



Shepherd Gilmour
Consulting Engineers

LAND WEST OF MAGNA PARK

CROSS IN HAND

RUGBY

LEVELS AND VOLUMETRIC REVIEW

Shepherd Gilmour Infrastructure Ltd.

3rd Floor Phoenix House,

45 Cross Street,

Manchester,

M2 4JF

CONTENTS

<i>Introduction</i>	3
<i>Site Description</i>	3
Existing Site	3
Existing Topography	5
<i>Cut And Fill Exercise</i>	5
<i>Topsoil</i>	5
<i>Building Formation</i>	6
<i>Conclusion</i>	6

INTRODUCTION

- I.1 This Levels and Volumetric review has been prepared to support the preparation of an indicative masterplan to help promote the allocation of this site through a response to a call for sites. It has been commissioned by Nurton Developments (Lutterworth) Ltd.
- I.2 The report reviews the proposed level changes onsite and the movement of material required to achieve the development plateaus and the SuDS required to support the development. It provides indicative Finished Floor Levels and estimates the impact in terms of cut and fill to achieve these proposed finished floor levels.
- I.2 The site is 92.0 hectares in area and located in Warwickshire, approximately 4km west of Lutterworth. The site is bound by Coal Pit Lane to the North, and the Southeast boundary is made up of Lutterworth Road. Directly to the West of the site beyond the historically infilled railway line, is an area of land known as Newham Paddock.

SITE DESCRIPTION

Existing Site

- I.3 The site is currently farmland. In recent history a section of the site along the Western edge, was traversed by a railway line which was infilled in the 1950's. To the North and East of the site is a well-established industrial development known as Magna Park.



Figure 3-1 Existing site (Map data from Google Earth 2023)

Existing Topography

- I.4 The highest point of the site is located towards the Northeast boundary with an approximate elevation of 133m AOD. The levels generally fall in a Westerly direction to a minimum elevation of approximately 118.2m. A copy of the topographical survey is provided in Appendix A.

CUT AND FILL EXERCISE

- I.5 Utilising Civils 3D software, SGI have created an indicative 3-dimensional model of the proposed site levels. The purpose of this exercise is to review the likely material movements both on and off the site and secondly the material movements within the confines of the site.
- I.6 A drone based topographical survey was commissioned of the site and the results of the drone survey has been produced as a detailed topographical survey for the site. The results of the drone survey were verified onsite to ensure the accuracy of the base data.
- I.7 The current design status is embryonic and as such assumptions have been made in relation to development construction thickness. Similarly, whilst a Phase I Geo Environmental Assessment is available, no intrusive investigation has been carried out to establish ground conditions. As such assumptions have been made in relation to Topsoil thickness. As this information becomes available the model will be adjusted.

TOPSOIL

- I.8 As noted above there is no available intrusive investigation available for the site. Based on experience an assumption has been made that a 250mm layer of topsoil overlays the site. The assumed topsoil depth has been removed from the topographical survey and a volume of 188,625m³ of topsoil will be generated as part of this initial site strip. This topsoil will be carefully stored in accordance with the Landscape Architects specification for subsequent reuse onsite in landscape areas. Once a detailed Landscape Strategy is available a contour plan of the landscaped bunds can be created, however at this stage it is envisaged that all the topsoil can be utilised onsite.

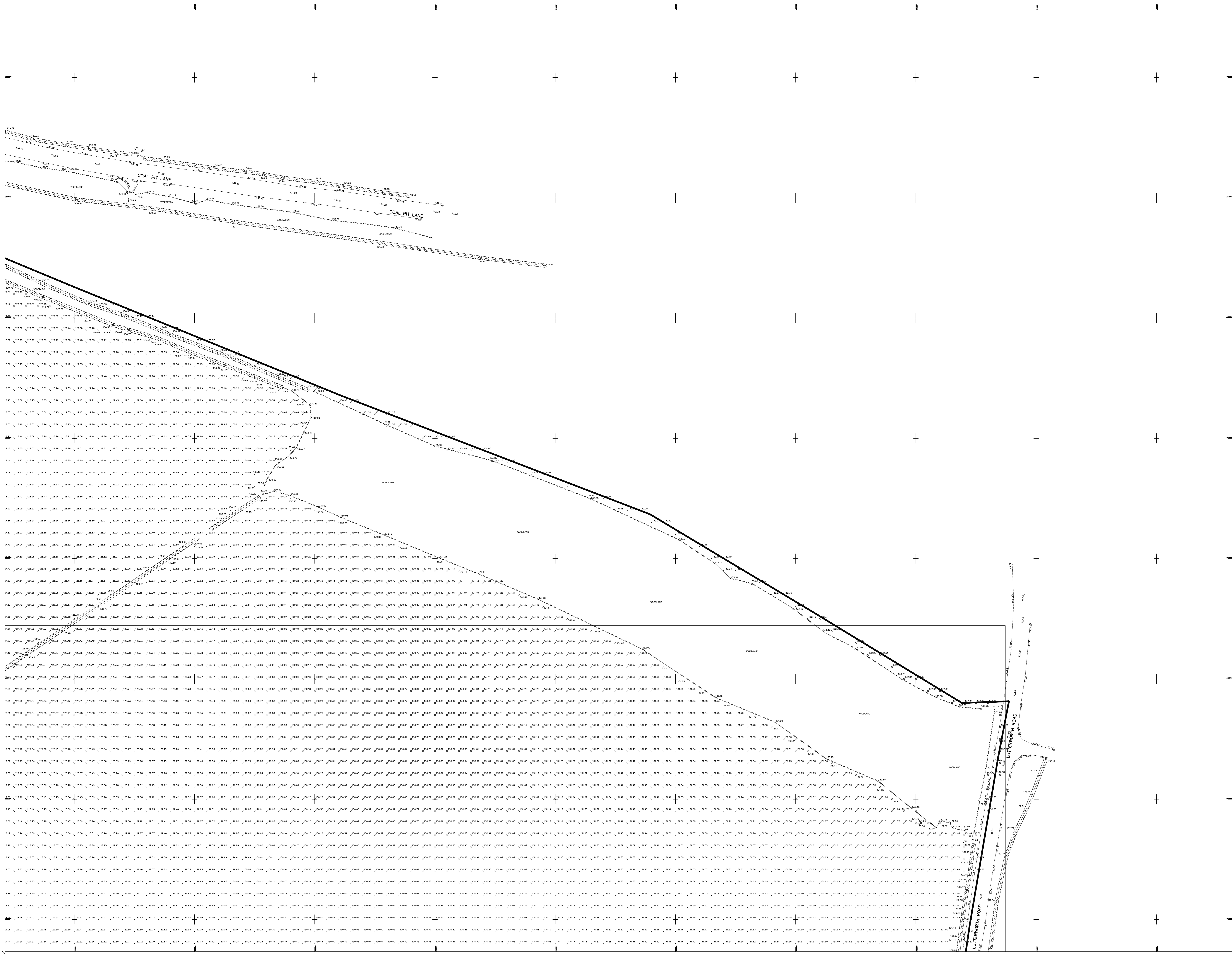
BUILDING FORMATION

- I.9 Based on an assumed building and external works construction thickness of 500mm, plot formation plateaus have been created across each development plot. It is acknowledged that falls will be required in the final design, however for the current estimating exercise, the plots have been modelled at a single level.
- I.10 The locations of the attenuation features have also been identified and the volumes of attenuation required to meet the SuDS requirement have been formed in the formation model.
- I.11 This formation model has then been compared to the 'Stripped' Topographical survey model. This exercise demonstrates that approximately 477,195m³ of cut is required and 543,575m³ of fill is required to reshape the site into the formation model.
- I.12 The net requirement of fill (66,379m³) will be generated onsite from foundation, drainage, and services arisings. Small level adjustments can be carried out throughout the development process to ensure that an 'effective' cut and fill balance is achieved.
- I.13 The results of this exercise are presented in drawing format in Appendix B. Areas coloured red indicate areas of cut and areas coloured green represent filled areas.

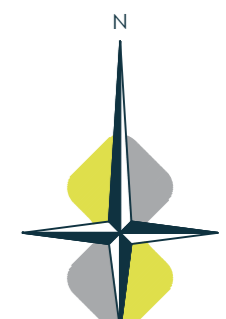
CONCLUSION

- I.14 The volumetric assessment carried out onsite has demonstrated that the proposed redevelopment of this site can be undertaken without the need for any import and export of material. Careful consideration given to site design and the development phasing has ensured that the site minimises movement of material and ensures that the only material to be brought onto or taken offsite will be the construction materials required for the building structure and the external paved areas. This provides for the most sustainable and carbon friendly type of design.

