TITLE
Proposed Site Layout Plan

SCALE	PROJECT. No.
1:1000 @ A3	23572
REPORT TYPE	DRG. No.
FRA	3 A

ARUN DISTRICT COUNCIL Y/186/21/PL

Area Ref	Subbase Area	Roof Area	Roof Area (Including 10% additional allowance for urban creep)
Catchment D	1250m²	1280m²	(1410m²)
Catchment F	810m²	1070m²	(1180²)

N

TITLE
Proposed Site Layout
Impermeable Areas

SCALE	PROJECT. No.
Not to Scale	23572
REPORT TYPE	DRG. No.
FRA	4 B

ARUN DISTRICT COUNCIL Y/186/21/PL

ARUN DISTRICT COUNCIL Y/186/21/PL

Appendix 7

Drainage Strategy Plans and Calculations

ARUN DISTRICT COUNCIL Y/186/21/PL

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

Half Drain Time : 810 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	4.353	0.093	0.1	2.8	O K
30 min Summer	4.384	0.124	0.1	3.8	O K
60 min Summer	4.416	0.156	0.1	4.8	O K
120 min Summer	4.441	0.181	0.1	5.6	O K
180 min Summer	4.454	0.194	0.1	5.9	O K
240 min Summer	4.461	0.201	0.1	6.2	O K
360 min Summer	4.465	0.205	0.1	6.3	O K
480 min Summer	4.465	0.205	0.1	6.3	O K
600 min Summer	4.462	0.202	0.1	6.2	O K
720 min Summer	4.459	0.199	0.1	6.1	O K
960 min Summer	4.451	0.191	0.1	5.9	O K
1440 min Summer	4.438	0.178	0.1	5.5	O K
2160 min Summer	4.420	0.160	0.1	4.9	O K
2880 min Summer	4.405	0.145	0.1	4.5	O K
4320 min Summer	4.381	0.121	0.1	3.7	O K
5760 min Summer	4.362	0.102	0.1	3.1	O K
7200 min Summer	4.348	0.088	0.1	2.7	O K
8640 min Summer	4.337	0.077	0.1	2.4	O K
10080 min Summer	4.328	0.068	0.1	2.1	O K
15 min Winter	4.364	0.104	0.1	3.2	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	141.120	0.0	22
30 min Summer	94.920	0.0	37
60 min Summer	60.760	0.0	66
120 min Summer	36.120	0.0	126
180 min Summer	26.488	0.0	186
240 min Summer	21.140	0.0	244
360 min Summer	15.213	0.0	362
480 min Summer	12.015	0.0	482
600 min Summer	9.992	0.0	596
720 min Summer	8.587	0.0	634
960 min Summer	6.748	0.0	752
1440 min Summer	4.812	0.0	1002
2160 min Summer	3.452	0.0	1408
2880 min Summer	2.745	0.0	1816
4320 min Summer	2.017	0.0	2596
5760 min Summer	1.642	0.0	3344
7200 min Summer	1.413	0.0	4040
8640 min Summer	1.259	0.0	4760
10080 min Summer	1.148	0.0	5448
15 min Winter	141.120	0.0	22

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

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	4.399	0.139	0.1	4.3	O K
60 min Winter	4.436	0.176	0.1	5.4	O K
120 min Winter	4.464	0.204	0.1	6.3	O K
180 min Winter	4.479	0.219	0.1	6.7	O K
240 min Winter	4.487	0.227	0.1	7.0	O K
360 min Winter	4.494	0.234	0.1	7.2	O K
480 min Winter	4.495	0.235	0.1	7.2	O K
600 min Winter	4.494	0.234	0.1	7.2	O K
720 min Winter	4.490	0.230	0.1	7.1	O K
960 min Winter	4.480	0.220	0.1	6.8	O K
1440 min Winter	4.463	0.203	0.1	6.2	O K
2160 min Winter	4.437	0.177	0.1	5.4	O K
2880 min Winter	4.414	0.154	0.1	4.7	O K
4320 min Winter	4.376	0.116	0.1	3.6	O K
5760 min Winter	4.347	0.087	0.1	2.7	O K
7200 min Winter	4.326	0.066	0.1	2.0	O K
8640 min Winter	4.313	0.053	0.1	1.6	O K
10080 min Winter	4.308	0.048	0.1	1.5	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
30 min Winter	94.920	0.0	37
60 min Winter	60.760	0.0	66
120 min Winter	36.120	0.0	124
180 min Winter	26.488	0.0	182
240 min Winter	21.140	0.0	240
360 min Winter	15.213	0.0	356
480 min Winter	12.015	0.0	470
600 min Winter	9.992	0.0	580
720 min Winter	8.587	0.0	688
960 min Winter	6.748	0.0	878
1440 min Winter	4.812	0.0	1088
2160 min Winter	3.452	0.0	1536
2880 min Winter	2.745	0.0	1964
4320 min Winter	2.017	0.0	2768
5760 min Winter	1.642	0.0	3464
7200 min Winter	1.413	0.0	4112
8640 min Winter	1.259	0.0	4680
10080 min Winter	1.148	0.0	5344

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Rainfall Details

Rainfall Model	FEH
Return Period (years)	100
FEH Rainfall Version	2013
Site Location	GB 498100 101500 SU 98100 01500
Data Type	Catchment
Summer Storms	Yes
Winter Storms	Yes
Cv (Summer)	0.750
Cv (Winter)	0.840
Shortest Storm (mins)	15
Longest Storm (mins)	10080
Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.011

Time (mins) From:	To:	Area (ha)	Time (mins) From:	To:	Area (ha)
0	4	0.005	4	8	0.006

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Model Details

Storage is Online Cover Level (m) 4.800

Infiltration Blanket Structure

Infiltration Coefficient Base (m/hr)	0.00396	Diameter/Width (m)	6.4
Safety Factor	1.5	Length (m)	16.0
Porosity	0.30	Cap Volume Depth (m)	0.450
Invert Level (m)	4.260		

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

Half Drain Time : 1452 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	4.813	0.153	0.1	7.8	O K
30 min Summer	4.865	0.205	0.1	10.5	O K
60 min Summer	4.921	0.261	0.1	13.3	Flood Risk
120 min Summer	4.964	0.304	0.1	15.5	Flood Risk
180 min Summer	4.989	0.329	0.1	16.8	Flood Risk
240 min Summer	5.004	0.344	0.1	17.5	Flood Risk
360 min Summer	5.019	0.359	0.1	18.3	Flood Risk
480 min Summer	5.026	0.366	0.1	18.6	Flood Risk
600 min Summer	5.028	0.368	0.1	18.8	Flood Risk
720 min Summer	5.027	0.367	0.1	18.7	Flood Risk
960 min Summer	5.020	0.360	0.1	18.4	Flood Risk
1440 min Summer	5.001	0.341	0.1	17.4	Flood Risk
2160 min Summer	4.979	0.319	0.1	16.3	Flood Risk
2880 min Summer	4.962	0.302	0.1	15.4	Flood Risk
4320 min Summer	4.934	0.274	0.1	14.0	Flood Risk
5760 min Summer	4.913	0.253	0.1	12.9	Flood Risk
7200 min Summer	4.895	0.235	0.1	12.0	O K
8640 min Summer	4.880	0.220	0.1	11.2	O K
10080 min Summer	4.867	0.207	0.1	10.5	O K
15 min Winter	4.832	0.172	0.1	8.8	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	141.120	0.0	23
30 min Summer	94.920	0.0	37
60 min Summer	60.760	0.0	68
120 min Summer	36.120	0.0	126
180 min Summer	26.488	0.0	186
240 min Summer	21.140	0.0	246
360 min Summer	15.213	0.0	364
480 min Summer	12.015	0.0	484
600 min Summer	9.992	0.0	604
720 min Summer	8.587	0.0	722
960 min Summer	6.748	0.0	960
1440 min Summer	4.812	0.0	1214
2160 min Summer	3.452	0.0	1576
2880 min Summer	2.745	0.0	1968
4320 min Summer	2.017	0.0	2808
5760 min Summer	1.642	0.0	3624
7200 min Summer	1.413	0.0	4400
8640 min Summer	1.259	0.0	5192
10080 min Summer	1.148	0.0	5952
15 min Winter	141.120	0.0	23

