

### KEY

**GENERAL**

Av AVERAGE  
COW CABLE ON WALL  
DIS DISBURSED  
DK DROP KERB  
EMIL ELECTROMAGNETIC LOCATOR  
EOT END OF TRACE  
FO FIBRE OPTIC  
FP FOOTPATH  
FW FOLI WATER  
GP GATE POST  
GPR GROUND PENETRATING RADAR  
HB HARD BED  
HP HIGH PRESSURE  
HV HIGH VOLTAGE  
KVD VOLT  
IP INTERMEDIATE PRESSURE  
LV LOW VOLTAGE  
MP MEDIUM PRESSURE  
NDI NO DEPTH INFORMATION  
NFI NO FURTHER INFORMATION  
NDV NO DUCTS VISIBLE  
NPV NO PIPES VISIBLE  
OSBM ORDNANCE SURVEY BENCHMARK  
POW PIPE ON WALL  
P-BOX POST BOX  
RED REDUNDANT SERVICE  
RW RETAINING WALL  
SB SOFT BED  
SNP STREET NAME PLATE  
SW SURFACE WATER  
TAC TACTILE PAVING  
TOW TOP OF WALL  
TV TRADE EFFLUENT WATER  
UTL UNABLE TO LOCATE  
UNL UNABLE TO RAISE  
UTS UNABLE TO SURVEY

**APPARATUS**

AV AIR CONDITIONING UNIT  
BB BELLSHA BEACON  
BOL BOLLARD  
BOL BOLLARD LIGHT  
BS BUS STOP  
CATV CATV  
CB CONTROL BOX  
CP CROSSING CONTROL BUTTON  
CR CABLE RISER  
DCH DRAINAGE CHANNEL  
EB ELECTRIC CONTROL BOX  
EP ELECTRIC POLE  
ER EARTH ROD  
FD FILTER DRAIN  
FT FUEL TANK FILL POINT  
FH FIRE HYDRANT  
GR GAS RISER  
GV GAS VALVE  
GY GULLY  
IC INSPECTION COVER  
INT INTERCEPTOR  
IN INLET  
KO KERB OUTLET  
LD LOOP DETECTOR  
LH LAMP HOLE  
LP LAMP POST  
MH MANHOLE  
MK MARKER POST / PLATE  
MT METER  
MW MONITORING WELL  
OU OUTLET  
OU OUTFALL  
PO POST  
PTG PIPE TO GROUND  
PTS PIPE TO SURFACE  
PUMP PUMP  
RE ROODING EYE  
RS ROAD SIGN  
RM RISING MAIN  
RWP RAIN WATER PIPE  
SC STOP COOK  
SO SKANAWAY  
SP SOLI PIPE  
ST STAY CABLE  
SV STOP / SLUICE VALVE  
SVP SOLI VENT PIPE  
TCB TELEPHONE CALL BOX  
TEL TELECOM INSPECTION COVER  
TL TRAFFIC LIGHT  
TLC TRAFFIC LIGHT COVER  
TM TICKET MACHINE  
TO TELECOM POLE  
VP VENT PIPE  
WM WATER METER  
WO WASH OUT  
WR WATER RISER  
WT WATER TAP  
WET WELL

**PIPE MATERIALS**

AC ASBESTOS CEMENT  
ALK ALKATHENE  
BR BRICK  
CI CAST IRON  
CO CONCRETE  
DI DUCTILE IRON  
HOPE HIGH DENSITY PE  
MDRE MEDIUM DENSITY PE  
PE POLYETHYLENE  
PF PITCH FIBRE  
PP POLYPROPYLENE  
PVCU POLYVINYL CHLORIDE  
ULTRA ULTRA RIB (VCI)  
SI SPUN IRON  
ST STEEL  
WC VITRIFIED CLAY

**FENCES**

BSW BARBED WIRE FENCE  
CB CLOSED BOARDER FENCE  
CPL CONCRETE PANEL FENCE  
CIR CORRUGATED IRON FENCE  
CNP CHESTNUT PALING  
CL CHAIN LINK FENCE  
IR IRON RAILINGS

**LEVELS**

BD BACKDROP LEVEL  
BL BASE LEVEL  
CL COVER LEVEL  
CWL CROWN LEVEL  
DPC DAMP PROOF COURSE  
FL FLOOR LEVEL  
IL INVERT LEVEL  
PT P TRAP LEVEL  
RL ROOF LEVEL  
SL SILT LEVEL  
SOP SOFFIT LEVEL  
THL THRESHOLD LEVEL  
WL WATER LEVEL