APPENDIX A



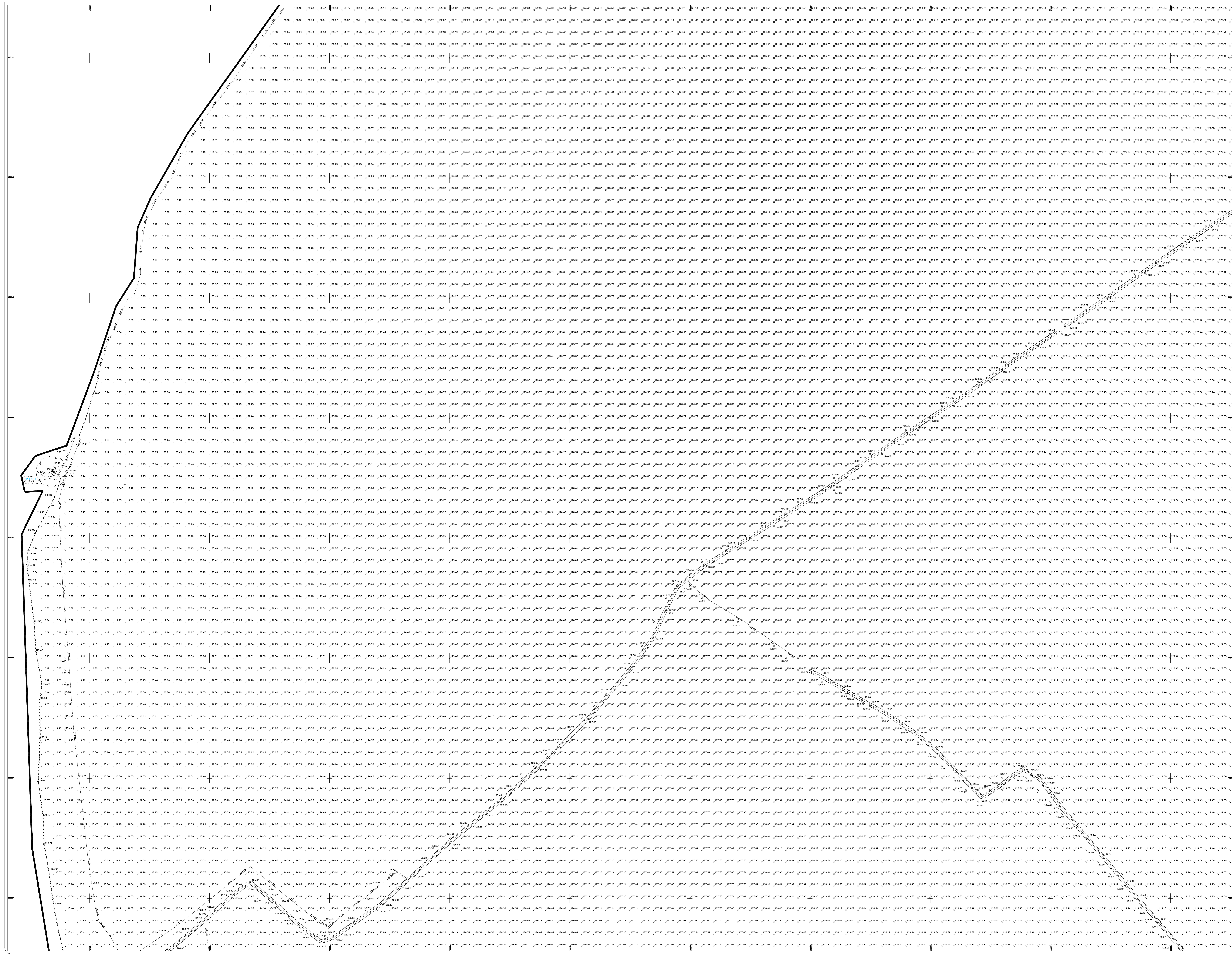
© Survey & Engineering Projects Ltd. 2023
Reproduction in whole or in part by any means is prohibited
without the prior permission of Survey & Engineering Projects Ltd.
T: 0161 676 7200 F: 0161 676 7204 W: www.surveyandengineering.co.uk



