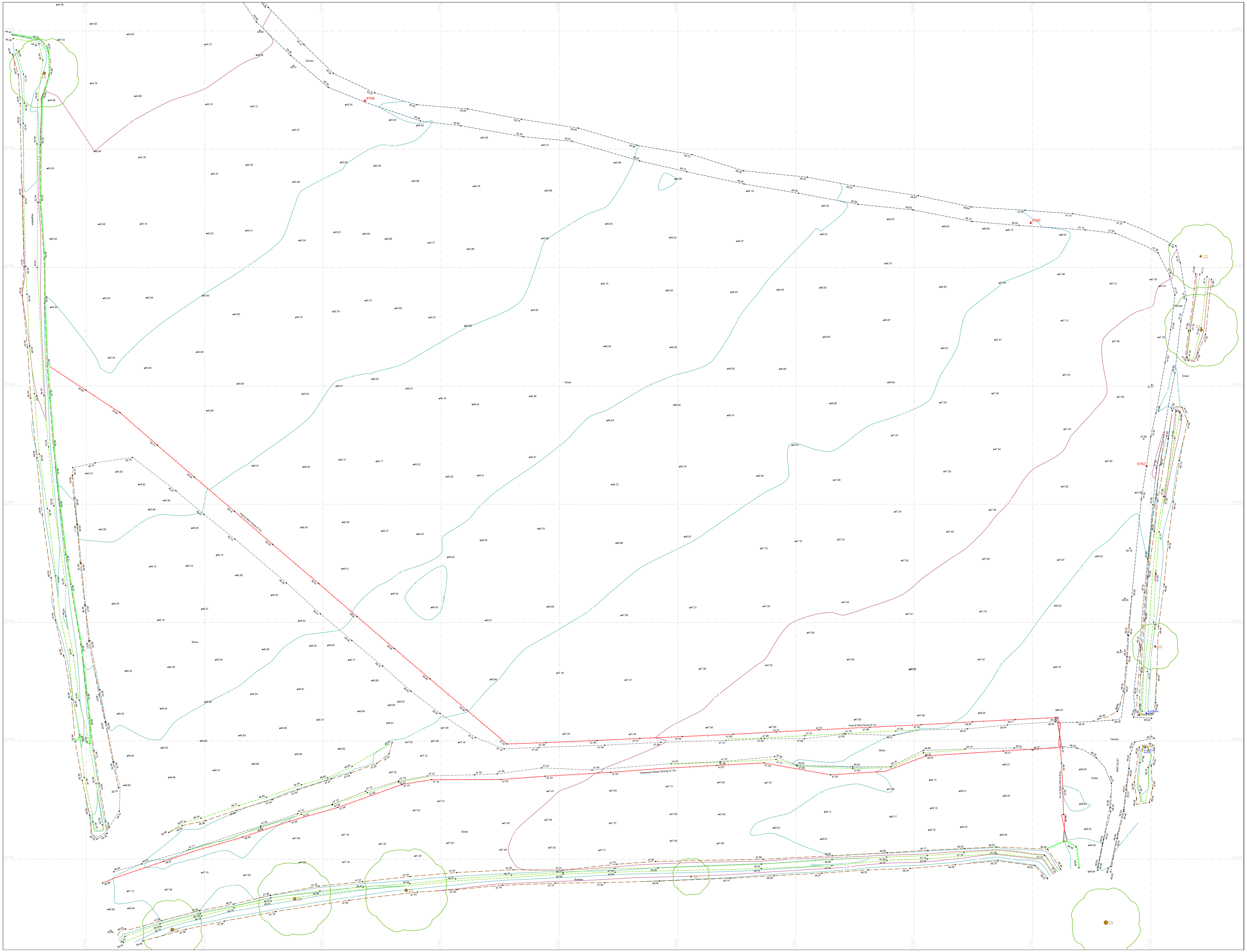


stafsurv LAND SURVEYORS

www.stafsurv.com

Vernon Courtyard, Main Road, Sudbury, Derbyshire. DE6 5HS
T 01283 584800 > F 01284 584844 > E info@stafsurv.com

NOTES

Boundaries surveyed are physical features and may not necessarily represent the legally conveyed ownership.

