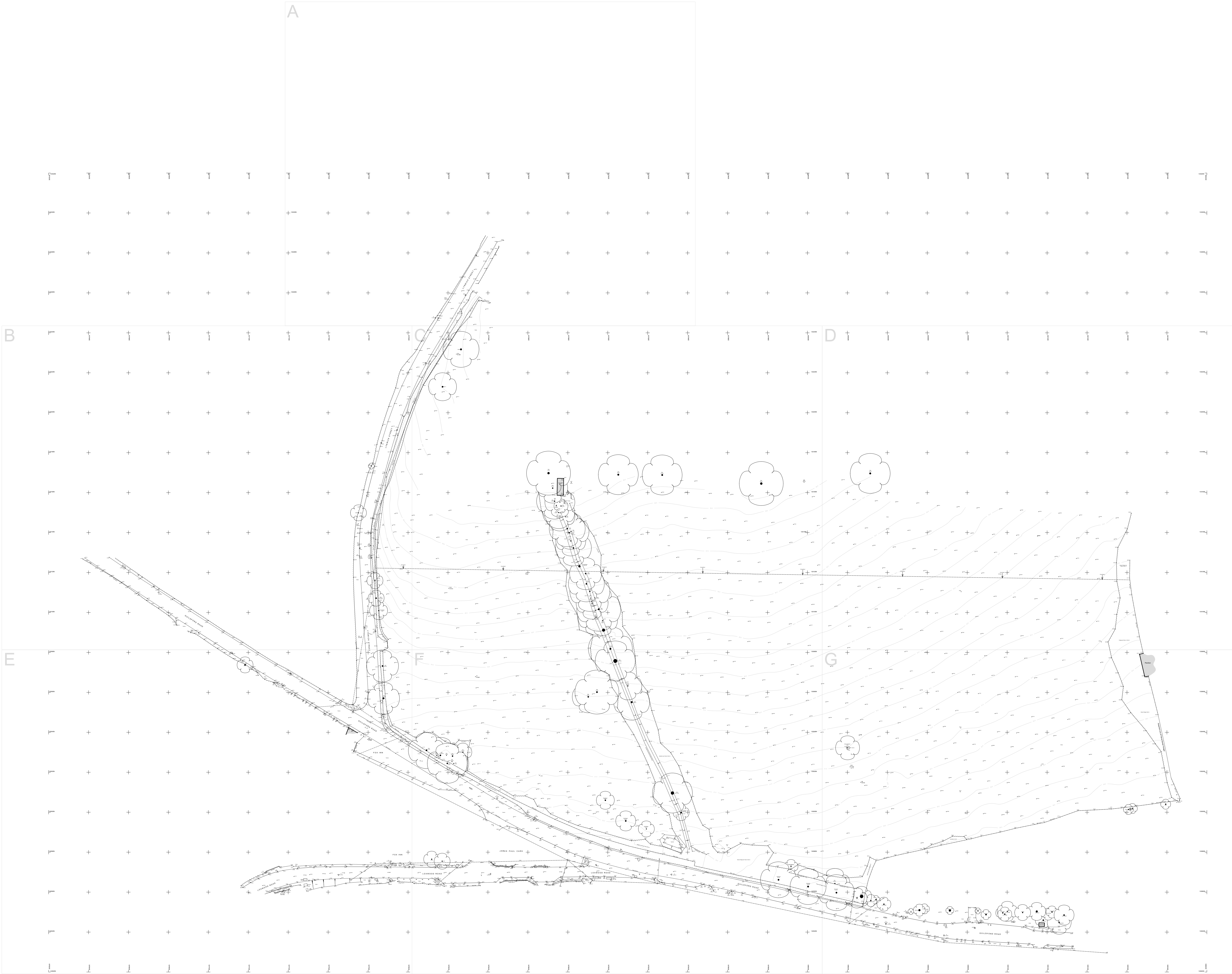






19192-100-A

19192-100-B

19192-100-C

19192-100-D

19192-100-E

19192-100-F

19192-100-G

19192-100-Overview

STATION	EASTING	NORTHING	LEVEL
01	007763.112	133047.875	33.063
02	007776.326	133048.051	34.000
03	007776.352	133048.484	31.000
04	007885.190	133049.100	29.571
05	007886.416	133049.217	27.000
06	007891.000	133049.217	27.000
07	007926.162	133049.269	34.000

Grid

N

W

E

S

BANKING

BUSHES & HEDGES

TREES

GATES

MT 1/21 0.2 / 0

NOTE: SPREADS AND HEIGHTS ARE INDICATIVE ONLY

WALL

BUILDING

OPEN BODED BUILDING

GLASS ROOFED

CONTOURS

0.20m

0.20m

ABBREVIATIONS (WHERE APPLICABLE)

ARCH HEAD HEIGHT

ARCH SPRINGER HEIGHT

ARCH SPRINGER LEVEL

AIR VALVE

BED LEVEL

BRUSH BEACON

BRITISH TELECOM BOX

BROW

BUS STOP

CABLE TV

CABLE MANHOLE

CABLE MANHOLE

COLUMN

CONCRETE POST

EAVES LEVEL

ELECTRICAL COVER

ELECTRICITY CONTROL BOX

ELECTRICITY POLE

ER

FINISHED FLOOR LEVEL

FIRE HYDRANT

FL

FLAG STAFF

FL

GAS VALVE

GULLY

GATE STOP

INSPECTION COVER

L

LAMP POST

FENCES

BARBED WIRE FENCE

CORRUGATED IRON FENCE

CLOSE BOARD FENCE

CHAIN LINK FENCE

CHESTNUT PALING FENCE

FENCE POST

INTERWOVEN FENCE

IRON RAILING FENCE

MARKER

MONITORING WELL

NOTICE BOARD

OVERHEAD WIRE

PARKING METER

ROAD SIGN

ROOF LEVEL

ROAD SIGN

ROOFING EYE

RAIN WATER PIPE

RAIL VALVE

SOFT LEVEL

STOP COCK

STRUCTURAL SLAB LEVEL

THRESHOLD LEVEL

TELEGRAPH POLE

TELEPHONE CALL BOX

TOP OF KERB

TRAFFIC LIGHT

TOP OF WALL

UNABLE TO LIFT

UNABLE TO SURVEY

VENT PIPE

WATER METER

WATER LEVEL

WATER PIPE

WATER TANK

WATER VALVE

MKR

MW

NB

NP

CHV

PM

RD

RL

RS

RE

RTV

RWP

SV

SC

SF

SBL

ST

TL

TCL

TS

TK

TL

TS

UTL

UTS

VP

WM

WL

WP

WT

WV

LLF

PCF

PF

PRF

PWF

SPF

TSRF

REV.

NOTES

DWN

DATE

A

Additional road detail added to original drawing (see Rev A layer)

JS

08/10/21

QMS

ISO 9001

REGISTERED

QMS

ISO 14001

REGISTERED

Notes:

Grid and levels relate to OS GPS Active Network.

Sheet is North orientated unless stated.

Maltby Surveys Ltd

2 QUEENS ROAD

HAYWARDS HEATH

WEST SUSSEX

RH16 1EB

Tel: 01444 416246

Fax: 01444 417697

E-Mail: MLSG@maltbysurveys.com

WebSite: <http://www.maltbysurveys.com>

SURVEYED

JS

DRAWN

JS

CHECKED

AKM

WELBECK LAND

SCALE

1/750 (A0 Sheet)

GUILDFORD RD, RUDGWICK, RH12 3JJ

TOPOGRAPHICAL SURVEY

Job No

Rev

Drawing Number

19/192

A

19/192/100/Overview

Date

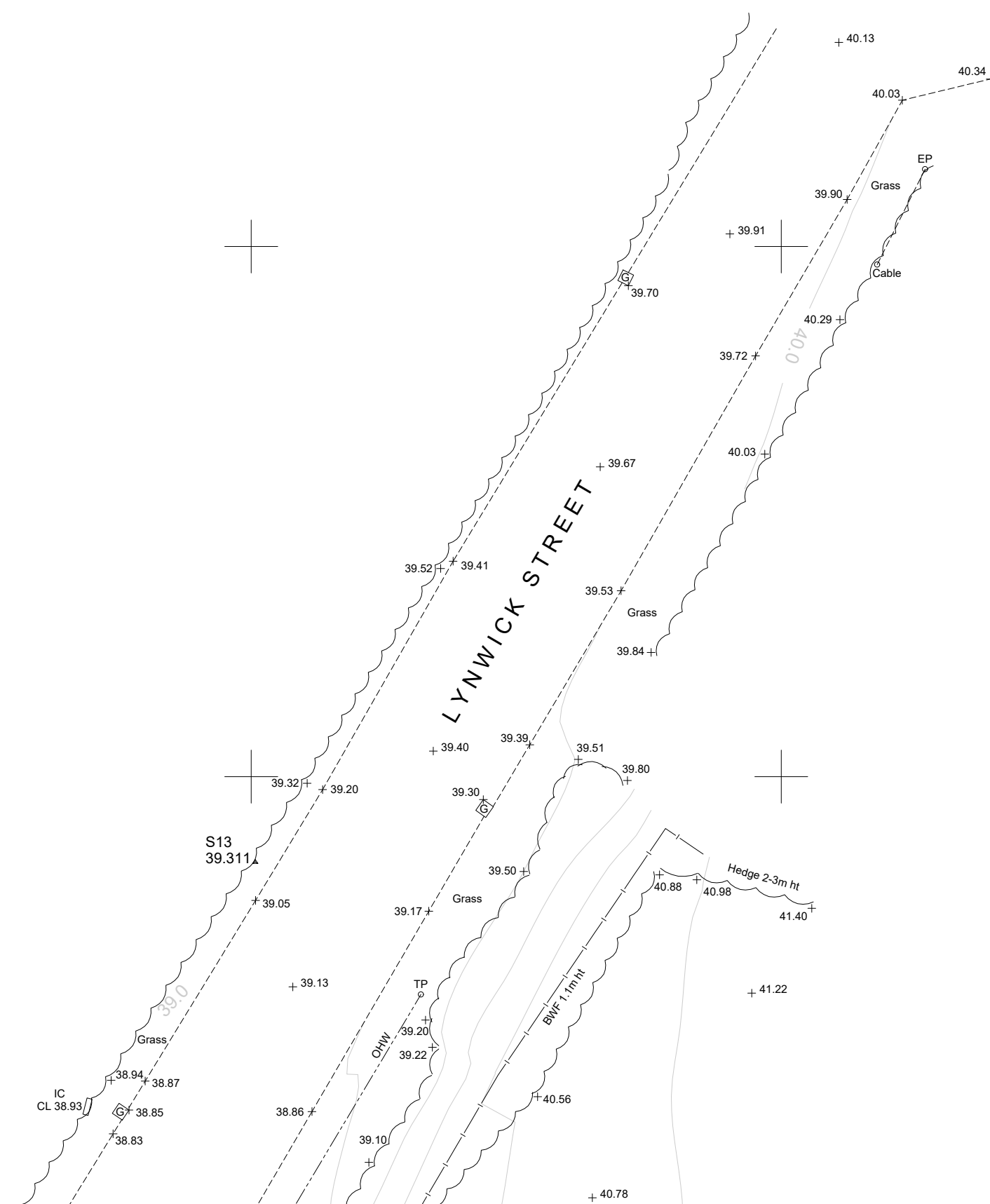
October 2021

507740E

133300N

133280N

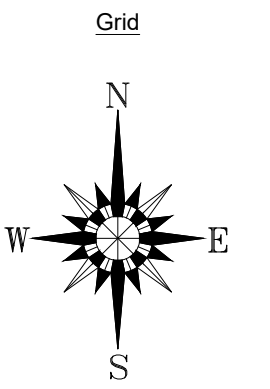
133260N



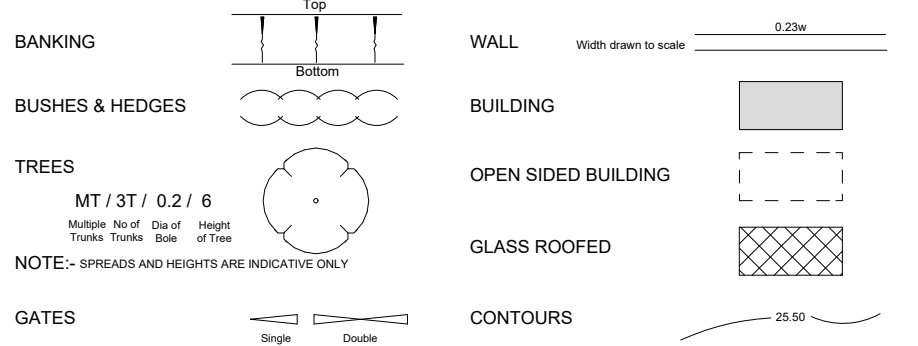
Sheet Layout

19192-100-A		
19192-100-B	19192-100-C	19192-100-D
19192-100-E	19192-100-F	19192-100-G

SURVEY STATIONS - SCHEDULE OF COORDINATES			
STATION	EASTING	NORTHING	LEVEL
S1	07833.752	133067.875	33.603
S2	077776.596	133088.051	34.106
S3	077778.758	133034.484	31.695
S4	077889.190	132876.149	28.376
S5	077984.416	132852.377	27.553
S6	080926.675	133015.012	30.433
S7	079728.162	133080.289	34.538



LEGEND

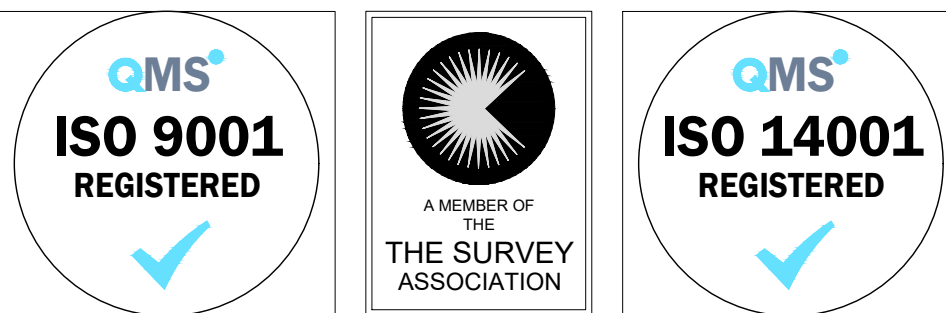


ABBREVIATIONS (WHERE APPLICABLE)

[illegible]

REV.	NOTES	DWN	DATE
------	-------	-----	------

A	Additional road detail added to original drawing (see RevA layer)	JS	08/10/
---	---	----	--------



Notes:
Grid and levels relate to OS GPS Active Network.
Sheet is North orientated unless stated.

Maltby Surveys Ltd



2 QUEENS ROAD
HAYWARDS HEATH
WEST SUSSEX
RH16 1EB

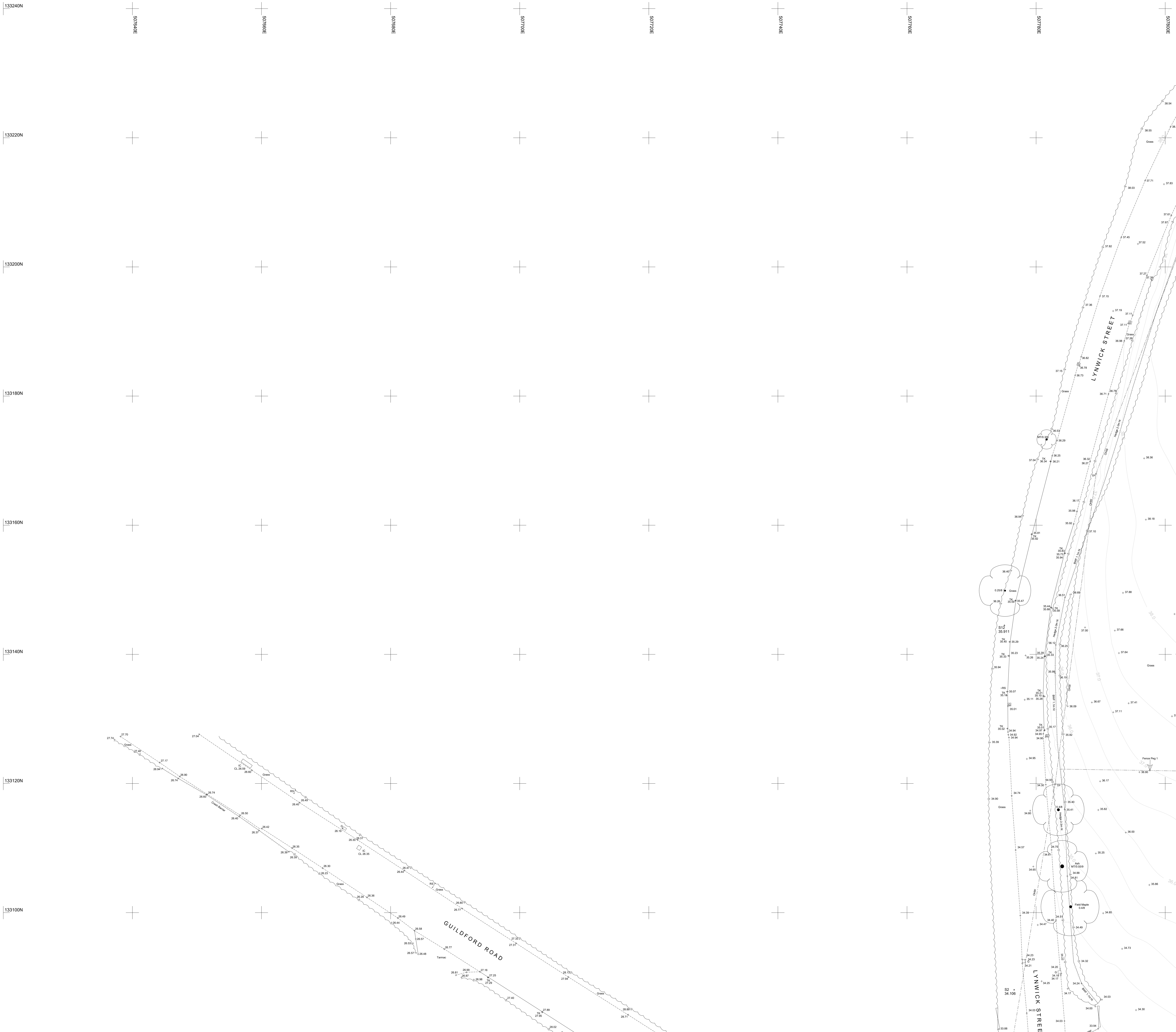
Tel: 01444 416246
Fax: 01444 417697
E-Mail: MLS@maltbysurveys.com
WebSite: <http://www.maltbysurveys.com>

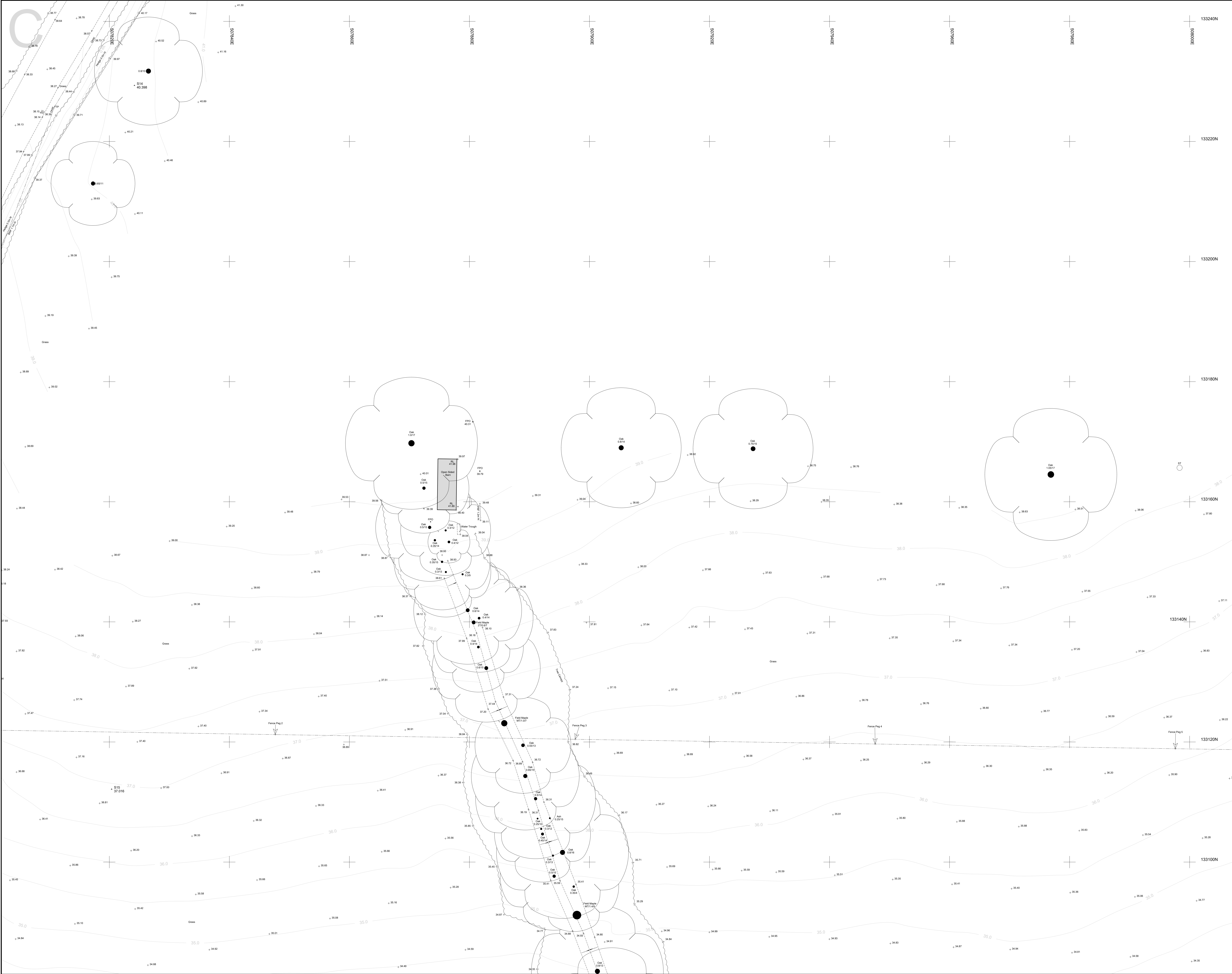
SURVEYED	JS	WELBECK LAND
DRAWN	JS	
CHECKED	AKM	
		SCALE
		1/200 (A0 Sheet)
GUILDFORD RD, RUDGWICK, RH12 3JJ		

TOPOGRAPHICAL SURVEY

Job No	Rev	Drawing Number
19/192	A	19/192/100/A
Date :	October 2021	

B





Sheet Layout

SURVEY STATIONS - SCHEDULE OF COORDINATES			
STATION	EASTING	NORTHING	LEVEL
1	507630.12	133200.12	33.603
2	507770.326	133200.051	34.003
3	507770.326	133200.044	31.006
4	507885.190	133200.100	29.576
5	507885.190	133200.097	27.423
6	507885.190	133200.097	27.423
7	507885.190	133200.097	27.423

Grid

LEGEND

BANKING

BUSHES & HEDGES

TREES

GATES

WALL

BUILDING

OPEN BODED BUILDING

GLASS ROOFED

CONTOURS

ABBREVIATIONS (WHERE APPLICABLE)

ARCH HEAD HEIGHT	ARKH	MARKER	MKR
ARCH SPRINGER HEIGHT	ASPH	MONITORING WELL	MW
ARCH SPRINGER LEVEL	ASPL	NOTICE BOARD	NB
AIR VALVE	AV	NAME PLATE	NP
BELLSIA BEACON	BL	OVERHEAD WIRE	OW
BELL	BL	PARKING METER	PM
BOLLARD	BT	ROOF LEVEL	RL
BRITISH TELECOM BOX	BTB	ROAD SIGN	RS
BRITISH TELECOM MANHOLE	BTMH	ROOFING EYE	RE
BROWNS	BR	RETAINING WALL	RTW
BUS STOP	BS	RAIN WATER PIPE	RWP
CABLE TV	CATV	SLURRY VALVE	SV
CABLE	CL	SOFT LEVEL	SFL
CABLE RAILWAY	CR	STRUCTURAL SLAB LEVEL	SSL
COLUMN	CP	THRESHOLD LEVEL	TL
CONCRETE POST	CP	TELEGRAPH POLE	TP
EAVES LEVEL	EAV	TELEPHONE CALL BOX	TCL
ELECTRICAL COVER	ELC	TOP OF KERB	TK
ELECTRICITY CONTROL BOX	EP	TURNPILE	TP
ELECTRICITY POLE	EP	TOP OF WALL	TW
ER	ER	UNABLE TO SURVEY	UTS
FINISHED FLOOR LEVEL	FFL	VENT PIPE	VP
FLOOR BED	FB	WATER METER	WM
FIRE HYDRANT	FH	WATER LEVEL	WL
FLOOR LEVEL	FL	WATER PIPE	WP
FLAG STAFF	FS	WATER TANK	WT
GAS VALVE	GV	WATER VALVE	WV
GULLY	G		
INSPECTION COVER	IC		
INVERT LEVEL	L		
LAMP POST	LP		
FENCES			
BARBED WIRE FENCE	BWF	LAND LAMP FENCE	LLF
CORRUGATED IRON FENCE	CIF	METAL RAILING FENCE	MLF
CLOSE BOARD FENCE	CBF	POST AND RAIL FENCE	PRF
CHAIN LINK FENCE	CLF	POST AND RAIL FENCE	PRF
CHESTNUT PALING FENCE	CPF	POST AND RAIL FENCE	PRF
FENCE POST	FP	POST AND RAIL FENCE	PRF
INTERLOCKED FENCE	IF	STEEL PALISADE SECURITY FENCE	SPSF
IRON RAILING FENCE	IRF	TUBULAR STEEL RAIL FENCE	TSRF

REV.	NOTES	DWN	DATE
A	Additional road detail added to original drawing (see Rev A layer)	JS	08/10/21

ISO 9001 REGISTERED

THE SURVEY ASSOCIATION

ISO 14001 REGISTERED

Notes:

Grid and levels relate to OS GPS Active Network.
Sheet is North orientated unless stated.

