

APPENDIX D

Site Investigation Extracts

13 Ground Conditions

The ground conditions are described in detail in the logs attached in Appendix F. In summary the soil conditions were as follows:

Table 8: Summary of soils encountered

Depth From (m)	Depth To (m)	Soil Type	Description
0.0	0.15 / 0.25	TOPSOIL	Dark brown gravelly clayey reworked TOPSOIL with rootlets. Gravel is fine to medium sub rounded to sub-angular flint. Fine brick gravel was noted in WS1 and rare plastic fragments were noted in WS1 and WS2. (Encountered in WS1, WS2 and WS3 only).
0.0	0.03 / 0.13	BLACKTOP	BLACKTOP Hardstanding (Encountered in TP1, TP2, TP5, TP6 and WS4 only).
0.03 / 0.15	0.18 / 0.90	MADE GROUND	MADE GROUND comprising dark brown, dark grey and brick red clayey sandy gravel. Gravel consists of variably quantities of brick, tile, blacktop, concrete, flint mortar and crystalline rock. (Encountered in WS3, WS4, TP1, TP2, TP5 and TP6)
0.18 / 0.90	1.9 / 4.4*	CLAY & SILT	Interbedded: Firm to very stiff orange brown and light grey slightly sandy silty CLAY and slightly sandy clayey SILTS. With occasional pockets of medium dense to very dense light grey and orange silty to very silty clayey to very clayey SAND with rare fine to medium sandstone gravel.
1.90	2.8*	SANDSTONE	Very weak orange mottled grey thinly laminated silty SANDSTONE recovered as tabular gravel. (TP1 only)

*Full depth of investigation

The ground conditions across the site generally comprised either topsoil or blacktop hardstanding over made ground to around 0.5m bgl. Shallow made ground of less than 0.2m was encountered in TP5 and TP6 in the east of the site. The made ground was recorded to extend to 0.9m in WS3 in the northeast was noted to be materially different from that found elsewhere comprising silty clay with fragments of brick and glass noted. Made ground was not encountered in WS1 or WS2 although in both cases the topsoil was found to be reworked and contain small quantities of anthropogenic material.

The made ground or topsoil were found to be underlain interbedded firm to very stiff clays and silts and medium dense to very dense sands comprising the weathered portion of the Upper Tunbridge Wells Sand Formation. Very weak sandstone was encountered in TP1 only however, the windowless sampler boreholes all refused shallow than their 5.0m proposed depth on what is likely to have been very dense sands/extremely weak sandstones. The clays

and silts encountered in trial pits TP1, TP5 and TP6 appeared desiccated, this was supported by the presence of roots and rootlets within the soils at these locations.

13.1.1 Groundwater

Groundwater strikes were recorded in the following trial holes:-

Table 9: Groundwater Strikes

Trial Hole	Date of water strike	Depth to Groundwater strike (mbGL)	Comments
TP6	28/02/22	2.0	Slight seepage
TP2	28/02/22	2.0	Slight seepage
WS1	02/03/22	3.64	Slight seepage
WS2	02/03/22	3.5	Slight seepage
WS3	02/03/22	2.55	Slight seepage
WS4	02/03/22	0.5	Slight seepage

Groundwater monitoring results are summarised as follows:-

Table 10: Groundwater Monitoring Results

Monitoring well	Depth to groundwater (m bgl)		
	10/03/2022	23/03/22	07/04/22
WS1	1.73	1.17	2.1
WS2	1.85	2.46	2.56
WS3	1.64	3.1	3.3

The full monitoring results are provided in Appendix H. It should be noted that groundwater monitoring was undertaken during a period of prolonged wet weather.

13.1.2 Visual and Olfactory Evidence of Contamination

With the exception of the presence of made ground no visual or olfactory evidence of contamination was encountered during the intrusive investigation other than a slight organic odour noted within the made ground in TP1.

13.1.3 Other Observations

The samples of the blacktop hardstanding encountered in TP1, TP2, TP5 and TP6 were tested on site with PAK spray marker. Reactions to PAK spray can be an indicator or elevated PAH compounds indicative of the presence of coal tar. The blacktop in TP5 and TP6 in the east of the site reacted to PAK spray. No reaction was noted in the blacktop in TP1 or TP2 in the west of the site.

mature height of the tree, however, the existing height is relevant for trees which are to be removed.

16.2 Sulphates

The potential for high levels of sulphates within the natural soils on site has been identified due to the underlying geology. In particular, construction activities that may substantially disturb previously unweathered strata and expose sulphur minerals such as pyrite to air, water and bacteria can result in the relatively rapid oxidation of such minerals producing high levels of sulphates. In accordance with the BRE¹⁸ methodology, 3 No. samples of the clays and silts were therefore tested for water and acid soluble sulphate, total potential sulphate (TPS) and pH.

Based on the results of the testing, oxidisable sulphides (OS) are generally <0.3%, indicating significant volumes of pyrite are not present. The soils are therefore classified as Design Sulphate Class DS-I and assuming static groundwater, the ACEC class is AC-Is.

16.3 Groundwater

Groundwater seepages were encountered in five of the eight trial holes during the investigation at depths of between 2.0m and 3.64m bgl within the natural soils. One groundwater seepage was also encountered at 0.5m bgl at the base of the made ground within WS4. Subsequent groundwater monitoring on site has recorded groundwater levels of between 1.17m and 3.3m bgl. The groundwater monitoring results are given in Section D13.1.1. On the basis of these results, groundwater at about 1.0m below ground level should be anticipated.

Long term groundwater monitoring was beyond the scope of works and would be required to fully assess the groundwater regime.

16.4 Soakage Potential

16.4.1 Test Results

Two soakage tests were undertaken on site in general accordance with BRE365¹⁹. However, given the very poor soakage rates recorded at the fact that water levels within the test pits rose rather than declined over the period of the tests it was decided to only test the pits once and twice respectively. The results are attached in Appendix G and are summarised below:

¹⁸ Building Research Establishment Special Digest I: 2005. Concrete in aggressive ground. Part I: Assessing the aggressive chemical environment.

¹⁹ Building Research Establishment DG365: 2016. Digest Soakaway Design

Table 14: Summary of soakage tests

Test Location	Soakage Rate	Comments
	(m/s)	
TP2	No soakage achieved	The water level rose by 61cm throughout the during of the test at which point the test was abandoned.
TP6	2.04×10^{-7} *	The water level rose by 15cm following which the water level began to decline. By the end of the test the water level had fallen by 42cm from the initial starting water level over a period of ~22.5 hours.
	1.18×10^{-6} *	The water level rose by 9cm following which the water level began to decline. By the end of the test the water level had fallen by 23cm from the initial starting water level over a period of 5 hours.

*Soakage rate based on the soakage rate following the initial rise in water level.

The one test attempted in TP2 recorded no soakage with water levels rising by 61cm throughout the period of the test. The two tests attempted in TP6 both recorded an initial rise in water level followed by a gradual decline. The soakage rates reported above are therefore based on the infiltration rates achieved once water levels had reduced to their initial level at the start of the test.

16.4.2 Recommendations

The soakage test attempted in TP2 recorded no soakage with the water level rising throughout the test. The two tests attempted in TP6 recorded very poor soakage rates of 1.18×10^{-6} to 2.04×10^{-7} . Based on the above results, the site is not considered suitable for conventional soakaways, and allowance should be made for surface water to be piped off site at this stage. This assessment is supported by observations during the investigation where standing water was noted in the former trial pits completed in September 2021. Furthermore, groundwater monitoring has observed groundwater levels at between 1.17m and 3.3m bgl.

16.5 Bearing Capacity and Foundations

16.5.1 Shallow Foundations

Allowable Bearing Capacity or Pressure is a conservative estimate of the ultimate bearing resistance of the ground, selected on the basis of the soil/rock description, and taking a presumed degree of settlement into account. It has traditionally been used to check simple foundation designs. The use of this method is acceptable under BS EN 1997-1²⁰ as a “prescriptive method”, with the allowable bearing pressures now termed “presumed bearing resistance”.

²⁰ BS EN 1997-1(2004)+A1:2013 Eurocode 7:Geotechnical Design: General Rules



Basemap: © OpenStreetMap contributors



Client:

Sigma Homes

Title:

SI Locations

Project ID:

LP2863

Project:

Court Meadow School,
Cuckfield

Date:

28/03/22

Figure No.