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

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	4.891	0.231	0.1	11.8	O K
60 min Winter	4.953	0.293	0.1	14.9	Flood Risk
120 min Winter	5.002	0.342	0.1	17.5	Flood Risk
180 min Winter	5.031	0.371	0.1	18.9	Flood Risk
240 min Winter	5.049	0.389	0.1	19.8	Flood Risk
360 min Winter	5.067	0.407	0.1	20.8	Flood Risk
480 min Winter	5.076	0.416	0.1	21.2	Flood Risk
600 min Winter	5.081	0.421	0.1	21.4	Flood Risk
720 min Winter	5.082	0.422	0.1	21.5	Flood Risk
960 min Winter	5.077	0.417	0.1	21.3	Flood Risk
1440 min Winter	5.059	0.399	0.1	20.4	Flood Risk
2160 min Winter	5.030	0.370	0.1	18.9	Flood Risk
2880 min Winter	5.006	0.346	0.1	17.6	Flood Risk
4320 min Winter	4.964	0.304	0.1	15.5	Flood Risk
5760 min Winter	4.927	0.267	0.1	13.6	Flood Risk
7200 min Winter	4.896	0.236	0.1	12.1	O K
8640 min Winter	4.869	0.209	0.1	10.7	O K
10080 min Winter	4.846	0.186	0.1	9.5	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
30 min Winter	94.920	0.0	37
60 min Winter	60.760	0.0	66
120 min Winter	36.120	0.0	124
180 min Winter	26.488	0.0	184
240 min Winter	21.140	0.0	242
360 min Winter	15.213	0.0	358
480 min Winter	12.015	0.0	476
600 min Winter	9.992	0.0	590
720 min Winter	8.587	0.0	706
960 min Winter	6.748	0.0	932
1440 min Winter	4.812	0.0	1360
2160 min Winter	3.452	0.0	1692
2880 min Winter	2.745	0.0	2140
4320 min Winter	2.017	0.0	3032
5760 min Winter	1.642	0.0	3920
7200 min Winter	1.413	0.0	4752
8640 min Winter	1.259	0.0	5536
10080 min Winter	1.148	0.0	6352

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Rainfall Details

Rainfall Model	FEH
Return Period (years)	100
FEH Rainfall Version	2013
Site Location	GB 498100 101500 SU 98100 01500
Data Type	Catchment
Summer Storms	Yes
Winter Storms	Yes
Cv (Summer)	0.750
Cv (Winter)	0.840
Shortest Storm (mins)	15
Longest Storm (mins)	10080
Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.030

Time (mins) From:	To:	Area (ha)	Time (mins) From:	To:	Area (ha)
0	4	0.015	4	8	0.015

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Model Details

Storage is Online Cover Level (m) 5.200

Infiltration Blanket Structure

Infiltration Coefficient Base (m/hr)	0.00396	Diameter/Width (m)	10.0
Safety Factor	1.5	Length (m)	17.0
Porosity	0.30	Cap Volume Depth (m)	0.450
Invert Level (m)	4.660		

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

Half Drain Time : 1280 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	5.397	0.137	0.2	13.5	O K
30 min Summer	5.443	0.183	0.2	18.1	O K
60 min Summer	5.492	0.232	0.2	23.0	O K
120 min Summer	5.530	0.270	0.2	26.8	Flood Risk
180 min Summer	5.552	0.292	0.2	28.9	Flood Risk
240 min Summer	5.564	0.304	0.2	30.1	Flood Risk
360 min Summer	5.577	0.317	0.2	31.3	Flood Risk
480 min Summer	5.581	0.321	0.2	31.8	Flood Risk
600 min Summer	5.582	0.322	0.2	31.9	Flood Risk
720 min Summer	5.580	0.320	0.2	31.7	Flood Risk
960 min Summer	5.572	0.312	0.2	30.9	Flood Risk
1440 min Summer	5.555	0.295	0.2	29.2	Flood Risk
2160 min Summer	5.534	0.274	0.2	27.1	Flood Risk
2880 min Summer	5.517	0.257	0.2	25.4	Flood Risk
4320 min Summer	5.490	0.230	0.2	22.7	O K
5760 min Summer	5.468	0.208	0.2	20.6	O K
7200 min Summer	5.450	0.190	0.2	18.8	O K
8640 min Summer	5.435	0.175	0.2	17.3	O K
10080 min Summer	5.422	0.162	0.2	16.0	O K
15 min Winter	5.413	0.153	0.2	15.2	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	141.120	0.0	23
30 min Summer	94.920	0.0	37
60 min Summer	60.760	0.0	68
120 min Summer	36.120	0.0	126
180 min Summer	26.488	0.0	186
240 min Summer	21.140	0.0	246
360 min Summer	15.213	0.0	364
480 min Summer	12.015	0.0	484
600 min Summer	9.992	0.0	602
720 min Summer	8.587	0.0	722
960 min Summer	6.748	0.0	938
1440 min Summer	4.812	0.0	1144
2160 min Summer	3.452	0.0	1520
2880 min Summer	2.745	0.0	1932
4320 min Summer	2.017	0.0	2732
5760 min Summer	1.642	0.0	3528
7200 min Summer	1.413	0.0	4328
8640 min Summer	1.259	0.0	5104
10080 min Summer	1.148	0.0	5856
15 min Winter	141.120	0.0	23

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

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	5.466	0.206	0.2	20.3	O K
60 min Winter	5.521	0.261	0.2	25.8	Flood Risk
120 min Winter	5.564	0.304	0.2	30.1	Flood Risk
180 min Winter	5.589	0.329	0.2	32.6	Flood Risk
240 min Winter	5.604	0.344	0.2	34.1	Flood Risk
360 min Winter	5.620	0.360	0.2	35.6	Flood Risk
480 min Winter	5.627	0.367	0.2	36.3	Flood Risk
600 min Winter	5.629	0.369	0.2	36.5	Flood Risk
720 min Winter	5.629	0.369	0.2	36.5	Flood Risk
960 min Winter	5.622	0.362	0.2	35.9	Flood Risk
1440 min Winter	5.602	0.342	0.2	33.9	Flood Risk
2160 min Winter	5.575	0.315	0.2	31.2	Flood Risk
2880 min Winter	5.551	0.291	0.2	28.8	Flood Risk
4320 min Winter	5.508	0.248	0.2	24.6	Flood Risk
5760 min Winter	5.472	0.212	0.2	21.0	O K
7200 min Winter	5.442	0.182	0.2	18.0	O K
8640 min Winter	5.416	0.156	0.2	15.4	O K
10080 min Winter	5.393	0.133	0.2	13.2	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
30 min Winter	94.920	0.0	37
60 min Winter	60.760	0.0	66
120 min Winter	36.120	0.0	124
180 min Winter	26.488	0.0	182
240 min Winter	21.140	0.0	242
360 min Winter	15.213	0.0	358
480 min Winter	12.015	0.0	474
600 min Winter	9.992	0.0	590
720 min Winter	8.587	0.0	704
960 min Winter	6.748	0.0	926
1440 min Winter	4.812	0.0	1334
2160 min Winter	3.452	0.0	1648
2880 min Winter	2.745	0.0	2108
4320 min Winter	2.017	0.0	2984
5760 min Winter	1.642	0.0	3808
7200 min Winter	1.413	0.0	4616
8640 min Winter	1.259	0.0	5368
10080 min Winter	1.148	0.0	6152

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Rainfall Details

Rainfall Model	FEH
Return Period (years)	100
FEH Rainfall Version	2013
Site Location	GB 498100 101500 SU 98100 01500
Data Type	Catchment
Summer Storms	Yes
Winter Storms	Yes
Cv (Summer)	0.750
Cv (Winter)	0.840
Shortest Storm (mins)	15
Longest Storm (mins)	10080
Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.052

Time (mins) From:	To:	Area (ha)	Time (mins) From:	To:	Area (ha)
0	4	0.026	4	8	0.026

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Model Details

Storage is Online Cover Level (m) 5.800

Infiltration Blanket Structure

Infiltration Coefficient Base (m/hr)	0.00396	Diameter/Width (m)	6.0
Safety Factor	1.5	Length (m)	55.0
Porosity	0.30	Cap Volume Depth (m)	0.450
Invert Level (m)	5.260		

