1050	546095	259012	S	-	-	-
1051	546159	259023	S	-	-	-
1052	546161	259026	S	-	-	-
1053	546158	259036	S	-	-	-
1054	546154	259042	S	-	-	-
1151	547197	258180	S	-	-	-
1351	547144	258343	S	8.91	6.75	2.16
1352	547161	258325	S	8.782	6.842	1.94
1353	547125	258309	S	-	-	-
1451	546139	258414	S	12.19	9.5	2.69
1451	547136	258427	S	-	-	-
1452	546182	258410	S	13.39	10.22	3.17
1452	547155	258463	S	8.004	6.854	1.15
1453	546144	258413	S	12.81	10.1	2.71
1551	546180	258506	S	11.72	9.66	2.06
1552	546171	258569	S	11.21	8.76	2.45
1553	546193	258572	S	10.75	8.5	2.25
1554	546161	258599	S	11.35	10.33	1.02
1651	546139	258628	S	11.58	10.47	1.11
1652	546101	258633	S	12.03	10.59	1.44
1653	546147	258681	S	11.71	10.52	1.19
1751	546136	258751	S	12.17	5.41	6.76
1752	546120	258732	S	11.9	10.54	1.36
1753	546129	258729	S	12.18	7.35	4.83
1851	546136	258840	S	12.17	7.09	5.08
1852	546151	258870	S	12.14	7.92	4.22
1853	546168	258844	S	-	-	-
1854	546152	258842	S	-	7.1	-
1951

E. Existing Drainage Calculations

Greenfield Runoff Calculations