3



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Trial Pit Log

Trialpit No

TP1

Sheet 1 of 1

Project Name: Meadow Court School, Cuckfield

Project No.
LP2863

Co-ords: -
Level:

Date
28/02/2022

Location: Meadow Court School, Hanlye Lane, RH17 RHN

Dimensions
(m):

Depth
2.80

Scale
1:25

Logged
ADC

Client: Sigma Homes

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.20	ES	HVP=153 N=34	0.13			BLACKTOP. <i>Blacktop did not react to PAK test.</i> Brownish black to black gravelly sandy MADEGROUND. Gravel is medium to coarse sub-angular to angular crystalline rock.	
				0.40			<i>Odour noted</i> Firm to stiff orange brown sandy CLAY, Sand is fine. <i>Hand Pen at 0.6m = 270kPa</i>	
	0.70	D		0.90			Very stiff desiccated grey mottled orange slightly clayey SILT with rootlets.	1
	1.60	D		1.70			Friable light orange fine sandy SILT, with occasional medium to coarse fine sandstone gravel. <i>Too friable for hand pen test at 2.0m.</i>	2
	2.50	B		2.80			End of pit at 2.80 m	3
								4
								5

Remarks: Trial pit remained dry and stable and was backfilled with arisings on completion.

Stability: stable

AGS



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Trial Pit Log

Trialpit No

TP2

Sheet 1 of 1

Project Name: Meadow Court School, Cuckfield

Project No.
LP2863

Co-ords: -
Level:

Date
28/02/2022

Location: Meadow Court School, Hanlye Lane, RH17 RHN

Dimensions
(m):

2

Scale
1:25

Client: Sigma Homes

Depth
2.80

0.7

Logged
ADC

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.15	ES	HVP=124 N=62	0.10			BLACKTOP	
				0.22			Dark brown to black sandy gravelly MADEGROUND. Gravel is blacktop and mortar with brick.	
	0.40	ES					No reaction to PAK spray	
				0.50			MADEGROUND: completely yellow brown to orange brown sandy gravel. Gravel is whole bricks, medium to coarse mortar and tile.	
	0.90	D					Stiff orange and light grey slightly sandy slightly gravelly clayey SILTY CLAY. Gravel is medium to coarse very weak sub-angular sandstone. Sand is fined.	
	1.10	B		1.00			Weak grey and orange silty fine SANDSTONE.	1
				1.23			Very stiff grey mottled orange clayey SILT.	
	1.70	D		1.75			Grey mottled orange slightly silty gravelly SAND. Gravel is fine to medium sub-angular sandstone.	
	2.10	B		1.90			Very weak orange mottled grey thinly laminated silty SANDSTONE, recovered as tubular gravel. Interbedded with very stiff silt.	2
	2.80	D		2.80			End of pit at 2.80 m	3
								4
								5

Remarks: Trial pit remained stable. Groundwater seepage at 2.0m bgl. Pit was backfilled with 20mm shingle from 2.8m bgl to 1m bgl and arisings from 1m bgl to ground level. A 110mm monitoring pipe was installed to depth.

Stability: stable

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Trial Pit Log

Trial Pit No

TP5

Sheet 1 of 1

Project Name: Meadow Court School, Cuckfield

Project No.
LP2863

Co-ords: -
Level:

Date
28/02/2022

Location: Meadow Court School, Hanlye Lane, RH17 RHN

Dimensions
(m):

Depth
3.00

Scale
1:25

Logged
ADC

Client: Sigma Homes

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.10	ES		0.03			BLACKTOP Dark brown to black mottled brick red sandy gravelly MADEGROUND. Gravel is fine to coarse blacktop with whole bricks and occasional tile and mortar.	
	0.23	ES		0.18			<i>Blacktop reacted to PAK spray</i> Stiff mottled pale orange and green silty CLAY with frequent rootlets and occasional roots.	
				0.40			<i>Hand Pen at 0.3m = 353.3kPa</i> Stiff mottled grey and orange, desiccated very silty CLAY with rootlets and clayey silt pockets.	
							<i>Hand Pen exceeds 600kPa at 0.8m</i>	1
	0.95	D	HVP=199					
	1.50	D	N=48				<i>Rare medium to fine sub-rounded ironstone gravel below 1.4m.</i>	
				2.20			Very stiff thinly laminated orange and grey clayey SILT with occasional bands of very weak sandstone.	2
	2.50	D					<i>Hand Pen exceeds 600kPa at 2.5m</i>	
	3.00	D		3.00			End of pit at 3.00 m	3
								4
								5

Remarks: Trial pit remained dry and stable and was backfilled with arisings on completion.

Stability: Stable





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Trial Pit Log

Trialpit No

TP6

Sheet 1 of 1

Project Name: Meadow Court School, Cuckfield

Project No.
LP2863

Co-ords: -
Level:

Date
28/02/2022

Location: Meadow Court School, Hanlye Lane, RH17 RHN

Dimensions (m):

2.3

Depth
2.80

0.6

Scale
1:25

Logged
ADC

Client: Sigma Homes

Water Strike	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth	Type	Results					
	0.07			0.07			BLACKTOP	
	0.15	ES		0.20			Grey mottled black and brick red sandy gravelly MADEGROUND. Gravel is brick, blacktop and occasional concrete and tile.	
	0.30	ES		0.45			Blacktop reacted to PAK spray Stiff brownish to brownish green sandy CLAY with rootlets.	
	0.80	D	N=40				Stiff grey mottled orange desiccated clayey SILT with frequent rootlets.	
							Hand Pen at 0.7m = 210kPa	1
							Too stiff for shear vane test at 1.0m.	
	1.60	D	N=44	1.90			Friable stiff slightly sandy slightly clayey SILT with bands of very weak sandstone recovered as fine to medium gravel.	2
							Too friable for hand pen test at 2.0m.	
	2.50	D		2.80			End of pit at 2.80 m	3
								4
								5

Remarks: Trial pit remained stable. Groundwater seepage at 2.0m. Pit was backfilled with 20mm shingle from 2.8m bgl to 1m bgl and arisings from 1m bgl to ground level. A 110mm monitoring pipe was installed to depth.

Stability: stable

AGS

Borehole Log

Borehole No.

WS1

Sheet 1 of 1

Project Name: Meadow Court School, Cuckfield

Project No.
LP2863

Co-ords: -

Hole Type
WS

Location: Meadow Court School, Hanlye Lane, RH17 RHN

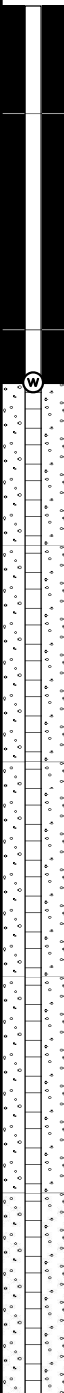
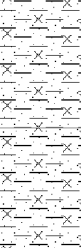
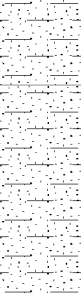
Level:

Scale
1:20

Client: Sigma Homes

Dates: 02/03/2022 - 02/03/2022

Logged By
EL

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.10	ES		0.25			Grass over dark brown gravelly sandy clayey TOPSOIL with rootlets. Gravel is fine to medium sub-rounded to sub-angular flint, occasional fine brick fragments and one fine plastic fragment.	1
		0.40	ES		0.50			Very soft brown silty CLAY with rootlets. <i>Hand Pen at 0.3m =30kPa</i>	
		0.70	D		1.20			Firm mottled light orange brown and light grey silty sandy CLAY. Sand is fine. <i>Hand Pen at 0.6m =90kPa</i>	
		1.90	B		2.00			Medium dense light grey mottled orange clayey sand SILT, with relict rootlets. Sand is fine. <i>Occasional red brown staining at 1.3m.</i>	
		2.00		N=29 (2,5/6,8,7,8)	2.00			Very stiff friable light grey mottled orange with red brown iron staining, slightly Sandy silty CLAY. <i>Hand pen exceeds 600kPa at 2.3m</i>	2
		2.50	D						
		3.00		N=51 (7,9/14,12,10,15)				<i>Hand pen exceeds 600kPa at 2.9m</i> <i>Lots of iron staining below 3.0m</i>	3
		3.40	D						
					3.70			End of borehole at 3.70 m	4

Remarks

Borehole remained stable. Groundwater encountered at 3.64m. Refusal at 3.7m. Install comprising 1m plain pipe over 2.7m slotted pipe.

