

Escher Silverman			Page 1		
Lone Barn Studios	Burndell Road				
Stanbridge Lane	Porous Carpark Simula...				
Romsey SO51 0HE	P33 (10 years + 30%)				
Date 14/03/2019	Designed by Hoa Nguyen				
File P33 (10 years + ...	Checked by KM				
Micro Drainage	Source Control 2013.1.1				
<u>Summary of Results for 10 year Return Period (+30%)</u>					
Half Drain Time : 1003 minutes.					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	6.610	0.036	0.0	0.4	O K
30 min Summer	6.624	0.050	0.0	0.6	O K
60 min Summer	6.640	0.066	0.0	0.8	O K
120 min Summer	6.656	0.082	0.0	1.1	O K
180 min Summer	6.666	0.092	0.0	1.2	O K
240 min Summer	6.672	0.098	0.0	1.3	O K
360 min Summer	6.680	0.106	0.0	1.4	O K
480 min Summer	6.686	0.112	0.0	1.5	O K
600 min Summer	6.689	0.115	0.0	1.5	O K
720 min Summer	6.691	0.117	0.0	1.5	O K
960 min Summer	6.693	0.119	0.0	1.6	O K
1440 min Summer	6.695	0.121	0.0	1.6	O K
2160 min Summer	6.694	0.120	0.0	1.6	O K
2880 min Summer	6.691	0.117	0.0	1.5	O K
4320 min Summer	6.681	0.107	0.0	1.4	O K
5760 min Summer	6.671	0.097	0.0	1.3	O K
7200 min Summer	6.661	0.087	0.0	1.1	O K
8640 min Summer	6.652	0.078	0.0	1.0	O K
10080 min Summer	6.644	0.070	0.0	0.9	O K
15 min Winter	6.615	0.041	0.0	0.5	O K
30 min Winter	6.632	0.058	0.0	0.7	O K
60 min Winter	6.649	0.075	0.0	1.0	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
15 min Summer	70.770	0.0	19		
30 min Summer	46.698	0.0	34		
60 min Summer	29.629	0.0	64		
120 min Summer	18.344	0.0	122		
180 min Summer	13.747	0.0	182		
240 min Summer	11.169	0.0	242		
360 min Summer	8.317	0.0	362		
480 min Summer	6.743	0.0	480		
600 min Summer	5.728	0.0	600		
720 min Summer	5.011	0.0	714		
960 min Summer	4.057	0.0	818		
1440 min Summer	3.009	0.0	1068		
2160 min Summer	2.231	0.0	1472		
2880 min Summer	1.803	0.0	1876		
4320 min Summer	1.335	0.0	2720		
5760 min Summer	1.078	0.0	3464		
7200 min Summer	0.913	0.0	4248		
8640 min Summer	0.798	0.0	5008		
10080 min Summer	0.711	0.0	5656		
15 min Winter	70.770	0.0	19		
30 min Winter	46.698	0.0	33		
60 min Winter	29.629	0.0	62		
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Lone Barn Studios	Burndell Road				
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Romsey SO51 0HE	P33 (10 years + 30%)				
Date 14/03/2019	Designed by Hoa Nguyen				
File P33 (10 years + ...	Checked by KM				
Micro Drainage		Source Control 2013.1.1			
<u>Summary of Results for 10 year Return Period (+30%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
120 min Winter	6.668	0.094	0.0	1.2	O K
180 min Winter	6.679	0.105	0.0	1.4	O K
240 min Winter	6.686	0.112	0.0	1.5	O K
360 min Winter	6.696	0.122	0.0	1.6	O K
480 min Winter	6.702	0.128	0.0	1.7	Flood Risk
600 min Winter	6.706	0.132	0.0	1.8	Flood Risk
720 min Winter	6.709	0.135	0.0	1.8	Flood Risk
960 min Winter	6.712	0.138	0.0	1.8	Flood Risk
1440 min Winter	6.712	0.138	0.0	1.8	Flood Risk
2160 min Winter	6.709	0.135	0.0	1.8	Flood Risk
2880 min Winter	6.703	0.129	0.0	1.7	Flood Risk
4320 min Winter	6.688	0.114	0.0	1.5	O K
5760 min Winter	6.671	0.097	0.0	1.3	O K
7200 min Winter	6.656	0.082	0.0	1.1	O K
8640 min Winter	6.642	0.068	0.0	0.9	O K
10080 min Winter	6.631	0.057	0.0	0.7	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
120 min Winter	18.344	0.0	122		
180 min Winter	13.747	0.0	180		
240 min Winter	11.169	0.0	238		
360 min Winter	8.317	0.0	354		
480 min Winter	6.743	0.0	470		
600 min Winter	5.728	0.0	582		
720 min Winter	5.011	0.0	694		
960 min Winter	4.057	0.0	912		
1440 min Winter	3.009	0.0	1152		
2160 min Winter	2.231	0.0	1604		
2880 min Winter	1.803	0.0	2072		
4320 min Winter	1.335	0.0	2936		
5760 min Winter	1.078	0.0	3744		
7200 min Winter	0.913	0.0	4472		
8640 min Winter	0.798	0.0	5184		
10080 min Winter	0.711	0.0	5840		
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Date 14/03/2019 File P33 (10 years + ...	Designed by Hoa Nguyen Checked by KM	
Micro Drainage Source Control 2013.1.1		

Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	10	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.000	Shortest Storm (mins)	15
Ratio R	0.350	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+30

Time Area Diagram

Total Area (ha) 0.005

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

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Date 14/03/2019 File P33 (10 years + ...	Designed by Hoa Nguyen Checked by KM																									
Micro Drainage Source Control 2013.1.1																										
<u>Model Details</u> Storage is Online Cover Level (m) 7.000 <u>Porous Car Park Structure</u> <table> <tr> <td>Infiltration Coefficient Base (m/hr)</td> <td>0.00360</td> <td>Width (m)</td> <td>4.3</td> </tr> <tr> <td>Membrane Percolation (mm/hr)</td> <td>1000</td> <td>Length (m)</td> <td>10.8</td> </tr> <tr> <td>Max Percolation (l/s)</td> <td>12.9</td> <td>Slope (1:X)</td> <td>1000.0</td> </tr> <tr> <td>Safety Factor</td> <td>3.0</td> <td>Depression Storage (mm)</td> <td>5</td> </tr> <tr> <td>Porosity</td> <td>0.30</td> <td>Evaporation (mm/day)</td> <td>3</td> </tr> <tr> <td>Invert Level (m)</td> <td>6.574</td> <td>Cap Volume Depth (m)</td> <td>0.251</td> </tr> </table>			Infiltration Coefficient Base (m/hr)	0.00360	Width (m)	4.3	Membrane Percolation (mm/hr)	1000	Length (m)	10.8	Max Percolation (l/s)	12.9	Slope (1:X)	1000.0	Safety Factor	3.0	Depression Storage (mm)	5	Porosity	0.30	Evaporation (mm/day)	3	Invert Level (m)	6.574	Cap Volume Depth (m)	0.251
Infiltration Coefficient Base (m/hr)	0.00360	Width (m)	4.3																							
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Romsey SO51 0HE		P33 (100 years + 30%)			
Date 14/03/2019		Designed by Hoa Nguyen			
File P33 (100 years +...		Checked by KM			
Micro Drainage		Source Control 2013.1.1			
<u>Summary of Results for 100 year Return Period (+30%)</u> Half Drain Time : 1854 minutes.					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	6.640	0.066	0.0	0.8	O K
30 min Summer	6.666	0.092	0.0	1.2	O K
60 min Summer	6.694	0.120	0.0	1.6	O K
120 min Summer	6.723	0.149	0.0	2.0	Flood Risk
180 min Summer	6.740	0.166	0.0	2.2	Flood Risk
240 min Summer	6.751	0.177	0.0	2.4	Flood Risk
360 min Summer	6.765	0.191	0.0	2.6	Flood Risk
480 min Summer	6.774	0.200	0.0	2.7	Flood Risk
600 min Summer	6.780	0.206	0.0	2.8	Flood Risk
720 min Summer	6.785	0.211	0.0	2.9	Flood Risk
960 min Summer	6.790	0.216	0.0	2.9	Flood Risk
1440 min Summer	6.790	0.216	0.0	2.9	Flood Risk
2160 min Summer	6.787	0.213	0.0	2.9	Flood Risk
2880 min Summer	6.781	0.207	0.0	2.8	Flood Risk
4320 min Summer	6.767	0.193	0.0	2.6	Flood Risk
5760 min Summer	6.752	0.178	0.0	2.4	Flood Risk
7200 min Summer	6.737	0.163	0.0	2.2	Flood Risk
8640 min Summer	6.723	0.149	0.0	2.0	Flood Risk
10080 min Summer	6.710	0.136	0.0	1.8	Flood Risk
15 min Winter	6.649	0.075	0.0	1.0	O K
30 min Winter	6.678	0.104	0.0	1.4	O K
60 min Winter	6.710	0.136	0.0	1.8	Flood Risk
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
15 min Summer	115.731	0.0	19		
30 min Summer	77.804	0.0	34		
60 min Summer	49.937	0.0	64		
120 min Summer	30.956	0.0	124		
180 min Summer	23.058	0.0	184		
240 min Summer	18.577	0.0	242		
360 min Summer	13.656	0.0	362		
480 min Summer	10.974	0.0	482		
600 min Summer	9.254	0.0	602		
720 min Summer	8.046	0.0	722		
960 min Summer	6.447	0.0	960		
1440 min Summer	4.709	0.0	1368		
2160 min Summer	3.432	0.0	1704		
2880 min Summer	2.739	0.0	2076		
4320 min Summer	1.989	0.0	2896		
5760 min Summer	1.583	0.0	3688		
7200 min Summer	1.325	0.0	4472		
8640 min Summer	1.147	0.0	5272		
10080 min Summer	1.015	0.0	6048		
15 min Winter	115.731	0.0	19		
30 min Winter	77.804	0.0	33		
60 min Winter	49.937	0.0	64		
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Lone Barn Studios Stanbridge Lane Romsey SO51 0HE		Burndell Road Porous Carpark Simula... P33 (100 years + 30%)			
Date 14/03/2019 File P33 (100 years +...		Designed by Hoa Nguyen Checked by KM			
Micro Drainage		Source Control 2013.1.1			
<u>Summary of Results for 100 year Return Period (+30%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
120 min Winter	6.743	0.169	0.0	2.3	Flood Risk
180 min Winter	6.762	0.188	0.0	2.5	Flood Risk
240 min Winter	6.774	0.200	0.0	2.7	Flood Risk
360 min Winter	6.791	0.217	0.0	2.9	Flood Risk
480 min Winter	6.802	0.228	0.0	3.1	Flood Risk
600 min Winter	6.809	0.235	0.0	3.2	Flood Risk
720 min Winter	6.815	0.241	0.0	3.3	Flood Risk
960 min Winter	6.822	0.248	0.0	3.4	Flood Risk
1440 min Winter	6.825	0.251	0.0	3.4	Flood Risk
2160 min Winter	6.819	0.245	0.0	3.3	Flood Risk
2880 min Winter	6.811	0.237	0.0	3.2	Flood Risk
4320 min Winter	6.791	0.217	0.0	3.0	Flood Risk
5760 min Winter	6.768	0.194	0.0	2.6	Flood Risk
7200 min Winter	6.746	0.172	0.0	2.3	Flood Risk
8640 min Winter	6.724	0.150	0.0	2.0	Flood Risk
10080 min Winter	6.704	0.130	0.0	1.7	Flood Risk
Storm Event	Rain (mm/hr)		Flooded Volume (m³)	Time-Peak (mins)	
120 min Winter	30.956		0.0	122	
180 min Winter	23.058		0.0	180	
240 min Winter	18.577		0.0	240	
360 min Winter	13.656		0.0	358	
480 min Winter	10.974		0.0	474	
600 min Winter	9.254		0.0	590	
720 min Winter	8.046		0.0	706	
960 min Winter	6.447		0.0	934	
1440 min Winter	4.709		0.0	1384	
2160 min Winter	3.432		0.0	1988	
2880 min Winter	2.739		0.0	2244	
4320 min Winter	1.989		0.0	3152	
5760 min Winter	1.583		0.0	4032	
7200 min Winter	1.325		0.0	4896	
8640 min Winter	1.147		0.0	5704	
10080 min Winter	1.015		0.0	6456	
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Lone Barn Studios Stanbridge Lane Romsey SO51 0HE	Burndell Road Porous Carpark Simula... P33 (100 years + 30%)																															
Date 14/03/2019 File P33 (100 years +...	Designed by Hoa Nguyen Checked by KM																															
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<u>Rainfall Details</u> <table> <tr> <td>Rainfall Model</td> <td>FSR</td> <td>Winter Storms</td> <td>Yes</td> </tr> <tr> <td>Return Period (years)</td> <td>100</td> <td>Cv (Summer)</td> <td>0.750</td> </tr> <tr> <td>Region</td> <td>England and Wales</td> <td>Cv (Winter)</td> <td>0.840</td> </tr> <tr> <td>M5-60 (mm)</td> <td>19.000</td> <td>Shortest Storm (mins)</td> <td>15</td> </tr> <tr> <td>Ratio R</td> <td>0.350</td> <td>Longest Storm (mins)</td> <td>10080</td> </tr> <tr> <td>Summer Storms</td> <td>Yes</td> <td>Climate Change %</td> <td>+30</td> </tr> </table> <u>Time Area Diagram</u> Total Area (ha) 0.005 <table> <tr> <th>Time (mins)</th> <th>Area</th> </tr> <tr> <th>From:</th> <th>To: (ha)</th> </tr> <tr> <td>0</td> <td>4 0.005</td> </tr> </table>			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	0.350	Longest Storm (mins)	10080	Summer Storms	Yes	Climate Change %	+30	Time (mins)	Area	From:	To: (ha)	0	4 0.005
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Infiltration Coefficient Base (m/hr)	0.00360	Width (m)	4.3																							
Membrane Percolation (mm/hr)	1000	Length (m)	10.8																							
Max Percolation (l/s)	12.9	Slope (1:X)	1000.0																							
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Lone Barn Studios	Burndell Road				
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Romsey SO51 0HE	P34 (10 years + 30%)				
Date 14/03/2019	Designed by Hoa Nguyen				
File P34 (10 years + ...	Checked by KM				
Micro Drainage	Source Control 2013.1.1				
<u>Summary of Results for 10 year Return Period (+30%)</u>					
Half Drain Time : 953 minutes.					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	6.449	0.039	0.0	0.7	O K
30 min Summer	6.463	0.053	0.0	1.1	O K
60 min Summer	6.478	0.068	0.0	1.5	O K
120 min Summer	6.494	0.084	0.0	1.9	O K
180 min Summer	6.503	0.093	0.0	2.1	O K
240 min Summer	6.509	0.099	0.0	2.3	O K
360 min Summer	6.517	0.107	0.0	2.5	O K
480 min Summer	6.521	0.111	0.0	2.6	O K
600 min Summer	6.524	0.114	0.0	2.7	O K
720 min Summer	6.526	0.116	0.0	2.7	O K
960 min Summer	6.528	0.118	0.0	2.8	O K
1440 min Summer	6.529	0.119	0.0	2.8	O K
2160 min Summer	6.528	0.118	0.0	2.8	O K
2880 min Summer	6.524	0.114	0.0	2.7	O K
4320 min Summer	6.514	0.104	0.0	2.4	O K
5760 min Summer	6.504	0.094	0.0	2.2	O K
7200 min Summer	6.494	0.084	0.0	1.9	O K
8640 min Summer	6.485	0.075	0.0	1.7	O K
10080 min Summer	6.477	0.067	0.0	1.5	O K
15 min Winter	6.454	0.044	0.0	0.9	O K
30 min Winter	6.470	0.060	0.0	1.3	O K
60 min Winter	6.487	0.077	0.0	1.7	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
15 min Summer	70.770	0.0	19		
30 min Summer	46.698	0.0	34		
60 min Summer	29.629	0.0	64		
120 min Summer	18.344	0.0	122		
180 min Summer	13.747	0.0	182		
240 min Summer	11.169	0.0	242		
360 min Summer	8.317	0.0	362		
480 min Summer	6.743	0.0	480		
600 min Summer	5.728	0.0	600		
720 min Summer	5.011	0.0	698		
960 min Summer	4.057	0.0	806		
1440 min Summer	3.009	0.0	1054		
2160 min Summer	2.231	0.0	1468		
2880 min Summer	1.803	0.0	1876		
4320 min Summer	1.335	0.0	2680		
5760 min Summer	1.078	0.0	3464		
7200 min Summer	0.913	0.0	4248		
8640 min Summer	0.798	0.0	4936		
10080 min Summer	0.711	0.0	5648		
15 min Winter	70.770	0.0	19		
30 min Winter	46.698	0.0	33		
60 min Winter	29.629	0.0	62		
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<u>Summary of Results for 10 year Return Period (+30%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
120 min Winter	6.505	0.095	0.0	2.2	O K
180 min Winter	6.515	0.105	0.0	2.5	O K
240 min Winter	6.522	0.112	0.0	2.7	O K
360 min Winter	6.532	0.122	0.0	2.9	O K
480 min Winter	6.537	0.127	0.0	3.0	Flood Risk
600 min Winter	6.541	0.131	0.0	3.1	Flood Risk
720 min Winter	6.544	0.134	0.0	3.2	Flood Risk
960 min Winter	6.546	0.136	0.0	3.3	Flood Risk
1440 min Winter	6.546	0.136	0.0	3.3	Flood Risk
2160 min Winter	6.542	0.132	0.0	3.2	Flood Risk
2880 min Winter	6.535	0.125	0.0	3.0	Flood Risk
4320 min Winter	6.519	0.109	0.0	2.6	O K
5760 min Winter	6.502	0.092	0.0	2.1	O K
7200 min Winter	6.487	0.077	0.0	1.7	O K
8640 min Winter	6.474	0.064	0.0	1.4	O K
10080 min Winter	6.464	0.054	0.0	1.1	O K
Storm Event	Rain (mm/hr)		Flooded Volume (m³)	Time-Peak (mins)	
120 min Winter	18.344		0.0	122	
180 min Winter	13.747		0.0	180	
240 min Winter	11.169		0.0	238	
360 min Winter	8.317		0.0	354	
480 min Winter	6.743		0.0	468	
600 min Winter	5.728		0.0	582	
720 min Winter	5.011		0.0	692	
960 min Winter	4.057		0.0	904	
1440 min Winter	3.009		0.0	1138	
2160 min Winter	2.231		0.0	1600	
2880 min Winter	1.803		0.0	2048	
4320 min Winter	1.335		0.0	2900	
5760 min Winter	1.078		0.0	3696	
7200 min Winter	0.913		0.0	4464	
8640 min Winter	0.798		0.0	5104	
10080 min Winter	0.711		0.0	5744	
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Escher Silverman		Page 3
Lone Barn Studios Stanbridge Lane Romsey SO51 0HE	Burndell Road Porous Carpark Simula... P34 (10 years + 30%)	
Date 14/03/2019 File P34 (10 years + ...	Designed by Hoa Nguyen Checked by KM	
Micro Drainage Source Control 2013.1.1		

Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	10	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.000	Shortest Storm (mins)	15
Ratio R	0.350	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+30

Time Area Diagram

Total Area (ha) 0.009

Time (mins)	Area
From:	To: (ha)
0	4 0.009

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Escher Silverman		Page 4																								
Lone Barn Studios Stanbridge Lane Romsey SO51 0HE	Burndell Road Porous Carpark Simula... P34 (10 years + 30%)																									
Date 14/03/2019 File P34 (10 years + ...	Designed by Hoa Nguyen Checked by KM																									
Micro Drainage Source Control 2013.1.1																										
<u>Model Details</u> Storage is Online Cover Level (m) 6.835 <u>Porous Car Park Structure</u> <table> <tr> <td>Infiltration Coefficient Base (m/hr)</td> <td>0.00360</td> <td>Width (m)</td> <td>4.3</td> </tr> <tr> <td>Membrane Percolation (mm/hr)</td> <td>1000</td> <td>Length (m)</td> <td>20.1</td> </tr> <tr> <td>Max Percolation (l/s)</td> <td>24.0</td> <td>Slope (1:X)</td> <td>1000.0</td> </tr> <tr> <td>Safety Factor</td> <td>3.0</td> <td>Depression Storage (mm)</td> <td>5</td> </tr> <tr> <td>Porosity</td> <td>0.30</td> <td>Evaporation (mm/day)</td> <td>3</td> </tr> <tr> <td>Invert Level (m)</td> <td>6.410</td> <td>Cap Volume Depth (m)</td> <td>0.250</td> </tr> </table>			Infiltration Coefficient Base (m/hr)	0.00360	Width (m)	4.3	Membrane Percolation (mm/hr)	1000	Length (m)	20.1	Max Percolation (l/s)	24.0	Slope (1:X)	1000.0	Safety Factor	3.0	Depression Storage (mm)	5	Porosity	0.30	Evaporation (mm/day)	3	Invert Level (m)	6.410	Cap Volume Depth (m)	0.250
Infiltration Coefficient Base (m/hr)	0.00360	Width (m)	4.3																							
Membrane Percolation (mm/hr)	1000	Length (m)	20.1																							
Max Percolation (l/s)	24.0	Slope (1:X)	1000.0																							
Safety Factor	3.0	Depression Storage (mm)	5																							
Porosity	0.30	Evaporation (mm/day)	3																							
Invert Level (m)	6.410	Cap Volume Depth (m)	0.250																							
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Escher Silverman		Page 1			
Lone Barn Studios	Burndell Road				
Stanbridge Lane	Porous Carpark Simula...				
Romsey SO51 0HE	P34 (100 years + 30%)				
Date 14/03/2019	Designed by Hoa Nguyen				
File P34 (100 years +...	Checked by KM				
Micro Drainage	Source Control 2013.1.1				
<u>Summary of Results for 100 year Return Period (+30%)</u>					
Half Drain Time : 1769 minutes.					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	6.478	0.068	0.0	1.5	O K
30 min Summer	6.503	0.093	0.0	2.2	O K
60 min Summer	6.530	0.120	0.0	2.9	O K
120 min Summer	6.559	0.149	0.0	3.6	Flood Risk
180 min Summer	6.574	0.164	0.0	4.0	Flood Risk
240 min Summer	6.585	0.175	0.0	4.3	Flood Risk
360 min Summer	6.598	0.188	0.0	4.6	Flood Risk
480 min Summer	6.607	0.197	0.0	4.8	Flood Risk
600 min Summer	6.613	0.203	0.0	5.0	Flood Risk
720 min Summer	6.617	0.207	0.0	5.1	Flood Risk
960 min Summer	6.621	0.211	0.0	5.2	Flood Risk
1440 min Summer	6.621	0.211	0.0	5.2	Flood Risk
2160 min Summer	6.616	0.206	0.0	5.1	Flood Risk
2880 min Summer	6.610	0.200	0.0	4.9	Flood Risk
4320 min Summer	6.596	0.186	0.0	4.6	Flood Risk
5760 min Summer	6.580	0.170	0.0	4.2	Flood Risk
7200 min Summer	6.565	0.155	0.0	3.8	Flood Risk
8640 min Summer	6.551	0.141	0.0	3.4	Flood Risk
10080 min Summer	6.538	0.128	0.0	3.1	Flood Risk
15 min Winter	6.487	0.077	0.0	1.7	O K
30 min Winter	6.515	0.105	0.0	2.5	O K
60 min Winter	6.546	0.136	0.0	3.3	Flood Risk
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
15 min Summer	115.731	0.0	19		
30 min Summer	77.804	0.0	34		
60 min Summer	49.937	0.0	64		
120 min Summer	30.956	0.0	124		
180 min Summer	23.058	0.0	184		
240 min Summer	18.577	0.0	242		
360 min Summer	13.656	0.0	362		
480 min Summer	10.974	0.0	482		
600 min Summer	9.254	0.0	602		
720 min Summer	8.046	0.0	722		
960 min Summer	6.447	0.0	960		
1440 min Summer	4.709	0.0	1316		
2160 min Summer	3.432	0.0	1668		
2880 min Summer	2.739	0.0	2048		
4320 min Summer	1.989	0.0	2856		
5760 min Summer	1.583	0.0	3688		
7200 min Summer	1.325	0.0	4472		
8640 min Summer	1.147	0.0	5272		
10080 min Summer	1.015	0.0	6048		
15 min Winter	115.731	0.0	19		
30 min Winter	77.804	0.0	33		
60 min Winter	49.937	0.0	64		
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Lone Barn Studios	Burndell Road				
Stanbridge Lane	Porous Carpark Simula...				
Romsey SO51 0HE	P34 (100 years + 30%)				
Date 14/03/2019	Designed by Hoa Nguyen				
File P34 (100 years +...	Checked by KM				
Micro Drainage	Source Control 2013.1.1				
<u>Summary of Results for 100 year Return Period (+30%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
120 min Winter	6.578	0.168	0.0	4.1	Flood Risk
180 min Winter	6.596	0.186	0.0	4.6	Flood Risk
240 min Winter	6.607	0.197	0.0	4.9	Flood Risk
360 min Winter	6.623	0.213	0.0	5.3	Flood Risk
480 min Winter	6.633	0.223	0.0	5.5	Flood Risk
600 min Winter	6.641	0.231	0.0	5.7	Flood Risk
720 min Winter	6.646	0.236	0.0	5.9	Flood Risk
960 min Winter	6.652	0.242	0.0	6.0	Flood Risk
1440 min Winter	6.654	0.244	0.0	6.1	Flood Risk
2160 min Winter	6.647	0.237	0.0	5.9	Flood Risk
2880 min Winter	6.639	0.229	0.0	5.7	Flood Risk
4320 min Winter	6.618	0.208	0.0	5.1	Flood Risk
5760 min Winter	6.595	0.185	0.0	4.5	Flood Risk
7200 min Winter	6.572	0.162	0.0	3.9	Flood Risk
8640 min Winter	6.551	0.141	0.0	3.4	Flood Risk
10080 min Winter	6.531	0.121	0.0	2.9	O K
Storm Event	Rain (mm/hr)		Flooded Volume (m³)	Time-Peak (mins)	
120 min Winter	30.956		0.0	122	
180 min Winter	23.058		0.0	180	
240 min Winter	18.577		0.0	240	
360 min Winter	13.656		0.0	358	
480 min Winter	10.974		0.0	474	
600 min Winter	9.254		0.0	590	
720 min Winter	8.046		0.0	706	
960 min Winter	6.447		0.0	934	
1440 min Winter	4.709		0.0	1382	
2160 min Winter	3.432		0.0	1944	
2880 min Winter	2.739		0.0	2220	
4320 min Winter	1.989		0.0	3116	
5760 min Winter	1.583		0.0	3984	
7200 min Winter	1.325		0.0	4832	
8640 min Winter	1.147		0.0	5624	
10080 min Winter	1.015		0.0	6360	
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Lone Barn Studios Stanbridge Lane Romsey SO51 0HE	Burndell Road Porous Carpark Simula... P34 (100 years + 30%)																																		
Date 14/03/2019 File P34 (100 years +...	Designed by Hoa Nguyen Checked by KM																																		
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Escher Silverman		Page 4																								
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<u>Model Details</u> Storage is Online Cover Level (m) 6.835 <u>Porous Car Park Structure</u> <table> <tr> <td>Infiltration Coefficient Base (m/hr)</td> <td>0.00360</td> <td>Width (m)</td> <td>4.3</td> </tr> <tr> <td>Membrane Percolation (mm/hr)</td> <td>1000</td> <td>Length (m)</td> <td>20.1</td> </tr> <tr> <td>Max Percolation (l/s)</td> <td>24.0</td> <td>Slope (1:X)</td> <td>1000.0</td> </tr> <tr> <td>Safety Factor</td> <td>3.0</td> <td>Depression Storage (mm)</td> <td>5</td> </tr> <tr> <td>Porosity</td> <td>0.30</td> <td>Evaporation (mm/day)</td> <td>3</td> </tr> <tr> <td>Invert Level (m)</td> <td>6.410</td> <td>Cap Volume Depth (m)</td> <td>0.250</td> </tr> </table>			Infiltration Coefficient Base (m/hr)	0.00360	Width (m)	4.3	Membrane Percolation (mm/hr)	1000	Length (m)	20.1	Max Percolation (l/s)	24.0	Slope (1:X)	1000.0	Safety Factor	3.0	Depression Storage (mm)	5	Porosity	0.30	Evaporation (mm/day)	3	Invert Level (m)	6.410	Cap Volume Depth (m)	0.250
Infiltration Coefficient Base (m/hr)	0.00360	Width (m)	4.3																							
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Porosity	0.30	Evaporation (mm/day)	3																							
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Lone Barn Studios	Burndell Road				
Stanbridge Lane	Porous Carpark Simula...				
Romsey SO51 0HE	P35 (10 years + 30%)				
Date 14/03/2019	Designed by Hoa Nguyen				
File P35 (10 years + ...	Checked by KM				
Micro Drainage	Source Control 2013.1.1				
<u>Summary of Results for 10 year Return Period (+30%)</u>					
Half Drain Time : 1186 minutes.					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	6.408	0.042	0.0	0.4	O K
30 min Summer	6.424	0.058	0.0	0.5	O K
60 min Summer	6.442	0.076	0.0	0.7	O K
120 min Summer	6.461	0.095	0.0	0.9	O K
180 min Summer	6.472	0.106	0.0	1.0	O K
240 min Summer	6.479	0.113	0.0	1.1	O K
360 min Summer	6.489	0.123	0.0	1.2	O K
480 min Summer	6.496	0.130	0.0	1.2	O K
600 min Summer	6.500	0.134	0.0	1.3	O K
720 min Summer	6.503	0.137	0.0	1.3	O K
960 min Summer	6.505	0.139	0.0	1.3	O K
1440 min Summer	6.508	0.142	0.0	1.3	O K
2160 min Summer	6.507	0.141	0.0	1.3	O K
2880 min Summer	6.504	0.138	0.0	1.3	O K
4320 min Summer	6.495	0.129	0.0	1.2	O K
5760 min Summer	6.484	0.118	0.0	1.1	O K
7200 min Summer	6.474	0.108	0.0	1.0	O K
8640 min Summer	6.463	0.097	0.0	0.9	O K
10080 min Summer	6.454	0.088	0.0	0.8	O K
15 min Winter	6.414	0.048	0.0	0.4	O K
30 min Winter	6.433	0.067	0.0	0.6	O K
60 min Winter	6.453	0.087	0.0	0.8	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
15 min Summer	70.770	0.0	19		
30 min Summer	46.698	0.0	34		
60 min Summer	29.629	0.0	64		
120 min Summer	18.344	0.0	124		
180 min Summer	13.747	0.0	182		
240 min Summer	11.169	0.0	242		
360 min Summer	8.317	0.0	362		
480 min Summer	6.743	0.0	482		
600 min Summer	5.728	0.0	600		
720 min Summer	5.011	0.0	720		
960 min Summer	4.057	0.0	894		
1440 min Summer	3.009	0.0	1126		
2160 min Summer	2.231	0.0	1516		
2880 min Summer	1.803	0.0	1932		
4320 min Summer	1.335	0.0	2764		
5760 min Summer	1.078	0.0	3568		
7200 min Summer	0.913	0.0	4328		
8640 min Summer	0.798	0.0	5096		
10080 min Summer	0.711	0.0	5848		
15 min Winter	70.770	0.0	19		
30 min Winter	46.698	0.0	33		
60 min Winter	29.629	0.0	62		
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Lone Barn Studios	Burndell Road				
Stanbridge Lane	Porous Carpark Simula...				
Romsey SO51 0HE	P35 (10 years + 30%)				
Date 14/03/2019	Designed by Hoa Nguyen				
File P35 (10 years + ...	Checked by KM				
Micro Drainage	Source Control 2013.1.1				
<u>Summary of Results for 10 year Return Period (+30%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
120 min Winter	6.474	0.108	0.0	1.0	O K
180 min Winter	6.487	0.121	0.0	1.1	O K
240 min Winter	6.495	0.129	0.0	1.2	O K
360 min Winter	6.507	0.141	0.0	1.3	O K
480 min Winter	6.515	0.149	0.0	1.4	O K
600 min Winter	6.520	0.154	0.0	1.5	O K
720 min Winter	6.524	0.158	0.0	1.5	O K
960 min Winter	6.528	0.162	0.0	1.5	O K
1440 min Winter	6.529	0.163	0.0	1.6	O K
2160 min Winter	6.527	0.161	0.0	1.5	O K
2880 min Winter	6.521	0.155	0.0	1.5	O K
4320 min Winter	6.506	0.140	0.0	1.3	O K
5760 min Winter	6.488	0.122	0.0	1.2	O K
7200 min Winter	6.471	0.105	0.0	1.0	O K
8640 min Winter	6.455	0.089	0.0	0.8	O K
10080 min Winter	6.442	0.076	0.0	0.7	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
120 min Winter	18.344	0.0	122		
180 min Winter	13.747	0.0	180		
240 min Winter	11.169	0.0	238		
360 min Winter	8.317	0.0	356		
480 min Winter	6.743	0.0	470		
600 min Winter	5.728	0.0	584		
720 min Winter	5.011	0.0	700		
960 min Winter	4.057	0.0	922		
1440 min Winter	3.009	0.0	1314		
2160 min Winter	2.231	0.0	1644		
2880 min Winter	1.803	0.0	2104		
4320 min Winter	1.335	0.0	2984		
5760 min Winter	1.078	0.0	3816		
7200 min Winter	0.913	0.0	4616		
8640 min Winter	0.798	0.0	5360		
10080 min Winter	0.711	0.0	6056		
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Lone Barn Studios Stanbridge Lane Romsey SO51 0HE	Burndell Road Porous Carpark Simula... P35 (10 years + 30%)	
Date 14/03/2019 File P35 (10 years + ...	Designed by Hoa Nguyen Checked by KM	
Micro Drainage Source Control 2013.1.1		

Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	10	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.000	Shortest Storm (mins)	15
Ratio R	0.350	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+30

Time Area Diagram

Total Area (ha) 0.004

Time (mins)	Area
From:	To: (ha)
0	4 0.004

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Lone Barn Studios Stanbridge Lane Romsey SO51 0HE	Burndell Road Porous Carpark Simula... P35 (10 years + 30%)																									
Date 14/03/2019 File P35 (10 years + ...	Designed by Hoa Nguyen Checked by KM																									
Micro Drainage Source Control 2013.1.1																										
<u>Model Details</u> Storage is Online Cover Level (m) 6.835 <u>Porous Car Park Structure</u> <table> <tr> <td>Infiltration Coefficient Base (m/hr)</td> <td>0.00360</td> <td>Width (m)</td> <td>3.1</td> </tr> <tr> <td>Membrane Percolation (mm/hr)</td> <td>1000</td> <td>Length (m)</td> <td>10.6</td> </tr> <tr> <td>Max Percolation (l/s)</td> <td>9.1</td> <td>Slope (1:X)</td> <td>1000.0</td> </tr> <tr> <td>Safety Factor</td> <td>3.0</td> <td>Depression Storage (mm)</td> <td>5</td> </tr> <tr> <td>Porosity</td> <td>0.30</td> <td>Evaporation (mm/day)</td> <td>3</td> </tr> <tr> <td>Invert Level (m)</td> <td>6.366</td> <td>Cap Volume Depth (m)</td> <td>0.294</td> </tr> </table>			Infiltration Coefficient Base (m/hr)	0.00360	Width (m)	3.1	Membrane Percolation (mm/hr)	1000	Length (m)	10.6	Max Percolation (l/s)	9.1	Slope (1:X)	1000.0	Safety Factor	3.0	Depression Storage (mm)	5	Porosity	0.30	Evaporation (mm/day)	3	Invert Level (m)	6.366	Cap Volume Depth (m)	0.294
Infiltration Coefficient Base (m/hr)	0.00360	Width (m)	3.1																							
Membrane Percolation (mm/hr)	1000	Length (m)	10.6																							
Max Percolation (l/s)	9.1	Slope (1:X)	1000.0																							
Safety Factor	3.0	Depression Storage (mm)	5																							
Porosity	0.30	Evaporation (mm/day)	3																							
Invert Level (m)	6.366	Cap Volume Depth (m)	0.294																							
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Lone Barn Studios Stanbridge Lane Romsey SO51 0HE		Burndell Road Porous Carpark Simula... P35 (100 years + 30%)			
Date 14/03/2019 File P35 (100 years +...		Designed by Hoa Nguyen Checked by KM			
Micro Drainage		Source Control 2013.1.1			
<u>Summary of Results for 100 year Return Period (+30%)</u> Half Drain Time : 2175 minutes.					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	6.442	0.076	0.0	0.7	O K
30 min Summer	6.472	0.106	0.0	1.0	O K
60 min Summer	6.504	0.138	0.0	1.3	O K
120 min Summer	6.537	0.171	0.0	1.6	Flood Risk
180 min Summer	6.556	0.190	0.0	1.8	Flood Risk
240 min Summer	6.568	0.202	0.0	1.9	Flood Risk
360 min Summer	6.585	0.219	0.0	2.1	Flood Risk
480 min Summer	6.596	0.230	0.0	2.2	Flood Risk
600 min Summer	6.604	0.238	0.0	2.3	Flood Risk
720 min Summer	6.610	0.244	0.0	2.3	Flood Risk
960 min Summer	6.616	0.250	0.0	2.4	Flood Risk
1440 min Summer	6.620	0.254	0.0	2.4	Flood Risk
2160 min Summer	6.616	0.250	0.0	2.4	Flood Risk
2880 min Summer	6.610	0.244	0.0	2.4	Flood Risk
4320 min Summer	6.596	0.230	0.0	2.2	Flood Risk
5760 min Summer	6.580	0.214	0.0	2.1	Flood Risk
7200 min Summer	6.564	0.198	0.0	1.9	Flood Risk
8640 min Summer	6.549	0.183	0.0	1.8	Flood Risk
10080 min Summer	6.535	0.169	0.0	1.6	Flood Risk
15 min Winter	6.452	0.086	0.0	0.8	O K
30 min Winter	6.486	0.120	0.0	1.1	O K
60 min Winter	6.522	0.156	0.0	1.5	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
15 min Summer	115.731	0.0	19		
30 min Summer	77.804	0.0	34		
60 min Summer	49.937	0.0	64		
120 min Summer	30.956	0.0	124		
180 min Summer	23.058	0.0	184		
240 min Summer	18.577	0.0	244		
360 min Summer	13.656	0.0	362		
480 min Summer	10.974	0.0	482		
600 min Summer	9.254	0.0	602		
720 min Summer	8.046	0.0	722		
960 min Summer	6.447	0.0	962		
1440 min Summer	4.709	0.0	1440		
2160 min Summer	3.432	0.0	1796		
2880 min Summer	2.739	0.0	2164		
4320 min Summer	1.989	0.0	2944		
5760 min Summer	1.583	0.0	3752		
7200 min Summer	1.325	0.0	4608		
8640 min Summer	1.147	0.0	5368		
10080 min Summer	1.015	0.0	6152		
15 min Winter	115.731	0.0	19		
30 min Winter	77.804	0.0	34		
60 min Winter	49.937	0.0	64		
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Lone Barn Studios	Burndell Road				
Stanbridge Lane	Porous Carpark Simula...				
Romsey SO51 0HE	P35 (100 years + 30%)				
Date 14/03/2019	Designed by Hoa Nguyen				
File P35 (100 years +...	Checked by KM				
Micro Drainage	Source Control 2013.1.1				
<u>Summary of Results for 100 year Return Period (+30%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
120 min Winter	6.559	0.193	0.0	1.9	Flood Risk
180 min Winter	6.581	0.215	0.0	2.1	Flood Risk
240 min Winter	6.595	0.229	0.0	2.2	Flood Risk
360 min Winter	6.614	0.248	0.0	2.4	Flood Risk
480 min Winter	6.628	0.262	0.0	2.5	Flood Risk
600 min Winter	6.637	0.271	0.0	2.6	Flood Risk
720 min Winter	6.644	0.278	0.0	2.7	Flood Risk
960 min Winter	6.653	0.287	0.0	2.8	Flood Risk
1440 min Winter	6.660	0.294	0.0	2.8	Flood Risk
2160 min Winter	6.656	0.290	0.0	2.8	Flood Risk
2880 min Winter	6.647	0.281	0.0	2.7	Flood Risk
4320 min Winter	6.628	0.262	0.0	2.5	Flood Risk
5760 min Winter	6.605	0.239	0.0	2.3	Flood Risk
7200 min Winter	6.581	0.215	0.0	2.1	Flood Risk
8640 min Winter	6.558	0.192	0.0	1.8	Flood Risk
10080 min Winter	6.536	0.170	0.0	1.6	Flood Risk
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
120 min Winter	30.956	0.0	122		
180 min Winter	23.058	0.0	182		
240 min Winter	18.577	0.0	240		
360 min Winter	13.656	0.0	358		
480 min Winter	10.974	0.0	476		
600 min Winter	9.254	0.0	592		
720 min Winter	8.046	0.0	708		
960 min Winter	6.447	0.0	940		
1440 min Winter	4.709	0.0	1386		
2160 min Winter	3.432	0.0	2032		
2880 min Winter	2.739	0.0	2308		
4320 min Winter	1.989	0.0	3204		
5760 min Winter	1.583	0.0	4104		
7200 min Winter	1.325	0.0	4976		
8640 min Winter	1.147	0.0	5800		
10080 min Winter	1.015	0.0	6648		
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Lone Barn Studios Stanbridge Lane Romsey SO51 0HE	Burndell Road Porous Carpark Simula... P35 (100 years + 30%)																																		
Date 14/03/2019 File P35 (100 years +...	Designed by Hoa Nguyen Checked by KM																																		
Micro Drainage Source Control 2013.1.1																																			
<u>Rainfall Details</u> <table> <tr> <td>Rainfall Model</td> <td>FSR</td> <td>Winter Storms</td> <td>Yes</td> </tr> <tr> <td>Return Period (years)</td> <td>100</td> <td>Cv (Summer)</td> <td>0.750</td> </tr> <tr> <td>Region</td> <td>England and Wales</td> <td>Cv (Winter)</td> <td>0.840</td> </tr> <tr> <td>M5-60 (mm)</td> <td>19.000</td> <td>Shortest Storm (mins)</td> <td>15</td> </tr> <tr> <td>Ratio R</td> <td>0.350</td> <td>Longest Storm (mins)</td> <td>10080</td> </tr> <tr> <td>Summer Storms</td> <td>Yes</td> <td>Climate Change %</td> <td>+30</td> </tr> </table> <u>Time Area Diagram</u> Total Area (ha) 0.004 <table> <thead> <tr> <th colspan="2">Time (mins)</th> <th>Area</th> </tr> <tr> <th>From:</th> <th>To:</th> <th>(ha)</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>4</td> <td>0.004</td> </tr> </tbody> </table>			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	0.350	Longest Storm (mins)	10080	Summer Storms	Yes	Climate Change %	+30	Time (mins)		Area	From:	To:	(ha)	0	4	0.004
Rainfall Model	FSR	Winter Storms	Yes																																
Return Period (years)	100	Cv (Summer)	0.750																																
Region	England and Wales	Cv (Winter)	0.840																																
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Ratio R	0.350	Longest Storm (mins)	10080																																
Summer Storms	Yes	Climate Change %	+30																																
Time (mins)		Area																																	
From:	To:	(ha)																																	
0	4	0.004																																	
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Lone Barn Studios Stanbridge Lane Romsey SO51 0HE	Burndell Road Porous Carpark Simula... P35 (100 years + 30%)																									
Date 14/03/2019 File P35 (100 years +...	Designed by Hoa Nguyen Checked by KM																									
Micro Drainage Source Control 2013.1.1																										
<u>Model Details</u> Storage is Online Cover Level (m) 6.835 <u>Porous Car Park Structure</u> <table> <tr> <td>Infiltration Coefficient Base (m/hr)</td> <td>0.00360</td> <td>Width (m)</td> <td>3.1</td> </tr> <tr> <td>Membrane Percolation (mm/hr)</td> <td>1000</td> <td>Length (m)</td> <td>10.6</td> </tr> <tr> <td>Max Percolation (l/s)</td> <td>9.1</td> <td>Slope (1:X)</td> <td>1000.0</td> </tr> <tr> <td>Safety Factor</td> <td>3.0</td> <td>Depression Storage (mm)</td> <td>5</td> </tr> <tr> <td>Porosity</td> <td>0.30</td> <td>Evaporation (mm/day)</td> <td>3</td> </tr> <tr> <td>Invert Level (m)</td> <td>6.366</td> <td>Cap Volume Depth (m)</td> <td>0.294</td> </tr> </table>			Infiltration Coefficient Base (m/hr)	0.00360	Width (m)	3.1	Membrane Percolation (mm/hr)	1000	Length (m)	10.6	Max Percolation (l/s)	9.1	Slope (1:X)	1000.0	Safety Factor	3.0	Depression Storage (mm)	5	Porosity	0.30	Evaporation (mm/day)	3	Invert Level (m)	6.366	Cap Volume Depth (m)	0.294
Infiltration Coefficient Base (m/hr)	0.00360	Width (m)	3.1																							
Membrane Percolation (mm/hr)	1000	Length (m)	10.6																							
Max Percolation (l/s)	9.1	Slope (1:X)	1000.0																							
Safety Factor	3.0	Depression Storage (mm)	5																							
Porosity	0.30	Evaporation (mm/day)	3																							
Invert Level (m)	6.366	Cap Volume Depth (m)	0.294																							
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Lone Barn Studios	Burndell Road				
Stanbridge Lane	Porous Carpark Simula...				
Romsey SO51 0HE	P36 (100 years + 30%)				
Date 14/03/2019	Designed by Hoa Nguyen				
File P36 (10 years + ...	Checked by KM				
Micro Drainage	Source Control 2013.1.1				
<u>Summary of Results for 10 year Return Period (+30%)</u>					
Half Drain Time : 1077 minutes.					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	6.643	0.037	0.0	0.4	O K
30 min Summer	6.659	0.053	0.0	0.6	O K
60 min Summer	6.675	0.069	0.0	0.9	O K
120 min Summer	6.693	0.087	0.0	1.1	O K
180 min Summer	6.703	0.097	0.0	1.2	O K
240 min Summer	6.710	0.104	0.0	1.3	O K
360 min Summer	6.719	0.113	0.0	1.4	O K
480 min Summer	6.724	0.118	0.0	1.5	O K
600 min Summer	6.728	0.122	0.0	1.6	O K
720 min Summer	6.730	0.124	0.0	1.6	O K
960 min Summer	6.733	0.127	0.0	1.6	O K
1440 min Summer	6.735	0.129	0.0	1.6	O K
2160 min Summer	6.734	0.128	0.0	1.6	O K
2880 min Summer	6.731	0.125	0.0	1.6	O K
4320 min Summer	6.722	0.116	0.0	1.5	O K
5760 min Summer	6.712	0.106	0.0	1.3	O K
7200 min Summer	6.701	0.095	0.0	1.2	O K
8640 min Summer	6.692	0.086	0.0	1.1	O K
10080 min Summer	6.683	0.077	0.0	1.0	O K
15 min Winter	6.649	0.043	0.0	0.5	O K
30 min Winter	6.667	0.061	0.0	0.7	O K
60 min Winter	6.685	0.079	0.0	1.0	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
15 min Summer	70.770	0.0	19		
30 min Summer	46.698	0.0	34		
60 min Summer	29.629	0.0	64		
120 min Summer	18.344	0.0	124		
180 min Summer	13.747	0.0	182		
240 min Summer	11.169	0.0	242		
360 min Summer	8.317	0.0	362		
480 min Summer	6.743	0.0	482		
600 min Summer	5.728	0.0	600		
720 min Summer	5.011	0.0	720		
960 min Summer	4.057	0.0	838		
1440 min Summer	3.009	0.0	1096		
2160 min Summer	2.231	0.0	1492		
2880 min Summer	1.803	0.0	1904		
4320 min Summer	1.335	0.0	2724		
5760 min Summer	1.078	0.0	3520		
7200 min Summer	0.913	0.0	4256		
8640 min Summer	0.798	0.0	5016		
10080 min Summer	0.711	0.0	5752		
15 min Winter	70.770	0.0	19		
30 min Winter	46.698	0.0	33		
60 min Winter	29.629	0.0	62		
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Lone Barn Studios	Burndell Road				
Stanbridge Lane	Porous Carpark Simula...				
Romsey SO51 0HE	P36 (100 years + 30%)				
Date 14/03/2019	Designed by Hoa Nguyen				
File P36 (10 years + ...	Checked by KM				
Micro Drainage	Source Control 2013.1.1				
<u>Summary of Results for 10 year Return Period (+30%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
120 min Winter	6.705	0.099	0.0	1.2	O K
180 min Winter	6.717	0.111	0.0	1.4	O K
240 min Winter	6.725	0.119	0.0	1.5	O K
360 min Winter	6.735	0.129	0.0	1.6	O K
480 min Winter	6.742	0.136	0.0	1.7	O K
600 min Winter	6.747	0.141	0.0	1.8	O K
720 min Winter	6.750	0.144	0.0	1.8	O K
960 min Winter	6.753	0.147	0.0	1.9	Flood Risk
1440 min Winter	6.754	0.148	0.0	1.9	Flood Risk
2160 min Winter	6.751	0.145	0.0	1.9	Flood Risk
2880 min Winter	6.746	0.140	0.0	1.8	O K
4320 min Winter	6.730	0.124	0.0	1.6	O K
5760 min Winter	6.713	0.107	0.0	1.4	O K
7200 min Winter	6.697	0.091	0.0	1.1	O K
8640 min Winter	6.683	0.077	0.0	1.0	O K
10080 min Winter	6.670	0.064	0.0	0.8	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
120 min Winter	18.344	0.0	122		
180 min Winter	13.747	0.0	180		
240 min Winter	11.169	0.0	238		
360 min Winter	8.317	0.0	354		
480 min Winter	6.743	0.0	470		
600 min Winter	5.728	0.0	584		
720 min Winter	5.011	0.0	696		
960 min Winter	4.057	0.0	914		
1440 min Winter	3.009	0.0	1170		
2160 min Winter	2.231	0.0	1624		
2880 min Winter	1.803	0.0	2076		
4320 min Winter	1.335	0.0	2944		
5760 min Winter	1.078	0.0	3800		
7200 min Winter	0.913	0.0	4544		
8640 min Winter	0.798	0.0	5272		
10080 min Winter	0.711	0.0	5944		
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Lone Barn Studios Stanbridge Lane Romsey SO51 0HE	Burndell Road Porous Carpark Simula... P36 (100 years + 30%)	
Date 14/03/2019 File P36 (10 years + ...	Designed by Hoa Nguyen Checked by KM	
Micro Drainage Source Control 2013.1.1		

Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	10	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.000	Shortest Storm (mins)	15
Ratio R	0.350	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+30

Time Area Diagram

Total Area (ha) 0.005

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

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Lone Barn Studios Stanbridge Lane Romsey SO51 0HE	Burndell Road Porous Carpark Simula... P36 (100 years + 30%)																									
Date 14/03/2019 File P36 (10 years + ...	Designed by Hoa Nguyen Checked by KM																									
Micro Drainage Source Control 2013.1.1																										
<u>Model Details</u> Storage is Online Cover Level (m) 7.050 <u>Porous Car Park Structure</u> <table> <tr> <td>Infiltration Coefficient Base (m/hr)</td> <td>0.00360</td> <td>Width (m)</td> <td>5.0</td> </tr> <tr> <td>Membrane Percolation (mm/hr)</td> <td>1000</td> <td>Length (m)</td> <td>8.8</td> </tr> <tr> <td>Max Percolation (l/s)</td> <td>12.2</td> <td>Slope (1:X)</td> <td>1000.0</td> </tr> <tr> <td>Safety Factor</td> <td>3.0</td> <td>Depression Storage (mm)</td> <td>5</td> </tr> <tr> <td>Porosity</td> <td>0.30</td> <td>Evaporation (mm/day)</td> <td>3</td> </tr> <tr> <td>Invert Level (m)</td> <td>6.606</td> <td>Cap Volume Depth (m)</td> <td>0.269</td> </tr> </table>			Infiltration Coefficient Base (m/hr)	0.00360	Width (m)	5.0	Membrane Percolation (mm/hr)	1000	Length (m)	8.8	Max Percolation (l/s)	12.2	Slope (1:X)	1000.0	Safety Factor	3.0	Depression Storage (mm)	5	Porosity	0.30	Evaporation (mm/day)	3	Invert Level (m)	6.606	Cap Volume Depth (m)	0.269
Infiltration Coefficient Base (m/hr)	0.00360	Width (m)	5.0																							
Membrane Percolation (mm/hr)	1000	Length (m)	8.8																							
Max Percolation (l/s)	12.2	Slope (1:X)	1000.0																							
Safety Factor	3.0	Depression Storage (mm)	5																							
Porosity	0.30	Evaporation (mm/day)	3																							
Invert Level (m)	6.606	Cap Volume Depth (m)	0.269																							
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Lone Barn Studios	Burndell Road				
Stanbridge Lane	Porous Carpark Simula...				
Romsey SO51 0HE	P36 (100 years + 30%)				
Date 14/03/2019	Designed by Hoa Nguyen				
File P36 (100 years +...	Checked by KM				
Micro Drainage	Source Control 2013.1.1				
<u>Summary of Results for 100 year Return Period (+30%)</u> Half Drain Time : 1998 minutes.					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	6.675	0.069	0.0	0.9	O K
30 min Summer	6.703	0.097	0.0	1.2	O K
60 min Summer	6.733	0.127	0.0	1.6	O K
120 min Summer	6.764	0.158	0.0	2.0	Flood Risk
180 min Summer	6.781	0.175	0.0	2.3	Flood Risk
240 min Summer	6.793	0.187	0.0	2.4	Flood Risk
360 min Summer	6.808	0.202	0.0	2.6	Flood Risk
480 min Summer	6.818	0.212	0.0	2.7	Flood Risk
600 min Summer	6.825	0.219	0.0	2.8	Flood Risk
720 min Summer	6.830	0.224	0.0	2.9	Flood Risk
960 min Summer	6.836	0.230	0.0	3.0	Flood Risk
1440 min Summer	6.837	0.231	0.0	3.0	Flood Risk
2160 min Summer	6.834	0.228	0.0	2.9	Flood Risk
2880 min Summer	6.828	0.222	0.0	2.9	Flood Risk
4320 min Summer	6.814	0.208	0.0	2.7	Flood Risk
5760 min Summer	6.799	0.193	0.0	2.5	Flood Risk
7200 min Summer	6.784	0.178	0.0	2.3	Flood Risk
8640 min Summer	6.769	0.163	0.0	2.1	Flood Risk
10080 min Summer	6.756	0.150	0.0	1.9	Flood Risk
15 min Winter	6.685	0.079	0.0	1.0	O K
30 min Winter	6.716	0.110	0.0	1.4	O K
60 min Winter	6.750	0.144	0.0	1.8	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
15 min Summer	115.731	0.0	19		
30 min Summer	77.804	0.0	34		
60 min Summer	49.937	0.0	64		
120 min Summer	30.956	0.0	124		
180 min Summer	23.058	0.0	184		
240 min Summer	18.577	0.0	244		
360 min Summer	13.656	0.0	362		
480 min Summer	10.974	0.0	482		
600 min Summer	9.254	0.0	602		
720 min Summer	8.046	0.0	722		
960 min Summer	6.447	0.0	960		
1440 min Summer	4.709	0.0	1402		
2160 min Summer	3.432	0.0	1732		
2880 min Summer	2.739	0.0	2104		
4320 min Summer	1.989	0.0	2900		
5760 min Summer	1.583	0.0	3744		
7200 min Summer	1.325	0.0	4536		
8640 min Summer	1.147	0.0	5352		
10080 min Summer	1.015	0.0	6056		
15 min Winter	115.731	0.0	19		
30 min Winter	77.804	0.0	34		
60 min Winter	49.937	0.0	64		
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Lone Barn Studios	Burndell Road				
Stanbridge Lane	Porous Carpark Simula...				
Romsey SO51 0HE	P36 (100 years + 30%)				
Date 14/03/2019	Designed by Hoa Nguyen				
File P36 (100 years +...	Checked by KM				
Micro Drainage		Source Control 2013.1.1			
<u>Summary of Results for 100 year Return Period (+30%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
120 min Winter	6.785	0.179	0.0	2.3	Flood Risk
180 min Winter	6.804	0.198	0.0	2.6	Flood Risk
240 min Winter	6.818	0.212	0.0	2.7	Flood Risk
360 min Winter	6.835	0.229	0.0	3.0	Flood Risk
480 min Winter	6.847	0.241	0.0	3.1	Flood Risk
600 min Winter	6.856	0.250	0.0	3.2	Flood Risk
720 min Winter	6.862	0.256	0.0	3.3	Flood Risk
960 min Winter	6.870	0.264	0.0	3.4	Flood Risk
1440 min Winter	6.875	0.269	0.0	3.5	Flood Risk
2160 min Winter	6.870	0.264	0.0	3.4	Flood Risk
2880 min Winter	6.861	0.255	0.0	3.3	Flood Risk
4320 min Winter	6.842	0.236	0.0	3.1	Flood Risk
5760 min Winter	6.819	0.213	0.0	2.8	Flood Risk
7200 min Winter	6.796	0.190	0.0	2.4	Flood Risk
8640 min Winter	6.773	0.167	0.0	2.2	Flood Risk
10080 min Winter	6.753	0.147	0.0	1.9	Flood Risk
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
120 min Winter	30.956	0.0	122		
180 min Winter	23.058	0.0	180		
240 min Winter	18.577	0.0	240		
360 min Winter	13.656	0.0	358		
480 min Winter	10.974	0.0	474		
600 min Winter	9.254	0.0	590		
720 min Winter	8.046	0.0	708		
960 min Winter	6.447	0.0	936		
1440 min Winter	4.709	0.0	1384		
2160 min Winter	3.432	0.0	2012		
2880 min Winter	2.739	0.0	2276		
4320 min Winter	1.989	0.0	3160		
5760 min Winter	1.583	0.0	4088		
7200 min Winter	1.325	0.0	4904		
8640 min Winter	1.147	0.0	5712		
10080 min Winter	1.015	0.0	6552		
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Escher Silverman		Page 3
Lone Barn Studios Stanbridge Lane Romsey SO51 0HE	Burndell Road Porous Carpark Simula... P36 (100 years + 30%)	
Date 14/03/2019 File P36 (100 years +...	Designed by Hoa Nguyen Checked by KM	
Micro Drainage Source Control 2013.1.1		

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	0.350	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+30

Time Area Diagram

Total Area (ha) 0.005

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

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Escher Silverman		Page 4																								
Lone Barn Studios Stanbridge Lane Romsey SO51 0HE	Burndell Road Porous Carpark Simula... P36 (100 years + 30%)																									
Date 14/03/2019 File P36 (100 years +...	Designed by Hoa Nguyen Checked by KM																									
Micro Drainage Source Control 2013.1.1																										
<u>Model Details</u> Storage is Online Cover Level (m) 7.050 <u>Porous Car Park Structure</u> <table> <tr> <td>Infiltration Coefficient Base (m/hr)</td> <td>0.00360</td> <td>Width (m)</td> <td>5.0</td> </tr> <tr> <td>Membrane Percolation (mm/hr)</td> <td>1000</td> <td>Length (m)</td> <td>8.8</td> </tr> <tr> <td>Max Percolation (l/s)</td> <td>12.2</td> <td>Slope (1:X)</td> <td>1000.0</td> </tr> <tr> <td>Safety Factor</td> <td>3.0</td> <td>Depression Storage (mm)</td> <td>5</td> </tr> <tr> <td>Porosity</td> <td>0.30</td> <td>Evaporation (mm/day)</td> <td>3</td> </tr> <tr> <td>Invert Level (m)</td> <td>6.606</td> <td>Cap Volume Depth (m)</td> <td>0.269</td> </tr> </table>			Infiltration Coefficient Base (m/hr)	0.00360	Width (m)	5.0	Membrane Percolation (mm/hr)	1000	Length (m)	8.8	Max Percolation (l/s)	12.2	Slope (1:X)	1000.0	Safety Factor	3.0	Depression Storage (mm)	5	Porosity	0.30	Evaporation (mm/day)	3	Invert Level (m)	6.606	Cap Volume Depth (m)	0.269
Infiltration Coefficient Base (m/hr)	0.00360	Width (m)	5.0																							
Membrane Percolation (mm/hr)	1000	Length (m)	8.8																							
Max Percolation (l/s)	12.2	Slope (1:X)	1000.0																							
Safety Factor	3.0	Depression Storage (mm)	5																							
Porosity	0.30	Evaporation (mm/day)	3																							
Invert Level (m)	6.606	Cap Volume Depth (m)	0.269																							
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Escher Silverman			Page 1		
Lone Barn Studios	Burndell Road				
Stanbridge Lane	Porous Carpark Simula...				
Romsey SO51 0HE	P37 (10 years + 30%)				
Date 14/03/2019	Designed by Hoa Nguyen				
File P37 (10 years + ...	Checked by KM				
Micro Drainage	Source Control 2013.1.1				
<u>Summary of Results for 10 year Return Period (+30%)</u>					
Half Drain Time : 1077 minutes.					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	6.763	0.037	0.0	0.4	O K
30 min Summer	6.779	0.053	0.0	0.6	O K
60 min Summer	6.795	0.069	0.0	0.9	O K
120 min Summer	6.813	0.087	0.0	1.1	O K
180 min Summer	6.823	0.097	0.0	1.2	O K
240 min Summer	6.830	0.104	0.0	1.3	O K
360 min Summer	6.839	0.113	0.0	1.4	O K
480 min Summer	6.844	0.118	0.0	1.5	O K
600 min Summer	6.848	0.122	0.0	1.6	O K
720 min Summer	6.850	0.124	0.0	1.6	O K
960 min Summer	6.853	0.127	0.0	1.6	O K
1440 min Summer	6.855	0.129	0.0	1.6	O K
2160 min Summer	6.854	0.128	0.0	1.6	O K
2880 min Summer	6.851	0.125	0.0	1.6	O K
4320 min Summer	6.842	0.116	0.0	1.5	O K
5760 min Summer	6.832	0.106	0.0	1.3	O K
7200 min Summer	6.821	0.095	0.0	1.2	O K
8640 min Summer	6.812	0.086	0.0	1.1	O K
10080 min Summer	6.803	0.077	0.0	1.0	O K
15 min Winter	6.769	0.043	0.0	0.5	O K
30 min Winter	6.787	0.061	0.0	0.7	O K
60 min Winter	6.805	0.079	0.0	1.0	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
15 min Summer	70.770	0.0	19		
30 min Summer	46.698	0.0	34		
60 min Summer	29.629	0.0	64		
120 min Summer	18.344	0.0	124		
180 min Summer	13.747	0.0	182		
240 min Summer	11.169	0.0	242		
360 min Summer	8.317	0.0	362		
480 min Summer	6.743	0.0	482		
600 min Summer	5.728	0.0	600		
720 min Summer	5.011	0.0	720		
960 min Summer	4.057	0.0	838		
1440 min Summer	3.009	0.0	1096		
2160 min Summer	2.231	0.0	1492		
2880 min Summer	1.803	0.0	1904		
4320 min Summer	1.335	0.0	2724		
5760 min Summer	1.078	0.0	3520		
7200 min Summer	0.913	0.0	4256		
8640 min Summer	0.798	0.0	5016		
10080 min Summer	0.711	0.0	5752		
15 min Winter	70.770	0.0	19		
30 min Winter	46.698	0.0	33		
60 min Winter	29.629	0.0	62		
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Escher Silverman			Page 2		
Lone Barn Studios Stanbridge Lane Romsey SO51 0HE		Burndell Road Porous Carpark Simula... P37 (10 years + 30%)			
Date 14/03/2019 File P37 (10 years + ...		Designed by Hoa Nguyen Checked by KM			
Micro Drainage		Source Control 2013.1.1			
<u>Summary of Results for 10 year Return Period (+30%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
120 min Winter	6.825	0.099	0.0	1.2	O K
180 min Winter	6.837	0.111	0.0	1.4	O K
240 min Winter	6.845	0.119	0.0	1.5	O K
360 min Winter	6.855	0.129	0.0	1.6	O K
480 min Winter	6.862	0.136	0.0	1.7	O K
600 min Winter	6.867	0.141	0.0	1.8	O K
720 min Winter	6.870	0.144	0.0	1.8	O K
960 min Winter	6.873	0.147	0.0	1.9	Flood Risk
1440 min Winter	6.874	0.148	0.0	1.9	Flood Risk
2160 min Winter	6.871	0.145	0.0	1.9	Flood Risk
2880 min Winter	6.866	0.140	0.0	1.8	O K
4320 min Winter	6.850	0.124	0.0	1.6	O K
5760 min Winter	6.833	0.107	0.0	1.4	O K
7200 min Winter	6.817	0.091	0.0	1.1	O K
8640 min Winter	6.803	0.077	0.0	1.0	O K
10080 min Winter	6.790	0.064	0.0	0.8	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
120 min Winter	18.344	0.0	122		
180 min Winter	13.747	0.0	180		
240 min Winter	11.169	0.0	238		
360 min Winter	8.317	0.0	354		
480 min Winter	6.743	0.0	470		
600 min Winter	5.728	0.0	584		
720 min Winter	5.011	0.0	696		
960 min Winter	4.057	0.0	914		
1440 min Winter	3.009	0.0	1170		
2160 min Winter	2.231	0.0	1624		
2880 min Winter	1.803	0.0	2076		
4320 min Winter	1.335	0.0	2944		
5760 min Winter	1.078	0.0	3800		
7200 min Winter	0.913	0.0	4544		
8640 min Winter	0.798	0.0	5272		
10080 min Winter	0.711	0.0	5944		
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Escher Silverman		Page 3
Lone Barn Studios Stanbridge Lane Romsey SO51 0HE	Burndell Road Porous Carpark Simula... P37 (10 years + 30%)	
Date 14/03/2019 File P37 (10 years + ...	Designed by Hoa Nguyen Checked by KM	
Micro Drainage Source Control 2013.1.1		

Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	10	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.000	Shortest Storm (mins)	15
Ratio R	0.350	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+30

Time Area Diagram

Total Area (ha) 0.005

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

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Escher Silverman		Page 4																								
Lone Barn Studios Stanbridge Lane Romsey SO51 0HE	Burndell Road Porous Carpark Simula... P37 (10 years + 30%)																									
Date 14/03/2019 File P37 (10 years + ...	Designed by Hoa Nguyen Checked by KM																									
Micro Drainage Source Control 2013.1.1																										
<u>Model Details</u> Storage is Online Cover Level (m) 7.170 <u>Porous Car Park Structure</u> <table> <tr> <td>Infiltration Coefficient Base (m/hr)</td> <td>0.00360</td> <td>Width (m)</td> <td>5.0</td> </tr> <tr> <td>Membrane Percolation (mm/hr)</td> <td>1000</td> <td>Length (m)</td> <td>8.8</td> </tr> <tr> <td>Max Percolation (l/s)</td> <td>12.2</td> <td>Slope (1:X)</td> <td>1000.0</td> </tr> <tr> <td>Safety Factor</td> <td>3.0</td> <td>Depression Storage (mm)</td> <td>5</td> </tr> <tr> <td>Porosity</td> <td>0.30</td> <td>Evaporation (mm/day)</td> <td>3</td> </tr> <tr> <td>Invert Level (m)</td> <td>6.726</td> <td>Cap Volume Depth (m)</td> <td>0.269</td> </tr> </table>			Infiltration Coefficient Base (m/hr)	0.00360	Width (m)	5.0	Membrane Percolation (mm/hr)	1000	Length (m)	8.8	Max Percolation (l/s)	12.2	Slope (1:X)	1000.0	Safety Factor	3.0	Depression Storage (mm)	5	Porosity	0.30	Evaporation (mm/day)	3	Invert Level (m)	6.726	Cap Volume Depth (m)	0.269
Infiltration Coefficient Base (m/hr)	0.00360	Width (m)	5.0																							
Membrane Percolation (mm/hr)	1000	Length (m)	8.8																							
Max Percolation (l/s)	12.2	Slope (1:X)	1000.0																							
Safety Factor	3.0	Depression Storage (mm)	5																							
Porosity	0.30	Evaporation (mm/day)	3																							
Invert Level (m)	6.726	Cap Volume Depth (m)	0.269																							
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Escher Silverman			Page 1		
Lone Barn Studios	Burndell Road				
Stanbridge Lane	Porous Carpark Simula...				
Romsey SO51 0HE	P37 (100 years + 30%)				
Date 14/03/2019	Designed by Hoa Nguyen				
File P37 (100 years +...	Checked by KM				
Micro Drainage	Source Control 2013.1.1				
<u>Summary of Results for 100 year Return Period (+30%)</u>					
Half Drain Time : 1998 minutes.					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	6.795	0.069	0.0	0.9	O K
30 min Summer	6.823	0.097	0.0	1.2	O K
60 min Summer	6.853	0.127	0.0	1.6	O K
120 min Summer	6.884	0.158	0.0	2.0	Flood Risk
180 min Summer	6.901	0.175	0.0	2.3	Flood Risk
240 min Summer	6.913	0.187	0.0	2.4	Flood Risk
360 min Summer	6.928	0.202	0.0	2.6	Flood Risk
480 min Summer	6.938	0.212	0.0	2.7	Flood Risk
600 min Summer	6.945	0.219	0.0	2.8	Flood Risk
720 min Summer	6.950	0.224	0.0	2.9	Flood Risk
960 min Summer	6.956	0.230	0.0	3.0	Flood Risk
1440 min Summer	6.957	0.231	0.0	3.0	Flood Risk
2160 min Summer	6.954	0.228	0.0	2.9	Flood Risk
2880 min Summer	6.948	0.222	0.0	2.9	Flood Risk
4320 min Summer	6.934	0.208	0.0	2.7	Flood Risk
5760 min Summer	6.919	0.193	0.0	2.5	Flood Risk
7200 min Summer	6.904	0.178	0.0	2.3	Flood Risk
8640 min Summer	6.889	0.163	0.0	2.1	Flood Risk
10080 min Summer	6.876	0.150	0.0	1.9	Flood Risk
15 min Winter	6.805	0.079	0.0	1.0	O K
30 min Winter	6.836	0.110	0.0	1.4	O K
60 min Winter	6.870	0.144	0.0	1.8	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
15 min Summer	115.731	0.0	19		
30 min Summer	77.804	0.0	34		
60 min Summer	49.937	0.0	64		
120 min Summer	30.956	0.0	124		
180 min Summer	23.058	0.0	184		
240 min Summer	18.577	0.0	244		
360 min Summer	13.656	0.0	362		
480 min Summer	10.974	0.0	482		
600 min Summer	9.254	0.0	602		
720 min Summer	8.046	0.0	722		
960 min Summer	6.447	0.0	960		
1440 min Summer	4.709	0.0	1402		
2160 min Summer	3.432	0.0	1732		
2880 min Summer	2.739	0.0	2104		
4320 min Summer	1.989	0.0	2900		
5760 min Summer	1.583	0.0	3744		
7200 min Summer	1.325	0.0	4536		
8640 min Summer	1.147	0.0	5352		
10080 min Summer	1.015	0.0	6056		
15 min Winter	115.731	0.0	19		
30 min Winter	77.804	0.0	34		
60 min Winter	49.937	0.0	64		
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Escher Silverman			Page 2		
Lone Barn Studios Stanbridge Lane Romsey SO51 0HE		Burndell Road Porous Carpark Simula... P37 (100 years + 30%)			
Date 14/03/2019 File P37 (100 years +...		Designed by Hoa Nguyen Checked by KM			
Micro Drainage		Source Control 2013.1.1			
<u>Summary of Results for 100 year Return Period (+30%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
120 min Winter	6.905	0.179	0.0	2.3	Flood Risk
180 min Winter	6.924	0.198	0.0	2.6	Flood Risk
240 min Winter	6.938	0.212	0.0	2.7	Flood Risk
360 min Winter	6.955	0.229	0.0	3.0	Flood Risk
480 min Winter	6.967	0.241	0.0	3.1	Flood Risk
600 min Winter	6.976	0.250	0.0	3.2	Flood Risk
720 min Winter	6.982	0.256	0.0	3.3	Flood Risk
960 min Winter	6.990	0.264	0.0	3.4	Flood Risk
1440 min Winter	6.995	0.269	0.0	3.5	Flood Risk
2160 min Winter	6.990	0.264	0.0	3.4	Flood Risk
2880 min Winter	6.981	0.255	0.0	3.3	Flood Risk
4320 min Winter	6.962	0.236	0.0	3.1	Flood Risk
5760 min Winter	6.939	0.213	0.0	2.8	Flood Risk
7200 min Winter	6.916	0.190	0.0	2.4	Flood Risk
8640 min Winter	6.893	0.167	0.0	2.2	Flood Risk
10080 min Winter	6.873	0.147	0.0	1.9	Flood Risk
Storm Event	Rain (mm/hr)		Flooded Volume (m³)	Time-Peak (mins)	
120 min Winter	30.956		0.0	122	
180 min Winter	23.058		0.0	180	
240 min Winter	18.577		0.0	240	
360 min Winter	13.656		0.0	358	
480 min Winter	10.974		0.0	474	
600 min Winter	9.254		0.0	590	
720 min Winter	8.046		0.0	708	
960 min Winter	6.447		0.0	936	
1440 min Winter	4.709		0.0	1384	
2160 min Winter	3.432		0.0	2012	
2880 min Winter	2.739		0.0	2276	
4320 min Winter	1.989		0.0	3160	
5760 min Winter	1.583		0.0	4088	
7200 min Winter	1.325		0.0	4904	
8640 min Winter	1.147		0.0	5712	
10080 min Winter	1.015		0.0	6552	
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Escher Silverman		Page 3
Lone Barn Studios Stanbridge Lane Romsey SO51 0HE	Burndell Road Porous Carpark Simula... P37 (100 years + 30%)	
Date 14/03/2019 File P37 (100 years +...	Designed by Hoa Nguyen Checked by KM	
Micro Drainage Source Control 2013.1.1		

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	0.350	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+30

Time Area Diagram

Total Area (ha) 0.005

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

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Escher Silverman		Page 4																								
Lone Barn Studios Stanbridge Lane Romsey SO51 0HE	Burndell Road Porous Carpark Simula... P37 (100 years + 30%)																									
Date 14/03/2019 File P37 (100 years +...	Designed by Hoa Nguyen Checked by KM																									
Micro Drainage Source Control 2013.1.1																										
<u>Model Details</u> Storage is Online Cover Level (m) 7.170 <u>Porous Car Park Structure</u> <table> <tr> <td>Infiltration Coefficient Base (m/hr)</td> <td>0.00360</td> <td>Width (m)</td> <td>5.0</td> </tr> <tr> <td>Membrane Percolation (mm/hr)</td> <td>1000</td> <td>Length (m)</td> <td>8.8</td> </tr> <tr> <td>Max Percolation (l/s)</td> <td>12.2</td> <td>Slope (1:X)</td> <td>1000.0</td> </tr> <tr> <td>Safety Factor</td> <td>3.0</td> <td>Depression Storage (mm)</td> <td>5</td> </tr> <tr> <td>Porosity</td> <td>0.30</td> <td>Evaporation (mm/day)</td> <td>3</td> </tr> <tr> <td>Invert Level (m)</td> <td>6.726</td> <td>Cap Volume Depth (m)</td> <td>0.269</td> </tr> </table>			Infiltration Coefficient Base (m/hr)	0.00360	Width (m)	5.0	Membrane Percolation (mm/hr)	1000	Length (m)	8.8	Max Percolation (l/s)	12.2	Slope (1:X)	1000.0	Safety Factor	3.0	Depression Storage (mm)	5	Porosity	0.30	Evaporation (mm/day)	3	Invert Level (m)	6.726	Cap Volume Depth (m)	0.269
Infiltration Coefficient Base (m/hr)	0.00360	Width (m)	5.0																							
Membrane Percolation (mm/hr)	1000	Length (m)	8.8																							
Max Percolation (l/s)	12.2	Slope (1:X)	1000.0																							
Safety Factor	3.0	Depression Storage (mm)	5																							
Porosity	0.30	Evaporation (mm/day)	3																							
Invert Level (m)	6.726	Cap Volume Depth (m)	0.269																							
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Escher Silverman			Page 1		
Lone Barn Studios	Burndell Road				
Stanbridge Lane	Porous Carpark Simula...				
Romsey SO51 0HE	P38 (10 years + 30%)				
Date 14/03/2019	Designed by Hoa Nguyen				
File P38 (10 years + ...	Checked by KM				
Micro Drainage	Source Control 2013.1.1				
<u>Summary of Results for 10 year Return Period (+30%)</u>					
Half Drain Time : 1029 minutes.					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	6.752	0.039	0.0	0.5	O K
30 min Summer	6.767	0.054	0.0	0.8	O K
60 min Summer	6.783	0.070	0.0	1.0	O K
120 min Summer	6.800	0.087	0.0	1.3	O K
180 min Summer	6.810	0.097	0.0	1.5	O K
240 min Summer	6.817	0.104	0.0	1.6	O K
360 min Summer	6.825	0.112	0.0	1.7	O K
480 min Summer	6.831	0.118	0.0	1.8	O K
600 min Summer	6.834	0.121	0.0	1.8	O K
720 min Summer	6.836	0.123	0.0	1.9	O K
960 min Summer	6.838	0.125	0.0	1.9	O K
1440 min Summer	6.840	0.127	0.0	1.9	O K
2160 min Summer	6.839	0.126	0.0	1.9	O K
2880 min Summer	6.835	0.122	0.0	1.9	O K
4320 min Summer	6.826	0.113	0.0	1.7	O K
5760 min Summer	6.815	0.102	0.0	1.5	O K
7200 min Summer	6.805	0.092	0.0	1.4	O K
8640 min Summer	6.795	0.082	0.0	1.2	O K
10080 min Summer	6.787	0.074	0.0	1.1	O K
15 min Winter	6.758	0.045	0.0	0.6	O K
30 min Winter	6.775	0.062	0.0	0.9	O K
60 min Winter	6.793	0.080	0.0	1.2	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
15 min Summer	70.770	0.0	19		
30 min Summer	46.698	0.0	34		
60 min Summer	29.629	0.0	64		
120 min Summer	18.344	0.0	122		
180 min Summer	13.747	0.0	182		
240 min Summer	11.169	0.0	242		
360 min Summer	8.317	0.0	362		
480 min Summer	6.743	0.0	482		
600 min Summer	5.728	0.0	600		
720 min Summer	5.011	0.0	720		
960 min Summer	4.057	0.0	828		
1440 min Summer	3.009	0.0	1082		
2160 min Summer	2.231	0.0	1488		
2880 min Summer	1.803	0.0	1900		
4320 min Summer	1.335	0.0	2720		
5760 min Summer	1.078	0.0	3512		
7200 min Summer	0.913	0.0	4256		
8640 min Summer	0.798	0.0	5016		
10080 min Summer	0.711	0.0	5744		
15 min Winter	70.770	0.0	19		
30 min Winter	46.698	0.0	33		
60 min Winter	29.629	0.0	62		
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Escher Silverman			Page 2		
Lone Barn Studios		Burndell Road			
Stanbridge Lane		Porous Carpark Simula...			
Romsey SO51 0HE		P38 (10 years + 30%)			
Date 14/03/2019		Designed by Hoa Nguyen			
File P38 (10 years + ...		Checked by KM			
Micro Drainage		Source Control 2013.1.1			
<u>Summary of Results for 10 year Return Period (+30%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
120 min Winter	6.812	0.099	0.0	1.5	O K
180 min Winter	6.823	0.110	0.0	1.7	O K
240 min Winter	6.831	0.118	0.0	1.8	O K
360 min Winter	6.841	0.128	0.0	2.0	O K
480 min Winter	6.848	0.135	0.0	2.1	O K
600 min Winter	6.852	0.139	0.0	2.1	Flood Risk
720 min Winter	6.855	0.142	0.0	2.2	Flood Risk
960 min Winter	6.858	0.145	0.0	2.2	Flood Risk
1440 min Winter	6.858	0.145	0.0	2.2	Flood Risk
2160 min Winter	6.855	0.142	0.0	2.2	Flood Risk
2880 min Winter	6.849	0.136	0.0	2.1	O K
4320 min Winter	6.833	0.120	0.0	1.8	O K
5760 min Winter	6.816	0.103	0.0	1.5	O K
7200 min Winter	6.800	0.087	0.0	1.3	O K
8640 min Winter	6.786	0.073	0.0	1.1	O K
10080 min Winter	6.774	0.061	0.0	0.9	O K
Storm Event	Rain (mm/hr)		Flooded Volume (m³)	Time-Peak (mins)	
120 min Winter	18.344		0.0	122	
180 min Winter	13.747		0.0	180	
240 min Winter	11.169		0.0	238	
360 min Winter	8.317		0.0	354	
480 min Winter	6.743		0.0	470	
600 min Winter	5.728		0.0	584	
720 min Winter	5.011		0.0	694	
960 min Winter	4.057		0.0	914	
1440 min Winter	3.009		0.0	1156	
2160 min Winter	2.231		0.0	1620	
2880 min Winter	1.803		0.0	2076	
4320 min Winter	1.335		0.0	2940	
5760 min Winter	1.078		0.0	3752	
7200 min Winter	0.913		0.0	4536	
8640 min Winter	0.798		0.0	5192	
10080 min Winter	0.711		0.0	5856	
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Escher Silverman		Page 3
Lone Barn Studios Stanbridge Lane Romsey SO51 0HE	Burndell Road Porous Carpark Simula... P38 (10 years + 30%)	
Date 14/03/2019 File P38 (10 years + ...	Designed by Hoa Nguyen Checked by KM	
Micro Drainage Source Control 2013.1.1		

Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	10	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.000	Shortest Storm (mins)	15
Ratio R	0.350	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+30

Time Area Diagram

Total Area (ha) 0.006

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

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Escher Silverman		Page 4																								
Lone Barn Studios Stanbridge Lane Romsey SO51 0HE	Burndell Road Porous Carpark Simula... P38 (10 years + 30%)																									
Date 14/03/2019 File P38 (10 years + ...	Designed by Hoa Nguyen Checked by KM																									
Micro Drainage Source Control 2013.1.1																										
<u>Model Details</u> Storage is Online Cover Level (m) 7.150 <u>Porous Car Park Structure</u> <table> <tr> <td>Infiltration Coefficient Base (m/hr)</td> <td>0.00360</td> <td>Width (m)</td> <td>3.5</td> </tr> <tr> <td>Membrane Percolation (mm/hr)</td> <td>1000</td> <td>Length (m)</td> <td>15.5</td> </tr> <tr> <td>Max Percolation (l/s)</td> <td>15.1</td> <td>Slope (1:X)</td> <td>1000.0</td> </tr> <tr> <td>Safety Factor</td> <td>3.0</td> <td>Depression Storage (mm)</td> <td>5</td> </tr> <tr> <td>Porosity</td> <td>0.30</td> <td>Evaporation (mm/day)</td> <td>3</td> </tr> <tr> <td>Invert Level (m)</td> <td>6.713</td> <td>Cap Volume Depth (m)</td> <td>0.262</td> </tr> </table>			Infiltration Coefficient Base (m/hr)	0.00360	Width (m)	3.5	Membrane Percolation (mm/hr)	1000	Length (m)	15.5	Max Percolation (l/s)	15.1	Slope (1:X)	1000.0	Safety Factor	3.0	Depression Storage (mm)	5	Porosity	0.30	Evaporation (mm/day)	3	Invert Level (m)	6.713	Cap Volume Depth (m)	0.262
Infiltration Coefficient Base (m/hr)	0.00360	Width (m)	3.5																							
Membrane Percolation (mm/hr)	1000	Length (m)	15.5																							
Max Percolation (l/s)	15.1	Slope (1:X)	1000.0																							
Safety Factor	3.0	Depression Storage (mm)	5																							
Porosity	0.30	Evaporation (mm/day)	3																							
Invert Level (m)	6.713	Cap Volume Depth (m)	0.262																							
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Escher Silverman		Page 1			
Lone Barn Studios	Burndell Road				
Stanbridge Lane	Porous Carpark Simula...				
Romsey SO51 0HE	P38 (100 years + 30%)				
Date 14/03/2019	Designed by Hoa Nguyen				
File P38 (100 years +...	Checked by KM				
Micro Drainage	Source Control 2013.1.1				
<u>Summary of Results for 100 year Return Period (+30%)</u>					
Half Drain Time : 1909 minutes.					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	6.783	0.070	0.0	1.0	O K
30 min Summer	6.810	0.097	0.0	1.5	O K
60 min Summer	6.839	0.126	0.0	1.9	O K
120 min Summer	6.869	0.156	0.0	2.4	Flood Risk
180 min Summer	6.886	0.173	0.0	2.7	Flood Risk
240 min Summer	6.897	0.184	0.0	2.9	Flood Risk
360 min Summer	6.912	0.199	0.0	3.1	Flood Risk
480 min Summer	6.922	0.209	0.0	3.3	Flood Risk
600 min Summer	6.928	0.215	0.0	3.4	Flood Risk
720 min Summer	6.933	0.220	0.0	3.4	Flood Risk
960 min Summer	6.938	0.225	0.0	3.5	Flood Risk
1440 min Summer	6.939	0.226	0.0	3.5	Flood Risk
2160 min Summer	6.935	0.222	0.0	3.5	Flood Risk
2880 min Summer	6.929	0.216	0.0	3.4	Flood Risk
4320 min Summer	6.914	0.201	0.0	3.2	Flood Risk
5760 min Summer	6.899	0.186	0.0	2.9	Flood Risk
7200 min Summer	6.883	0.170	0.0	2.6	Flood Risk
8640 min Summer	6.869	0.156	0.0	2.4	Flood Risk
10080 min Summer	6.856	0.143	0.0	2.2	Flood Risk
15 min Winter	6.793	0.080	0.0	1.2	O K
30 min Winter	6.823	0.110	0.0	1.7	O K
60 min Winter	6.856	0.143	0.0	2.2	Flood Risk
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
15 min Summer	115.731	0.0	19		
30 min Summer	77.804	0.0	34		
60 min Summer	49.937	0.0	64		
120 min Summer	30.956	0.0	124		
180 min Summer	23.058	0.0	184		
240 min Summer	18.577	0.0	242		
360 min Summer	13.656	0.0	362		
480 min Summer	10.974	0.0	482		
600 min Summer	9.254	0.0	602		
720 min Summer	8.046	0.0	722		
960 min Summer	6.447	0.0	960		
1440 min Summer	4.709	0.0	1396		
2160 min Summer	3.432	0.0	1712		
2880 min Summer	2.739	0.0	2080		
4320 min Summer	1.989	0.0	2896		
5760 min Summer	1.583	0.0	3696		
7200 min Summer	1.325	0.0	4536		
8640 min Summer	1.147	0.0	5280		
10080 min Summer	1.015	0.0	6056		
15 min Winter	115.731	0.0	19		
30 min Winter	77.804	0.0	33		
60 min Winter	49.937	0.0	64		
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Escher Silverman		Page 2			
Lone Barn Studios	Burndell Road				
Stanbridge Lane	Porous Carpark Simula...				
Romsey SO51 0HE	P38 (100 years + 30%)				
Date 14/03/2019	Designed by Hoa Nguyen				
File P38 (100 years +...	Checked by KM				
Micro Drainage	Source Control 2013.1.1				
<u>Summary of Results for 100 year Return Period (+30%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
120 min Winter	6.890	0.177	0.0	2.7	Flood Risk
180 min Winter	6.909	0.196	0.0	3.1	Flood Risk
240 min Winter	6.921	0.208	0.0	3.3	Flood Risk
360 min Winter	6.938	0.225	0.0	3.5	Flood Risk
480 min Winter	6.950	0.237	0.0	3.7	Flood Risk
600 min Winter	6.958	0.245	0.0	3.9	Flood Risk
720 min Winter	6.964	0.251	0.0	4.0	Flood Risk
960 min Winter	6.971	0.258	0.0	4.1	Flood Risk
1440 min Winter	6.975	0.262	0.0	4.1	Flood Risk
2160 min Winter	6.969	0.256	0.0	4.0	Flood Risk
2880 min Winter	6.961	0.248	0.0	3.9	Flood Risk
4320 min Winter	6.940	0.227	0.0	3.6	Flood Risk
5760 min Winter	6.917	0.204	0.0	3.2	Flood Risk
7200 min Winter	6.894	0.181	0.0	2.8	Flood Risk
8640 min Winter	6.872	0.159	0.0	2.5	Flood Risk
10080 min Winter	6.851	0.138	0.0	2.1	Flood Risk
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
120 min Winter	30.956	0.0	122		
180 min Winter	23.058	0.0	180		
240 min Winter	18.577	0.0	240		
360 min Winter	13.656	0.0	358		
480 min Winter	10.974	0.0	474		
600 min Winter	9.254	0.0	590		
720 min Winter	8.046	0.0	708		
960 min Winter	6.447	0.0	934		
1440 min Winter	4.709	0.0	1384		
2160 min Winter	3.432	0.0	1992		
2880 min Winter	2.739	0.0	2248		
4320 min Winter	1.989	0.0	3156		
5760 min Winter	1.583	0.0	4040		
7200 min Winter	1.325	0.0	4896		
8640 min Winter	1.147	0.0	5704		
10080 min Winter	1.015	0.0	6464		
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Escher Silverman		Page 3
Lone Barn Studios Stanbridge Lane Romsey SO51 0HE	Burndell Road Porous Carpark Simula... P38 (100 years + 30%)	
Date 14/03/2019 File P38 (100 years +...	Designed by Hoa Nguyen Checked by KM	
Micro Drainage Source Control 2013.1.1		

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	0.350	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+30

Time Area Diagram

Total Area (ha) 0.006

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

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Escher Silverman		Page 4																								
Lone Barn Studios Stanbridge Lane Romsey SO51 0HE	Burndell Road Porous Carpark Simula... P38 (100 years + 30%)																									
Date 14/03/2019 File P38 (100 years +...	Designed by Hoa Nguyen Checked by KM																									
Micro Drainage Source Control 2013.1.1																										
<u>Model Details</u> Storage is Online Cover Level (m) 7.150 <u>Porous Car Park Structure</u> <table> <tr> <td>Infiltration Coefficient Base (m/hr)</td> <td>0.00360</td> <td>Width (m)</td> <td>3.5</td> </tr> <tr> <td>Membrane Percolation (mm/hr)</td> <td>1000</td> <td>Length (m)</td> <td>15.5</td> </tr> <tr> <td>Max Percolation (l/s)</td> <td>15.1</td> <td>Slope (1:X)</td> <td>1000.0</td> </tr> <tr> <td>Safety Factor</td> <td>3.0</td> <td>Depression Storage (mm)</td> <td>5</td> </tr> <tr> <td>Porosity</td> <td>0.30</td> <td>Evaporation (mm/day)</td> <td>3</td> </tr> <tr> <td>Invert Level (m)</td> <td>6.713</td> <td>Cap Volume Depth (m)</td> <td>0.262</td> </tr> </table>			Infiltration Coefficient Base (m/hr)	0.00360	Width (m)	3.5	Membrane Percolation (mm/hr)	1000	Length (m)	15.5	Max Percolation (l/s)	15.1	Slope (1:X)	1000.0	Safety Factor	3.0	Depression Storage (mm)	5	Porosity	0.30	Evaporation (mm/day)	3	Invert Level (m)	6.713	Cap Volume Depth (m)	0.262
Infiltration Coefficient Base (m/hr)	0.00360	Width (m)	3.5																							
Membrane Percolation (mm/hr)	1000	Length (m)	15.5																							
Max Percolation (l/s)	15.1	Slope (1:X)	1000.0																							
Safety Factor	3.0	Depression Storage (mm)	5																							
Porosity	0.30	Evaporation (mm/day)	3																							
Invert Level (m)	6.713	Cap Volume Depth (m)	0.262																							
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Escher Silverman			Page 1		
Lone Barn Studios	Burndell Road				
Stanbridge Lane	Porous Carpark Simula...				
Romsey SO51 0HE	P39-40 (10 years + 30%)				
Date 14/03/2019	Designed by Hoa Nguyen				
File P39-40 (10 years...	Checked by KM				
Micro Drainage	Source Control 2013.1.1				
<u>Summary of Results for 10 year Return Period (+30%)</u>					
Half Drain Time : 1023 minutes.					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	6.755	0.039	0.0	0.9	O K
30 min Summer	6.769	0.053	0.0	1.3	O K
60 min Summer	6.785	0.069	0.0	1.7	O K
120 min Summer	6.802	0.086	0.0	2.1	O K
180 min Summer	6.812	0.096	0.0	2.4	O K
240 min Summer	6.818	0.102	0.0	2.6	O K
360 min Summer	6.827	0.111	0.0	2.8	O K
480 min Summer	6.832	0.116	0.0	3.0	O K
600 min Summer	6.835	0.119	0.0	3.1	O K
720 min Summer	6.837	0.121	0.0	3.1	O K
960 min Summer	6.839	0.123	0.0	3.2	O K
1440 min Summer	6.841	0.125	0.0	3.2	O K
2160 min Summer	6.840	0.124	0.0	3.2	O K
2880 min Summer	6.837	0.121	0.0	3.1	O K
4320 min Summer	6.827	0.111	0.0	2.8	O K
5760 min Summer	6.817	0.101	0.0	2.6	O K
7200 min Summer	6.807	0.091	0.0	2.3	O K
8640 min Summer	6.797	0.081	0.0	2.0	O K
10080 min Summer	6.789	0.073	0.0	1.8	O K
15 min Winter	6.760	0.044	0.0	1.0	O K
30 min Winter	6.777	0.061	0.0	1.5	O K
60 min Winter	6.795	0.079	0.0	2.0	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
15 min Summer	70.770	0.0	19		
30 min Summer	46.698	0.0	34		
60 min Summer	29.629	0.0	64		
120 min Summer	18.344	0.0	122		
180 min Summer	13.747	0.0	182		
240 min Summer	11.169	0.0	242		
360 min Summer	8.317	0.0	362		
480 min Summer	6.743	0.0	482		
600 min Summer	5.728	0.0	600		
720 min Summer	5.011	0.0	716		
960 min Summer	4.057	0.0	826		
1440 min Summer	3.009	0.0	1080		
2160 min Summer	2.231	0.0	1476		
2880 min Summer	1.803	0.0	1900		
4320 min Summer	1.335	0.0	2720		
5760 min Summer	1.078	0.0	3512		
7200 min Summer	0.913	0.0	4256		
8640 min Summer	0.798	0.0	5016		
10080 min Summer	0.711	0.0	5744		
15 min Winter	70.770	0.0	19		
30 min Winter	46.698	0.0	33		
60 min Winter	29.629	0.0	62		
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Escher Silverman			Page 2		
Lone Barn Studios		Burndell Road			
Stanbridge Lane		Porous Carpark Simula...			
Romsey SO51 0HE		P39-40 (10 years + 30%)			
Date 14/03/2019		Designed by Hoa Nguyen			
File P39-40 (10 years...		Checked by KM			
Micro Drainage		Source Control 2013.1.1			
<u>Summary of Results for 10 year Return Period (+30%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
120 min Winter	6.814	0.098	0.0	2.5	O K
180 min Winter	6.825	0.109	0.0	2.8	O K
240 min Winter	6.833	0.117	0.0	3.0	O K
360 min Winter	6.843	0.127	0.0	3.3	O K
480 min Winter	6.849	0.133	0.0	3.4	O K
600 min Winter	6.853	0.137	0.0	3.6	Flood Risk
720 min Winter	6.856	0.140	0.0	3.6	Flood Risk
960 min Winter	6.859	0.143	0.0	3.7	Flood Risk
1440 min Winter	6.859	0.143	0.0	3.7	Flood Risk
2160 min Winter	6.856	0.140	0.0	3.6	Flood Risk
2880 min Winter	6.850	0.134	0.0	3.5	O K
4320 min Winter	6.834	0.118	0.0	3.0	O K
5760 min Winter	6.817	0.101	0.0	2.6	O K
7200 min Winter	6.801	0.085	0.0	2.1	O K
8640 min Winter	6.787	0.071	0.0	1.7	O K
10080 min Winter	6.776	0.060	0.0	1.4	O K
Storm Event	Rain (mm/hr)		Flooded Volume (m³)	Time-Peak (mins)	
120 min Winter	18.344		0.0	122	
180 min Winter	13.747		0.0	180	
240 min Winter	11.169		0.0	238	
360 min Winter	8.317		0.0	354	
480 min Winter	6.743		0.0	470	
600 min Winter	5.728		0.0	584	
720 min Winter	5.011		0.0	694	
960 min Winter	4.057		0.0	912	
1440 min Winter	3.009		0.0	1154	
2160 min Winter	2.231		0.0	1620	
2880 min Winter	1.803		0.0	2072	
4320 min Winter	1.335		0.0	2940	
5760 min Winter	1.078		0.0	3752	
7200 min Winter	0.913		0.0	4536	
8640 min Winter	0.798		0.0	5192	
10080 min Winter	0.711		0.0	5848	
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Lone Barn Studios Stanbridge Lane Romsey SO51 0HE	Burndell Road Porous Carpark Simula... P39-40 (10 years + 30%)	
Date 14/03/2019 File P39-40 (10 years...)	Designed by Hoa Nguyen Checked by KM	
Micro Drainage Source Control 2013.1.1		

Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	10	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.000	Shortest Storm (mins)	15
Ratio R	0.350	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+30

Time Area Diagram

Total Area (ha) 0.010

Time (mins)	Area
From:	To: (ha)
0	4 0.010

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Escher Silverman		Page 4																								
Lone Barn Studios Stanbridge Lane Romsey SO51 0HE	Burndell Road Porous Carpark Simula... P39-40 (10 years + 30%)																									
Date 14/03/2019 File P39-40 (10 years...	Designed by Hoa Nguyen Checked by KM																									
Micro Drainage Source Control 2013.1.1																										
<u>Model Details</u> Storage is Online Cover Level (m) 7.150 <u>Porous Car Park Structure</u> <table> <tr> <td>Infiltration Coefficient Base (m/hr)</td> <td>0.00360</td> <td>Width (m)</td> <td>6.2</td> </tr> <tr> <td>Membrane Percolation (mm/hr)</td> <td>1000</td> <td>Length (m)</td> <td>14.7</td> </tr> <tr> <td>Max Percolation (l/s)</td> <td>25.3</td> <td>Slope (1:X)</td> <td>1000.0</td> </tr> <tr> <td>Safety Factor</td> <td>3.0</td> <td>Depression Storage (mm)</td> <td>5</td> </tr> <tr> <td>Porosity</td> <td>0.30</td> <td>Evaporation (mm/day)</td> <td>3</td> </tr> <tr> <td>Invert Level (m)</td> <td>6.716</td> <td>Cap Volume Depth (m)</td> <td>0.259</td> </tr> </table>			Infiltration Coefficient Base (m/hr)	0.00360	Width (m)	6.2	Membrane Percolation (mm/hr)	1000	Length (m)	14.7	Max Percolation (l/s)	25.3	Slope (1:X)	1000.0	Safety Factor	3.0	Depression Storage (mm)	5	Porosity	0.30	Evaporation (mm/day)	3	Invert Level (m)	6.716	Cap Volume Depth (m)	0.259
Infiltration Coefficient Base (m/hr)	0.00360	Width (m)	6.2																							
Membrane Percolation (mm/hr)	1000	Length (m)	14.7																							
Max Percolation (l/s)	25.3	Slope (1:X)	1000.0																							
Safety Factor	3.0	Depression Storage (mm)	5																							
Porosity	0.30	Evaporation (mm/day)	3																							
Invert Level (m)	6.716	Cap Volume Depth (m)	0.259																							
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Escher Silverman			Page 1		
Lone Barn Studios Stanbridge Lane Romsey SO51 0HE		Burndell Road Porous Carpark Simula... P39-40 (100 years + 30%)			
Date 14/03/2019 File P39-40 (100 year...		Designed by Hoa Nguyen Checked by KM			
Micro Drainage		Source Control 2013.1.1			
<u>Summary of Results for 100 year Return Period (+30%)</u> Half Drain Time : 1888 minutes.					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	6.785	0.069	0.0	1.7	O K
30 min Summer	6.812	0.096	0.0	2.4	O K
60 min Summer	6.841	0.125	0.0	3.2	O K
120 min Summer	6.870	0.154	0.0	4.0	Flood Risk
180 min Summer	6.887	0.171	0.0	4.5	Flood Risk
240 min Summer	6.898	0.182	0.0	4.8	Flood Risk
360 min Summer	6.913	0.197	0.0	5.2	Flood Risk
480 min Summer	6.922	0.206	0.0	5.4	Flood Risk
600 min Summer	6.929	0.213	0.0	5.6	Flood Risk
720 min Summer	6.933	0.217	0.0	5.7	Flood Risk
960 min Summer	6.938	0.222	0.0	5.9	Flood Risk
1440 min Summer	6.939	0.223	0.0	5.9	Flood Risk
2160 min Summer	6.935	0.219	0.0	5.8	Flood Risk
2880 min Summer	6.929	0.213	0.0	5.6	Flood Risk
4320 min Summer	6.915	0.199	0.0	5.2	Flood Risk
5760 min Summer	6.899	0.183	0.0	4.8	Flood Risk
7200 min Summer	6.884	0.168	0.0	4.4	Flood Risk
8640 min Summer	6.870	0.154	0.0	4.0	Flood Risk
10080 min Summer	6.857	0.141	0.0	3.6	Flood Risk
15 min Winter	6.795	0.079	0.0	2.0	O K
30 min Winter	6.825	0.109	0.0	2.8	O K
60 min Winter	6.857	0.141	0.0	3.7	Flood Risk
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
15 min Summer	115.731	0.0	19		
30 min Summer	77.804	0.0	34		
60 min Summer	49.937	0.0	64		
120 min Summer	30.956	0.0	124		
180 min Summer	23.058	0.0	184		
240 min Summer	18.577	0.0	242		
360 min Summer	13.656	0.0	362		
480 min Summer	10.974	0.0	482		
600 min Summer	9.254	0.0	602		
720 min Summer	8.046	0.0	722		
960 min Summer	6.447	0.0	960		
1440 min Summer	4.709	0.0	1372		
2160 min Summer	3.432	0.0	1708		
2880 min Summer	2.739	0.0	2076		
4320 min Summer	1.989	0.0	2896		
5760 min Summer	1.583	0.0	3696		
7200 min Summer	1.325	0.0	4536		
8640 min Summer	1.147	0.0	5280		
10080 min Summer	1.015	0.0	6056		
15 min Winter	115.731	0.0	19		
30 min Winter	77.804	0.0	33		
60 min Winter	49.937	0.0	64		
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Escher Silverman			Page 2		
Lone Barn Studios	Burndell Road				
Stanbridge Lane	Porous Carpark Simula...				
Romsey SO51 0HE	P39-40 (100 years + 30%)				
Date 14/03/2019	Designed by Hoa Nguyen				
File P39-40 (100 year...	Checked by KM				
Micro Drainage	Source Control 2013.1.1				
<u>Summary of Results for 100 year Return Period (+30%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
120 min Winter	6.891	0.175	0.0	4.6	Flood Risk
180 min Winter	6.910	0.194	0.0	5.1	Flood Risk
240 min Winter	6.922	0.206	0.0	5.4	Flood Risk
360 min Winter	6.939	0.223	0.0	5.9	Flood Risk
480 min Winter	6.950	0.234	0.0	6.2	Flood Risk
600 min Winter	6.958	0.242	0.0	6.4	Flood Risk
720 min Winter	6.964	0.248	0.0	6.6	Flood Risk
960 min Winter	6.971	0.255	0.0	6.8	Flood Risk
1440 min Winter	6.975	0.259	0.0	6.9	Flood Risk
2160 min Winter	6.969	0.253	0.0	6.7	Flood Risk
2880 min Winter	6.961	0.245	0.0	6.5	Flood Risk
4320 min Winter	6.940	0.224	0.0	5.9	Flood Risk
5760 min Winter	6.917	0.201	0.0	5.3	Flood Risk
7200 min Winter	6.894	0.178	0.0	4.7	Flood Risk
8640 min Winter	6.872	0.156	0.0	4.1	Flood Risk
10080 min Winter	6.852	0.136	0.0	3.5	Flood Risk
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
120 min Winter	30.956	0.0	122		
180 min Winter	23.058	0.0	180		
240 min Winter	18.577	0.0	240		
360 min Winter	13.656	0.0	358		
480 min Winter	10.974	0.0	474		
600 min Winter	9.254	0.0	590		
720 min Winter	8.046	0.0	708		
960 min Winter	6.447	0.0	934		
1440 min Winter	4.709	0.0	1384		
2160 min Winter	3.432	0.0	1992		
2880 min Winter	2.739	0.0	2248		
4320 min Winter	1.989	0.0	3156		
5760 min Winter	1.583	0.0	4040		
7200 min Winter	1.325	0.0	4896		
8640 min Winter	1.147	0.0	5704		
10080 min Winter	1.015	0.0	6456		
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Escher Silverman		Page 3
Lone Barn Studios Stanbridge Lane Romsey SO51 0HE	Burndell Road Porous Carpark Simula... P39-40 (100 years + 30%)	
Date 14/03/2019 File P39-40 (100 year...	Designed by Hoa Nguyen Checked by KM	
Micro Drainage Source Control 2013.1.1		

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	0.350	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+30

Time Area Diagram

Total Area (ha) 0.010

Time (mins)	Area
From:	To: (ha)
0	4 0.010

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Escher Silverman		Page 4																								
Lone Barn Studios Stanbridge Lane Romsey SO51 0HE	Burndell Road Porous Carpark Simula... P39-40 (100 years + 30%)																									
Date 14/03/2019 File P39-40 (100 year...	Designed by Hoa Nguyen Checked by KM																									
Micro Drainage Source Control 2013.1.1																										
<u>Model Details</u> Storage is Online Cover Level (m) 7.150 <u>Porous Car Park Structure</u> <table> <tr> <td>Infiltration Coefficient Base (m/hr)</td> <td>0.00360</td> <td>Width (m)</td> <td>6.2</td> </tr> <tr> <td>Membrane Percolation (mm/hr)</td> <td>1000</td> <td>Length (m)</td> <td>14.7</td> </tr> <tr> <td>Max Percolation (l/s)</td> <td>25.3</td> <td>Slope (1:X)</td> <td>1000.0</td> </tr> <tr> <td>Safety Factor</td> <td>3.0</td> <td>Depression Storage (mm)</td> <td>5</td> </tr> <tr> <td>Porosity</td> <td>0.30</td> <td>Evaporation (mm/day)</td> <td>3</td> </tr> <tr> <td>Invert Level (m)</td> <td>6.716</td> <td>Cap Volume Depth (m)</td> <td>0.259</td> </tr> </table>			Infiltration Coefficient Base (m/hr)	0.00360	Width (m)	6.2	Membrane Percolation (mm/hr)	1000	Length (m)	14.7	Max Percolation (l/s)	25.3	Slope (1:X)	1000.0	Safety Factor	3.0	Depression Storage (mm)	5	Porosity	0.30	Evaporation (mm/day)	3	Invert Level (m)	6.716	Cap Volume Depth (m)	0.259
Infiltration Coefficient Base (m/hr)	0.00360	Width (m)	6.2																							
Membrane Percolation (mm/hr)	1000	Length (m)	14.7																							
Max Percolation (l/s)	25.3	Slope (1:X)	1000.0																							
Safety Factor	3.0	Depression Storage (mm)	5																							
Porosity	0.30	Evaporation (mm/day)	3																							
Invert Level (m)	6.716	Cap Volume Depth (m)	0.259																							
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Escher Silverman			Page 1		
Lone Barn Studios	Burndell Road				
Stanbridge Lane	Porous Carpark Simula...				
Romsey SO51 0HE	P41-42 (10 years + 30%)				
Date 14/03/2019	Designed by Hoa Nguyen				
File P41-42 (10 years...	Checked by KM				
Micro Drainage	Source Control 2013.1.1				
<u>Summary of Results for 10 year Return Period (+30%)</u>					
Half Drain Time : 892 minutes.					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	6.734	0.034	0.0	0.7	O K
30 min Summer	6.747	0.047	0.0	1.1	O K
60 min Summer	6.762	0.062	0.0	1.5	O K
120 min Summer	6.776	0.076	0.0	1.9	O K
180 min Summer	6.785	0.085	0.0	2.1	O K
240 min Summer	6.791	0.091	0.0	2.3	O K
360 min Summer	6.798	0.098	0.0	2.5	O K
480 min Summer	6.803	0.103	0.0	2.6	O K
600 min Summer	6.805	0.105	0.0	2.7	O K
720 min Summer	6.807	0.107	0.0	2.7	O K
960 min Summer	6.809	0.109	0.0	2.8	O K
1440 min Summer	6.810	0.110	0.0	2.8	O K
2160 min Summer	6.809	0.109	0.0	2.8	O K
2880 min Summer	6.805	0.105	0.0	2.7	O K
4320 min Summer	6.796	0.096	0.0	2.4	O K
5760 min Summer	6.786	0.086	0.0	2.1	O K
7200 min Summer	6.777	0.077	0.0	1.9	O K
8640 min Summer	6.768	0.068	0.0	1.7	O K
10080 min Summer	6.761	0.061	0.0	1.5	O K
15 min Winter	6.739	0.039	0.0	0.9	O K
30 min Winter	6.754	0.054	0.0	1.3	O K
60 min Winter	6.770	0.070	0.0	1.7	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
15 min Summer	70.770	0.0	19		
30 min Summer	46.698	0.0	34		
60 min Summer	29.629	0.0	64		
120 min Summer	18.344	0.0	122		
180 min Summer	13.747	0.0	182		
240 min Summer	11.169	0.0	242		
360 min Summer	8.317	0.0	362		
480 min Summer	6.743	0.0	480		
600 min Summer	5.728	0.0	600		
720 min Summer	5.011	0.0	672		
960 min Summer	4.057	0.0	788		
1440 min Summer	3.009	0.0	1040		
2160 min Summer	2.231	0.0	1452		
2880 min Summer	1.803	0.0	1872		
4320 min Summer	1.335	0.0	2680		
5760 min Summer	1.078	0.0	3456		
7200 min Summer	0.913	0.0	4184		
8640 min Summer	0.798	0.0	4928		
10080 min Summer	0.711	0.0	5640		
15 min Winter	70.770	0.0	19		
30 min Winter	46.698	0.0	33		
60 min Winter	29.629	0.0	62		
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Escher Silverman		Page 2			
Lone Barn Studios	Burndell Road				
Stanbridge Lane	Porous Carpark Simula...				
Romsey SO51 0HE	P41-42 (10 years + 30%)				
Date 14/03/2019	Designed by Hoa Nguyen				
File P41-42 (10 years...	Checked by KM				
Micro Drainage		Source Control 2013.1.1			
<u>Summary of Results for 10 year Return Period (+30%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
120 min Winter	6.787	0.087	0.0	2.2	O K
180 min Winter	6.797	0.097	0.0	2.4	O K
240 min Winter	6.804	0.104	0.0	2.6	O K
360 min Winter	6.813	0.113	0.0	2.9	O K
480 min Winter	6.818	0.118	0.0	3.0	O K
600 min Winter	6.821	0.121	0.0	3.1	O K
720 min Winter	6.824	0.124	0.0	3.2	O K
960 min Winter	6.825	0.125	0.0	3.2	Flood Risk
1440 min Winter	6.825	0.125	0.0	3.2	Flood Risk
2160 min Winter	6.822	0.122	0.0	3.1	O K
2880 min Winter	6.815	0.115	0.0	2.9	O K
4320 min Winter	6.800	0.100	0.0	2.5	O K
5760 min Winter	6.784	0.084	0.0	2.1	O K
7200 min Winter	6.770	0.070	0.0	1.7	O K
8640 min Winter	6.758	0.058	0.0	1.4	O K
10080 min Winter	6.750	0.050	0.0	1.2	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
120 min Winter	18.344	0.0	122		
180 min Winter	13.747	0.0	180		
240 min Winter	11.169	0.0	238		
360 min Winter	8.317	0.0	354		
480 min Winter	6.743	0.0	468		
600 min Winter	5.728	0.0	580		
720 min Winter	5.011	0.0	692		
960 min Winter	4.057	0.0	902		
1440 min Winter	3.009	0.0	1124		
2160 min Winter	2.231	0.0	1580		
2880 min Winter	1.803	0.0	2044		
4320 min Winter	1.335	0.0	2892		
5760 min Winter	1.078	0.0	3688		
7200 min Winter	0.913	0.0	4392		
8640 min Winter	0.798	0.0	5024		
10080 min Winter	0.711	0.0	5640		
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Escher Silverman		Page 3
Lone Barn Studios Stanbridge Lane Romsey SO51 0HE	Burndell Road Porous Carpark Simula... P41-42 (10 years + 30%)	
Date 14/03/2019 File P41-42 (10 years...)	Designed by Hoa Nguyen Checked by KM	
Micro Drainage Source Control 2013.1.1		

Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	10	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.000	Shortest Storm (mins)	15
Ratio R	0.350	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+30

Time Area Diagram

Total Area (ha) 0.009

Time (mins)	Area
From:	To: (ha)
0	4 0.009

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Escher Silverman		Page 4																								
Lone Barn Studios Stanbridge Lane Romsey SO51 0HE	Burndell Road Porous Carpark Simula... P41-42 (10 years + 30%)																									
Date 14/03/2019 File P41-42 (10 years...	Designed by Hoa Nguyen Checked by KM																									
Micro Drainage Source Control 2013.1.1																										
<u>Model Details</u> Storage is Online Cover Level (m) 7.125 <u>Porous Car Park Structure</u> <table> <tr> <td>Infiltration Coefficient Base (m/hr)</td> <td>0.00360</td> <td>Width (m)</td> <td>6.5</td> </tr> <tr> <td>Membrane Percolation (mm/hr)</td> <td>1000</td> <td>Length (m)</td> <td>13.9</td> </tr> <tr> <td>Max Percolation (l/s)</td> <td>25.1</td> <td>Slope (1:X)</td> <td>1000.0</td> </tr> <tr> <td>Safety Factor</td> <td>3.0</td> <td>Depression Storage (mm)</td> <td>5</td> </tr> <tr> <td>Porosity</td> <td>0.30</td> <td>Evaporation (mm/day)</td> <td>3</td> </tr> <tr> <td>Invert Level (m)</td> <td>6.700</td> <td>Cap Volume Depth (m)</td> <td>0.250</td> </tr> </table>			Infiltration Coefficient Base (m/hr)	0.00360	Width (m)	6.5	Membrane Percolation (mm/hr)	1000	Length (m)	13.9	Max Percolation (l/s)	25.1	Slope (1:X)	1000.0	Safety Factor	3.0	Depression Storage (mm)	5	Porosity	0.30	Evaporation (mm/day)	3	Invert Level (m)	6.700	Cap Volume Depth (m)	0.250
Infiltration Coefficient Base (m/hr)	0.00360	Width (m)	6.5																							
Membrane Percolation (mm/hr)	1000	Length (m)	13.9																							
Max Percolation (l/s)	25.1	Slope (1:X)	1000.0																							
Safety Factor	3.0	Depression Storage (mm)	5																							
Porosity	0.30	Evaporation (mm/day)	3																							
Invert Level (m)	6.700	Cap Volume Depth (m)	0.250																							
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Escher Silverman			Page 1		
Lone Barn Studios Stanbridge Lane Romsey SO51 0HE		Burndell Road Porous Carpark Simula... P41-42 (100 years + 30%)			
Date 14/03/2019 File P41-42 (100 year...		Designed by Hoa Nguyen Checked by KM			
Micro Drainage		Source Control 2013.1.1			
<u>Summary of Results for 100 year Return Period (+30%)</u> Half Drain Time : 1603 minutes.					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	6.759	0.059	0.0	1.5	O K
30 min Summer	6.783	0.083	0.0	2.1	O K
60 min Summer	6.808	0.108	0.0	2.8	O K
120 min Summer	6.834	0.134	0.0	3.6	Flood Risk
180 min Summer	6.849	0.149	0.0	4.0	Flood Risk
240 min Summer	6.858	0.158	0.0	4.2	Flood Risk
360 min Summer	6.870	0.170	0.0	4.6	Flood Risk
480 min Summer	6.878	0.178	0.0	4.8	Flood Risk
600 min Summer	6.883	0.183	0.0	4.9	Flood Risk
720 min Summer	6.886	0.186	0.0	5.0	Flood Risk
960 min Summer	6.890	0.190	0.0	5.1	Flood Risk
1440 min Summer	6.889	0.189	0.0	5.1	Flood Risk
2160 min Summer	6.885	0.185	0.0	5.0	Flood Risk
2880 min Summer	6.880	0.180	0.0	4.8	Flood Risk
4320 min Summer	6.866	0.166	0.0	4.4	Flood Risk
5760 min Summer	6.851	0.151	0.0	4.0	Flood Risk
7200 min Summer	6.837	0.137	0.0	3.6	Flood Risk
8640 min Summer	6.824	0.124	0.0	3.3	O K
10080 min Summer	6.811	0.111	0.0	2.9	O K
15 min Winter	6.768	0.068	0.0	1.7	O K
30 min Winter	6.794	0.094	0.0	2.4	O K
60 min Winter	6.822	0.122	0.0	3.2	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
15 min Summer	115.731	0.0	19		
30 min Summer	77.804	0.0	34		
60 min Summer	49.937	0.0	64		
120 min Summer	30.956	0.0	124		
180 min Summer	23.058	0.0	184		
240 min Summer	18.577	0.0	242		
360 min Summer	13.656	0.0	362		
480 min Summer	10.974	0.0	482		
600 min Summer	9.254	0.0	602		
720 min Summer	8.046	0.0	722		
960 min Summer	6.447	0.0	960		
1440 min Summer	4.709	0.0	1254		
2160 min Summer	3.432	0.0	1620		
2880 min Summer	2.739	0.0	2016		
4320 min Summer	1.989	0.0	2812		
5760 min Summer	1.583	0.0	3632		
7200 min Summer	1.325	0.0	4400		
8640 min Summer	1.147	0.0	5192		
10080 min Summer	1.015	0.0	5952		
15 min Winter	115.731	0.0	19		
30 min Winter	77.804	0.0	33		
60 min Winter	49.937	0.0	64		
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Escher Silverman			Page 2		
Lone Barn Studios	Burndell Road				
Stanbridge Lane	Porous Carpark Simula...				
Romsey SO51 0HE	P41-42 (100 years + 30%)				
Date 14/03/2019	Designed by Hoa Nguyen				
File P41-42 (100 year...	Checked by KM				
Micro Drainage	Source Control 2013.1.1				
<u>Summary of Results for 100 year Return Period (+30%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
120 min Winter	6.852	0.152	0.0	4.0	Flood Risk
180 min Winter	6.868	0.168	0.0	4.5	Flood Risk
240 min Winter	6.879	0.179	0.0	4.8	Flood Risk
360 min Winter	6.893	0.193	0.0	5.2	Flood Risk
480 min Winter	6.903	0.203	0.0	5.5	Flood Risk
600 min Winter	6.909	0.209	0.0	5.6	Flood Risk
720 min Winter	6.913	0.213	0.0	5.8	Flood Risk
960 min Winter	6.918	0.218	0.0	5.9	Flood Risk
1440 min Winter	6.920	0.220	0.0	5.9	Flood Risk
2160 min Winter	6.913	0.213	0.0	5.7	Flood Risk
2880 min Winter	6.905	0.205	0.0	5.5	Flood Risk
4320 min Winter	6.884	0.184	0.0	4.9	Flood Risk
5760 min Winter	6.862	0.162	0.0	4.3	Flood Risk
7200 min Winter	6.840	0.140	0.0	3.7	Flood Risk
8640 min Winter	6.820	0.120	0.0	3.2	O K
10080 min Winter	6.802	0.102	0.0	2.6	O K
Storm Event	Rain (mm/hr)		Flooded Volume (m³)	Time-Peak (mins)	
120 min Winter	30.956		0.0	122	
180 min Winter	23.058		0.0	180	
240 min Winter	18.577		0.0	240	
360 min Winter	13.656		0.0	356	
480 min Winter	10.974		0.0	474	
600 min Winter	9.254		0.0	590	
720 min Winter	8.046		0.0	706	
960 min Winter	6.447		0.0	932	
1440 min Winter	4.709		0.0	1370	
2160 min Winter	3.432		0.0	1732	
2880 min Winter	2.739		0.0	2188	
4320 min Winter	1.989		0.0	3072	
5760 min Winter	1.583		0.0	3968	
7200 min Winter	1.325		0.0	4760	
8640 min Winter	1.147		0.0	5536	
10080 min Winter	1.015		0.0	6256	
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Escher Silverman		Page 3
Lone Barn Studios Stanbridge Lane Romsey SO51 0HE	Burndell Road Porous Carpark Simula... P41-42 (100 years + 30%)	
Date 14/03/2019 File P41-42 (100 year...	Designed by Hoa Nguyen Checked by KM	
Micro Drainage Source Control 2013.1.1		

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	0.350	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+30

Time Area Diagram

Total Area (ha) 0.009

Time (mins)	Area
From:	To: (ha)
0	4 0.009

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Escher Silverman		Page 4																								
Lone Barn Studios Stanbridge Lane Romsey SO51 0HE	Burndell Road Porous Carpark Simula... P41-42 (100 years + 30%)																									
Date 14/03/2019 File P41-42 (100 year...	Designed by Hoa Nguyen Checked by KM																									
Micro Drainage Source Control 2013.1.1																										
<u>Model Details</u> Storage is Online Cover Level (m) 7.125 <u>Porous Car Park Structure</u> <table> <tr> <td>Infiltration Coefficient Base (m/hr)</td> <td>0.00360</td> <td>Width (m)</td> <td>6.7</td> </tr> <tr> <td>Membrane Percolation (mm/hr)</td> <td>1000</td> <td>Length (m)</td> <td>13.9</td> </tr> <tr> <td>Max Percolation (l/s)</td> <td>25.9</td> <td>Slope (1:X)</td> <td>1000.0</td> </tr> <tr> <td>Safety Factor</td> <td>3.0</td> <td>Depression Storage (mm)</td> <td>5</td> </tr> <tr> <td>Porosity</td> <td>0.30</td> <td>Evaporation (mm/day)</td> <td>3</td> </tr> <tr> <td>Invert Level (m)</td> <td>6.700</td> <td>Cap Volume Depth (m)</td> <td>0.250</td> </tr> </table>			Infiltration Coefficient Base (m/hr)	0.00360	Width (m)	6.7	Membrane Percolation (mm/hr)	1000	Length (m)	13.9	Max Percolation (l/s)	25.9	Slope (1:X)	1000.0	Safety Factor	3.0	Depression Storage (mm)	5	Porosity	0.30	Evaporation (mm/day)	3	Invert Level (m)	6.700	Cap Volume Depth (m)	0.250
Infiltration Coefficient Base (m/hr)	0.00360	Width (m)	6.7																							
Membrane Percolation (mm/hr)	1000	Length (m)	13.9																							
Max Percolation (l/s)	25.9	Slope (1:X)	1000.0																							
Safety Factor	3.0	Depression Storage (mm)	5																							
Porosity	0.30	Evaporation (mm/day)	3																							
Invert Level (m)	6.700	Cap Volume Depth (m)	0.250																							
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Escher Silverman			Page 1		
Lone Barn Studios	Burndell Road				
Stanbridge Lane	Porous Carpark Simula...				
Romsey SO51 0HE	P44-45 (10 years + 30%)				
Date 14/03/2019	Designed by Hoa Nguyen				
File P44-45 (10 years...	Checked by KM				
Micro Drainage	Source Control 2013.1.1				
<u>Summary of Results for 10 year Return Period (+30%)</u> Half Drain Time : 1044 minutes.					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	6.465	0.036	0.0	0.5	O K
30 min Summer	6.480	0.051	0.0	0.8	O K
60 min Summer	6.496	0.067	0.0	1.0	O K
120 min Summer	6.513	0.084	0.0	1.3	O K
180 min Summer	6.523	0.094	0.0	1.5	O K
240 min Summer	6.530	0.101	0.0	1.6	O K
360 min Summer	6.539	0.110	0.0	1.7	O K
480 min Summer	6.544	0.115	0.0	1.8	O K
600 min Summer	6.548	0.119	0.0	1.9	O K
720 min Summer	6.550	0.121	0.0	1.9	O K
960 min Summer	6.552	0.123	0.0	1.9	O K
1440 min Summer	6.554	0.125	0.0	2.0	O K
2160 min Summer	6.554	0.125	0.0	1.9	O K
2880 min Summer	6.550	0.121	0.0	1.9	O K
4320 min Summer	6.541	0.112	0.0	1.7	O K
5760 min Summer	6.531	0.102	0.0	1.6	O K
7200 min Summer	6.521	0.092	0.0	1.4	O K
8640 min Summer	6.512	0.083	0.0	1.3	O K
10080 min Summer	6.503	0.074	0.0	1.1	O K
15 min Winter	6.471	0.042	0.0	0.6	O K
30 min Winter	6.488	0.059	0.0	0.9	O K
60 min Winter	6.506	0.077	0.0	1.2	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
15 min Summer	70.770	0.0	19		
30 min Summer	46.698	0.0	34		
60 min Summer	29.629	0.0	64		
120 min Summer	18.344	0.0	122		
180 min Summer	13.747	0.0	182		
240 min Summer	11.169	0.0	242		
360 min Summer	8.317	0.0	362		
480 min Summer	6.743	0.0	482		
600 min Summer	5.728	0.0	600		
720 min Summer	5.011	0.0	720		
960 min Summer	4.057	0.0	830		
1440 min Summer	3.009	0.0	1082		
2160 min Summer	2.231	0.0	1488		
2880 min Summer	1.803	0.0	1904		
4320 min Summer	1.335	0.0	2724		
5760 min Summer	1.078	0.0	3512		
7200 min Summer	0.913	0.0	4256		
8640 min Summer	0.798	0.0	5016		
10080 min Summer	0.711	0.0	5744		
15 min Winter	70.770	0.0	19		
30 min Winter	46.698	0.0	33		
60 min Winter	29.629	0.0	62		
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Escher Silverman			Page 2		
Lone Barn Studios		Burndell Road			
Stanbridge Lane		Porous Carpark Simula...			
Romsey SO51 0HE		P44-45 (10 years + 30%)			
Date 14/03/2019		Designed by Hoa Nguyen			
File P44-45 (10 years...		Checked by KM			
Micro Drainage		Source Control 2013.1.1			
<u>Summary of Results for 10 year Return Period (+30%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
120 min Winter	6.525	0.096	0.0	1.5	O K
180 min Winter	6.537	0.108	0.0	1.7	O K
240 min Winter	6.545	0.116	0.0	1.8	O K
360 min Winter	6.555	0.126	0.0	2.0	O K
480 min Winter	6.562	0.133	0.0	2.1	O K
600 min Winter	6.566	0.137	0.0	2.1	Flood Risk
720 min Winter	6.569	0.140	0.0	2.2	Flood Risk
960 min Winter	6.572	0.143	0.0	2.2	Flood Risk
1440 min Winter	6.572	0.143	0.0	2.3	Flood Risk
2160 min Winter	6.570	0.141	0.0	2.2	Flood Risk
2880 min Winter	6.564	0.135	0.0	2.1	O K
4320 min Winter	6.549	0.120	0.0	1.9	O K
5760 min Winter	6.532	0.103	0.0	1.6	O K
7200 min Winter	6.516	0.087	0.0	1.3	O K
8640 min Winter	6.502	0.073	0.0	1.1	O K
10080 min Winter	6.490	0.061	0.0	0.9	O K
Storm Event	Rain (mm/hr)		Flooded Volume (m³)	Time-Peak (mins)	
120 min Winter	18.344		0.0	122	
180 min Winter	13.747		0.0	180	
240 min Winter	11.169		0.0	238	
360 min Winter	8.317		0.0	354	
480 min Winter	6.743		0.0	470	
600 min Winter	5.728		0.0	584	
720 min Winter	5.011		0.0	694	
960 min Winter	4.057		0.0	914	
1440 min Winter	3.009		0.0	1166	
2160 min Winter	2.231		0.0	1620	
2880 min Winter	1.803		0.0	2076	
4320 min Winter	1.335		0.0	2940	
5760 min Winter	1.078		0.0	3752	
7200 min Winter	0.913		0.0	4536	
8640 min Winter	0.798		0.0	5264	
10080 min Winter	0.711		0.0	5856	
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Escher Silverman		Page 3
Lone Barn Studios Stanbridge Lane Romsey SO51 0HE	Burndell Road Porous Carpark Simula... P44-45 (10 years + 30%)	
Date 14/03/2019 File P44-45 (10 years...)	Designed by Hoa Nguyen Checked by KM	
Micro Drainage Source Control 2013.1.1		

Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	10	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.000	Shortest Storm (mins)	15
Ratio R	0.350	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+30

Time Area Diagram

Total Area (ha) 0.006

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

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Escher Silverman		Page 4																								
Lone Barn Studios Stanbridge Lane Romsey SO51 0HE	Burndell Road Porous Carpark Simula... P44-45 (10 years + 30%)																									
Date 14/03/2019 File P44-45 (10 years...	Designed by Hoa Nguyen Checked by KM																									
Micro Drainage Source Control 2013.1.1																										
<u>Model Details</u> Storage is Online Cover Level (m) 6.865 <u>Porous Car Park Structure</u> <table> <tr> <td>Infiltration Coefficient Base (m/hr)</td> <td>0.00360</td> <td>Width (m)</td> <td>6.2</td> </tr> <tr> <td>Membrane Percolation (mm/hr)</td> <td>1000</td> <td>Length (m)</td> <td>8.7</td> </tr> <tr> <td>Max Percolation (l/s)</td> <td>15.0</td> <td>Slope (1:X)</td> <td>1000.0</td> </tr> <tr> <td>Safety Factor</td> <td>3.0</td> <td>Depression Storage (mm)</td> <td>5</td> </tr> <tr> <td>Porosity</td> <td>0.30</td> <td>Evaporation (mm/day)</td> <td>3</td> </tr> <tr> <td>Invert Level (m)</td> <td>6.429</td> <td>Cap Volume Depth (m)</td> <td>0.261</td> </tr> </table>			Infiltration Coefficient Base (m/hr)	0.00360	Width (m)	6.2	Membrane Percolation (mm/hr)	1000	Length (m)	8.7	Max Percolation (l/s)	15.0	Slope (1:X)	1000.0	Safety Factor	3.0	Depression Storage (mm)	5	Porosity	0.30	Evaporation (mm/day)	3	Invert Level (m)	6.429	Cap Volume Depth (m)	0.261
Infiltration Coefficient Base (m/hr)	0.00360	Width (m)	6.2																							
Membrane Percolation (mm/hr)	1000	Length (m)	8.7																							
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Safety Factor	3.0	Depression Storage (mm)	5																							
Porosity	0.30	Evaporation (mm/day)	3																							
Invert Level (m)	6.429	Cap Volume Depth (m)	0.261																							
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Escher Silverman			Page 1		
Lone Barn Studios	Burndell Road				
Stanbridge Lane	Porous Carpark Simula...				
Romsey SO51 0HE	P44-45 (100 years + 30%)				
Date 14/03/2019	Designed by Hoa Nguyen				
File P44-45 (100 year...	Checked by KM				
Micro Drainage	Source Control 2013.1.1				
<u>Summary of Results for 100 year Return Period (+30%)</u>					
Half Drain Time : 1940 minutes.					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	6.496	0.067	0.0	1.0	O K
30 min Summer	6.523	0.094	0.0	1.5	O K
60 min Summer	6.553	0.124	0.0	1.9	O K
120 min Summer	6.583	0.154	0.0	2.4	Flood Risk
180 min Summer	6.600	0.171	0.0	2.7	Flood Risk
240 min Summer	6.611	0.182	0.0	2.9	Flood Risk
360 min Summer	6.626	0.197	0.0	3.1	Flood Risk
480 min Summer	6.636	0.207	0.0	3.3	Flood Risk
600 min Summer	6.643	0.214	0.0	3.4	Flood Risk
720 min Summer	6.647	0.218	0.0	3.5	Flood Risk
960 min Summer	6.653	0.224	0.0	3.5	Flood Risk
1440 min Summer	6.654	0.225	0.0	3.6	Flood Risk
2160 min Summer	6.650	0.221	0.0	3.5	Flood Risk
2880 min Summer	6.645	0.216	0.0	3.4	Flood Risk
4320 min Summer	6.631	0.202	0.0	3.2	Flood Risk
5760 min Summer	6.616	0.187	0.0	3.0	Flood Risk
7200 min Summer	6.601	0.172	0.0	2.7	Flood Risk
8640 min Summer	6.586	0.157	0.0	2.5	Flood Risk
10080 min Summer	6.573	0.144	0.0	2.3	Flood Risk
15 min Winter	6.506	0.077	0.0	1.2	O K
30 min Winter	6.536	0.107	0.0	1.7	O K
60 min Winter	6.569	0.140	0.0	2.2	Flood Risk
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
15 min Summer	115.731	0.0	19		
30 min Summer	77.804	0.0	34		
60 min Summer	49.937	0.0	64		
120 min Summer	30.956	0.0	124		
180 min Summer	23.058	0.0	184		
240 min Summer	18.577	0.0	242		
360 min Summer	13.656	0.0	362		
480 min Summer	10.974	0.0	482		
600 min Summer	9.254	0.0	602		
720 min Summer	8.046	0.0	722		
960 min Summer	6.447	0.0	960		
1440 min Summer	4.709	0.0	1398		
2160 min Summer	3.432	0.0	1712		
2880 min Summer	2.739	0.0	2100		
4320 min Summer	1.989	0.0	2896		
5760 min Summer	1.583	0.0	3696		
7200 min Summer	1.325	0.0	4536		
8640 min Summer	1.147	0.0	5280		
10080 min Summer	1.015	0.0	6056		
15 min Winter	115.731	0.0	19		
30 min Winter	77.804	0.0	33		
60 min Winter	49.937	0.0	64		
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Escher Silverman			Page 2		
Lone Barn Studios	Burndell Road				
Stanbridge Lane	Porous Carpark Simula...				
Romsey SO51 0HE	P44-45 (100 years + 30%)				
Date 14/03/2019	Designed by Hoa Nguyen				
File P44-45 (100 year...	Checked by KM				
Micro Drainage	Source Control 2013.1.1				
<u>Summary of Results for 100 year Return Period (+30%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
120 min Winter	6.603	0.174	0.0	2.8	Flood Risk
180 min Winter	6.623	0.194	0.0	3.1	Flood Risk
240 min Winter	6.636	0.207	0.0	3.3	Flood Risk
360 min Winter	6.653	0.224	0.0	3.6	Flood Risk
480 min Winter	6.664	0.235	0.0	3.7	Flood Risk
600 min Winter	6.673	0.244	0.0	3.9	Flood Risk
720 min Winter	6.678	0.249	0.0	4.0	Flood Risk
960 min Winter	6.686	0.257	0.0	4.1	Flood Risk
1440 min Winter	6.690	0.261	0.0	4.2	Flood Risk
2160 min Winter	6.685	0.256	0.0	4.1	Flood Risk
2880 min Winter	6.677	0.248	0.0	3.9	Flood Risk
4320 min Winter	6.657	0.228	0.0	3.6	Flood Risk
5760 min Winter	6.634	0.205	0.0	3.3	Flood Risk
7200 min Winter	6.611	0.182	0.0	2.9	Flood Risk
8640 min Winter	6.589	0.160	0.0	2.5	Flood Risk
10080 min Winter	6.569	0.140	0.0	2.2	Flood Risk
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
120 min Winter	30.956	0.0	122		
180 min Winter	23.058	0.0	180		
240 min Winter	18.577	0.0	240		
360 min Winter	13.656	0.0	358		
480 min Winter	10.974	0.0	474		
600 min Winter	9.254	0.0	590		
720 min Winter	8.046	0.0	708		
960 min Winter	6.447	0.0	934		
1440 min Winter	4.709	0.0	1384		
2160 min Winter	3.432	0.0	2008		
2880 min Winter	2.739	0.0	2248		
4320 min Winter	1.989	0.0	3156		
5760 min Winter	1.583	0.0	4040		
7200 min Winter	1.325	0.0	4904		
8640 min Winter	1.147	0.0	5712		
10080 min Winter	1.015	0.0	6464		
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Escher Silverman		Page 3
Lone Barn Studios Stanbridge Lane Romsey SO51 0HE	Burndell Road Porous Carpark Simula... P44-45 (100 years + 30%)	
Date 14/03/2019 File P44-45 (100 year...	Designed by Hoa Nguyen Checked by KM	
Micro Drainage Source Control 2013.1.1		

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	0.350	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+30

Time Area Diagram

Total Area (ha) 0.006

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

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Escher Silverman		Page 4																								
Lone Barn Studios Stanbridge Lane Romsey SO51 0HE	Burndell Road Porous Carpark Simula... P44-45 (100 years + 30%)																									
Date 14/03/2019 File P44-45 (100 year...	Designed by Hoa Nguyen Checked by KM																									
Micro Drainage Source Control 2013.1.1																										
<u>Model Details</u> Storage is Online Cover Level (m) 6.865 <u>Porous Car Park Structure</u> <table> <tr> <td>Infiltration Coefficient Base (m/hr)</td> <td>0.00360</td> <td>Width (m)</td> <td>6.2</td> </tr> <tr> <td>Membrane Percolation (mm/hr)</td> <td>1000</td> <td>Length (m)</td> <td>8.7</td> </tr> <tr> <td>Max Percolation (l/s)</td> <td>15.0</td> <td>Slope (1:X)</td> <td>1000.0</td> </tr> <tr> <td>Safety Factor</td> <td>3.0</td> <td>Depression Storage (mm)</td> <td>5</td> </tr> <tr> <td>Porosity</td> <td>0.30</td> <td>Evaporation (mm/day)</td> <td>3</td> </tr> <tr> <td>Invert Level (m)</td> <td>6.429</td> <td>Cap Volume Depth (m)</td> <td>0.261</td> </tr> </table>			Infiltration Coefficient Base (m/hr)	0.00360	Width (m)	6.2	Membrane Percolation (mm/hr)	1000	Length (m)	8.7	Max Percolation (l/s)	15.0	Slope (1:X)	1000.0	Safety Factor	3.0	Depression Storage (mm)	5	Porosity	0.30	Evaporation (mm/day)	3	Invert Level (m)	6.429	Cap Volume Depth (m)	0.261
Infiltration Coefficient Base (m/hr)	0.00360	Width (m)	6.2																							
Membrane Percolation (mm/hr)	1000	Length (m)	8.7																							
Max Percolation (l/s)	15.0	Slope (1:X)	1000.0																							
Safety Factor	3.0	Depression Storage (mm)	5																							
Porosity	0.30	Evaporation (mm/day)	3																							
Invert Level (m)	6.429	Cap Volume Depth (m)	0.261																							
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Escher Silverman			Page 1		
Lone Barn Studios	Burndell Road				
Stanbridge Lane	Porous Carpark Simula...				
Romsey SO51 0HE	P33 (100 years + 30%)				
Date 14/03/2019	Designed by Hoa Nguyen				
File P33 (10 years + ...	Checked by KM				
Micro Drainage	Source Control 2013.1.1				
<u>Summary of Results for 10 year Return Period (+30%)</u>					
Half Drain Time : 1003 minutes.					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	6.610	0.036	0.0	0.4	O K
30 min Summer	6.624	0.050	0.0	0.6	O K
60 min Summer	6.640	0.066	0.0	0.8	O K
120 min Summer	6.656	0.082	0.0	1.1	O K
180 min Summer	6.666	0.092	0.0	1.2	O K
240 min Summer	6.672	0.098	0.0	1.3	O K
360 min Summer	6.680	0.106	0.0	1.4	O K
480 min Summer	6.686	0.112	0.0	1.5	O K
600 min Summer	6.689	0.115	0.0	1.5	O K
720 min Summer	6.691	0.117	0.0	1.5	O K
960 min Summer	6.693	0.119	0.0	1.6	O K
1440 min Summer	6.695	0.121	0.0	1.6	O K
2160 min Summer	6.694	0.120	0.0	1.6	O K
2880 min Summer	6.691	0.117	0.0	1.5	O K
4320 min Summer	6.681	0.107	0.0	1.4	O K
5760 min Summer	6.671	0.097	0.0	1.3	O K
7200 min Summer	6.661	0.087	0.0	1.1	O K
8640 min Summer	6.652	0.078	0.0	1.0	O K
10080 min Summer	6.644	0.070	0.0	0.9	O K
15 min Winter	6.615	0.041	0.0	0.5	O K
30 min Winter	6.632	0.058	0.0	0.7	O K
60 min Winter	6.649	0.075	0.0	1.0	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
15 min Summer	70.770	0.0	19		
30 min Summer	46.698	0.0	34		
60 min Summer	29.629	0.0	64		
120 min Summer	18.344	0.0	122		
180 min Summer	13.747	0.0	182		
240 min Summer	11.169	0.0	242		
360 min Summer	8.317	0.0	362		
480 min Summer	6.743	0.0	480		
600 min Summer	5.728	0.0	600		
720 min Summer	5.011	0.0	714		
960 min Summer	4.057	0.0	818		
1440 min Summer	3.009	0.0	1068		
2160 min Summer	2.231	0.0	1472		
2880 min Summer	1.803	0.0	1876		
4320 min Summer	1.335	0.0	2720		
5760 min Summer	1.078	0.0	3464		
7200 min Summer	0.913	0.0	4248		
8640 min Summer	0.798	0.0	5008		
10080 min Summer	0.711	0.0	5656		
15 min Winter	70.770	0.0	19		
30 min Winter	46.698	0.0	33		
60 min Winter	29.629	0.0	62		
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Escher Silverman		Page 2			
Lone Barn Studios Stanbridge Lane Romsey SO51 0HE	Burndell Road Porous Carpark Simula... P33 (100 years + 30%)				
Date 14/03/2019 File P33 (10 years + ...	Designed by Hoa Nguyen Checked by KM				
Micro Drainage		Source Control 2013.1.1			
<u>Summary of Results for 10 year Return Period (+30%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
120 min Winter	6.668	0.094	0.0	1.2	O K
180 min Winter	6.679	0.105	0.0	1.4	O K
240 min Winter	6.686	0.112	0.0	1.5	O K
360 min Winter	6.696	0.122	0.0	1.6	O K
480 min Winter	6.702	0.128	0.0	1.7	Flood Risk
600 min Winter	6.706	0.132	0.0	1.8	Flood Risk
720 min Winter	6.709	0.135	0.0	1.8	Flood Risk
960 min Winter	6.712	0.138	0.0	1.8	Flood Risk
1440 min Winter	6.712	0.138	0.0	1.8	Flood Risk
2160 min Winter	6.709	0.135	0.0	1.8	Flood Risk
2880 min Winter	6.703	0.129	0.0	1.7	Flood Risk
4320 min Winter	6.688	0.114	0.0	1.5	O K
5760 min Winter	6.671	0.097	0.0	1.3	O K
7200 min Winter	6.656	0.082	0.0	1.1	O K
8640 min Winter	6.642	0.068	0.0	0.9	O K
10080 min Winter	6.631	0.057	0.0	0.7	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
120 min Winter	18.344	0.0	122		
180 min Winter	13.747	0.0	180		
240 min Winter	11.169	0.0	238		
360 min Winter	8.317	0.0	354		
480 min Winter	6.743	0.0	470		
600 min Winter	5.728	0.0	582		
720 min Winter	5.011	0.0	694		
960 min Winter	4.057	0.0	912		
1440 min Winter	3.009	0.0	1152		
2160 min Winter	2.231	0.0	1604		
2880 min Winter	1.803	0.0	2072		
4320 min Winter	1.335	0.0	2936		
5760 min Winter	1.078	0.0	3744		
7200 min Winter	0.913	0.0	4472		
8640 min Winter	0.798	0.0	5184		
10080 min Winter	0.711	0.0	5840		
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Escher Silverman		Page 3
Lone Barn Studios Stanbridge Lane Romsey SO51 0HE	Burndell Road Porous Carpark Simula... P33 (100 years + 30%)	
Date 14/03/2019 File P33 (10 years + ...	Designed by Hoa Nguyen Checked by KM	
Micro Drainage Source Control 2013.1.1		

Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	10	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.000	Shortest Storm (mins)	15
Ratio R	0.350	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+30

Time Area Diagram

Total Area (ha) 0.005

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

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Escher Silverman		Page 4																								
Lone Barn Studios Stanbridge Lane Romsey SO51 0HE	Burndell Road Porous Carpark Simula... P33 (100 years + 30%)																									
Date 14/03/2019 File P33 (10 years + ...	Designed by Hoa Nguyen Checked by KM																									
Micro Drainage Source Control 2013.1.1																										
<u>Model Details</u> Storage is Online Cover Level (m) 7.000 <u>Porous Car Park Structure</u> <table> <tr> <td>Infiltration Coefficient Base (m/hr)</td> <td>0.00360</td> <td>Width (m)</td> <td>4.3</td> </tr> <tr> <td>Membrane Percolation (mm/hr)</td> <td>1000</td> <td>Length (m)</td> <td>10.8</td> </tr> <tr> <td>Max Percolation (l/s)</td> <td>12.9</td> <td>Slope (1:X)</td> <td>1000.0</td> </tr> <tr> <td>Safety Factor</td> <td>3.0</td> <td>Depression Storage (mm)</td> <td>5</td> </tr> <tr> <td>Porosity</td> <td>0.30</td> <td>Evaporation (mm/day)</td> <td>3</td> </tr> <tr> <td>Invert Level (m)</td> <td>6.574</td> <td>Cap Volume Depth (m)</td> <td>0.251</td> </tr> </table>			Infiltration Coefficient Base (m/hr)	0.00360	Width (m)	4.3	Membrane Percolation (mm/hr)	1000	Length (m)	10.8	Max Percolation (l/s)	12.9	Slope (1:X)	1000.0	Safety Factor	3.0	Depression Storage (mm)	5	Porosity	0.30	Evaporation (mm/day)	3	Invert Level (m)	6.574	Cap Volume Depth (m)	0.251
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<u>Summary of Results for 100 year Return Period (+30%)</u> Half Drain Time : 1854 minutes. <table><thead><tr><th>Storm Event</th><th>Max Level (m)</th><th>Max Depth (m)</th><th>Max Infiltration (l/s)</th><th>Max Volume (m³)</th><th>Status</th></tr></thead><tbody><tr><td>15 min Summer</td><td>6.640</td><td>0.066</td><td>0.0</td><td>0.8</td><td>O K</td></tr><tr><td>30 min Summer</td><td>6.666</td><td>0.092</td><td>0.0</td><td>1.2</td><td>O K</td></tr><tr><td>60 min Summer</td><td>6.694</td><td>0.120</td><td>0.0</td><td>1.6</td><td>O K</td></tr><tr><td>120 min Summer</td><td>6.723</td><td>0.149</td><td>0.0</td><td>2.0</td><td>Flood Risk</td></tr><tr><td>180 min Summer</td><td>6.740</td><td>0.166</td><td>0.0</td><td>2.2</td><td>Flood Risk</td></tr><tr><td>240 min Summer</td><td>6.751</td><td>0.177</td><td>0.0</td><td>2.4</td><td>Flood Risk</td></tr><tr><td>360 min Summer</td><td>6.765</td><td>0.191</td><td>0.0</td><td>2.6</td><td>Flood Risk</td></tr><tr><td>480 min Summer</td><td>6.774</td><td>0.200</td><td>0.0</td><td>2.7</td><td>Flood Risk</td></tr><tr><td>600 min Summer</td><td>6.780</td><td>0.206</td><td>0.0</td><td>2.8</td><td>Flood Risk</td></tr><tr><td>720 min Summer</td><td>6.785</td><td>0.211</td><td>0.0</td><td>2.9</td><td>Flood Risk</td></tr><tr><td>960 min Summer</td><td>6.790</td><td>0.216</td><td>0.0</td><td>2.9</td><td>Flood Risk</td></tr><tr><td>1440 min Summer</td><td>6.790</td><td>0.216</td><td>0.0</td><td>2.9</td><td>Flood Risk</td></tr><tr><td>2160 min Summer</td><td>6.787</td><td>0.213</td><td>0.0</td><td>2.9</td><td>Flood Risk</td></tr><tr><td>2880 min Summer</td><td>6.781</td><td>0.207</td><td>0.0</td><td>2.8</td><td>Flood Risk</td></tr><tr><td>4320 min Summer</td><td>6.767</td><td>0.193</td><td>0.0</td><td>2.6</td><td>Flood Risk</td></tr><tr><td>5760 min Summer</td><td>6.752</td><td>0.178</td><td>0.0</td><td>2.4</td><td>Flood Risk</td></tr><tr><td>7200 min Summer</td><td>6.737</td><td>0.163</td><td>0.0</td><td>2.2</td><td>Flood Risk</td></tr><tr><td>8640 min Summer</td><td>6.723</td><td>0.149</td><td>0.0</td><td>2.0</td><td>Flood Risk</td></tr><tr><td>10080 min Summer</td><td>6.710</td><td>0.136</td><td>0.0</td><td>1.8</td><td>Flood Risk</td></tr><tr><td>15 min Winter</td><td>6.649</td><td>0.075</td><td>0.0</td><td>1.0</td><td>O K</td></tr><tr><td>30 min Winter</td><td>6.678</td><td>0.104</td><td>0.0</td><td>1.4</td><td>O K</td></tr><tr><td>60 min Winter</td><td>6.710</td><td>0.136</td><td>0.0</td><td>1.8</td><td>Flood Risk</td></tr></tbody></table> <table><thead><tr><th>Storm Event</th><th>Rain (mm/hr)</th><th>Flooded Volume (m³)</th><th>Time-Peak (mins)</th></tr></thead><tbody><tr><td>15 min Summer</td><td>115.731</td><td>0.0</td><td>19</td></tr><tr><td>30 min Summer</td><td>77.804</td><td>0.0</td><td>34</td></tr><tr><td>60 min Summer</td><td>49.937</td><td>0.0</td><td>64</td></tr><tr><td>120 min Summer</td><td>30.956</td><td>0.0</td><td>124</td></tr><tr><td>180 min Summer</td><td>23.058</td><td>0.0</td><td>184</td></tr><tr><td>240 min Summer</td><td>18.577</td><td>0.0</td><td>242</td></tr><tr><td>360 min Summer</td><td>13.656</td><td>0.0</td><td>362</td></tr><tr><td>480 min Summer</td><td>10.974</td><td>0.0</td><td>482</td></tr><tr><td>600 min Summer</td><td>9.254</td><td>0.0</td><td>602</td></tr><tr><td>720 min Summer</td><td>8.046</td><td>0.0</td><td>722</td></tr><tr><td>960 min Summer</td><td>6.447</td><td>0.0</td><td>960</td></tr><tr><td>1440 min Summer</td><td>4.709</td><td>0.0</td><td>1368</td></tr><tr><td>2160 min Summer</td><td>3.432</td><td>0.0</td><td>1704</td></tr><tr><td>2880 min Summer</td><td>2.739</td><td>0.0</td><td>2076</td></tr><tr><td>4320 min Summer</td><td>1.989</td><td>0.0</td><td>2896</td></tr><tr><td>5760 min Summer</td><td>1.583</td><td>0.0</td><td>3688</td></tr><tr><td>7200 min Summer</td><td>1.325</td><td>0.0</td><td>4472</td></tr><tr><td>8640 min Summer</td><td>1.147</td><td>0.0</td><td>5272</td></tr><tr><td>10080 min Summer</td><td>1.015</td><td>0.0</td><td>6048</td></tr><tr><td>15 min Winter</td><td>115.731</td><td>0.0</td><td>19</td></tr><tr><td>30 min Winter</td><td>77.804</td><td>0.0</td><td>33</td></tr><tr><td>60 min Winter</td><td>49.937</td><td>0.0</td><td>64</td></tr></tbody></table>			Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status	15 min Summer	6.640	0.066	0.0	0.8	O K	30 min Summer	6.666	0.092	0.0	1.2	O K	60 min Summer	6.694	0.120	0.0	1.6	O K	120 min Summer	6.723	0.149	0.0	2.0	Flood Risk	180 min Summer	6.740	0.166	0.0	2.2	Flood Risk	240 min Summer	6.751	0.177	0.0	2.4	Flood Risk	360 min Summer	6.765	0.191	0.0	2.6	Flood Risk	480 min Summer	6.774	0.200	0.0	2.7	Flood Risk	600 min Summer	6.780	0.206	0.0	2.8	Flood Risk	720 min Summer	6.785	0.211	0.0	2.9	Flood Risk	960 min Summer	6.790	0.216	0.0	2.9	Flood Risk	1440 min Summer	6.790	0.216	0.0	2.9	Flood Risk	2160 min Summer	6.787	0.213	0.0	2.9	Flood Risk	2880 min Summer	6.781	0.207	0.0	2.8	Flood Risk	4320 min Summer	6.767	0.193	0.0	2.6	Flood Risk	5760 min Summer	6.752	0.178	0.0	2.4	Flood Risk	7200 min Summer	6.737	0.163	0.0	2.2	Flood Risk	8640 min Summer	6.723	0.149	0.0	2.0	Flood Risk	10080 min Summer	6.710	0.136	0.0	1.8	Flood Risk	15 min Winter	6.649	0.075	0.0	1.0	O K	30 min Winter	6.678	0.104	0.0	1.4	O K	60 min Winter	6.710	0.136	0.0	1.8	Flood Risk	Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)	15 min Summer	115.731	0.0	19	30 min Summer	77.804	0.0	34	60 min Summer	49.937	0.0	64	120 min Summer	30.956	0.0	124	180 min Summer	23.058	0.0	184	240 min Summer	18.577	0.0	242	360 min Summer	13.656	0.0	362	480 min Summer	10.974	0.0	482	600 min Summer	9.254	0.0	602	720 min Summer	8.046	0.0	722	960 min Summer	6.447	0.0	960	1440 min Summer	4.709	0.0	1368	2160 min Summer	3.432	0.0	1704	2880 min Summer	2.739	0.0	2076	4320 min Summer	1.989	0.0	2896	5760 min Summer	1.583	0.0	3688	7200 min Summer	1.325	0.0	4472	8640 min Summer	1.147	0.0	5272	10080 min Summer	1.015	0.0	6048	15 min Winter	115.731	0.0	19	30 min Winter	77.804	0.0	33	60 min Winter	49.937	0.0	64
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Stanbridge Lane	Porous Carpark Simula...				
Romsey SO51 0HE	P33 (100 years + 30%)				
Date 14/03/2019	Designed by Hoa Nguyen				
File P33 (100 years +...	Checked by KM				
Micro Drainage	Source Control 2013.1.1				
<u>Summary of Results for 100 year Return Period (+30%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
120 min Winter	6.743	0.169	0.0	2.3	Flood Risk
180 min Winter	6.762	0.188	0.0	2.5	Flood Risk
240 min Winter	6.774	0.200	0.0	2.7	Flood Risk
360 min Winter	6.791	0.217	0.0	2.9	Flood Risk
480 min Winter	6.802	0.228	0.0	3.1	Flood Risk
600 min Winter	6.809	0.235	0.0	3.2	Flood Risk
720 min Winter	6.815	0.241	0.0	3.3	Flood Risk
960 min Winter	6.822	0.248	0.0	3.4	Flood Risk
1440 min Winter	6.825	0.251	0.0	3.4	Flood Risk
2160 min Winter	6.819	0.245	0.0	3.3	Flood Risk
2880 min Winter	6.811	0.237	0.0	3.2	Flood Risk
4320 min Winter	6.791	0.217	0.0	3.0	Flood Risk
5760 min Winter	6.768	0.194	0.0	2.6	Flood Risk
7200 min Winter	6.746	0.172	0.0	2.3	Flood Risk
8640 min Winter	6.724	0.150	0.0	2.0	Flood Risk
10080 min Winter	6.704	0.130	0.0	1.7	Flood Risk
Storm Event	Rain (mm/hr)		Flooded Volume (m³)	Time-Peak (mins)	
120 min Winter	30.956		0.0	122	
180 min Winter	23.058		0.0	180	
240 min Winter	18.577		0.0	240	
360 min Winter	13.656		0.0	358	
480 min Winter	10.974		0.0	474	
600 min Winter	9.254		0.0	590	
720 min Winter	8.046		0.0	706	
960 min Winter	6.447		0.0	934	
1440 min Winter	4.709		0.0	1384	
2160 min Winter	3.432		0.0	1988	
2880 min Winter	2.739		0.0	2244	
4320 min Winter	1.989		0.0	3152	
5760 min Winter	1.583		0.0	4032	
7200 min Winter	1.325		0.0	4896	
8640 min Winter	1.147		0.0	5704	
10080 min Winter	1.015		0.0	6456	
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Escher Silverman		Page 3
Lone Barn Studios Stanbridge Lane Romsey SO51 0HE	Burndell Road Porous Carpark Simula... P33 (100 years + 30%)	
Date 14/03/2019 File P33 (100 years +...	Designed by Hoa Nguyen Checked by KM	
Micro Drainage Source Control 2013.1.1		

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	0.350	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+30