Tree Spreads, Girths and Heights are approximate, any tree species identified should not be relied upon and checked by a specialist if critical

Underground drainage depths, pipe sizes and runs have been recorded from the surface and may have been estimated or assumed

Features surveyed off site such as buildings and trees may have been recorded remotely and may not be shown in full detail due to access / sighting restrictions

Coordinates and Datum derived using geoid model OSGM15(GB) and horizontal transformation OSTN15

SURVEY STATIONS

Name	Easting	Northing	Height
STN2	611974.086	274958.079	47.893
STN4	611884.079	274971.999	46.707
STN5	611949.608	275009.452	46.997
STN6	611808.909	275035.255	45.395

CLIENT

Geo Environmental Group

SITE

Leys Lane
Yaxley

PROJECT

Topographical Survey

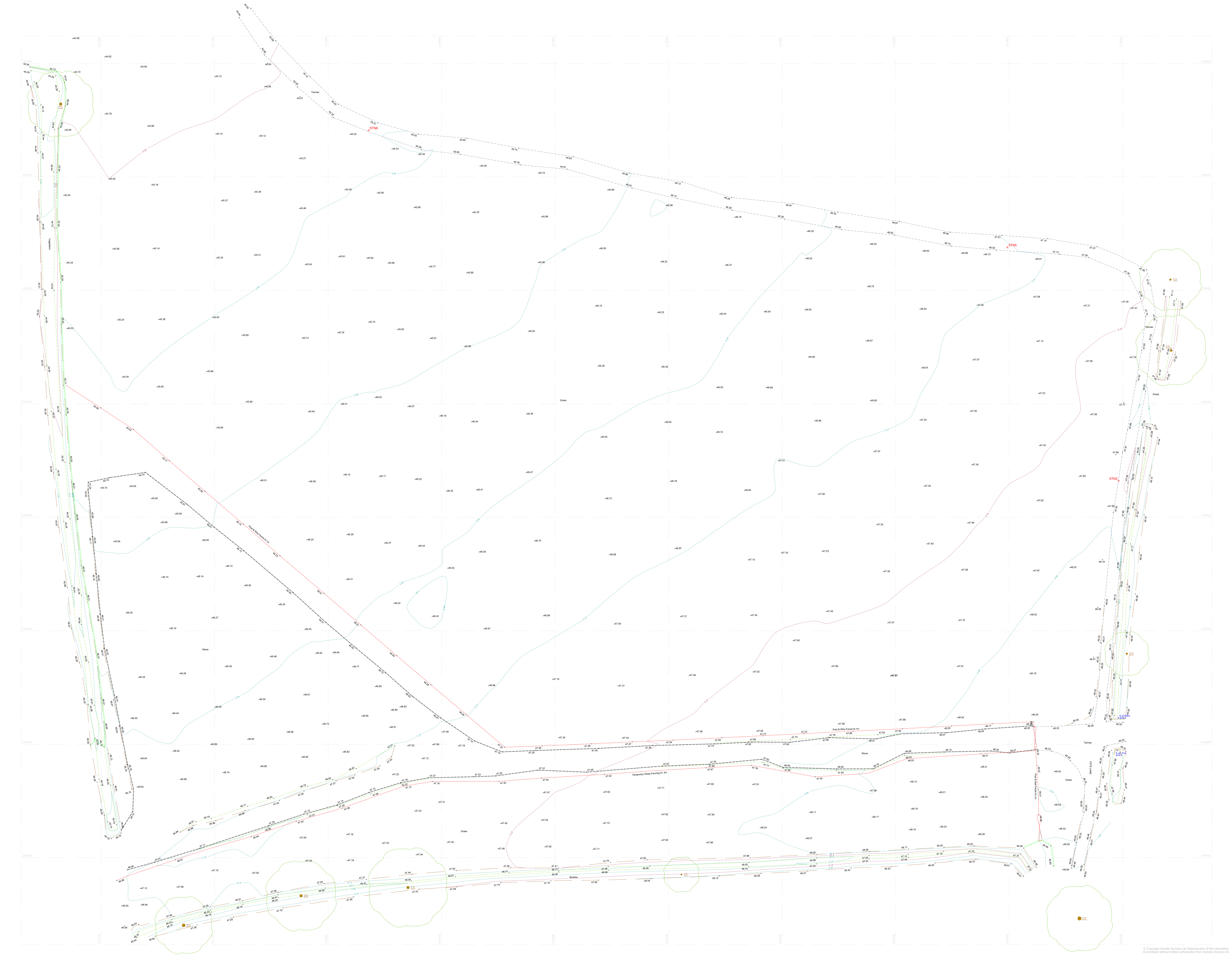
SCALE	DATE
1:250 @ A0	22/04/22

DRAWING No.

12265

Appendix C

Drainage and Utilities Survey



NOTES

Survey area was scanned using EML and GPR equipment.
No services were located within the survey area.

N

SURVEY CO-ORDINATE SCHEDULE

STATION	EASTING	NORTHING	HEIGHT	STATION	EASTING	NORTHING	HEIGHT

LAND SURVEY INFORMATION

GRID: X

VERTICAL DATUM: X
HEIGHT ESTABLISHED VIA 'TRIMBLE VRS NOW NETWORK' COMMERCIAL RTK GPS CORRECTION SERVICE

LOCAL SCALE FACTOR: X

Electromagnetic and/or Ground Penetrating Radar techniques have been used to locate/map underground utilities and features on this drawing. Subsite Surveys Ltd has made every endeavour to make sure that the information contained within this drawing is accurate and of the highest quality. Subsite Surveys Ltd has used any record drawings provided by the client or by the Statutory Utility Providers, at the client's request, at the time of the survey. Any information taken from these drawings (e.g. pipe sizes and position) is not guaranteed. Historic record information is often incomplete and inaccurate and cannot be relied upon.