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

Half Drain Time : 1394 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	5.548	0.148	2.0	122.9	O K
30 min Summer	5.598	0.198	2.0	164.8	O K
60 min Summer	5.651	0.251	2.0	209.1	O K
120 min Summer	5.693	0.293	2.0	244.0	Flood Risk
180 min Summer	5.717	0.317	2.0	263.6	Flood Risk
240 min Summer	5.731	0.331	2.0	275.6	Flood Risk
360 min Summer	5.746	0.346	2.0	287.4	Flood Risk
480 min Summer	5.752	0.352	2.0	292.5	Flood Risk
600 min Summer	5.753	0.353	2.0	294.0	Flood Risk
720 min Summer	5.752	0.352	2.0	293.1	Flood Risk
960 min Summer	5.745	0.345	2.0	286.9	Flood Risk
1440 min Summer	5.727	0.327	2.0	271.7	Flood Risk
2160 min Summer	5.705	0.305	2.0	253.8	Flood Risk
2880 min Summer	5.688	0.288	2.0	239.3	Flood Risk
4320 min Summer	5.660	0.260	2.0	216.6	O K
5760 min Summer	5.639	0.239	2.0	198.4	O K
7200 min Summer	5.621	0.221	2.0	183.6	O K
8640 min Summer	5.606	0.206	2.0	170.9	O K
10080 min Summer	5.592	0.192	2.0	160.0	O K
15 min Winter	5.566	0.166	2.0	137.9	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	141.120	0.0	27
30 min Summer	94.920	0.0	41
60 min Summer	60.760	0.0	70
120 min Summer	36.120	0.0	130
180 min Summer	26.488	0.0	190
240 min Summer	21.140	0.0	248
360 min Summer	15.213	0.0	368
480 min Summer	12.015	0.0	486
600 min Summer	9.992	0.0	604
720 min Summer	8.587	0.0	724
960 min Summer	6.748	0.0	960
1440 min Summer	4.812	0.0	1196
2160 min Summer	3.452	0.0	1560
2880 min Summer	2.745	0.0	1964
4320 min Summer	2.017	0.0	2772
5760 min Summer	1.642	0.0	3584
7200 min Summer	1.413	0.0	4400
8640 min Summer	1.259	0.0	5192
10080 min Summer	1.148	0.0	5952
15 min Winter	141.120	0.0	26

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

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	5.622	0.222	2.0	185.0	O K
60 min Winter	5.683	0.283	2.0	235.0	Flood Risk
120 min Winter	5.730	0.330	2.0	274.7	Flood Risk
180 min Winter	5.758	0.358	2.0	297.4	Flood Risk
240 min Winter	5.775	0.375	2.0	311.6	Flood Risk
360 min Winter	5.792	0.392	2.0	326.2	Flood Risk
480 min Winter	5.801	0.401	2.0	333.4	Flood Risk
600 min Winter	5.805	0.405	2.0	336.5	Flood Risk
720 min Winter	5.805	0.405	2.0	336.9	Flood Risk
960 min Winter	5.800	0.400	2.0	332.9	Flood Risk
1440 min Winter	5.781	0.381	2.0	317.2	Flood Risk
2160 min Winter	5.753	0.353	2.0	293.2	Flood Risk
2880 min Winter	5.728	0.328	2.0	273.2	Flood Risk
4320 min Winter	5.686	0.286	2.0	238.1	Flood Risk
5760 min Winter	5.650	0.250	2.0	207.9	O K
7200 min Winter	5.619	0.219	2.0	182.2	O K
8640 min Winter	5.592	0.192	2.0	159.8	O K
10080 min Winter	5.569	0.169	2.0	140.3	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
30 min Winter	94.920	0.0	41
60 min Winter	60.760	0.0	70
120 min Winter	36.120	0.0	128
180 min Winter	26.488	0.0	186
240 min Winter	21.140	0.0	244
360 min Winter	15.213	0.0	362
480 min Winter	12.015	0.0	478
600 min Winter	9.992	0.0	592
720 min Winter	8.587	0.0	708
960 min Winter	6.748	0.0	932
1440 min Winter	4.812	0.0	1358
2160 min Winter	3.452	0.0	1684
2880 min Winter	2.745	0.0	2136
4320 min Winter	2.017	0.0	3032
5760 min Winter	1.642	0.0	3872
7200 min Winter	1.413	0.0	4696
8640 min Winter	1.259	0.0	5528
10080 min Winter	1.148	0.0	6264

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Rainfall Details

Rainfall Model	FEH
Return Period (years)	100
FEH Rainfall Version	2013
Site Location	GB 498100 101500 SU 98100 01500
Data Type	Catchment
Summer Storms	Yes
Winter Storms	Yes
Cv (Summer)	0.750
Cv (Winter)	0.840
Shortest Storm (mins)	15
Longest Storm (mins)	10080
Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.473

Time From:	(mins) To:	Area (ha)	Time From:	(mins) To:	Area (ha)	Time From:	(mins) To:	Area (ha)
0	4	0.150	4	8	0.150	8	12	0.173

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Model Details

Storage is Online Cover Level (m) 5.970

Infiltration Blanket Structure

Infiltration Coefficient Base (m/hr)	0.00396	Diameter/Width (m)	6.0
Safety Factor	1.5	Length (m)	462.0
Porosity	0.30	Cap Volume Depth (m)	0.480
Invert Level (m)	5.400		

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

Half Drain Time : 1055 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	5.826	0.116	1.4	64.7	O K
30 min Summer	5.866	0.156	1.4	86.7	O K
60 min Summer	5.907	0.197	1.4	109.8	O K
120 min Summer	5.939	0.229	1.4	127.6	O K
180 min Summer	5.957	0.247	1.4	137.3	Flood Risk
240 min Summer	5.967	0.257	1.4	143.0	Flood Risk
360 min Summer	5.976	0.266	1.4	147.9	Flood Risk
480 min Summer	5.978	0.268	1.4	149.3	Flood Risk
600 min Summer	5.977	0.267	1.4	148.7	Flood Risk
720 min Summer	5.974	0.264	1.4	147.0	Flood Risk
960 min Summer	5.965	0.255	1.4	142.1	Flood Risk
1440 min Summer	5.950	0.240	1.4	133.6	Flood Risk
2160 min Summer	5.931	0.221	1.4	122.9	O K
2880 min Summer	5.915	0.205	1.4	113.8	O K
4320 min Summer	5.888	0.178	1.4	99.1	O K
5760 min Summer	5.867	0.157	1.4	87.3	O K
7200 min Summer	5.850	0.140	1.4	77.7	O K
8640 min Summer	5.835	0.125	1.4	69.7	O K
10080 min Summer	5.823	0.113	1.4	63.0	O K
15 min Winter	5.841	0.131	1.4	72.6	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	141.120	0.0	26
30 min Summer	94.920	0.0	41
60 min Summer	60.760	0.0	70
120 min Summer	36.120	0.0	130
180 min Summer	26.488	0.0	188
240 min Summer	21.140	0.0	248
360 min Summer	15.213	0.0	366
480 min Summer	12.015	0.0	484
600 min Summer	9.992	0.0	602
720 min Summer	8.587	0.0	720
960 min Summer	6.748	0.0	840
1440 min Summer	4.812	0.0	1076
2160 min Summer	3.452	0.0	1472
2880 min Summer	2.745	0.0	1880
4320 min Summer	2.017	0.0	2684
5760 min Summer	1.642	0.0	3464
7200 min Summer	1.413	0.0	4248
8640 min Summer	1.259	0.0	5008
10080 min Summer	1.148	0.0	5744
15 min Winter	141.120	0.0	26

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

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	5.885	0.175	1.4	97.4	O K
60 min Winter	5.932	0.222	1.4	123.4	O K
120 min Winter	5.968	0.258	1.4	143.8	Flood Risk
180 min Winter	5.989	0.279	1.4	155.1	Flood Risk
240 min Winter	6.001	0.291	1.4	161.9	Flood Risk
360 min Winter	6.013	0.303	1.4	168.3	Flood Risk
480 min Winter	6.017	0.307	1.4	170.7	Flood Risk
600 min Winter	6.017	0.307	1.4	171.0	Flood Risk
720 min Winter	6.015	0.305	1.4	169.9	Flood Risk
960 min Winter	6.007	0.297	1.4	165.3	Flood Risk
1440 min Winter	5.987	0.277	1.4	153.9	Flood Risk
2160 min Winter	5.961	0.251	1.4	139.6	Flood Risk
2880 min Winter	5.937	0.227	1.4	126.1	O K
4320 min Winter	5.895	0.185	1.4	103.0	O K
5760 min Winter	5.861	0.151	1.4	83.9	O K
7200 min Winter	5.833	0.123	1.4	68.2	O K
8640 min Winter	5.810	0.100	1.4	55.4	O K
10080 min Winter	5.791	0.081	1.4	45.1	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
30 min Winter	94.920	0.0	41
60 min Winter	60.760	0.0	70
120 min Winter	36.120	0.0	128
180 min Winter	26.488	0.0	186
240 min Winter	21.140	0.0	244
360 min Winter	15.213	0.0	360
480 min Winter	12.015	0.0	474
600 min Winter	9.992	0.0	588
720 min Winter	8.587	0.0	700
960 min Winter	6.748	0.0	918
1440 min Winter	4.812	0.0	1154
2160 min Winter	3.452	0.0	1604
2880 min Winter	2.745	0.0	2052
4320 min Winter	2.017	0.0	2900
5760 min Winter	1.642	0.0	3696
7200 min Winter	1.413	0.0	4464
8640 min Winter	1.259	0.0	5184
10080 min Winter	1.148	0.0	5848