File Name: S24831-1.dwg

LEGEND	
AB	ABOVE GROUND
AD	ADDITIONAL
AN	ANALYSIS
AR	ARCHITECTURE
AS	ASBESTOS
AT	ATMOSPHERE
AV	AVIATION
AW	AWAY FROM
AX	AXIS
BA	BANK
BB	BANK BOUNDARY
BC	BANK COVER
BD	BANK DRAINAGE
BE	BEHIND
BF	BEHIND COVER
BH	BANK HILL
BI	BANK INSIDE
BJ	BANK JUNCTION
BK	BANK KUTTING
BL	BANK LANE
BM	BANK MOUND
BN	BANK NEST
BO	BANK OUTFALL
BP	BANK PILE
BQ	BANK QUARRY
BR	BANK RAMP
BS	BANK SLOPE
BT	BANK TRENCH
BU	BANK UNDER
BV	BANK VENT
BW	BANK WALL
BX	BANK X-SECTION
BY	BANK Y-SECTION
BZ	BANK Z-SECTION
CA	CANAL
CB	CANAL BANK
CC	CANAL COVER
CD	CANAL DRAINAGE
CE	CANAL ELEVATION
CF	CANAL FLOW
CG	CANAL GROUND
CH	CANAL HILL
CI	CANAL INSIDE
CJ	CANAL JUNCTION
CK	CANAL KUTTING
CL	CANAL LANE
CM	CANAL MOUND
CN	CANAL NEST
CO	CANAL OUTFALL
CP	CANAL PILE
CQ	CANAL QUARRY
CR	CANAL RAMP
CS	CANAL SLOPE
CT	CANAL TRENCH
CU	CANAL UNDER
CV	CANAL VENT
CW	CANAL WALL
CX	CANAL X-SECTION
CY	CANAL Y-SECTION
CZ	CANAL Z-SECTION
DA	DRAINAGE
DB	DRAINAGE BANK
DC	DRAINAGE COVER
DD	DRAINAGE DRAINAGE
DE	DRAINAGE ELEVATION
DF	DRAINAGE FLOW
DG	DRAINAGE GROUND
DH	DRAINAGE HILL
DI	DRAINAGE INSIDE
DJ	DRAINAGE JUNCTION
DK	DRAINAGE KUTTING
DL	DRAINAGE LANE
DM	DRAINAGE MOUND
DN	DRAINAGE NEST
DO	DRAINAGE OUTFALL
DP	DRAINAGE PILE
DQ	DRAINAGE QUARRY
DR	DRAINAGE RAMP
DS	DRAINAGE SLOPE
DT	DRAINAGE TRENCH
DU	DRAINAGE UNDER
DV	DRAINAGE VENT
DW	DRAINAGE WALL
DX	DRAINAGE X-SECTION
DY	DRAINAGE Y-SECTION
DZ	DRAINAGE Z-SECTION
EA	ELEVATION
EB	ELEVATION BANK
EC	ELEVATION COVER
ED	ELEVATION DRAINAGE
EE	ELEVATION ELEVATION
EF	ELEVATION FLOW
EG	ELEVATION GROUND
EH	ELEVATION HILL
EI	ELEVATION INSIDE
EJ	ELEVATION JUNCTION
EK	ELEVATION KUTTING
EL	ELEVATION LANE
EM	ELEVATION MOUND
EN	ELEVATION NEST
EO	ELEVATION OUTFALL
EP	ELEVATION PILE
EQ	ELEVATION QUARRY
ER	ELEVATION RAMP
ES	ELEVATION SLOPE
ET	ELEVATION TRENCH
EU	ELEVATION UNDER
EV	ELEVATION VENT
EW	ELEVATION WALL
EX	ELEVATION X-SECTION
EY	ELEVATION Y-SECTION
EZ	ELEVATION Z-SECTION
FA	FLOW
FB	FLOW BANK
FC	FLOW COVER
FD	FLOW DRAINAGE
FE	FLOW ELEVATION
FF	FLOW FLOW
FG	FLOW GROUND
FH	FLOW HILL
FI	FLOW INSIDE
FJ	FLOW JUNCTION
FK	FLOW KUTTING
FL	FLOW LANE
FM	FLOW MOUND
FN	FLOW NEST
FO	FLOW OUTFALL
FP	FLOW PILE
FQ	FLOW QUARRY
FR	FLOW RAMP
FS	FLOW SLOPE
FT	FLOW TRENCH
FU	FLOW UNDER
FV	FLOW VENT
FW	FLOW WALL
FX	FLOW X-SECTION
FY	FLOW Y-SECTION
FZ	FLOW Z-SECTION
GA	GROUND
GB	GROUND BANK
GC	GROUND COVER
GD	GROUND DRAINAGE
GE	GROUND ELEVATION
GF	GROUND FLOW
GG	GROUND GROUND
GH	GROUND HILL
GI	GROUND INSIDE
GJ	GROUND JUNCTION
GK	GROUND KUTTING
GL	GROUND LANE
GM	GROUND MOUND
GN	GROUND NEST
GO	GROUND OUTFALL
GP	GROUND PILE
GQ	GROUND QUARRY
GR	GROUND RAMP
GS	GROUND SLOPE
GT	GROUND TRENCH
GU	GROUND UNDER
GV	GROUND VENT
GW	GROUND WALL
GX	GROUND X-SECTION
GY	GROUND Y-SECTION
GZ	GROUND Z-SECTION
HA	HILL
HB	HILL BANK
HC	HILL COVER
HD	HILL DRAINAGE
HE	HILL ELEVATION
HF	HILL FLOW
HG	HILL GROUND
HH	HILL HILL
HI	HILL INSIDE
HJ	HILL JUNCTION
HK	HILL KUTTING
HL	HILL LANE
HM	HILL MOUND
HN	HILL NEST
HO	HILL OUTFALL
HP	HILL PILE
HQ	HILL QUARRY
HR	HILL RAMP
HS	HILL SLOPE
HT	HILL TRENCH
HU	HILL UNDER
HV	HILL VENT
HW	HILL WALL
HX	HILL X-SECTION
HY	HILL Y-SECTION
HZ	HILL Z-SECTION
IA	INSIDE
IB	INSIDE BANK
IC	INSIDE COVER
ID	INSIDE DRAINAGE
IE	INSIDE ELEVATION
IF	INSIDE FLOW
IG	INSIDE GROUND
IH	INSIDE HILL
II	INSIDE INSIDE
IJ	INSIDE JUNCTION
IK	INSIDE KUTTING
IL	INSIDE LANE
IM	INSIDE MOUND
IN	INSIDE NEST
IO	INSIDE OUTFALL
IP	INSIDE PILE
IQ	INSIDE QUARRY
IR	INSIDE RAMP
IS	INSIDE SLOPE
IT	INSIDE TRENCH
IU	INSIDE UNDER
IV	INSIDE VENT
IW	INSIDE WALL
IX	INSIDE X-SECTION
IY	INSIDE Y-SECTION
IZ	INSIDE Z-SECTION
JA	JUNCTION
JB	JUNCTION BANK
JC	JUNCTION COVER
JD	JUNCTION DRAINAGE
JE	JUNCTION ELEVATION
JF	JUNCTION FLOW
JG	JUNCTION GROUND
JH	JUNCTION HILL
JI	JUNCTION INSIDE
JJ	JUNCTION JUNCTION
JK	JUNCTION KUTTING
JL	JUNCTION LANE
JM	JUNCTION MOUND
JN	JUNCTION NEST
JO	JUNCTION OUTFALL
JP	JUNCTION PILE
JQ	JUNCTION QUARRY
JR	JUNCTION RAMP
JS	JUNCTION SLOPE
JT	JUNCTION TRENCH
JU	JUNCTION UNDER
JV	JUNCTION VENT
JW	JUNCTION WALL
JX	JUNCTION X-SECTION
JY	JUNCTION Y-SECTION
JZ	JUNCTION Z-SECTION
KA	KUTTING
KB	KUTTING BANK
KC	KUTTING COVER
KD	KUTTING DRAINAGE
KE	KUTTING ELEVATION
KF	KUTTING FLOW
KG	KUTTING GROUND
KH	KUTTING HILL
KI	KUTTING INSIDE
KJ	KUTTING JUNCTION
KK	KUTTING KUTTING
KL	KUTTING LANE
KM	KUTTING MOUND
KN	KUTTING NEST
KO	KUTTING OUTFALL
KP	KUTTING PILE
KQ	KUTTING QUARRY
KR	KUTTING RAMP
KS	KUTTING SLOPE
KT	KUTTING TRENCH
KU	KUTTING UNDER
KV	KUTTING VENT
KW	KUTTING WALL
KX	KUTTING X-SECTION
KY	KUTTING Y-SECTION
KZ	KUTTING Z-SECTION
LA	LANE
LB	LANE BANK
LC	LANE COVER
LD	LANE DRAINAGE
LE	LANE ELEVATION
LF	LANE FLOW
LG	LANE GROUND
LH	LANE HILL
LI	LANE INSIDE
LJ	LANE JUNCTION
LK	LANE KUTTING
LL	LANE LANE
LM	LANE MOUND
LN	LANE NEST
LO	LANE OUTFALL
LP	LANE PILE
LQ	LANE QUARRY
LR	LANE RAMP
LS	LANE SLOPE
LT	LANE TRENCH
LU	LANE UNDER
LV	LANE VENT
LW	LANE WALL
LX	LANE X-SECTION
LY	LANE Y-SECTION
LZ	LANE Z-SECTION
MA	MOUND
MB	MOUND BANK
MC	MOUND COVER
MD	MOUND DRAINAGE
ME	MOUND ELEVATION
MF	MOUND FLOW
MG	MOUND GROUND
MH	MOUND HILL
MI	MOUND INSIDE
MJ	MOUND JUNCTION
MK	MOUND KUTTING
ML	MOUND LANE
MM	MOUND MOUND
MN	MOUND NEST
MO	MOUND OUTFALL
MP	MOUND PILE
MQ	MOUND QUARRY
MR	MOUND RAMP
MS	MOUND SLOPE
MT	MOUND TRENCH
MU	MOUND UNDER
MV	MOUND VENT