Subsite Surveys Ltd is not liable for any topographical survey that has not been undertaken by us. Any inaccuracies relating to topographical plans/development plans/Ordnance Survey data that we have no control over is the liability of the customer. Where quoted, depth information of underground services/features is stated. Depths are generally within +/- 10% accurate, but cannot be guaranteed. Any depths shown are drains are usually to invert (base of drainage channel) unless otherwise stated.

The completeness of any underground survey cannot be 100% guaranteed and the results from these types of surveys are not infallible. If the location or depth of services/features is of particular importance to a project then it is strongly advised that discussions are held with Subsite Surveys Ltd regarding any possible limitations or anomalies. It is also strongly advised that trial excavations should be undertaken to confirm survey results. We cannot be held responsible for any inaccuracies beyond those that could be reasonably expected by a competent company.

ABBREVIATIONS (Land & Utilities)

AR	ASSUMED ROUTE
AV	AIR VALVE
BB	BELISHA BEACON
BD	BACKDROP
Bdl	BED LEVEL
BH	BOREHOLE
BHch	BASEMENT HATCH COVER
Bin	LITTER / GRIT SALT BIN
BL	BASEMENT LIGHT
Bol	BOLLARD
BP	BOUNDARY POST
BS	BUS STOP
BTIC	BRITISH TELECOM CHAMBER
CatL	CATENARY LEVEL
CATV	CABLE TV COVER
CB	CONTROL BOX
CBlt	CONVEYOR BELT
CC	COAL CHUTE
CGrd	CATTLE GRID
ChL	CHANNEL LEVEL
Chy	CHIMNEY
CI	CAST IRON
CL	COVER LEVEL
CO	CONCRETE
CP	CABLE PIT
CpL	COPING LEVEL
Cpsn	CAPSTAN
Cpst	CAMERA POST
CR	CABLE RISER
CrL	CROWN LEVEL
CulP	CULVERT PIPE
CWM	CABLE WINDING MACHINERY
d	DEPTH
Dia.	DIAMETER
DS	DIRECTION SIGN
EIC	ELECTRIC INSPECTION COVER
EoC	EDGE OF CANOPY
EOR	END OF RECORDS
EOT	END OF TRACE
EP	ELECTRICITY POLE
ER	EARTH ROD
EShwr	EMERGENCY SHOWER
ESP	ELECTRICITY SUPPLY POINT
Esw	ELECTRICAL SWITCH
FB	FOOTBRIDGE
FH	FIRE HYDRANT
FL	FLOOR LEVEL
FS	FLAG STAFF / POLE
G	GULLY
G=	GIRTH
GIP	GAS INLET PIPE
GP	GUIDE POST
GPR	TRACED BY G.P.R
Grl	GRILLE
GV	GAS VALVE
Hgt	HEIGHT
Hrl	HANDRAIL
HV	HIGH VOLTAGE
IC	INSPECTION CHAMBER
IL	INVERT LEVEL
IP	INLET PIPE
JN	JUNCTION