**LINESTYLE**

INTERNAL METER  
PO ENDED SERVICE  
SEWER CAPPED RUN  
SURVEY ABANDONED  
INTERNAL VALVE  
UNKNOWN UNDERGROUND ANOMALY  
BACK DROP  
P TRAP  
UTILITY CROSSOVER  
SURVEY BANDWIDTH  
VERBAL INFORMATION  
RECORD INFORMATION  
REUNDANT SERVICE  
RISING MAIN  
CCTV SECTION 4 AND 5 FAILTS ARE SHOWN IN RED

**SERVICE TYPE**

ELECTRICITY (HV)  
ELECTRICITY (LV)  
FUEL  
GAS  
HEATING  
OVERHEAD ELECTRIC  
OVERHEAD TELECOM  
TRADE EFFLUENT  
COMBINED SEWER  
FOUL SEWER  
SURFACE SEWER  
UNIDENTIFIED SEWER  
TELECOM  
UNKNOWN SERVICE  
WATER

**CAUTIONARY NOTES**

- EMIL techniques have been used in the detection of underground utilities as outlined in Table 2 of PAS 128:2014. The results are not infallible and trial excavations must be carried out in order to confirm identification, position and in particular depth of the utility.
- GPR techniques have been used in the detection of non-metallic utilities as outlined in Table 2 of PAS 128:2014. The interpretation of these results is not infallible and success will depend on a number of factors including soil type, ground water levels and surface conditions. Hence trial excavations must be carried out in order to confirm identification, position and in particular depth of the utility.
- Depths derived via EML are taken to the centre of the conductor (cable, metallic pipe) and those derived via GPR are usually to the crown of the utility unless otherwise indicated.
- Where cables cannot be detected individually an average depth has been obtained and trial excavations are recommended to confirm number and depths of cables banded together.
- 'Pivoted' cables are often difficult to detect and although we have made all reasonable efforts to locate or transpose this information from records, we cannot guarantee that all 'pivoted' cables have been located.
- Fibre optic cables are often difficult to detect, and commonly access chambers can be locked and thereby made inaccessible by the utility provider. All reasonable efforts have been made to locate these ducts using GPR. Cables not located have been transposed from records.
- Within close proximity of electrical substations and similar structures results using EML may become distorted. All reasonable efforts have been made to verify our results using GPR wherever conditions permitted.
- Underneath overhead power lines results using EML may become distorted. All reasonable efforts have been made to verify our results using GPR wherever conditions permitted.
- Drainage information has been obtained without man entry into the chamber.
- Wherever possible we have attempted to locate the route of the sewer. Issues such as blockages, surcharging, flooding, sedimentation, sewer collapse, root ingress, excessive depth, obstructions or heavy traffic flow may have affected our ability to obtain meaningful results. In these cases recommendations have been made for further survey or maintenance work.
- Pipe / duct sizes have been recorded from surface inspection or taken from record information. Pipe sizes have been recorded in millimetres and depths in metres, except in instances where sizes are indicated in imperial units on the record information.
- Water and Gas utilities to individual properties are often of a size that cannot be detected using EML or GPR. Investigation, whenever possible the route has been added from surface evidence (pipe risers, valves, etc), but this should be viewed as a guide only.
- All utilities detected should be considered live unless confirmed otherwise by client or service provider.
- We cannot confirm when utilities are redundant unless there is visual or record evidence to indicate this. In addition we cannot guarantee being able to detect all redundant utilities.
- Wherever available the results of our investigations have been cross referenced with record information. If a utility shown on the records cannot be detected on site, the information has been added to the drawing and indicated as QBA (R). However it should be noted that the completeness and accuracy of the records cannot be guaranteed.
- The utility information has been obtained from non-intrusive survey techniques; it always remains possible that there are additional utilities within the survey boundary that we have not been able to detect. We recommend that care is taken on site and that all utility records are used in conjunction with this survey.
- The responsibility for avoiding damage to assets and utilities on site shall be that of the persons proposing to excavate within the surveyed area, who shall be liable to the asset owner and any third party who may be affected in any way for any loss or damage.

ALWAYS EXERCISE CAUTION WHEN EXCAVATING.