MW	MOUND WALL
MX	MOUND X-SECTION
MY	MOUND Y-SECTION
MZ	MOUND Z-SECTION
NA	NEST
NB	NEST BANK
NC	NEST COVER
ND	NEST DRAINAGE
NE	NEST ELEVATION
NF	NEST FLOW
NG	NEST GROUND
NH	NEST HILL
NI	NEST INSIDE
NJ	NEST JUNCTION
NK	NEST KUTTING
NL	NEST LANE
NM	NEST MOUND
NN	NEST NEST
NO	NEST OUTFALL
NP	NEST PILE
NQ	NEST QUARRY
NR	NEST RAMP
NS	NEST SLOPE
NT	NEST TRENCH
NU	NEST UNDER
NV	NEST VENT
NW	NEST WALL
NX	NEST X-SECTION
NY	NEST Y-SECTION
NZ	NEST Z-SECTION
OA	OUTFALL
OB	OUTFALL BANK
OC	OUTFALL COVER
OD	OUTFALL DRAINAGE
OE	OUTFALL ELEVATION
OF	OUTFALL FLOW
OG	OUTFALL GROUND
OH	OUTFALL HILL
OI	OUTFALL INSIDE
OJ	OUTFALL JUNCTION
OK	OUTFALL KUTTING
OL	OUTFALL LANE
OM	OUTFALL MOUND
ON	OUTFALL NEST
OO	OUTFALL OUTFALL
OP	OUTFALL PILE
OQ	OUTFALL QUARRY
OR	OUTFALL RAMP
OS	OUTFALL SLOPE
OT	OUTFALL TRENCH
OU	OUTFALL UNDER
OV	OUTFALL VENT
OW	OUTFALL WALL
OX	OUTFALL X-SECTION
OY	OUTFALL Y-SECTION
OZ	OUTFALL Z-SECTION
PA	PILE
PB	PILE BANK
PC	PILE COVER
PD	PILE DRAINAGE
PE	PILE ELEVATION
PF	PILE FLOW
PG	PILE GROUND
PH	PILE HILL
PI	PILE INSIDE
PJ	PILE JUNCTION
PK	PILE KUTTING
PL	PILE LANE
PM	PILE MOUND
PN	PILE NEST
PO	PILE OUTFALL
PP	PILE PILE
PQ	PILE QUARRY
PR	PILE RAMP
PS	PILE SLOPE
PT	PILE TRENCH
PU	PILE UNDER
PV	PILE VENT
PW	PILE WALL
PX	PILE X-SECTION
PY	PILE Y-SECTION
PZ	PILE Z-SECTION
QA	QUARRY
QB	QUARRY BANK
QC	QUARRY COVER
QD	QUARRY DRAINAGE
QE	QUARRY ELEVATION
QF	QUARRY FLOW
QG	QUARRY GROUND
QH	QUARRY HILL
QI	QUARRY INSIDE
QJ	QUARRY JUNCTION
QK	QUARRY KUTTING
QL	QUARRY LANE
QM	QUARRY MOUND
QN	QUARRY NEST
QO	QUARRY OUTFALL
QP	QUARRY PILE
QQ	QUARRY QUARRY
QR	QUARRY RAMP
QS	QUARRY SLOPE
QT	QUARRY TRENCH
QU	QUARRY UNDER
QV	QUARRY VENT
QW	QUARRY WALL
QX	QUARRY X-SECTION
QY	QUARRY Y-SECTION
QZ	QUARRY Z-SECTION
RA	RAMP
RB	RAMP BANK
RC	RAMP COVER
RD	RAMP DRAINAGE
RE	RAMP ELEVATION
RF	RAMP FLOW
RG	RAMP GROUND
RH	RAMP HILL
RI	RAMP INSIDE
RJ	RAMP JUNCTION
RK	RAMP KUTTING
RL	RAMP LANE
RM	RAMP MOUND
RN	RAMP NEST
RO	RAMP OUTFALL
RP	RAMP PILE
RQ	RAMP QUARRY
RR	RAMP RAMP
RS	RAMP SLOPE
RT	RAMP TRENCH
RU	RAMP UNDER
RV	RAMP VENT
RW	RAMP WALL
RX	RAMP X-SECTION
RY	RAMP Y-SECTION
RZ	RAMP Z-SECTION
SA	SLOPE
SB	SLOPE BANK
SC	SLOPE COVER
SD	SLOPE DRAINAGE
SE	SLOPE ELEVATION
SF	SLOPE FLOW
SG	SLOPE GROUND
SH	SLOPE HILL
SI	SLOPE INSIDE
SJ	SLOPE JUNCTION
SK	SLOPE KUTTING
SL	SLOPE LANE
SM	SLOPE MOUND
SN	SLOPE NEST
SO	SLOPE OUTFALL
SP	SLOPE PILE
SQ	SLOPE QUARRY
SR	SLOPE RAMP
SS	SLOPE SLOPE
ST	SLOPE TRENCH
SU	SLOPE UNDER
SV	SLOPE VENT
SW	SLOPE WALL
SX	SLOPE X-SECTION
SY	SLOPE Y-SECTION
SZ	SLOPE Z-SECTION
TA	TRENCH
TB	TRENCH BANK
TC	TRENCH COVER
TD	TRENCH DRAINAGE
TE	TRENCH ELEVATION
TF	TRENCH FLOW
TG	TRENCH GROUND
TH	TRENCH HILL
TI	TRENCH INSIDE
TJ	TRENCH JUNCTION
TK	TRENCH KUTTING
TL	TRENCH LANE
TM	TRENCH MOUND
TN	TRENCH NEST
TO	TRENCH OUTFALL
TP	TRENCH PILE
TQ	TRENCH QUARRY
TR	TRENCH RAMP
TS	TRENCH SLOPE
TT	TRENCH TRENCH
TU	TRENCH UNDER
TV	TRENCH VENT
TW	TRENCH WALL
TX	TRENCH X-SECTION
TY	TRENCH Y-SECTION
TZ	TRENCH Z-SECTION
UA	UNDER
UB	UNDER BANK
UC	UNDER COVER
UD	UNDER DRAINAGE
UE	UNDER ELEVATION
UF	UNDER FLOW
UG	UNDER GROUND
UH	UNDER HILL
UI	UNDER INSIDE
UJ	UNDER JUNCTION
UK	UNDER KUTTING
UL	UNDER LANE
UM	UNDER MOUND
UN	UNDER NEST
UO	UNDER OUTFALL
UP	UNDER PILE
UQ	UNDER QUARRY
UR	UNDER RAMP
US	UNDER SLOPE
UT	UNDER TRENCH
UU	UNDER UNDER
UV	UNDER VENT
UW	UNDER WALL
UX	UNDER X-SECTION
UY	UNDER Y-SECTION
UZ	UNDER Z-SECTION
VA	VENT
VB	VENT BANK
VC	VENT COVER
VD	VENT DRAINAGE
VE	VENT ELEVATION
VF	VENT FLOW
VG	VENT GROUND
VH	VENT HILL
VI	VENT INSIDE
VJ	VENT JUNCTION
VK	VENT KUTTING
VL	VENT LANE
VM	VENT MOUND
VN	VENT NEST
VO	VENT OUTFALL
VP	VENT PILE
VQ	VENT QUARRY
VR	VENT RAMP
VS	VENT SLOPE
VT	VENT TRENCH
VU	VENT UNDER
VV	VENT VENT
VW	VENT WALL
VX	VENT X-SECTION
VY	VENT Y-SECTION
VZ	VENT Z-SECTION
WA	WALL
WB	WALL BANK
WC	WALL COVER
WD	WALL DRAINAGE
WE	WALL ELEVATION
WF	WALL FLOW
WG	WALL GROUND
WH	WALL HILL
WI	WALL INSIDE
WJ	WALL JUNCTION
WK	WALL KUTTING
WL	WALL LANE
WM	WALL MOUND
WN	WALL NEST
WO	WALL OUTFALL
WP	WALL PILE
WQ	WALL QUARRY
WR	WALL RAMP
WS	WALL SLOPE
WT	WALL TRENCH
WU	WALL UNDER
WV	WALL VENT
WW	WALL WALL
WX	WALL X-SECTION
WY	WALL Y-SECTION
WZ	WALL Z-SECTION
XA	X-SECTION
XB	X-SECTION BANK
XC	X-SECTION COVER
XD	X-SECTION DRAINAGE
XE	X-SECTION ELEVATION
XF	X-SECTION FLOW
YG	Y-SECTION
YB	Y-SECTION BANK
YC	Y-SECTION COVER
YD	Y-SECTION DRAINAGE
YE	Y-SECTION ELEVATION
YF	Y-SECTION FLOW
YH	Y-SECTION HILL
YI	Y-SECTION INSIDE
YJ	Y-SECTION JUNCTION
YK	Y-SECTION KUTTING
YL	Y-SECTION LANE
YM	Y-SECTION MOUND
YN	Y-SECTION NEST
YO	Y-SECTION OUTFALL
YP	Y-SECTION PILE
YQ	Y-SECTION QUARRY
YR	Y-SECTION RAMP
YS	Y-SECTION SLOPE
YT	Y-SECTION TRENCH
YU	Y-SECTION UNDER
YV	Y-SECTION VENT
YW	Y-SECTION WALL
YX	Y-SECTION X-SECTION
YY	Y-SECTION Y-SECTION
YZ	Y-SECTION Z-SECTION
ZA	Z-SECTION
ZB	Z-SECTION BANK
ZC	Z-SECTION COVER
ZD	Z-SECTION DRAINAGE
ZE	Z-SECTION ELEVATION
ZF	Z-SECTION FLOW
ZG	Z-SECTION GROUND
ZH	Z-SECTION HILL
ZI	Z-SECTION INSIDE
ZJ	Z-SECTION JUNCTION
ZK	Z-SECTION KUTTING
ZL	Z-SECTION LANE
ZM	Z-SECTION MOUND
ZN	Z-SECTION NEST
ZO	Z-SECTION OUTFALL
ZP	Z-SECTION PILE
ZQ	Z-SECTION QUARRY
ZR	Z-SECTION RAMP
ZS	Z-SECTION SLOPE
ZT	Z-SECTION TRENCH
ZU	Z-SECTION UNDER
ZV	Z-SECTION VENT
ZW	Z-SECTION WALL
ZX	Z-SECTION X-SECTION
ZY	Z-SECTION Y-SECTION