KO	KERB OUTLET
Lby	LIFEBOUY
Lck	LOCK GATE
Ldr	LADDER
LH	LAMP HOLE
LP	LAMP POST
LV	LOW VOLTAGE
MgP	MOORING POST
mH	METERS HIGH
Mhcy	MACHINERY
MH	MANHOLE
Mkr	MARKER POST
MkrE	MARKER POST (ELECTRIC)
MkrG	MARKER POST (GAS)
MkrR	MARKER POST (RAILWAY)
MkrT	MARKER POST (TELECOM)
MkrW	MARKER POST (WATER)
MP	MILE POST
MS	MILE STONE
NL	NOT LOCATED
NP	NAME PLATE
OSA	OUTSIDE SURVEY AREA
OSBM	O.S BENCH MARK
OGP	OVERGROUND PIPE
OHCu	O/H CABLE (UNIDENTIFIED)
OHE	OVERHEAD CABLE (ELECTRIC)
OHG	OVERHEAD GANTRY
OHP	OVERHEAD PIPE
OHT	OVERHEAD CABLE (TELECOM)
OP	OUTLET PIPE
P	POST
Pb	PARK BENCH
PB	POST BOX
PCsg	PEDESTRIAN CROSSING
PE	POLYETHALINE
PF	PITCH FIBER
Pl	PILE
Pir	MOVEMENT DETECTOR
Pmd	PLANT MOTOR DRIVE
PP	PETROL / DIESEL PUMP
PR	PIPE RISER
Psk	PENSTOCK
PU	PUMP
PV	PIPE (VERTICAL)
PVC	POLYVINYL CHLORIDE
Pyl	PYLON
Pz	PIEZOMETER
RE	RODDING EYE
RG	RAIN GAUGE
RMP	RESERVOIR MONITORING PNT
RP	REFLECTOR POST
RS	ROAD SIGN
RSP	RAILWAY SIGNAL POST
RWP	RAIN WATER PIPE
S	SPREAD
SA	SURVEY ABANDONED
SB	SIGN BOARD
Shlt	SHELTER (BUS / TRAM)
SI	SPUN IRON
SL	SOFFIT LEVEL
SltL	SILT LEVEL (TOP)
SMP	SETTLEMENT MONITORING PNT

SiL	SIGNAL LOST
SP	SIGN POST
SPil	SHEET PILING
Spr	SPRING
SPt	SAMPLING POINT
ST	STOP TAP
Sti	STILE
Stl	STRUCTURE TOP LEVEL
Stp	STUMP (TREE)
StP	STAND PIPE
StPo	STAY POST
StW	STAY WIRE
SV	STOP VALVE
SVP	SOIL VENT PIPE
TBM	TEMPORARY BENCH MARK
TCB	TELEPHONE CALL BOX
TEL	TELECOM CHAMBER COVER
TFR	TAKEN FROM RECORDS
Thl	THRESHOLD LEVEL
TL	TRAFFIC LIGHT
TP	TELEGRAPH POLE
Tpt	TRIAL PIT
Tr	TROUGH
UTF	UNABLE TO FIND
UTGA	UNABLE TO GAIN ACCESS
UTL	UNABLE TO LIFT
UTR	UNABLE TO ROD
UTS	UNABLE TO SURVEY
UTT	UNABLE TO TRACE
VC	VITREOUS CLAY
VP	VENT PIPE
VR	VAPOUR RECOVERY
VS	VENTILATION SHAFT
VW	VALVE / SLUICE WHEEL
WB	WEIGHBRIDGE
WL	WATER LEVEL
WM	WATER METER
WO	WASH OUT VALVE
Wr	WEIR
WrL	WEIR LEVEL
WrPl	WEIR PLATE (TOP)
WWP	WASTE WATER PIPE