Borehole Log

Borehole No.

WS2

Sheet 1 of 2

Project Name: Meadow Court School, Cuckfield

Project No.
LP2863

Co-ords: -

Hole Type
WS

Location: Meadow Court School, Hanlye Lane, RH17 RHN

Level:

Scale
1:20

Client: Sigma Homes

Dates: 02/03/2022 - 02/03/2022

Logged By
EL

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
W		0.10	ES		0.20			Grass over dark brown, very sandy silty clayey TOPSOIL with roots and rootlets and one plastic fragment.	1
		0.40	ES					Firm mottled orange and light grey silty CLAY. <u>One brick fragment at 4m</u> <u>Hand Pen at 0.6m =110kPa</u> <u>Becomes slightly sandy below 0.7m.</u>	
		0.80	D		0.80			Medium dense to very dense mottled light grey and orange sandy clayey SILT, sand is fine. With roots and rootlets and occasional iron stained black. <u>Grey patches are more clay-rich</u>	
		1.00		N=24 (6 for 75mm/4,6,6,8)				<u>Occasional fine to medium sandstone gravel below 1.2m.</u>	
		1.80	D		2.00			<u>Hand Pen at 1.6m =490kPa</u>	
		2.00		N=64 (3,6/12,21,16,15)				<u>No clay below 2.1m</u>	
		2.80	D		3.00			Dense light grey with occasional orange mottling clayey SAND with black ironstaining and occasional sandstone gravel.	
		3.00		N=42 (4,11/9,9,10,14)				<u>Stiff light grey mottled orange slightly sandy silty CLAY.</u> <u>Orange patches are sandy</u> <u>Hand Pen at 3.1m =260kPa</u>	
		3.70	D		3.30			Dense to very dense friable mottled orange and light grey silty SAND with much red-brown ironstaining, sand is fine.	

Continued on next sheet

Remarks

Borehole moved 4m west to avoid concrete slab at 0.2m. Borehole remained stable. Groundwater encountered at 3.5m. Refusal at 4.4m. Install comprising 1m plain pipe over 3.4m slotted pipe.

Borehole Log

Borehole No.

WS2

Sheet 2 of 2

Project Name: Meadow Court School, Cuckfield

Project No.
LP2863

Co-ords: -

Hole Type	WS
-----------	----

Location: Meadow Court School, Hanlye Lane, RH17 RHN

Level:

Scale
1:20

Client: Sigma Homes

Dates: 02/03/2022 - 02/03/2022

Logged By
EL

[illegible]

Remarks

Borehole moved 4m west to avoid concrete slab at 0.2m. Borehole remained stable. Groundwater encountered at 3.5m. Refusal at 4.4m. Install comprising 1m plain pipe over 3.4m slotted pipe.



Borehole Log

Borehole No.

WS3

Sheet 1 of 2

Project Name: Meadow Court School, Cuckfield

Project No.
LP2863

Co-ords: -

Hole Type
WS

Location: Meadow Court School, Hanlye Lane, RH17 RHN

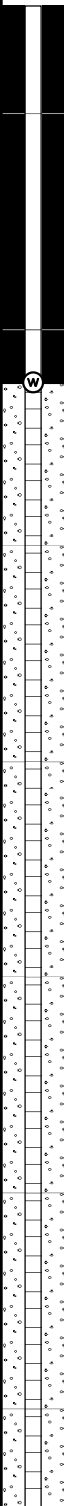
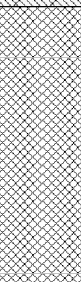
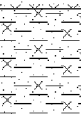
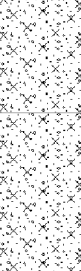
Level:

Scale
1:20

Client: Sigma Homes

Dates: 02/03/2022 - 02/03/2022

Logged By
EL

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.10	ES		0.15			Brambles over brown slightly sandy silty clayey TOPSOIL with roots and rootlets.	
		0.50	ES					MADE GROUND: brown silty CLAY with medium to coarse brick, glass fragments and clinker. <i>Becomes light brown below 0.55m</i>	
		1.00		N=31 (3,6/6,8,8,9)	0.90			Mottled orangish brown and light grey sandy slightly clayey SILT. Sand is fine. <i>Much black and red-brown iron staining below 1m</i>	1
		1.30	D					<i>Less orange mottling below 1.3m</i>	
		1.90	D		1.70			Very stiff orangish brown mottled light grey sandy slightly silty CLAY. Sand is fine to medium. Occasional sandstone gravel. <i>Hand pen exceeds 600kPa at 1.9m</i>	
		2.00		N=36 (3,5/8,9,9,10)	2.00			Friable dense orange mottled light grey gravelly sandy clayey SILT. Sand is fine. Gravel is fine to medium sub-angular to angular sandstone. Much black iron staining.	2
		2.50	D					<i>No gravel below 2.8m</i>	
		3.00		N=40 (2,5/6,10,13,11)				<i>Less iron staining below 3m</i>	3
		3.40	D						
					4.00			Continued on next sheet	4

Remarks

Borehole moved 3m east to avoid hardstanding. Borehole remained stable. Groundwater encountered at 2.55m. End of borehole at 5m. Install comprising 1m plain pipe over 4m slotted pipe.



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Borehole Log

Borehole No.

WS3

Sheet 2 of 2

Project Name: Meadow Court School, Cuckfield

Project No.
LP2863

Co-ords: -

Hole Type
WS

Location: Meadow Court School, Hanlye Lane, RH17 RHN

Level:

Scale
1:20

Client: Sigma Homes

Dates: 02/03/2022 - 02/03/2022

Logged By
EL

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		4.00		N=40 (3,5/6,10,13,11)					
		5.00		N=48 (4,5/5,8,15,20)	5.00				
								End of borehole at 5.00 m	5
									6
									7
									8

Remarks

Borehole moved 3m east to avoid hardstanding. Borehole remained stable. Groundwater encountered at 2.55m. End of borehole at 5m. Install comprising 1m plain pipe over 4m slotted pipe.



Borehole Log

Borehole No.

WS4

Sheet 1 of 1

Project Name: Meadow Court School, Cuckfield

Project No.
LP2863

Co-ords: -

Hole Type	WS
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13
14	14
15	15
16	16
17	17
18	18
19	19
20	20
21	21
22	22
23	23
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95	95
96	96
97	97
98	98
99	99
100	100

Location: Meadow Court School, Hanlye Lane, RH17 RHN

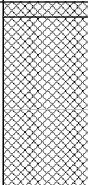
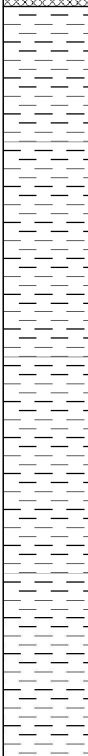
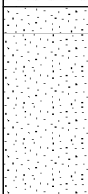
Level:

Scale
1:20

Client: Sigma Homes

Dates: 02/03/2022 - 02/03/2022

Logged By
EL

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description			
		Depth (m)	Type	Results							
1		0.10	ES		0.04			BLACKTOP MADE GROUND: Dark brown and dark grey gravel with red brick, fine to coarse rounded to sub-rounded flint, and blacktop fragments.			
					0.50			Firm becoming very stiff orange mottled grey CLAY with rootlets. <i>Grey patches are more clay-rich, orange patches are more sandy</i> <i>Hand Pen at 0.7m =170kPa</i>			
		0.70	ES								
		0.80	D								
		1.00			N=25 (2,4/6,5,7,7)			<i>Becomes slightly sandy below 1m</i>			
2		2.00		N=36 (4,6/7,7,9,13)				Very dense mottled orange and light grey SAND , with black and red-brown iron staining. Sand is fine to medium.			
					2.50						
		2.80	D								
		3.00		N=72 (7,10/15,17,17,23)	3.00			End of borehole at 3.00 m	3		
					</						