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Rainfall Details

Rainfall Model	FEH
Return Period (years)	100
FEH Rainfall Version	2013
Site Location	GB 498100 101500 SU 98100 01500
Data Type	Catchment
Summer Storms	Yes
Winter Storms	Yes
Cv (Summer)	0.750
Cv (Winter)	0.840
Shortest Storm (mins)	15
Longest Storm (mins)	10080
Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.250

Time (mins) From:	To:	Area (ha)	Time (mins) From:	To:	Area (ha)	Time (mins) From:	To:	Area (ha)
0	4	0.080	4	8	0.080	8	12	0.090

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Model Details

Storage is Online Cover Level (m) 6.250

Infiltration Blanket Structure

Infiltration Coefficient Base (m/hr)	0.00396	Diameter/Width (m)	6.0
Safety Factor	1.5	Length (m)	309.0
Porosity	0.30	Cap Volume Depth (m)	0.450
Invert Level (m)	5.710		

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

Half Drain Time : 1599 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	6.108	0.168	0.9	60.6	O K
30 min Summer	6.165	0.225	0.9	81.1	O K
60 min Summer	6.226	0.286	0.9	103.0	Flood Risk
120 min Summer	6.274	0.334	0.9	120.3	Flood Risk
180 min Summer	6.302	0.362	0.9	130.3	Flood Risk
240 min Summer	6.319	0.379	0.9	136.4	Flood Risk
360 min Summer	6.337	0.397	0.9	142.8	Flood Risk
480 min Summer	6.345	0.405	0.9	145.9	Flood Risk
600 min Summer	6.349	0.409	0.9	147.1	Flood Risk
720 min Summer	6.349	0.409	0.9	147.2	Flood Risk
960 min Summer	6.344	0.404	0.9	145.3	Flood Risk
1440 min Summer	6.325	0.385	0.9	138.4	Flood Risk
2160 min Summer	6.301	0.361	0.9	130.1	Flood Risk
2880 min Summer	6.283	0.343	0.9	123.6	Flood Risk
4320 min Summer	6.256	0.316	0.9	113.7	Flood Risk
5760 min Summer	6.234	0.294	0.9	106.0	Flood Risk
7200 min Summer	6.217	0.277	0.9	99.8	Flood Risk
8640 min Summer	6.202	0.262	0.9	94.5	Flood Risk
10080 min Summer	6.190	0.250	0.9	89.9	O K
15 min Winter	6.129	0.189	0.9	67.9	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	141.120	0.0	23
30 min Summer	94.920	0.0	38
60 min Summer	60.760	0.0	68
120 min Summer	36.120	0.0	126
180 min Summer	26.488	0.0	186
240 min Summer	21.140	0.0	246
360 min Summer	15.213	0.0	366
480 min Summer	12.015	0.0	484
600 min Summer	9.992	0.0	604
720 min Summer	8.587	0.0	722
960 min Summer	6.748	0.0	962
1440 min Summer	4.812	0.0	1282
2160 min Summer	3.452	0.0	1624
2880 min Summer	2.745	0.0	2020
4320 min Summer	2.017	0.0	2852
5760 min Summer	1.642	0.0	3640
7200 min Summer	1.413	0.0	4472
8640 min Summer	1.259	0.0	5272
10080 min Summer	1.148	0.0	6056
15 min Winter	141.120	0.0	23

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

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	6.193	0.253	0.9	91.0	O K
60 min Winter	6.261	0.321	0.9	115.7	Flood Risk
120 min Winter	6.316	0.376	0.9	135.4	Flood Risk
180 min Winter	6.348	0.408	0.9	146.8	Flood Risk
240 min Winter	6.368	0.428	0.9	154.1	Flood Risk
360 min Winter	6.390	0.450	0.9	161.9	Flood Risk
480 min Winter	6.401	0.461	0.9	166.0	Flood Risk
600 min Winter	6.407	0.467	0.9	168.0	Flood Risk
720 min Winter	6.409	0.469	0.9	168.8	Flood Risk
960 min Winter	6.406	0.466	0.9	167.9	Flood Risk
1440 min Winter	6.391	0.451	0.9	162.2	Flood Risk
2160 min Winter	6.360	0.420	0.9	151.1	Flood Risk
2880 min Winter	6.336	0.396	0.9	142.5	Flood Risk
4320 min Winter	6.295	0.355	0.9	127.6	Flood Risk
5760 min Winter	6.259	0.319	0.9	114.7	Flood Risk
7200 min Winter	6.228	0.288	0.9	103.7	Flood Risk
8640 min Winter	6.201	0.261	0.9	93.9	Flood Risk
10080 min Winter	6.177	0.237	0.9	85.3	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
30 min Winter	94.920	0.0	37
60 min Winter	60.760	0.0	66
120 min Winter	36.120	0.0	124
180 min Winter	26.488	0.0	184
240 min Winter	21.140	0.0	242
360 min Winter	15.213	0.0	360
480 min Winter	12.015	0.0	476
600 min Winter	9.992	0.0	592
720 min Winter	8.587	0.0	708
960 min Winter	6.748	0.0	936
1440 min Winter	4.812	0.0	1372
2160 min Winter	3.452	0.0	1748
2880 min Winter	2.745	0.0	2192
4320 min Winter	2.017	0.0	3112
5760 min Winter	1.642	0.0	3976
7200 min Winter	1.413	0.0	4832
8640 min Winter	1.259	0.0	5696
10080 min Winter	1.148	0.0	6456

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Rainfall Details

Rainfall Model	FEH
Return Period (years)	100
FEH Rainfall Version	2013
Site Location	GB 498100 101500 SU 98100 01500
Data Type	Catchment
Summer Storms	Yes
Winter Storms	Yes
Cv (Summer)	0.750
Cv (Winter)	0.840
Shortest Storm (mins)	15
Longest Storm (mins)	10080
Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.232

Time (mins) From:	To:	Area (ha)	Time (mins) From:	To:	Area (ha)
0	4	0.116	4	8	0.116

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Model Details

Storage is Online Cover Level (m) 6.500

Infiltration Blanket Structure

Infiltration Coefficient Base (m/hr)	0.00396	Diameter/Width (m)	6.0
Safety Factor	1.5	Length (m)	200.0
Porosity	0.30	Cap Volume Depth (m)	0.470
Invert Level (m)	5.940		

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

Half Drain Time : 1412 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	6.010	0.150	0.6	39.1	O K
30 min Summer	6.061	0.201	0.6	52.4	O K
60 min Summer	6.114	0.254	0.6	66.4	Flood Risk
120 min Summer	6.157	0.297	0.6	77.5	Flood Risk
180 min Summer	6.181	0.321	0.6	83.7	Flood Risk
240 min Summer	6.195	0.335	0.6	87.5	Flood Risk
360 min Summer	6.210	0.350	0.6	91.3	Flood Risk
480 min Summer	6.216	0.356	0.6	92.9	Flood Risk
600 min Summer	6.218	0.358	0.6	93.4	Flood Risk
720 min Summer	6.217	0.357	0.6	93.2	Flood Risk
960 min Summer	6.210	0.350	0.6	91.2	Flood Risk
1440 min Summer	6.191	0.331	0.6	86.4	Flood Risk
2160 min Summer	6.170	0.310	0.6	80.8	Flood Risk
2880 min Summer	6.152	0.292	0.6	76.2	Flood Risk
4320 min Summer	6.125	0.265	0.6	69.1	Flood Risk
5760 min Summer	6.103	0.243	0.6	63.4	Flood Risk
7200 min Summer	6.085	0.225	0.6	58.7	O K
8640 min Summer	6.070	0.210	0.6	54.8	O K
10080 min Summer	6.057	0.197	0.6	51.3	O K
15 min Winter	6.028	0.168	0.6	43.9	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	141.120	0.0	23
30 min Summer	94.920	0.0	38
60 min Summer	60.760	0.0	68
120 min Summer	36.120	0.0	126
180 min Summer	26.488	0.0	186
240 min Summer	21.140	0.0	246
360 min Summer	15.213	0.0	364
480 min Summer	12.015	0.0	484
600 min Summer	9.992	0.0	604
720 min Summer	8.587	0.0	722
960 min Summer	6.748	0.0	960
1440 min Summer	4.812	0.0	1200
2160 min Summer	3.452	0.0	1560
2880 min Summer	2.745	0.0	1964
4320 min Summer	2.017	0.0	2772
5760 min Summer	1.642	0.0	3584
7200 min Summer	1.413	0.0	4392
8640 min Summer	1.259	0.0	5184
10080 min Summer	1.148	0.0	5952
15 min Winter	141.120	0.0	23