FENCE TYPES:

AMF	ARMCO
BWF	BARBED WIRE
CBF	CLOSE BOARDED
CIF	CORRUGATED IRON
CLF	CHAIN LINK
CPF	CHESTNUT PALING
IRF	IRON RAILING
IWF	INTERWOVEN
PCF	POST & CHAIN
PIF	POST & IRON RAIL
PRF	POST & RAIL
PWF	POST & WIRE
SPF	STEEL PALLISADE
WMF	WIRE MESH

KEY

Symbol	Meaning
TV TV	CCTV / CABLE TELEVISION
Ø450	COMBINED DRAINAGE
COM	COMMUNICATIONS CABLE
A A	COMPRESSED AIR
	DUCTING
E E	EARTH CABLE
	ELECTRIC CABLE
EOT	END OF TRACE
Ø150	FOUL DRAINAGE
F F	FUEL PIPE
	GAS PIPE
G	GAUGE LINE
H	HEATING
O O	OFFSET FILL PIPE
	PUMPING MAIN
R R	RADAR AREA ANOMALY
R R	RADAR UTILITY TRACE
Ø300	SURFACE DRAINAGE
	SURVEY BOUNDARY
	TELECOM CABLE
TL TL	TRAFFIC LIGHTS
U U	UNIDENTIFIED
VR VR	VAPOUR RECOVERY
V V	VENT PIPE
	WATER PIPE
	O.S BENCH MARK
	SURVEY CONTROL STATION

A SINGLE LINE INDICATING A UTILITY MAY INDICATE THE PRESENCE OF MULTIPLE SERVICES WITHIN CLOSE PROXIMITY TO EACH OTHER. WHERE A SINGLE LINE TYPE IS SHOWN WE RECOMMEND HAND DIGGING WITHIN 0.5m TO EXPOSE HIDDEN SERVICES.

ISSUE	DATE	DESCRIPTION

SHEET LAYOUT

CLIENT
GEO Environmental Group

DWG No
0422-GEG-003

REV.

TITLE
Leys Lane
Yaxley

SCALE
1:250@A0

SURVEYOR
PS

DRAWN
DS

DATE
29.04.2022

SURVEY TYPE

TOPOGRAPHICAL ☐
DRAINAGE ☒
UTILITY ☒

SUBSITE SURVEYS

m: +44 (0)7427 401344 o: +44 (0)1302 618690 w: subsitesurveys.co.uk
Registered Office: Willow House, Low Lane, Braithwaite, Doncaster, DN7 5SS

Appendix D

Anglian Water Sewer Records

(c) Crown copyright and database rights 2022 Ordnance Survey 100019209
Data updated: 30/04/22

Scale: 1:1250 | Date: 27/05/22 | Wastewater Plan A0
Map Centre: 611809,274946 | Our Ref: 865721 - 1 | Powered by digdat

Foul Sewer	Outfall*	Sewage Treatment Works	
Surface Sewer			
Combined Sewer			
Final Effluent Sewer	Inlet*	Public Pumping Station	
Rising Main*			
Private Sewer*	Manhole*	Decommissioned Pumping Station	
Decommissioned Sewer*			