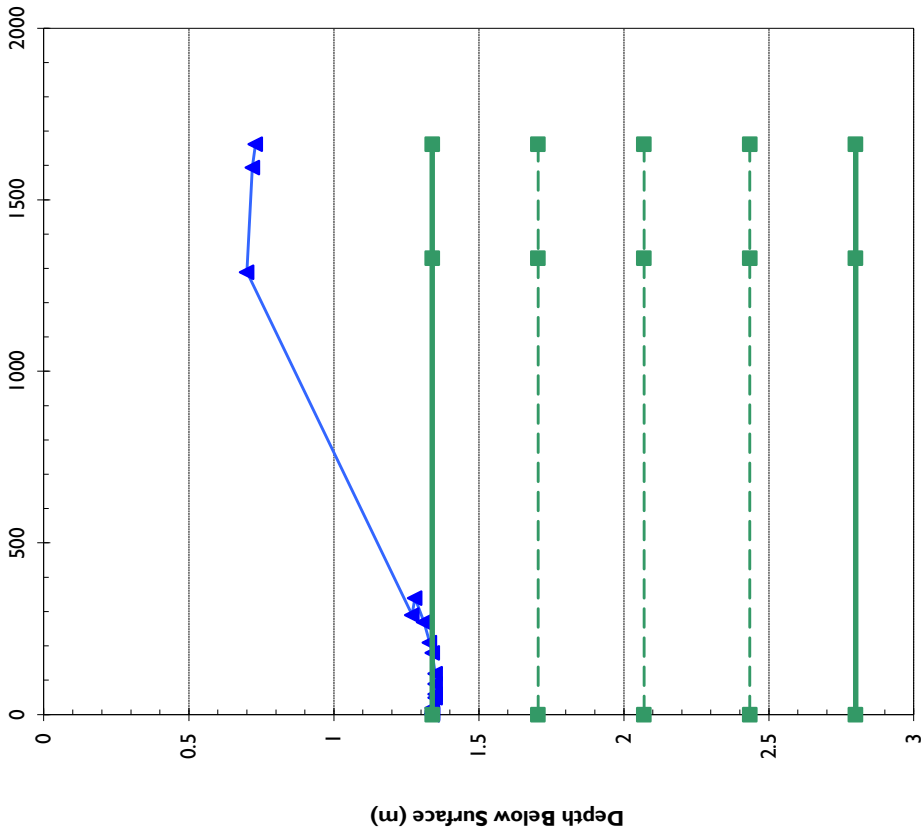
Remarks

Borehole remained stable, water seepage at 0.5m. Refusal at 3m.

AGS

BRE Digest 365 - Soakage Test

Filling to Max Water Depth (min)



Test Hole No: TP2
Test No: Test No 1

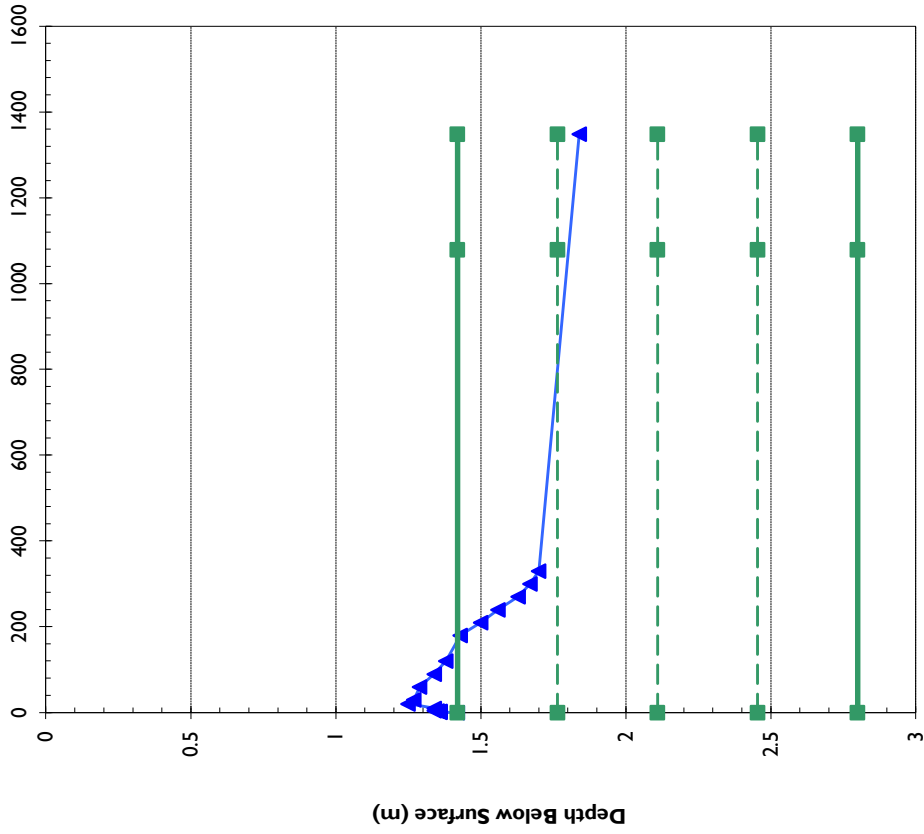
Pit Length (m)	2
Pit Width (m)	0.7
Depth to Pit Base (m)	2.8
Depth to Top of Permeable Soils (m)	0
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	
Voids Assumed for Granular Fill (%)	35%
Depth of Water at Start of Test (m)	1.34
Max Water Dropdown during Test (m)	0.01
Total Soakage Test Time (min)	1663
Mean Internal Discharge Area (m2)	9.23675
Discharge Rate (litre/min)	

Comments: Water level arose during the test, soakage rate calculation is not applicable.

Client: Sigma Homes
Site: Former Court School, Cuckfield
Tested By: OAKLANDS
Test Date: 12/04/22

BRE Digest 365 - Soakage Test

Filling to Max Water Depth (min)



Test Hole No: TP6
Test No: Test No 1

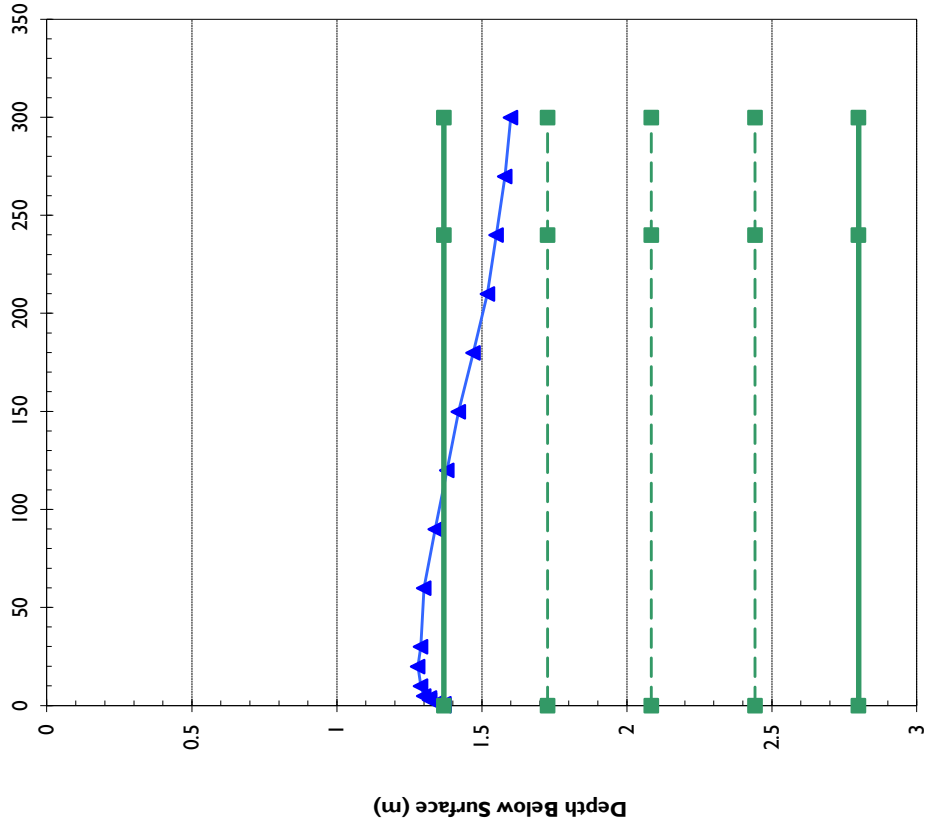
Pit Length (m)	2.3
Pit Width (m)	0.6
Depth to Pit Base (m)	2.8
Depth to Top of Permeable Soils (m)	0
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	
Voids Assumed for Granular Fill (%)	35%
Depth of Water at Start of Test (m)	1.42
Max Water Dropdown during Test (m)	0.42
Total Soakage Test Time (min)	1349
Mean Internal Discharge Area (m2)	7.2525
Discharge Rate (litre/min)	0.066359

Comments: Water level fell to 75% -- 50% max water depth, calculations were based on actual fall of water level
Result not compliant with BRE365 requirement since water did not fall to 25% max water depth.