Maltby Surveys Ltd

2 QUEENS ROAD
HAYWARDS HEATH
WEST SUSSEX
RH16 1EB
Tel: 01444 416246
Fax: 01444 417697
E-Mail: ML@maltbysurveys.com
WebSite: http://www.maltbysurveys.com

SURVEYED	JS	WELBECK LAND
DRAWN	JS	
CHECKED	AKM	
SCALE		1/200 (A0 Sheet)
GUILD FORD RD, RUDGWICK, RH12 3JJ		

TOPOGRAPHICAL SURVEY

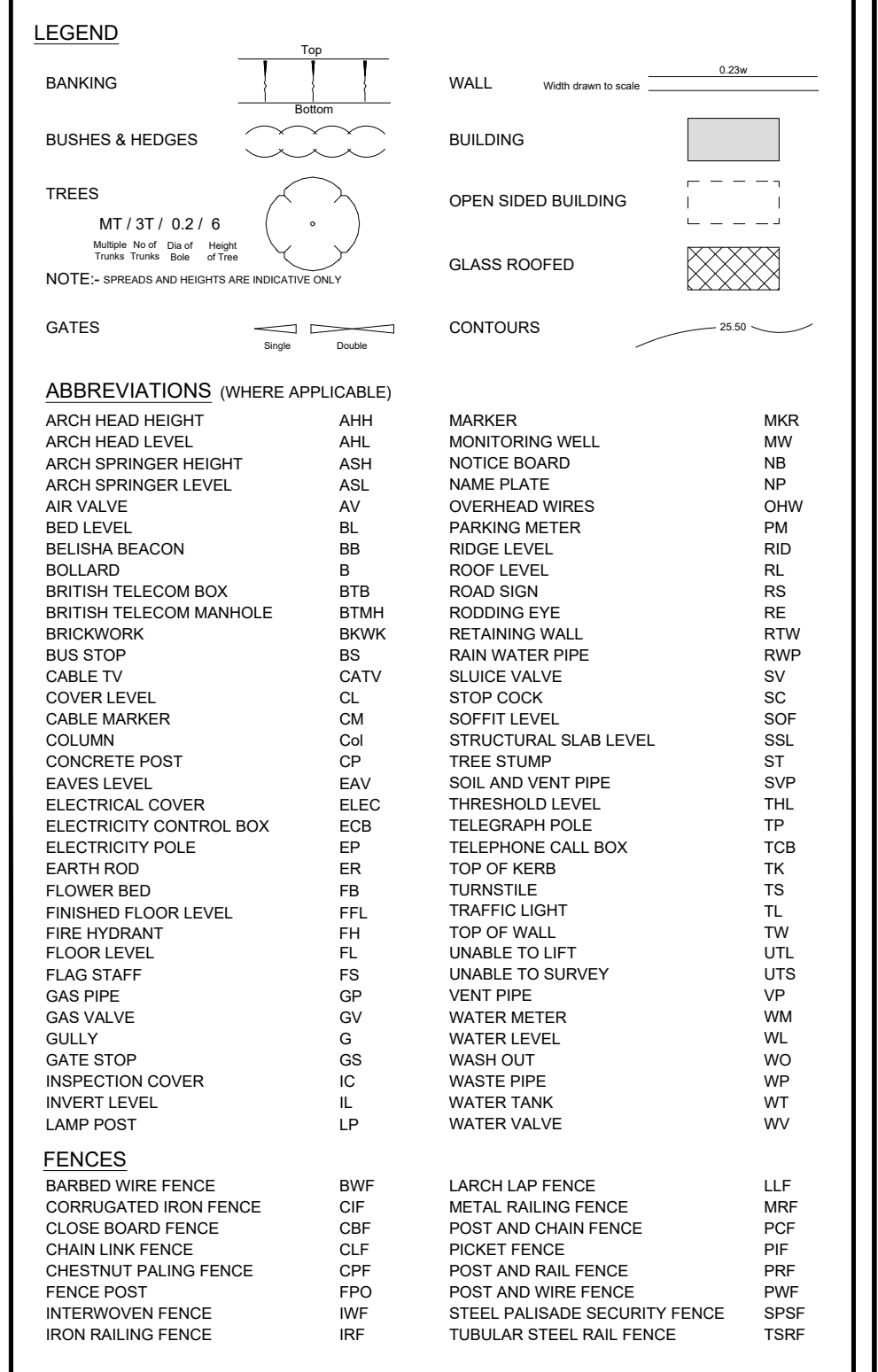
Job No	Rev	Drawing Number
19/192	A	19/192/100/C

Date: October 2021

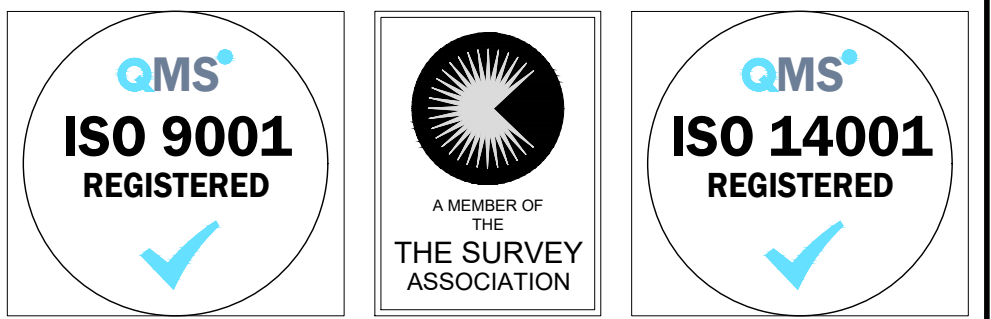
19192-100-A

19192-100-B	19192-100-C	19192-100-D
19192-100-E	19192-100-F	19192-100-G

STATION	EASTING	NORTHING	LEVEL
51	527973.752	133067.875	34.893
52	527979.598	133058.454	34.505
54	527886.495	132975.142	29.276
55	527864.419	132957.227	27.623
56	527864.419	133017.572	26.833
57	527828.162	133042.289	24.538

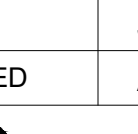


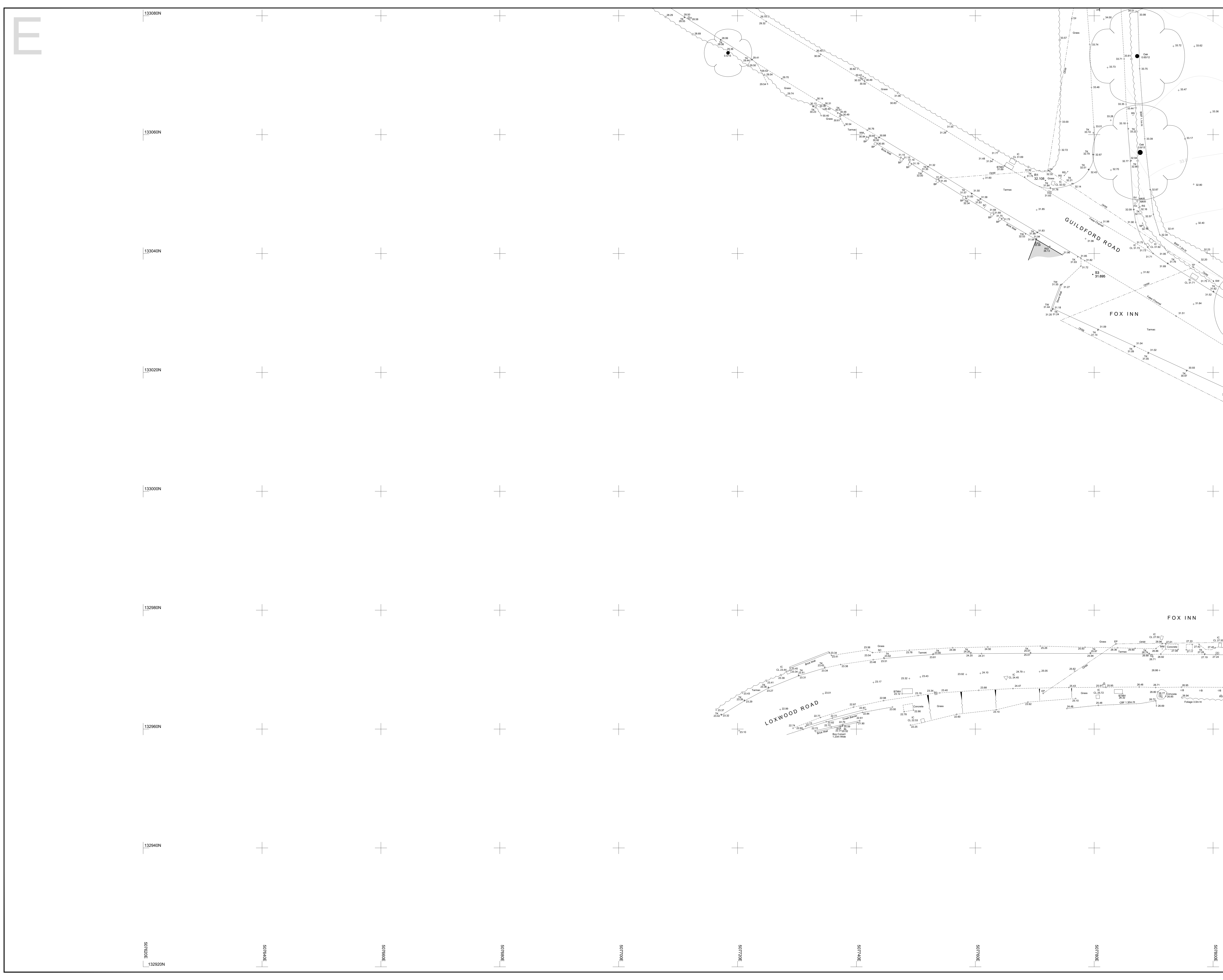
REV.	NOTES	DWN	DATE
A	Additional road detail added to original drawing (see RevA layer)	JS	05/10/21



Notes:

Grid and levels relate to OS GPS Active Network.
Sheet is North orientated unless stated.

Maltby Surveys Ltd			
		2 QUEENS ROAD HAYWARDS HEATH WEST SUSSEX RH16 1EB Tel: 01444 410246 Fax: 01444 417697 E-Mail: MLS@maltbysurveys.com WebSite: http://www.maltbysurveys.com	
SURVEYED	JS	WELBECK LAND	
DRAWN	JS		
CHECKED	AKM		
		SCALE 1/200 (A0 Sheet)	
GUILDFORD RD, RUDGWICK, RH12 3JJ			
TOPOGRAPHICAL SURVEY			
Job No	Rev	Drawing Number	
19/192	A	19/192/100/D	
Date: October 2021			



Sheet Layout

19192-100-A		
19192-100-B	19192-100-C	19192-100-D
19192-100-E	19192-100-F	19192-100-G

SURVEY STATIONS - SCHEDULE OF COORDINATES

STATION	EASTING	NORTHING	LEVEL
1	007833.712	133087.871	33.603
2	007776.326	133086.051	34.003
3	007776.326	133086.051	34.003
4	007885.190	133076.100	29.376
5	007885.190	133076.100	29.376
6	007826.162	133080.289	34.028

Grid

N

W

E

S

LEGEND

BANKING

BUSHES & HEDGES

TREES

GATES

WALL

BUILDING

OPEN BODED BUILDING

GLASS ROOFED

CONTOURS

ABBREVIATIONS (WHERE APPLICABLE)

ARCH HEAD HEIGHT	AKH	MARKER	MKR
ARCH SPRINGER HEIGHT	AH	MONITORING WELL	MW
ARCH SPRINGER LEVEL	ASL	NOTICE BOARD	NB
AIR VALVE	AV	NAME PLATE	NF
BELGIAN BEACON	BL	OVERHEAD WIRES	OW
BELL	B	PARKING METER	PM
BOLLARD	BT	ROOF LEVEL	RL
BRITISH TELECOM BOX	BTB	ROAD SIGN	RS
BRITISH TELECOM MANHOLE	BTM	ROOFING EYE	RE
BROW	B	RETAINING WALL	RW
BUS STOP	BS	RAIN WATER PIPE	RWP
CABLE T.V.	CTV	SURFACE VALVE	SV
CABLE WARRER	CL	STOP COOK	SC
CAMP	CP	SOFT LEVEL	SF
COLUMN	CL	STRUCTURAL SLAB LEVEL	SSL
CONCRETE POST	CP	THREE STUMP	TS
EAVES LEVEL	EAV	SOL AND VENT PIPE	SVP
ELECTRICAL COVER	ELEC	THRESHOLD LEVEL	TL
ELECTRICITY CONTROL BOX	EP	TELEGRAPH POLE	TP
ELECTRICITY POLE	EP	TELEPHONE CALL BOX	TCL
EARTH ROD	ER	TOP OF KERB	TK
FLOWER BED	FB	TURNPILE	TP
FINISHED FLOOR LEVEL	FFL	TRAFFIC LIGHT	TL
FIRE HYDRANT	FH	TOP OF WALL	TP
FLOOR LEVEL	FL	UNABLE TO SURVEY	UTS
FLAG STAFF	FS	UNABLE TO SURVEY	UTS
GAS PIPE	GP	VENT PIPE	VP
GAS VALVE	GV	WATER METER	WM
GULLY	G	WATER LEVEL	WL
INSPECTION COVER	IC	WATER PIPE	WP
INVERT LEVEL	I	WATER TANK	WT
LAMP POST	LP	WATER VALVE	WV

FENCES

BARBED WIRE FENCE	BWF	LANCH LAP FENCE	LLF
CORRUGATED IRON FENCE	CIF	METAL RAILING FENCE	MLF
CLOSE BOARD FENCE	CBF	POST AND CHAIN FENCE	PCF
CHAIN LINK FENCE	CLF	POST AND RAIL FENCE	PRF
CHESTNUT PALING FENCE	CPF	POST AND RAIL FENCE	PRF
FENCE POST	FP	STEEL PALISADE SECURITY FENCE	SPSF
INTERLOCKED FENCE	IF	TUBULAR STEEL RAIL FENCE	TSRF
IRON RAILING FENCE	IRF		

REV. NOTES

A Additional road added to original drawing (see Rev A layer)

DWN DATE

JS 08/10/21

Notes:

Grid and levels relate to OS GPS Active Network.

Sheet is North orientated unless stated.

Maltby Surveys Ltd

2 QUEENS ROAD
HAYWARDS HEATH
WEST SUSSEX
RH16 1EB
Tel: 01444 416246
Fax: 01444 417697
E-Mail: MSL@maltbysurveys.com
WebSite: http://www.maltbysurveys.com

SURVEYED JS

DRAWN JS

CHECKED AKM

WELBECK LAND

SCALE

1/200 (A0 Sheet)

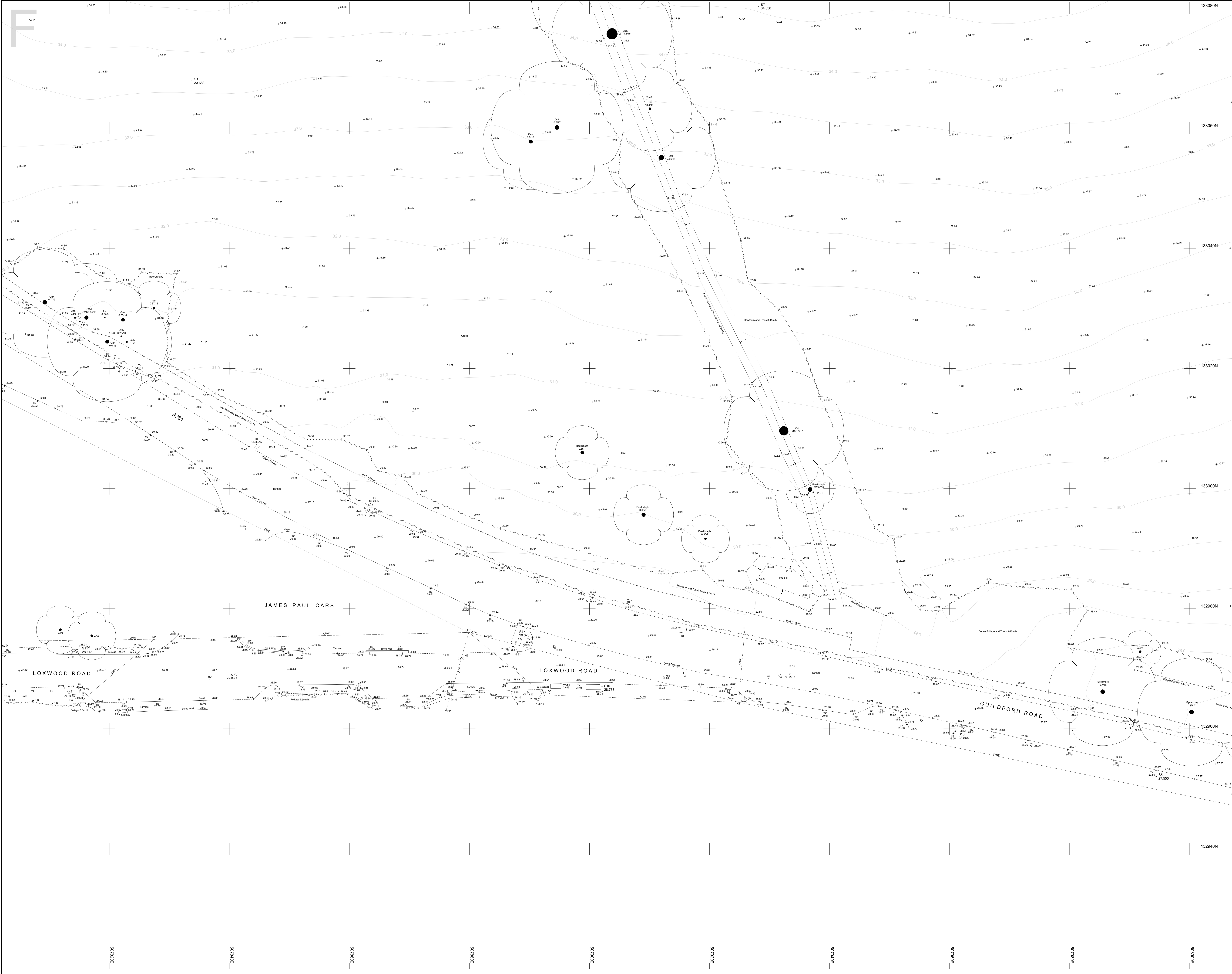
GUILDFORD RD, RUDGWICK, RH12 3JJ

TOPOGRAPHICAL SURVEY

Job No Rev Drawing Number

19/192 A 19/192/100/E

Date: October 2021



Sheet Layout

19192-100-A		
19192-100-B	19192-100-C	19192-100-D
19192-100-E	19192-100-F	19192-100-G

SURVEY STATIONS - SCHEDULE OF COORDINATES

STATION	EASTING	NORTHING	LEVEL
51	507783.732	133067.533	33.683
52	507778.528	133068.051	34.005
53	507775.584	133068.456	34.006
54	507885.190	133074.520	29.574
55	507886.416	133072.227	27.263
56	507885.416	133072.227	27.263
57	507828.162	133080.289	34.028

Grid

LEGEND

BANKING

BURSHES & HEDGES

TREES

GATES

WALL

BUILDING

OPEN BODED BUILDING

GLASS ROOFED

CONTOURS

ABBREVIATIONS (WHERE APPLICABLE)

ARCH HEAD LEVEL	AHL	MARKER	MKR
ARCH SPRINGER HEIGHT	ASH	MONITORING WELL	MW
ARCH SPRINGER LEVEL	ASL	NOTICE BOARD	NB
AIR VALVE	AV	OVERHEAD WIRE	OW
BED LEVEL	BL	PARKING METER	PM
BELLSIA BEACON	BB	ROAD SIGN	RS
BOLLARD	B	ROOF LEVEL	RL
BRITISH TELECOM BOX	BTB	ROAD SIGN	RS
BRITISH TELECOM MANHOLE	BTM	ROOFING EYE	RE
BROWWORK	BRW	RETAINING WALL	RW
BUS STOP	BS	RAIN WATER PIPE	RWP
CABLE T.V	CTV	SAUCE VALVE	SV
COVER LEVEL	CL	STOP COOK	SC
CABLE MANHOLE	CM	SUPPLY LEVEL	SPL
COLUMN	C	STRUCTURAL SLAB LEVEL	SLS
CONCRETE POST	CP	THREE STUMP	ST
EAVES LEVEL	EAV	SOL AND VENT PIPE	SVP
ELECTRICAL COVER	ELEC	THRESHOLD LEVEL	TL
ELECTRICITY CONTROL BOX	ECB	TELEGRAPH POLE	TP
ELECTRICITY POLE	EP	TELEPHONE CALL BOX	TCL
EARTH ROD	ER	TOP OF KERB	TK
FINISHED FLOOR LEVEL	FLL	TRAFFIC LIGHT	TL
FLOWER BED	FB	TOP OF WALL	TW
FIRE HYDRANT	FH	UNABLE TO SURVEY	UTS
FLOOR LEVEL	FL	UNABLE TO LIFT	UL
FLAG STAFF	FS	UNABLE TO SURVEY	UTS
GAS PIPE	GP	VENT PIPE	VP
GAS VALVE	GV	WATER METER	WM
GULLY	G	WATER LEVEL	WL
GATE STOP	GS	WATER OUTF	WO
INSPECTION COVER	IC	WATER PIPE	WP
INVERT LEVEL	I	WATER TANK	WT
LAMP POST	LP	WATER VALVE	WV

FENCES

BARBED WIRE FENCE	BWF	LAND LAMP FENCE	LLF
CORRUGATED IRON FENCE	CIF	METAL RAILING FENCE	MLF
CLOSE BOARD FENCE	CBF	POST AND CHAIN FENCE	PCF
CHAIN LINK FENCE	CLF	POST AND RAIL FENCE	PRF
CHESTNUT PALING FENCE	CPF	POST AND WIRE FENCE	PWF
FENCE POST	FPS	POST AND WIRE FENCE	PWF
INTERLOCKED FENCE	IFP	STEEL PALISADE SECURITY FENCE	SPSF
IRON RAILING FENCE	IRF	TUBULAR STEEL RAIL FENCE	TSRF

REV. NOTES

REV.	NOTES	DWN	DATE
A	Additional detail added to original drawing (see Rev A layer)	JS	08/10/21

Notes:

Grid and levels relate to OS GPS Active Network.
Sheet is North orientated unless stated.

Maltby Surveys Ltd

2 QUEENS ROAD
HAYWARDS HEATH
WEST SUSSEX
RH16 1EB
Tel: 01444 416246
Fax: 01444 417697
E-Mail: MLSG@maltbysurveys.com
WebSite: <http://www.maltbysurveys.com>

SURVEYED JS

DRAWN JS

CHECKED AKM

WELBECK LAND

SCALE

1/200 (A0 Sheet)

GUILDFORD RD, RUDGWICK, RH12 3JJ

TOPOGRAPHICAL SURVEY

Job No	Rev	Drawing Number
19/192	A	19/192/100/F

Date: October 2021



GROUND EXPLORATIONS LTD.

BOREHOLE No. 1....

TQ 03 SE 1

Contract Name WANFORD MILL, BUCKS GREEN Report No. 4312/FEH

Client West Sussex County Council, ... Site Address

Address County Hall, ... Wanford Mill, ...
Chichester, ... Bucks Green, ...
Sussex. West Sussex.

0827 3269

Standing Water Level 1'0" Method of Boring Shell/Auger

Water Struck 4'0"; 19'0"; 30'0" .. Diameter 6 inches

Ground Level 63.11 O.D. Start 27.2.68 Finish 28.2.68

Remarks

JARS		CORES		BULK	
866	1'6"	868	3'6"		
867	3'0"	870	8'6"		
869	7'0"	872	13'6"		
871	12'0"	874	18'6"		
873	17'0"	876	24'0"		
875	22'0"	878	28'6"		
877	27'0"	880	33'6"		
879	32'0"	882	38'6"		
881	37'0"				
883	Water				

Description		Thickness	Depth
Made ground (mainly dirty clay, roots, etc.)		2'6"	2'6"
Soft to firm brown/blue mottled clay, traces of peat and selenite crystals		21'6"	24'0"
Stiff to very stiff blue shaly clay		16'0"	40'0"
TOTALS		40'0"	40'0"

- Notes
- Descriptions are in accordance with B.S. Code of Practice C.P. 2001
Clients are requested to compare with samples submitted.
 - Core samples are nominally 4 ins. diameter and 18 ins. long.
Depths shown are to top of sample



GROUND EXPLORATIONS LTD.

BOREHOLE No. 2....

TQ 03SE/2

Contract Name WANFORD MILL, BUCKS GREEN. Report No. 4312/FEH

Client West Sussex County Council, Site Address

Address County Hall, Wanford Mill,
Chichester, Bucks Green,
Sussex, West Sussex.

0827 3266

Standing Water Level 0'6" Method of Boring Shell/Auger

Water Struck Nil Diameter 6 inches

Ground Level 60.81 O.D. Start 2.3.67 Finish 5.3.67

Remarks Hole left open to check water level after 24 hours.

JARS			CORES			BULK		
3621	1'6"		3622	3'6"				
3623	7'0"		3624	8'6"				
3625	12'0"		3626	13'6"				
3627	17'0"		3628	18'6"				
3629	22'0"		3630	23'6"				
3631	27'0"		3632	28'6"				
3633	32'0"		3634	33'6"				
3635	35'6"		3636	38'6"				
3637	42'0"		3638	43'6"				
Description						Thickness	Depth	
Topsoil						1'0"	1'0"	
Firm to stiff brown mottled clay with traces of peat						10'0"	11'0"	
Soft blue sandy organic clay						2'0"	13'0"	
Soft to firm brown/blue mottled clay with traces of peat						22'0"	35'0"	
Stiff to very stiff blue shaly clay						10'0"	45'0"	
TOTALS						45'0"	45'0"	

- Notes
- Descriptions are in accordance with B.S. Code of Practice C.P. 2001. Clients are requested to compare with samples submitted.
 - Core samples are nominally 4 ins. diameter and 18 ins. long.

SOAKAGE LETTER REPORT

CLIENT	Paul Basham Associates
SITE ADDRESS	Land North of Guildford Road, Rudgwick, RH12 3JP
REPORT REFERENCE	GWPR6381/SLR/V1.02. The conditions and limitations of this soakage letter report can be viewed within Appendix A.
ENGINEER	James New, Ground and Water Limited
PREVIOUS SITE WORKS	Ground and Water Limited have not undertaken any previous site investigation at the site at the time of writing.
ANTICIPATED GEOLOGY AND HYDROGEOLOGY	The British Geological Survey Solid and Drift Geology Map for the Basingstoke area (Sheet No. 284) revealed that the site was underlain by bedrock deposits of the Weald Clay Formation (Mudstone). No areas of Made Ground or Reworked Ground were noted within a 250m radius. The closest recorded superficial deposits were located ~50m south of the site in the form of Arun Terrace Deposits comprising sand and gravel. Weald Clay Formation The Weald Clay is predominantly argillaceous; fine grained deposit, mainly clays with a silvery lustre. Sub-ordinate silt, sand, limestone and ironstone units do occur in distinctive rock units. When un-weathered the sediments are pale to dark grey, brownish grey, greenish grey and red. The deposits weather to a yellow and buff brown colour. A number of sub-divisions of the Weald Clay have been mapped and described. The sandstones of group 7 are most fully developed in the western part of the main Weald Clay outcrop, and in the Chiddingfold area form intricate patterns of alternating sandstone and clay beds. Strata 7c is a clay-pellet bed with plant debris associated with sand. A BGS borehole (TQ03SE18) located ~1.25km north-west of the site revealed grey weald clay with bands of sandstone to 68.00m bgl. Water was not noted during the investigation. A study of the aquifer maps on the DEFRA website revealed the site was underlain by an Unproductive Aquifer comprising the bedrock of the Weald Clay Formation (Mudstone). Examination of the Environment Agency records showed that the site did not fall within a Groundwater Source Protection Zone (SPZ) as classified in the Policy and Practice for the Protection of Groundwater. From analysis of hydrogeological and topographical maps the actual groundwater table was anticipated to be encountered below the Weald Clay Formation (Mudstone). Some amounts of groundwater however may be present at shallower depths within granular layers of the Weald Clay Formation. It was considered that groundwater was flowing in a southerly direction toward the River Arun in line with local topography.

SOAKAGE LETTER REPORT

	Examination of the Environment Agency records showed that the site was located within a Flood Zone 1, i.e. an area with a low probability of flooding from rivers and seas.																								
SCOPE OF WORKS	Site works were undertaken between 19th December 2024 and comprised the excavation of 4No. trial pits (TP1 – TP4) to a depth of 2.00m bgl. Soakage testing in accordance with the principals of BRE365 was undertaken within all trial pits on-site. Upon completion of the site works all trial pits were backfilled and made good/reinstated in relation to the surrounding area. A trial hole location plan has been provided within Figure 1.																								
GROUND CONDITIONS ENCOUNTERED	A summary of the ground conditions encountered can be viewed within the following table. The trial hole logs can be seen within Appendix B. <table><tr><th colspan="4">Summary of Strata Encountered (TP1 – TP4)</th></tr><tr><th>Strata</th><th>Top Depth (m bgl)</th><th>Base Depth (m bgl)</th><th>Thickness (m)</th></tr><tr><td>TOPSOIL (TP1 – TP4): Greyish brown sandy CLAY. Sand is fine to medium grained.</td><td>GL</td><td>0.30 – 0.45</td><td>0.30 – 0.45</td></tr><tr><td>WEALD CLAY FORMATION (Cohesive) (TP1 – TP3): Orangish brown to grey sandy clay. Sand is fine to medium grained.</td><td>0.30 – 0.55</td><td>1.80</td><td>1.25 – 1.50</td></tr><tr><td>WEALD CLAY FORMATION (Cohesive) (TP1): Orangish brown to reddish brown sandy CLAY. Sand is fine grained.</td><td>0.45</td><td>0.55</td><td>0.10</td></tr><tr><td>WEALD CLAY FORMATION (Cohesive) (TP1 – TP4): Orangish brown to greyish blue sandy CLAY. Sand is fine to medium grained.</td><td>0.30 – 1.80</td><td>2.0</td><td>>0.20 – >1.70</td></tr></table>	Summary of Strata Encountered (TP1 – TP4)				Strata	Top Depth (m bgl)	Base Depth (m bgl)	Thickness (m)	TOPSOIL (TP1 – TP4): Greyish brown sandy CLAY. Sand is fine to medium grained.	GL	0.30 – 0.45	0.30 – 0.45	WEALD CLAY FORMATION (Cohesive) (TP1 – TP3): Orangish brown to grey sandy clay. Sand is fine to medium grained.	0.30 – 0.55	1.80	1.25 – 1.50	WEALD CLAY FORMATION (Cohesive) (TP1): Orangish brown to reddish brown sandy CLAY. Sand is fine grained.	0.45	0.55	0.10	WEALD CLAY FORMATION (Cohesive) (TP1 – TP4): Orangish brown to greyish blue sandy CLAY. Sand is fine to medium grained.	0.30 – 1.80	2.0	>0.20 – >1.70
Summary of Strata Encountered (TP1 – TP4)																									
Strata	Top Depth (m bgl)	Base Depth (m bgl)	Thickness (m)																						
TOPSOIL (TP1 – TP4): Greyish brown sandy CLAY. Sand is fine to medium grained.	GL	0.30 – 0.45	0.30 – 0.45																						
WEALD CLAY FORMATION (Cohesive) (TP1 – TP3): Orangish brown to grey sandy clay. Sand is fine to medium grained.	0.30 – 0.55	1.80	1.25 – 1.50																						
WEALD CLAY FORMATION (Cohesive) (TP1): Orangish brown to reddish brown sandy CLAY. Sand is fine grained.	0.45	0.55	0.10																						
WEALD CLAY FORMATION (Cohesive) (TP1 – TP4): Orangish brown to greyish blue sandy CLAY. Sand is fine to medium grained.	0.30 – 1.80	2.0	>0.20 – >1.70																						
GROUNDWATER	Groundwater was not encountered during site works within TP1 – TP4. Changes in groundwater level occur for a number of reasons including seasonal effects and variations in drainage. The investigation was undertaken in December 2024 when groundwater levels are likely to be at their annual maximum (highest elevation). Exact groundwater levels may only be determined through long term measurements from monitoring wells installed on-site.																								
ROOTS	The depths of root penetration can be seen tabulated below. <table><tr><th colspan="2">Summary of Root Penetration</th></tr><tr><th>Trial Hole</th><th>Root Depth (m bgl)</th></tr><tr><td>TP1</td><td>0.40</td></tr><tr><td>TP2</td><td>0.40</td></tr><tr><td>TP3</td><td>0.40</td></tr><tr><td>TP4</td><td>0.40</td></tr></table> The site and its immediate environs were noted to contain a number of existing trees and vegetation; therefore, roots may be found to greater depths at other locations on the site, particularly close to trees and/or trees that have been removed both within the site and its close environs.	Summary of Root Penetration		Trial Hole	Root Depth (m bgl)	TP1	0.40	TP2	0.40	TP3	0.40	TP4	0.40												
Summary of Root Penetration																									
Trial Hole	Root Depth (m bgl)																								
TP1	0.40																								
TP2	0.40																								
TP3	0.40																								
TP4	0.40																								

SOAKAGE LETTER REPORT

SOAKAGE RESULTS

TESTING

Soakage testing in accordance with the principles of BRE365 was undertaken within TP1 – TP4. The trial pits were bottomed out within Weald Clay Formation (Mudstone). Given that no infiltration occurred within the site works day it was not possible to calculate an infiltration rate.