**PIPE MATERIALS**

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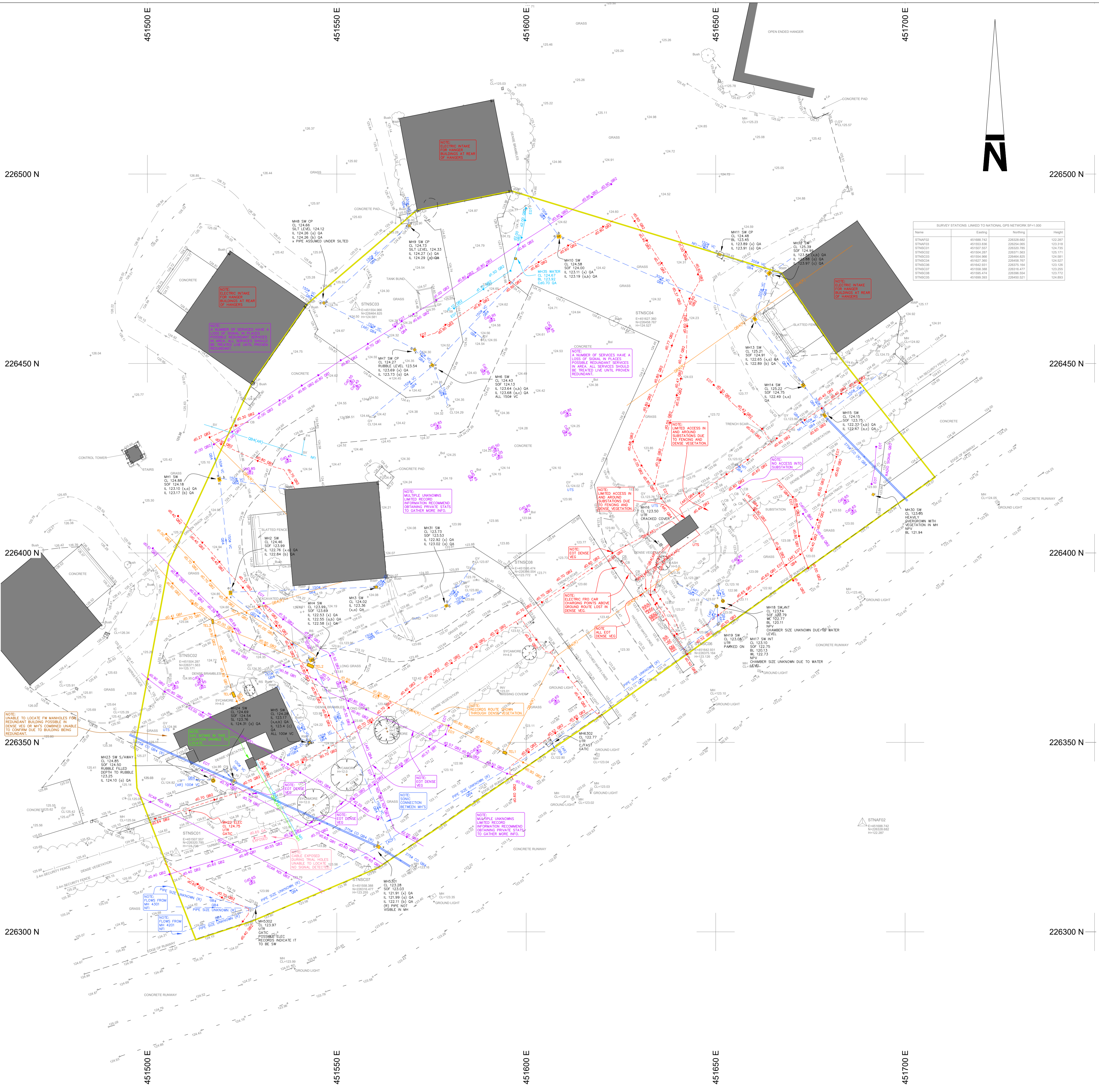
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**PAS 128:2014 Quality Level Guide**

Quality Level	Description	Accuracy
QB4	A utility is expected to exist but cannot be detected - (AR), (R), (V)	Undefined
QB3	Horizontal location only using one geophysical technique.	±1-500mm Horizontal
QB3P	No depth information - NDI.	Undefined Vertical
QB2	Horizontal and vertical location only using one geophysical technique.	±1-250mm or ±1-40% of depth whichever is greater
QB1	Horizontal and vertical location only using two geophysical techniques.	±1-150mm or ±1-15% of depth whichever is greater
QA	Service verified in an open excavation, inside an inspection chamber / drain pit, or at the point the service enters / exits the ground.	±1-50mm Horizontal ±1-25mm Vertical

**Desktop Utility Records**

Utility Type	Provider Details	Date Acquired
Drainage	Thames Water	26/07/2021
Water	Thames Water	26/07/2021
Gas	Scottia Gas Networks	22/07/2021
Electricity	Scottish and Southern Electricity Networks	22/07/2021
Telecom	Openreach	22/07/2021
CATV	None Provided	N/A
Communications	Clyffire	22/07/2021



**Notes :**

- UTILITY AND SERVICE INFORMATION ADDED TO TOPOGRAPHICAL SURVEY PRODUCED BY WOODS HARDWICK. JOB NO. 16871-7-870. DATE JULY 2021.
- THIS SURVEY SHOULD ALWAYS BE READ IN CONJUNCTION WITH THE DESKTOP UTILITY STATS.