Client: Sigma Homes
Site: Former Court School, Cuckfield
Tested By: OAKLANDS
Test Date: 12/04/22

BRE Digest 365 - Soakage Test

Filling to Max Water Depth (min)



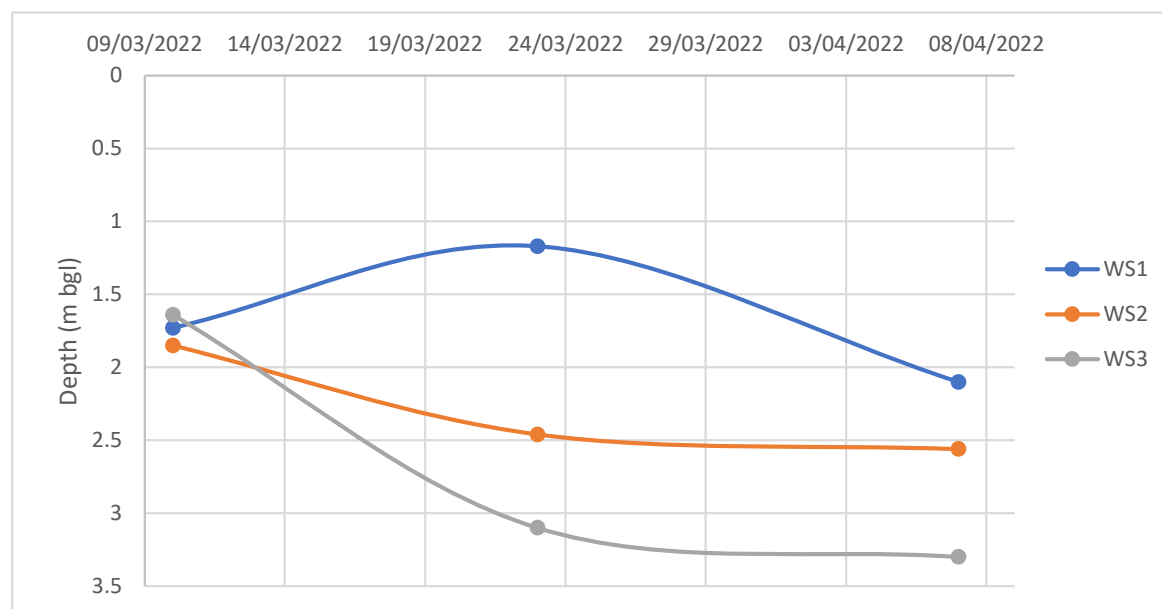
Test Hole No: TP6
Test No: Test No 2

Pit Length (m)	2.3
Pit Width (m)	0.6
Depth to Pit Base (m)	2.8
Depth to Top of Permeable Soils (m)	0
Depth to Groundwater Surface (m)	
Depth to Top of Granular Fill (m)	
Voids Assumed for Granular Fill (%)	35%
Depth of Water at Start of Test (m)	1.37
Max Water Dropdown during Test (m)	0.23
Total Soakage Test Time (min)	300
Mean Internal Discharge Area (m2)	8.50675
Discharge Rate (litre/min)	0.411444

Comments: Water level did not fall to 75% max water depth, calculations were based on actual fall of water level
Result not compliant with BRE365 requirement since water did not fall to 25% max water depth.

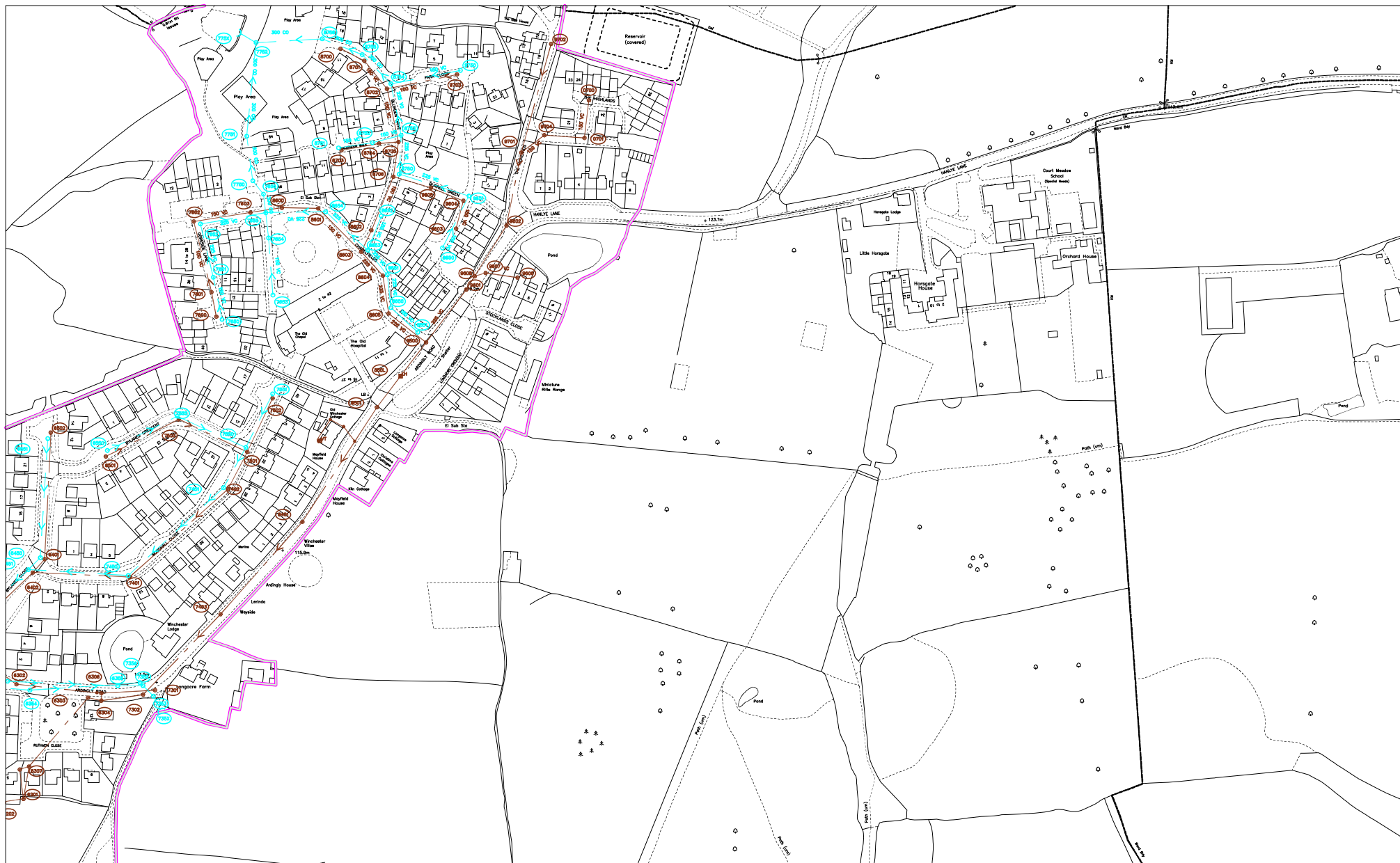
Client: Sigma Homes
Site: Former Court School, Cuckfield
Tested By: OAKLANDS
Test Date: 12/04/22