The results recorded are presented within the following table.

Soakage Test Results						
Trial Hole	Test Number	Base of Soakage Pit (m bgl)	Start Depth (m bgl)	Finish Depth (m bgl)	Time Taken (mins)	Infiltration Rate (m/sec)
TP1*	1	2.00	0.81	0.81	240	-
TP2*	1	2.00	0.75	0.75	240	-
TP3*	1	2.00	0.78	0.78	240	-
TP4*	1	2.00	0.82	0.82	240	-
*Given the infiltration rate encountered, only one test could be undertaken within each Trial Pit, and it did not reach the required 75% mark.						

Due to no infiltration having occurred during the site works an infiltration rate cannot be calculated. The tests were therefore not completed in accordance with BRE365.

Figure 1

Trial Hole Location Plan

Appendix A

Conditions and Limitations

Appendix B

Trial Hole Logs

FIGURES

APPENDIX A: Conditions and Limitations

The ground is a product of continuing natural and artificial processes. As a result, the ground will exhibit a variety of characteristics that vary from place to place across a site, and also with time. Whilst a ground investigation will mitigate to a greater or lesser degree against the resulting risk from variation, the risks cannot be eliminated.

The report has been prepared on the basis of information, data and materials which were available at the time of writing. Accordingly, any conclusions, opinions or judgements made in the report should not be regarded as definitive or relied upon to the exclusion of other information, opinions and judgements.

The investigation, interpretations, and recommendations given in this report were prepared for the sole benefit of the client in accordance with their brief; as such these do not necessarily address all aspects of ground behaviour at the site. No liability is accepted for any reliance placed on it by others unless specifically agreed in writing.

Any decisions made by you, or by any organisation, agency or person who has read, received or been provided with information contained in the report ("you" or "the Recipient") are decisions of the Recipient and we will not make, or be deemed to make, any decisions on behalf of any Recipient. We will not be liable for the consequences of any such decisions.

Current regulations and good practice were used in the preparation of this report. An appropriately qualified person must review the recommendations given in this report at the time of preparation of the scheme design to ensure that any recommendations given remain valid in light of changes in regulation and practice, or additional information obtained regarding the site.

Any Recipient must take into account any other factors apart from the Report of which they and their experts and advisers are or should be aware. The information, data, conclusions, opinions and judgements set out in the report may relate to certain contexts and may not be suitable in other contexts. It is your responsibility to ensure that you do not use the information we provide in the wrong context.

This report is based on readily available geological records, the recorded physical investigation, the strata observed in the works, together with the results of completed site and laboratory tests. Whilst skill and care has been taken to interpret these conditions likely between or below investigation points, the possibility of other characteristics not revealed cannot be discounted, for which no liability can be accepted. The impact of our assessment on other aspects of the development required evaluation by other involved parties.

The opinions expressed cannot be absolute due to the limitations of time and resources within the context of the agreed brief and the possibility of unrecorded previous in ground activities. The ground conditions have been sampled or monitored in recorded locations and tests for some of the more common chemicals generally expected. Other concentrations of types of chemicals may exist. It was not part of the scope of this report to comment on environment/contaminated land considerations.

The conclusions and recommendations relate to Land North of Guildford Road, Rudgwick, RH12 3JP.

Trial hole is a generic term used to describe a method of direct investigation. The term trial pit, borehole or window sampler borehole implies the specific technique used to produce a trial hole.

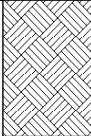
The depth to roots and/or of desiccation may vary from that found during the investigation. The client is responsible for establishing the depth to roots and/or of desiccation on a plot-by-plot basis prior to the construction of foundations. Where trees are mentioned in the text this means existing trees, recently removed trees (approximately 15 years to full recovery on cohesive soils) and those planned as part of the site landscaping.

Ownership of copyright of all printed material including reports, laboratory test results, trial pit and borehole log sheets, including drillers log sheets, remain with Ground and Water Limited. Licence is for the sole use of the client and may not be assigned, transferred or given to a third party.

Only our client may rely on this report and should this report or any information contained in it be provided to any third party we accept no responsibility to the third party for the contents of this report save to the extent expressly outlined by us in writing in a reliance letter addressed from us to the third party.

Recipients are not permitted to publish this report outside of their organisation without our express written consent.

APPENDIX B: Trial Hole Logs

		Trial Pit Log										
Project Name: Land North of Guildford Road					Client: Paul Basham Associates				Date: 19/12/2024			
Location: Rudgwick, RH12 3JP					Contractor:							
Project No. : GWPR6381					Crew Name:				Equipment:			
Location Number TP1		Location Type TP		Level		Logged By JN		Scale 1:25		Page Number Sheet 1 of 1		
Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description				
		Depth (m)	Type	Results								
		0.20	D		0.45 0.55		TOPSOIL: Greyish brown sandy CLAY. Sand is fine to medium grained.		1			
		0.50	D				Orangish brown to reddish brown sandy CLAY. Sand is fine grained. (WEALD CLAY FORMATION). Orangish brown to grey sandy clay. Sand is fine to medium grained. (WEALD CLAY FORMATION).					
		0.80	D			Orangish brown to greyish blue sandy CLAY. Sand is fine to medium grained. (WEALD CLAY FORMATION).						
		1.00	D									
		1.50	D									
		2.00	D		2.00		End of Borehole at 2.000m					2
										3		
										4		
										5		
Dimensions				Trench Support and Comment				Pumping Data				
Pit Length		Pit Width		Pit Stability		Shoring Used		Remarks		Date	Rate	Remarks
Remarks												
Trial Pit completed to 2.0m bgl.												
Groundwater not struck.												
Roots encountered to 0.40m bgl.												



Trial Pit Log

Project Name: Land North of Guildford Road		Client: Paul Basham Associates		Date: 19/12/2024	
Location: Rudgwick, RH12 3JP		Contractor:			
Project No. : GWPR6381		Crew Name:		Equipment:	
Location Number TP2	Location Type TP	Level	Logged By JN	Scale 1:25	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20	D		0.40			TOPSOIL: Greyish brown sandy CLAY. Sand is fine to medium grained.	1
		0.50	D					Orangish brown to grey sandy clay. Sand is fine to medium grained. (WEALD CLAY FORMATION).	
		0.80	D						
		1.00	D		1.80				2
		1.50	D						
		2.00	D					Orangish brown to greyish blue sandy CLAY. Sand is fine to medium grained. (WEALD CLAY FORMATION).	
					2.00			End of Borehole at 2.000m	3
									4
									5

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks

Remarks

Trial Pit completed to 2.0m bgl.
Groundwater not struck.
Roots encountered to 0.40m bgl.

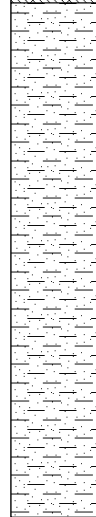






Trial Pit Log

Project Name: Land North of Guildford Road		Client: Paul Basham Associates		Date: 19/12/2024	
Location: Rudgwick, RH12 3JP		Contractor:			
Project No. : GWPR6381		Crew Name:		Equipment:	
Location Number TP4	Location Type TP	Level	Logged By JN	Scale 1:25	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20	D		0.30			TOPSOIL: Greyish brown sandy CLAY. Sand is fine to medium grained.	1
		0.50	D					Orangish brown to greyish blue sandy CLAY. Sand is fine to medium grained. (WEALD CLAY FORMATION).	
		0.80	D						
		1.00	D		2.00				
		1.50	D						
		2.00	D						
							End of Borehole at 2.000m	2	
									3
									4
									5

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks

Remarks

Trial Pit completed to 2.0m bgl.
Groundwater not struck.
Roots encountered to 0.40m bgl.



Oliver Terry
Paul Basham Associates
Burseldene
Windmill Lane
Bursledon
Southampton
SO31 8BG

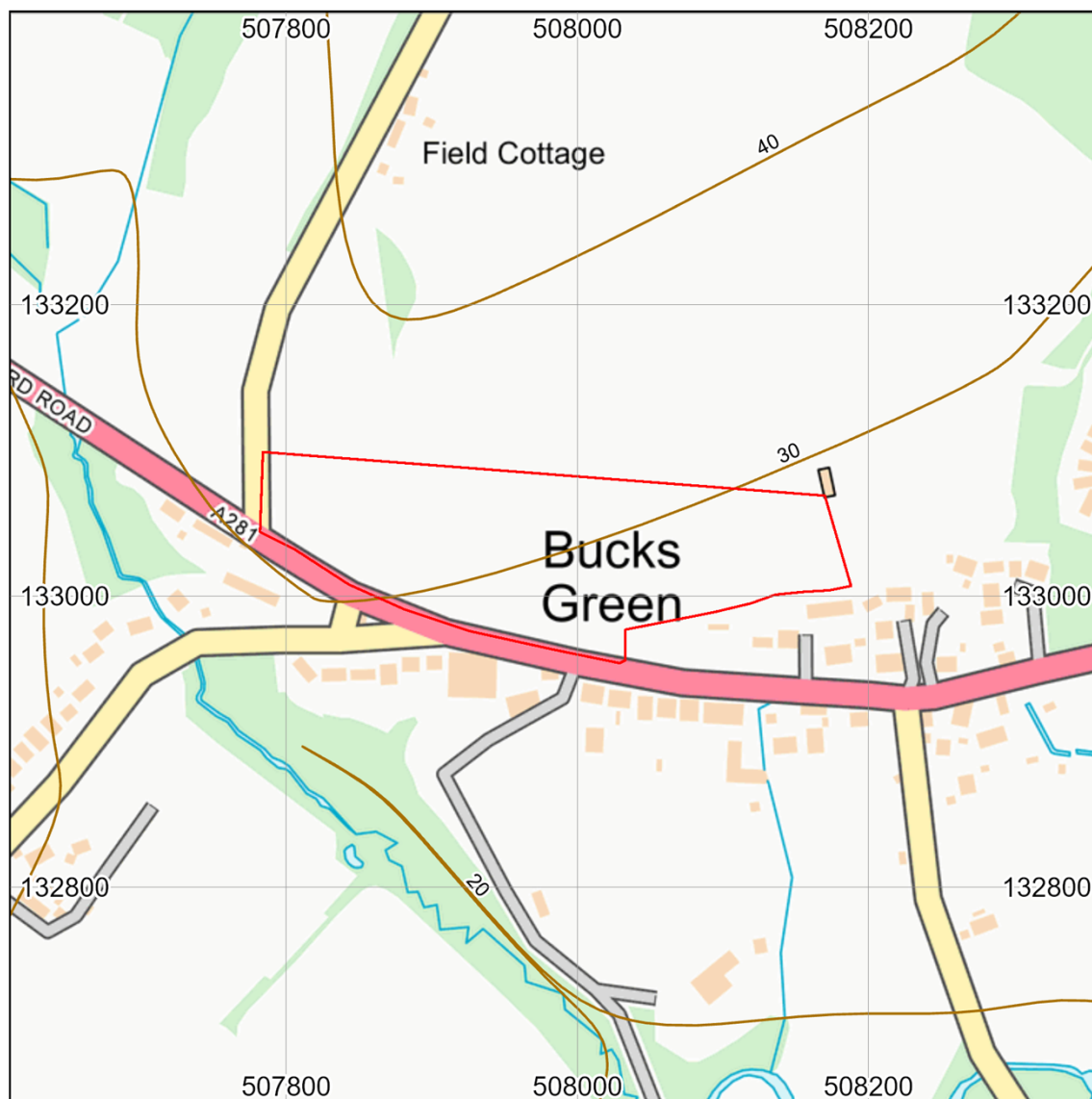
Infiltration SuDS GeoReport:

This report provides information on the suitability of the subsurface for the installation of infiltration sustainable drainage systems (SuDS). It provides information on the properties of the subsurface with respect to significant constraints, drainage, ground stability and groundwater quality protection.

Report Id: *BGS_341340/58422*

Client reference:

Search location



Contains OS data © Crown Copyright and database right 2025. OS OpenMap Local: Scale: 1:5 000 (1cm = 50 m)

Search location indicated in red

*This report describes a site located at National Grid Reference 507985, 133026.
Note that for sites of irregular shape, this point may lie outside the site boundary.
Where the client has submitted a site plan the assessment will be based on the area given.*

Assessment for an infiltration sustainable drainage system

Introduction

Sustainable drainage systems (SuDS) are drainage solutions that manage the volume and quality of surface water close to where it falls as rain. They aim to reduce flow rates to rivers, increase local water storage capacity and reduce the transport of pollutants to the water environment. There are four main types of SuDS, which are often designed to be used in sequence. They comprise:

- **source control:** systems that control the rate of runoff
- **pre-treatment:** systems that remove sediments and pollutants
- **retention:** systems that delay the discharge of water by providing surface storage
- **infiltration:** systems that mimic natural recharge to the ground.

This report focuses on infiltration SuDS. It provides subsurface information on the properties of the ground with respect to drainage, ground stability and groundwater quality protection. It is intended principally for those involved in the preliminary assessment of the suitability of the ground for infiltration SuDS, and those involved in assessing proposals from others for sustainable drainage, but it may also be useful to help house-holders judge whether or not further professional advice should be sought. If in doubt, users should consult a suitably-qualified professional about the results in this report before making any decisions based upon it.

This GeoReport is structured in two parts:

- **Part 1. Summary data.**

Comprises three maps that summarise the data contained within Part 2.

- **Part 2. Detailed data.**

Comprises a further 24 maps in four thematic sections:

- **Very significant constraints.** Maps highlight areas where infiltration may result in adverse impacts due to factors including: ground instability (soluble rocks, non-coal shallow mining and landslide hazards); persistent shallow groundwater, or the presence of made ground, which may represent a ground stability or contamination hazard.
- **Drainage potential.** Maps indicate the drainage potential of the ground, by considering subsurface permeability, depth to groundwater and the presence of floodplain deposits.
- **Ground stability.** Maps indicate the presence of hazards that have the potential to cause ground instability resulting in damage to some buildings and structures, if water is infiltrated to the ground.
- **Groundwater protection.** Maps provide key indicators to help determine whether the groundwater may be susceptible to deterioration in quality as a result of infiltration.

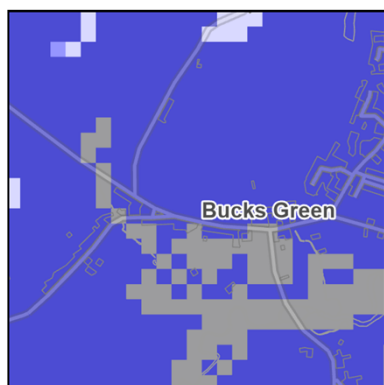
This report considers the suitability of the subsurface for the installation of infiltration SuDS, such as soakaways, infiltration basins or permeable pavements. It provides subsurface data to indicate whether, and which type of infiltration system may be appropriate. It does not state that infiltration SuDS are, or are not, appropriate as this is highly dependent on the design of the individual system. This report therefore describes the subsurface conditions at the site, allowing the reader to determine the suitability of the site for infiltration SuDS.

The map and text data in this report is similar to that provided in the '*Infiltration SuDS Map: Detailed*' national map product. For further information about the data, consult the '*User Guide for the Infiltration SuDS Map: Detailed*', available from <http://nora.nerc.ac.uk/16618/>.

PART 1: SUMMARY DATA

This section provides a summary of the data.

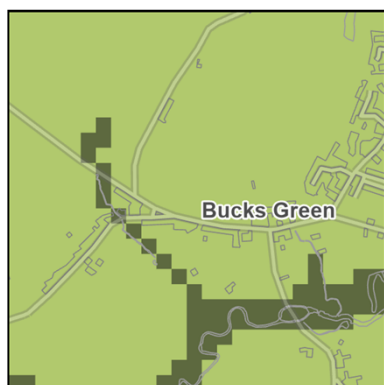
In terms of the drainage potential, is the ground suitable for infiltration SuDS?



Contains OS data © Crown Copyright and database right 2025

-  Highly compatible for infiltration SuDS. The subsurface is likely to be suitable for free-draining infiltration SuDS.
-  Probably compatible for infiltration SuDS. The subsurface is probably suitable although the design may be influenced by the ground conditions.
-  Opportunities for bespoke infiltration SuDS. The subsurface is potentially suitable although the design will be influenced by the ground conditions.
-  Very significant constraints are indicated. There is a very significant potential for one or more hazards associated with infiltration.

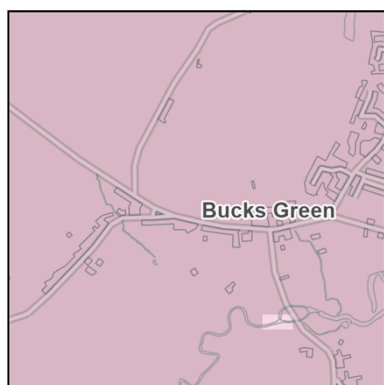
Is ground instability likely to be a problem?



Contains OS data © Crown Copyright and database right 2025

-  Increased infiltration is very unlikely to result in ground instability.
-  Ground instability problems may be present or anticipated, but increased infiltration is unlikely to result in ground instability.
-  Ground instability problems are probably present. Increased infiltration may result in ground instability.
-  There is a very significant potential for one or more geohazards associated with infiltration.

Is the groundwater susceptible to deterioration in quality?



Contains OS data © Crown Copyright and database right 2025

-  The groundwater is not expected to be especially vulnerable to contamination.
-  The groundwater may be vulnerable to contamination.
-  The groundwater is likely to be vulnerable to contaminants.
-  Made ground is present at the surface. Infiltration may increase the possibility of remobilising pollutants.

PART 2: DETAILED DATA

This section provides further information about the properties of the ground and will help assess the suitability of the ground for infiltration SuDS.

Section 1. Very significant constraints

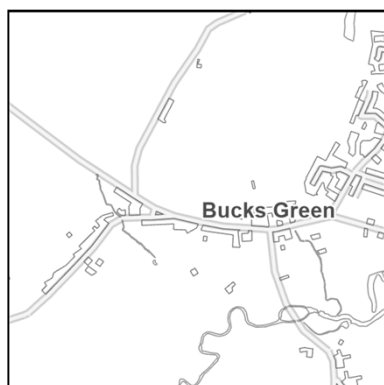
Where maps are overlain by grey polygons, geological or hydrogeological hazards may exist that could be made worse by infiltration. The following hazards are considered:

- soluble rocks
- landslides
- shallow mining (not including coal)
- shallow groundwater
- made ground

For more information read 'Explanation of terms' at the end of this report.

Soluble rock hazard	
 Contains OS data © Crown Copyright and database right 2025	☒ Very significant soluble rock hazard. Soluble rocks are present with a very significant possibility of localised subsidence that could be initiated or made worse by infiltration. The site investigation should consider whether the potential for or the consequences of subsidence as a result of infiltration are significant.
	☐ Very significant soluble rock hazards are not present; however this hazard may still need to be considered. See Part 3.
Landslide hazard	
 Contains OS data © Crown Copyright and database right 2025	☒ Very significant landslide hazard. Slope instability problems are almost certainly present and may be active. An increase in moisture content as a result of infiltration may cause the slope to fail. The site investigation should consider whether the potential for or the consequences of landslide as a result of infiltration are significant.
	☐ Very significant landslide hazards are not present; however this hazard may still need to be considered. See Part 3.

Shallow mining hazard (not including coal)

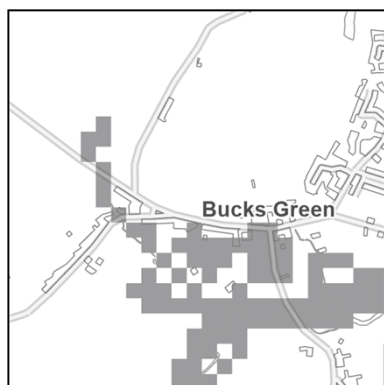


Contains OS data © Crown Copyright and database right 2025

☒ Very significant mining hazard.
Shallow mining is likely to be present with a very significant possibility of localised subsidence that could be initiated or made worse by increased infiltration. Also, infiltration may increase the possibility of remobilising pollutants. The site investigation should consider whether the potential for or consequences of subsidence and/or remobilisation of pollutants as a result of infiltration are significant.

☐ Very significant mining hazards are not present; however this hazard may still need to be considered. See Part 3.

Persistent shallow groundwater



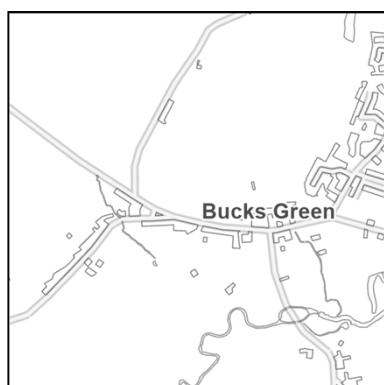
Contains OS data © Crown Copyright and database right 2025

☒ Very high likelihood of persistent or seasonally shallow groundwater.

Persistent or seasonally shallow groundwater is likely to be present. Infiltration may increase the likelihood of soakaway inundation, or groundwater emergence at the surface. The site investigation should consider whether the potential for or the consequences of groundwater level rise as a result of infiltration are significant.

☐ See Part 2 for the likely depth to water table.

Made ground



Contains OS data © Crown Copyright and database right 2025

☒ Made ground present.
Made ground is present at the surface. Infiltration may affect ground stability or increase the possibility of remobilising pollutants. The site investigation should consider whether the potential for or consequences of ground instability and/or pollutant leaching as a result of infiltration are significant.

☐ None recorded

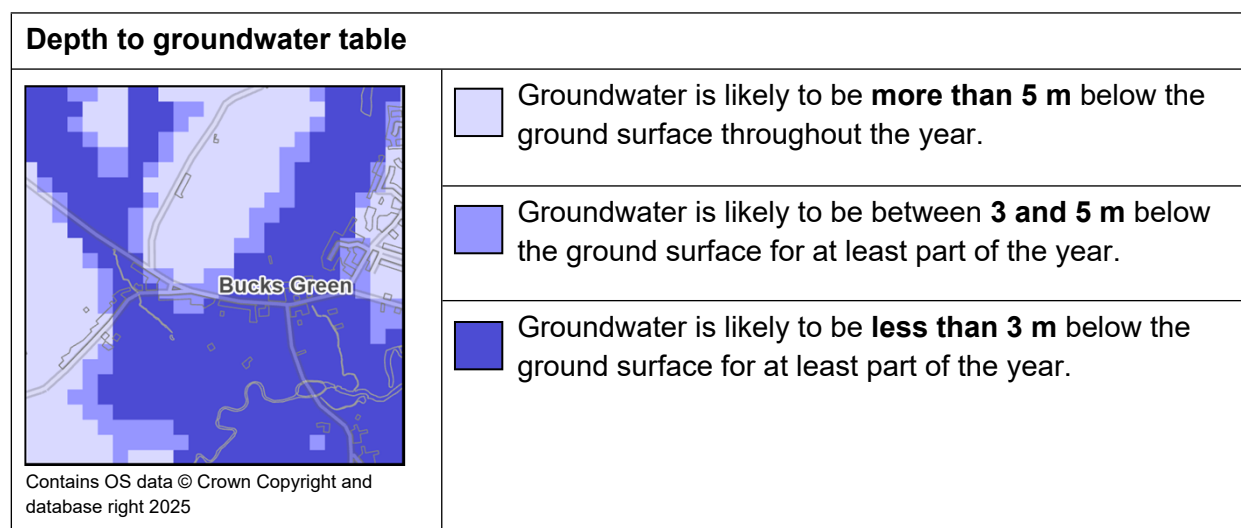
Section 2. Drainage potential

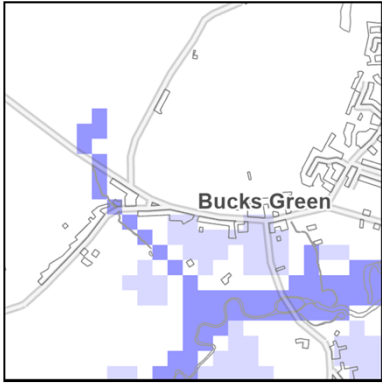
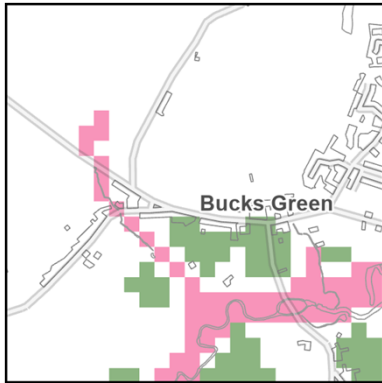
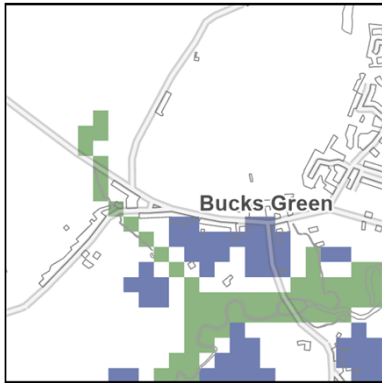
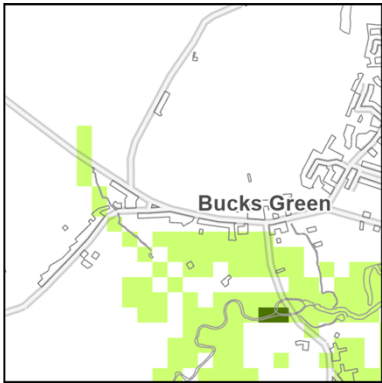
The following pages contain maps that will help you assess the drainage potential of the ground by considering the:

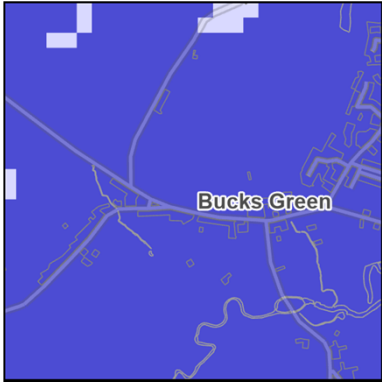
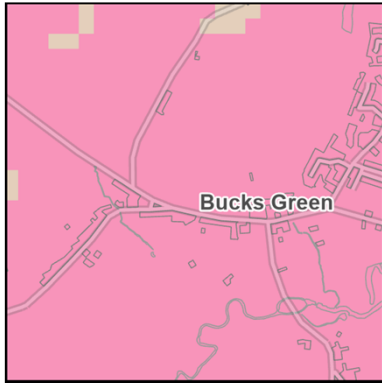
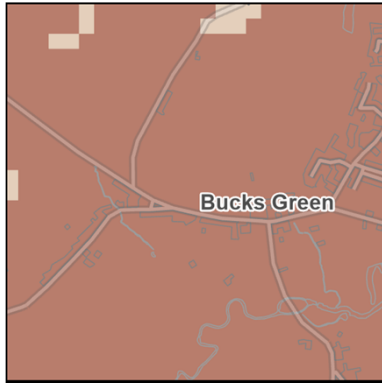
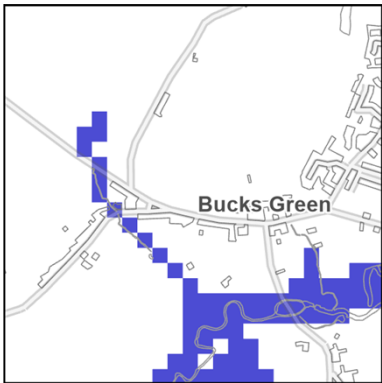
- depth to water table
- permeability of the superficial deposits
- thickness of the superficial deposits
- permeability of the bedrock
- presence of floodplains

Superficial deposits are not present everywhere and therefore some areas of the *superficial deposit permeability* map may not be coloured. Where this is the case, the *bedrock permeability* map shows the likely permeability of the ground. Superficial deposits in some places are very thin and hence in these places you may wish to consider both the permeability of the superficial deposits and the permeability of the bedrock. The *superficial thickness* map will tell you whether the superficial deposits are thin (< 3 m thick) or thick (>3 m). Where they are over 3 m thick, the permeability of the bedrock may not be relevant.

For more information read 'Explanation of terms' at the end of this report.