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

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	6.085	0.225	0.6	58.8	O K
60 min Winter	6.146	0.286	0.6	74.6	Flood Risk
120 min Winter	6.194	0.334	0.6	87.2	Flood Risk
180 min Winter	6.222	0.362	0.6	94.4	Flood Risk
240 min Winter	6.239	0.379	0.6	98.9	Flood Risk
360 min Winter	6.257	0.397	0.6	103.6	Flood Risk
480 min Winter	6.266	0.406	0.6	105.9	Flood Risk
600 min Winter	6.269	0.409	0.6	106.9	Flood Risk
720 min Winter	6.270	0.410	0.6	107.1	Flood Risk
960 min Winter	6.265	0.405	0.6	105.8	Flood Risk
1440 min Winter	6.247	0.387	0.6	101.0	Flood Risk
2160 min Winter	6.218	0.358	0.6	93.4	Flood Risk
2880 min Winter	6.194	0.334	0.6	87.1	Flood Risk
4320 min Winter	6.152	0.292	0.6	76.1	Flood Risk
5760 min Winter	6.115	0.255	0.6	66.6	Flood Risk
7200 min Winter	6.084	0.224	0.6	58.5	O K
8640 min Winter	6.057	0.197	0.6	51.5	O K
10080 min Winter	6.034	0.174	0.6	45.3	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
30 min Winter	94.920	0.0	37
60 min Winter	60.760	0.0	66
120 min Winter	36.120	0.0	124
180 min Winter	26.488	0.0	184
240 min Winter	21.140	0.0	242
360 min Winter	15.213	0.0	358
480 min Winter	12.015	0.0	476
600 min Winter	9.992	0.0	590
720 min Winter	8.587	0.0	706
960 min Winter	6.748	0.0	930
1440 min Winter	4.812	0.0	1358
2160 min Winter	3.452	0.0	1688
2880 min Winter	2.745	0.0	2136
4320 min Winter	2.017	0.0	3028
5760 min Winter	1.642	0.0	3912
7200 min Winter	1.413	0.0	4752
8640 min Winter	1.259	0.0	5528
10080 min Winter	1.148	0.0	6264

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Rainfall Details

Rainfall Model	FEH
Return Period (years)	100
FEH Rainfall Version	2013
Site Location	GB 498100 101500 SU 98100 01500
Data Type	Catchment
Summer Storms	Yes
Winter Storms	Yes
Cv (Summer)	0.750
Cv (Winter)	0.840
Shortest Storm (mins)	15
Longest Storm (mins)	10080
Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.150

Time (mins) From:	To:	Area (ha)	Time (mins) From:	To:	Area (ha)
0	4	0.070	4	8	0.080

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Model Details

Storage is Online Cover Level (m) 6.400

Infiltration Blanket Structure

Infiltration Coefficient Base (m/hr)	0.00396	Diameter/Width (m)	6.0
Safety Factor	1.5	Length (m)	145.0
Porosity	0.30	Cap Volume Depth (m)	0.450
Invert Level (m)	5.860		

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

Half Drain Time : 1614 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	6.207	0.167	0.7	50.5	O K
30 min Summer	6.264	0.224	0.7	67.7	O K
60 min Summer	6.324	0.284	0.7	86.0	Flood Risk
120 min Summer	6.372	0.332	0.7	100.5	Flood Risk
180 min Summer	6.400	0.360	0.7	108.8	Flood Risk
240 min Summer	6.417	0.377	0.7	114.0	Flood Risk
360 min Summer	6.434	0.394	0.7	119.3	Flood Risk
480 min Summer	6.443	0.403	0.7	121.8	Flood Risk
600 min Summer	6.446	0.406	0.7	122.9	Flood Risk
720 min Summer	6.447	0.407	0.7	123.0	Flood Risk
960 min Summer	6.441	0.401	0.7	121.3	Flood Risk
1440 min Summer	6.422	0.382	0.7	115.6	Flood Risk
2160 min Summer	6.399	0.359	0.7	108.6	Flood Risk
2880 min Summer	6.381	0.341	0.7	103.1	Flood Risk
4320 min Summer	6.354	0.314	0.7	94.8	Flood Risk
5760 min Summer	6.332	0.292	0.7	88.4	Flood Risk
7200 min Summer	6.315	0.275	0.7	83.1	Flood Risk
8640 min Summer	6.300	0.260	0.7	78.7	Flood Risk
10080 min Summer	6.287	0.247	0.7	74.8	O K
15 min Winter	6.227	0.187	0.7	56.6	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	141.120	0.0	27
30 min Summer	94.920	0.0	41
60 min Summer	60.760	0.0	70
120 min Summer	36.120	0.0	130
180 min Summer	26.488	0.0	190
240 min Summer	21.140	0.0	248
360 min Summer	15.213	0.0	368
480 min Summer	12.015	0.0	486
600 min Summer	9.992	0.0	606
720 min Summer	8.587	0.0	724
960 min Summer	6.748	0.0	962
1440 min Summer	4.812	0.0	1266
2160 min Summer	3.452	0.0	1628
2880 min Summer	2.745	0.0	2020
4320 min Summer	2.017	0.0	2852
5760 min Summer	1.642	0.0	3640
7200 min Summer	1.413	0.0	4472
8640 min Summer	1.259	0.0	5272
10080 min Summer	1.148	0.0	6056
15 min Winter	141.120	0.0	26

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

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	6.291	0.251	0.7	76.0	O K
60 min Winter	6.360	0.320	0.7	96.6	Flood Risk
120 min Winter	6.414	0.374	0.7	113.2	Flood Risk
180 min Winter	6.446	0.406	0.7	122.7	Flood Risk
240 min Winter	6.466	0.426	0.7	128.8	Flood Risk
360 min Winter	6.487	0.447	0.7	135.3	Flood Risk
480 min Winter	6.499	0.459	0.7	138.7	Flood Risk
600 min Winter	6.504	0.464	0.7	140.4	Flood Risk
720 min Winter	6.506	0.466	0.7	141.0	Flood Risk
960 min Winter	6.504	0.464	0.7	140.3	Flood Risk
1440 min Winter	6.488	0.448	0.7	135.4	Flood Risk
2160 min Winter	6.457	0.417	0.7	126.1	Flood Risk
2880 min Winter	6.433	0.393	0.7	118.9	Flood Risk
4320 min Winter	6.392	0.352	0.7	106.4	Flood Risk
5760 min Winter	6.356	0.316	0.7	95.6	Flood Risk
7200 min Winter	6.325	0.285	0.7	86.3	Flood Risk
8640 min Winter	6.298	0.258	0.7	78.0	O K
10080 min Winter	6.274	0.234	0.7	70.8	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
30 min Winter	94.920	0.0	41
60 min Winter	60.760	0.0	70
120 min Winter	36.120	0.0	128
180 min Winter	26.488	0.0	186
240 min Winter	21.140	0.0	244
360 min Winter	15.213	0.0	362
480 min Winter	12.015	0.0	478
600 min Winter	9.992	0.0	594
720 min Winter	8.587	0.0	710
960 min Winter	6.748	0.0	936
1440 min Winter	4.812	0.0	1374
2160 min Winter	3.452	0.0	1740
2880 min Winter	2.745	0.0	2192
4320 min Winter	2.017	0.0	3112
5760 min Winter	1.642	0.0	3984
7200 min Winter	1.413	0.0	4832
8640 min Winter	1.259	0.0	5632
10080 min Winter	1.148	0.0	6456

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Rainfall Details

Rainfall Model	FEH
Return Period (years)	100
FEH Rainfall Version	2013
Site Location	GB 498100 101500 SU 98100 01500
Data Type	Catchment
Summer Storms	Yes
Winter Storms	Yes
Cv (Summer)	0.750
Cv (Winter)	0.840
Shortest Storm (mins)	15
Longest Storm (mins)	10080
Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.194

Time (mins) From:	To:	Area (ha)	Time (mins) From:	To:	Area (ha)	Time (mins) From:	To:	Area (ha)
0	4	0.065	4	8	0.065	8	12	0.064

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Model Details

Storage is Online Cover Level (m) 6.600

Infiltration Blanket Structure

Infiltration Coefficient Base (m/hr)	0.00396	Diameter/Width (m)	6.0
Safety Factor	1.5	Length (m)	168.0
Porosity	0.30	Cap Volume Depth (m)	0.470
Invert Level (m)	6.040		

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Summary of Results for 30 year Return Period