Job No.	LP2863		Name.	Cuckfield
Well No.	10/03/2022	10/03/2022	23/03/2022	07/04/2022
	Well Depth (m bgl)	Water Depth (m bgl)	Water Depth (m bgl)	Water depth (m bgl)
WS1	4.08	1.73	1.17	2.1
WS2	4.8	1.85	2.46	2.56
WS3	5.13	1.64	3.1	3.3



APPENDIX E

Southern Water Records



125241

530618

TQ3125NW

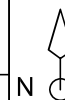
Title: Vacant Site Hanlye Lane

Scale: 1:2500

Date: 27/01/2012

WARNING: BAC pipes are constructed of Bonded Asbestos Cement
WARNING: Unknown (UNK) materials may include Bonded Asbestos Cement

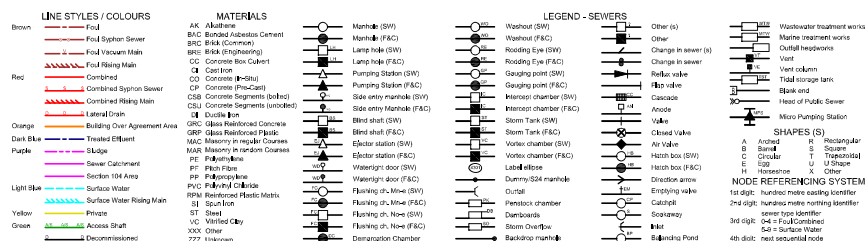
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Licence No. WU 298530.



531562

SEWER RECORDS PAGE 2 OF 2

Node	Cover	Invert	Size	Material	Shape	Node	Cover	Invert	Size	Material	Shape	Node	Cover	Invert	Size	Material	Shape	Node	Cover	Invert	Size	Material	Shape
0700X	126.12	124.67	150	VC	CIRC	8650X	117.56	115.78	225	VC	CIRC	8650X	117.56	115.78	225	VC	CIRC	8650X	117.56	115.78	225	VC	CIRC
0701X	125.4	123.53	150	VC	CIRC	8651X	117.85	115.68	225	VC	CIRC	8651X	117.85	115.68	225	VC	CIRC	8651X	117.85	115.68	225	VC	CIRC
6201X	110.47		300	VC	CIRC	8652X	118.08	116.68	150	VC	CIRC	8652X	118.08	116.68	150	VC	CIRC	8652X	118.08	116.68	150	VC	CIRC
6202X	110.41		300	VC	CIRC	8653X	118.04	115.52	225	VC	CIRC	8653X	118.04	115.52	225	VC	CIRC	8653X	118.04	115.52	225	VC	CIRC
6302X	114.8	112.77	225	VC	CIRC	8654X	117.44	115.2	225	VC	CIRC	8654X	117.44	115.2	225	VC	CIRC	8654X	117.44	115.2	225	VC	CIRC
6303X	112.65		300	VC	CIRC	8700X	117.35	115.85	150	VC	CIRC	8700X	117.35	115.85	150	VC	CIRC	8700X	117.35	115.85	150	VC	CIRC
6304X	112.2	109.78	300	VC	CIRC	8701X	117.8	115.62	150	VC	CIRC	8701X	117.8	115.62	150	VC	CIRC	8701X	117.8	115.62	150	VC	CIRC
6305X	112.62		300	VC	CIRC	8702X	118.2	115.4	150	VC	CIRC	8702X	118.2	115.4	150	VC	CIRC	8702X	118.2	115.4	150	VC	CIRC
6306X	112.05	109.93	225	VC	CIRC	8703X	117.85	115.82	150	VC	CIRC	8703X	117.85	115.82	150	VC	CIRC	8703X	117.85	115.82	150	VC	CIRC
6307X			UNK	UNK	CIRC	8704X	118.13	115.35	150	VC	CIRC	8704X	118.13	115.35	150	VC	CIRC	8704X	118.13	115.35	150	VC	CIRC
6351X	114.8	112.38	300	VC	CIRC	8705X	118.23	115.16	150	VC	CIRC	8705X	118.23	115.16	150	VC	CIRC	8705X	118.23	115.16	150	VC	CIRC
6354X	114.27	112.97	150	VC	CIRC	8706X	118.15	115	150	VC	CIRC	8706X	118.15	115	150	VC	CIRC	8706X	118.15	115	150	VC	CIRC
6355X	111.72	110.98	300	VC	CIRC	8750X	118.14	116.64	225	VC	CIRC	8750X	118.14	116.64	225	VC	CIRC	8750X	118.14	116.64	225	VC	CIRC
6401X	117.56		150	VC	CIRC	8751X	117.87	116.38	150	VC	CIRC	8751X	117.87	116.38	150	VC	CIRC	8751X	117.87	116.38	150	VC	CIRC
6402X	117.43	114.11	225	VC	CIRC	8752X	118	115.9	150	VC	CIRC	8752X	118	115.9	150	VC	CIRC	8752X	118	115.9	150	VC	CIRC
6450X	117.53	115.65	225	VC	CIRC	8753X	118.22	115.72	225	VC	CIRC	8753X	118.22	115.72	225	VC	CIRC	8753X	118.22	115.72	225	VC	CIRC
6451X	117.39	113.69	300	VC	CIRC	8754X	118.01	115.41	300	CO	CIRC	8754X	118.01	115.41	300	CO	CIRC	8754X	118.01	115.41	300	CO	CIRC
6501X	117.66		150	VC	CIRC	8755X	117.07	114.79	300	CO	CIRC	8755X	117.07	114.79	300	CO	CIRC	8755X	117.07	114.79	300	CO	CIRC
6502X	118.23		150	VC	CIRC	8756X	116.7	114.64	300	CO	CIRC	8756X	116.7	114.64	300	CO	CIRC	8756X	116.7	114.64	300	CO	CIRC
6550X	117.65	116.38	150	VC	CIRC	9500X	117.2		225	VC	CIRC	9500X	117.2		225	VC	CIRC	9500X	117.2		225	VC	CIRC
6551X	118.19	116.63	225	VC	CIRC	9601X	118.17	114.46	225	VC	CIRC	9601X	118.17	114.46	225	VC	CIRC	9601X	118.17	114.46	225	VC	CIRC
7301X	111.88	110.25	225	VC	CIRC	9602X	120.56	118.13	225	VC	CIRC	9602X	120.56	118.13	225	VC	CIRC	9602X	120.56	118.13	225	VC	CIRC
7302X	111.6		300	VC	CIRC	9603X	119.75	118.45	150	VC	CIRC	9603X	119.75	118.45	150	VC	CIRC	9603X	119.75	118.45	150	VC	CIRC
7352X	111.39	110.39	300	VC	CIRC	9604X	120.7	117.1	150	VC	CIRC	9604X	120.7	117.1	150	VC	CIRC	9604X	120.7	117.1	150	VC	CIRC
7353X	111.54	109.84	300	VC	CIRC	9605X	118.95	117.1	150	VC	CIRC	9605X	118.95	117.1	150	VC	CIRC	9605X	118.95	117.1	150	VC	CIRC
7356X	111.49	110.5	225	VC	CIRC	9606X			UNK	VC	CIRC	9606X			UNK	VC	CIRC	9606X			UNK	VC	CIRC
7401X	116.49	114.69	225	VC	CIRC	9607X			UNK	VC	CIRC	9607X			UNK	VC	CIRC	9607X			UNK	VC	CIRC
7402X	116.69	115.4	225	VC	CIRC	9608X			225	VC	CIRC	9608X			225	VC	CIRC	9608X			225	VC	CIRC
7403X	113.86	111.65	225	VC	CIRC	9650X	119.05	117.55	150	VC	CIRC	9650X	119.05	117.55	150	VC	CIRC	9650X	119.05	117.55	150	VC	CIRC
7450X	116.49	114.33	300	VC	CIRC	9651X	119.7	117.22	225	VC	CIRC	9651X	119.7	117.22	225	VC	CIRC	9651X	119.7	117.22	225	VC	CIRC
7451X	116.68	114.99	225	VC	CIRC	9701X	123.76	122.47	150	VC	CIRC	9701X	123.76	122.47	150	VC	CIRC	9701X	123.76	122.47	150	VC	CIRC
7501X	116.91	115.48	225	VC	CIRC	9702X	124.83	123.51	150	VC	CIRC	9702X	124.83	123.51	150	VC	CIRC	9702X	124.83	123.51	150	VC	CIRC
7502X	117.24	116	150	VC	CIRC	9703X	120.13	118.47	150	VC	CIRC	9703X	120.13	118.47	150	VC	CIRC	9703X	120.13	118.47	150	VC	CIRC
7503X	117.37	115.89	150	VC	CIRC	9704X	124.8	123.1	150	VC	CIRC	9704X	124.8	123.1	150	VC	CIRC	9704X	124.8	123.1	150	VC	CIRC
7550X	116.97	115.19	225	VC	CIRC	9750X	120.18	118.38	150	VC	CIRC	9750X	120.18	118.38	150	VC	CIRC	9750X	120.18	118.38	150	VC	CIRC
7551X	117.27	115.86	150	VC	CIRC																		
7552X	117.39	115.62	225	VC	CIRC																		
7600X	117.1	115.95	150	VC	CIRC																		
7601X	117.23	115.81	150	VC	CIRC																		
7602X	117.17	115.52	150	VC	CIRC																		
7603X	116.7	115.28	150	VC	CIRC																		
7650X	117.02	115.62	150	VC	CIRC																		
7651X	117.28	115.47	225	VC	CIRC																		
7652X	117.16	115.21	225	VC	CIRC																		
7653X	117.35	115.46	150	VC	CIRC																		
7654X	116.8	115.1	150	VC	CIRC																		
7655X	116.84	114.66	300	CO	CIRC																		
7656X	116.98	114.5	300	CO	CIRC																		
7750X	116.91	114.41	300	CO	CIRC																		
7751X	116.44	113.94	300	CO	CIRC																		
7752X	113.71	108.34	450	CO	CIRC																		
8401X	116.1	113.22	225	VC	CIRC																		
8501X	116.8	113.78	225	VC	CIRC																		
850DX			UNK	UNK	UNK																		
850LX	117.09	114.02	225	VC	CIRC																		
851DX			UNK	UNK	UNK																		
852DX			225	VC	CIRC																		
853DX			UNK	UNK	UNK																		
8551X	117.33	115.99	150	VC	CIRC																		
8600X	117.92	115.08	150	VC	CIRC																		
8601X	117.33	114.9	150	VC	CIRC																		
8602X	118	114.76	150	VC	CIRC																		
8603X	118.01	114.6	225	VC	CIRC																		
8604X	117.83	114.45	225	VC	CIRC																		
8605X	117.53	114.31	225	VC	CIRC																		



