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Town House St Geroge's Square Bishops Waltham Southampton SO32 1AF	RETIREMENT APARTMENTS STATION ROAD, RUSTINGTON PERM PAVING FOR CAR PARK+ROOFS	
Date 18/12/2018 File RRL012 Car Parks+Roofs_...	Designed by SH Checked by CH	
XP Solutions		Source Control 2018.1

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

Half Drain Time : 188 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	9.004	0.234	1.8	18.6	O K
30 min Summer	9.073	0.303	1.8	24.5	O K
60 min Summer	9.132	0.362	1.8	29.6	O K
120 min Summer	9.165	0.395	1.8	32.4	O K
180 min Summer	9.163	0.393	1.8	32.2	O K
240 min Summer	9.153	0.383	1.8	31.4	O K
360 min Summer	9.134	0.364	1.8	29.7	O K
480 min Summer	9.112	0.342	1.8	27.9	O K
600 min Summer	9.091	0.321	1.8	26.1	O K
720 min Summer	9.071	0.301	1.8	24.3	O K
960 min Summer	9.030	0.260	1.8	20.8	O K
1440 min Summer	8.958	0.188	1.8	14.7	O K
2160 min Summer	8.879	0.109	1.8	7.8	O K
2880 min Summer	8.834	0.064	1.8	3.9	O K
4320 min Summer	8.812	0.042	1.5	2.0	O K
5760 min Summer	8.805	0.035	1.2	1.4	O K
7200 min Summer	8.802	0.032	1.0	1.2	O K
8640 min Summer	8.800	0.030	0.9	1.0	O K
10080 min Summer	8.798	0.028	0.8	0.9	O K
15 min Winter	9.034	0.264	1.8	21.1	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	137.340	0.0	18
30 min Summer	91.589	0.0	33
60 min Summer	58.167	0.0	62
120 min Summer	35.592	0.0	120
180 min Summer	26.280	0.0	158
240 min Summer	21.075	0.0	190
360 min Summer	15.454	0.0	254
480 min Summer	12.381	0.0	322
600 min Summer	10.416	0.0	390
720 min Summer	9.040	0.0	456
960 min Summer	7.222	0.0	588
1440 min Summer	5.253	0.0	838
2160 min Summer	3.813	0.0	1188
2880 min Summer	3.034	0.0	1500
4320 min Summer	2.195	0.0	2204
5760 min Summer	1.742	0.0	2928
7200 min Summer	1.457	0.0	3608
8640 min Summer	1.259	0.0	4352
10080 min Summer	1.113	0.0	5104
15 min Winter	137.340	0.0	18

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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	9.112	0.342	1.8	27.9	O K
60 min Winter	9.182	0.412	1.8	33.9	O K
120 min Winter	9.227	0.457	1.8	37.8	O K
180 min Winter	9.230	0.460	1.8	37.9	O K
240 min Winter	9.216	0.446	1.8	36.8	O K
360 min Winter	9.190	0.420	1.8	34.5	O K
480 min Winter	9.159	0.389	1.8	31.9	O K
600 min Winter	9.126	0.356	1.8	29.1	O K
720 min Winter	9.094	0.324	1.8	26.3	O K
960 min Winter	9.031	0.261	1.8	20.9	O K
1440 min Winter	8.924	0.154	1.8	11.7	O K
2160 min Winter	8.826	0.056	1.8	3.3	O K
2880 min Winter	8.812	0.042	1.5	2.1	O K
4320 min Winter	8.803	0.033	1.1	1.3	O K
5760 min Winter	8.800	0.030	0.9	1.0	O K
7200 min Winter	8.797	0.027	0.7	0.9	O K
8640 min Winter	8.795	0.025	0.6	0.8	O K
10080 min Winter	8.794	0.024	0.6	0.7	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
30 min Winter	91.589	0.0	32
60 min Winter	58.167	0.0	60
120 min Winter	35.592	0.0	118
180 min Winter	26.280	0.0	172
240 min Winter	21.075	0.0	220
360 min Winter	15.454	0.0	276
480 min Winter	12.381	0.0	352
600 min Winter	10.416	0.0	426
720 min Winter	9.040	0.0	498
960 min Winter	7.222	0.0	636
1440 min Winter	5.253	0.0	880
2160 min Winter	3.813	0.0	1164
2880 min Winter	3.034	0.0	1472
4320 min Winter	2.195	0.0	2176
5760 min Winter	1.742	0.0	2944
7200 min Winter	1.457	0.0	3656
8640 min Winter	1.259	0.0	4288
10080 min Winter	1.113	0.0	5056

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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)	20.500	Shortest Storm (mins)	15
Ratio R	0.364	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.083

Time (mins)	Area
From:	To: (ha)

0	4 0.083
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Model Details

Storage is Online Cover Level (m) 9.690

Porous Car Park Structure

Infiltration Coefficient Base (m/hr)	0.08800	Width (m)	16.0
Membrane Percolation (mm/hr)	1000	Length (m)	17.9
Max Percolation (l/s)	79.6	Slope (1:X)	500.0
Safety Factor	4.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	8.770	Membrane Depth (m)	0