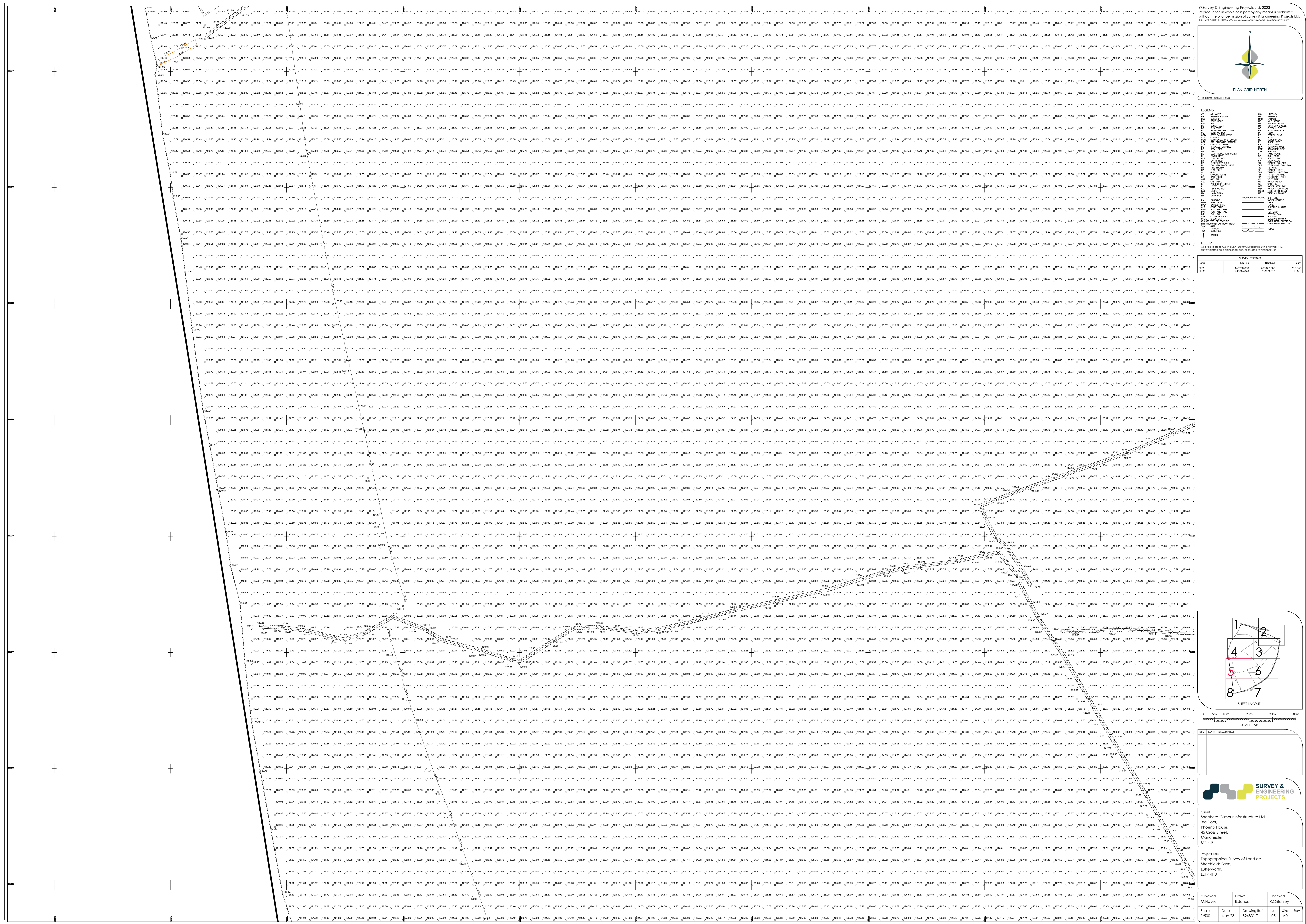


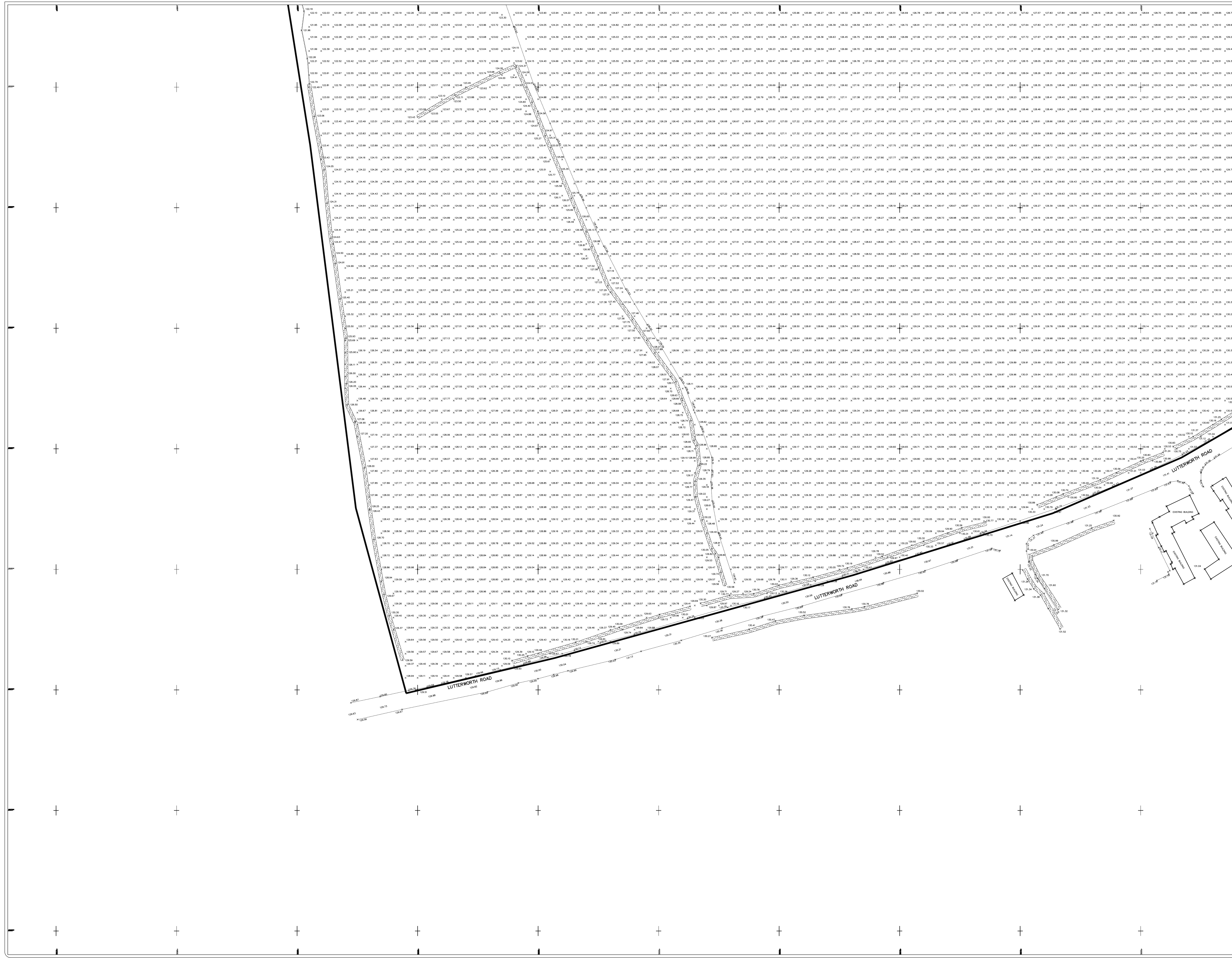


Survey & Engineering Projects Ltd. 2023
Reproduction in whole or in part by any means is prohibited
without the prior permission of Survey & Engineering Projects Ltd.
E: 01494 726613 F: 01494 726614 W: www.surveyandengineering.co.uk