Superficial deposit permeability		
 Contains OS data © Crown Copyright and database right 2025	 Superficial deposits are likely to be free-draining .	
	 The superficial deposit permeability is spatially variable , but likely to permit moderate infiltration.	
	 Superficial deposits are likely to be poorly draining .	
These maps show the permeability range that is summarised above.  Very Low  Low  Moderate  High  Very High	Minimum	Maximum
	 Contains OS data © Crown Copyright and database right 2025	 Contains OS data © Crown Copyright and database right 2025
	Superficial deposit thickness	
 Contains OS data © Crown Copyright and database right 2025	 The thickness of superficial deposits is < 3 m and hence the permeability of the ground may be dependent on both the superficial deposits (where present) and underlying bedrock (see below).	
	 The thickness of superficial deposits is > 3 m and hence the permeability of the superficial deposits is likely to determine the permeability of the ground.	

Bedrock permeability		
 Contains OS data © Crown Copyright and database right 2025	 Bedrock deposits are likely to be free-draining .	
	 The bedrock permeability is spatially variable , but likely to permit moderate infiltration.	
	 Bedrock deposits are likely to be poorly draining .	
These maps show the permeability range that is summarised above. Key - Very Low - Low - Moderate - High - Very High	Minimum	Maximum
	 Contains OS data © Crown Copyright and database right 2025	 Contains OS data © Crown Copyright and database right 2025
	Geological indicators of flooding	
 Contains OS data © Crown Copyright and database right 2025	 Superficial floodplain deposits or low-lying coastal areas have been identified. Groundwater levels may rise in response to high river or tide levels, potentially causing inundation of subsurface infiltration SuDS.	

Section 3. Ground stability

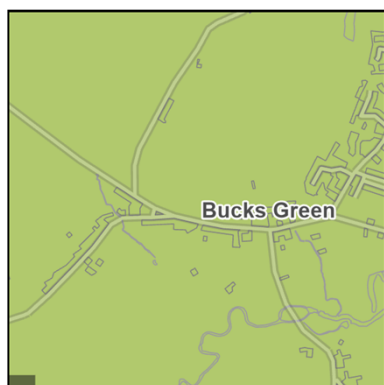
The following pages contain maps that will help you assess whether infiltration may impact the stability of the ground. They consider hazards associated with:

- soluble rocks
- landslides
- shallow mining
- running sands
- swelling clays
- compressible ground, and
- collapsible ground

In the following maps, geohazards that are identified in green are unlikely to prevent infiltration SuDS from being installed, but they should be considered during design. For more information read ‘Explanation of terms’ at the end of this report.

Soluble rocks	
 Contains OS data © Crown Copyright and database right 2025	 Increased infiltration is unlikely to result in subsidence.
	 Increased infiltration is unlikely to cause localised subsidence, but potential impacts should be considered.
	 Increased infiltration may result in localised subsidence. The potential for or the consequences of subsidence associated with soluble rocks should be considered.
	 Very significant possibility of localised subsidence that could be initiated or made worse by infiltration.

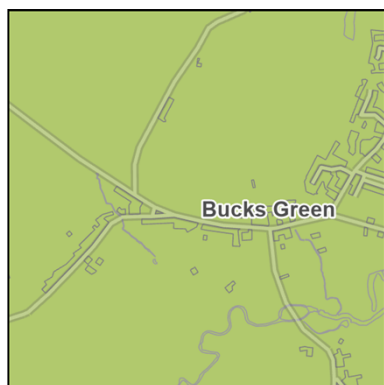
Landslides



Contains OS data © Crown Copyright and database right 2025

-  Increased infiltration is unlikely to lead to slope instability.
-  Slope instability problems may be present or anticipated, but increased infiltration is unlikely to cause instability
-  Slope instability problems are probably present or have occurred in the past, and increased infiltration may result in slope instability.
-  Slope instability problems are almost certainly present and may be active. An increase in moisture content as a result of infiltration may cause the slope to fail.

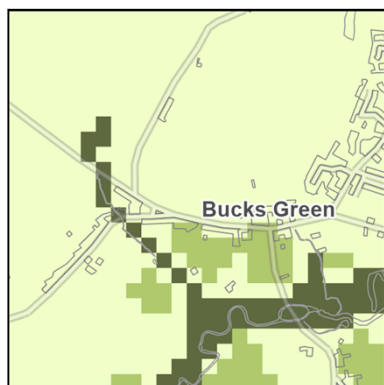
Shallow mining



Contains OS data © Crown Copyright and database right 2025

-  Increased infiltration is unlikely to lead to subsidence.
-  Shallow mining is possibly present. Increased infiltration is unlikely to cause a geohazard, but potential impacts should be considered.
-  Shallow mining could be present with a significant possibility that localised subsidence could be initiated or made worse by increased infiltration.
-  Shallow mining is likely to be present, with a very significant possibility that localised subsidence may be initiated or made worse by increased infiltration.

Running sand



Contains OS data © Crown Copyright and database right 2025

-  Increased infiltration is unlikely to cause ground collapse associated with running sands.
-  Running sand is possibly present. Increased infiltration is unlikely to cause a geohazard, but potential impacts should be considered.
-  Significant possibility for running sand problems. Increased infiltration may result in a geohazard.

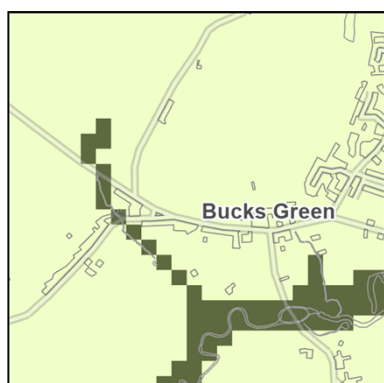
Swelling clays



Contains OS data © Crown Copyright and database right 2025

-  Increased infiltration is unlikely to cause shrink-swell ground movement.
-  Ground is susceptible to shrink-swell ground movement. Increased infiltration is unlikely to cause a geohazard, but potential impacts should be considered.
-  Ground is susceptible to shrink-swell ground movement. Increased infiltration may result in a geohazard.

Compressible ground



Contains OS data © Crown Copyright and database right 2025

-  Increased infiltration is unlikely to lead to ground compression.
-  Compressibility and uneven settlement hazards are probably present. Increased infiltration may result in a geohazard.

Collapsible ground



Contains OS data © Crown Copyright and database right 2025

-  Increased infiltration is unlikely to result in subsidence.
-  Deposits with potential to collapse when loaded and saturated are possibly present in places. Increased infiltration is unlikely to cause a geohazard, but potential impacts should be considered.
-  Deposits with potential to collapse when loaded and saturated are probably present in places. Increased infiltration may result in a geohazard.

Section 4. Groundwater quality protection

The following pages contain maps showing some of the information required to ensure the protection of groundwater quality. Data presented includes:

- groundwater source protection zones (Environment Agency data)
- predominant flow mechanism
- made ground

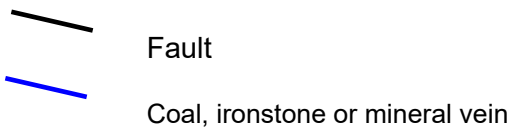
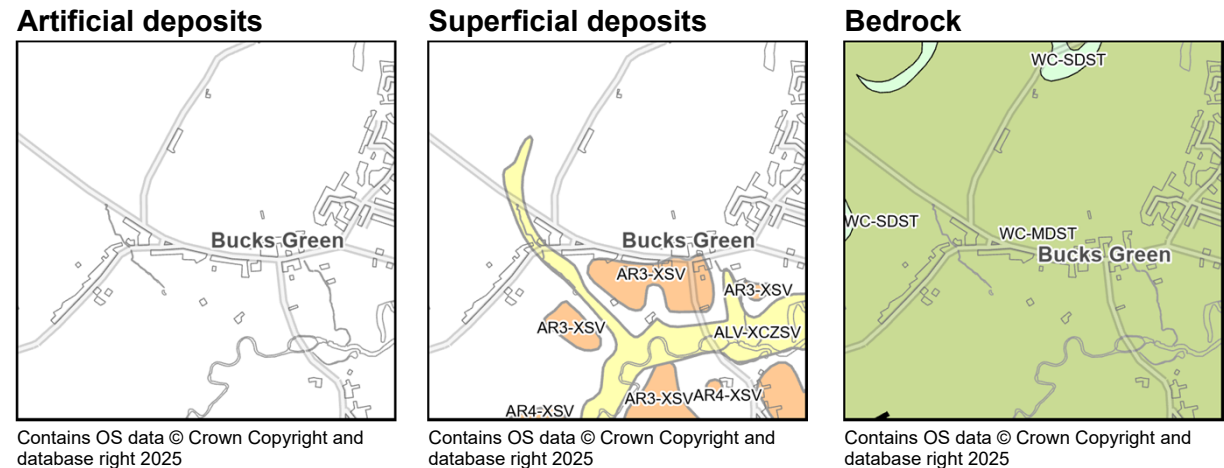
For more information read ‘Explanation of terms’ at the end of this report.

Groundwater source protection zones	
 Contains OS data © Crown Copyright and database right 2025 Derived in part from Source Protection Zone data provided under licence from the Environment Agency © Environment Agency 2025.	 Groundwater is not within a source protection zone.
	 Source protection zone IV
	 Source protection zone III
	 Source protection zone II
	 Source protection zone I
Predominant flow mechanism	
 Contains OS data © Crown Copyright and database right 2025	 Water is likely to percolate through the unsaturated zone to the groundwater through either the pore space in granular media or through porespace and fractures; these processes have some potential for contaminant removal and breakdown.
	 Water is likely to percolate through the unsaturated zone to the groundwater through fractures, a process which has little potential for contaminant removal and breakdown.

Made ground	
 Contains OS data © Crown Copyright and database right 2025	Made ground is present at the surface. Infiltration may increase the possibility of remobilising pollutants.

Section 5. Geological Maps

The following maps show the artificial, superficial and bedrock geology within the area of interest.



Note: Faults and Coals, ironstone & mineral veins are shown for illustration and to aid interpretation of the map. Not all such features are shown and their absence on the map face does not necessarily mean that none are present

Key to Artificial deposits:
No deposits recorded by BGS in the search area

Key to Superficial deposits:

Map colour	Computer Code	Rock name	Rock type
	ALV-XCZSV	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL
	AR3-XSV	ARUN TERRACE DEPOSITS, 3 MEMBER	SAND AND GRAVEL
	AR4-XSV	ARUN TERRACE DEPOSITS, 4 MEMBER	SAND AND GRAVEL
	AR3T4-XSV	ARUN RIVER TERRACE DEPOSITS, 3 MEMBER AND ARUN RIVER TERRACE DEPOSITS, 4 MEMBER, UNDIFFERENTIATED	SAND AND GRAVEL

Key to Bedrock geology:

Map colour	Computer Code	Rock name	Rock type
	WC-SDST	WEALD CLAY FORMATION	SANDSTONE
	WC-MDST	WEALD CLAY FORMATION	MUDSTONE

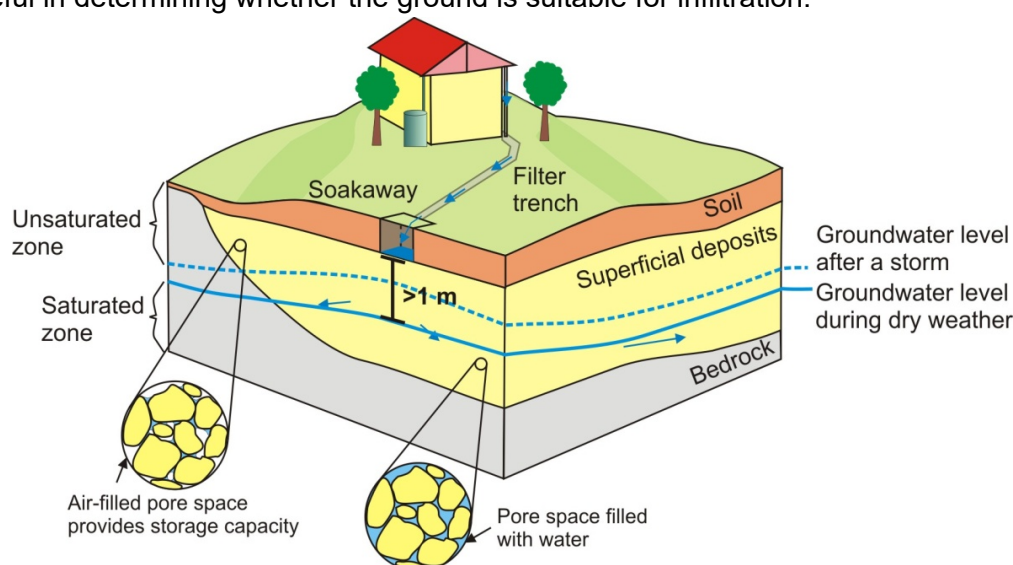
Limitations of this report:

- This report is concerned with the potential for infiltration-to-the-ground to be used as a SuDS technique at the site described. It only considers the subsurface beneath the search area and does NOT consider potential surface or subsurface impacts outside of that area.
- This report is NOT an alternative for an on-site investigation or soakaway test, which might reach a different conclusion.
- This report must NOT be used to justify disposal of foul waste or grey water.
- This report is based on and limited to an interpretation of the records held by the British Geological Survey (BGS) at the time the search is performed. The datasets used (with the exception of that showing depth to water table) are based on 1:50 000 digital geological maps and not site-specific data.
- Other more specific and detailed ground instability information for the site may be held by BGS, and an assessment of this could result in a modified assessment.
- To interpret the maps correctly, the report must be viewed and printed in colour.
- The search does NOT consider the suitability of sites with regard to:
 - previous land use,
 - potential for, or presence of contaminated land
 - presence of perched water tables
 - shallow mining hazards relating to coal mining. Searches of coal mining should be carried out via The Coal Authority Mine Reports Service: www.coalminingreports.co.uk.
 - made ground, where not recorded
 - proximity to landfill sites (searches for landfill sites or contaminated land should be carried out through consultation with local authorities/Environment Agency)
 - zones around private water supply boreholes that are susceptible to groundwater contamination.
- This report is supplied in accordance with the GeoReports Terms & Conditions available separately, and the copyright restrictions described at the end of this report

Explanation of terms

Depth to groundwater

In the shallow subsurface, the ground is commonly unsaturated with respect to water. Air fills the spaces within the soil and the underlying superficial deposits and bedrock. At some depth below the ground surface, there is a level below which these spaces are full of water. This level is known as the groundwater level, and the water below it is termed the groundwater. When water is infiltrated, the groundwater level may rise temporarily. To ensure that there is space in the unsaturated zone to accommodate this, there should be a minimum thickness of 1 m between the base of the infiltration system and the water table. An estimate of the *depth to groundwater* is therefore useful in determining whether the ground is suitable for infiltration.



Groundwater flooding

Groundwater flooding occurs when a rise in groundwater level results in very shallow groundwater or the emergence of groundwater at the surface. If infiltration systems are installed in areas that are susceptible to groundwater flooding, it is possible that the system could become inundated. The susceptibility map seeks to identify areas where the geological conditions and water tables indicate that groundwater level rise could occur under certain circumstances. A high susceptibility to groundwater flooding classification does not mean that groundwater flooding has ever occurred in the past, or will do so in the future as the susceptibility maps do not contain information on how often flooding may occur. The susceptibility maps are designed for planning; identifying areas where groundwater flooding might be an issue that needs to be taken into account.

Geological indicators of flooding

In floodplain deposits, groundwater level can be influenced by the water level in the adjacent river. Groundwater level may increase during periods of fluvial flood and therefore this should be taken into account when designing infiltration systems on such deposits. The *geological indicators of flooding* dataset shows where there is geological evidence (floodplain deposits) that flooding has occurred in the past.

For further information on flood-risk, the likely frequency of its recurrence in relation to any proposed development of the site, and the status of any flood prevention measures in place, you are advised to contact the local office of the Environment Agency (England and Wales) at www.environment-agency.gov.uk/ or the Scottish Environment Protection Agency (Scotland) at www.sepa.org.uk.

Artificial ground

Artificial ground comprises deposits and excavations that have been created or modified by human activity. It includes ground that is worked (quarries and road cuttings), infilled (back-filled quarries), landscaped (surface re-shaping), disturbed (near surface mineral workings) or classified as made ground (embankments and spoil heaps). The composition and properties of artificial ground are often unknown. In particular, the permeability and chemical composition of the artificial ground should be determined to ensure that the ground will drain and that any contaminants present will not be remobilised.

Superficial permeability

Superficial deposits are those geological deposits that were formed during the most recent period of geological time (as old as 2.6 million years before present). They generally comprise relatively thin deposits of gravel, sand, silt and clay and are present beneath the pedological soil in patches or larger spreads over much of Britain. The ease with which water can percolate through these deposits is controlled by their permeability and varies widely depending on their composition. Those deposits comprising clays and silts are less permeable and thus infiltration is likely to be slow, such that water may pool on the surface. In comparison, deposits comprising sands and gravels are more permeable allowing water to percolate freely.

Bedrock permeability

Bedrock forms the main mass of rock forming the Earth. It is present everywhere, commonly beneath superficial deposits. Where the superficial deposits are thin or absent, the ease with which water will percolate into the ground depends on the permeability of the bedrock.

Natural ground instability

Natural ground instability refers to the propensity for upward, lateral or downward movement of the ground that can be caused by a number of natural geological hazards (e.g. ground dissolution/compressible ground). Some movements associated with particular hazards may be gradual and of millimetre or centimetre scale, whilst others may be sudden and of metre or tens of metres scale. Significant natural ground instability has the potential to cause damage to buildings and structures, especially when the drainage characteristics of a site are altered. It should be noted, however, that many buildings, particularly more modern ones, are built to such a standard that they can remain unaffected in areas of significant ground movement.

Shrink-swell

A shrinking and swelling clay changes volume significantly according to how much water it contains. All clay deposits change volume as their water content varies, typically swelling in winter and shrinking in summer, but some do so to a greater extent than others. Contributory circumstances could include drought, leaking service pipes, tree roots drying-out the ground or changes to local drainage patterns, such as the creation of soakaways. Shrinkage may remove support from the foundations of buildings and structures, whereas clay expansion may lead to uplift (heave) or lateral stress on part or all of a structure; any such movements may cause cracking and distortion.

Landslides (slope stability)

A landslide is a relatively rapid outward and downward movement of a mass of ground on a slope, due to the force of gravity. A slope is under stress from gravity but will not move if its strength is greater than this stress. If the balance is altered so that the stress exceeds the strength, then movement will occur. The stability of a slope can be reduced by removing ground at the base of the slope, by placing material on the slope, especially at the top, or by increasing the water content of the materials forming the slope. Increase in subsurface water content beneath a soakaway could increase susceptibility to landslide hazards. The assessment of landslide hazard refers to the stability of the present land surface. It does not encompass a consideration of the stability of excavations.

Soluble rocks (dissolution)

Some rocks are soluble in water and can be progressively removed by the flow of water through the ground. This process tends to create cavities, potentially leading to the collapse of overlying materials and possibly subsidence at the surface. The release of water into the subsurface from infiltration systems may increase the dissolution of rock or destabilise material above or within a cavity. Dissolution cavities may create a pathway for rapid transport of contaminated water to an aquifer or water course.

Compressible ground

Many ground materials contain water-filled pores (the spaces between solid particles). Ground is compressible if a building (or other load) can cause the water in the pore space to be squeezed out, causing the ground to decrease in thickness. If ground is extremely compressible the building may sink. If the ground is not uniformly compressible, different parts of the building may sink by different amounts, possibly causing tilting, cracking or distortion. The compressibility of the ground may alter as a result of changes in subsurface water content caused by the release of water from soakaways.

Collapsible deposits

Collapsible ground comprises certain fine-grained materials with large pore spaces (the spaces between solid particles). It can collapse when it becomes saturated by water and/or a building (or other structure) places too great a load on it. If the material below a building collapses it may cause the building to sink. If the collapsible ground is variable in thickness or distribution, different parts of the building may sink by different amounts, possibly causing tilting, cracking or distortion. The subsurface underlying a soakaway will experience an increase in water content that may affect the stability of the ground. This hazard is most likely to be encountered only in parts of southern England.

Running sand

Running sand conditions occur when loosely-packed sand, saturated with water, flows into an excavation, borehole or other type of void. The pressure of the water filling the spaces between the sand grains reduces the contact between the grains and they are carried along by the flow. This can lead to subsidence of the surrounding ground. Running sand is potentially hazardous during the drainage system installation. During installation, excavation of the ground may create a space into which sand can flow, potentially causing subsidence of surrounding ground.

Shallow mining hazards (non coal)

Current or past underground mining for coal or for other commodities can give rise to cavities at shallow or intermediate depths, which may cause fracturing, general settlement, or the formation of crown-holes in the ground above. Spoil from mineral workings may also present a pollution hazard. The release of water into the subsurface from soakaways may destabilise material above or within a cavity. Cavities arising as a consequence of mining may also create a pathway for rapid transport of contaminated water to an aquifer or watercourse. The mining hazards map is derived from the geological map and considers the potential for subsidence associated with mining on the basis of geology type. Therefore if mining is known to occur within a certain rock, the map will highlight the potential for a hazard within the area covered by that geology.

For more information regarding underground and opencast **coal mining**, the location of mine entries (shafts and adits) and matters relating to subsidence or other ground movement induced by **coal mining** please contact the Coal Authority, Mining Reports, 200 Lichfield Lane, Mansfield, Nottinghamshire, NG18 4RG; telephone 0845 762 6848 or at www.coal.gov.uk. For more information regarding other types of mining (i.e. non-coal), please contact the British Geological Survey.

Groundwater source protection zones

In England and Wales, the Environment Agency has defined areas around wells, boreholes and springs that are used for the abstraction of public drinking water as source protection zones. In conjunction with Groundwater Protection Policy the zones are used to restrict activities that may impact groundwater quality, thereby preventing pollution of underlying aquifers, such that drinking water quality is upheld. The Environment Agency can provide advice on the location and implications of source protection zones in your area (www.environment-agency.gov.uk/)

Contact Details

Keyworth Office

British Geological Survey
Environmental Science Centre
Nicker Hill
Keyworth
Nottingham
NG12 5GG
Tel: 0115 9363100
Email: enquiries@bgs.ac.uk

Wallingford Office

British Geological Survey
Maclean Building
Wallingford
Oxford
OX10 8BB
Email: enquiries@bgs.ac.uk

Edinburgh Office

British Geological Survey
Lyell Centre
Research Avenue South
Edinburgh
EH14 4AP
Tel: 0131 6671000
Email: enquiry@bgs.ac.uk

Terms and Conditions

General Terms & Conditions

This Report is supplied in accordance with the GeoReports Terms & Conditions available on the BGS website at <https://shop.bgs.ac.uk/georeports> and also available from the BGS Enquiry Service at the above address.

Important notes about this Report

- The data, information and related records supplied in this Report by BGS can only be indicative and should not be taken as a substitute for specialist interpretations, professional advice and/or detailed site investigations. You must seek professional advice before making technical interpretations on the basis of the materials provided.
- Geological observations and interpretations are made according to the prevailing understanding of the subject at the time. The quality of such observations and interpretations may be affected by the availability of new data, by subsequent advances in knowledge, improved methods of interpretation, and better access to sampling locations.
- Raw data may have been transcribed from analogue to digital format, or may have been acquired by means of automated measuring techniques. Although such processes are subjected to quality control to ensure reliability where possible, some raw data may have been processed without human intervention and may in consequence contain undetected errors.
- Detail, which is clearly defined and accurately depicted on large-scale maps, may be lost when small-scale maps are derived from them.
- Although samples and records are maintained with all reasonable care, there may be some deterioration in the long term.
- The most appropriate techniques for copying original records are used, but there may be some loss of detail and dimensional distortion when such records are copied.
- Data may be compiled from the disparate sources of information at BGS's disposal, including material donated to BGS by third parties, and may not originally have been subject to any verification or other quality control process.
- Data, information and related records, which have been donated to BGS, have been produced for a specific purpose, and that may affect the type and completeness of the data recorded and any interpretation. The nature and purpose of data collection, and the age of the resultant material may render it unsuitable for certain applications/uses. You must verify the suitability of the material for your intended usage.
- If a report or other output is produced for you on the basis of data you have provided to BGS, or your own data input into a BGS system, please do not rely on it as a source of information about other areas or geological features, as the report may omit important details.
- The topography shown on any map extracts is based on the latest OS mapping and is not necessarily the same as that used in the original compilation of the BGS geological map, and to which the geological linework available at that time was fitted.
- Note that for some sites, the latest available records may be historical in nature, and while every effort is made to place the analysis in a modern geological context, it is possible in some cases that the detailed geology at a site may differ from that described.

Copyright:

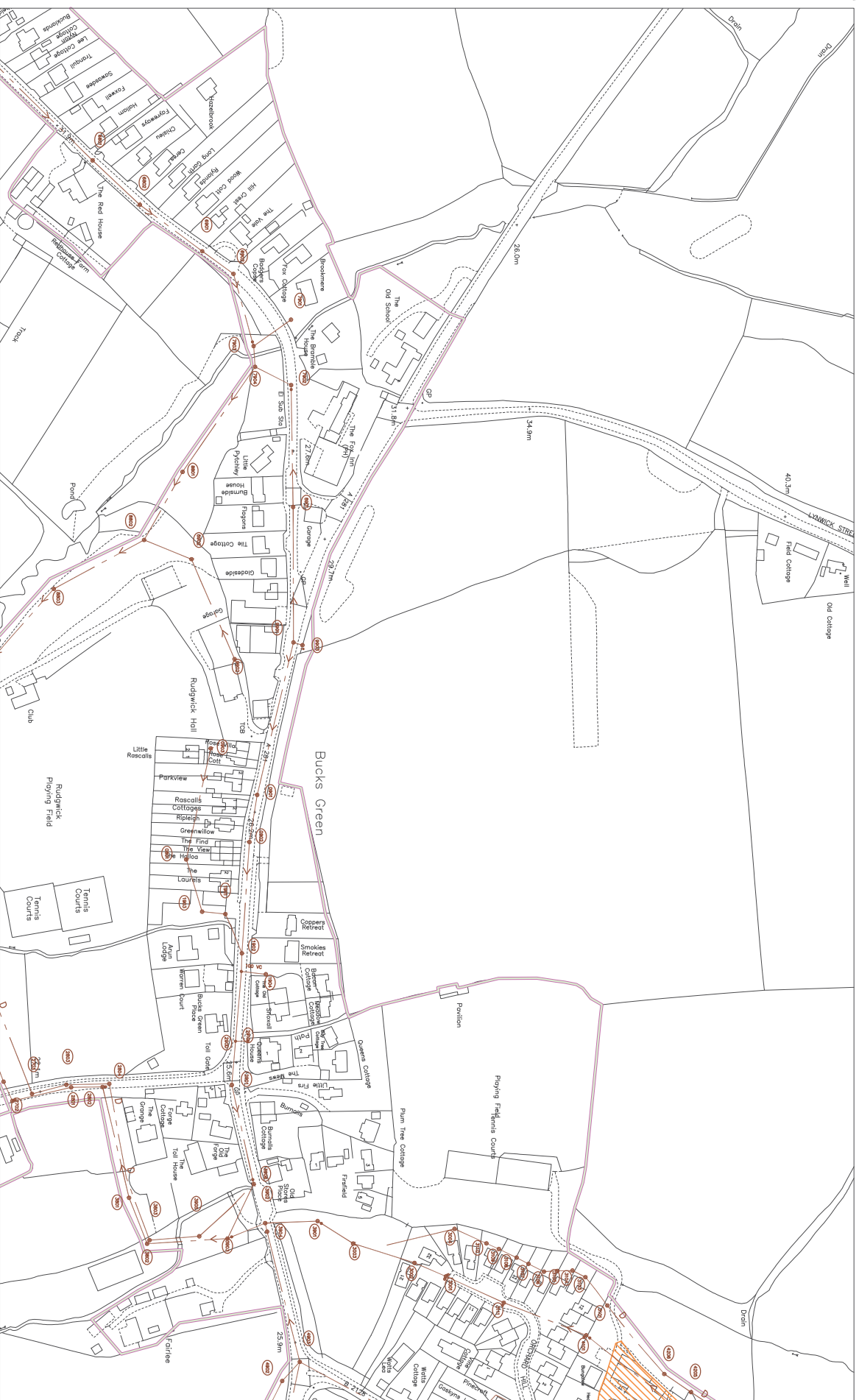
Copyright in materials derived from the British Geological Survey's work, is owned by UK Research and Innovation (UKRI) and/or the authority that commissioned the work. You may not copy or adapt this publication, or provide it to a third party, without first obtaining UKRI's permission, but if you are a consultant purchasing this report solely for the purpose of providing advice to your own individual client you may incorporate it unaltered into your report to that client without further permission, provided you give a full acknowledgement of the source. Please contact the BGS Copyright Manager, British Geological Survey, Environmental Science Centre, Nicker Hill, Keyworth, Nottingham NG12 5GG. Telephone: 0115 936 3100.

© UKRI 2025 All rights reserved.

