

Aire House
12 Victoria Avenue
Harrogate, HG1 1ED

Redwood Drive, Haxby
Soakaway Calculations



Date 06/09/2021
File SOAKAWAY CALCS 02.09.20...

Designed by JS
Checked by

Innovyze Source Control 2019.1

Summary of Results for 100 year Return Period (+30%)

Half Drain Time : 250 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m ³)	Status
15 min Summer	16.830	0.330	0.1	2.4	O K
30 min Summer	16.927	0.427	0.2	3.0	O K
60 min Summer	17.012	0.512	0.2	3.7	O K
120 min Summer	17.071	0.571	0.2	4.1	O K
180 min Summer	17.081	0.581	0.2	4.1	O K
240 min Summer	17.077	0.577	0.2	4.1	O K
360 min Summer	17.059	0.559	0.2	4.0	O K
480 min Summer	17.039	0.539	0.2	3.8	O K
600 min Summer	17.019	0.519	0.2	3.7	O K
720 min Summer	16.998	0.498	0.2	3.6	O K
960 min Summer	16.960	0.460	0.2	3.3	O K
1440 min Summer	16.891	0.391	0.1	2.8	O K
2160 min Summer	16.806	0.306	0.1	2.2	O K
2880 min Summer	16.738	0.238	0.1	1.7	O K
4320 min Summer	16.641	0.141	0.1	1.0	O K
5760 min Summer	16.581	0.081	0.1	0.6	O K
7200 min Summer	16.551	0.051	0.1	0.4	O K
8640 min Summer	16.544	0.044	0.1	0.3	O K
10080 min Summer	16.539	0.039	0.1	0.3	O K
15 min Winter	16.872	0.372	0.1	2.6	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Time-Peak (mins)
15 min Summer	121.269	0.0	25
30 min Summer	79.695	0.0	39
60 min Summer	49.937	0.0	66
120 min Summer	30.267	0.0	124
180 min Summer	22.297	0.0	178
240 min Summer	17.851	0.0	204
360 min Summer	12.957	0.0	268
480 min Summer	10.330	0.0	336
600 min Summer	8.659	0.0	404
720 min Summer	7.492	0.0	474
960 min Summer	5.959	0.0	610
1440 min Summer	4.309	0.0	878
2160 min Summer	3.110	0.0	1260
2880 min Summer	2.466	0.0	1640
4320 min Summer	1.775	0.0	2340
5760 min Summer	1.405	0.0	3008
7200 min Summer	1.171	0.0	3672
8640 min Summer	1.008	0.0	4400
10080 min Summer	0.889	0.0	5136
15 min Winter	121.269	0.0	25

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Summary of Results for 100 year Return Period (+30%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m ³)	Status
30 min Winter	16.981	0.481	0.2	3.4	O K
60 min Winter	17.080	0.580	0.2	4.1	O K
120 min Winter	17.152	0.652	0.2	4.6	O K
180 min Winter	17.169	0.669	0.2	4.8	O K
240 min Winter	17.164	0.664	0.2	4.7	O K
360 min Winter	17.141	0.641	0.2	4.6	O K
480 min Winter	17.115	0.615	0.2	4.4	O K
600 min Winter	17.086	0.586	0.2	4.2	O K
720 min Winter	17.057	0.557	0.2	4.0	O K
960 min Winter	17.001	0.501	0.2	3.6	O K
1440 min Winter	16.901	0.401	0.2	2.9	O K
2160 min Winter	16.782	0.282	0.1	2.0	O K
2880 min Winter	16.692	0.192	0.1	1.4	O K
4320 min Winter	16.575	0.075	0.1	0.5	O K
5760 min Winter	16.545	0.045	0.1	0.3	O K
7200 min Winter	16.537	0.037	0.1	0.3	O K
8640 min Winter	16.532	0.032	0.1	0.2	O K
10080 min Winter	16.528	0.028	0.1	0.2	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Time-Peak (mins)
30 min Winter	79.695	0.0	39
60 min Winter	49.937	0.0	66
120 min Winter	30.267	0.0	122
180 min Winter	22.297	0.0	176
240 min Winter	17.851	0.0	228
360 min Winter	12.957	0.0	284
480 min Winter	10.330	0.0	360
600 min Winter	8.659	0.0	436
720 min Winter	7.492	0.0	512
960 min Winter	5.959	0.0	658
1440 min Winter	4.309	0.0	938
2160 min Winter	3.110	0.0	1332
2880 min Winter	2.466	0.0	1704
4320 min Winter	1.775	0.0	2376
5760 min Winter	1.405	0.0	2936
7200 min Winter	1.171	0.0	3608
8640 min Winter	1.008	0.0	4352
10080 min Winter	0.889	0.0	5136

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Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.000	Shortest Storm (mins)	15
Ratio R	0.400	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+30

Time Area Diagram

Total Area (ha) 0.011

Time (mins)	Area	Time (mins)	Area	Time (mins)	Area
From:	To:	From:	To:	From:	To:
0	4	4	8	8	12
	0.004		0.004		0.004

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Model Details

Storage is Online Cover Level (m) 18.000

Cellular Storage Structure

Invert Level (m) 16.500 Safety Factor 2.0
 Infiltration Coefficient Base (m/hr) 0.09130 Porosity 0.95
 Infiltration Coefficient Side (m/hr) 0.09130

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	7.5	7.5	0.900	0.0	16.3
0.800	7.5	16.3			