Time Area Diagram

Total Area (ha) 0.005

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

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Escher Silverman		Page 4																								
Lone Barn Studios Stanbridge Lane Romsey SO51 0HE	Burndell Road Porous Carpark Simula... P33 (100 years + 30%)																									
Date 14/03/2019 File P33 (100 years +...	Designed by Hoa Nguyen Checked by KM																									
Micro Drainage Source Control 2013.1.1																										
<u>Model Details</u> Storage is Online Cover Level (m) 7.000 <u>Porous Car Park Structure</u> <table> <tr> <td>Infiltration Coefficient Base (m/hr)</td> <td>0.00360</td> <td>Width (m)</td> <td>4.3</td> </tr> <tr> <td>Membrane Percolation (mm/hr)</td> <td>1000</td> <td>Length (m)</td> <td>10.8</td> </tr> <tr> <td>Max Percolation (l/s)</td> <td>12.9</td> <td>Slope (1:X)</td> <td>1000.0</td> </tr> <tr> <td>Safety Factor</td> <td>3.0</td> <td>Depression Storage (mm)</td> <td>5</td> </tr> <tr> <td>Porosity</td> <td>0.30</td> <td>Evaporation (mm/day)</td> <td>3</td> </tr> <tr> <td>Invert Level (m)</td> <td>6.574</td> <td>Cap Volume Depth (m)</td> <td>0.251</td> </tr> </table>			Infiltration Coefficient Base (m/hr)	0.00360	Width (m)	4.3	Membrane Percolation (mm/hr)	1000	Length (m)	10.8	Max Percolation (l/s)	12.9	Slope (1:X)	1000.0	Safety Factor	3.0	Depression Storage (mm)	5	Porosity	0.30	Evaporation (mm/day)	3	Invert Level (m)	6.574	Cap Volume Depth (m)	0.251
Infiltration Coefficient Base (m/hr)	0.00360	Width (m)	4.3																							
Membrane Percolation (mm/hr)	1000	Length (m)	10.8																							
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Escher Silverman			Page 1		
Lone Barn Studios	Burndell Road				
Stanbridge Lane	Porous Carpark Simula...				
Romsey SO51 0HE	P34 (10 years + 30%)				
Date 14/03/2019	Designed by Hoa Nguyen				
File P34 (10 years + ...	Checked by KM				
Micro Drainage	Source Control 2013.1.1				
<u>Summary of Results for 10 year Return Period (+30%)</u> Half Drain Time : 953 minutes.					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	6.449	0.039	0.0	0.7	O K
30 min Summer	6.463	0.053	0.0	1.1	O K
60 min Summer	6.478	0.068	0.0	1.5	O K
120 min Summer	6.494	0.084	0.0	1.9	O K
180 min Summer	6.503	0.093	0.0	2.1	O K
240 min Summer	6.509	0.099	0.0	2.3	O K
360 min Summer	6.517	0.107	0.0	2.5	O K
480 min Summer	6.521	0.111	0.0	2.6	O K
600 min Summer	6.524	0.114	0.0	2.7	O K
720 min Summer	6.526	0.116	0.0	2.7	O K
960 min Summer	6.528	0.118	0.0	2.8	O K
1440 min Summer	6.529	0.119	0.0	2.8	O K
2160 min Summer	6.528	0.118	0.0	2.8	O K
2880 min Summer	6.524	0.114	0.0	2.7	O K
4320 min Summer	6.514	0.104	0.0	2.4	O K
5760 min Summer	6.504	0.094	0.0	2.2	O K
7200 min Summer	6.494	0.084	0.0	1.9	O K
8640 min Summer	6.485	0.075	0.0	1.7	O K
10080 min Summer	6.477	0.067	0.0	1.5	O K
15 min Winter	6.454	0.044	0.0	0.9	O K
30 min Winter	6.470	0.060	0.0	1.3	O K
60 min Winter	6.487	0.077	0.0	1.7	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
15 min Summer	70.770	0.0	19		
30 min Summer	46.698	0.0	34		
60 min Summer	29.629	0.0	64		
120 min Summer	18.344	0.0	122		
180 min Summer	13.747	0.0	182		
240 min Summer	11.169	0.0	242		
360 min Summer	8.317	0.0	362		
480 min Summer	6.743	0.0	480		
600 min Summer	5.728	0.0	600		
720 min Summer	5.011	0.0	698		
960 min Summer	4.057	0.0	806		
1440 min Summer	3.009	0.0	1054		
2160 min Summer	2.231	0.0	1468		
2880 min Summer	1.803	0.0	1876		
4320 min Summer	1.335	0.0	2680		
5760 min Summer	1.078	0.0	3464		
7200 min Summer	0.913	0.0	4248		
8640 min Summer	0.798	0.0	4936		
10080 min Summer	0.711	0.0	5648		
15 min Winter	70.770	0.0	19		
30 min Winter	46.698	0.0	33		
60 min Winter	29.629	0.0	62		
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Escher Silverman		Page 2			
Lone Barn Studios Stanbridge Lane Romsey SO51 0HE	Burndell Road Porous Carpark Simula... P34 (10 years + 30%)				
Date 14/03/2019 File P34 (10 years + ...	Designed by Hoa Nguyen Checked by KM				
Micro Drainage Source Control 2013.1.1					
<u>Summary of Results for 10 year Return Period (+30%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
120 min Winter	6.505	0.095	0.0	2.2	O K
180 min Winter	6.515	0.105	0.0	2.5	O K
240 min Winter	6.522	0.112	0.0	2.7	O K
360 min Winter	6.532	0.122	0.0	2.9	O K
480 min Winter	6.537	0.127	0.0	3.0	Flood Risk
600 min Winter	6.541	0.131	0.0	3.1	Flood Risk
720 min Winter	6.544	0.134	0.0	3.2	Flood Risk
960 min Winter	6.546	0.136	0.0	3.3	Flood Risk
1440 min Winter	6.546	0.136	0.0	3.3	Flood Risk
2160 min Winter	6.542	0.132	0.0	3.2	Flood Risk
2880 min Winter	6.535	0.125	0.0	3.0	Flood Risk
4320 min Winter	6.519	0.109	0.0	2.6	O K
5760 min Winter	6.502	0.092	0.0	2.1	O K
7200 min Winter	6.487	0.077	0.0	1.7	O K
8640 min Winter	6.474	0.064	0.0	1.4	O K
10080 min Winter	6.464	0.054	0.0	1.1	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
120 min Winter	18.344	0.0	122		
180 min Winter	13.747	0.0	180		
240 min Winter	11.169	0.0	238		
360 min Winter	8.317	0.0	354		
480 min Winter	6.743	0.0	468		
600 min Winter	5.728	0.0	582		
720 min Winter	5.011	0.0	692		
960 min Winter	4.057	0.0	904		
1440 min Winter	3.009	0.0	1138		
2160 min Winter	2.231	0.0	1600		
2880 min Winter	1.803	0.0	2048		
4320 min Winter	1.335	0.0	2900		
5760 min Winter	1.078	0.0	3696		
7200 min Winter	0.913	0.0	4464		
8640 min Winter	0.798	0.0	5104		
10080 min Winter	0.711	0.0	5744		
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Lone Barn Studios Stanbridge Lane Romsey SO51 0HE	Burndell Road Porous Carpark Simula... P34 (10 years + 30%)	
Date 14/03/2019 File P34 (10 years + ...	Designed by Hoa Nguyen Checked by KM	
Micro Drainage Source Control 2013.1.1		

Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	10	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.000	Shortest Storm (mins)	15
Ratio R	0.350	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+30

Time Area Diagram

Total Area (ha) 0.009

Time (mins)	Area
From:	To: (ha)
0	4 0.009

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Escher Silverman		Page 4																								
Lone Barn Studios Stanbridge Lane Romsey SO51 0HE	Burndell Road Porous Carpark Simula... P34 (10 years + 30%)																									
Date 14/03/2019 File P34 (10 years + ...	Designed by Hoa Nguyen Checked by KM																									
Micro Drainage Source Control 2013.1.1																										
<u>Model Details</u> Storage is Online Cover Level (m) 6.835 <u>Porous Car Park Structure</u> <table> <tr> <td>Infiltration Coefficient Base (m/hr)</td> <td>0.00360</td> <td>Width (m)</td> <td>4.3</td> </tr> <tr> <td>Membrane Percolation (mm/hr)</td> <td>1000</td> <td>Length (m)</td> <td>20.1</td> </tr> <tr> <td>Max Percolation (l/s)</td> <td>24.0</td> <td>Slope (1:X)</td> <td>1000.0</td> </tr> <tr> <td>Safety Factor</td> <td>3.0</td> <td>Depression Storage (mm)</td> <td>5</td> </tr> <tr> <td>Porosity</td> <td>0.30</td> <td>Evaporation (mm/day)</td> <td>3</td> </tr> <tr> <td>Invert Level (m)</td> <td>6.410</td> <td>Cap Volume Depth (m)</td> <td>0.250</td> </tr> </table>			Infiltration Coefficient Base (m/hr)	0.00360	Width (m)	4.3	Membrane Percolation (mm/hr)	1000	Length (m)	20.1	Max Percolation (l/s)	24.0	Slope (1:X)	1000.0	Safety Factor	3.0	Depression Storage (mm)	5	Porosity	0.30	Evaporation (mm/day)	3	Invert Level (m)	6.410	Cap Volume Depth (m)	0.250
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Lone Barn Studios	Burndell Road				
Stanbridge Lane	Porous Carpark Simula...				
Romsey SO51 0HE	P34 (100 years + 30%)				
Date 14/03/2019	Designed by Hoa Nguyen				
File P34 (100 years +...	Checked by KM				
Micro Drainage	Source Control 2013.1.1				
<u>Summary of Results for 100 year Return Period (+30%)</u>					
Half Drain Time : 1769 minutes.					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	6.478	0.068	0.0	1.5	O K
30 min Summer	6.503	0.093	0.0	2.2	O K
60 min Summer	6.530	0.120	0.0	2.9	O K
120 min Summer	6.559	0.149	0.0	3.6	Flood Risk
180 min Summer	6.574	0.164	0.0	4.0	Flood Risk
240 min Summer	6.585	0.175	0.0	4.3	Flood Risk
360 min Summer	6.598	0.188	0.0	4.6	Flood Risk
480 min Summer	6.607	0.197	0.0	4.8	Flood Risk
600 min Summer	6.613	0.203	0.0	5.0	Flood Risk
720 min Summer	6.617	0.207	0.0	5.1	Flood Risk
960 min Summer	6.621	0.211	0.0	5.2	Flood Risk
1440 min Summer	6.621	0.211	0.0	5.2	Flood Risk
2160 min Summer	6.616	0.206	0.0	5.1	Flood Risk
2880 min Summer	6.610	0.200	0.0	4.9	Flood Risk
4320 min Summer	6.596	0.186	0.0	4.6	Flood Risk
5760 min Summer	6.580	0.170	0.0	4.2	Flood Risk
7200 min Summer	6.565	0.155	0.0	3.8	Flood Risk
8640 min Summer	6.551	0.141	0.0	3.4	Flood Risk
10080 min Summer	6.538	0.128	0.0	3.1	Flood Risk
15 min Winter	6.487	0.077	0.0	1.7	O K
30 min Winter	6.515	0.105	0.0	2.5	O K
60 min Winter	6.546	0.136	0.0	3.3	Flood Risk
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
15 min Summer	115.731	0.0	19		
30 min Summer	77.804	0.0	34		
60 min Summer	49.937	0.0	64		
120 min Summer	30.956	0.0	124		
180 min Summer	23.058	0.0	184		
240 min Summer	18.577	0.0	242		
360 min Summer	13.656	0.0	362		
480 min Summer	10.974	0.0	482		
600 min Summer	9.254	0.0	602		
720 min Summer	8.046	0.0	722		
960 min Summer	6.447	0.0	960		
1440 min Summer	4.709	0.0	1316		
2160 min Summer	3.432	0.0	1668		
2880 min Summer	2.739	0.0	2048		
4320 min Summer	1.989	0.0	2856		
5760 min Summer	1.583	0.0	3688		
7200 min Summer	1.325	0.0	4472		
8640 min Summer	1.147	0.0	5272		
10080 min Summer	1.015	0.0	6048		
15 min Winter	115.731	0.0	19		
30 min Winter	77.804	0.0	33		
60 min Winter	49.937	0.0	64		
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Summary of Results for 100 year Return Period (+30%) <table><thead><tr><th>Storm Event</th><th>Max Level (m)</th><th>Max Depth (m)</th><th>Max Infiltration (l/s)</th><th>Max Volume (m³)</th><th>Status</th></tr></thead><tbody><tr><td>120 min Winter</td><td>6.578</td><td>0.168</td><td>0.0</td><td>4.1</td><td>Flood Risk</td></tr><tr><td>180 min Winter</td><td>6.596</td><td>0.186</td><td>0.0</td><td>4.6</td><td>Flood Risk</td></tr><tr><td>240 min Winter</td><td>6.607</td><td>0.197</td><td>0.0</td><td>4.9</td><td>Flood Risk</td></tr><tr><td>360 min Winter</td><td>6.623</td><td>0.213</td><td>0.0</td><td>5.3</td><td>Flood Risk</td></tr><tr><td>480 min Winter</td><td>6.633</td><td>0.223</td><td>0.0</td><td>5.5</td><td>Flood Risk</td></tr><tr><td>600 min Winter</td><td>6.641</td><td>0.231</td><td>0.0</td><td>5.7</td><td>Flood Risk</td></tr><tr><td>720 min Winter</td><td>6.646</td><td>0.236</td><td>0.0</td><td>5.9</td><td>Flood Risk</td></tr><tr><td>960 min Winter</td><td>6.652</td><td>0.242</td><td>0.0</td><td>6.0</td><td>Flood Risk</td></tr><tr><td>1440 min Winter</td><td>6.654</td><td>0.244</td><td>0.0</td><td>6.1</td><td>Flood Risk</td></tr><tr><td>2160 min Winter</td><td>6.647</td><td>0.237</td><td>0.0</td><td>5.9</td><td>Flood Risk</td></tr><tr><td>2880 min Winter</td><td>6.639</td><td>0.229</td><td>0.0</td><td>5.7</td><td>Flood Risk</td></tr><tr><td>4320 min Winter</td><td>6.618</td><td>0.208</td><td>0.0</td><td>5.1</td><td>Flood Risk</td></tr><tr><td>5760 min Winter</td><td>6.595</td><td>0.185</td><td>0.0</td><td>4.5</td><td>Flood Risk</td></tr><tr><td>7200 min Winter</td><td>6.572</td><td>0.162</td><td>0.0</td><td>3.9</td><td>Flood Risk</td></tr><tr><td>8640 min Winter</td><td>6.551</td><td>0.141</td><td>0.0</td><td>3.4</td><td>Flood Risk</td></tr><tr><td>10080 min Winter</td><td>6.531</td><td>0.121</td><td>0.0</td><td>2.9</td><td>O K</td></tr></tbody></table> <table><thead><tr><th>Storm Event</th><th>Rain (mm/hr)</th><th>Flooded Volume (m³)</th><th>Time-Peak (mins)</th></tr></thead><tbody><tr><td>120 min Winter</td><td>30.956</td><td>0.0</td><td>122</td></tr><tr><td>180 min Winter</td><td>23.058</td><td>0.0</td><td>180</td></tr><tr><td>240 min Winter</td><td>18.577</td><td>0.0</td><td>240</td></tr><tr><td>360 min Winter</td><td>13.656</td><td>0.0</td><td>358</td></tr><tr><td>480 min Winter</td><td>10.974</td><td>0.0</td><td>474</td></tr><tr><td>600 min Winter</td><td>9.254</td><td>0.0</td><td>590</td></tr><tr><td>720 min Winter</td><td>8.046</td><td>0.0</td><td>706</td></tr><tr><td>960 min Winter</td><td>6.447</td><td>0.0</td><td>934</td></tr><tr><td>1440 min Winter</td><td>4.709</td><td>0.0</td><td>1382</td></tr><tr><td>2160 min Winter</td><td>3.432</td><td>0.0</td><td>1944</td></tr><tr><td>2880 min Winter</td><td>2.739</td><td>0.0</td><td>2220</td></tr><tr><td>4320 min Winter</td><td>1.989</td><td>0.0</td><td>3116</td></tr><tr><td>5760 min Winter</td><td>1.583</td><td>0.0</td><td>3984</td></tr><tr><td>7200 min Winter</td><td>1.325</td><td>0.0</td><td>4832</td></tr><tr><td>8640 min Winter</td><td>1.147</td><td>0.0</td><td>5624</td></tr><tr><td>10080 min Winter</td><td>1.015</td><td>0.0</td><td>6360</td></tr></tbody></table>			Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status	120 min Winter	6.578	0.168	0.0	4.1	Flood Risk	180 min Winter	6.596	0.186	0.0	4.6	Flood Risk	240 min Winter	6.607	0.197	0.0	4.9	Flood Risk	360 min Winter	6.623	0.213	0.0	5.3	Flood Risk	480 min Winter	6.633	0.223	0.0	5.5	Flood Risk	600 min Winter	6.641	0.231	0.0	5.7	Flood Risk	720 min Winter	6.646	0.236	0.0	5.9	Flood Risk	960 min Winter	6.652	0.242	0.0	6.0	Flood Risk	1440 min Winter	6.654	0.244	0.0	6.1	Flood Risk	2160 min Winter	6.647	0.237	0.0	5.9	Flood Risk	2880 min Winter	6.639	0.229	0.0	5.7	Flood Risk	4320 min Winter	6.618	0.208	0.0	5.1	Flood Risk	5760 min Winter	6.595	0.185	0.0	4.5	Flood Risk	7200 min Winter	6.572	0.162	0.0	3.9	Flood Risk	8640 min Winter	6.551	0.141	0.0	3.4	Flood Risk	10080 min Winter	6.531	0.121	0.0	2.9	O K	Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)	120 min Winter	30.956	0.0	122	180 min Winter	23.058	0.0	180	240 min Winter	18.577	0.0	240	360 min Winter	13.656	0.0	358	480 min Winter	10.974	0.0	474	600 min Winter	9.254	0.0	590	720 min Winter	8.046	0.0	706	960 min Winter	6.447	0.0	934	1440 min Winter	4.709	0.0	1382	2160 min Winter	3.432	0.0	1944	2880 min Winter	2.739	0.0	2220	4320 min Winter	1.989	0.0	3116	5760 min Winter	1.583	0.0	3984	7200 min Winter	1.325	0.0	4832	8640 min Winter	1.147	0.0	5624	10080 min Winter	1.015	0.0	6360
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status																																																																																																																																																																							
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1440 min Winter	6.654	0.244	0.0	6.1	Flood Risk																																																																																																																																																																							
2160 min Winter	6.647	0.237	0.0	5.9	Flood Risk																																																																																																																																																																							
2880 min Winter	6.639	0.229	0.0	5.7	Flood Risk																																																																																																																																																																							
4320 min Winter	6.618	0.208	0.0	5.1	Flood Risk																																																																																																																																																																							
5760 min Winter	6.595	0.185	0.0	4.5	Flood Risk																																																																																																																																																																							
7200 min Winter	6.572	0.162	0.0	3.9	Flood Risk																																																																																																																																																																							
8640 min Winter	6.551	0.141	0.0	3.4	Flood Risk																																																																																																																																																																							
10080 min Winter	6.531	0.121	0.0	2.9	O K																																																																																																																																																																							
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)																																																																																																																																																																									
120 min Winter	30.956	0.0	122																																																																																																																																																																									
180 min Winter	23.058	0.0	180																																																																																																																																																																									
240 min Winter	18.577	0.0	240																																																																																																																																																																									
360 min Winter	13.656	0.0	358																																																																																																																																																																									
480 min Winter	10.974	0.0	474																																																																																																																																																																									
600 min Winter	9.254	0.0	590																																																																																																																																																																									
720 min Winter	8.046	0.0	706																																																																																																																																																																									
960 min Winter	6.447	0.0	934																																																																																																																																																																									
1440 min Winter	4.709	0.0	1382																																																																																																																																																																									
2160 min Winter	3.432	0.0	1944																																																																																																																																																																									
2880 min Winter	2.739	0.0	2220																																																																																																																																																																									
4320 min Winter	1.989	0.0	3116																																																																																																																																																																									
5760 min Winter	1.583	0.0	3984																																																																																																																																																																									
7200 min Winter	1.325	0.0	4832																																																																																																																																																																									
8640 min Winter	1.147	0.0	5624																																																																																																																																																																									
10080 min Winter	1.015	0.0	6360																																																																																																																																																																									
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Escher Silverman		Page 3
Lone Barn Studios Stanbridge Lane Romsey SO51 0HE	Burndell Road Porous Carpark Simula... P34 (100 years + 30%)	
Date 14/03/2019 File P34 (100 years +...	Designed by Hoa Nguyen Checked by KM	
Micro Drainage Source Control 2013.1.1		

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	0.350	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+30

Time Area Diagram

Total Area (ha) 0.009

Time (mins)	Area
From:	To: (ha)
0	4 0.009

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Escher Silverman		Page 4																								
Lone Barn Studios Stanbridge Lane Romsey SO51 0HE	Burndell Road Porous Carpark Simula... P34 (100 years + 30%)																									
Date 14/03/2019 File P34 (100 years +...	Designed by Hoa Nguyen Checked by KM																									
Micro Drainage Source Control 2013.1.1																										
<u>Model Details</u> Storage is Online Cover Level (m) 6.835 <u>Porous Car Park Structure</u> <table> <tr> <td>Infiltration Coefficient Base (m/hr)</td> <td>0.00360</td> <td>Width (m)</td> <td>4.3</td> </tr> <tr> <td>Membrane Percolation (mm/hr)</td> <td>1000</td> <td>Length (m)</td> <td>20.1</td> </tr> <tr> <td>Max Percolation (l/s)</td> <td>24.0</td> <td>Slope (1:X)</td> <td>1000.0</td> </tr> <tr> <td>Safety Factor</td> <td>3.0</td> <td>Depression Storage (mm)</td> <td>5</td> </tr> <tr> <td>Porosity</td> <td>0.30</td> <td>Evaporation (mm/day)</td> <td>3</td> </tr> <tr> <td>Invert Level (m)</td> <td>6.410</td> <td>Cap Volume Depth (m)</td> <td>0.250</td> </tr> </table>			Infiltration Coefficient Base (m/hr)	0.00360	Width (m)	4.3	Membrane Percolation (mm/hr)	1000	Length (m)	20.1	Max Percolation (l/s)	24.0	Slope (1:X)	1000.0	Safety Factor	3.0	Depression Storage (mm)	5	Porosity	0.30	Evaporation (mm/day)	3	Invert Level (m)	6.410	Cap Volume Depth (m)	0.250
Infiltration Coefficient Base (m/hr)	0.00360	Width (m)	4.3																							
Membrane Percolation (mm/hr)	1000	Length (m)	20.1																							
Max Percolation (l/s)	24.0	Slope (1:X)	1000.0																							
Safety Factor	3.0	Depression Storage (mm)	5																							
Porosity	0.30	Evaporation (mm/day)	3																							
Invert Level (m)	6.410	Cap Volume Depth (m)	0.250																							
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Escher Silverman			Page 1		
Lone Barn Studios	Burndell Road				
Stanbridge Lane	Porous Carpark Simula...				
Romsey SO51 0HE	P35 (10 years + 30%)				
Date 14/03/2019	Designed by Hoa Nguyen				
File P35 (10 years + ...	Checked by KM				
Micro Drainage	Source Control 2013.1.1				
<u>Summary of Results for 10 year Return Period (+30%)</u>					
Half Drain Time : 1186 minutes.					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	6.408	0.042	0.0	0.4	O K
30 min Summer	6.424	0.058	0.0	0.5	O K
60 min Summer	6.442	0.076	0.0	0.7	O K
120 min Summer	6.461	0.095	0.0	0.9	O K
180 min Summer	6.472	0.106	0.0	1.0	O K
240 min Summer	6.479	0.113	0.0	1.1	O K
360 min Summer	6.489	0.123	0.0	1.2	O K
480 min Summer	6.496	0.130	0.0	1.2	O K
600 min Summer	6.500	0.134	0.0	1.3	O K
720 min Summer	6.503	0.137	0.0	1.3	O K
960 min Summer	6.505	0.139	0.0	1.3	O K
1440 min Summer	6.508	0.142	0.0	1.3	O K
2160 min Summer	6.507	0.141	0.0	1.3	O K
2880 min Summer	6.504	0.138	0.0	1.3	O K
4320 min Summer	6.495	0.129	0.0	1.2	O K
5760 min Summer	6.484	0.118	0.0	1.1	O K
7200 min Summer	6.474	0.108	0.0	1.0	O K
8640 min Summer	6.463	0.097	0.0	0.9	O K
10080 min Summer	6.454	0.088	0.0	0.8	O K
15 min Winter	6.414	0.048	0.0	0.4	O K
30 min Winter	6.433	0.067	0.0	0.6	O K
60 min Winter	6.453	0.087	0.0	0.8	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
15 min Summer	70.770	0.0	19		
30 min Summer	46.698	0.0	34		
60 min Summer	29.629	0.0	64		
120 min Summer	18.344	0.0	124		
180 min Summer	13.747	0.0	182		
240 min Summer	11.169	0.0	242		
360 min Summer	8.317	0.0	362		
480 min Summer	6.743	0.0	482		
600 min Summer	5.728	0.0	600		
720 min Summer	5.011	0.0	720		
960 min Summer	4.057	0.0	894		
1440 min Summer	3.009	0.0	1126		
2160 min Summer	2.231	0.0	1516		
2880 min Summer	1.803	0.0	1932		
4320 min Summer	1.335	0.0	2764		
5760 min Summer	1.078	0.0	3568		
7200 min Summer	0.913	0.0	4328		
8640 min Summer	0.798	0.0	5096		
10080 min Summer	0.711	0.0	5848		
15 min Winter	70.770	0.0	19		
30 min Winter	46.698	0.0	33		
60 min Winter	29.629	0.0	62		
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Escher Silverman			Page 2		
Lone Barn Studios	Burndell Road				
Stanbridge Lane	Porous Carpark Simula...				
Romsey SO51 0HE	P35 (10 years + 30%)				
Date 14/03/2019	Designed by Hoa Nguyen				
File P35 (10 years + ...	Checked by KM				
Micro Drainage	Source Control 2013.1.1				
<u>Summary of Results for 10 year Return Period (+30%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
120 min Winter	6.474	0.108	0.0	1.0	O K
180 min Winter	6.487	0.121	0.0	1.1	O K
240 min Winter	6.495	0.129	0.0	1.2	O K
360 min Winter	6.507	0.141	0.0	1.3	O K
480 min Winter	6.515	0.149	0.0	1.4	O K
600 min Winter	6.520	0.154	0.0	1.5	O K
720 min Winter	6.524	0.158	0.0	1.5	O K
960 min Winter	6.528	0.162	0.0	1.5	O K
1440 min Winter	6.529	0.163	0.0	1.6	O K
2160 min Winter	6.527	0.161	0.0	1.5	O K
2880 min Winter	6.521	0.155	0.0	1.5	O K
4320 min Winter	6.506	0.140	0.0	1.3	O K
5760 min Winter	6.488	0.122	0.0	1.2	O K
7200 min Winter	6.471	0.105	0.0	1.0	O K
8640 min Winter	6.455	0.089	0.0	0.8	O K
10080 min Winter	6.442	0.076	0.0	0.7	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
120 min Winter	18.344	0.0	122		
180 min Winter	13.747	0.0	180		
240 min Winter	11.169	0.0	238		
360 min Winter	8.317	0.0	356		
480 min Winter	6.743	0.0	470		
600 min Winter	5.728	0.0	584		
720 min Winter	5.011	0.0	700		
960 min Winter	4.057	0.0	922		
1440 min Winter	3.009	0.0	1314		
2160 min Winter	2.231	0.0	1644		
2880 min Winter	1.803	0.0	2104		
4320 min Winter	1.335	0.0	2984		
5760 min Winter	1.078	0.0	3816		
7200 min Winter	0.913	0.0	4616		
8640 min Winter	0.798	0.0	5360		
10080 min Winter	0.711	0.0	6056		
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Escher Silverman		Page 3
Lone Barn Studios Stanbridge Lane Romsey SO51 0HE	Burndell Road Porous Carpark Simula... P35 (10 years + 30%)	
Date 14/03/2019 File P35 (10 years + ...	Designed by Hoa Nguyen Checked by KM	
Micro Drainage Source Control 2013.1.1		

Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	10	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.000	Shortest Storm (mins)	15
Ratio R	0.350	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+30

Time Area Diagram

Total Area (ha) 0.004

Time (mins)	Area
From:	To: (ha)
0	4 0.004

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Escher Silverman		Page 4																								
Lone Barn Studios Stanbridge Lane Romsey SO51 0HE	Burndell Road Porous Carpark Simula... P35 (10 years + 30%)																									
Date 14/03/2019 File P35 (10 years + ...	Designed by Hoa Nguyen Checked by KM																									
Micro Drainage Source Control 2013.1.1																										
<u>Model Details</u> Storage is Online Cover Level (m) 6.835 <u>Porous Car Park Structure</u> <table> <tr> <td>Infiltration Coefficient Base (m/hr)</td> <td>0.00360</td> <td>Width (m)</td> <td>3.1</td> </tr> <tr> <td>Membrane Percolation (mm/hr)</td> <td>1000</td> <td>Length (m)</td> <td>10.6</td> </tr> <tr> <td>Max Percolation (l/s)</td> <td>9.1</td> <td>Slope (1:X)</td> <td>1000.0</td> </tr> <tr> <td>Safety Factor</td> <td>3.0</td> <td>Depression Storage (mm)</td> <td>5</td> </tr> <tr> <td>Porosity</td> <td>0.30</td> <td>Evaporation (mm/day)</td> <td>3</td> </tr> <tr> <td>Invert Level (m)</td> <td>6.366</td> <td>Cap Volume Depth (m)</td> <td>0.294</td> </tr> </table>			Infiltration Coefficient Base (m/hr)	0.00360	Width (m)	3.1	Membrane Percolation (mm/hr)	1000	Length (m)	10.6	Max Percolation (l/s)	9.1	Slope (1:X)	1000.0	Safety Factor	3.0	Depression Storage (mm)	5	Porosity	0.30	Evaporation (mm/day)	3	Invert Level (m)	6.366	Cap Volume Depth (m)	0.294
Infiltration Coefficient Base (m/hr)	0.00360	Width (m)	3.1																							
Membrane Percolation (mm/hr)	1000	Length (m)	10.6																							
Max Percolation (l/s)	9.1	Slope (1:X)	1000.0																							
Safety Factor	3.0	Depression Storage (mm)	5																							
Porosity	0.30	Evaporation (mm/day)	3																							
Invert Level (m)	6.366	Cap Volume Depth (m)	0.294																							
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Escher Silverman			Page 1		
Lone Barn Studios		Burndell Road			
Stanbridge Lane		Porous Carpark Simula...			
Romsey SO51 0HE		P35 (100 years + 30%)			
Date 14/03/2019		Designed by Hoa Nguyen			
File P35 (100 years +...		Checked by KM			
Micro Drainage		Source Control 2013.1.1			
<u>Summary of Results for 100 year Return Period (+30%)</u> Half Drain Time : 2175 minutes.					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	6.442	0.076	0.0	0.7	O K
30 min Summer	6.472	0.106	0.0	1.0	O K
60 min Summer	6.504	0.138	0.0	1.3	O K
120 min Summer	6.537	0.171	0.0	1.6	Flood Risk
180 min Summer	6.556	0.190	0.0	1.8	Flood Risk
240 min Summer	6.568	0.202	0.0	1.9	Flood Risk
360 min Summer	6.585	0.219	0.0	2.1	Flood Risk
480 min Summer	6.596	0.230	0.0	2.2	Flood Risk
600 min Summer	6.604	0.238	0.0	2.3	Flood Risk
720 min Summer	6.610	0.244	0.0	2.3	Flood Risk
960 min Summer	6.616	0.250	0.0	2.4	Flood Risk
1440 min Summer	6.620	0.254	0.0	2.4	Flood Risk
2160 min Summer	6.616	0.250	0.0	2.4	Flood Risk
2880 min Summer	6.610	0.244	0.0	2.4	Flood Risk
4320 min Summer	6.596	0.230	0.0	2.2	Flood Risk
5760 min Summer	6.580	0.214	0.0	2.1	Flood Risk
7200 min Summer	6.564	0.198	0.0	1.9	Flood Risk
8640 min Summer	6.549	0.183	0.0	1.8	Flood Risk
10080 min Summer	6.535	0.169	0.0	1.6	Flood Risk
15 min Winter	6.452	0.086	0.0	0.8	O K
30 min Winter	6.486	0.120	0.0	1.1	O K
60 min Winter	6.522	0.156	0.0	1.5	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
15 min Summer	115.731	0.0	19		
30 min Summer	77.804	0.0	34		
60 min Summer	49.937	0.0	64		
120 min Summer	30.956	0.0	124		
180 min Summer	23.058	0.0	184		
240 min Summer	18.577	0.0	244		
360 min Summer	13.656	0.0	362		
480 min Summer	10.974	0.0	482		
600 min Summer	9.254	0.0	602		
720 min Summer	8.046	0.0	722		
960 min Summer	6.447	0.0	962		
1440 min Summer	4.709	0.0	1440		
2160 min Summer	3.432	0.0	1796		
2880 min Summer	2.739	0.0	2164		
4320 min Summer	1.989	0.0	2944		
5760 min Summer	1.583	0.0	3752		
7200 min Summer	1.325	0.0	4608		
8640 min Summer	1.147	0.0	5368		
10080 min Summer	1.015	0.0	6152		
15 min Winter	115.731	0.0	19		
30 min Winter	77.804	0.0	34		
60 min Winter	49.937	0.0	64		
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Escher Silverman		Page 2			
Lone Barn Studios	Burndell Road				
Stanbridge Lane	Porous Carpark Simula...				
Romsey SO51 0HE	P35 (100 years + 30%)				
Date 14/03/2019	Designed by Hoa Nguyen				
File P35 (100 years +...	Checked by KM				
Micro Drainage		Source Control 2013.1.1			
<u>Summary of Results for 100 year Return Period (+30%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
120 min Winter	6.559	0.193	0.0	1.9	Flood Risk
180 min Winter	6.581	0.215	0.0	2.1	Flood Risk
240 min Winter	6.595	0.229	0.0	2.2	Flood Risk
360 min Winter	6.614	0.248	0.0	2.4	Flood Risk
480 min Winter	6.628	0.262	0.0	2.5	Flood Risk
600 min Winter	6.637	0.271	0.0	2.6	Flood Risk
720 min Winter	6.644	0.278	0.0	2.7	Flood Risk
960 min Winter	6.653	0.287	0.0	2.8	Flood Risk
1440 min Winter	6.660	0.294	0.0	2.8	Flood Risk
2160 min Winter	6.656	0.290	0.0	2.8	Flood Risk
2880 min Winter	6.647	0.281	0.0	2.7	Flood Risk
4320 min Winter	6.628	0.262	0.0	2.5	Flood Risk
5760 min Winter	6.605	0.239	0.0	2.3	Flood Risk
7200 min Winter	6.581	0.215	0.0	2.1	Flood Risk
8640 min Winter	6.558	0.192	0.0	1.8	Flood Risk
10080 min Winter	6.536	0.170	0.0	1.6	Flood Risk
Storm Event	Rain (mm/hr)		Flooded Volume (m³)	Time-Peak (mins)	
120 min Winter	30.956		0.0	122	
180 min Winter	23.058		0.0	182	
240 min Winter	18.577		0.0	240	
360 min Winter	13.656		0.0	358	
480 min Winter	10.974		0.0	476	
600 min Winter	9.254		0.0	592	
720 min Winter	8.046		0.0	708	
960 min Winter	6.447		0.0	940	
1440 min Winter	4.709		0.0	1386	
2160 min Winter	3.432		0.0	2032	
2880 min Winter	2.739		0.0	2308	
4320 min Winter	1.989		0.0	3204	
5760 min Winter	1.583		0.0	4104	
7200 min Winter	1.325		0.0	4976	
8640 min Winter	1.147		0.0	5800	
10080 min Winter	1.015		0.0	6648	
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Escher Silverman		Page 3
Lone Barn Studios Stanbridge Lane Romsey SO51 0HE	Burndell Road Porous Carpark Simula... P35 (100 years + 30%)	
Date 14/03/2019 File P35 (100 years +...	Designed by Hoa Nguyen Checked by KM	
Micro Drainage Source Control 2013.1.1		