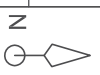
This product includes mapping data licensed from the Ordnance Survey® with the permission of the Controller of Her Majesty's Stationery Office. © Crown Copyright 2025. All rights reserved. Licence number AC0000824781 EUL



**Report issued by
BGS Enquiry Service**



O.S. REF. TQ07333SE		Drawn by: rohandas	Scale: 1:2500	Date: 10/05/2019	The positions of pipes shown on this plan are believed to be correct, but Southern Water Services Ltd accept no responsibility in the event of inaccuracy. The actual positions should be determined on site. WARNING: BAC pipes are constructed of Bonded Asbestos Cement WARNING: Unknown (UNK) materials may include Bonded Asbestos Cement Based upon Ordnance Survey Digital Data with the permission of the controller of H.M.S.O. Crown Copyright Reserved Licence No. WU 298530.	 N	
Title: 337345_Guildford Road Housing							



SEWER RECORDS PAGE 2 OF 2

[illegible]

MATERIALS

Material	Chemical Structure
PC	Polycarbonate
PC/ABS	Polycarbonate/ABS
PC/PA66	Polycarbonate/PA66
PC/PA12	Polycarbonate/PA12
PC/PA11	Polycarbonate/PA11
PC/PA10	Polycarbonate/PA10
PC/PA9	Polycarbonate/PA9
PC/PA8	Polycarbonate/PA8
PC/PA7	Polycarbonate/PA7
PC/PA6	Polycarbonate/PA6
PC/PA5	Polycarbonate/PA5
PC/PA4	Polycarbonate/PA4
PC/PA3	Polycarbonate/PA3
PC/PA2	Polycarbonate/PA2
PC/PA1	Polycarbonate/PA1
PC/PA0	Polycarbonate/PA0
PC/PA-1	Polycarbonate/PA-1
PC/PA-2	Polycarbonate/PA-2
PC/PA-3	Polycarbonate/PA-3
PC/PA-4	Polycarbonate/PA-4
PC/PA-5	Polycarbonate/PA-5
PC/PA-6	Polycarbonate/PA-6
PC/PA-7	Polycarbonate/PA-7
PC/PA-8	Polycarbonate/PA-8
PC/PA-9	Polycarbonate/PA-9
PC/PA-10	Polycarbonate/PA-10
PC/PA-11	Polycarbonate/PA-11
PC/PA-12	Polycarbonate/PA-12
PC/PA-13	Polycarbonate/PA-13
PC/PA-14	Polycarbonate/PA-14
PC/PA-15	Polycarbonate/PA-15
PC/PA-16	Polycarbonate/PA-16
PC/PA-17	Polycarbonate/PA-17
PC/PA-18	Polycarbonate/PA-18
PC/PA-19	Polycarbonate/PA-19
PC/PA-20	Polycarbonate/PA-20
PC/PA-21	Polycarbonate/PA-21
PC/PA-22	Polycarbonate/PA-22
PC/PA-23	Polycarbonate/PA-23
PC/PA-24	Polycarbonate/PA-24
PC/PA-25	Polycarbonate/PA-25
PC/PA-26	Polycarbonate/PA-26
PC/PA-27	Polycarbonate/PA-27
PC/PA-28	Polycarbonate/PA-28
PC/PA-29	Polycarbonate/PA-29
PC/PA-30	Polycarbonate/PA-30
PC/PA-31	Polycarbonate/PA-31
PC/PA-32	Polycarbonate/PA-32
PC/PA-33	Polycarbonate/PA-33
PC/PA-34	Polycarbonate/PA-34
PC/PA-35	Polycarbonate/PA-35
PC/PA-36	Polycarbonate/PA-36
PC/PA-37	Polycarbonate/PA-37
PC/PA-38	Polycarbonate/PA-38
PC/PA-39	Polycarbonate/PA-39
PC/PA-40	Polycarbonate/PA-40
PC/PA-41	Polycarbonate/PA-41
PC/PA-42	Polycarbonate/PA-42
PC/PA-43	Polycarbonate/PA-43
PC/PA-44	Polycarbonate/PA-44
PC/PA-45	Polycarbonate/PA-45
PC/PA-46	Polycarbonate/PA-46
PC/PA-47	Polycarbonate/PA-47
PC/PA-48	Polycarbonate/PA-48
PC/PA-49	Polycarbonate/PA-49
PC/PA-50	Polycarbonate/PA-50
PC/PA-51	Polycarbonate/PA-51
PC/PA-52	Polycarbonate/PA-52
PC/PA-53	Polycarbonate/PA-53
PC/PA-54	Polycarbonate/PA-54
PC/PA-55	Polycarbonate/PA-55
PC/PA-56	Polycarbonate/PA-56
PC/PA-57	Polycarbonate/PA-57
PC/PA-58	Polycarbonate/PA-58
PC/PA-59	Polycarbonate/PA-59
PC/PA-60	Polycarbonate/PA-60
PC/PA-61	Polycarbonate/PA-61
PC/PA-62	Polycarbonate/PA-62
PC/PA-63	Polycarbonate/PA-63
PC/PA-64	Polycarbonate/PA-64
PC/PA-65	Polycarbonate/PA-65
PC/PA-66	Polycarbonate/PA-66
PC/PA-67	Polycarbonate/PA-67
PC/PA-68	Polycarbonate/PA-68
PC/PA-69	Polycarbonate/PA-69
PC/PA-70	Polycarbonate/PA-70
PC/PA-71	Polycarbonate/PA-71
PC/PA-72	Polycarbonate/PA-72
PC/PA-73	Polycarbonate/PA-73
PC/PA-74	Polycarbonate/PA-74
PC/PA-75	Polycarbonate/PA-75
PC/PA-76	Polycarbonate/PA-76
PC/PA-77	Polycarbonate/PA-77
PC/PA-78	Polycarbonate/PA-78
PC/PA-79	Polycarbonate/PA-79
PC/PA-80	Polycarbonate/PA-80
PC/PA-81	Polycarbonate/PA-81
PC/PA-82	Polycarbonate/PA-82
PC/PA-83	Polycarbonate/PA-83
PC/PA-84	Polycarbonate/PA-84
PC/PA-85	Polycarbonate/PA-85
PC/PA-86	Polycarbonate/PA-86
PC/PA-87	Polycarbonate/PA-87
PC/PA-88	Polycarbonate/PA-88
PC/PA-89	Polycarbonate/PA-89
PC/PA-90	Polycarbonate/PA-90
PC/PA-91	Polycarbonate/PA-91
PC/PA-92	Polycarbonate/PA-92
PC/PA-93	Polycarbonate/PA-93
PC/PA-94	Polycarbonate/PA-94
PC/PA-95	Polycarbonate/PA-95
PC/PA-96	Polycarbonate/PA-96
PC/PA-97	Polycarbonate/PA-97
PC/PA-98	Polycarbonate/PA-98
PC/PA-99	Polycarbonate/PA-99
PC/PA-100	Polycarbonate/PA-100

LEGEND - BEVERS

Bevers	Chemical Structure
PC	Polycarbonate
PC/ABS	Polycarbonate/ABS
PC/PA66	Polycarbonate/PA66
PC/PA12	Polycarbonate/PA12

Drawn by: rohandas	
Title: 337345_Guildford Road Housing	
Date: 10/05/2019	

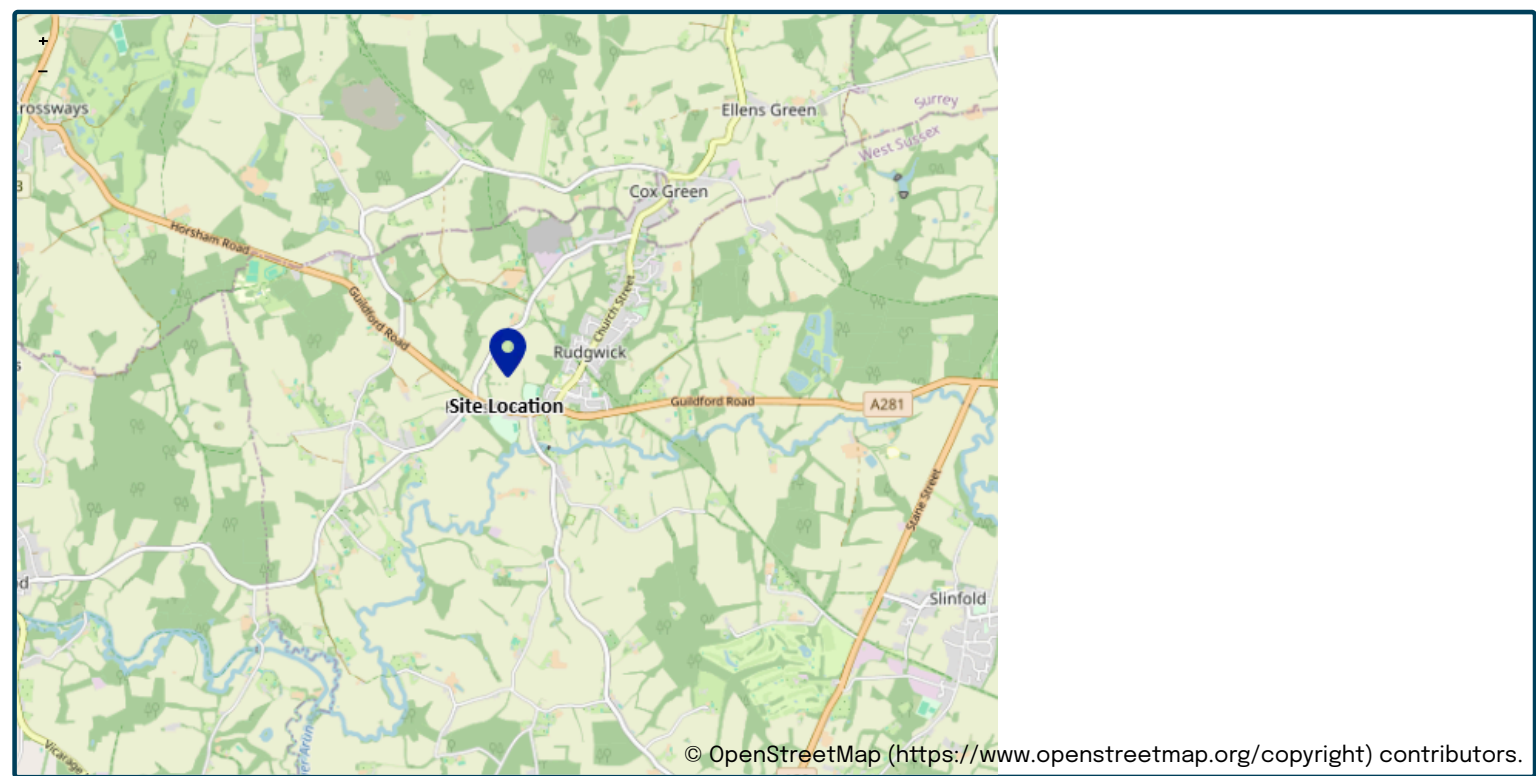
This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance “Rainfall runoff management for developments”, SC030219 (2013), the SuDS Manual C753 (CIRIA, 2015) and the non-statutory standards for SuDS (Defra, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

Project details

Date	21/05/2025
Calculated by	Samuel Flesher
Reference	
Model version	2.0.1

Location

Site name	Land North of Guildford Road
Site location	Rudgwick



Site easting	508037
Site northing	133044

Site details

Total site area (ha)	2.72	ha
----------------------	------	----

We use cookies on this site to enhance your user experience

By clicking the Accept button, you agree to us doing so.

OK, I AGREE

MORE INFO

Greenfield runoff

Method

Method	FEH statistical
--------	-----------------

FEH statistical

	<u>My value</u>		<u>Map value</u>
SAAR (mm)	776	mm	774
BFIHOST	.342		
QMed-QBar conversion	1.136		1.136
QMed (l/s)	15.6	l/s	
QBar (FEH statistical) (l/s)	17.8	l/s	

Growth curve factors

	<u>My value</u>		<u>Map value</u>
Hydrological region	7		7
1 year growth factor	0.85		
2 year growth factor	0.88		
10 year growth factor	1.62		
30 year growth factor	2.3		
100 year growth factor	3.19		
200 year growth factor	3.74		

Results

Method	FEH statistical	
Flow rate 1 year (l/s)	15.1	l/s
Flow rate 2 year (l/s)	15.6	l/s
Flow rate 10 years (l/s)	28.8	l/s
Flow rate 30 years (l/s)	40.8	l/s
Flow rate 100 years (l/s)	56.6	l/s
Flow rate 200 years (l/s)	66.4	l/s

Disclaimer

This report was produced using the Greenfield runoff rate estimation tool (2.0.1) developed by HR Wallingford and available at uksuds.com (<https://www.uksuds.com/>).

The use of this tool is subject to the UK SuDS terms and conditions and licence agreement, which can both be found at [uksuds.com/terms-conditions](https://www.uksuds.com/terms-conditions) (<https://www.uksuds.com/terms-conditions>). The outputs from this tool have been used to estimate Greenfield runoff rates. The use of these results is the responsibility of the users of this tool. No liability will be accepted by HR Wallingford, the Environment Agency, Centre for Ecology and Hydrology, Wallingford Hydrosolutions or any other organisation for the use of these data in the design or operational characteristics of any drainage scheme.

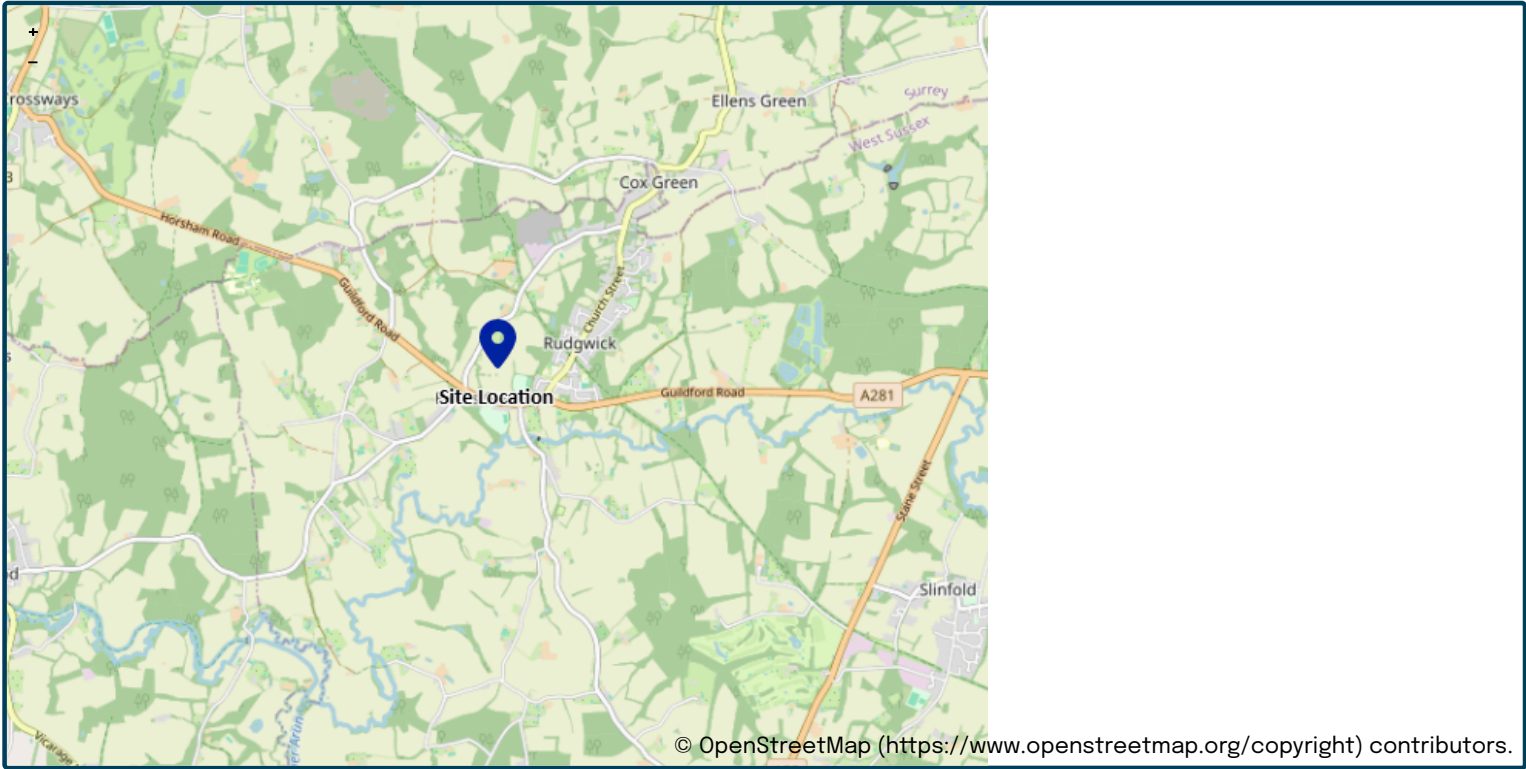
This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance “Rainfall runoff management for developments”, SC030219 (2013), the SuDS Manual C753 (CIRIA, 2015) and the non-statutory standards for SuDS (Defra, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

Project details

Date	21/05/2025
Calculated by	Samuel Flesher
Reference	
Model version	2.0.1

Location

Site name	Land North of Guildford Road
Site location	Rudgwick



Site easting	508037
Site northing	133044

Site details

Total site area (ha)	0.66	ha
----------------------	-----------------------------------	----

Greenfield runoff

Method

Method	FEH statistical
--------	-----------------

FEH statistical

	<u>My value</u>		<u>Map value</u>
SAAR (mm)	776	mm	774
BFIHOST	.342		
QMed-QBar conversion	1.136		1.136
QMed (l/s)	3.79	l/s	
QBar (FEH statistical) (l/s)	4.3	l/s	

Growth curve factors

	<u>My value</u>		<u>Map value</u>
Hydrological region	7		7
1 year growth factor	0.85		
2 year growth factor	0.88		
10 year growth factor	1.62		
30 year growth factor	2.3		
100 year growth factor	3.19		
200 year growth factor	3.74		

Results

Method	FEH statistical	
Flow rate 1 year (l/s)	3.7	l/s
Flow rate 2 year (l/s)	3.8	l/s
Flow rate 10 years (l/s)	7	l/s
Flow rate 30 years (l/s)	9.9	l/s
Flow rate 100 years (l/s)	13.7	l/s
Flow rate 200 years (l/s)	16.1	l/s

Disclaimer

This report was produced using the Greenfield runoff rate estimation tool (2.0.1) developed by HR Wallingford and available at uksuds.com (<https://www.uksuds.com/>).

The use of this tool is subject to the UK SuDS terms and conditions and licence agreement, which can both be found at [uksuds.com/terms-conditions](https://www.uksuds.com/terms-conditions) (<https://www.uksuds.com/terms-conditions>). The outputs from this tool have been used to estimate Greenfield runoff rates. The use of these results is the responsibility of the users of this tool. No liability will be accepted by HR Wallingford, the Environment Agency, Centre for Ecology and Hydrology, Wallingford Hydrosolutions or any other organisation for the use of these data in the design or operational characteristics of any drainage scheme.

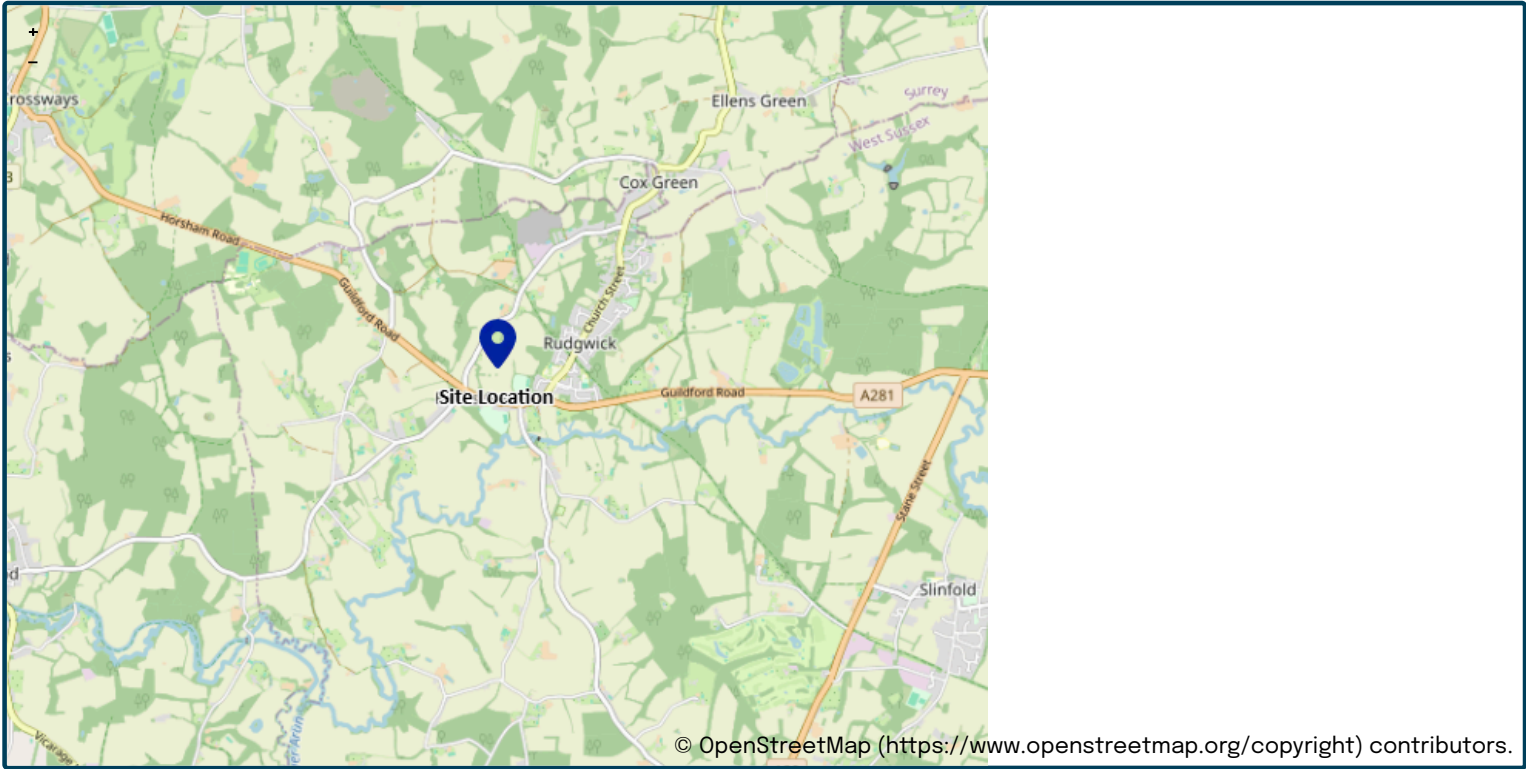
This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance “Rainfall runoff management for developments”, SC030219 (2013), the SuDS Manual C753 (CIRIA, 2015) and the non-statutory standards for SuDS (Defra, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

Project details

Date	21/05/2025
Calculated by	Samuel Flesher
Reference	
Model version	2.0.1

Location

Site name	Land North of Guildford Road
Site location	Rudgwick

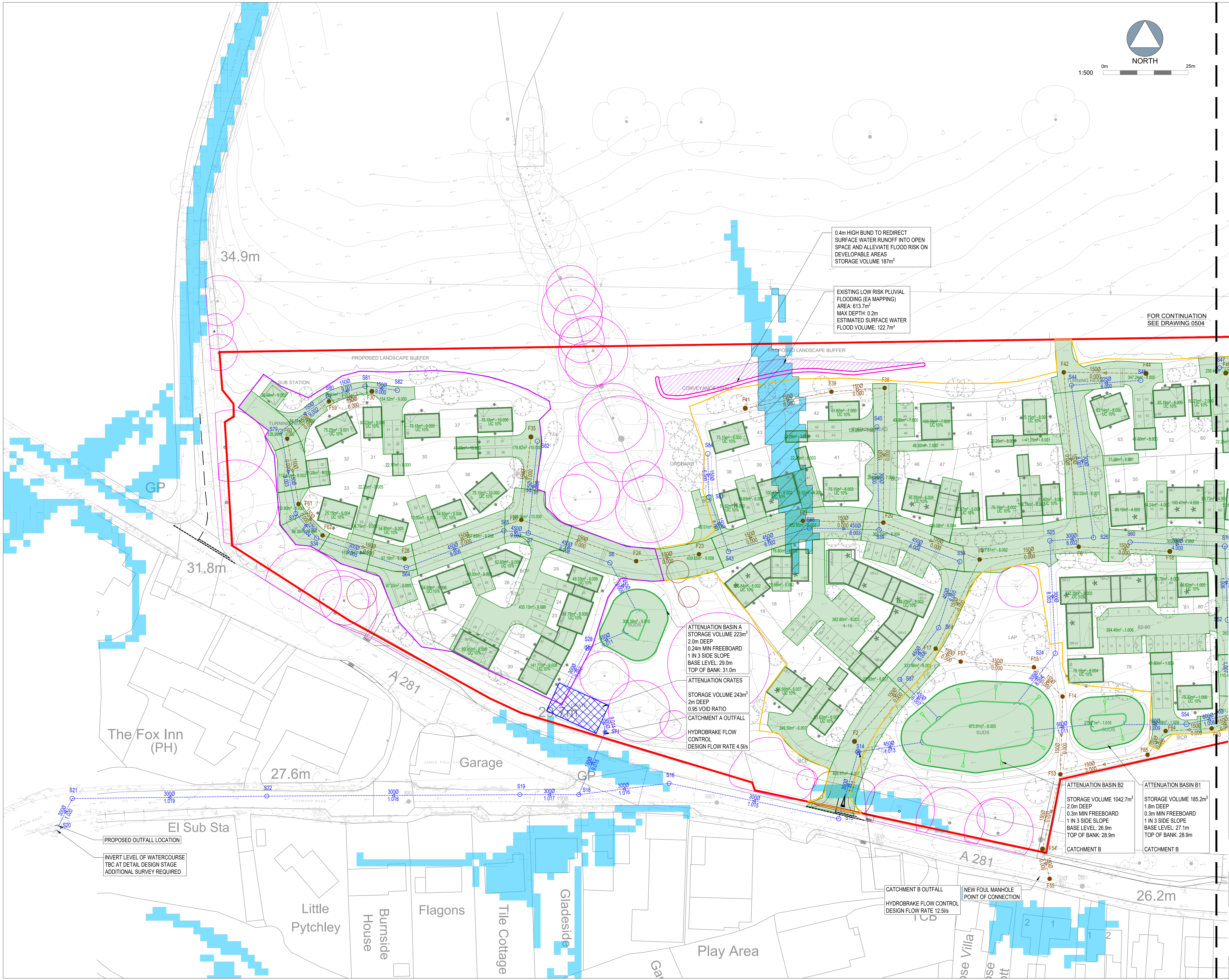


Site easting	508037
Site northing	133044

Site details

Total site area (ha)	2.06	ha
----------------------	-----------------------------------	----

By clicking the Accept button, you agree to us doing so.



The drawings, information and data recorded in this document ("the information") is the property of Paul Basham Associates. This document and the information are solely for the use of the authorised recipient and this document may not be used, copied or reproduced in whole or part for any purposes other than which it was supplied by Paul Basham Associates. Paul Basham Associates makes no representation, undertakes no duty and accepts no responsibilities to any third party who may use or rely upon this document or the information.