LEGEND

1	BOUNDARY	10	ROAD
2	ROAD	11	ROAD
3	ROAD	12	ROAD
4	ROAD	13	ROAD
5	ROAD	14	ROAD
6	ROAD	15	ROAD
7	ROAD	16	ROAD
8	ROAD	17	ROAD
9	ROAD	18	ROAD
10	ROAD	19	ROAD
11	ROAD	20	ROAD
12	ROAD	21	ROAD
13	ROAD	22	ROAD
14	ROAD	23	ROAD
15	ROAD	24	ROAD
16	ROAD	25	ROAD
17	ROAD	26	ROAD
18	ROAD	27	ROAD
19	ROAD	28	ROAD
20	ROAD	29	ROAD
21	ROAD	30	ROAD
22	ROAD	31	ROAD
23	ROAD	32	ROAD
24	ROAD	33	ROAD
25	ROAD	34	ROAD
26	ROAD	35	ROAD
27	ROAD	36	ROAD
28	ROAD	37	ROAD
29	ROAD	38	ROAD
30	ROAD	39	ROAD
31	ROAD	40	ROAD
32	ROAD	41	ROAD
33	ROAD	42	ROAD
34	ROAD	43	ROAD
35	ROAD	44	ROAD
36	ROAD	45	ROAD
37	ROAD	46	ROAD
38	ROAD	47	ROAD
39	ROAD	48	ROAD
40	ROAD	49	ROAD
41	ROAD	50	ROAD
42	ROAD	51	ROAD
43	ROAD	52	ROAD
44	ROAD	53	ROAD
45	ROAD	54	ROAD
46	ROAD	55	ROAD
47	ROAD	56	ROAD
48	ROAD	57	ROAD
49	ROAD	58	ROAD
50	ROAD	59	ROAD
51	ROAD	60	ROAD
52	ROAD	61	ROAD
53	ROAD	62	ROAD
54	ROAD	63	ROAD
55	ROAD	64	ROAD
56	ROAD	65	ROAD
57	ROAD	66	ROAD
58	ROAD	67	ROAD
59	ROAD	68	ROAD
60	ROAD	69	ROAD
61	ROAD	70	ROAD
62	ROAD	71	ROAD
63	ROAD	72	ROAD
64	ROAD	73	ROAD
65	ROAD	74	ROAD
66	ROAD	75	ROAD
67	ROAD	76	ROAD
68	ROAD	77	ROAD
69	ROAD	78	ROAD
70	ROAD	79	ROAD
71	ROAD	80	ROAD
72	ROAD	81	ROAD
73	ROAD	82	ROAD
74	ROAD	83	ROAD
75	ROAD	84	ROAD
76	ROAD	85	ROAD
77	ROAD	86	ROAD
78	ROAD	87	ROAD
79	ROAD	88	ROAD
80	ROAD	89	ROAD
81	ROAD	90	ROAD
82	ROAD	91	ROAD
83	ROAD	92	ROAD
84	ROAD	93	ROAD
85	ROAD	94	ROAD
86	ROAD	95	ROAD
87	ROAD	96	ROAD
88	ROAD	97	ROAD
89	ROAD	98	ROAD
90	ROAD	99	ROAD
91	ROAD	100	ROAD
92	ROAD	101	ROAD
93	ROAD	102	ROAD
94	ROAD	103	ROAD
95	ROAD	104	ROAD
96	ROAD	105	ROAD
97	ROAD	106	ROAD
98	ROAD	107	ROAD
99	ROAD	108	ROAD
100	ROAD	109	ROAD
101	ROAD	110	ROAD
102	ROAD	111	ROAD
103	ROAD	112	ROAD
104	ROAD	113	ROAD
105	ROAD	114	ROAD
106	ROAD	115	ROAD
107	ROAD	116	ROAD
108	ROAD	117	ROAD
109	ROAD	118	ROAD
110	ROAD	119	ROAD
111	ROAD	120	ROAD
112	ROAD	121	ROAD
113	ROAD	122	ROAD
114	ROAD	123	ROAD
115	ROAD	124	ROAD
116	ROAD	125	ROAD
117	ROAD	126	ROAD
118	ROAD	127	ROAD
119	ROAD	128	ROAD
120	ROAD	129	ROAD
121	ROAD	130	ROAD
122	ROAD	131	ROAD
123	ROAD	132	ROAD
124	ROAD	133	ROAD
125	ROAD	134	ROAD
126	ROAD	135	ROAD
127	ROAD	136	ROAD
128	ROAD	137	ROAD
129	ROAD	138	ROAD
130	ROAD	139	ROAD
131	ROAD	140	ROAD
132	ROAD	141	ROAD
133	ROAD	142	ROAD
134	ROAD	143	ROAD
135	ROAD	144	ROAD
136	ROAD	145	ROAD
137	ROAD	146	ROAD
138	ROAD	147	ROAD
139	ROAD	148	ROAD
140	ROAD	149	ROAD
141	ROAD	150	ROAD
142	ROAD	151	ROAD
143	ROAD	152	ROAD
144	ROAD	153	ROAD
145	ROAD	154	ROAD
146	ROAD	155	ROAD
147	ROAD	156	ROAD
148	ROAD	157	ROAD
149	ROAD	158	ROAD
150	ROAD	159	ROAD
151	ROAD	160	ROAD
152	ROAD	161	ROAD
153	ROAD	162	ROAD
154	ROAD	163	ROAD
155	ROAD	164	ROAD
156	ROAD	165	ROAD
157	ROAD	166	ROAD
158	ROAD	167	ROAD
159	ROAD	168	ROAD
160	ROAD	169	ROAD
161	ROAD	170	ROAD
162	ROAD	171	ROAD
163	ROAD	172	ROAD
164	ROAD	173	ROAD
165	ROAD	174	ROAD
166	ROAD	175	ROAD
167	ROAD	176	ROAD
168	ROAD	177	ROAD
169	ROAD	178	ROAD
170	ROAD	179	ROAD
171	ROAD	180	ROAD
172	ROAD	181	ROAD
173	ROAD	182	ROAD
174	ROAD	183	ROAD
175	ROAD	184	ROAD
176	ROAD	185	ROAD
177	ROAD	186	ROAD
178	ROAD	187	ROAD
179	ROAD	188	ROAD
180	ROAD	189	ROAD
181	ROAD	190	ROAD
182	ROAD	191	ROAD
183	ROAD	192	ROAD
184	ROAD	193	ROAD
185	ROAD	194	ROAD
186	ROAD	195	ROAD
187	ROAD	196	ROAD
188	ROAD	197	ROAD
189	ROAD	198	ROAD
190	ROAD	199	ROAD
191	ROAD	200	ROAD
192	ROAD	201	ROAD
193	ROAD	202	ROAD
194	ROAD	203	ROAD
195	ROAD	204	ROAD
196	ROAD	205	ROAD
197	ROAD	206	ROAD
198	ROAD	207	ROAD
199	ROAD	208	ROAD
200	ROAD	209	ROAD
201	ROAD	210	ROAD
202	ROAD	211	ROAD
203	ROAD	212	ROAD
204	ROAD	213	ROAD
205	ROAD	214	ROAD
206	ROAD	215	ROAD
207	ROAD	216	ROAD
208	ROAD	217	ROAD
209	ROAD	218	ROAD
210	ROAD	219	ROAD
211	ROAD	220	ROAD
212	ROAD	221	ROAD
213	ROAD	222	ROAD
214	ROAD	223	ROAD
215	ROAD	224	ROAD
216	ROAD	225	ROAD
217	ROAD	226	ROAD
218	ROAD	227	ROAD
219	ROAD	228	ROAD
220	ROAD	229	ROAD
221	ROAD	230	ROAD
222	ROAD	231	ROAD
223	ROAD	232	ROAD
224	ROAD	233	ROAD
225	ROAD	234	ROAD
226	ROAD	235	ROAD
227	ROAD	236	ROAD
228	ROAD	237	ROAD
229	ROAD	238	ROAD
230	ROAD	239	ROAD
231	ROAD	240	ROAD
232	ROAD	241	ROAD
233	ROAD	242	ROAD
234	ROAD	243	ROAD
235	ROAD	244	ROAD
236	ROAD	245	ROAD
237	ROAD	246	ROAD
238	ROAD	247	ROAD
239	ROAD	248	ROAD
240	ROAD	249	ROAD
241	ROAD	250	ROAD
242	ROAD	251	ROAD
243	ROAD	252	ROAD
244	ROAD	253	ROAD
245	ROAD	254	ROAD
246	ROAD	255	ROAD
247	ROAD	256	ROAD
248	ROAD	257	ROAD
249	ROAD	258	ROAD
250	ROAD	259	ROAD
251	ROAD	260	ROAD
252	ROAD	261	ROAD
253	ROAD	262	ROAD
254	ROAD	263	ROAD
255	ROAD	264	ROAD
256	ROAD	265	ROAD
257	ROAD	266	ROAD
258	ROAD	267	ROAD
259	ROAD	268	ROAD
260	ROAD	269	ROAD
261	ROAD	270	ROAD
262	ROAD	271	ROAD
263	ROAD	272	ROAD
264	ROAD	273	ROAD
265	ROAD	274	ROAD
266	ROAD	275	ROAD
267	ROAD	276	ROAD
268	ROAD	277	ROAD
269	ROAD	278	ROAD
270	ROAD	279	ROAD
271	ROAD	280	ROAD
272	ROAD	281	ROAD
273	ROAD	282	ROAD
274	ROAD	283	ROAD
275	ROAD	284	ROAD
276	ROAD	285	ROAD
277	ROAD	286	ROAD
278	ROAD	287	ROAD
279	ROAD	288	ROAD
280	ROAD	289	ROAD
281	ROAD	290	ROAD
282	ROAD	291	ROAD
283	ROAD	292	ROAD
284	ROAD	293	ROAD
285	ROAD	294	ROAD
286	ROAD	295	ROAD
287	ROAD	296	ROAD
288	ROAD	297	ROAD
289	ROAD	298	ROAD
290	ROAD	299	ROAD
291	ROAD	300	ROAD
292	ROAD	301	ROAD
293	ROAD	302	ROAD
294	ROAD	303	ROAD
295	ROAD	304	ROAD
296	ROAD	305	ROAD
297	ROAD	306	ROAD
298	ROAD	307	ROAD
299	ROAD	308	ROAD
300	ROAD	309	ROAD
301	ROAD	310	ROAD
302	ROAD	311	ROAD
303	ROAD	312	ROAD
304	ROAD	313	ROAD
305	ROAD	314	ROAD
306	ROAD	315	ROAD
307	ROAD	316	ROAD
308	ROAD	317	ROAD
309	ROAD	318	ROAD
310	ROAD	319	ROAD
311	ROAD	320	ROAD
312	ROAD	321	ROAD
313	ROAD	322	ROAD
314	ROAD	323	ROAD
315	ROAD	324	ROAD
316	ROAD	325	ROAD
317	ROAD	326	ROAD
318	ROAD	327	ROAD
319	ROAD	328	ROAD
320	ROAD	329	ROAD
321	ROAD	330	ROAD
322	ROAD	331	ROAD
323	ROAD	332	ROAD
324	ROAD	333	ROAD
325	ROAD	334	ROAD
326	ROAD	335	ROAD
327	ROAD	336	ROAD
328	ROAD	337	ROAD
329	ROAD	338	ROAD
330	ROAD	339	ROAD
331	ROAD	340	ROAD
332	ROAD	341	ROAD
333	ROAD	342	ROAD
334	ROAD	343	ROAD
335	ROAD	344	ROAD
336	ROAD	345	ROAD
337	ROAD	346	ROAD
338	ROAD	347	ROAD
339	ROAD	348	ROAD
340	ROAD	349	ROAD
341	ROAD	350	ROAD
342	ROAD	351	ROAD
343	ROAD	352	ROAD
344	ROAD	353	ROAD
345	ROAD	354	ROAD
346	ROAD	355	ROAD
347	ROAD	356	ROAD
348	ROAD	357	ROAD
349	ROAD	358	ROAD
350	ROAD	359	ROAD
351	ROAD	360	ROAD
352	ROAD	361	ROAD
353	ROAD	362	ROAD
354	ROAD	363	ROAD
355	ROAD	364	ROAD
356	ROAD	365	ROAD
357	ROAD	366	ROAD
358	ROAD	367	ROAD
359	ROAD	368	ROAD
360	ROAD	369	ROAD
361	ROAD	370	ROAD
362	ROAD	371	ROAD
363	ROAD	372	ROAD
364	ROAD	373	ROAD
365	ROAD	374	ROAD
366	ROAD	375	ROAD
367	ROAD	376	ROAD
368	ROAD	377	ROAD
369	ROAD	378	ROAD
370	ROAD	379	ROAD
371	ROAD	380	ROAD
372	ROAD	381	ROAD
373	ROAD	382	ROAD
374	ROAD	383	ROAD
375	ROAD	384	ROAD
376	ROAD	385	ROAD
377	ROAD	386	ROAD
378	ROAD	387	ROAD
379	ROAD	388	ROAD
380	ROAD	389	ROAD
381	ROAD	390	ROAD
382	ROAD	391	ROAD
383	ROAD	392	ROAD
384	ROAD	393	