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	0.350	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+30

Time Area Diagram

Total Area (ha) 0.004

Time (mins)	Area
From:	To: (ha)
0	4 0.004

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Escher Silverman		Page 4																								
Lone Barn Studios Stanbridge Lane Romsey SO51 0HE	Burndell Road Porous Carpark Simula... P35 (100 years + 30%)																									
Date 14/03/2019 File P35 (100 years +...	Designed by Hoa Nguyen Checked by KM																									
Micro Drainage Source Control 2013.1.1																										
<u>Model Details</u> Storage is Online Cover Level (m) 6.835 <u>Porous Car Park Structure</u> <table> <tr> <td>Infiltration Coefficient Base (m/hr)</td> <td>0.00360</td> <td>Width (m)</td> <td>3.1</td> </tr> <tr> <td>Membrane Percolation (mm/hr)</td> <td>1000</td> <td>Length (m)</td> <td>10.6</td> </tr> <tr> <td>Max Percolation (l/s)</td> <td>9.1</td> <td>Slope (1:X)</td> <td>1000.0</td> </tr> <tr> <td>Safety Factor</td> <td>3.0</td> <td>Depression Storage (mm)</td> <td>5</td> </tr> <tr> <td>Porosity</td> <td>0.30</td> <td>Evaporation (mm/day)</td> <td>3</td> </tr> <tr> <td>Invert Level (m)</td> <td>6.366</td> <td>Cap Volume Depth (m)</td> <td>0.294</td> </tr> </table>			Infiltration Coefficient Base (m/hr)	0.00360	Width (m)	3.1	Membrane Percolation (mm/hr)	1000	Length (m)	10.6	Max Percolation (l/s)	9.1	Slope (1:X)	1000.0	Safety Factor	3.0	Depression Storage (mm)	5	Porosity	0.30	Evaporation (mm/day)	3	Invert Level (m)	6.366	Cap Volume Depth (m)	0.294
Infiltration Coefficient Base (m/hr)	0.00360	Width (m)	3.1																							
Membrane Percolation (mm/hr)	1000	Length (m)	10.6																							
Max Percolation (l/s)	9.1	Slope (1:X)	1000.0																							
Safety Factor	3.0	Depression Storage (mm)	5																							
Porosity	0.30	Evaporation (mm/day)	3																							
Invert Level (m)	6.366	Cap Volume Depth (m)	0.294																							
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Escher Silverman			Page 1		
Lone Barn Studios	Burndell Road				
Stanbridge Lane	Porous Carpark Simula...				
Romsey SO51 0HE	P36 (100 years + 30%)				
Date 14/03/2019	Designed by Hoa Nguyen				
File P36 (10 years + ...	Checked by KM				
Micro Drainage	Source Control 2013.1.1				
<u>Summary of Results for 10 year Return Period (+30%)</u> Half Drain Time : 1077 minutes.					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	6.643	0.037	0.0	0.4	O K
30 min Summer	6.659	0.053	0.0	0.6	O K
60 min Summer	6.675	0.069	0.0	0.9	O K
120 min Summer	6.693	0.087	0.0	1.1	O K
180 min Summer	6.703	0.097	0.0	1.2	O K
240 min Summer	6.710	0.104	0.0	1.3	O K
360 min Summer	6.719	0.113	0.0	1.4	O K
480 min Summer	6.724	0.118	0.0	1.5	O K
600 min Summer	6.728	0.122	0.0	1.6	O K
720 min Summer	6.730	0.124	0.0	1.6	O K
960 min Summer	6.733	0.127	0.0	1.6	O K
1440 min Summer	6.735	0.129	0.0	1.6	O K
2160 min Summer	6.734	0.128	0.0	1.6	O K
2880 min Summer	6.731	0.125	0.0	1.6	O K
4320 min Summer	6.722	0.116	0.0	1.5	O K
5760 min Summer	6.712	0.106	0.0	1.3	O K
7200 min Summer	6.701	0.095	0.0	1.2	O K
8640 min Summer	6.692	0.086	0.0	1.1	O K
10080 min Summer	6.683	0.077	0.0	1.0	O K
15 min Winter	6.649	0.043	0.0	0.5	O K
30 min Winter	6.667	0.061	0.0	0.7	O K
60 min Winter	6.685	0.079	0.0	1.0	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
15 min Summer	70.770	0.0	19		
30 min Summer	46.698	0.0	34		
60 min Summer	29.629	0.0	64		
120 min Summer	18.344	0.0	124		
180 min Summer	13.747	0.0	182		
240 min Summer	11.169	0.0	242		
360 min Summer	8.317	0.0	362		
480 min Summer	6.743	0.0	482		
600 min Summer	5.728	0.0	600		
720 min Summer	5.011	0.0	720		
960 min Summer	4.057	0.0	838		
1440 min Summer	3.009	0.0	1096		
2160 min Summer	2.231	0.0	1492		
2880 min Summer	1.803	0.0	1904		
4320 min Summer	1.335	0.0	2724		
5760 min Summer	1.078	0.0	3520		
7200 min Summer	0.913	0.0	4256		
8640 min Summer	0.798	0.0	5016		
10080 min Summer	0.711	0.0	5752		
15 min Winter	70.770	0.0	19		
30 min Winter	46.698	0.0	33		
60 min Winter	29.629	0.0	62		
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Escher Silverman			Page 2		
Lone Barn Studios		Burndell Road			
Stanbridge Lane		Porous Carpark Simula...			
Romsey SO51 0HE		P36 (100 years + 30%)			
Date 14/03/2019		Designed by Hoa Nguyen			
File P36 (10 years + ...		Checked by KM			
Micro Drainage		Source Control 2013.1.1			
<u>Summary of Results for 10 year Return Period (+30%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
120 min Winter	6.705	0.099	0.0	1.2	O K
180 min Winter	6.717	0.111	0.0	1.4	O K
240 min Winter	6.725	0.119	0.0	1.5	O K
360 min Winter	6.735	0.129	0.0	1.6	O K
480 min Winter	6.742	0.136	0.0	1.7	O K
600 min Winter	6.747	0.141	0.0	1.8	O K
720 min Winter	6.750	0.144	0.0	1.8	O K
960 min Winter	6.753	0.147	0.0	1.9	Flood Risk
1440 min Winter	6.754	0.148	0.0	1.9	Flood Risk
2160 min Winter	6.751	0.145	0.0	1.9	Flood Risk
2880 min Winter	6.746	0.140	0.0	1.8	O K
4320 min Winter	6.730	0.124	0.0	1.6	O K
5760 min Winter	6.713	0.107	0.0	1.4	O K
7200 min Winter	6.697	0.091	0.0	1.1	O K
8640 min Winter	6.683	0.077	0.0	1.0	O K
10080 min Winter	6.670	0.064	0.0	0.8	O K
Storm Event	Rain (mm/hr)		Flooded Volume (m³)	Time-Peak (mins)	
120 min Winter	18.344		0.0	122	
180 min Winter	13.747		0.0	180	
240 min Winter	11.169		0.0	238	
360 min Winter	8.317		0.0	354	
480 min Winter	6.743		0.0	470	
600 min Winter	5.728		0.0	584	
720 min Winter	5.011		0.0	696	
960 min Winter	4.057		0.0	914	
1440 min Winter	3.009		0.0	1170	
2160 min Winter	2.231		0.0	1624	
2880 min Winter	1.803		0.0	2076	
4320 min Winter	1.335		0.0	2944	
5760 min Winter	1.078		0.0	3800	
7200 min Winter	0.913		0.0	4544	
8640 min Winter	0.798		0.0	5272	
10080 min Winter	0.711		0.0	5944	
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Escher Silverman		Page 3
Lone Barn Studios Stanbridge Lane Romsey SO51 0HE	Burndell Road Porous Carpark Simula... P36 (100 years + 30%)	
Date 14/03/2019 File P36 (10 years + ...	Designed by Hoa Nguyen Checked by KM	
Micro Drainage Source Control 2013.1.1		

Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	10	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.000	Shortest Storm (mins)	15
Ratio R	0.350	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+30

Time Area Diagram

Total Area (ha) 0.005

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

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Escher Silverman		Page 4																								
Lone Barn Studios Stanbridge Lane Romsey SO51 0HE	Burndell Road Porous Carpark Simula... P36 (100 years + 30%)																									
Date 14/03/2019 File P36 (10 years + ...	Designed by Hoa Nguyen Checked by KM																									
Micro Drainage Source Control 2013.1.1																										
<u>Model Details</u> Storage is Online Cover Level (m) 7.050 <u>Porous Car Park Structure</u> <table> <tr> <td>Infiltration Coefficient Base (m/hr)</td> <td>0.00360</td> <td>Width (m)</td> <td>5.0</td> </tr> <tr> <td>Membrane Percolation (mm/hr)</td> <td>1000</td> <td>Length (m)</td> <td>8.8</td> </tr> <tr> <td>Max Percolation (l/s)</td> <td>12.2</td> <td>Slope (1:X)</td> <td>1000.0</td> </tr> <tr> <td>Safety Factor</td> <td>3.0</td> <td>Depression Storage (mm)</td> <td>5</td> </tr> <tr> <td>Porosity</td> <td>0.30</td> <td>Evaporation (mm/day)</td> <td>3</td> </tr> <tr> <td>Invert Level (m)</td> <td>6.606</td> <td>Cap Volume Depth (m)</td> <td>0.269</td> </tr> </table>			Infiltration Coefficient Base (m/hr)	0.00360	Width (m)	5.0	Membrane Percolation (mm/hr)	1000	Length (m)	8.8	Max Percolation (l/s)	12.2	Slope (1:X)	1000.0	Safety Factor	3.0	Depression Storage (mm)	5	Porosity	0.30	Evaporation (mm/day)	3	Invert Level (m)	6.606	Cap Volume Depth (m)	0.269
Infiltration Coefficient Base (m/hr)	0.00360	Width (m)	5.0																							
Membrane Percolation (mm/hr)	1000	Length (m)	8.8																							
Max Percolation (l/s)	12.2	Slope (1:X)	1000.0																							
Safety Factor	3.0	Depression Storage (mm)	5																							
Porosity	0.30	Evaporation (mm/day)	3																							
Invert Level (m)	6.606	Cap Volume Depth (m)	0.269																							
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Lone Barn Studios	Burndell Road				
Stanbridge Lane	Porous Carpark Simula...				
Romsey SO51 0HE	P36 (100 years + 30%)				
Date 14/03/2019	Designed by Hoa Nguyen				
File P36 (100 years +...	Checked by KM				
Micro Drainage	Source Control 2013.1.1				
<u>Summary of Results for 100 year Return Period (+30%)</u>					
Half Drain Time : 1998 minutes.					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	6.675	0.069	0.0	0.9	O K
30 min Summer	6.703	0.097	0.0	1.2	O K
60 min Summer	6.733	0.127	0.0	1.6	O K
120 min Summer	6.764	0.158	0.0	2.0	Flood Risk
180 min Summer	6.781	0.175	0.0	2.3	Flood Risk
240 min Summer	6.793	0.187	0.0	2.4	Flood Risk
360 min Summer	6.808	0.202	0.0	2.6	Flood Risk
480 min Summer	6.818	0.212	0.0	2.7	Flood Risk
600 min Summer	6.825	0.219	0.0	2.8	Flood Risk
720 min Summer	6.830	0.224	0.0	2.9	Flood Risk
960 min Summer	6.836	0.230	0.0	3.0	Flood Risk
1440 min Summer	6.837	0.231	0.0	3.0	Flood Risk
2160 min Summer	6.834	0.228	0.0	2.9	Flood Risk
2880 min Summer	6.828	0.222	0.0	2.9	Flood Risk
4320 min Summer	6.814	0.208	0.0	2.7	Flood Risk
5760 min Summer	6.799	0.193	0.0	2.5	Flood Risk
7200 min Summer	6.784	0.178	0.0	2.3	Flood Risk
8640 min Summer	6.769	0.163	0.0	2.1	Flood Risk
10080 min Summer	6.756	0.150	0.0	1.9	Flood Risk
15 min Winter	6.685	0.079	0.0	1.0	O K
30 min Winter	6.716	0.110	0.0	1.4	O K
60 min Winter	6.750	0.144	0.0	1.8	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
15 min Summer	115.731	0.0	19		
30 min Summer	77.804	0.0	34		
60 min Summer	49.937	0.0	64		
120 min Summer	30.956	0.0	124		
180 min Summer	23.058	0.0	184		
240 min Summer	18.577	0.0	244		
360 min Summer	13.656	0.0	362		
480 min Summer	10.974	0.0	482		
600 min Summer	9.254	0.0	602		
720 min Summer	8.046	0.0	722		
960 min Summer	6.447	0.0	960		
1440 min Summer	4.709	0.0	1402		
2160 min Summer	3.432	0.0	1732		
2880 min Summer	2.739	0.0	2104		
4320 min Summer	1.989	0.0	2900		
5760 min Summer	1.583	0.0	3744		
7200 min Summer	1.325	0.0	4536		
8640 min Summer	1.147	0.0	5352		
10080 min Summer	1.015	0.0	6056		
15 min Winter	115.731	0.0	19		
30 min Winter	77.804	0.0	34		
60 min Winter	49.937	0.0	64		
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Escher Silverman			Page 2		
Lone Barn Studios		Burndell Road			
Stanbridge Lane		Porous Carpark Simula...			
Romsey SO51 0HE		P36 (100 years + 30%)			
Date 14/03/2019		Designed by Hoa Nguyen			
File P36 (100 years +...		Checked by KM			
Micro Drainage		Source Control 2013.1.1			
<u>Summary of Results for 100 year Return Period (+30%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
120 min Winter	6.785	0.179	0.0	2.3	Flood Risk
180 min Winter	6.804	0.198	0.0	2.6	Flood Risk
240 min Winter	6.818	0.212	0.0	2.7	Flood Risk
360 min Winter	6.835	0.229	0.0	3.0	Flood Risk
480 min Winter	6.847	0.241	0.0	3.1	Flood Risk
600 min Winter	6.856	0.250	0.0	3.2	Flood Risk
720 min Winter	6.862	0.256	0.0	3.3	Flood Risk
960 min Winter	6.870	0.264	0.0	3.4	Flood Risk
1440 min Winter	6.875	0.269	0.0	3.5	Flood Risk
2160 min Winter	6.870	0.264	0.0	3.4	Flood Risk
2880 min Winter	6.861	0.255	0.0	3.3	Flood Risk
4320 min Winter	6.842	0.236	0.0	3.1	Flood Risk
5760 min Winter	6.819	0.213	0.0	2.8	Flood Risk
7200 min Winter	6.796	0.190	0.0	2.4	Flood Risk
8640 min Winter	6.773	0.167	0.0	2.2	Flood Risk
10080 min Winter	6.753	0.147	0.0	1.9	Flood Risk
Storm Event	Rain (mm/hr)		Flooded Volume (m³)	Time-Peak (mins)	
120 min Winter	30.956		0.0	122	
180 min Winter	23.058		0.0	180	
240 min Winter	18.577		0.0	240	
360 min Winter	13.656		0.0	358	
480 min Winter	10.974		0.0	474	
600 min Winter	9.254		0.0	590	
720 min Winter	8.046		0.0	708	
960 min Winter	6.447		0.0	936	
1440 min Winter	4.709		0.0	1384	
2160 min Winter	3.432		0.0	2012	
2880 min Winter	2.739		0.0	2276	
4320 min Winter	1.989		0.0	3160	
5760 min Winter	1.583		0.0	4088	
7200 min Winter	1.325		0.0	4904	
8640 min Winter	1.147		0.0	5712	
10080 min Winter	1.015		0.0	6552	
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Escher Silverman		Page 3
Lone Barn Studios Stanbridge Lane Romsey SO51 0HE	Burndell Road Porous Carpark Simula... P36 (100 years + 30%)	
Date 14/03/2019 File P36 (100 years +...	Designed by Hoa Nguyen Checked by KM	
Micro Drainage Source Control 2013.1.1		

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	0.350	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+30

Time Area Diagram

Total Area (ha) 0.005

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

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Escher Silverman		Page 4																								
Lone Barn Studios Stanbridge Lane Romsey SO51 0HE	Burndell Road Porous Carpark Simula... P36 (100 years + 30%)																									
Date 14/03/2019 File P36 (100 years +...	Designed by Hoa Nguyen Checked by KM																									
Micro Drainage Source Control 2013.1.1																										
<u>Model Details</u> Storage is Online Cover Level (m) 7.050 <u>Porous Car Park Structure</u> <table> <tr> <td>Infiltration Coefficient Base (m/hr)</td> <td>0.00360</td> <td>Width (m)</td> <td>5.0</td> </tr> <tr> <td>Membrane Percolation (mm/hr)</td> <td>1000</td> <td>Length (m)</td> <td>8.8</td> </tr> <tr> <td>Max Percolation (l/s)</td> <td>12.2</td> <td>Slope (1:X)</td> <td>1000.0</td> </tr> <tr> <td>Safety Factor</td> <td>3.0</td> <td>Depression Storage (mm)</td> <td>5</td> </tr> <tr> <td>Porosity</td> <td>0.30</td> <td>Evaporation (mm/day)</td> <td>3</td> </tr> <tr> <td>Invert Level (m)</td> <td>6.606</td> <td>Cap Volume Depth (m)</td> <td>0.269</td> </tr> </table>			Infiltration Coefficient Base (m/hr)	0.00360	Width (m)	5.0	Membrane Percolation (mm/hr)	1000	Length (m)	8.8	Max Percolation (l/s)	12.2	Slope (1:X)	1000.0	Safety Factor	3.0	Depression Storage (mm)	5	Porosity	0.30	Evaporation (mm/day)	3	Invert Level (m)	6.606	Cap Volume Depth (m)	0.269
Infiltration Coefficient Base (m/hr)	0.00360	Width (m)	5.0																							
Membrane Percolation (mm/hr)	1000	Length (m)	8.8																							
Max Percolation (l/s)	12.2	Slope (1:X)	1000.0																							
Safety Factor	3.0	Depression Storage (mm)	5																							
Porosity	0.30	Evaporation (mm/day)	3																							
Invert Level (m)	6.606	Cap Volume Depth (m)	0.269																							
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Lone Barn Studios	Burndell Road				
Stanbridge Lane	Porous Carpark Simula...				
Romsey SO51 0HE	P37 (10 years + 30%)				
Date 14/03/2019	Designed by Hoa Nguyen				
File P37 (10 years + ...	Checked by KM				
Micro Drainage	Source Control 2013.1.1				
<u>Summary of Results for 10 year Return Period (+30%)</u>					
Half Drain Time : 1077 minutes.					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	6.763	0.037	0.0	0.4	O K
30 min Summer	6.779	0.053	0.0	0.6	O K
60 min Summer	6.795	0.069	0.0	0.9	O K
120 min Summer	6.813	0.087	0.0	1.1	O K
180 min Summer	6.823	0.097	0.0	1.2	O K
240 min Summer	6.830	0.104	0.0	1.3	O K
360 min Summer	6.839	0.113	0.0	1.4	O K
480 min Summer	6.844	0.118	0.0	1.5	O K
600 min Summer	6.848	0.122	0.0	1.6	O K
720 min Summer	6.850	0.124	0.0	1.6	O K
960 min Summer	6.853	0.127	0.0	1.6	O K
1440 min Summer	6.855	0.129	0.0	1.6	O K
2160 min Summer	6.854	0.128	0.0	1.6	O K
2880 min Summer	6.851	0.125	0.0	1.6	O K
4320 min Summer	6.842	0.116	0.0	1.5	O K
5760 min Summer	6.832	0.106	0.0	1.3	O K
7200 min Summer	6.821	0.095	0.0	1.2	O K
8640 min Summer	6.812	0.086	0.0	1.1	O K
10080 min Summer	6.803	0.077	0.0	1.0	O K
15 min Winter	6.769	0.043	0.0	0.5	O K
30 min Winter	6.787	0.061	0.0	0.7	O K
60 min Winter	6.805	0.079	0.0	1.0	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
15 min Summer	70.770	0.0	19		
30 min Summer	46.698	0.0	34		
60 min Summer	29.629	0.0	64		
120 min Summer	18.344	0.0	124		
180 min Summer	13.747	0.0	182		
240 min Summer	11.169	0.0	242		
360 min Summer	8.317	0.0	362		
480 min Summer	6.743	0.0	482		
600 min Summer	5.728	0.0	600		
720 min Summer	5.011	0.0	720		
960 min Summer	4.057	0.0	838		
1440 min Summer	3.009	0.0	1096		
2160 min Summer	2.231	0.0	1492		
2880 min Summer	1.803	0.0	1904		
4320 min Summer	1.335	0.0	2724		
5760 min Summer	1.078	0.0	3520		
7200 min Summer	0.913	0.0	4256		
8640 min Summer	0.798	0.0	5016		
10080 min Summer	0.711	0.0	5752		
15 min Winter	70.770	0.0	19		
30 min Winter	46.698	0.0	33		
60 min Winter	29.629	0.0	62		
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Lone Barn Studios		Burndell Road			
Stanbridge Lane		Porous Carpark Simula...			
Romsey SO51 0HE		P37 (10 years + 30%)			
Date 14/03/2019		Designed by Hoa Nguyen			
File P37 (10 years + ...		Checked by KM			
Micro Drainage		Source Control 2013.1.1			
<u>Summary of Results for 10 year Return Period (+30%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
120 min Winter	6.825	0.099	0.0	1.2	O K
180 min Winter	6.837	0.111	0.0	1.4	O K
240 min Winter	6.845	0.119	0.0	1.5	O K
360 min Winter	6.855	0.129	0.0	1.6	O K
480 min Winter	6.862	0.136	0.0	1.7	O K
600 min Winter	6.867	0.141	0.0	1.8	O K
720 min Winter	6.870	0.144	0.0	1.8	O K
960 min Winter	6.873	0.147	0.0	1.9	Flood Risk
1440 min Winter	6.874	0.148	0.0	1.9	Flood Risk
2160 min Winter	6.871	0.145	0.0	1.9	Flood Risk
2880 min Winter	6.866	0.140	0.0	1.8	O K
4320 min Winter	6.850	0.124	0.0	1.6	O K
5760 min Winter	6.833	0.107	0.0	1.4	O K
7200 min Winter	6.817	0.091	0.0	1.1	O K
8640 min Winter	6.803	0.077	0.0	1.0	O K
10080 min Winter	6.790	0.064	0.0	0.8	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
120 min Winter	18.344	0.0	122		
180 min Winter	13.747	0.0	180		
240 min Winter	11.169	0.0	238		
360 min Winter	8.317	0.0	354		
480 min Winter	6.743	0.0	470		
600 min Winter	5.728	0.0	584		
720 min Winter	5.011	0.0	696		
960 min Winter	4.057	0.0	914		
1440 min Winter	3.009	0.0	1170		
2160 min Winter	2.231	0.0	1624		
2880 min Winter	1.803	0.0	2076		
4320 min Winter	1.335	0.0	2944		
5760 min Winter	1.078	0.0	3800		
7200 min Winter	0.913	0.0	4544		
8640 min Winter	0.798	0.0	5272		
10080 min Winter	0.711	0.0	5944		
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Lone Barn Studios Stanbridge Lane Romsey SO51 0HE	Burndell Road Porous Carpark Simula... P37 (10 years + 30%)	
Date 14/03/2019 File P37 (10 years + ...	Designed by Hoa Nguyen Checked by KM	
Micro Drainage Source Control 2013.1.1		

Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	10	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.000	Shortest Storm (mins)	15
Ratio R	0.350	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+30

Time Area Diagram

Total Area (ha) 0.005

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

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Escher Silverman		Page 4																								
Lone Barn Studios Stanbridge Lane Romsey SO51 0HE	Burndell Road Porous Carpark Simula... P37 (10 years + 30%)																									
Date 14/03/2019 File P37 (10 years + ...	Designed by Hoa Nguyen Checked by KM																									
Micro Drainage Source Control 2013.1.1																										
<u>Model Details</u> Storage is Online Cover Level (m) 7.170 <u>Porous Car Park Structure</u> <table> <tr> <td>Infiltration Coefficient Base (m/hr)</td> <td>0.00360</td> <td>Width (m)</td> <td>5.0</td> </tr> <tr> <td>Membrane Percolation (mm/hr)</td> <td>1000</td> <td>Length (m)</td> <td>8.8</td> </tr> <tr> <td>Max Percolation (l/s)</td> <td>12.2</td> <td>Slope (1:X)</td> <td>1000.0</td> </tr> <tr> <td>Safety Factor</td> <td>3.0</td> <td>Depression Storage (mm)</td> <td>5</td> </tr> <tr> <td>Porosity</td> <td>0.30</td> <td>Evaporation (mm/day)</td> <td>3</td> </tr> <tr> <td>Invert Level (m)</td> <td>6.726</td> <td>Cap Volume Depth (m)</td> <td>0.269</td> </tr> </table>			Infiltration Coefficient Base (m/hr)	0.00360	Width (m)	5.0	Membrane Percolation (mm/hr)	1000	Length (m)	8.8	Max Percolation (l/s)	12.2	Slope (1:X)	1000.0	Safety Factor	3.0	Depression Storage (mm)	5	Porosity	0.30	Evaporation (mm/day)	3	Invert Level (m)	6.726	Cap Volume Depth (m)	0.269
Infiltration Coefficient Base (m/hr)	0.00360	Width (m)	5.0																							
Membrane Percolation (mm/hr)	1000	Length (m)	8.8																							
Max Percolation (l/s)	12.2	Slope (1:X)	1000.0																							
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Porosity	0.30	Evaporation (mm/day)	3																							
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Escher Silverman			Page 1		
Lone Barn Studios Stanbridge Lane Romsey SO51 0HE		Burndell Road Porous Carpark Simula... P37 (100 years + 30%)			
Date 14/03/2019 File P37 (100 years +...		Designed by Hoa Nguyen Checked by KM			
Micro Drainage		Source Control 2013.1.1			
<u>Summary of Results for 100 year Return Period (+30%)</u> Half Drain Time : 1998 minutes.					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	6.795	0.069	0.0	0.9	O K
30 min Summer	6.823	0.097	0.0	1.2	O K
60 min Summer	6.853	0.127	0.0	1.6	O K
120 min Summer	6.884	0.158	0.0	2.0	Flood Risk
180 min Summer	6.901	0.175	0.0	2.3	Flood Risk
240 min Summer	6.913	0.187	0.0	2.4	Flood Risk
360 min Summer	6.928	0.202	0.0	2.6	Flood Risk
480 min Summer	6.938	0.212	0.0	2.7	Flood Risk
600 min Summer	6.945	0.219	0.0	2.8	Flood Risk
720 min Summer	6.950	0.224	0.0	2.9	Flood Risk
960 min Summer	6.956	0.230	0.0	3.0	Flood Risk
1440 min Summer	6.957	0.231	0.0	3.0	Flood Risk
2160 min Summer	6.954	0.228	0.0	2.9	Flood Risk
2880 min Summer	6.948	0.222	0.0	2.9	Flood Risk
4320 min Summer	6.934	0.208	0.0	2.7	Flood Risk
5760 min Summer	6.919	0.193	0.0	2.5	Flood Risk
7200 min Summer	6.904	0.178	0.0	2.3	Flood Risk
8640 min Summer	6.889	0.163	0.0	2.1	Flood Risk
10080 min Summer	6.876	0.150	0.0	1.9	Flood Risk
15 min Winter	6.805	0.079	0.0	1.0	O K
30 min Winter	6.836	0.110	0.0	1.4	O K
60 min Winter	6.870	0.144	0.0	1.8	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
15 min Summer	115.731	0.0	19		
30 min Summer	77.804	0.0	34		
60 min Summer	49.937	0.0	64		
120 min Summer	30.956	0.0	124		
180 min Summer	23.058	0.0	184		
240 min Summer	18.577	0.0	244		
360 min Summer	13.656	0.0	362		
480 min Summer	10.974	0.0	482		
600 min Summer	9.254	0.0	602		
720 min Summer	8.046	0.0	722		
960 min Summer	6.447	0.0	960		
1440 min Summer	4.709	0.0	1402		
2160 min Summer	3.432	0.0	1732		
2880 min Summer	2.739	0.0	2104		
4320 min Summer	1.989	0.0	2900		
5760 min Summer	1.583	0.0	3744		
7200 min Summer	1.325	0.0	4536		
8640 min Summer	1.147	0.0	5352		
10080 min Summer	1.015	0.0	6056		
15 min Winter	115.731	0.0	19		
30 min Winter	77.804	0.0	34		
60 min Winter	49.937	0.0	64		
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Escher Silverman			Page 2		
Lone Barn Studios Stanbridge Lane Romsey SO51 0HE		Burndell Road Porous Carpark Simula... P37 (100 years + 30%)			
Date 14/03/2019 File P37 (100 years +...		Designed by Hoa Nguyen Checked by KM			
Micro Drainage		Source Control 2013.1.1			
<u>Summary of Results for 100 year Return Period (+30%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
120 min Winter	6.905	0.179	0.0	2.3	Flood Risk
180 min Winter	6.924	0.198	0.0	2.6	Flood Risk
240 min Winter	6.938	0.212	0.0	2.7	Flood Risk
360 min Winter	6.955	0.229	0.0	3.0	Flood Risk
480 min Winter	6.967	0.241	0.0	3.1	Flood Risk
600 min Winter	6.976	0.250	0.0	3.2	Flood Risk
720 min Winter	6.982	0.256	0.0	3.3	Flood Risk
960 min Winter	6.990	0.264	0.0	3.4	Flood Risk
1440 min Winter	6.995	0.269	0.0	3.5	Flood Risk
2160 min Winter	6.990	0.264	0.0	3.4	Flood Risk
2880 min Winter	6.981	0.255	0.0	3.3	Flood Risk
4320 min Winter	6.962	0.236	0.0	3.1	Flood Risk
5760 min Winter	6.939	0.213	0.0	2.8	Flood Risk
7200 min Winter	6.916	0.190	0.0	2.4	Flood Risk
8640 min Winter	6.893	0.167	0.0	2.2	Flood Risk
10080 min Winter	6.873	0.147	0.0	1.9	Flood Risk
Storm Event	Rain (mm/hr)		Flooded Volume (m³)	Time-Peak (mins)	
120 min Winter	30.956		0.0	122	
180 min Winter	23.058		0.0	180	
240 min Winter	18.577		0.0	240	
360 min Winter	13.656		0.0	358	
480 min Winter	10.974		0.0	474	
600 min Winter	9.254		0.0	590	
720 min Winter	8.046		0.0	708	
960 min Winter	6.447		0.0	936	
1440 min Winter	4.709		0.0	1384	
2160 min Winter	3.432		0.0	2012	
2880 min Winter	2.739		0.0	2276	
4320 min Winter	1.989		0.0	3160	
5760 min Winter	1.583		0.0	4088	
7200 min Winter	1.325		0.0	4904	
8640 min Winter	1.147		0.0	5712	
10080 min Winter	1.015		0.0	6552	
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Escher Silverman		Page 3
Lone Barn Studios Stanbridge Lane Romsey SO51 0HE	Burndell Road Porous Carpark Simula... P37 (100 years + 30%)	
Date 14/03/2019 File P37 (100 years +...	Designed by Hoa Nguyen Checked by KM	
Micro Drainage Source Control 2013.1.1		

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	0.350	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+30