Half Drain Time : 1432 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status
15 min Summer	4.214	0.084	0.0	2.6	2.6	208.5	O K
30 min Summer	4.242	0.112	0.0	3.5	3.5	277.0	O K
60 min Summer	4.271	0.141	0.0	3.6	3.6	349.2	O K
120 min Summer	4.297	0.167	0.0	3.6	3.6	416.1	O K
180 min Summer	4.313	0.183	0.0	3.6	3.6	455.1	O K
240 min Summer	4.323	0.193	0.0	3.6	3.6	480.2	O K
360 min Summer	4.334	0.204	0.0	3.6	3.6	507.5	O K
480 min Summer	4.340	0.210	0.0	3.6	3.6	522.4	O K
600 min Summer	4.344	0.214	0.0	3.6	3.6	530.5	O K
720 min Summer	4.345	0.215	0.0	3.6	3.6	534.2	O K
960 min Summer	4.345	0.215	0.0	3.6	3.6	533.1	O K
1440 min Summer	4.341	0.211	0.0	3.6	3.6	525.4	O K
2160 min Summer	4.338	0.208	0.0	3.6	3.6	516.7	O K
2880 min Summer	4.335	0.205	0.0	3.6	3.6	508.5	O K
4320 min Summer	4.329	0.199	0.0	3.6	3.6	493.6	O K
5760 min Summer	4.323	0.193	0.0	3.6	3.6	479.0	O K
7200 min Summer	4.318	0.188	0.0	3.6	3.6	466.1	O K
8640 min Summer	4.313	0.183	0.0	3.6	3.6	454.5	O K
10080 min Summer	4.309	0.179	0.0	3.6	3.6	444.2	O K
15 min Winter	4.224	0.094	0.0	2.9	2.9	233.5	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
15 min Summer	80.264	0.0	120.0	30
30 min Summer	53.624	0.0	172.3	44
60 min Summer	34.056	0.0	288.2	72
120 min Summer	20.569	0.0	352.3	132
180 min Summer	15.194	0.0	390.7	190
240 min Summer	12.176	0.0	416.4	250
360 min Summer	8.798	0.0	447.3	368
480 min Summer	6.964	0.0	466.8	486
600 min Summer	5.799	0.0	479.8	604
720 min Summer	4.988	0.0	488.4	724
960 min Summer	3.925	0.0	496.4	960
1440 min Summer	2.810	0.0	490.0	1186
2160 min Summer	2.026	0.0	701.2	1556
2880 min Summer	1.619	0.0	738.7	1964
4320 min Summer	1.202	0.0	789.3	2776
5760 min Summer	0.987	0.0	965.0	3584
7200 min Summer	0.856	0.0	1043.3	4400
8640 min Summer	0.768	0.0	1116.3	5192
10080 min Summer	0.705	0.0	1180.6	5960
15 min Winter	80.264	0.0	138.9	30

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Summary of Results for 30 year Return Period

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status
30 min Winter	4.255	0.125	0.0	3.5	3.5	310.5	O K
60 min Winter	4.288	0.158	0.0	3.6	3.6	391.9	O K
120 min Winter	4.318	0.188	0.0	3.6	3.6	467.6	O K
180 min Winter	4.336	0.206	0.0	3.6	3.6	512.0	O K
240 min Winter	4.348	0.218	0.0	3.6	3.6	540.7	O K
360 min Winter	4.361	0.231	0.0	3.6	3.6	572.7	O K
480 min Winter	4.368	0.238	0.0	3.6	3.6	590.9	O K
600 min Winter	4.372	0.242	0.0	3.6	3.6	601.4	O K
720 min Winter	4.374	0.244	0.0	3.6	3.6	607.1	O K
960 min Winter	4.375	0.245	0.0	3.6	3.6	609.2	O K
1440 min Winter	4.371	0.241	0.0	3.6	3.6	599.8	O K
2160 min Winter	4.364	0.234	0.0	3.6	3.6	581.5	O K
2880 min Winter	4.358	0.228	0.0	3.6	3.6	565.4	O K
4320 min Winter	4.345	0.215	0.0	3.6	3.6	533.6	O K
5760 min Winter	4.332	0.202	0.0	3.6	3.6	502.3	O K
7200 min Winter	4.321	0.191	0.0	3.6	3.6	473.7	O K
8640 min Winter	4.310	0.180	0.0	3.6	3.6	448.0	O K
10080 min Winter	4.301	0.171	0.0	3.6	3.6	425.0	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
30 min Winter	53.624	0.0	196.5	44
60 min Winter	34.056	0.0	326.0	72
120 min Winter	20.569	0.0	396.0	130
180 min Winter	15.194	0.0	437.1	188
240 min Winter	12.176	0.0	464.0	246
360 min Winter	8.798	0.0	495.1	362
480 min Winter	6.964	0.0	513.2	478
600 min Winter	5.799	0.0	524.0	594
720 min Winter	4.988	0.0	529.6	708
960 min Winter	3.925	0.0	530.5	932
1440 min Winter	2.810	0.0	508.6	1356
2160 min Winter	2.026	0.0	784.4	1680
2880 min Winter	1.619	0.0	824.4	2140
4320 min Winter	1.202	0.0	870.3	3032
5760 min Winter	0.987	0.0	1082.7	3912
7200 min Winter	0.856	0.0	1171.0	4752
8640 min Winter	0.768	0.0	1253.8	5536
10080 min Winter	0.705	0.0	1327.9	6352

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Rainfall Details

Rainfall Model	FEH
Return Period (years)	30
FEH Rainfall Version	2013
Site Location	GB 498100 101500 SU 98100 01500
Data Type	Catchment
Summer Storms	Yes
Winter Storms	Yes
Cv (Summer)	0.750
Cv (Winter)	0.840
Shortest Storm (mins)	15
Longest Storm (mins)	10080
Climate Change %	+0

Time Area Diagram

Total Area (ha) 1.400

Time (mins) From:	To:	Area (ha)	Time (mins) From:	To:	Area (ha)	Time (mins) From:	To:	Area (ha)	Time (mins) From:	To:	Area (ha)
0	4	0.400	4	8	0.400	8	12	0.400	12	16	0.200

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Model Details

Storage is Online Cover Level (m) 4.770

Infiltration Blanket Structure

Infiltration Coefficient Base (m/hr)	0.00000	Diameter/Width (m)	91.0
Safety Factor	1.5	Length (m)	91.0
Porosity	0.30	Cap Volume Depth (m)	0.550
Invert Level (m)	4.130		

Hydro-Brake® Optimum Outflow Control

Unit Reference	MD-SHE-0097-3600-0550-3600
Design Head (m)	0.550
Design Flow (l/s)	3.6
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	97
Invert Level (m)	4.130
Minimum Outlet Pipe Diameter (mm)	150
Suggested Manhole Diameter (mm)	1200

Control Points	**Head (m)**	**Flow (l/s)**
Design Point (Calculated)	0.550	3.6
Flush-Flo™	0.172	3.6
Kick-Flo®	0.389	3.1
Mean Flow over Head Range	-	3.0

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	**Flow (l/s)**	**Depth (m)**	**Flow (l/s)**	**Depth (m)**	**Flow (l/s)**	**Depth (m)**	**Flow (l/s)**
0.100	3.1	1.200	5.2	3.000	7.9	7.000	11.9
0.200	3.6	1.400	5.5	3.500	8.5	7.500	12.3
0.300	3.5	1.600	5.9	4.000	9.1	8.000	12.7
0.400	3.1	1.800	6.2	4.500	9.6	8.500	13.1
0.500	3.4	2.000	6.6	5.000	10.1	9.000	13.5
0.600	3.7	2.200	6.9	5.500	10.6	9.500	13.9
0.800	4.3	2.400	7.1	6.000	11.0		
1.000	4.7	2.600	7.4	6.500	11.5		