- GENERAL NOTES**
- THIS DRAWING IS INTENDED TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS, ENGINEERS, SERVICES AND SPECIALIST DRAWINGS, DETAILS AND SPECIFICATIONS.
 - ANY VARIATIONS OR DISCREPANCIES BETWEEN THESE DRAWINGS IN TERMS OF DIMENSIONS OR DETAILS SHOULD BE DRAWN TO THE ATTENTION OF THE ARCHITECT AND/OR THE ENGINEER FOR CLARIFICATION.
 - ALL FIGURED DIMENSIONS TO BE TAKEN IN PREFERENCE TO SCALED DIMENSIONS. DO NOT SCALE THIS DRAWING.
 - PAUL BASHAM ASSOCIATES ACCEPTS NO RESPONSIBILITY FOR THE ACCURACY OF BACKGROUND INFORMATION PRODUCED BY THIRD PARTIES - THIS MUST BE TREATED AS INDICATIVE ONLY.
 - SITE LAYOUT REF: WELB19030 SL-03 P4
 - TOPOGRAPHICAL SURVEY REF: 19/192/100/A-G
 - DEPRA FOR SW, CC: EA SURFACE WATER PLUS CLIMATE CHANGE FLOOD MAPPING

- LEGEND**
- PLANNING APPLICATION BOUNDARY
 - SURFACE WATER SEWER
 - FOUL WATER SEWER
 - SURFACE WATER CHAMBER
 - HYDROBRAKE
 - FOUL WATER CHAMBER
 - HEADWALL
 - ATTENUATION CRATES
 - ROOT PROTECTION AREAS
 - ATTENUATION BASIN
 - RISK OF SURFACE WATER FLOODING (YEARLY CHANCE 2040-2060)
 - SURFACE WATER RETENTION BUND
 - CATCHMENT A
TOTAL AREA: 0.66ha
 - CATCHMENT B
TOTAL AREA: 2.06ha
 - DRAINABLE AREAS

PRELIMINARY

DRAWING/DESIGN IS STILL 'IN DEVELOPMENT'
YOU ARE ADVISED TO MAKE DUE ALLOWANCE

P01	FIRST ISSUE	29.05.2025	SF	MDW
Rev	Description	Date	By	App'd

paulbasham
associates

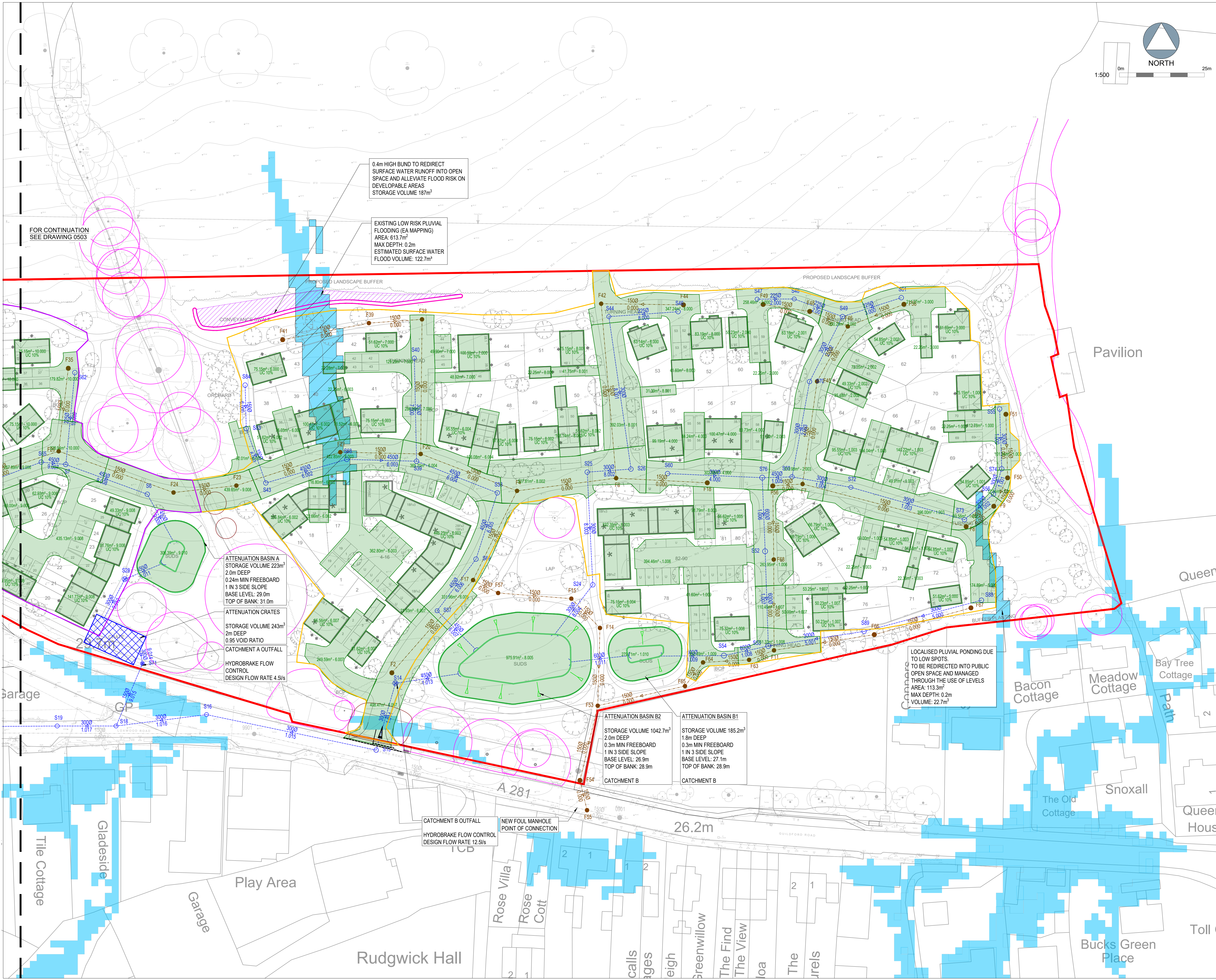
Paul Basham Associates Ltd
Milton Hall, Ely Road, Milton,
Cambridge, CB24 6WZ
01223 253669
info@paulbashamassociates.com www.paulbashamassociates.com

Client
WELBECK LAND

Project Name
**LAND NORTH OF GUILDFORD ROAD,
RUDGWICK**

Title
**PRELIMINARY DRAINAGE STRATEGY
SHEET 1 OF 2**

Date Created	Drawn By	Approved By	Suitability Code
29.05.2025	SF	MDW	S3
PBA Project Number	Scale	(AT A1)	
145.5008	1:500		
PBA Drawing No.	Revision		
145.5008.0503	P01		



The drawings, information and data recorded in this document ("the information") is the property of Paul Basham Associates. This document and the information are solely for the use of the authorised recipient and this document may not be used, copied or reproduced in whole or part for any purposes other than which it was supplied by Paul Basham Associates. Paul Basham Associates makes no representation, undertakes no duty and accepts no responsibilities to any third party who may use or rely upon this document or the information.

GENERAL NOTES

- THIS DRAWING IS INTENDED TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS, ENGINEERS, SERVICES AND SPECIALIST DRAWINGS, DETAILS AND SPECIFICATIONS.
- ANY VARIATIONS OR DISCREPANCIES BETWEEN THESE DRAWINGS IN TERMS OF DIMENSIONS OR DETAILS SHOULD BE DRAWN TO THE ATTENTION OF THE ARCHITECT AND/OR THE ENGINEER FOR CLARIFICATION.
- ALL FIGURED DIMENSIONS TO BE TAKEN IN PREFERENCE TO SCALED DIMENSIONS. DO NOT SCALE THIS DRAWING.
- PAUL BASHAM ASSOCIATES ACCEPTS NO RESPONSIBILITY FOR THE ACCURACY OF BACKGROUND INFORMATION PRODUCED BY THIRD PARTIES - THIS MUST BE TREATED AS INDICATIVE ONLY.
 - SITE LAYOUT REF: WELB19030 SL-03 P4
 - TOPOGRAPHICAL SURVEY REF: 19/192/100/A-G
 - DEPRA FOR SW, CC: EA SURFACE WATER PLUS CLIMATE CHANGE FLOOD MAPPING

LEGEND

- PLANNING APPLICATION BOUNDARY
- SURFACE WATER SEWER
- FOUL WATER SEWER
- SURFACE WATER CHAMBER
- HYDROBRAKE
- FOUL WATER CHAMBER
- HEADWALL
- ATTENUATION CRATES
- ROOT PROTECTION AREAS
- ATTENUATION BASIN
- RISK OF SURFACE WATER FLOODING (YEARLY CHANCE 2040-2060)
- SURFACE WATER RETENTION BUND
- CATCHMENT A
TOTAL AREA: 0.66ha
- CATCHMENT B
TOTAL AREA: 2.06ha
- DRAINABLE AREAS

PRELIMINARY

DRAWING/DESIGN IS STILL 'IN DEVELOPMENT'
YOU ARE ADVISED TO MAKE DUE ALLOWANCE

P01	FIRST ISSUE	29.05.2025	SF	MDW
Rev	Description	Date	By	App'd

paulbasham associates

Paul Basham Associates Ltd
Milton Hall, Ely Road, Milton,
Cambridge, CB24 6WZ
01223 253669
info@paulbashamassociates.com www.paulbashamassociates.com

Client

WELBECK LAND

Project Name

LAND NORTH OF GUILDFORD ROAD, RUDGWICK

Title

**PRELIMINARY DRAINAGE STRATEGY
SHEET 2 OF 2**

Project Phase

PRELIMINARY

Date Created	Drawn By	Approved By	Suitability Code
29.05.2025	SF	MDW	S3
PBA Project Number	Scale	(AT A1)	
145.5008	1:500		
PBA Drawing No:	Revision		
145.5008.0504	P01		

QMS2010V8/310723JM

Network Details

Manhole Schedule

Manhole	Catchment Area (ha)	Diameter (m)	Type	CL (m)	IL (m)	Depth To Soffit (m)	Easting (m)	Northing (m)
S55	0.032	1.350	Type C	30.346	28.787	1.259	508150.984	133064.317
S74	0.010	1.350	Type C	30.056	28.676	1.080	508151.612	133046.710
S56	0.009	1.350	Type C	29.912	28.619	0.993	508149.189	133039.263
S73	0.108	1.350	Type C	29.739	28.539	0.900	508140.660	133031.744
S72	0.000	1.200	Type B	30.863	28.308	2.255	508107.254	133041.271
S47	0.034	1.200	Type B	33.119	31.240	1.654	508079.704	133096.601
S48	0.009	1.200	Type B	32.844	30.970	1.649	508090.599	133096.663
S61	0.032	1.350	Type C	32.186	30.690	1.271	508122.085	133097.034
S49	0.057	1.350	Type B	32.428	30.120	2.008	508104.796	133091.483
S70	0.037	1.350	Type B	31.904	29.620	1.984	508095.105	133072.348
S50	0.007	1.350	Type B	31.238	28.041	2.747	508089.960	133044.341
S60	0.067	1.350	Type B	31.816	29.822	1.694	508053.361	133045.323
S76	0.081	1.500	Type B	31.394	27.830	2.964	508081.194	133044.111
S52	0.035	1.500	Type B	30.543	27.685	2.258	508082.054	133022.464
S88	0.023	1.350	Type C	28.584	27.562	0.721	508145.646	133008.079
S89	0.000	1.350	Type C	28.600	27.384	0.916	508111.122	132998.910
S53	0.023	1.500	Unknown	29.316	27.240	1.776	508082.979	132994.608
S54	0.020	1.500	Unknown	28.775	27.214	0.961	508069.944	132991.785
S75	0.028	0.000	Unknown	28.900	27.145	1.155	508051.252	132991.646
S58	0.000	0.000	Type C	28.900	27.130	1.170	508041.992	132991.762
S59	0.000	0.000	Type B	28.900	26.950	1.350	508024.860	132989.927
S84	0.008	1.350	Type C	34.088	32.797	1.141	507929.191	133071.339
S83	0.009	1.350	Type C	33.385	32.168	1.067	507929.516	133058.569
S43	0.051	1.350	Type C	32.442	31.192	0.799	507935.270	133042.558
S68	0.145	1.350	Type C	32.787	31.119	1.218	507959.053	133049.487
S40	0.070	1.200	Unknown	34.591	33.330	0.961	507978.924	133079.294
S39	0.064	1.350	Type B	33.086	31.040	1.596	507979.574	133048.948
S38	0.000	1.350	Type B	32.387	30.190	1.747	508003.329	133039.639
S69	0.033	1.350	Type B	31.327	29.206	1.671	507997.048	133020.161
S37	0.084	1.200	Type B	30.420	28.410	1.560	507985.621	133004.983
S36	0.000	0.000	Type B	28.900	27.660	0.790	507996.776	132993.780
S46	0.057	1.350	Type C	33.823	32.380	1.218	508056.483	133092.915
S44	0.057	1.200	Type B	34.320	32.100	1.920	508036.097	133091.470
S26	0.078	1.350	Type C	31.952	30.263	1.389	508042.622	133046.635
S25	0.046	1.350	Type B	32.067	29.840	1.927	508029.739	133045.747
S24	0.008	1.350	Type B	30.234	28.390	1.544	508031.392	133012.605
S23	0.098	0.000	Unknown	28.900	27.455	1.070	508020.194	132998.046
S13	0.000	0.000	Type B	28.900	26.920	1.530	507991.844	132986.419
S14	0.000	1.500	Type B	29.301	26.700	2.301	507973.361	132983.662
S15	0.000	1.350	Type C	28.377	26.612	1.465	507967.707	132964.007
S16	0.000	1.200	Type B	29.086	26.398	2.388	507917.843	132974.430
S82	0.031	1.350	Type C	35.134	33.744	1.239	507837.938	133089.978
S81	0.012	1.350	Type C	34.855	33.488	1.217	507828.439	133091.184
S80	0.025	1.350	Type C	34.545	33.221	1.174	507817.698	133088.217
S79	0.023	1.350	Type C	34.071	32.770	1.151	507803.651	133077.925
S77	0.017	1.200	Unknown	33.222	31.850	1.147	507808.109	133053.788
S34	0.045	1.350	Type B	32.901	30.629	1.972	507814.196	133046.501
S64	0.065	1.350	Type C	32.045	30.387	1.207	507840.583	133037.871
S65	0.000	1.350	Type B	32.643	30.214	1.979	507869.247	133048.690
S62	0.062	1.350	Type B	33.952	32.123	1.603	507879.127	133075.019
S7	0.127	1.350	Type B	32.552	30.150	1.952	507876.472	133047.995
S6	0.000	1.350	Type B	32.296	29.480	2.366	507900.423	133039.250
S5	0.031	0.000	Type C	31.000	29.375	1.175	507908.061	133025.447
S27	0.000	1.350	Type B	31.000	29.030	1.520	507904.839	133018.851
S28	0.000	1.500	Type B	30.829	28.450	2.079	507893.808	133014.275
S29	0.000	1.200	Type B	30.115	27.960	1.855	507886.797	133000.974
S30	0.000	1.200	Type B	29.915	26.790	2.825	507898.134	132994.438
S71	0.000	1.200	Type B	29.582	26.740	2.692	507899.016	132989.440
S18	0.000	1.200	Type B	28.773	26.285	2.313	507891.259	132971.090
S19	0.000	1.200	Type B	28.719	26.213	2.206	507873.959	132971.081
S22	0.000	1.200	Type B	27.184	25.320	1.564	507799.532	132970.646
S21	0.000	1.350	Type C	23.335	21.750	1.285	507742.354	132969.927
S20	0.000	0.000	Type C	22.824	21.712	0.812	507738.336	132961.886

Pipe Schedule

Pipe Number	US Manhole	US IL (m)	DS Manhole	DS IL (m)	Shape	Dimension (m)	Length (m)	Gradient (1:x)	Roughness (mm)	US Depth To Soffit (m)	DS Depth To Soffit (m)
1.000	S55	28.787	S74	28.676	Circ	0.3mØ	17.618	158.3	0.600	1.259	1.080
1.001	S74	28.676	S56	28.619	Circ	0.3mØ	7.831	137.8	0.600	1.080	0.993
1.002	S56	28.619	S73	28.539	Circ	0.3mØ	11.370	142.5	0.600	0.993	0.900
1.003	S73	28.539	S72	28.308	Circ	0.3mØ	34.738	150.0	0.600	0.899	2.255
1.004	S72	28.308	S50	28.191	Circ	0.3mØ	17.565	150.0	0.600	2.255	2.747
2.000	S47	31.240	S48	30.970	Circ	0.225mØ	10.896	40.4	0.600	1.654	1.649
2.001	S48	30.970	S49	30.195	Circ	0.225mØ	15.112	19.5	0.600	1.649	2.008
3.000	S61	30.690	S49	30.195	Circ	0.225mØ	18.159	36.7	0.600	1.271	2.008
2.002	S49	30.120	S70	29.620	Circ	0.3mØ	21.449	42.9	0.600	2.008	1.984
2.003	S70	29.620	S50	28.220	Circ	0.3mØ	28.476	20.3	0.600	1.984	2.718
1.005	S50	28.041	S76	27.980	Circ	0.45mØ	8.769	144.3	0.600	2.747	2.964
4.000	S60	29.822	S76	28.130	Circ	0.3mØ	27.859	16.5	0.600	1.694	2.964
1.006	S76	27.830	S52	27.685	Circ	0.6mØ	21.664	149.3	0.600	2.964	2.258
1.007	S52	27.685	S53	27.240	Circ	0.6mØ	27.871	62.6	0.600	2.258	1.476
5.000	S88	27.562	S89	27.384	Circ	0.3mØ	35.721	200.0	0.600	0.721	0.916
5.001	S89	27.384	S53	27.240	Circ	0.3mØ	28.470	198.3	0.600	0.916	1.776
1.008	S53	27.240	S54	27.214	Circ	0.6mØ	13.337	521.0	0.600	1.476	0.961
1.009	S54	27.214	S75	27.145	Circ	0.6mØ	18.693	268.3	0.600	0.961	1.155
1.010	S75	27.145	S58	27.130	Circ	0.6mØ	9.261	629.1	0.600	1.155	1.170
1.011	S58	27.130	S59	26.950	Circ	0.6mØ	17.229	95.7	0.600	1.170	1.350
1.012	S59	26.950	S13	26.920	Circ	0.6mØ	33.202	1106.7	0.600	1.350	1.380
6.000	S84	32.797	S83	32.168	Circ	0.15mØ	12.774	20.3	0.600	1.141	1.067
6.001	S83	32.168	S43	31.492	Circ	0.15mØ	17.014	25.2	0.600	1.067	0.799
6.002	S43	31.192	S68	31.119	Circ	0.45mØ	24.771	338.0	0.600	0.799	1.218
6.003	S68	31.119	S39	31.040	Circ	0.45mØ	20.528	259.6	0.600	1.218	1.596
7.000	S40	33.330	S39	31.190	Circ	0.3mØ	30.353	14.2	0.600	0.961	1.596
6.004	S39	31.040	S38	30.190	Circ	0.45mØ	25.514	30.0	0.600	1.596	1.747
6.005	S38	30.190	S69	29.206	Circ	0.45mØ	20.465	20.8	0.600	1.747	1.671
6.006	S69	29.206	S37	28.410	Circ	0.45mØ	18.999	23.9	0.600	1.671	1.560
6.007	S37	28.410	S36	27.660	Circ	0.45mØ	15.809	21.1	0.600	1.560	0.790
6.008	S36	27.660	S13	26.920	Circ	0.6mØ	8.860	12.0	0.600	0.640	1.380
8.000	S46	32.380	S44	32.175	Circ	0.225mØ	20.437	99.7	0.600	1.218	1.920
8.001	S44	32.100	S26	30.263	Circ	0.3mØ	45.307	24.7	0.600	1.920	1.389
8.002	S26	30.263	S25	29.840	Circ	0.3mØ	12.914	30.5	0.600	1.389	1.927
8.003	S25	29.840	S24	28.390	Circ	0.3mØ	33.183	22.9	0.600	1.927	1.544
8.004	S24	28.390	S23	27.530	Circ	0.3mØ	18.367	21.4	0.600	1.544	1.070
8.005	S23	27.455	S13	26.995	Circ	0.375mØ	30.642	66.6	0.600	1.070	1.530
1.013	S13	26.920	S14	26.700	Circ	0.45mØ	18.687	84.9	0.600	1.530	2.151
1.014	S14	26.700	S15	26.612	Circ	0.3mØ	20.453	232.4	0.600	2.301	1.465
1.015	S15	26.612	S16	26.398	Circ	0.3mØ	50.942	238.0	0.600	1.465	2.388
1.016	S16	26.398	S18	26.285	Circ	0.3mØ	26.793	238.0	0.600	2.388	2.187
9.000	S82	33.744	S81	33.488	Circ	0.15mØ	9.575	37.4	0.600	1.239	1.217
9.001	S81	33.488	S80	33.221	Circ	0.15mØ	11.143	41.7	0.600	1.217	1.174
9.002	S80	33.221	S79	32.770	Circ	0.15mØ	17.413	38.6	0.600	1.174	1.151
9.003	S79	32.770	S77	31.925	Circ	0.15mØ	24.546	29.0	0.600	1.151	1.147
9.004	S77	31.850	S34	30.913	Circ	0.225mØ	9.495	10.1	0.600	1.147	1.763
9.005	S34	30.629	S64	30.537	Circ	0.3mØ	27.762	302.6	0.600	1.972	1.207
9.006	S64	30.387	S65	30.214	Circ	0.45mØ	30.639	176.3	0.600	1.207	1.979
9.007	S65	30.214	S7	30.150	Circ	0.45mØ	7.258	113.9	0.600	1.979	1.952
10.000	S62	32.123	S7	30.375	Circ	0.225mØ	27.155	15.5	0.600	1.603	1.952
9.008	S7	30.150	S6	29.480	Circ	0.45mØ	25.498	38.1	0.600	1.952	2.366
9.009	S6	29.480	S5	29.375	Circ	0.45mØ	15.775	150.0	0.600	2.366	1.175
9.010	S5	29.375	S27	29.030	Circ	0.45mØ	7.341	21.3	0.600	1.175	1.520
9.011	S27	29.030	S28	28.450	Circ	0.45mØ	11.943	20.6	0.600	1.520	1.929
9.012	S28	28.450	S29	27.960	Circ	0.3mØ	15.035	30.7	0.600	2.079	1.855
9.013	S29	27.960	S30	26.790	Circ	0.3mØ	13.086	11.2	0.600	1.855	2.825
9.014	S30	26.790	S71	26.740	Circ	0.3mØ	5.075	101.5	0.600	2.825	2.542
9.015	S71	26.740	S18	26.310	Circ	0.15mØ	19.922	46.3	0.600	2.692	2.313
1.017	S18	26.285	S19	26.213	Circ	0.3mØ	17.300	238.0	0.600	2.187	2.206
1.018	S19	26.213	S22	25.320	Circ	0.3mØ	74.428	83.4	0.600	2.206	1.564
1.019	S22	25.320	S21	21.750	Circ	0.3mØ	57.183	16.0	0.600	1.564	1.285
1.020	S21	21.750	S20	21.712	Circ	0.3mØ	8.989	238.0	0.600	1.285	0.812

Outfall Details

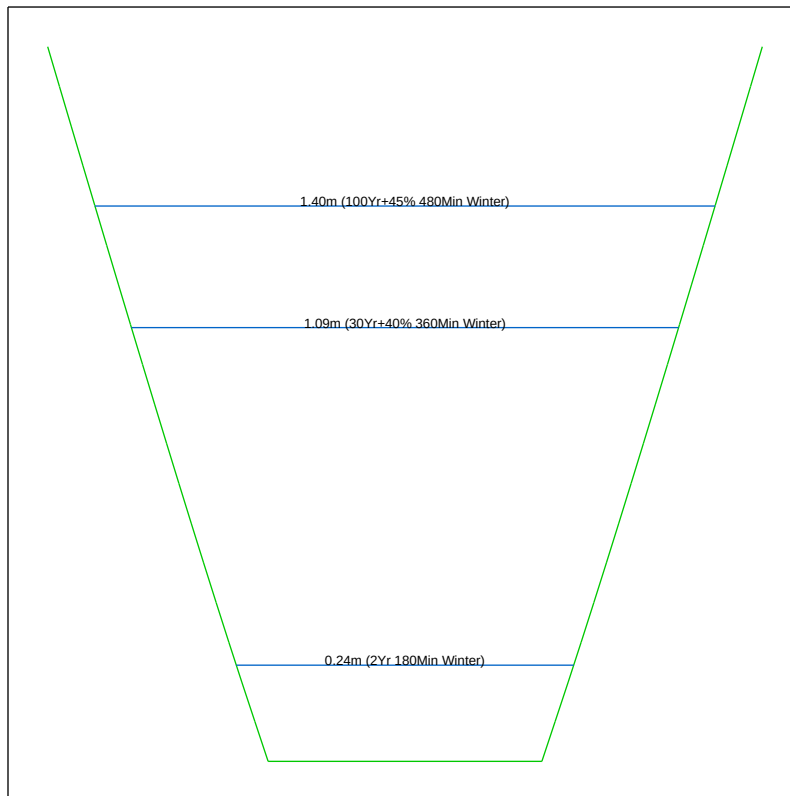
Outfall Manhole S20 : Free Discharge

Flow Control Details

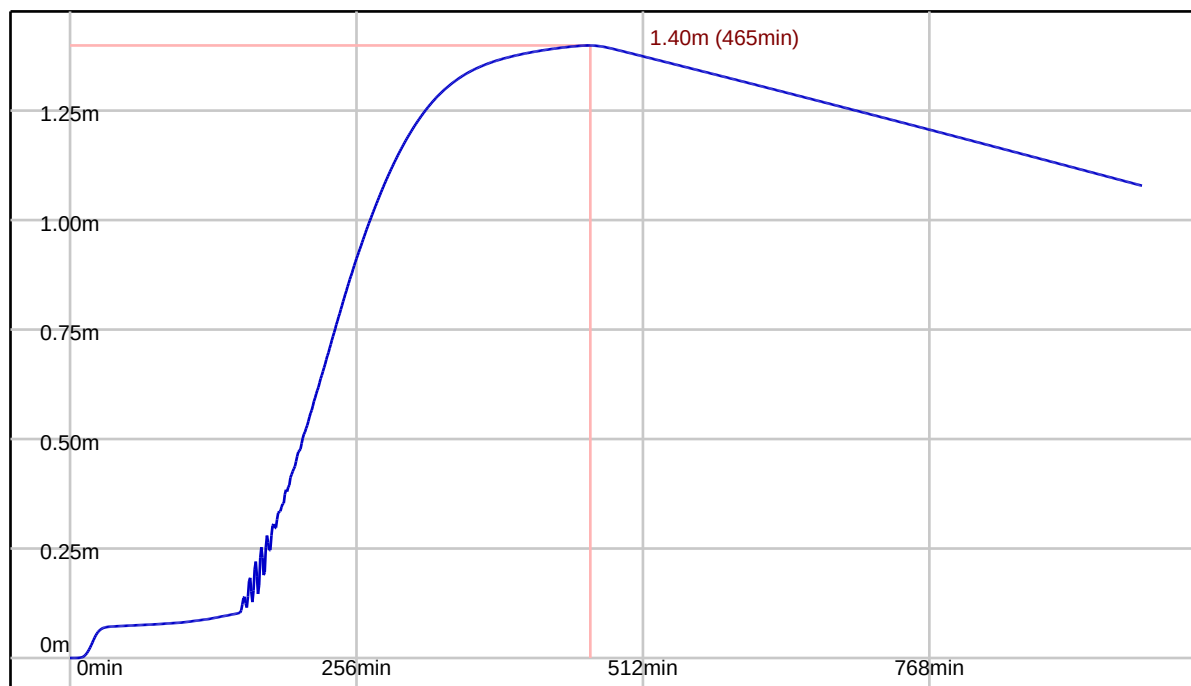
Pond Structure at Manhole S58

Pond Invert (m)	Max Depth (m)	Volume To Water Level (m3)	Water Level (m)	Freeboard (m)	Infil Base (m/hr)	Infil Side (m/hr)	Safety Factor
27.100	1.800	185.205	28.600	0.300	0.00000000	0.00000000	2.00

Pond Depth/Area Diagram at S58



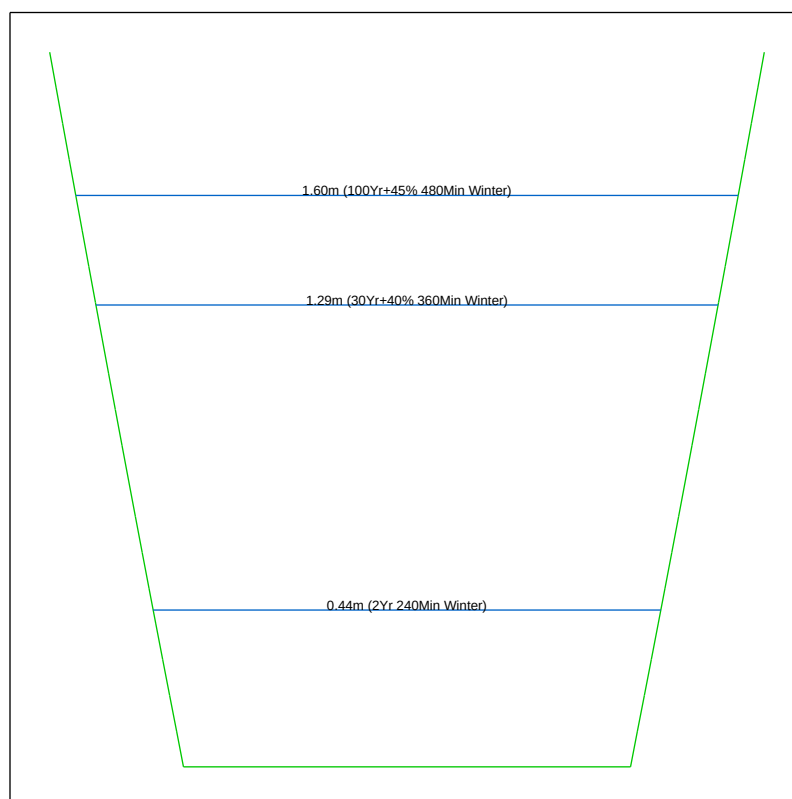
Pond at S58 (100Yr+45% 480Min Winter)