© Survey & Engineering Projects Ltd. 2023
Reproduction in whole or in part by any means is prohibited
without the prior permission of Survey & Engineering Projects Ltd.
T: 0161 625 1111 F: 0161 625 1112 W: www.surveyandengineering.co.uk

PLAN GRID NORTH

LEGEND

1	1:1000	1:1000
2	1:2000	1:2000
3	1:5000	1:5000
4	1:10000	1:10000
5	1:20000	1:20000
6	1:50000	1:50000
7	1:100000	1:100000
8	1:200000	1:200000
9	1:500000	1:500000
10	1:1000000	1:1000000
11	1:2000000	1:2000000
12	1:5000000	1:5000000
13	1:10000000	1:10000000
14	1:20000000	1:20000000
15	1:50000000	1:50000000
16	1:100000000	1:100000000
17	1:200000000	1:200000000
18	1:500000000	1:500000000
19	1:1000000000	1:1000000000
20	1:2000000000	1:2000000000
21	1:5000000000	1:5000000000
22	1:10000000000	1:10000000000
23	1:20000000000	1:20000000000
24	1:50000000000	1:50000000000
25	1:100000000000	1:100000000000
26	1:200000000000	1:200000000000
27	1:500000000000	1:500000000000
28	1:1000000000000	1:1000000000000
29	1:2000000000000	1:2000000000000
30	1:5000000000000	1:5000000000000
31	1:10000000000000	1:10000000000000
32	1:20000000000000	1:20000000000000
33	1:50000000000000	1:50000000000000
34	1:100000000000000	1:100000000000000
35	1:200000000000000	1:200000000000000
36	1:500000000000000	1:500000000000000
37	1:1000000000000000	1:1000000000000000
38	1:2000000000000000	1:2000000000000000
39	1:5000000000000000	1:5000000000000000
40	1:10000000000000000	1:10000000000000000
41	1:20000000000000000	1:20000000000000000
42	1:50000000000000000	1:50000000000000000
43	1:100000000000000000	1:100000000000000000
44	1:200000000000000000	1:200000000000000000
45	1:500000000000000000	1:500000000000000000
46	1:1000000000000000000	1:1000000000000000000
47	1:2000000000000000000	1:2000000000000000000
48	1:5000000000000000000	1:5000000000000000000
49	1:10000000000000000000	1:10000000000000000000
50	1:20000000000000000000	1:20000000000000000000
51	1:50000000000000000000	1:50000000000000000000
52	1:100000000000000000000	1:100000000000000000000
53	1:200000000000000000000	1:200000000000000000000
54	1:500000000000000000000	1:500000000000000000000
55	1:1000000000000000000000	1:1000000000000000000000
56	1:2000000000000000000000	1:2000000000000000000000
57	1:5000000000000000000000	1:5000000000000000000000
58	1:10000000000000000000000	1:10000000000000000000000
59	1:20000000000000000000000	1:20000000000000000000000
60	1:50000000000000000000000	1:50000000000000000000000
61	1:100000000000000000000000	1:100000000000000000000000
62	1:200000000000000000000000	1:200000000000000000000000
63	1:500000000000000000000000	1:500000000000000000000000
64	1:1000000000000000000000000	1:1000000000000000000000000
65	1:2000000000000000000000000	1:2000000000000000000000000
66	1:5000000000000000000000000	1:5000000000000000000000000
67	1:10000000000000000000000000	1:10000000000000000000000000
68	1:20000000000000000000000000	1:20000000000000000000000000
69	1:50000000000000000000000000	1:50000000000000000000000000
70	1:100000000000000000000000000	1:100000000000000000000000000
71	1:200000000000000000000000000	1:200000000000000000000000000
72	1:500000000000000000000000000	1:500000000000000000000000000
73	1:1000000000000000000000000000	1:1000000000000000000000000000
74	1:2000000000000000000000000000	1:2000000000000000000000000000
75	1:5000000000000000000000000000	1:5000000000000000000000000000
76	1:10000000000000000000000000000	1:10000000000000000000000000000
77	1:20000000000000000000000000000	1:20000000000000000000000000000
78	1:50000000000000000000000000000	1:50000000000000000000000000000
79	1:100000000000000000000000000000	1:100000000000000000000000000000
80	1:200000000000000000000000000000	1:200000000000000000000000000000
81	1:500000000000000000000000000000	1:500000000000000000000000000000
82	1:1000000000000000000000000000000	1:1000000000000000000000000000000
83	1:2000000000000000000000000000000	1:2000000000000000000000000000000
84	1:5000000000000000000000000000000	1:5000000000000000000000000000000
85	1:10000000000000000000000000000000	1:10000000000000000000000000000000
86	1:20000000000000000000000000000000	1:20000000000000000000000000000000
87	1:50000000000000000000000000000000	1:50000000000000000000000000000000
88	1:100000000000000000000000000000000	1:100000000000000000000000000000000
89	1:200000000000000000000000000000000	1:200000000000000000000000000000000
90	1:500000000000000000000000000000000	1:500000000000000000000000000000000
91	1:1000000000000000000000000000000000	1:1000000000000000000000000000000000
92	1:2000000000000000000000000000000000	1:2000000000000000000000000000000000
93	1:5000000000000000000000000000000000	1:5000000000000000000000000000000000
94	1:10000000000000000000000000000000000	1:10000000000000000000000000000000000
95	1:20000000000000000000000000000000000	1:20000000000000000000000000000000000
96	1:50000000000000000000000000000000000	1:50000000000000000000000000000000000
97	1:100000000000000000000000000000000000	1:100000000000000000000000000000000000
98	1:200000000000000000000000000000000000	1:200000000000000000000000000000000000
99	1:500000000000000000000000000000000000	1:500000000000000000000000000000000000
100	1:1000000000000000000000000000000000000	1:1000000000000000000000000000000000000

NOTES

All measurements in G.S. (British) Datum. Established using network RTK.
Survey performed on a plane local grid orientated to National Grid.

