

Escher Silverman		Page 1
Lone Barn Studios	Scyld	
Stanbridge Lane	Eastergate	
Romsey SO51 0HE	Sub Base Attenuation	
Date October 2019	Designed By KN	
File SubBase Attenuation 100yrs+40%...	Checked By	
Micro Drainage	Source Control W.11.2	

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

Half Drain Time : 842 minutes

Storm Duration (mins)	Maximum Control (l/s)	Maximum Filtration (l/s)	Maximum Outflow (l/s)	Maximum Water Level (m OD)	Maximum Depth (m)	Maximum Volume (m ³)	Status
15 Summer	1.5	0.0	1.5	5.2487	0.2487	57.2	O K
30 Summer	1.6	0.0	1.6	5.3037	0.3037	78.3	O K
60 Summer	1.6	0.0	1.6	5.3627	0.3627	101.0	O K
120 Summer	1.7	0.0	1.7	5.4217	0.4217	123.6	O K
180 Summer	1.7	0.0	1.7	5.4527	0.4527	135.5	O K
240 Summer	1.8	0.0	1.8	5.4712	0.4712	142.5	O K
360 Summer	1.8	0.0	1.8	5.4927	0.4927	150.8	O K
480 Summer	1.8	0.0	1.8	5.5032	0.5032	154.9	O K
600 Summer	1.8	0.0	1.8	5.5072	0.5072	156.4	O K
720 Summer	1.8	0.0	1.8	5.5087	0.5087	156.9	O K
960 Summer	1.8	0.0	1.8	5.5092	0.5092	157.1	O K
1440 Summer	1.8	0.0	1.8	5.5027	0.5027	154.6	O K
2160 Summer	1.8	0.0	1.8	5.4842	0.4842	147.5	O K
15 Winter	1.5	0.0	1.5	5.2682	0.2682	64.7	O K
30 Winter	1.6	0.0	1.6	5.3302	0.3302	88.4	O K
60 Winter	1.6	0.0	1.6	5.3967	0.3967	113.9	O K
120 Winter	1.8	0.0	1.8	5.4632	0.4632	139.5	O K
180 Winter	1.8	0.0	1.8	5.4987	0.4987	153.1	O K

Storm Duration (mins)	Rain (mm/hr)	Time-Peak (mins)
15 Summer	125.64	23
30 Summer	84.82	38
60 Summer	54.66	68
120 Summer	33.99	126
180 Summer	25.34	186
240 Summer	20.42	246
360 Summer	15.06	366
480 Summer	12.12	484
600 Summer	10.23	590
720 Summer	8.90	644
960 Summer	7.14	764
1440 Summer	5.22	1016
2160 Summer	3.81	1432
15 Winter	125.64	23
30 Winter	84.82	37
60 Winter	54.66	66
120 Winter	33.99	126
180 Winter	25.34	184

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

Storm Duration (mins)	Maximum Control (l/s)	Maximum Filtration (l/s)	Maximum Outflow (l/s)	Maximum Water Level (m OD)	Maximum Depth (m)	Maximum Volume (m³)	Status
240 Winter	1.9	0.0	1.9	5.5207	0.5207	161.2	O K
360 Winter	1.9	0.0	1.9	5.5522	0.5522	171.1	O K
480 Winter	2.0	0.0	2.0	5.5718	0.5718	176.3	O K
600 Winter	2.0	0.0	2.0	5.5823	0.5823	178.7	O K
720 Winter	2.0	0.0	2.0	5.5853	0.5853	179.4	O K
960 Winter	2.0	0.0	2.0	5.5798	0.5798	178.2	O K
1440 Winter	2.0	0.0	2.0	5.5648	0.5648	174.5	O K
2160 Winter	1.9	0.0	1.9	5.5287	0.5287	163.9	O K

Storm Duration (mins)	Rain (mm/hr)	Time-Peak (mins)
240 Winter	20.42	242
360 Winter	15.06	356
480 Winter	12.12	470
600 Winter	10.23	580
720 Winter	8.90	684
960 Winter	7.14	794
1440 Winter	5.22	1088
2160 Winter	3.81	1556

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Rainfall Details

Region	ENG+WAL	Cv (Summer)	0.750	Summer Storms	Yes
Return Period (years)	100	Cv (Winter)	0.840	Winter Storms	Yes
M5-60 (mm)	19.300	Shortest Storm (mins)	15	Climate Change %	+40
Ratio-R	0.341	Longest Storm (mins)	2160		

Time / Area Diagram

Total Area (ha) = 0.267

Time from:	(mins) to:	Area (ha)	Time from:	(mins) to:	Area (ha)
0	4	0.000	4	8	0.267

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Porous Car Park Details

Infil Coef - Base (m/hr)	0.000000	Cover Level (m)	5.700
Membrane Percolation (mm/hr)	1000	Slope (1:x)	1000.0
Safety Factor	10.0	Max Percolation (l/s)	266.7
Porosity	0.40	Depression Storage (mm)	5
Length (m)	200.0	Evaporation (mm/day)	3
Width (m)	4.8	Cap Volume (m)	5.500
Invert Level (m)	5.000		

Hydro-Brake Outflow Control

Design Head (m)	0.500	Hydro-Brake Type	MD5	Invert Level (m)	5.100
Design Flow (l/s)	2.0	Diameter (mm)	69		

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.10	1.5	0.60	2.2	1.60	3.6	2.60	4.6	5.00	6.4	7.50	7.9
0.20	1.6	0.80	2.6	1.80	3.9	3.00	5.0	5.50	6.7	8.00	8.1
0.30	1.6	1.00	2.9	2.00	4.1	3.50	5.4	6.00	7.0	8.50	8.4
0.40	1.8	1.20	3.1	2.20	4.3	4.00	5.7	6.50	7.3	9.00	8.6
0.50	2.0	1.40	3.4	2.40	4.4	4.50	6.1	7.00	7.6	9.50	8.8