**Equipment Information**

Equipment	Manufacturer	Model	Serial Number	MKS REF	Date of Calibration
EML Tx Transmitter	SPX Radiodetection	RD8000	10TX-108-11192	RD19	12/05/2021
EML Rx Receiver	SPX Radiodetection	RD8100	1081PDL-3375	RD19	12/05/2021
GPR	IDS Georadar	Leica DS2000	SN 010-16-000409	GRP14	Day of Survey

**DETECTION SURVEY REPORT**

**GENERAL**

This survey was carried out in accordance with PAS 128:2014 (Publicly Available Specification from BS). After a pre-survey consultation with the client it was agreed to carry out the detection survey using methodology M1 as per Table 2 of the PAS 128:2014. The survey boundary has been shown on the drawing; please see lineate section of the key for reference.

**DESKTOP UTILITY REPORT**

Prior to the survey commencing record information was gathered and compiled by client. These stats should be read in conjunction with the information contained in this utility detection survey. Record information was at the time of the survey, less than 90 days old in accordance with the requirements of the PAS 128:2014. For a full list of the providers searched, records received and the dates the information was obtained, please refer to the attachments page of the desktop utility report.

**DETECTION SURVEY**

**DRAINAGE**

Drainage was lifted with pipe sizes and invert levels recorded. Wherever possible the chamber sizes have been recorded and positioned on the drawing. All connections from gullies, external rainwater pipes and external soil stacks have been proven wherever possible. Manholes, chambers and sewer runs by rod sonde location and/or GPR. Where a saddle connection is present the position is assumed only until proven to QB2 or above. In instances where other detection methods were unsuccessful connections between manholes have been assumed to be straight and labelled as QBA. All drainage should be cross checked in critical areas by CCTV survey or verification survey type A. Unable to lift some MHs due to c/sat, damaged or gatic.

**WATER**

Water utility has been located where possible using EML methods. Thames water records show no private services. Recommend obtaining private stat plans to gather more information on water pipes. Some unknown responses are possibly water services. Recommend trial excavations in critical areas to confirm position and depth of pipes.

**GAS**

No gas network located. Unable to locate gas for redundant building due to no EML signal and dense vegetation to conduct GPR scans. Gas records show no private gas pipes within survey area. Recommend obtaining private stat plans to gather more information. Some unknown responses are possibly gas services. Recommend trial excavations in critical areas around gas intake for building to confirm route of service.

**ELECTRICITY**

Electric cables have been located using EML methods with electronically derived depth recorded. Electric records show no private cables recommend obtaining private records to gather more information. HV and LV cables have been identified only from depth and route. Unable to confirm for certain which is HV and LV. Recommend trial excavations in critical areas to confirm position and depth of cables.

**TELECOM**

Telecom ducts have been traced with depths recorded. Due to laws protecting British Telecom apparatus all ducts have been located using remote detection techniques only and compared with record information. Chamber sizes have been recorded using GPR techniques wherever possible. For further information regarding BT apparatus please contact Openreach directly.

**CATV**

No CATV or communications ducts located within survey area recommend obtaining records to confirm this.

**UNKNOWN**

Some unknown targets identified on the drawing using GPR are classified as 'non-linear targets'. These are not consistent with what we expect to see when identifying a buried utility, and appear on the drawing as single targets with depths (i.e. not linking two or more depth readings). This does not mean they are not utilities, we are just unable to positively identify them as a utility. We would strongly recommend that further verification surveys (PAS 128:2014 survey type A) are carried out to identify these targets in critical areas. Many unknowns located using EML methods recommend obtaining private stats to better identify services possible fuel lines in survey area.

**SEE CAUTIONARY NOTES WITHIN THE UTILITY KEY**

REV	DESCRIPTION	DRN	CHD	DATE	
<input type="checkbox"/>	PRELIMINARY	<input type="checkbox"/>	INFORMATION	<input type="checkbox"/>	TENDER
<input type="checkbox"/>	CONSTRUCTION	<input type="checkbox"/>	AS BUILT		

SCALE: 1:500 @ A1      DATE: AUGUST 2021

DRAWN: WHS      CHK: NC

DRAWING NO.: 16871-7-872      REV: -

TITLE: AIRFIELD, CAMP ROAD UPPER HEYFORD

DETAILS: PAS 128:2014 UTILITY SURVEY

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PLEASE CONSIDER THE ENVIRONMENT BEFORE PRINTING THIS DRAWING