SURVEY STATIONS			
Name	Easting	Northing	Height
1001	448798.828	583617.882	118.540
1002	448818.823	583631.015	118.510

0 5m 10m 20m 30m 40m

SHEET LAYOUT

REV	DATE	DESCRIPTION
1	08/11/23	Issue for client

SURVEY & ENGINEERING PROJECTS

Client
Shepherd Gilmore Infrastructure Ltd
3rd Floor,
Phoenix House,
45 Cross Street,
Manchester,
M2 4JF

Project title
Topographical Survey of Land at
Sheepfields Farm,
Lutterworth,
LE17 4JU

Surveyed M.Hayes	Drawn R.Jones	Checked R.Critchley
Scale 1:500	Date Nov 23	Drawing Ref. S24831-T
		No. of Sheets 08
		Size A0
		Rev --

APPENDIX B

The isopachytes (contours) shown on this drawing illustrate the design depths of cut and fill on the enabling earthworks. Shades of red are areas of cut. Shades of green are areas of fill.

NOTES

- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS AND ENGINEERS DRAWINGS AND SPECIFICATIONS.
- DO NOT SCALE THIS DRAWING. ALL DETAILS AND DIMENSIONS ARE TO BE CHECKED BY THE CONTRACTOR. ANY DISCREPANCIES TO BE REPORTED TO THE ENGINEER.
- ALL DIMENSIONS ARE IN METRES AND LEVELS IN METRES ABOVE ORDNANCE DATUM UNLESS NOTED OTHERWISE.

EARTHWORKS ANALYSIS NOTES

EARTHWORKS CALCULATIONS SHOWN IN VOLUME SUMMARY TABLE ARE BASED ON A COMPARISON OF THE FOLLOWING DATA SOURCES:

- EXISTING SITE TOPOGRAPHICAL SURVEY UNDERTAKEN BY SURVEY & ENGINEERING PROJECTS ON NOV. 2023.
- PROPOSED SITE FORMATION LEVELS BASED ON PROPOSED LEVELS BY SGL.
- THE RESULTS SHOWN IN VOLUME SUMMARY TABLE DO NOT ACCOUNT FOR THE FOLLOWING:
 - PROPOSED PAVEMENT CONSTRUCTION
 - ARISINGS
 - BULKING FACTORS
 - DRAINAGE (INCLUDING ATTENUATION)
 - FOUNDATIONS
 - TEMPORARY STRUCTURES

THE DESIGN SHOWN IS BASED ON THE FOLLOWING ASSUMPTIONS:

- ALL EARTH ACCOUNTED FOR IN THE CALCULATIONS IS OF REUSABLE QUALITY.
- EARTHWORKS BATTERS ARE AT A MAXIMUM GRADIENT OF 1 IN 3 U.N.O.

SITE STRIP REMOVAL

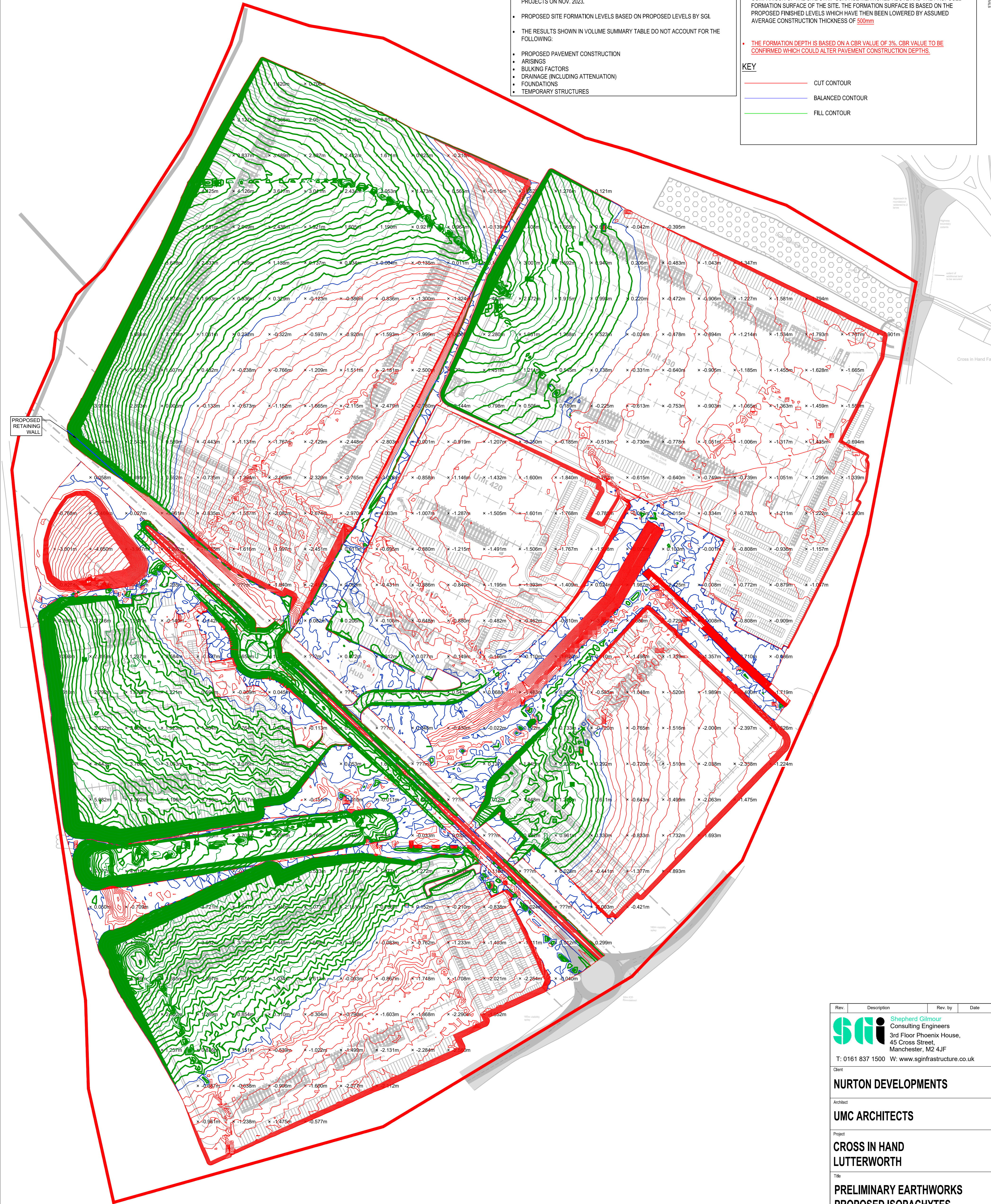
- SITE STRIP FIGURES ARE BASED ON A COMPARISON OF THE EXISTING TOPOGRAPHICAL SURVEY AND A TOPOGRAPHICAL SURVEY SURFACE REDUCED BY ASSUMED SITE STRIP DEPTH OF 250mm
- THE TOTAL VOLUME OF TOP SOIL TO BE REMOVED IS 188625.5m³

SITE CUT & FILL

- SITE CUT AND FILL FIGURES GIVEN IN THE VOLUME SUMMARY TABLE ARE BASED ON A COMPARISON OF THE SITE STRIP SURFACE MENTIONED ABOVE AND THE PROPOSED FORMATION SURFACE OF THE SITE. THE FORMATION SURFACE IS BASED ON THE PROPOSED FINISHED LEVELS WHICH HAVE THEN BEEN LOWERED BY ASSUMED AVERAGE CONSTRUCTION THICKNESS OF 500mm
- THE FORMATION DEPTH IS BASED ON A CBR VALUE OF 3%. CBR VALUE TO BE CONFIRMED WHICH COULD ALTER PAVEMENT CONSTRUCTION DEPTHS.


KEY

- CUT CONTOUR
- BALANCED CONTOUR
- FILL CONTOUR



Cut/Fill Summary

Name	Cut Factor	Fill Factor	2d Area	Cut	Fill	Net
Site Volume Earthwork	1.000	1.000	754502.393sq.m	477195.464 Cu. M.	543575.266 Cu. M.	66379.802 Cu. M.<Fill>
Totals			754502.393sq.m	477195.464 Cu. M.	543575.266 Cu. M.	66379.802 Cu. M.<Fill>

Rev.	Description	Rev. by	Date
 Shepherd Gilmour Consulting Engineers 3rd Floor Phoenix House, 45 Cross Street, Manchester, M2 4JF T: 0161 837 1500 W: www.sginfrastructure.co.uk			
Client NURTON DEVELOPMENTS			
Architect UMC ARCHITECTS			
Project CROSS IN HAND LUTTERWORTH			
Title PRELIMINARY EARTHWORKS PROPOSED ISOPACHYTES			
Date: 04-01-2024 Size: A1 Scale: 1:2000		Drawn By: PMB Checked By: DOR Approved By: EAJ	
Dwg. No. C1602-SK101		Rev P1	