*(Colour denotes effluent type)

joel.read@ashfieldfloodrisk.com

Yaxley

love every drop anglianwater

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert
0200	612070	274282	F	-	-	-
0201	612082	274271	F	-	-	-
0204	612031	274257	F	-	-	-
0300	612090	274340	F	161.8	147.7	14.1
0301	612044	274347	F	-	148.32	-
0302	612071	274296	F	-	-	-
1202	612147	274266	F	-	-	-
1300	612148	274313	F	158.7	146.5	12.2
1301	612196	274391	F	158.9	149.5	9.4
2400	612241	274404	F	159.75	151	8.75
2401	612276	274423	F	158.86	152.86	6
2402	612296	274484	F	159.75	154.1	5.65
3201	611336	274299	F	-	-	-
3202	611337	274262	F	-	-	-
3301	611371	274341	F	49.992	48.992	1
3302	611333	274322	F	-	-	-
4301	611496	274315	F	-	-	0.48
4302	611424	274335	F	50.08	48.525	1.555
5301	611591	274330	F	50.126	48.073	2.053
5302	611509	274332	F	49.782	48.568	1.214
6301	611679	274337	F	49.554	47.58	1.974
7301	611768	274341	F	49.767	47.087	2.68
8301	611878	274353	F	50.168	46.101	4.067
8302	611839	274350	F	49.493	46.594	2.899
9302	611945	274347	F	49.548	45.706	3.842
9303	611999	274347	F	48.796	45.325	3.471
0250	612068	274282	S	-	-	-
0251	612083	274268	S	-	-	-
0350	612073	274331	S	-	-	-
0351	612069	274308	S	-	-	-
1250	612151	274264	S	-	-	-
1251	612142	274265	S	-	-	-

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

Appendix E

Microdrainage Calculations

Greenfield Runoff Volume

FEH Data

Return Period (years)	100
Storm Duration (mins)	360
FEH Rainfall Version	1999
Site Location	GB 612100 274400 TM 12100 74400
C (1km)	-0.023
D1 (1km)	0.279
D2 (1km)	0.319
D3 (1km)	0.285
E (1km)	0.312
F (1km)	2.469
Areal Reduction Factor	1.00
Area (ha)	1.700
SAAR (mm)	588
CWI	84.360
SPR Host	35.950
URBEXT (1990)	0.0047

Results

Percentage Runoff (%)	30.50
Greenfield Runoff Volume (m^3)	350.873

ICP SUDS Mean Annual Flood

Input

Return Period (years)	100	SAAR (mm)	600	Urban	0.000
Area (ha)	1.700	Soil	0.400	Region Number	Region 5

Results l/s

QBAR Rural	4.8
QBAR Urban	4.8
Q100 years	17.2
Q1 year	4.2
Q30 years	11.6
Q100 years	17.2

Summary of Results for 100 year Return Period (+40%)

Half Drain Time : 2606 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status
15 min Summer	43.605	0.455	0.0	4.8	4.8	691.4	O K
30 min Summer	43.662	0.512	0.0	4.8	4.8	777.6	O K
60 min Summer	43.724	0.574	0.0	4.8	4.8	872.0	O K
120 min Summer	43.791	0.641	0.0	4.8	4.8	973.6	O K
180 min Summer	43.831	0.681	0.0	4.8	4.8	1034.7	O K
240 min Summer	43.859	0.709	0.0	4.8	4.8	1077.5	O K
360 min Summer	43.897	0.747	0.0	4.8	4.8	1134.8	O K
480 min Summer	43.921	0.771	0.0	4.8	4.8	1171.6	O K
600 min Summer	43.937	0.787	0.0	4.8	4.8	1196.4	O K
720 min Summer	43.948	0.798	0.0	4.8	4.8	1213.4	O K
960 min Summer	43.971	0.821	0.0	4.8	4.8	1247.8	O K
1440 min Summer	43.989	0.839	0.0	4.8	4.8	1274.9	O K
2160 min Summer	43.982	0.832	0.0	4.8	4.8	1264.3	O K
2880 min Summer	43.965	0.815	0.0	4.8	4.8	1238.4	O K
4320 min Summer	43.915	0.765	0.0	4.8	4.8	1162.3	O K
5760 min Summer	43.867	0.717	0.0	4.8	4.8	1090.1	O K
7200 min Summer	43.820	0.670	0.0	4.8	4.8	1019.1	O K
8640 min Summer	43.770	0.620	0.0	4.8	4.8	942.5	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
15 min Summer	218.527	0.0	407.2	27
30 min Summer	123.201	0.0	403.3	42
60 min Summer	69.458	0.0	768.3	72
120 min Summer	39.159	0.0	778.4	130
180 min Summer	28.005	0.0	764.6	190
240 min Summer	22.077	0.0	752.5	250
360 min Summer	15.789	0.0	733.9	370
480 min Summer	12.446	0.0	719.8	488
600 min Summer	10.349	0.0	708.3	608
720 min Summer	8.901	0.0	698.4	726
960 min Summer	7.098	0.0	681.7	966
1440 min Summer	5.159	0.0	660.1	1442
2160 min Summer	3.750	0.0	1414.4	2104
2880 min Summer	2.991	0.0	1361.5	2428
4320 min Summer	2.144	0.0	1244.5	3196
5760 min Summer	1.693	0.0	2050.4	3984
7200 min Summer	1.410	0.0	2128.4	4832
8640 min Summer	1.214	0.0	2191.1	5624