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

Half Drain Time : 2693 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status
15 min Summer	4.278	0.148	0.0	3.6	3.6	366.7	O K
30 min Summer	4.328	0.198	0.0	3.6	3.6	492.5	O K
60 min Summer	4.383	0.253	0.0	3.6	3.6	628.2	O K
120 min Summer	4.428	0.298	0.0	3.6	3.6	740.6	O K
180 min Summer	4.455	0.325	0.0	3.6	3.6	808.2	O K
240 min Summer	4.473	0.343	0.0	3.6	3.6	853.3	Flood Risk
360 min Summer	4.495	0.365	0.0	3.6	3.6	907.2	Flood Risk
480 min Summer	4.509	0.379	0.0	3.6	3.6	941.5	Flood Risk
600 min Summer	4.518	0.388	0.0	3.6	3.6	964.9	Flood Risk
720 min Summer	4.525	0.395	0.0	3.6	3.6	981.1	Flood Risk
960 min Summer	4.532	0.402	0.0	3.6	3.6	999.4	Flood Risk
1440 min Summer	4.537	0.407	0.0	3.6	3.6	1011.2	Flood Risk
2160 min Summer	4.533	0.403	0.0	3.6	3.6	1001.9	Flood Risk
2880 min Summer	4.527	0.397	0.0	3.6	3.6	985.2	Flood Risk
4320 min Summer	4.519	0.389	0.0	3.6	3.6	965.6	Flood Risk
5760 min Summer	4.513	0.383	0.0	3.6	3.6	951.7	Flood Risk
7200 min Summer	4.509	0.379	0.0	3.6	3.6	942.1	Flood Risk
8640 min Summer	4.506	0.376	0.0	3.6	3.6	934.9	Flood Risk
10080 min Summer	4.504	0.374	0.0	3.6	3.6	930.3	Flood Risk
15 min Winter	4.295	0.165	0.0	3.6	3.6	411.1	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
15 min Summer	141.120	0.0	233.2	30
30 min Summer	94.920	0.0	292.0	45
60 min Summer	60.760	0.0	514.4	74
120 min Summer	36.120	0.0	577.6	134
180 min Summer	26.488	0.0	592.9	192
240 min Summer	21.140	0.0	589.6	252
360 min Summer	15.213	0.0	576.4	370
480 min Summer	12.015	0.0	562.9	490
600 min Summer	9.992	0.0	550.1	610
720 min Summer	8.587	0.0	538.4	728
960 min Summer	6.748	0.0	518.2	968
1440 min Summer	4.812	0.0	483.8	1444
2160 min Summer	3.452	0.0	1046.5	2160
2880 min Summer	2.745	0.0	998.6	2508
4320 min Summer	2.017	0.0	905.0	3252
5760 min Summer	1.642	0.0	1599.4	4040
7200 min Summer	1.413	0.0	1702.9	4896
8640 min Summer	1.259	0.0	1779.0	5712
10080 min Summer	1.148	0.0	1777.8	6560
15 min Winter	141.120	0.0	258.6	30

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

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status
30 min Winter	4.352	0.222	0.0	3.6	3.6	552.2	O K
60 min Winter	4.414	0.284	0.0	3.6	3.6	704.5	O K
120 min Winter	4.465	0.335	0.0	3.6	3.6	831.3	O K
180 min Winter	4.495	0.365	0.0	3.6	3.6	907.9	Flood Risk
240 min Winter	4.516	0.386	0.0	3.6	3.6	959.6	Flood Risk
360 min Winter	4.541	0.411	0.0	3.6	3.6	1021.9	Flood Risk
480 min Winter	4.557	0.427	0.0	3.6	3.6	1061.6	Flood Risk
600 min Winter	4.568	0.438	0.0	3.6	3.6	1088.7	Flood Risk
720 min Winter	4.576	0.446	0.0	3.6	3.6	1107.8	Flood Risk
960 min Winter	4.585	0.455	0.0	3.6	3.6	1130.2	Flood Risk
1440 min Winter	4.592	0.462	0.0	3.6	3.6	1148.0	Flood Risk
2160 min Winter	4.591	0.461	0.0	3.6	3.6	1145.8	Flood Risk
2880 min Winter	4.585	0.455	0.0	3.6	3.6	1130.3	Flood Risk
4320 min Winter	4.572	0.442	0.0	3.6	3.6	1099.0	Flood Risk
5760 min Winter	4.564	0.434	0.0	3.6	3.6	1077.9	Flood Risk
7200 min Winter	4.556	0.426	0.0	3.6	3.6	1058.4	Flood Risk
8640 min Winter	4.549	0.419	0.0	3.6	3.6	1039.9	Flood Risk
10080 min Winter	4.542	0.412	0.0	3.6	3.6	1022.9	Flood Risk

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
30 min Winter	94.920	0.0	303.7	44
60 min Winter	60.760	0.0	560.3	74
120 min Winter	36.120	0.0	598.3	132
180 min Winter	26.488	0.0	590.6	190
240 min Winter	21.140	0.0	579.5	248
360 min Winter	15.213	0.0	561.1	366
480 min Winter	12.015	0.0	548.3	482
600 min Winter	9.992	0.0	538.2	600
720 min Winter	8.587	0.0	529.5	716
960 min Winter	6.748	0.0	514.5	950
1440 min Winter	4.812	0.0	489.4	1410
2160 min Winter	3.452	0.0	1053.4	2080
2880 min Winter	2.745	0.0	1009.4	2720
4320 min Winter	2.017	0.0	928.1	3424
5760 min Winter	1.642	0.0	1780.5	4376
7200 min Winter	1.413	0.0	1876.3	5328
8640 min Winter	1.259	0.0	1895.4	6232
10080 min Winter	1.148	0.0	1818.2	7168

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Rainfall Details

Rainfall Model	FEH
Return Period (years)	100
FEH Rainfall Version	2013
Site Location	GB 498100 101500 SU 98100 01500
Data Type	Catchment
Summer Storms	Yes
Winter Storms	Yes
Cv (Summer)	0.750
Cv (Winter)	0.840
Shortest Storm (mins)	15
Longest Storm (mins)	10080
Climate Change %	+40

Time Area Diagram

Total Area (ha) 1.400

Time (mins) From:	To:	Area (ha)	Time (mins) From:	To:	Area (ha)	Time (mins) From:	To:	Area (ha)	Time (mins) From:	To:	Area (ha)
0	4	0.400	4	8	0.400	8	12	0.400	12	16	0.200

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Model Details

Storage is Online Cover Level (m) 4.770

Infiltration Blanket Structure

Infiltration Coefficient Base (m/hr)	0.00000	Diameter/Width (m)	91.0
Safety Factor	1.5	Length (m)	91.0
Porosity	0.30	Cap Volume Depth (m)	0.550
Invert Level (m)	4.130		

Hydro-Brake® Optimum Outflow Control

Unit Reference	MD-SHE-0097-3600-0550-3600
Design Head (m)	0.550
Design Flow (l/s)	3.6
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	97
Invert Level (m)	4.130
Minimum Outlet Pipe Diameter (mm)	150
Suggested Manhole Diameter (mm)	1200

Control Points	**Head (m)**	**Flow (l/s)**
Design Point (Calculated)	0.550	3.6
Flush-Flo™	0.172	3.6
Kick-Flo®	0.389	3.1
Mean Flow over Head Range	-	3.0

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	**Flow (l/s)**	**Depth (m)**	**Flow (l/s)**	**Depth (m)**	**Flow (l/s)**	**Depth (m)**	**Flow (l/s)**
0.100	3.1	1.200	5.2	3.000	7.9	7.000	11.9
0.200	3.6	1.400	5.5	3.500	8.5	7.500	12.3
0.300	3.5	1.600	5.9	4.000	9.1	8.000	12.7
0.400	3.1	1.800	6.2	4.500	9.6	8.500	13.1
0.500	3.4	2.000	6.6	5.000	10.1	9.000	13.5
0.600	3.7	2.200	6.9	5.500	10.6	9.500	13.9
0.800	4.3	2.400	7.1	6.000	11.0		
1.000	4.7	2.600	7.4	6.500	11.5		

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Appendix 8

Arun District Council's Surface Water Drainage Proposal Checklist

Surface Water Drainage Proposal Checklist

Ground Investigation Results				
Results Required	**Results Provided?**			
Winter groundwater monitoring results (Please refer to guidance note 1 below)	**Yes**	X	**No**	
Period of winter groundwater monitoring Note 1	**From**	17/10/2019		
	To	17/05/2020		
Maximum recorded groundwater level	4.0-5.2 **mAOD** 0.95-1.8 **mBGL**			
Winter infiltration test results Note 2	**Yes**	X	**No**	
Date of winter infiltration testing	22/10/2019			
Details of the location and depth of the infiltration testing Note 3	**Yes**	X	**No**	
Minimum infiltration rate Note 4	1.1x10-6 **m/s**			

Guidance Notes

1. A full winters groundwater monitoring should be undertaken, (October to March inclusive) to enable the peak annual groundwater levels to be established. The extent of winter monitoring for developments of less than 5 properties should be discussed with the council's Engineers.
2. Infiltration testing should be undertaken during the wet winter months (typically January) and in line with BRE365, or a similar approved method. Tests should be repeated 3x, to replicate saturated ground conditions. Please note that infiltration testing is to be carried out at a time and depth agreed with the Councils engineers.
3. Infiltration testing should be undertaken at the location and depth of any proposed infiltration structures. This must be above the maximum recorded groundwater level in that vicinity.
4. The minimum infiltration rate obtained at the location and depth of the proposed infiltration structures should be used to inform the design of the structures.