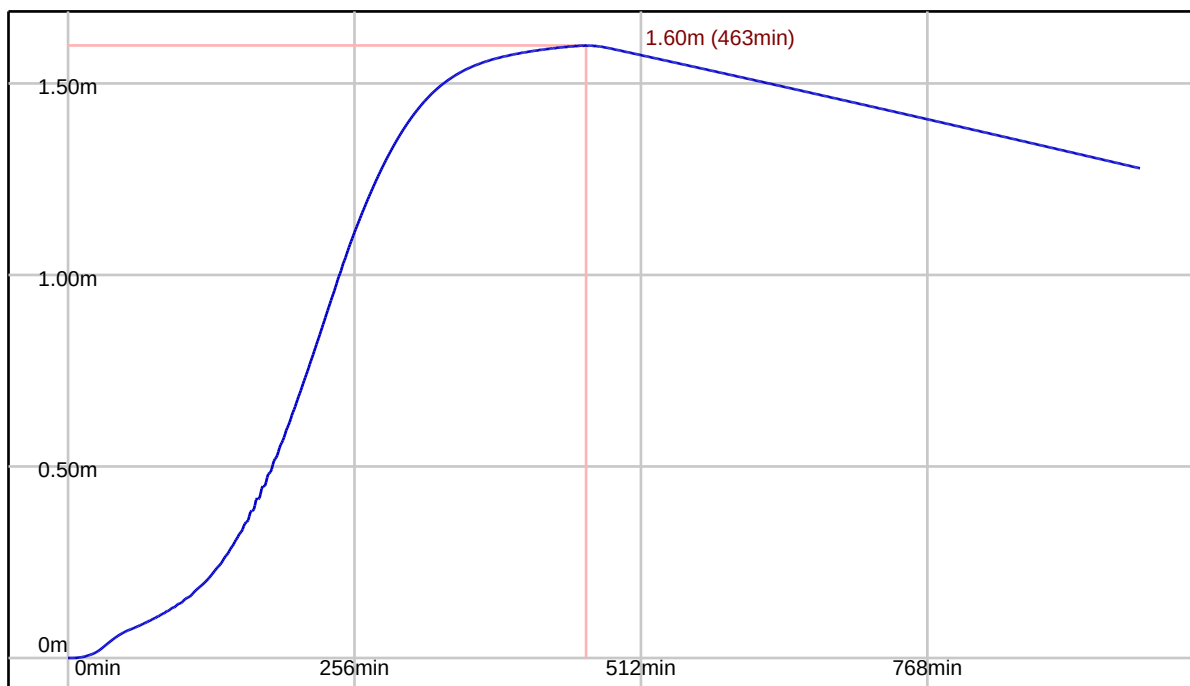
Pond Structure at Manhole S13

Pond Invert (m)	Max Depth (m)	Volume To Water Level (m3)	Water Level (m)	Freeboard (m)	Infil Base (m/hr)	Infil Side (m/hr)	Safety Factor
26.900	2.000	1042.649	28.600	0.300	0.00000000	0.00000000	2.00

Pond Depth/Area Diagram at S13



Pond at S13 (100Yr+45% 480Min Winter)

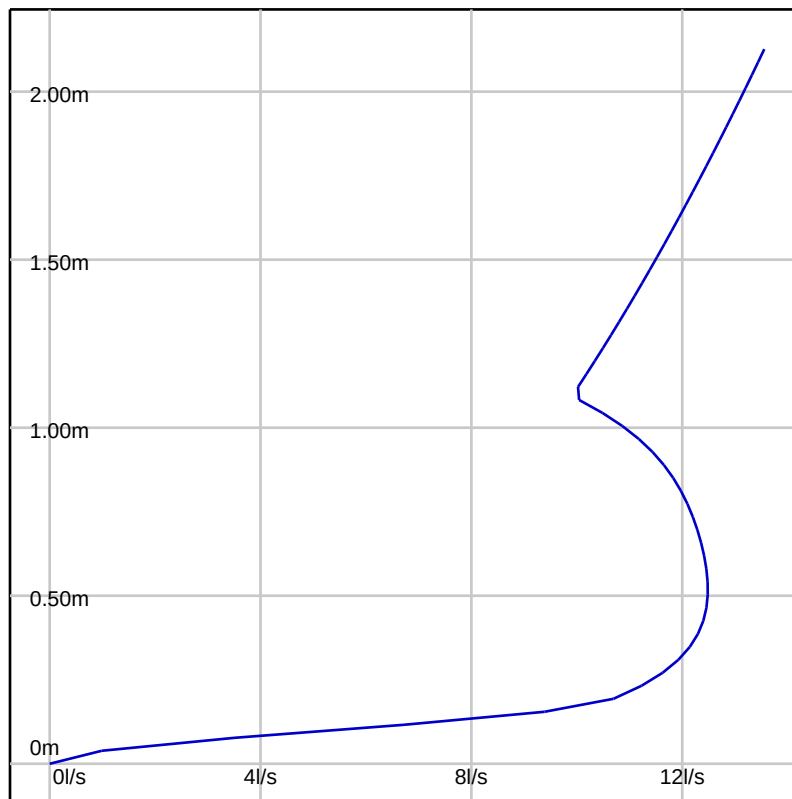


Controls within Manhole S14

Hydro-Brake® Optimum Control at Manhole S14

Model Ref	Design Depth (m)	Design Flow (l/s)	Depth Above Invert (m)	FF Head (m)	FF Flow (l/s)	KF Head (m)	KF Flow (l/s)
SHE-0149-1250-1790-1250	1.790	12.500	0.000	0.518	12.486	1.092	9.900

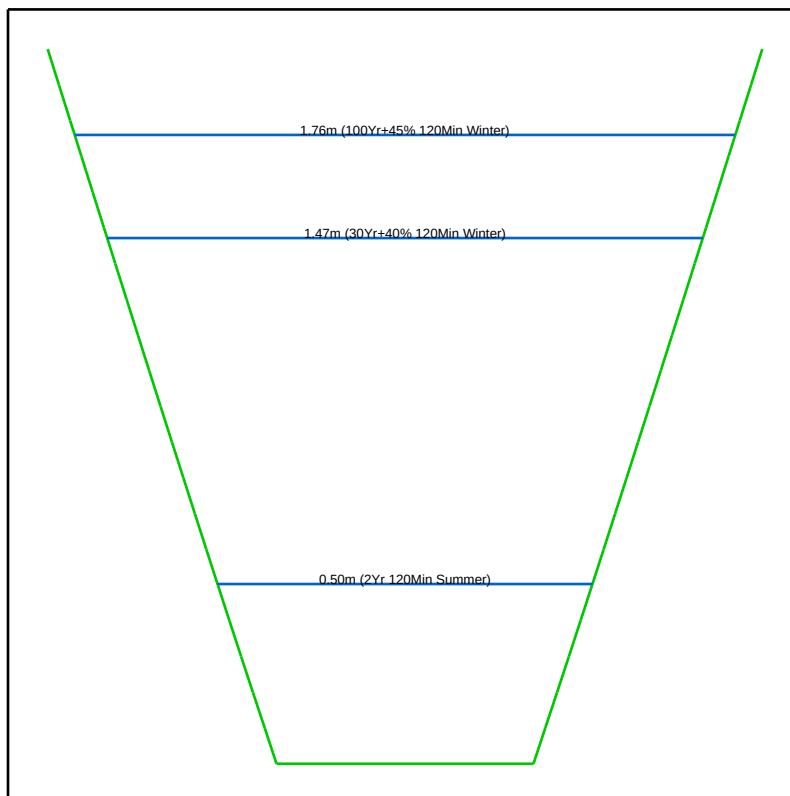
Hydro-Brake® Optimum Control at S14



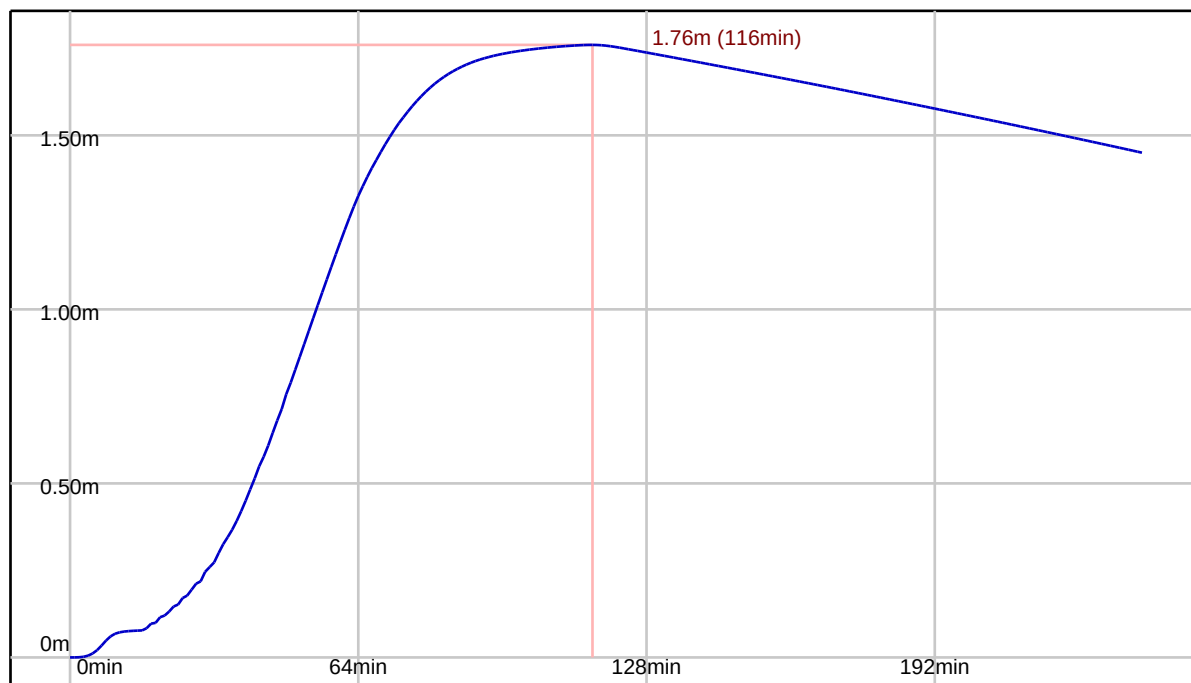
Pond Structure at Manhole S27

Pond Invert (m)	Max Depth (m)	Volume To Water Level (m3)	Water Level (m)	Freeboard (m)	Infil Base (m/hr)	Infil Side (m/hr)	Safety Factor
29.000	2.000	224.188	30.700	0.300	0.00000000	0.00000000	2.00

Pond Depth/Area Diagram at S27



Pond at S27 (100Yr+45% 120Min Winter)

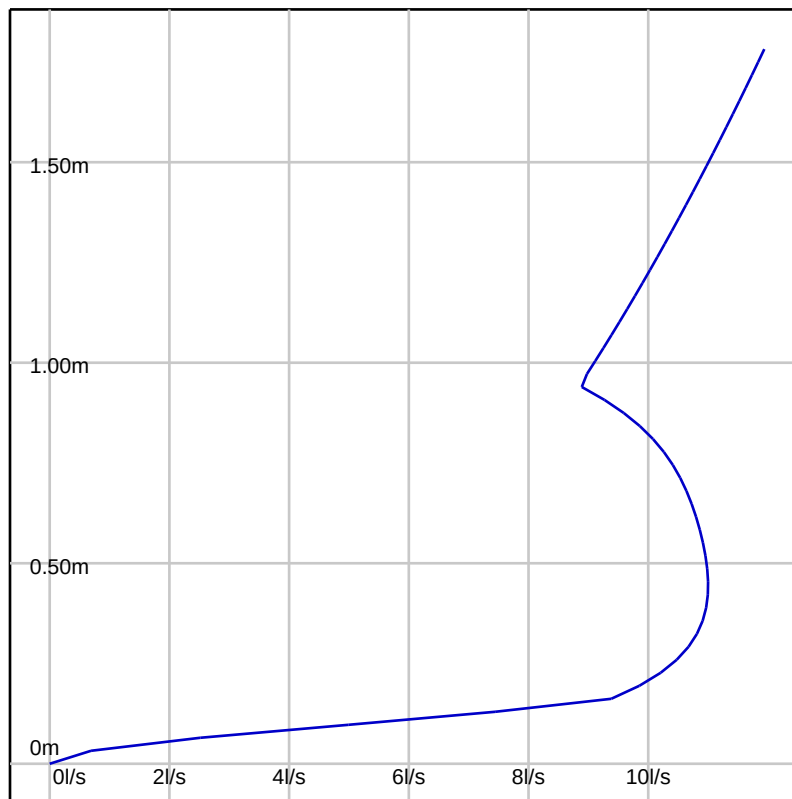


Controls within Manhole S28

Hydro-Brake® Optimum Control at Manhole S28

Model Ref	Design Depth (m)	Design Flow (l/s)	Depth Above Invert (m)	FF Head (m)	FF Flow (l/s)	KF Head (m)	KF Flow (l/s)
SHE-0145-1100-1500-1100	1.500	11.000	0.000	0.444	11.001	0.942	8.844

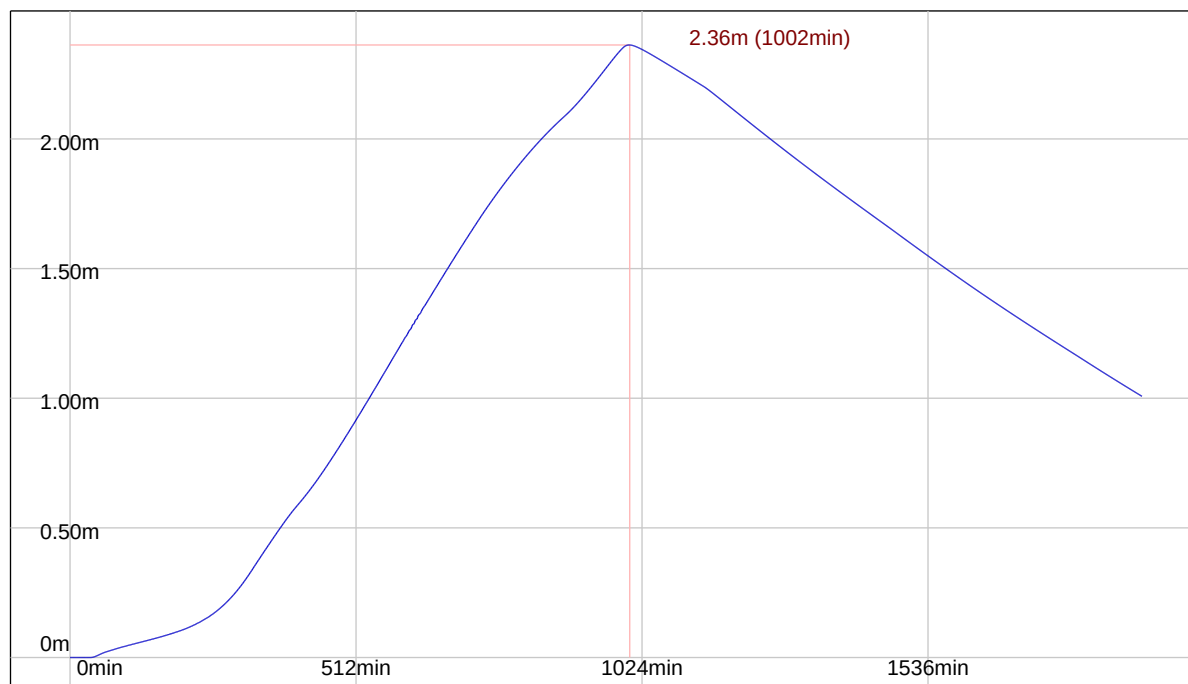
Hydro-Brake® Optimum Control at S28



Tank Structure at Manhole S30

Tank Invert (m)	Tank Height (m)	Porosity Ratio (%)	Area (m2)	Effective Area (m2) Area x Porosity Ratio	Max Storage (m3) Effective Area x Height	Infil Base (m/hr)	Infil Side (m/hr)	Safety Factor
26.790	2.400	95.00	144.000	136.800	328.320	0.00000000	0.00000000	2.00

Tank at S30 (100Yr+45% 960Min Winter)

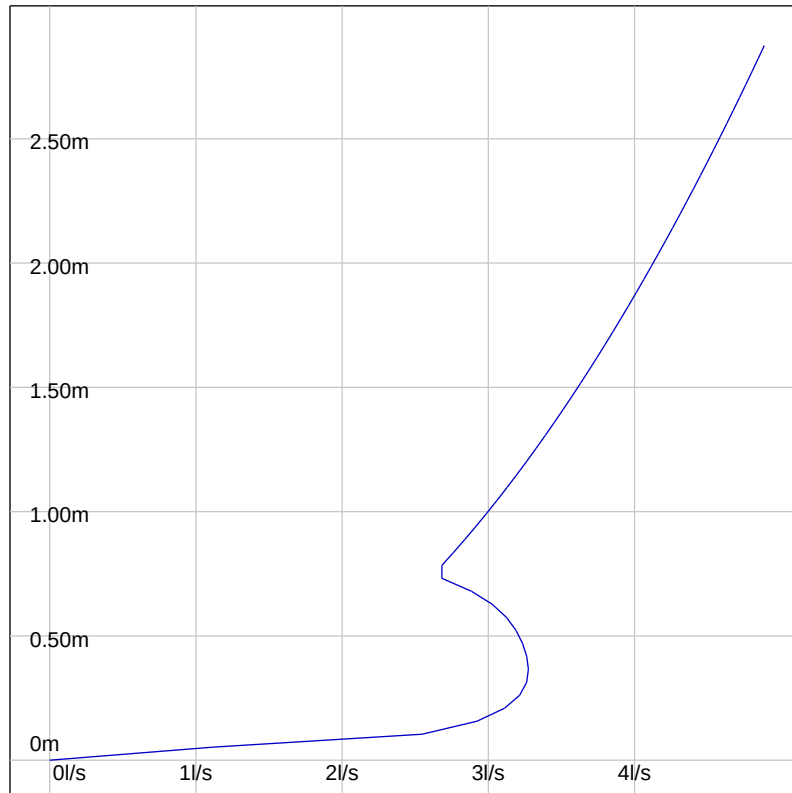


Controls within Manhole S71

Hydro-Brake® Optimum Control at Manhole S71

Model Ref	Design Depth (m)	Design Flow (l/s)	Depth Above Invert (m)	FF Head (m)	FF Flow (l/s)	KF Head (m)	KF Flow (l/s)
SHE-0083-4500-2420-4500	2.420	4.500	0.000	0.362	3.274	0.744	2.619

Hydro-Brake® Optimum Control at S71



Simulation Settings

FEH2022 (point): Filename=FEH_Point_Descriptors_508019_133093_v5_0_1.xml

Summer (Cv: 1.00), Winter (Cv: 1.00)

Global Time of Entry: 5.0 mins

Durations (mins): 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760

Return Periods (yrs) + Climate Change: (2, +0%), (30, +40%), (100, +45%)

Simulated Rainfall Events

Storm	Average Intensity (mm/hr)	Runoff Continuity %	Flow Continuity %	Storm	Average Intensity (mm/hr)	Runoff Continuity %	Flow Continuity %
2Yr 15Min Winter	31.914	0.00	-0.79	30Yr+40% 600Min Summer	8.761	0.00	0.38
2Yr 15Min Summer	31.914	0.00	-0.76	30Yr+40% 600Min Winter	8.761	0.00	0.47
2Yr 30Min Winter	20.957	0.00	-0.32	30Yr+40% 720Min Summer	7.541	0.00	0.16
2Yr 30Min Summer	20.957	0.00	-0.21	30Yr+40% 720Min Winter	7.541	0.00	0.25
2Yr 60Min Winter	13.279	0.00	-0.24	30Yr+40% 960Min Summer	5.953	0.00	0.02
2Yr 60Min Summer	13.279	0.00	-0.18	30Yr+40% 960Min Winter	5.953	0.00	0.01
2Yr 120Min Summer	9.283	0.00	-0.23	30Yr+40% 1440Min Summer	4.262	0.00	-0.03
2Yr 120Min Winter	9.283	0.00	-0.16	30Yr+40% 1440Min Winter	4.262	0.00	0.10
2Yr 180Min Summer	7.353	0.00	-0.17	30Yr+40% 2160Min Summer	3.077	0.00	0.05
2Yr 180Min Winter	7.353	0.00	-0.17	30Yr+40% 2160Min Winter	3.077	0.00	-0.04
2Yr 240Min Summer	6.017	0.00	-0.17	30Yr+40% 2880Min Summer	2.460	0.00	-0.04
2Yr 240Min Winter	6.017	0.00	-0.16	30Yr+40% 2880Min Winter	2.460	0.00	-0.09
2Yr 360Min Summer	4.529	0.00	-0.11	30Yr+40% 4320Min Summer	1.819	0.00	-0.09
2Yr 360Min Winter	4.529	0.00	-0.12	30Yr+40% 4320Min Winter	1.819	0.00	-0.14
2Yr 480Min Summer	3.681	0.00	-0.12	30Yr+40% 5760Min Summer	1.485	0.00	-0.09
2Yr 480Min Winter	3.681	0.00	-0.10	30Yr+40% 5760Min Winter	1.485	0.00	-0.25
2Yr 600Min Summer	3.106	0.00	-0.11	100Yr+45% 15Min Summer	156.243	0.00	1.48
2Yr 600Min Winter	3.106	0.00	-0.15	100Yr+45% 15Min Winter	156.243	0.00	1.36
2Yr 720Min Winter	2.692	0.00	-0.18	100Yr+45% 30Min Summer	104.495	0.00	1.98
2Yr 720Min Summer	2.692	0.00	-0.13	100Yr+45% 30Min Winter	104.495	0.00	2.01
2Yr 960Min Summer	2.158	0.00	-0.13	100Yr+45% 60Min Summer	67.144	0.00	2.46
2Yr 960Min Winter	2.158	0.00	-0.24	100Yr+45% 60Min Winter	67.144	0.00	2.46
2Yr 1440Min Summer	1.590	0.00	-0.22	100Yr+45% 120Min Summer	40.064	0.00	2.37
2Yr 1440Min Winter	1.590	0.00	-0.46	100Yr+45% 120Min Winter	40.064	0.00	2.37
2Yr 2160Min Summer	1.184	0.00	-0.36	100Yr+45% 180Min Summer	29.318	0.00	2.16
2Yr 2160Min Winter	1.184	0.00	0.02	100Yr+45% 180Min Winter	29.318	0.00	2.15
2Yr 2880Min Summer	0.970	0.00	-0.04	100Yr+45% 240Min Summer	23.583	0.00	1.91
2Yr 2880Min Winter	0.970	0.00	-0.01	100Yr+45% 240Min Winter	23.583	0.00	1.95
2Yr 4320Min Summer	0.749	0.00	-0.00	100Yr+45% 360Min Summer	17.124	0.00	1.59
2Yr 4320Min Winter	0.749	0.00	-0.03	100Yr+45% 360Min Winter	17.124	0.00	1.64
2Yr 5760Min Winter	0.633	0.00	-0.07	100Yr+45% 480Min Summer	13.595	0.00	1.31
2Yr 5760Min Summer	0.633	0.00	-0.02	100Yr+45% 480Min Winter	13.595	0.00	1.37
30Yr+40% 15Min Summer	119.309	0.00	0.69	100Yr+45% 600Min Summer	11.359	0.00	1.03
30Yr+40% 15Min Winter	119.309	0.00	0.63	100Yr+45% 600Min Winter	11.359	0.00	1.10
30Yr+40% 30Min Summer	79.540	0.00	1.25	100Yr+45% 720Min Summer	9.795	0.00	0.75
30Yr+40% 30Min Winter	79.540	0.00	1.27	100Yr+45% 720Min Winter	9.795	0.00	0.84
30Yr+40% 60Min Summer	50.460	0.00	1.89	100Yr+45% 960Min Summer	7.739	0.00	0.28
30Yr+40% 60Min Winter	50.460	0.00	1.89	100Yr+45% 960Min Winter	7.739	0.00	0.35
30Yr+40% 120Min Summer	30.661	0.00	1.79	100Yr+45% 1440Min Summer	5.554	0.00	-0.02
30Yr+40% 120Min Winter	30.661	0.00	1.76	100Yr+45% 1440Min Winter	5.554	0.00	-0.02
30Yr+40% 180Min Winter	22.667	0.00	1.52	100Yr+45% 2160Min Summer	4.002	0.00	-0.02
30Yr+40% 180Min Summer	22.667	0.00	1.52	100Yr+45% 2160Min Winter	4.002	0.00	0.09
30Yr+40% 240Min Summer	18.215	0.00	1.40	100Yr+45% 2880Min Summer	3.175	0.00	0.00
30Yr+40% 240Min Winter	18.215	0.00	1.40	100Yr+45% 2880Min Winter	3.175	0.00	0.08
30Yr+40% 360Min Summer	13.235	0.00	1.00	100Yr+45% 4320Min Summer	2.310	0.00	0.05
30Yr+40% 360Min Winter	13.235	0.00	1.06	100Yr+45% 4320Min Winter	2.310	0.00	-0.06
30Yr+40% 480Min Summer	10.506	0.00	0.67	100Yr+45% 5760Min Winter	1.861	0.00	-0.09
30Yr+40% 480Min Winter	10.506	0.00	0.74	100Yr+45% 5760Min Summer	1.861	0.00	-0.05

Simulation Results

Return Period Yrs: 2.0

Climate Change %: 0

Manholes

Manhole	Critical Storm	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Flood (m3)	Status
S55	15 min Summer	8	28.839	0.052	6.021		OK
S74	15 min Summer	8	28.733	0.058	7.808		OK
S56	15 min Summer	9	28.682	0.063	9.321		OK
S73	15 min Summer	8	28.655	0.116	29.615		OK
S72	15 min Summer	9	28.424	0.116	29.183		OK
S47	15 min Summer	8	31.282	0.042	6.341		OK
S48	15 min Summer	8	31.009	0.039	8.037		OK
S61	15 min Summer	8	30.730	0.040	6.103		OK
S49	15 min Summer	8	30.197	0.077	24.836		OK
S70	15 min Summer	8	29.691	0.071	31.618		OK
S50	15 min Summer	9	28.185	0.144	61.972		OK
S60	15 min Summer	8	29.865	0.043	12.651		OK
S76	15 min Summer	9	27.987	0.157	88.999		OK
S52	15 min Summer	9	27.816	0.131	95.864		OK
S88	15 min Summer	8	27.609	0.047	4.372		OK
S89	15 min Summer	9	27.471	0.088	4.267		OK
S53	15 min Summer	9	27.460	0.220	105.350		OK
S54	15 min Summer	10	27.424	0.210	106.476		OK
S75	15 min Summer	10	27.372	0.227	112.728		OK
S58	180 min Winter	149	27.342	0.242	10.759		OK
S59	240 min Winter	195	27.363	0.413	4.264		OK
S84	15 min Summer	8	32.817	0.020	1.560		OK
S83	15 min Summer	8	32.199	0.030	3.281		OK
S43	15 min Summer	8	31.273	0.080	12.871		OK
S68	15 min Summer	8	31.252	0.132	40.066		OK
S40	15 min Summer	8	33.373	0.043	13.300		OK
S39	15 min Summer	8	31.140	0.100	64.635		OK
S38	15 min Summer	9	30.280	0.090	64.079		OK
S69	15 min Summer	9	29.303	0.097	70.325		OK
S37	15 min Summer	9	28.518	0.108	85.780		OK
S36	15 min Summer	9	27.743	0.083	86.014		OK
S46	15 min Summer	8	32.449	0.069	10.792		OK
S44	15 min Summer	8	32.162	0.062	21.407		OK
S26	15 min Summer	8	30.347	0.084	35.885		OK
S25	15 min Summer	8	29.927	0.087	44.187		OK
S24	15 min Summer	9	28.477	0.087	45.241		OK
S23	15 min Summer	9	27.583	0.128	63.190		OK
S13	240 min Winter	187	27.339	0.439	24.292		OK
S14	360 min Winter	258	27.352	0.652	11.138		Surcharged
S15	180 min Winter	216	26.695	0.083	12.484		OK
S16	480 min Winter	400	26.481	0.083	12.483		OK
S82	15 min Summer	8	33.790	0.046	5.938		OK
S81	15 min Summer	8	33.544	0.056	8.237		OK
S80	15 min Summer	8	33.291	0.070	12.883		OK
S79	15 min Summer	9	32.846	0.076	16.767		OK
S77	15 min Summer	9	31.903	0.053	19.999		OK
S34	15 min Summer	9	30.766	0.137	28.096		OK
S64	15 min Summer	9	30.509	0.122	40.259		OK
S65	15 min Summer	9	30.323	0.110	40.433		OK
S62	15 min Summer	8	32.168	0.045	11.648		OK
S7	15 min Summer	9	30.262	0.113	74.890		OK
S6	15 min Summer	9	29.641	0.161	75.029		OK
S5	120 min Summer	83	29.545	0.170	8.884		OK
S27	120 min Summer	85	29.503	0.503	15.578		Surcharged
S28	120 min Summer	82	29.514	1.064	14.404		Surcharged
S29	15 min Winter	7	28.005	0.045	11.003		OK
S30	360 min Winter	284	27.297	0.497	3.203		Surcharged
S71	360 min Winter	284	27.297	0.557	3.190		Surcharged
S18	360 min Summer	231	26.379	0.094	15.755		OK

Manholes

Manhole	Critical Storm	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Flood (m3)	Status
S19	360 min Summer	232	26.290	0.077	15.755		OK
S22	360 min Summer	232	25.368	0.048	15.755		OK
S21	360 min Summer	233	21.844	0.094	15.754		OK
S20	360 min Summer	233	21.806	0.094	15.755		Outfall