Summary of Results for 100 year Return Period (+40%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status
10080 min Summer	43.721	0.571	0.0	4.8	4.8	867.5	O K
15 min Winter	43.660	0.510	0.0	4.8	4.8	774.9	O K
30 min Winter	43.724	0.574	0.0	4.8	4.8	871.8	O K
60 min Winter	43.794	0.644	0.0	4.8	4.8	978.4	O K
120 min Winter	43.869	0.719	0.0	4.8	4.8	1093.2	O K
180 min Winter	43.915	0.765	0.0	4.8	4.8	1162.3	O K
240 min Winter	43.947	0.797	0.0	4.8	4.8	1211.1	O K
360 min Winter	43.990	0.840	0.0	4.8	4.8	1277.2	O K
480 min Winter	44.019	0.869	0.0	4.8	4.8	1320.4	O K
600 min Winter	44.038	0.888	0.0	4.8	4.8	1350.3	O K
720 min Winter	44.052	0.902	0.0	4.8	4.8	1371.5	O K
960 min Winter	44.081	0.931	0.0	4.8	4.8	1414.6	O K
1440 min Winter	44.107	0.957	0.0	4.8	4.8	1454.4	O K
2160 min Winter	44.109	0.959	0.0	4.8	4.8	1457.2	O K
2880 min Winter	44.090	0.940	0.0	4.8	4.8	1428.5	O K
4320 min Winter	44.026	0.876	0.0	4.8	4.8	1330.8	O K
5760 min Winter	43.963	0.813	0.0	4.8	4.8	1236.3	O K
7200 min Winter	43.900	0.750	0.0	4.8	4.8	1139.5	O K
8640 min Winter	43.834	0.684	0.0	4.8	4.8	1040.4	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
10080 min Summer	1.069	0.0	2237.0	6360
15 min Winter	218.527	0.0	405.0	27
30 min Winter	123.201	0.0	395.6	41
60 min Winter	69.458	0.0	782.2	70
120 min Winter	39.159	0.0	761.2	130
180 min Winter	28.005	0.0	746.7	188
240 min Winter	22.077	0.0	736.6	246
360 min Winter	15.789	0.0	723.0	364
480 min Winter	12.446	0.0	713.8	480
600 min Winter	10.349	0.0	707.0	598
720 min Winter	8.901	0.0	701.8	714
960 min Winter	7.098	0.0	697.5	948
1440 min Winter	5.159	0.0	697.3	1404
2160 min Winter	3.750	0.0	1431.2	2076
2880 min Winter	2.991	0.0	1387.0	2692
4320 min Winter	2.144	0.0	1297.9	3372
5760 min Winter	1.693	0.0	2293.0	4280
7200 min Winter	1.410	0.0	2375.0	5256
8640 min Winter	1.214	0.0	2430.3	6144

Summary of Results for 100 year Return Period (+40%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status
10080 min Winter	43.759	0.609	0.0	4.8	4.8	926.0	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
10080 min Winter	1.069	0.0	2460.2	6968