Proposed Method of Surface Water Disposal				
Infiltration On-site, via soak-away structures	**Yes**	X	**No**	
If on-site infiltration is not to be used, has justification for this been provided? Note 5	**Yes**		**No**	
Attenuation (on-site) with a **restricted discharge to a watercourse** on, or adjacent to, the site	**Yes**		**No**	
Attenuation (on-site) with a **restricted discharge to a surface water sewer** on, or adjacent to, the site	**Yes**		**No**	
Attenuation (on-site) with a **restricted discharge to a foul water sewer** on, or adjacent to, the site	**Yes**		**No**	

Guidance Notes

5. If on-site infiltration is not being used to drain the site you will need to provide evidence that demonstrates on-site infiltration is unviable.

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Drainage Design: Supporting Calculations					
	Calculations Required	Calculations Provided?			
Infiltration Structures	Half-drain time for 10 year event (plus climate change allowance)	Yes	X	No	
		Hours			
	Half-drain time for 100 year event (plus climate change allowance)	Yes	X	No	
		26 Hours			
	Calculations demonstrating that the 1 in 100 year event, plus climate change allowance can be accommodated on-site. Note 7	Yes	X	No	
	Lowest base level of infiltration structure	4.1-5.9 mAOD 0.45-0.80 mBGL			
	Has the design sought to provide treatment of potential contaminants? E.g. hydrocarbons.	Yes	X	No	
Attenuation and Subsequent Restricted Discharge	Pre-development run-off rate calculations	Yes		No	
		l/s			
	Proposed discharge rate Note 6	l/s			
	Calculations demonstrating that the 1 in 100 year event, plus climate change allowance can be accommodated on-site. Note 7	Yes		No	
	Has the design sought to provide treatment of potential contaminants? E.g. hydrocarbons.	Yes		No	
	If your proposed scheme incorporates any impermeable lined attenuation features we require calculations to demonstrate that appropriate resistance to floatation (due to groundwater levels) is catered for in the design	Yes		No	
	If you propose discharging into or altering an ordinary watercourse; have you sought Ordinary Watercourse/Land Drainage Consent? Note 8	Yes		No	
	If discharging to a watercourse, piped system or the sea, has the proposed drainage network been modelled against predicted top water levels for the 1 in 100 year storm event plus climate change allowance, within the existing system? Note 9	Yes		No	

Guidance Notes

6. Any proposed discharge rate must be less than, or equal to, the pre-development rate. Greenfield sites must use the mean flow rate (Qbar) and be based upon the area occupied by the development, ignoring significant open spaces. Please note that the minimum acceptable discharge rate is 2l/s when using formal flow control devices, unless otherwise agreed. Additionally, if you are developing a brownfield site, we expect you to provide fully detailed plans of the existing surface water drainage arrangements on site, including impermeable areas, gullies, outfalls, pipes & diameters, manholes, etc. We generally seek 50% betterment in terms of run off from brownfield sites.

7. The appropriate factor of safety from the table below must be applied to your calculations to ensure your design is fully in accordance with CIRIA R156/ CIRIA C753.

Factor of Safety Table						
Size of Area to be Drained	Consequences of failure					
	No damage or inconvenience		Minor inconvenience, e.g. surface water on car park		Damage to buildings or structures or roads.	
	Cv=1.0	Cv=0.75	Cv=1.0	Cv=0.75	Cv=1.0	Cv=0.75
<100 m^2	1.5	2	2	3	10	13
100m^2 to 1000m^2	1.5	2	3	4	10	13
>1000m^2	1.5	2	5	6.5	10	13

8. Ordinary Watercourse/Land Drainage Consent will need to be sought, ideally in parallel with planning permission, if you propose discharging into, culverting or altering a watercourse.
9. Modelling is required to ensure that problems, such as surcharged outfalls, are addressed.

Plans/Drawings/Diagrams				
Required	**Provided?**			
Plan detailing the location of groundwater monitoring and infiltration testing	**Yes**	X	**No**	
Detailed drainage layout plan Note 10	**Yes**	X	**No**	
Construction detail plans Note 11	**Yes**	X	**No**	
Exceedance flow route plans Note 12	**Yes**	X	**No**	
Impermeable area plan	**Yes**	X	**No**	
If ground levels are being raised ≥ 300mm above existing levels and is unavoidable, have fully detailed plans been provided, together with drainage proposals, to address any potential drainage related issues.	**Yes**	N/A	**No**	

Guidance Notes

10. Drainage layout plans should include:

- All surface water drainage pipes labelled with; diameters, pipe materials, falls and invert levels.
- All infiltrating and attenuating structures (including permeable paving) labelled with; dimensions, invert and cover levels.
- All manholes labelled with; cover levels, invert levels, cover types detailed.
- All silt traps clearly labelled with sump depths.
- Control structures with outflow rates and invert levels.
- Proposed/existing levels of any areas subject to ground raising, together with suitable measures/detailed drawings for the associated management of surface water runoff. Please note that ground raising should be avoided unless there are exceptional circumstances.

11. Site specific construction detail plans should be supplied if your proposed drainage scheme includes any of the following elements: pipe bed and surround; infiltrating structures; attenuating structures; manholes; catch-pits/silt traps; control devices; permeable paving; headwalls.
12. Unless specifically requested by the council's drainage engineers 'Exceedance Flow Route Plans' are only required for developments of more than 5 residential properties or more than 0.5ha of commercial development .

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Appendix 9

Drainage Maintenance Schedule

Drainage Maintenance Schedule

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Project	**Bonhams Field, Yapton**
Project Number	**23572**

By Kyanna Hodge MEng

Date 30 November 2021

1 Schedule of Maintenance

1.1 Upon completion of the development the management of the shared drainage facilities will be passed on to a Management Company who will be appointed by the developer on behalf of the new Residents.

1.2 The regular and corrective maintenance of all shared elements of the drainage system beneath the road, including the lined voided subbase will be managed by the Management Company on behalf of the Residents.

1.3 Regular maintenance of all private drainage, channels, gutters, rainwater pipes, driveways and connections will be the responsibility of the individual homeowner and should be undertaken every 3 months.

1.4 Driveways and connections will be the responsibility of the individual homeowner and should be undertaken on an annual basis. Driveways which form part of the wider infiltration system include a legal covenant to ensure these remain part of the wider drainage system in perpetuity.

1.5 With adequate maintenance the working design life of permeable paving system is approximately 25 years.

1.6 At a minimum interval of 25 years the permeable paving blocks shall be lifted and inspection undertaken as follows:

- 3-6mm gravel bedding to be removed and the voided subbase stone inspected.
- The subbase shall be replaced as required where blocked or blinded.
- The permeable geotextile shall be inspected using a series of hand dug trial holes to assess its general condition, where damaged it should be replaced or repaired.
- Upon completion of the inspection the voided stone subbase shall be replaced to the original specification and level.
- The 3-6mm bedding shall be replaced with the permeable blocks reinstated after cleaning or where required replaced with new.

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- Following block reinstatement 3-6mm grit shall be swept into the joints between the permeable blocks.

1.7 Provisions will be made to replace any infrastructure that has reached the end of its serviceable design life and will be replaced on a like for like basis as far as reasonably practicable.

1.8 A drainage ownership and responsibilities plan will be submitted prior to construction of this element of the works.

Maintenance Schedule	**Required Action**	**Frequency**
Regular Maintenance	Remove sediment and debris from silt trap chambers, channel drains and inlet chambers	Monthly or as required
	Litter and debris removal – catch pits	Monthly or as required
	Surface and foul water pipework – jetting / rodding	Every 2 years or as required
	Visual inspection of permeable paving for defects and settlement	Annually, or after leaf fall
	Sweeping / brushing / vacuuming of permeable paving	Annually, or after leaf fall
Corrective Maintenance	Repairs to access chambers / manhole covers	As required
	Replace any broken permeable blocks / surface, remedial works to any depressions or rutting	As required
	Inspect inlet, outlet from downpipe and gullies for blockages, standing water and clear	As required
	Full inspection and service of permeable paving system	Minimum of every 25 years

Table 1: Schedule of Regular and Corrective Maintenance

2 Financing

2.1 The regular maintenance of all private drainage, channels, gutters, rainwater pipes, driveways and connections will be the responsibility of the individual homeowner.

2.2 The regular and corrective maintenance of all shared elements of the drainage system will be managed and funded through the Management Company on behalf of the Residents.

2.3 In the event that the estate's Management Company becomes unable to discharge its duties within 2 years of first appointment the developer will endeavour to appoint an alternative on behalf of the Residents.

3 Maintenance Summary

Inspection / Action Required	Gullies, Channels and Gutters	Silt Traps, Channel Drainage and Inlet Chambers	Catchpit	Permeable Paving / Surfaces	Surface Water Pipework
Monthly		✓	✓		
3 Months	✓		✓	✓	
1 Year				✓	
After leaf fall in Autumn	✓		✓	✓	
2 Years					✓
5 Years					
25 Years				✓	

Table 2: Drainage System Maintenance Summary