Conduits

Pipe No.	Critical Storm	Peak (mins)	US Manhole	DS Manhole	Flow Depth (m)	Max Velocity (m/s)	Max Flow (l/s)	Flow / Capacity	Status
1.000	15 min Summer	8	S55	S74	0.055	0.671	5.955	0.068	OK
1.001	15 min Summer	9	S74	S56	0.061	0.757	7.702	0.082	OK
1.002	15 min Summer	9	S56	S73	0.090	0.529	9.384	0.101	OK
1.003	15 min Summer	9	S73	S72	0.116	1.169	29.213	0.323	OK
1.004	15 min Summer	9	S72	S50	0.116	1.169	29.476	0.326	OK
2.000	15 min Summer	8	S47	S48	0.041	1.281	6.310	0.077	OK
2.001	15 min Summer	8	S48	S49	0.039	1.710	7.972	0.067	OK
3.000	15 min Summer	8	S61	S49	0.040	1.260	6.037	0.070	OK
2.002	15 min Summer	8	S49	S70	0.074	1.810	24.718	0.145	OK
2.003	15 min Summer	8	S70	S50	0.071	2.434	31.306	0.127	OK
1.005	15 min Summer	9	S50	S76	0.144	1.417	62.186	0.232	OK
4.000	15 min Summer	8	S60	S76	0.043	2.005	12.541	0.046	OK
1.006	15 min Summer	9	S76	S52	0.158	1.512	89.593	0.159	OK
1.007	15 min Summer	9	S52	S53	0.176	1.417	96.012	0.110	OK
5.000	15 min Summer	9	S88	S89	0.067	0.639	4.323	0.055	OK
5.001	15 min Summer	10	S89	S53	0.154	0.194	6.415	0.082	OK
1.008	15 min Summer	10	S53	S54	0.214	1.142	103.397	0.346	OK
1.009	15 min Summer	10	S54	S75	0.218	1.166	108.510	0.259	OK
1.010	15 min Summer	10	S75	S58	0.221	1.203	113.806	0.418	OK
1.011	240 min Winter	195	S58	S59	0.310	0.679	75.097	0.107	OK
1.012	240 min Winter	194	S59	S13	0.415	0.488	79.531	0.390	OK
6.000	15 min Summer	8	S84	S83	0.025	0.783	1.545	0.039	OK
6.001	15 min Summer	8	S83	S43	0.030	1.256	3.223	0.091	OK
6.002	15 min Summer	8	S43	S68	0.106	0.440	12.643	0.072	OK
6.003	15 min Summer	8	S68	S39	0.116	1.211	39.355	0.197	OK
7.000	15 min Summer	8	S40	S39	0.043	2.145	13.189	0.044	OK
6.004	15 min Summer	8	S39	S38	0.095	2.632	64.176	0.108	OK
6.005	15 min Summer	9	S38	S69	0.094	2.687	64.317	0.090	OK
6.006	15 min Summer	9	S69	S37	0.103	2.587	70.545	0.106	OK
6.007	15 min Summer	9	S37	S36	0.095	3.494	86.014	0.122	OK
6.008	240 min Winter	181	S36	S13	0.220	1.385	19.442	0.010	OK
8.000	15 min Summer	8	S46	S44	0.068	1.040	10.647	0.205	OK
8.001	15 min Summer	8	S44	S26	0.073	1.598	21.250	0.095	OK
8.002	15 min Summer	8	S26	S25	0.086	2.128	35.554	0.176	OK
8.003	15 min Summer	8	S25	S24	0.087	2.572	43.893	0.188	OK
8.004	15 min Summer	9	S24	S23	0.087	2.665	45.530	0.189	OK
8.005	240 min Winter	181	S23	S13	0.188	1.142	14.333	0.058	OK
1.013	240 min Winter	425	S13	S14	0.434	0.811	82.717	0.236	OK
1.014	180 min Winter	216	S14	S15	0.083	0.791	12.493	0.172	OK
1.015	360 min Summer	353	S15	S16	0.083	0.778	12.483	0.174	OK
1.016	360 min Summer	353	S16	S18	0.089	0.715	12.483	0.174	OK
9.000	15 min Summer	8	S82	S81	0.051	1.124	5.903	0.202	OK
9.001	15 min Summer	8	S81	S80	0.063	1.165	8.171	0.296	OK
9.002	15 min Summer	8	S80	S79	0.073	1.505	12.769	0.445	OK
9.003	15 min Summer	9	S79	S77	0.076	1.895	16.939	0.512	OK
9.004	15 min Summer	9	S77	S34	0.053	2.827	20.042	0.122	OK
9.005	15 min Summer	9	S34	S64	0.133	0.942	28.431	0.448	OK
9.006	15 min Summer	9	S64	S65	0.116	1.250	40.433	0.167	OK
9.007	15 min Summer	9	S65	S7	0.111	1.330	40.567	0.134	OK
10.000	15 min Summer	8	S62	S7	0.045	2.067	11.547	0.087	OK
9.008	15 min Summer	9	S7	S6	0.137	1.840	75.029	0.143	OK
9.009	15 min Summer	9	S6	S5	0.131	1.951	75.129	0.285	OK
9.010	120 min Summer	83	S5	S27	0.310	2.008	66.128	0.094	OK
9.011	120 min Winter	89	S27	S28	0.450	0.695	81.427	0.114	OK
9.012	15 min Winter	7	S28	S29	0.046	1.767	11.003	0.055	OK
9.013	360 min Summer	276	S29	S30	0.168	2.105	10.999	0.033	OK
9.014	360 min Summer	217	S30	S71	0.300	0.535	18.433	0.167	Surcharged

Conduits

Pipe No.	Critical Storm	Peak (mins)	US Manhole	DS Manhole	Flow Depth (m)	Max Velocity (m/s)	Max Flow (l/s)	Flow / Capacity	Status
9.015	360 min Summer	453	S71	S18	0.053	0.982	3.274	0.125	OK
1.017	360 min Summer	232	S18	S19	0.085	0.949	15.755	0.220	OK
1.018	360 min Summer	232	S19	S22	0.062	1.480	15.755	0.129	OK
1.019	360 min Summer	233	S22	S21	0.071	1.233	15.755	0.056	OK
1.020	360 min Summer	233	S21	S20	0.094	0.831	15.755	0.220	OK

Return Period Yrs: 30.0

Climate Change %: 40

Manholes

Manhole	Critical Storm	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Flood (m3)	Status
S55	15 min Summer	8	28.889	0.102	22.513		OK
S74	15 min Summer	9	28.858	0.182	28.375		OK
S56	15 min Summer	9	28.861	0.243	32.374		OK
S73	15 min Summer	9	28.855	0.316	107.184		Surcharged
S72	15 min Summer	9	28.576	0.268	104.724		OK
S47	15 min Summer	8	31.323	0.083	23.708		OK
S48	15 min Summer	8	31.047	0.077	30.091		OK
S61	15 min Summer	8	30.768	0.078	22.820		OK
S49	15 min Summer	8	30.277	0.157	93.187		OK
S70	15 min Summer	8	29.764	0.144	118.407		OK
S50	15 min Summer	8	28.346	0.306	224.936		OK
S60	15 min Summer	8	29.905	0.083	47.301		OK
S76	360 min Winter	346	28.193	0.363	4.992		OK
S52	360 min Winter	349	28.193	0.508	3.633		OK
S88	360 min Winter	348	28.193	0.631	0.360		Surcharged
S89	360 min Winter	354	28.193	0.809	0.436		Surcharged
S53	360 min Winter	351	28.193	0.953	3.493		Surcharged
S54	360 min Winter	351	28.193	0.978	4.089		Surcharged
S75	360 min Winter	350	28.193	1.048	4.852		Surcharged
S58	360 min Winter	349	28.193	1.093	5.003		Surcharged
S59	360 min Winter	349	28.193	1.243	4.715		Surcharged
S84	15 min Summer	8	32.836	0.039	5.833		OK
S83	15 min Summer	8	32.228	0.060	12.294		OK
S43	15 min Summer	8	31.400	0.208	48.250		OK
S68	15 min Summer	8	31.395	0.276	149.914		OK
S40	15 min Summer	8	33.412	0.082	49.729		OK
S39	15 min Summer	8	31.240	0.200	245.184		OK
S38	15 min Summer	8	30.367	0.177	241.551		OK
S69	15 min Summer	8	29.399	0.193	263.972		OK
S37	15 min Summer	8	28.626	0.216	322.319		OK
S36	360 min Winter	344	28.197	0.537	4.971		OK
S46	15 min Summer	8	32.526	0.146	40.351		OK
S44	15 min Summer	8	32.222	0.122	80.167		OK
S26	15 min Summer	8	30.439	0.176	134.528		OK
S25	15 min Summer	8	30.024	0.184	165.975		OK
S24	15 min Summer	8	28.573	0.183	171.073		OK
S23	360 min Winter	348	28.192	0.737	2.874		Surcharged
S13	360 min Winter	349	28.193	1.293	14.688		Surcharged
S14	360 min Winter	349	28.192	1.492	11.172		Surcharged
S15	15 min Winter	8	26.696	0.084	12.101		OK
S16	4320 min Winter	3026	26.481	0.083	12.484		OK
S82	15 min Summer	10	34.238	0.493	17.728		Surcharged
S81	15 min Summer	10	34.161	0.673	23.109		Surcharged
S80	15 min Summer	10	34.011	0.790	34.896		Surcharged
S79	15 min Summer	11	33.444	0.674	39.849		Surcharged
S77	15 min Summer	9	31.937	0.087	52.442		OK
S34	15 min Summer	9	30.913	0.284	82.483		OK
S64	15 min Summer	9	30.613	0.225	126.528		OK
S65	120 min Winter	106	30.478	0.264	6.674		OK
S62	15 min Summer	8	32.211	0.088	43.551		OK
S7	120 min Winter	108	30.476	0.327	12.180		OK
S6	120 min Winter	110	30.477	0.997	13.560		Surcharged
S5	120 min Winter	114	30.473	1.098	12.428		Surcharged
S27	120 min Winter	112	30.471	1.471	11.635		Surcharged
S28	120 min Winter	112	30.471	2.021	11.938		Surcharged
S29	720 min Winter	768	28.627	0.667	3.533		Surcharged
S30	720 min Winter	768	28.627	1.827	3.658		Surcharged
S71	720 min Winter	768	28.627	1.887	3.975		Surcharged
S18	480 min Summer	204	26.379	0.094	15.752		OK
S19	480 min Winter	191	26.290	0.077	15.751		OK
S22	480 min Summer	205	25.368	0.048	15.751		OK
S21	480 min Winter	192	21.844	0.094	15.751		OK
S20	480 min Winter	192	21.806	0.094	15.751		Outfall

Conduits

Pipe No.	Critical Storm	Peak (mins)	US Manhole	DS Manhole	Flow Depth (m)	Max Velocity (m/s)	Max Flow (l/s)	Flow / Capacity	Status
1.000	15 min Summer	9	S55	S74	0.141	0.885	22.407	0.255	OK
1.001	15 min Summer	10	S74	S56	0.213	0.854	28.476	0.302	OK
1.002	15 min Summer	10	S56	S73	0.271	0.736	38.492	0.415	OK
1.003	15 min Summer	9	S73	S72	0.284	1.540	104.724	1.158	OK
1.004	15 min Summer	10	S72	S50	0.259	1.607	103.880	1.148	OK
2.000	15 min Summer	8	S47	S48	0.080	1.874	23.634	0.288	OK
2.001	15 min Summer	8	S48	S49	0.080	2.403	29.980	0.253	OK
3.000	15 min Summer	8	S61	S49	0.080	1.793	22.721	0.264	OK
2.002	15 min Summer	8	S49	S70	0.151	2.604	92.608	0.545	OK
2.003	15 min Summer	8	S70	S50	0.144	3.509	117.624	0.475	OK
1.005	15 min Summer	9	S50	S76	0.305	1.957	224.924	0.838	OK
4.000	15 min Summer	8	S60	S76	0.083	2.948	47.026	0.171	OK
1.006	360 min Winter	349	S76	S52	0.435	1.232	44.337	0.079	OK
1.007	360 min Winter	349	S52	S53	0.554	1.040	47.521	0.055	OK
5.000	720 min Summer	437	S88	S89	0.300	0.426	12.360	0.158	Surcharged
5.001	15 min Winter	11	S89	S53	0.300	0.328	22.245	0.283	Surcharged
1.008	60 min Winter	43	S53	S54	0.600	1.325	186.066	0.622	Surcharged
1.009	60 min Winter	41	S54	S75	0.600	1.358	189.364	0.452	Surcharged
1.010	30 min Winter	26	S75	S58	0.600	1.673	307.197	1.130	Surcharged
1.011	30 min Winter	25	S58	S59	0.600	1.481	283.058	0.402	Surcharged
1.012	15 min Winter	13	S59	S13	0.600	1.587	361.507	1.771	Surcharged
6.000	15 min Summer	8	S84	S83	0.050	1.140	5.801	0.146	OK
6.001	15 min Summer	8	S83	S43	0.060	1.830	12.176	0.342	OK
6.002	15 min Summer	9	S43	S68	0.242	0.550	47.433	0.271	OK
6.003	15 min Summer	8	S68	S39	0.238	1.769	150.537	0.754	OK
7.000	15 min Summer	8	S40	S39	0.082	3.154	49.447	0.167	OK
6.004	15 min Summer	8	S39	S38	0.188	3.830	241.551	0.408	OK
6.005	15 min Summer	8	S38	S69	0.185	3.905	240.547	0.338	OK
6.006	15 min Summer	8	S69	S37	0.204	3.757	262.909	0.396	OK
6.007	240 min Winter	173	S37	S36	0.250	3.119	58.894	0.083	OK
6.008	360 min Winter	347	S36	S13	0.569	1.610	152.587	0.076	OK
8.000	15 min Summer	8	S46	S44	0.146	1.462	39.937	0.768	OK
8.001	15 min Summer	8	S44	S26	0.149	2.278	79.810	0.355	OK
8.002	15 min Summer	8	S26	S25	0.180	3.016	133.699	0.663	OK
8.003	15 min Summer	8	S25	S24	0.184	3.639	165.240	0.709	OK
8.004	15 min Summer	8	S24	S23	0.199	3.437	170.287	0.705	OK
8.005	60 min Winter	41	S23	S13	0.375	1.860	115.768	0.472	Surcharged
1.013	15 min Winter	10	S13	S14	0.450	0.827	91.921	0.262	OK
1.014	5760 min Summer	3810	S14	S15	0.083	0.799	12.613	0.174	OK
1.015	4320 min Summer	3243	S15	S16	0.083	0.778	12.484	0.174	OK
1.016	480 min Summer	204	S16	S18	0.089	0.714	12.480	0.174	OK
9.000	15 min Winter	9	S82	S81	0.150	1.453	18.831	0.646	Surcharged
9.001	30 min Summer	15	S81	S80	0.150	1.403	21.587	0.782	Surcharged
9.002	15 min Winter	10	S80	S79	0.150	1.779	31.442	1.096	Surcharged
9.003	15 min Winter	11	S79	S77	0.150	2.333	41.224	1.245	Surcharged
9.004	15 min Summer	9	S77	S34	0.087	3.705	52.380	0.319	OK
9.005	15 min Summer	9	S34	S64	0.254	1.291	82.318	1.298	OK
9.006	15 min Summer	9	S64	S65	0.216	1.680	126.706	0.522	OK
9.007	120 min Winter	109	S65	S7	0.290	1.372	46.026	0.152	OK
10.000	15 min Summer	8	S62	S7	0.088	3.009	43.296	0.326	OK
9.008	120 min Winter	108	S7	S6	0.388	1.728	85.934	0.164	OK
9.009	15 min Winter	11	S6	S5	0.450	2.382	236.815	0.899	OK
9.010	15 min Winter	10	S5	S27	0.450	2.970	250.032	0.356	OK
9.011	30 min Summer	14	S27	S28	0.450	0.886	112.271	0.157	OK
9.012	720 min Winter	769	S28	S29	0.238	1.779	11.358	0.056	OK
9.013	360 min Summer	481	S29	S30	0.300	2.820	39.343	0.118	Surcharged
9.014	60 min Summer	87	S30	S71	0.300	0.531	21.185	0.192	Surcharged
9.015	720 min Winter	768	S71	S18	0.053	0.818	3.977	0.152	OK
1.017	480 min Summer	204	S18	S19	0.085	0.949	15.751	0.220	OK
1.018	480 min Summer	205	S19	S22	0.062	1.480	15.751	0.129	OK
1.019	480 min Winter	192	S22	S21	0.071	1.233	15.751	0.056	OK
1.020	480 min Winter	192	S21	S20	0.094	0.831	15.751	0.220	OK

Return Period Yrs: 100.0

Climate Change %: 45

Manholes

Manhole	Critical Storm	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Flood (m3)	Status
S55	15 min Summer	10	29.142	0.355	23.536		Surcharged
S74	15 min Summer	10	29.133	0.457	33.000		Surcharged
S56	15 min Summer	10	29.125	0.506	41.920		Surcharged
S73	15 min Summer	10	29.106	0.567	123.863		Surcharged
S72	15 min Summer	10	28.679	0.371	127.132		Surcharged
S47	15 min Summer	8	31.336	0.096	31.053		OK
S48	15 min Summer	8	31.059	0.089	39.420		OK
S61	15 min Summer	8	30.781	0.091	29.889		OK
S49	15 min Summer	8	30.307	0.187	122.080		OK
S70	15 min Summer	8	29.789	0.169	155.211		OK
S50	480 min Winter	464	28.499	0.458	3.081		Surcharged
S60	15 min Summer	8	29.917	0.096	61.955		OK
S76	480 min Winter	464	28.499	0.669	4.170		Surcharged
S52	480 min Winter	464	28.499	0.814	4.307		Surcharged
S88	480 min Winter	462	28.499	0.937	0.203		Flood Risk
S89	480 min Winter	464	28.499	1.115	0.207		Flood Risk
S53	480 min Winter	464	28.499	1.259	4.583		Surcharged
S54	480 min Winter	464	28.499	1.284	4.672		Flood Risk
S75	480 min Winter	464	28.499	1.354	4.863		Surcharged
S58	480 min Winter	465	28.499	1.399	4.644		Surcharged
S59	480 min Winter	463	28.499	1.549	5.420		Surcharged
S84	15 min Summer	8	32.841	0.044	7.641		OK
S83	15 min Summer	8	32.238	0.070	16.107		OK
S43	15 min Summer	8	31.448	0.256	63.210		OK
S68	15 min Summer	8	31.444	0.325	196.755		OK
S40	15 min Summer	8	33.424	0.094	65.135		OK
S39	15 min Summer	8	31.272	0.232	319.540		OK
S38	15 min Summer	8	30.396	0.206	316.982		OK
S69	15 min Summer	8	29.431	0.226	346.969		OK
S37	15 min Summer	8	28.663	0.253	423.499		OK
S36	480 min Winter	460	28.506	0.846	16.017		Surcharged
S46	15 min Summer	8	32.562	0.182	52.852		OK
S44	15 min Summer	8	32.242	0.142	104.877		OK
S26	15 min Summer	8	30.476	0.213	176.103		OK
S25	15 min Summer	8	30.064	0.224	217.188		OK
S24	15 min Summer	9	28.657	0.267	220.947		OK
S23	480 min Winter	460	28.502	1.047	3.949		Surcharged
S13	480 min Winter	463	28.499	1.599	24.122		Surcharged
S14	480 min Winter	463	28.499	1.799	12.307		Surcharged
S15	15 min Winter	8	26.696	0.084	12.492		OK
S16	5760 min Summer	4690	26.481	0.083	12.484		OK
S82	15 min Summer	11	34.825	1.081	13.782		Surcharged
S81	15 min Summer	11	34.745	1.257	22.246		Flood Risk
S80	15 min Summer	11	34.543	1.322	35.259		Flood Risk
S79	15 min Summer	11	33.827	1.057	46.389		Flood Risk
S77	15 min Summer	9	31.944	0.094	60.312		OK
S34	15 min Summer	9	30.998	0.369	99.651		Surcharged
S64	120 min Winter	114	30.760	0.372	7.233		OK
S65	120 min Winter	115	30.760	0.546	6.643		Surcharged
S62	15 min Summer	8	32.226	0.102	57.042		OK
S7	120 min Winter	115	30.760	0.610	12.189		Surcharged
S6	120 min Winter	115	30.760	1.280	12.218		Surcharged
S5	120 min Winter	116	30.760	1.385	11.564		Flood Risk
S27	120 min Winter	116	30.760	1.760	11.569		Flood Risk
S28	120 min Winter	116	30.760	2.310	11.935		Flood Risk
S29	960 min Winter	1001	29.163	1.203	4.527		Surcharged
S30	960 min Winter	1001	29.162	2.362	4.525		Surcharged
S71	960 min Winter	1001	29.162	2.422	4.476		Surcharged
S18	960 min Winter	981	26.381	0.096	16.366		OK
S19	960 min Winter	981	26.291	0.078	16.367		OK
S22	960 min Winter	982	25.369	0.049	16.366		OK
S21	960 min Winter	982	21.846	0.096	16.366		OK
S20	960 min Winter	982	21.808	0.096	16.366		Outfall

Conduits

Pipe No.	Critical Storm	Peak (mins)	US Manhole	DS Manhole	Flow Depth (m)	Max Velocity (m/s)	Max Flow (l/s)	Flow / Capacity	Status
1.000	15 min Summer	9	S55	S74	0.300	0.903	27.508	0.312	Surcharged
1.001	30 min Summer	19	S74	S56	0.300	0.913	37.018	0.392	Surcharged
1.002	30 min Summer	19	S56	S73	0.300	0.717	48.051	0.517	Surcharged
1.003	15 min Winter	9	S73	S72	0.300	1.675	118.368	1.308	Surcharged
1.004	15 min Summer	10	S72	S50	0.285	1.849	128.185	1.417	OK
2.000	15 min Summer	8	S47	S48	0.092	2.018	30.963	0.377	OK
2.001	15 min Summer	8	S48	S49	0.100	2.374	39.284	0.332	OK
3.000	15 min Summer	8	S61	S49	0.101	1.777	29.768	0.346	OK
2.002	15 min Summer	8	S49	S70	0.178	2.780	121.419	0.714	OK
2.003	15 min Summer	9	S70	S50	0.180	3.656	154.518	0.624	OK
1.005	480 min Winter	430	S50	S76	0.450	1.166	31.614	0.118	OK
4.000	480 min Winter	350	S60	S76	0.159	1.636	6.328	0.023	OK
1.006	360 min Summer	284	S76	S52	0.600	1.501	89.208	0.159	Surcharged
1.007	180 min Summer	126	S52	S53	0.600	1.303	160.476	0.184	Surcharged
5.000	30 min Winter	20	S88	S89	0.300	0.581	15.594	0.199	Surcharged
5.001	15 min Winter	10	S89	S53	0.300	0.333	23.513	0.299	Surcharged
1.008	30 min Winter	20	S53	S54	0.600	1.625	367.678	1.229	Surcharged
1.009	30 min Winter	20	S54	S75	0.600	1.720	380.105	0.908	Surcharged
1.010	15 min Winter	15	S75	S58	0.600	2.053	496.049	1.824	Surcharged
1.011	15 min Winter	14	S58	S59	0.600	1.754	443.759	0.631	Surcharged
1.012	15 min Winter	10	S59	S13	0.600	1.619	431.358	2.113	Surcharged
6.000	15 min Summer	8	S84	S83	0.057	1.224	7.603	0.192	OK
6.001	15 min Summer	8	S83	S43	0.070	1.966	15.960	0.449	OK
6.002	15 min Summer	8	S43	S68	0.291	0.582	62.461	0.357	OK
6.003	15 min Summer	9	S68	S39	0.279	1.949	198.813	0.996	OK
7.000	15 min Summer	8	S40	S39	0.094	3.406	64.792	0.219	OK
6.004	15 min Summer	8	S39	S38	0.219	4.124	316.982	0.536	OK
6.005	15 min Summer	8	S38	S69	0.216	4.196	316.286	0.445	OK
6.006	15 min Summer	8	S69	S37	0.240	4.026	345.685	0.521	OK
6.007	480 min Winter	465	S37	S36	0.287	2.790	44.280	0.063	OK
6.008	180 min Summer	121	S36	S13	0.600	2.079	302.583	0.152	Surcharged
8.000	15 min Summer	8	S46	S44	0.182	1.523	52.184	1.003	OK
8.001	15 min Summer	8	S44	S26	0.177	2.401	104.433	0.465	OK
8.002	15 min Summer	8	S26	S25	0.218	3.174	174.914	0.867	OK
8.003	15 min Summer	9	S25	S24	0.244	3.764	216.190	0.927	OK
8.004	15 min Summer	9	S24	S23	0.283	3.366	221.381	0.917	OK
8.005	15 min Winter	9	S23	S13	0.375	2.582	277.968	1.133	Surcharged
1.013	5760 min Summer	2811	S13	S14	0.450	0.834	94.653	0.270	OK
1.014	15 min Winter	8	S14	S15	0.084	0.965	12.492	0.172	OK
1.015	4320 min Summer	4197	S15	S16	0.083	0.778	12.484	0.174	OK
1.016	720 min Winter	708	S16	S18	0.089	0.714	12.481	0.174	OK
9.000	15 min Winter	7	S82	S81	0.150	1.442	20.086	0.689	Surcharged
9.001	15 min Winter	11	S81	S80	0.150	1.410	22.972	0.833	Surcharged
9.002	15 min Winter	11	S80	S79	0.150	2.018	35.658	1.243	Surcharged
9.003	30 min Summer	19	S79	S77	0.150	2.648	46.798	1.413	Surcharged
9.004	15 min Summer	9	S77	S34	0.094	3.846	60.222	0.366	OK
9.005	15 min Summer	9	S34	S64	0.272	1.476	99.461	1.569	OK
9.006	120 min Winter	114	S64	S65	0.411	1.398	60.178	0.248	OK
9.007	60 min Winter	51	S65	S7	0.450	1.629	92.191	0.305	OK
10.000	120 min Winter	76	S62	S7	0.134	2.317	17.025	0.128	OK
9.008	60 min Winter	43	S7	S6	0.450	2.053	176.791	0.337	OK
9.009	15 min Winter	9	S6	S5	0.450	2.437	287.809	1.093	OK
9.010	15 min Winter	9	S5	S27	0.450	3.235	305.902	0.435	OK
9.011	30 min Winter	12	S27	S28	0.450	0.844	113.193	0.158	OK
9.012	360 min Winter	620	S28	S29	0.300	1.812	12.401	0.062	Surcharged
9.013	960 min Summer	687	S29	S30	0.300	2.418	41.328	0.124	Surcharged
9.014	60 min Summer	86	S30	S71	0.300	0.536	21.428	0.194	Surcharged
9.015	960 min Winter	1001	S71	S18	0.057	0.829	4.475	0.171	OK
1.017	960 min Winter	981	S18	S19	0.087	0.959	16.367	0.229	OK
1.018	960 min Winter	981	S19	S22	0.064	1.497	16.366	0.134	OK
1.019	960 min Winter	982	S22	S21	0.072	1.246	16.366	0.059	OK
1.020	960 min Winter	982	S21	S20	0.096	0.840	16.366	0.229	OK



Samuel Flesher
Paul Basham Associates Ltd
The Bothy, Cams Hall Estate
Fareham
Hampshire
PO16 8UT

Your ref
19251

Our ref
DSA000041198

Date
27 February 2025

Contact
Tel 0330 303 0119

Dear Mr Flesher,

Level 1 Capacity Check Enquiry: Land North of Guildford Road, Rudgwick, RH12 3JW.

We have completed the capacity check for the above development site and the results are as follows:

Foul Water

The enquiry has been reassessed to determine the capacity available for 0.95 l/s at manhole reference TQ08320901.

There is currently adequate capacity in the local sewerage network to accommodate a foul flow of 0.95 l/s for the above development at manhole reference TQ08320901. Please note that no surface water flows (existing or proposed) can be accommodated within the existing foul sewerage system unless agreed by the Lead Local Flood Authority in consultation with Southern Water, after the hierarchy Part H3 of Building Regulations has been complied with.

Connecting to our network

It should be noted that this information is only a hydraulic assessment of the existing sewerage network and does not grant approval for a connection to the public sewerage system. A formal Sewer Connection (S106) application is required to be completed and approved by Southern Water Services. To make an application visit: developerservices.southernwater.co.uk

Please note the information provided above does not grant approval for any designs/drawings submitted for the capacity analysis. The results quoted above are only valid for 12 months from the date of issue of this letter.

Please get in touch via the Get Connected customer dashboard if you have any queries.

Yours sincerely,

Future Growth Planning Team
Developer Services

southernwater.co.uk/developing-building/planning-your-development

SUMMARY TABLE		DESIGN CONDITIONS			
		1	2	3	4
Land Use Type	Low traffic roads (e.g. residential roads and general access roads, < 300 traffic movements/day)				
Pollution Hazard Level	Low				
Pollution Hazard Indices					
TSS	0.5				
Metals	0.4				
Hydrocarbons	0.4				
SuDS components proposed		SuDS components can only be assumed to deliver these indices if they follow design guidance with respect to hydraulics and treatment set out in the relevant technical component chapters of the SuDS Manual. See also checklists in Appendix B			
Component 1	Detention basin				
Component 2	None				
Component 3	None				
SuDS Pollution Mitigation Indices					
TSS	0.5				
Metals	0.5				
Hydrocarbons	0.6				
Groundwater protection type	None				
Groundwater protection					
Pollution Mitigation Indices					
TSS	0				
Metals	0				
Hydrocarbons	0				
Combined Pollution Mitigation Indices		Reference to local planning documents should also be made to identify any additional protection required for sites due to habitat conservation (see Chapter 7 The SuDS design process). The implications of developments on or within close proximity to an area with an environmental designation, such as a Site of Special Scientific Interest (SSSI), should be considered via consultation with relevant conservation bodies such as Natural England			
TSS	0.5				
Metals	0.5				
Hydrocarbons	0.6				
Acceptability of Pollution Mitigation					
TSS	Sufficient				
Metals	Sufficient				
Hydrocarbons	Sufficient				