Drawn by: neogiab

Title: Vacant Site Hanlye Lane

Date: 27/01/2012



SHAPES (S)	
A	Arched
B	Banded
C	Circular
E	Egg
H	Horseshoe
R	Rectangular
S	Square
T	Trapezoidal
U	U Shape
X	Other

NODE REFERENCING SYSTEM	
1st digit:	hundred metre easling identifier
2nd digit:	hundred metre nothing identifier
3rd digit:	sewer type identifier 0-4 = Foul Combined 5-9 = Surface Water
4th digit:	next sequential code

APPENDIX F

Micro Drainage Calculations

Odyssey		Page 1
Tuscany House White Hart Lane Basingstoke RG21 4AF	Land South of Hanlye Lane Cuckfield, West Sussex	
Date 18/08/2023 08:29 File 23-148 Greenfield runof...	Designed by AK Checked by	
Micro Drainage		
Source Control 2020.1.3		
ICP SUDS Mean Annual Flood Input Return Period (years) 5 Soil 0.450 Area (ha) 1.000 Urban 0.000 SAAR (mm) 812 Region Number Region 7 Results 1/s QBAR Rural 5.2 QBAR Urban 5.2 Q5 years 6.7 Q1 year 4.4 Q30 years 11.8 Q100 years 16.7		
©1982-2020 Innovyze		

Quick Storage Estimate

The screenshot shows the 'Quick Storage Estimate' software window with the 'Variables' tab selected. The left sidebar contains buttons for 'Variables', 'Results', 'Design', 'Overview 2D', 'Overview 3D', and 'Vt'. The main area displays various input fields for site and rainfall data.

Variable	Value
FEH Rainfall	FEH Rainfall
Return Period (years)	100
Version	2013
Point	...
Site	GB 531085 125619 TQ 31085 25619
Cv (Summer)	1.000
Cv (Winter)	1.000
Impervious Area (ha)	1.217
Maximum Allowable Discharge (l/s)	6.0
Infiltration Coefficient (m/hr)	0.00000
Safety Factor	2.0
Climate Change (%)	45

Buttons at the bottom: Analyse, OK, Cancel, Help.

Footer: Enter Return Period between 2 and 1000

The screenshot shows the 'Quick Storage Estimate' software window with the 'Results' tab selected. The left sidebar is the same as the previous window. The main area displays the results of the storage estimate.

Global Variables require approximate storage of between 1201 m³ and 2003 m³.

These values are estimates only and should not be used for design purposes.

Buttons at the bottom: Analyse, OK, Cancel, Help.

Footer: Enter Return Period between 2 and 1000

Creep – 10% added to the total roof area

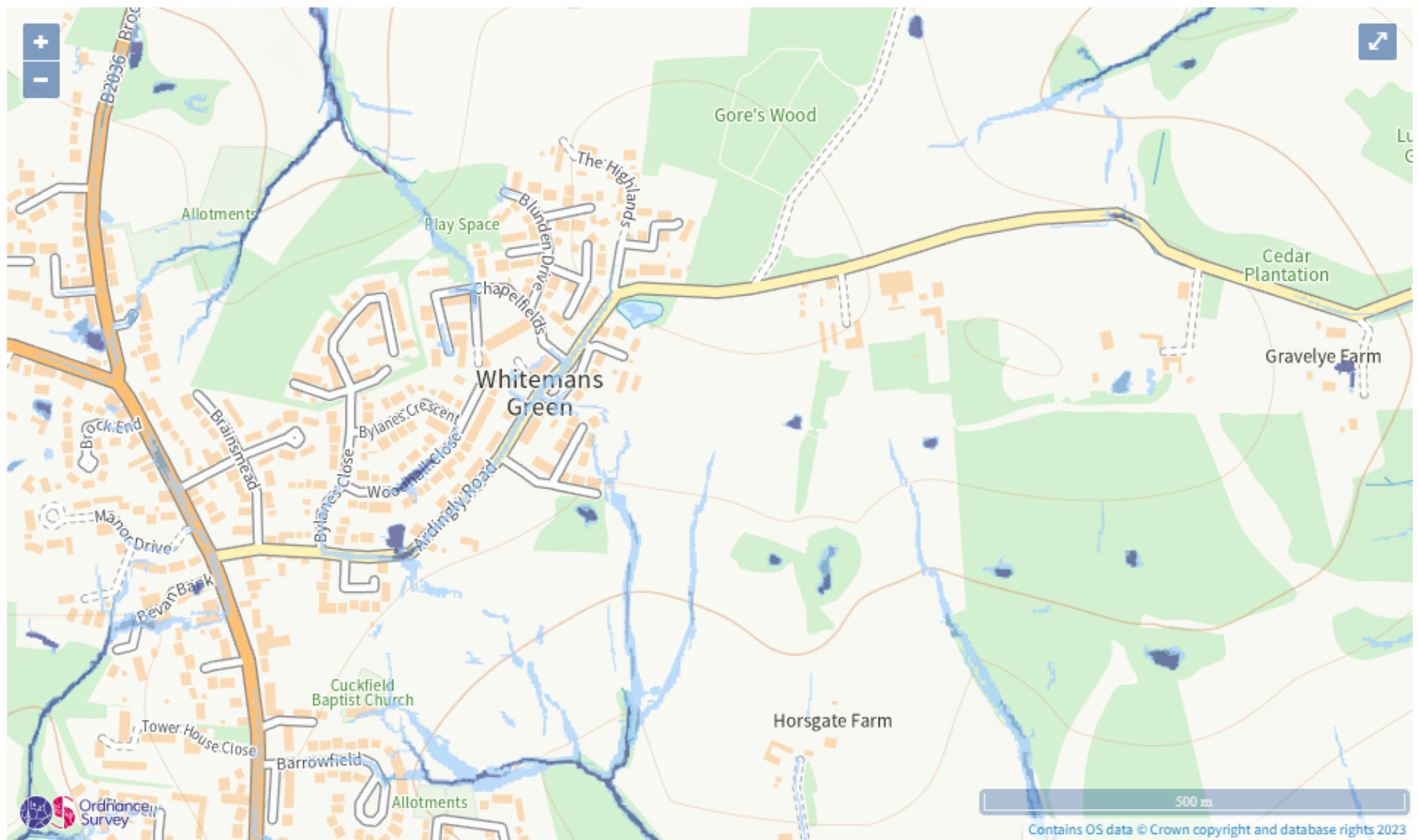
Footpaths around houses – taken as 7% of total roof area

Total roof area – 0.422 ha

Hardstanding area – 0.723 ha

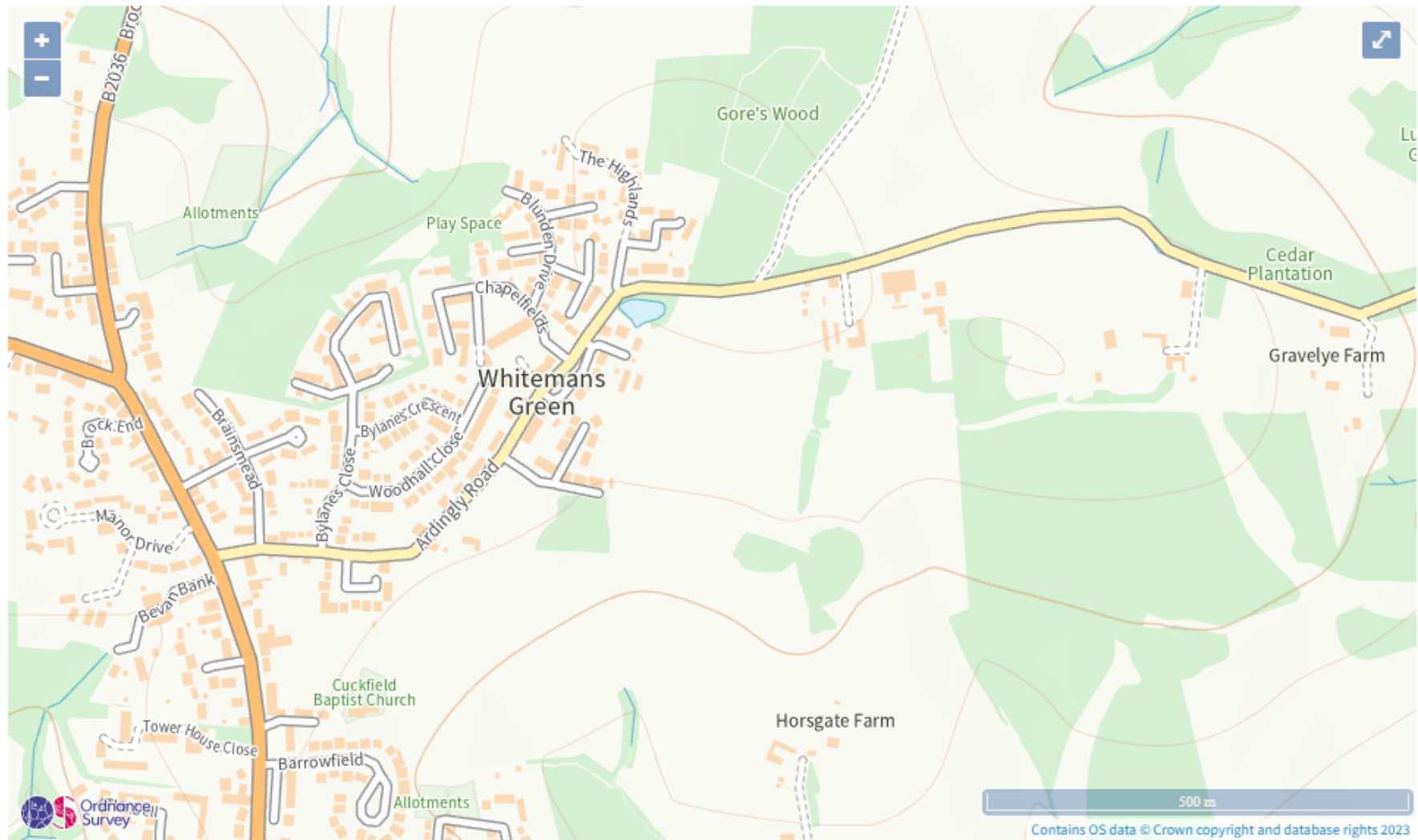
APPENDIX G

Flood Mapping



Extent of flooding from surface water

● [High](#) ● [Medium](#) ● [Low](#) ○ [Very low](#) ⊕ Location you selected



Maximum extent of flooding from reservoirs:

● when river levels are normal
 ▨ when there is also flooding from rivers
 ⊕ Location you selected

APPENDIX H

SuDS Operation Maintenance Requirements

TABLE 22.1 Operation and maintenance requirements for detention basins

Maintenance schedule	Required action	Typical frequency
Regular maintenance	Remove litter and debris	Monthly
	Cut grass – for spillways and access routes	Monthly (during growing season), or as required
	Cut grass – meadow grass in and around basin	Half yearly (spring – before nesting season, and autumn)
	Manage other vegetation and remove nuisance plants	Monthly (at start, then as required)
	Inspect inlets, outlets and overflows for blockages, and clear if required.	Monthly
	Inspect banksides, structures, pipework etc for evidence of physical damage	Monthly
	Inspect inlets and facility surface for silt accumulation. Establish appropriate silt removal frequencies.	Monthly (for first year), then annually or as required
	Check any penstocks and other mechanical devices	Annually
	Tidy all dead growth before start of growing season	Annually
	Remove sediment from inlets, outlet and forebay	Annually (or as required)
	Manage wetland plants in outlet pool – where provided	Annually (as set out in Chapter 23)
Occasional maintenance	Reseed areas of poor vegetation growth	As required
	Prune and trim any trees and remove cuttings	Every 2 years, or as required
	Remove sediment from inlets, outlets, forebay and main basin when required	Every 5 years, or as required (likely to be minimal requirements where effective upstream source control is provided)
Remedial actions	Repair erosion or other damage by reseeding or re-turfing	As required
	Realignment of rip-rap	As required
	Repair/rehabilitation of inlets, outlets and overflows	As required
	Relevel uneven surfaces and reinstate design levels	As required

22.13 REFERENCE

KENNARD, M F, HOSKINS, C G and FLETCHER, M (1996) *Small embankment reservoirs*, R161, CIRIA, London, UK (ISBN: 978-0-86017-461-5). Go to: www.ciria.org

Statutes

Reservoir Act 1975 (c.23)

Health and Safety at Work (etc) Act 1974 (c.37)

Building Act 1984 (c.55)

Flood and Water Management Act 2010 (c.29)

Construction (Design and Management) Regulations (CDM) 2015

TABLE 17.1 Operation and maintenance requirements for swales

Maintenance schedule	Required action	Typical frequency
Regular maintenance	Remove litter and debris	Monthly, or as required
	Cut grass – to retain grass height within specified design range	Monthly (during growing season), or as required
	Manage other vegetation and remove nuisance plants	Monthly at start, then as required
	Inspect inlets, outlets and overflows for blockages, and clear if required	Monthly
	Inspect infiltration surfaces for ponding, compaction, silt accumulation, record areas where water is ponding for > 48 hours	Monthly, or when required
	Inspect vegetation coverage	Monthly for 6 months, quarterly for 2 years, then half yearly
	Inspect inlets and facility surface for silt accumulation, establish appropriate silt removal frequencies	Half yearly
Occasional maintenance	Reseed areas of poor vegetation growth, alter plant types to better suit conditions, if required	As required or if bare soil is exposed over 10% or more of the swale treatment area
Remedial actions	Repair erosion or other damage by re-turfing or reseeding	As required
	Relevel uneven surfaces and reinstate design levels	As required
	Scarify and spike topsoil layer to improve infiltration performance, break up silt deposits and prevent compaction of the soil surface	As required
	Remove build-up of sediment on upstream gravel trench, flow spreader or at top of filter strip	As required
	Remove and dispose of oils or petrol residues using safe standard practices	As required