Time Area Diagram

Total Area (ha) 0.005

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

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Escher Silverman		Page 4																								
Lone Barn Studios Stanbridge Lane Romsey SO51 0HE	Burndell Road Porous Carpark Simula... P37 (100 years + 30%)																									
Date 14/03/2019 File P37 (100 years +...	Designed by Hoa Nguyen Checked by KM																									
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Escher Silverman			Page 1		
Lone Barn Studios	Burndell Road				
Stanbridge Lane	Porous Carpark Simula...				
Romsey SO51 0HE	P38 (10 years + 30%)				
Date 14/03/2019	Designed by Hoa Nguyen				
File P38 (10 years + ...	Checked by KM				
Micro Drainage	Source Control 2013.1.1				
<u>Summary of Results for 10 year Return Period (+30%)</u>					
Half Drain Time : 1029 minutes.					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	6.752	0.039	0.0	0.5	O K
30 min Summer	6.767	0.054	0.0	0.8	O K
60 min Summer	6.783	0.070	0.0	1.0	O K
120 min Summer	6.800	0.087	0.0	1.3	O K
180 min Summer	6.810	0.097	0.0	1.5	O K
240 min Summer	6.817	0.104	0.0	1.6	O K
360 min Summer	6.825	0.112	0.0	1.7	O K
480 min Summer	6.831	0.118	0.0	1.8	O K
600 min Summer	6.834	0.121	0.0	1.8	O K
720 min Summer	6.836	0.123	0.0	1.9	O K
960 min Summer	6.838	0.125	0.0	1.9	O K
1440 min Summer	6.840	0.127	0.0	1.9	O K
2160 min Summer	6.839	0.126	0.0	1.9	O K
2880 min Summer	6.835	0.122	0.0	1.9	O K
4320 min Summer	6.826	0.113	0.0	1.7	O K
5760 min Summer	6.815	0.102	0.0	1.5	O K
7200 min Summer	6.805	0.092	0.0	1.4	O K
8640 min Summer	6.795	0.082	0.0	1.2	O K
10080 min Summer	6.787	0.074	0.0	1.1	O K
15 min Winter	6.758	0.045	0.0	0.6	O K
30 min Winter	6.775	0.062	0.0	0.9	O K
60 min Winter	6.793	0.080	0.0	1.2	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
15 min Summer	70.770	0.0	19		
30 min Summer	46.698	0.0	34		
60 min Summer	29.629	0.0	64		
120 min Summer	18.344	0.0	122		
180 min Summer	13.747	0.0	182		
240 min Summer	11.169	0.0	242		
360 min Summer	8.317	0.0	362		
480 min Summer	6.743	0.0	482		
600 min Summer	5.728	0.0	600		
720 min Summer	5.011	0.0	720		
960 min Summer	4.057	0.0	828		
1440 min Summer	3.009	0.0	1082		
2160 min Summer	2.231	0.0	1488		
2880 min Summer	1.803	0.0	1900		
4320 min Summer	1.335	0.0	2720		
5760 min Summer	1.078	0.0	3512		
7200 min Summer	0.913	0.0	4256		
8640 min Summer	0.798	0.0	5016		
10080 min Summer	0.711	0.0	5744		
15 min Winter	70.770	0.0	19		
30 min Winter	46.698	0.0	33		
60 min Winter	29.629	0.0	62		
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Escher Silverman			Page 2		
Lone Barn Studios		Burndell Road			
Stanbridge Lane		Porous Carpark Simula...			
Romsey SO51 0HE		P38 (10 years + 30%)			
Date 14/03/2019		Designed by Hoa Nguyen			
File P38 (10 years + ...		Checked by KM			
Micro Drainage		Source Control 2013.1.1			
<u>Summary of Results for 10 year Return Period (+30%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
120 min Winter	6.812	0.099	0.0	1.5	O K
180 min Winter	6.823	0.110	0.0	1.7	O K
240 min Winter	6.831	0.118	0.0	1.8	O K
360 min Winter	6.841	0.128	0.0	2.0	O K
480 min Winter	6.848	0.135	0.0	2.1	O K
600 min Winter	6.852	0.139	0.0	2.1	Flood Risk
720 min Winter	6.855	0.142	0.0	2.2	Flood Risk
960 min Winter	6.858	0.145	0.0	2.2	Flood Risk
1440 min Winter	6.858	0.145	0.0	2.2	Flood Risk
2160 min Winter	6.855	0.142	0.0	2.2	Flood Risk
2880 min Winter	6.849	0.136	0.0	2.1	O K
4320 min Winter	6.833	0.120	0.0	1.8	O K
5760 min Winter	6.816	0.103	0.0	1.5	O K
7200 min Winter	6.800	0.087	0.0	1.3	O K
8640 min Winter	6.786	0.073	0.0	1.1	O K
10080 min Winter	6.774	0.061	0.0	0.9	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
120 min Winter	18.344	0.0	122		
180 min Winter	13.747	0.0	180		
240 min Winter	11.169	0.0	238		
360 min Winter	8.317	0.0	354		
480 min Winter	6.743	0.0	470		
600 min Winter	5.728	0.0	584		
720 min Winter	5.011	0.0	694		
960 min Winter	4.057	0.0	914		
1440 min Winter	3.009	0.0	1156		
2160 min Winter	2.231	0.0	1620		
2880 min Winter	1.803	0.0	2076		
4320 min Winter	1.335	0.0	2940		
5760 min Winter	1.078	0.0	3752		
7200 min Winter	0.913	0.0	4536		
8640 min Winter	0.798	0.0	5192		
10080 min Winter	0.711	0.0	5856		
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Lone Barn Studios Stanbridge Lane Romsey SO51 0HE	Burndell Road Porous Carpark Simula... P38 (10 years + 30%)	
Date 14/03/2019 File P38 (10 years + ...	Designed by Hoa Nguyen Checked by KM	
Micro Drainage Source Control 2013.1.1		

Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	10	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.000	Shortest Storm (mins)	15
Ratio R	0.350	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+30

Time Area Diagram

Total Area (ha) 0.006

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

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Escher Silverman		Page 4																								
Lone Barn Studios Stanbridge Lane Romsey SO51 0HE	Burndell Road Porous Carpark Simula... P38 (10 years + 30%)																									
Date 14/03/2019 File P38 (10 years + ...	Designed by Hoa Nguyen Checked by KM																									
Micro Drainage Source Control 2013.1.1																										
<u>Model Details</u> Storage is Online Cover Level (m) 7.150 <u>Porous Car Park Structure</u> <table> <tr> <td>Infiltration Coefficient Base (m/hr)</td> <td>0.00360</td> <td>Width (m)</td> <td>3.5</td> </tr> <tr> <td>Membrane Percolation (mm/hr)</td> <td>1000</td> <td>Length (m)</td> <td>15.5</td> </tr> <tr> <td>Max Percolation (l/s)</td> <td>15.1</td> <td>Slope (1:X)</td> <td>1000.0</td> </tr> <tr> <td>Safety Factor</td> <td>3.0</td> <td>Depression Storage (mm)</td> <td>5</td> </tr> <tr> <td>Porosity</td> <td>0.30</td> <td>Evaporation (mm/day)</td> <td>3</td> </tr> <tr> <td>Invert Level (m)</td> <td>6.713</td> <td>Cap Volume Depth (m)</td> <td>0.262</td> </tr> </table>			Infiltration Coefficient Base (m/hr)	0.00360	Width (m)	3.5	Membrane Percolation (mm/hr)	1000	Length (m)	15.5	Max Percolation (l/s)	15.1	Slope (1:X)	1000.0	Safety Factor	3.0	Depression Storage (mm)	5	Porosity	0.30	Evaporation (mm/day)	3	Invert Level (m)	6.713	Cap Volume Depth (m)	0.262
Infiltration Coefficient Base (m/hr)	0.00360	Width (m)	3.5																							
Membrane Percolation (mm/hr)	1000	Length (m)	15.5																							
Max Percolation (l/s)	15.1	Slope (1:X)	1000.0																							
Safety Factor	3.0	Depression Storage (mm)	5																							
Porosity	0.30	Evaporation (mm/day)	3																							
Invert Level (m)	6.713	Cap Volume Depth (m)	0.262																							
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Lone Barn Studios	Burndell Road				
Stanbridge Lane	Porous Carpark Simula...				
Romsey SO51 0HE	P38 (100 years + 30%)				
Date 14/03/2019	Designed by Hoa Nguyen				
File P38 (100 years +...	Checked by KM				
Micro Drainage	Source Control 2013.1.1				
<u>Summary of Results for 100 year Return Period (+30%)</u>					
Half Drain Time : 1909 minutes.					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	6.783	0.070	0.0	1.0	O K
30 min Summer	6.810	0.097	0.0	1.5	O K
60 min Summer	6.839	0.126	0.0	1.9	O K
120 min Summer	6.869	0.156	0.0	2.4	Flood Risk
180 min Summer	6.886	0.173	0.0	2.7	Flood Risk
240 min Summer	6.897	0.184	0.0	2.9	Flood Risk
360 min Summer	6.912	0.199	0.0	3.1	Flood Risk
480 min Summer	6.922	0.209	0.0	3.3	Flood Risk
600 min Summer	6.928	0.215	0.0	3.4	Flood Risk
720 min Summer	6.933	0.220	0.0	3.4	Flood Risk
960 min Summer	6.938	0.225	0.0	3.5	Flood Risk
1440 min Summer	6.939	0.226	0.0	3.5	Flood Risk
2160 min Summer	6.935	0.222	0.0	3.5	Flood Risk
2880 min Summer	6.929	0.216	0.0	3.4	Flood Risk
4320 min Summer	6.914	0.201	0.0	3.2	Flood Risk
5760 min Summer	6.899	0.186	0.0	2.9	Flood Risk
7200 min Summer	6.883	0.170	0.0	2.6	Flood Risk
8640 min Summer	6.869	0.156	0.0	2.4	Flood Risk
10080 min Summer	6.856	0.143	0.0	2.2	Flood Risk
15 min Winter	6.793	0.080	0.0	1.2	O K
30 min Winter	6.823	0.110	0.0	1.7	O K
60 min Winter	6.856	0.143	0.0	2.2	Flood Risk
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
15 min Summer	115.731	0.0	19		
30 min Summer	77.804	0.0	34		
60 min Summer	49.937	0.0	64		
120 min Summer	30.956	0.0	124		
180 min Summer	23.058	0.0	184		
240 min Summer	18.577	0.0	242		
360 min Summer	13.656	0.0	362		
480 min Summer	10.974	0.0	482		
600 min Summer	9.254	0.0	602		
720 min Summer	8.046	0.0	722		
960 min Summer	6.447	0.0	960		
1440 min Summer	4.709	0.0	1396		
2160 min Summer	3.432	0.0	1712		
2880 min Summer	2.739	0.0	2080		
4320 min Summer	1.989	0.0	2896		
5760 min Summer	1.583	0.0	3696		
7200 min Summer	1.325	0.0	4536		
8640 min Summer	1.147	0.0	5280		
10080 min Summer	1.015	0.0	6056		
15 min Winter	115.731	0.0	19		
30 min Winter	77.804	0.0	33		
60 min Winter	49.937	0.0	64		
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Lone Barn Studios	Burndell Road				
Stanbridge Lane	Porous Carpark Simula...				
Romsey SO51 0HE	P38 (100 years + 30%)				
Date 14/03/2019	Designed by Hoa Nguyen				
File P38 (100 years +...	Checked by KM				
Micro Drainage	Source Control 2013.1.1				
Summary of Results for 100 year Return Period (+30%)					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
120 min Winter	6.890	0.177	0.0	2.7	Flood Risk
180 min Winter	6.909	0.196	0.0	3.1	Flood Risk
240 min Winter	6.921	0.208	0.0	3.3	Flood Risk
360 min Winter	6.938	0.225	0.0	3.5	Flood Risk
480 min Winter	6.950	0.237	0.0	3.7	Flood Risk
600 min Winter	6.958	0.245	0.0	3.9	Flood Risk
720 min Winter	6.964	0.251	0.0	4.0	Flood Risk
960 min Winter	6.971	0.258	0.0	4.1	Flood Risk
1440 min Winter	6.975	0.262	0.0	4.1	Flood Risk
2160 min Winter	6.969	0.256	0.0	4.0	Flood Risk
2880 min Winter	6.961	0.248	0.0	3.9	Flood Risk
4320 min Winter	6.940	0.227	0.0	3.6	Flood Risk
5760 min Winter	6.917	0.204	0.0	3.2	Flood Risk
7200 min Winter	6.894	0.181	0.0	2.8	Flood Risk
8640 min Winter	6.872	0.159	0.0	2.5	Flood Risk
10080 min Winter	6.851	0.138	0.0	2.1	Flood Risk
Storm Event	Rain (mm/hr)		Flooded Volume (m³)	Time-Peak (mins)	
120 min Winter	30.956		0.0	122	
180 min Winter	23.058		0.0	180	
240 min Winter	18.577		0.0	240	
360 min Winter	13.656		0.0	358	
480 min Winter	10.974		0.0	474	
600 min Winter	9.254		0.0	590	
720 min Winter	8.046		0.0	708	
960 min Winter	6.447		0.0	934	
1440 min Winter	4.709		0.0	1384	
2160 min Winter	3.432		0.0	1992	
2880 min Winter	2.739		0.0	2248	
4320 min Winter	1.989		0.0	3156	
5760 min Winter	1.583		0.0	4040	
7200 min Winter	1.325		0.0	4896	
8640 min Winter	1.147		0.0	5704	
10080 min Winter	1.015		0.0	6464	
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Lone Barn Studios Stanbridge Lane Romsey SO51 0HE	Burndell Road Porous Carpark Simula... P38 (100 years + 30%)																															
Date 14/03/2019 File P38 (100 years +...	Designed by Hoa Nguyen Checked by KM																															
Micro Drainage Source Control 2013.1.1																																
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Time (mins)	Area																															
From:	To: (ha)																															
0	4 0.006																															
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Escher Silverman		Page 4																								
Lone Barn Studios Stanbridge Lane Romsey SO51 0HE	Burndell Road Porous Carpark Simula... P38 (100 years + 30%)																									
Date 14/03/2019 File P38 (100 years +...	Designed by Hoa Nguyen Checked by KM																									
Micro Drainage Source Control 2013.1.1																										
<u>Model Details</u> Storage is Online Cover Level (m) 7.150 <u>Porous Car Park Structure</u> <table> <tr> <td>Infiltration Coefficient Base (m/hr)</td> <td>0.00360</td> <td>Width (m)</td> <td>3.5</td> </tr> <tr> <td>Membrane Percolation (mm/hr)</td> <td>1000</td> <td>Length (m)</td> <td>15.5</td> </tr> <tr> <td>Max Percolation (l/s)</td> <td>15.1</td> <td>Slope (1:X)</td> <td>1000.0</td> </tr> <tr> <td>Safety Factor</td> <td>3.0</td> <td>Depression Storage (mm)</td> <td>5</td> </tr> <tr> <td>Porosity</td> <td>0.30</td> <td>Evaporation (mm/day)</td> <td>3</td> </tr> <tr> <td>Invert Level (m)</td> <td>6.713</td> <td>Cap Volume Depth (m)</td> <td>0.262</td> </tr> </table>			Infiltration Coefficient Base (m/hr)	0.00360	Width (m)	3.5	Membrane Percolation (mm/hr)	1000	Length (m)	15.5	Max Percolation (l/s)	15.1	Slope (1:X)	1000.0	Safety Factor	3.0	Depression Storage (mm)	5	Porosity	0.30	Evaporation (mm/day)	3	Invert Level (m)	6.713	Cap Volume Depth (m)	0.262
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Escher Silverman			Page 1		
Lone Barn Studios	Burndell Road				
Stanbridge Lane	Porous Carpark Simula...				
Romsey SO51 0HE	P39-40 (10 years + 30%)				
Date 14/03/2019	Designed by Hoa Nguyen				
File P39-40 (10 years...	Checked by KM				
Micro Drainage	Source Control 2013.1.1				
<u>Summary of Results for 10 year Return Period (+30%)</u>					
Half Drain Time : 1023 minutes.					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	6.755	0.039	0.0	0.9	O K
30 min Summer	6.769	0.053	0.0	1.3	O K
60 min Summer	6.785	0.069	0.0	1.7	O K
120 min Summer	6.802	0.086	0.0	2.1	O K
180 min Summer	6.812	0.096	0.0	2.4	O K
240 min Summer	6.818	0.102	0.0	2.6	O K
360 min Summer	6.827	0.111	0.0	2.8	O K
480 min Summer	6.832	0.116	0.0	3.0	O K
600 min Summer	6.835	0.119	0.0	3.1	O K
720 min Summer	6.837	0.121	0.0	3.1	O K
960 min Summer	6.839	0.123	0.0	3.2	O K
1440 min Summer	6.841	0.125	0.0	3.2	O K
2160 min Summer	6.840	0.124	0.0	3.2	O K
2880 min Summer	6.837	0.121	0.0	3.1	O K
4320 min Summer	6.827	0.111	0.0	2.8	O K
5760 min Summer	6.817	0.101	0.0	2.6	O K
7200 min Summer	6.807	0.091	0.0	2.3	O K
8640 min Summer	6.797	0.081	0.0	2.0	O K
10080 min Summer	6.789	0.073	0.0	1.8	O K
15 min Winter	6.760	0.044	0.0	1.0	O K
30 min Winter	6.777	0.061	0.0	1.5	O K
60 min Winter	6.795	0.079	0.0	2.0	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
15 min Summer	70.770	0.0	19		
30 min Summer	46.698	0.0	34		
60 min Summer	29.629	0.0	64		
120 min Summer	18.344	0.0	122		
180 min Summer	13.747	0.0	182		
240 min Summer	11.169	0.0	242		
360 min Summer	8.317	0.0	362		
480 min Summer	6.743	0.0	482		
600 min Summer	5.728	0.0	600		
720 min Summer	5.011	0.0	716		
960 min Summer	4.057	0.0	826		
1440 min Summer	3.009	0.0	1080		
2160 min Summer	2.231	0.0	1476		
2880 min Summer	1.803	0.0	1900		
4320 min Summer	1.335	0.0	2720		
5760 min Summer	1.078	0.0	3512		
7200 min Summer	0.913	0.0	4256		
8640 min Summer	0.798	0.0	5016		
10080 min Summer	0.711	0.0	5744		
15 min Winter	70.770	0.0	19		
30 min Winter	46.698	0.0	33		
60 min Winter	29.629	0.0	62		
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Lone Barn Studios		Burndell Road			
Stanbridge Lane		Porous Carpark Simula...			
Romsey SO51 0HE		P39-40 (10 years + 30%)			
Date 14/03/2019		Designed by Hoa Nguyen			
File P39-40 (10 years...		Checked by KM			
Micro Drainage		Source Control 2013.1.1			
<u>Summary of Results for 10 year Return Period (+30%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
120 min Winter	6.814	0.098	0.0	2.5	O K
180 min Winter	6.825	0.109	0.0	2.8	O K
240 min Winter	6.833	0.117	0.0	3.0	O K
360 min Winter	6.843	0.127	0.0	3.3	O K
480 min Winter	6.849	0.133	0.0	3.4	O K
600 min Winter	6.853	0.137	0.0	3.6	Flood Risk
720 min Winter	6.856	0.140	0.0	3.6	Flood Risk
960 min Winter	6.859	0.143	0.0	3.7	Flood Risk
1440 min Winter	6.859	0.143	0.0	3.7	Flood Risk
2160 min Winter	6.856	0.140	0.0	3.6	Flood Risk
2880 min Winter	6.850	0.134	0.0	3.5	O K
4320 min Winter	6.834	0.118	0.0	3.0	O K
5760 min Winter	6.817	0.101	0.0	2.6	O K
7200 min Winter	6.801	0.085	0.0	2.1	O K
8640 min Winter	6.787	0.071	0.0	1.7	O K
10080 min Winter	6.776	0.060	0.0	1.4	O K
Storm Event	Rain (mm/hr)		Flooded Volume (m³)	Time-Peak (mins)	
120 min Winter	18.344		0.0	122	
180 min Winter	13.747		0.0	180	
240 min Winter	11.169		0.0	238	
360 min Winter	8.317		0.0	354	
480 min Winter	6.743		0.0	470	
600 min Winter	5.728		0.0	584	
720 min Winter	5.011		0.0	694	
960 min Winter	4.057		0.0	912	
1440 min Winter	3.009		0.0	1154	
2160 min Winter	2.231		0.0	1620	
2880 min Winter	1.803		0.0	2072	
4320 min Winter	1.335		0.0	2940	
5760 min Winter	1.078		0.0	3752	
7200 min Winter	0.913		0.0	4536	
8640 min Winter	0.798		0.0	5192	
10080 min Winter	0.711		0.0	5848	
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Lone Barn Studios Stanbridge Lane Romsey SO51 0HE	Burndell Road Porous Carpark Simula... P39-40 (10 years + 30%)	
Date 14/03/2019 File P39-40 (10 years...)	Designed by Hoa Nguyen Checked by KM	
Micro Drainage Source Control 2013.1.1		

Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	10	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.000	Shortest Storm (mins)	15
Ratio R	0.350	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+30

Time Area Diagram

Total Area (ha) 0.010

Time (mins)	Area
From:	To: (ha)
0	4 0.010

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Lone Barn Studios Stanbridge Lane Romsey SO51 0HE	Burndell Road Porous Carpark Simula... P39-40 (10 years + 30%)																									
Date 14/03/2019 File P39-40 (10 years...	Designed by Hoa Nguyen Checked by KM																									
Micro Drainage Source Control 2013.1.1																										
<u>Model Details</u> Storage is Online Cover Level (m) 7.150 <u>Porous Car Park Structure</u> <table> <tr> <td>Infiltration Coefficient Base (m/hr)</td> <td>0.00360</td> <td>Width (m)</td> <td>6.2</td> </tr> <tr> <td>Membrane Percolation (mm/hr)</td> <td>1000</td> <td>Length (m)</td> <td>14.7</td> </tr> <tr> <td>Max Percolation (l/s)</td> <td>25.3</td> <td>Slope (1:X)</td> <td>1000.0</td> </tr> <tr> <td>Safety Factor</td> <td>3.0</td> <td>Depression Storage (mm)</td> <td>5</td> </tr> <tr> <td>Porosity</td> <td>0.30</td> <td>Evaporation (mm/day)</td> <td>3</td> </tr> <tr> <td>Invert Level (m)</td> <td>6.716</td> <td>Cap Volume Depth (m)</td> <td>0.259</td> </tr> </table>			Infiltration Coefficient Base (m/hr)	0.00360	Width (m)	6.2	Membrane Percolation (mm/hr)	1000	Length (m)	14.7	Max Percolation (l/s)	25.3	Slope (1:X)	1000.0	Safety Factor	3.0	Depression Storage (mm)	5	Porosity	0.30	Evaporation (mm/day)	3	Invert Level (m)	6.716	Cap Volume Depth (m)	0.259
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Lone Barn Studios	Burndell Road				
Stanbridge Lane	Porous Carpark Simula...				
Romsey SO51 0HE	P39-40 (100 years + 30%)				
Date 14/03/2019	Designed by Hoa Nguyen				
File P39-40 (100 year...	Checked by KM				
Micro Drainage	Source Control 2013.1.1				
<u>Summary of Results for 100 year Return Period (+30%)</u>					
Half Drain Time : 1888 minutes.					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	6.785	0.069	0.0	1.7	O K
30 min Summer	6.812	0.096	0.0	2.4	O K
60 min Summer	6.841	0.125	0.0	3.2	O K
120 min Summer	6.870	0.154	0.0	4.0	Flood Risk
180 min Summer	6.887	0.171	0.0	4.5	Flood Risk
240 min Summer	6.898	0.182	0.0	4.8	Flood Risk
360 min Summer	6.913	0.197	0.0	5.2	Flood Risk
480 min Summer	6.922	0.206	0.0	5.4	Flood Risk
600 min Summer	6.929	0.213	0.0	5.6	Flood Risk
720 min Summer	6.933	0.217	0.0	5.7	Flood Risk
960 min Summer	6.938	0.222	0.0	5.9	Flood Risk
1440 min Summer	6.939	0.223	0.0	5.9	Flood Risk
2160 min Summer	6.935	0.219	0.0	5.8	Flood Risk
2880 min Summer	6.929	0.213	0.0	5.6	Flood Risk
4320 min Summer	6.915	0.199	0.0	5.2	Flood Risk
5760 min Summer	6.899	0.183	0.0	4.8	Flood Risk
7200 min Summer	6.884	0.168	0.0	4.4	Flood Risk
8640 min Summer	6.870	0.154	0.0	4.0	Flood Risk
10080 min Summer	6.857	0.141	0.0	3.6	Flood Risk
15 min Winter	6.795	0.079	0.0	2.0	O K
30 min Winter	6.825	0.109	0.0	2.8	O K
60 min Winter	6.857	0.141	0.0	3.7	Flood Risk
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
15 min Summer	115.731	0.0	19		
30 min Summer	77.804	0.0	34		
60 min Summer	49.937	0.0	64		
120 min Summer	30.956	0.0	124		
180 min Summer	23.058	0.0	184		
240 min Summer	18.577	0.0	242		
360 min Summer	13.656	0.0	362		
480 min Summer	10.974	0.0	482		
600 min Summer	9.254	0.0	602		
720 min Summer	8.046	0.0	722		
960 min Summer	6.447	0.0	960		
1440 min Summer	4.709	0.0	1372		
2160 min Summer	3.432	0.0	1708		
2880 min Summer	2.739	0.0	2076		
4320 min Summer	1.989	0.0	2896		
5760 min Summer	1.583	0.0	3696		
7200 min Summer	1.325	0.0	4536		
8640 min Summer	1.147	0.0	5280		
10080 min Summer	1.015	0.0	6056		
15 min Winter	115.731	0.0	19		
30 min Winter	77.804	0.0	33		
60 min Winter	49.937	0.0	64		
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Lone Barn Studios	Burndell Road				
Stanbridge Lane	Porous Carpark Simula...				
Romsey SO51 0HE	P39-40 (100 years + 30%)				
Date 14/03/2019	Designed by Hoa Nguyen				
File P39-40 (100 year...	Checked by KM				
Micro Drainage	Source Control 2013.1.1				
<u>Summary of Results for 100 year Return Period (+30%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
120 min Winter	6.891	0.175	0.0	4.6	Flood Risk
180 min Winter	6.910	0.194	0.0	5.1	Flood Risk
240 min Winter	6.922	0.206	0.0	5.4	Flood Risk
360 min Winter	6.939	0.223	0.0	5.9	Flood Risk
480 min Winter	6.950	0.234	0.0	6.2	Flood Risk
600 min Winter	6.958	0.242	0.0	6.4	Flood Risk
720 min Winter	6.964	0.248	0.0	6.6	Flood Risk
960 min Winter	6.971	0.255	0.0	6.8	Flood Risk
1440 min Winter	6.975	0.259	0.0	6.9	Flood Risk
2160 min Winter	6.969	0.253	0.0	6.7	Flood Risk
2880 min Winter	6.961	0.245	0.0	6.5	Flood Risk
4320 min Winter	6.940	0.224	0.0	5.9	Flood Risk
5760 min Winter	6.917	0.201	0.0	5.3	Flood Risk
7200 min Winter	6.894	0.178	0.0	4.7	Flood Risk
8640 min Winter	6.872	0.156	0.0	4.1	Flood Risk
10080 min Winter	6.852	0.136	0.0	3.5	Flood Risk
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
120 min Winter	30.956	0.0	122		
180 min Winter	23.058	0.0	180		
240 min Winter	18.577	0.0	240		
360 min Winter	13.656	0.0	358		
480 min Winter	10.974	0.0	474		
600 min Winter	9.254	0.0	590		
720 min Winter	8.046	0.0	708		
960 min Winter	6.447	0.0	934		
1440 min Winter	4.709	0.0	1384		
2160 min Winter	3.432	0.0	1992		
2880 min Winter	2.739	0.0	2248		
4320 min Winter	1.989	0.0	3156		
5760 min Winter	1.583	0.0	4040		
7200 min Winter	1.325	0.0	4896		
8640 min Winter	1.147	0.0	5704		
10080 min Winter	1.015	0.0	6456		
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Lone Barn Studios Stanbridge Lane Romsey SO51 0HE	Burndell Road Porous Carpark Simula... P39-40 (100 years + 30%)	
Date 14/03/2019 File P39-40 (100 year...	Designed by Hoa Nguyen Checked by KM	
Micro Drainage Source Control 2013.1.1		

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	0.350	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+30

Time Area Diagram

Total Area (ha) 0.010

Time (mins)	Area
From:	To: (ha)
0	4 0.010

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Escher Silverman		Page 4																								
Lone Barn Studios Stanbridge Lane Romsey SO51 0HE	Burndell Road Porous Carpark Simula... P39-40 (100 years + 30%)																									
Date 14/03/2019 File P39-40 (100 year...	Designed by Hoa Nguyen Checked by KM																									
Micro Drainage Source Control 2013.1.1																										
<u>Model Details</u> Storage is Online Cover Level (m) 7.150 <u>Porous Car Park Structure</u> <table> <tr> <td>Infiltration Coefficient Base (m/hr)</td> <td>0.00360</td> <td>Width (m)</td> <td>6.2</td> </tr> <tr> <td>Membrane Percolation (mm/hr)</td> <td>1000</td> <td>Length (m)</td> <td>14.7</td> </tr> <tr> <td>Max Percolation (l/s)</td> <td>25.3</td> <td>Slope (1:X)</td> <td>1000.0</td> </tr> <tr> <td>Safety Factor</td> <td>3.0</td> <td>Depression Storage (mm)</td> <td>5</td> </tr> <tr> <td>Porosity</td> <td>0.30</td> <td>Evaporation (mm/day)</td> <td>3</td> </tr> <tr> <td>Invert Level (m)</td> <td>6.716</td> <td>Cap Volume Depth (m)</td> <td>0.259</td> </tr> </table>			Infiltration Coefficient Base (m/hr)	0.00360	Width (m)	6.2	Membrane Percolation (mm/hr)	1000	Length (m)	14.7	Max Percolation (l/s)	25.3	Slope (1:X)	1000.0	Safety Factor	3.0	Depression Storage (mm)	5	Porosity	0.30	Evaporation (mm/day)	3	Invert Level (m)	6.716	Cap Volume Depth (m)	0.259
Infiltration Coefficient Base (m/hr)	0.00360	Width (m)	6.2																							
Membrane Percolation (mm/hr)	1000	Length (m)	14.7																							
Max Percolation (l/s)	25.3	Slope (1:X)	1000.0																							
Safety Factor	3.0	Depression Storage (mm)	5																							
Porosity	0.30	Evaporation (mm/day)	3																							
Invert Level (m)	6.716	Cap Volume Depth (m)	0.259																							
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Escher Silverman			Page 1		
Lone Barn Studios	Burndell Road				
Stanbridge Lane	Porous Carpark Simula...				
Romsey SO51 0HE	P41-42 (10 years + 30%)				
Date 14/03/2019	Designed by Hoa Nguyen				
File P41-42 (10 years...	Checked by KM				
Micro Drainage	Source Control 2013.1.1				
<u>Summary of Results for 10 year Return Period (+30%)</u>					
Half Drain Time : 892 minutes.					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	6.734	0.034	0.0	0.7	O K
30 min Summer	6.747	0.047	0.0	1.1	O K
60 min Summer	6.762	0.062	0.0	1.5	O K
120 min Summer	6.776	0.076	0.0	1.9	O K
180 min Summer	6.785	0.085	0.0	2.1	O K
240 min Summer	6.791	0.091	0.0	2.3	O K
360 min Summer	6.798	0.098	0.0	2.5	O K
480 min Summer	6.803	0.103	0.0	2.6	O K
600 min Summer	6.805	0.105	0.0	2.7	O K
720 min Summer	6.807	0.107	0.0	2.7	O K
960 min Summer	6.809	0.109	0.0	2.8	O K
1440 min Summer	6.810	0.110	0.0	2.8	O K
2160 min Summer	6.809	0.109	0.0	2.8	O K
2880 min Summer	6.805	0.105	0.0	2.7	O K
4320 min Summer	6.796	0.096	0.0	2.4	O K
5760 min Summer	6.786	0.086	0.0	2.1	O K
7200 min Summer	6.777	0.077	0.0	1.9	O K
8640 min Summer	6.768	0.068	0.0	1.7	O K
10080 min Summer	6.761	0.061	0.0	1.5	O K
15 min Winter	6.739	0.039	0.0	0.9	O K
30 min Winter	6.754	0.054	0.0	1.3	O K
60 min Winter	6.770	0.070	0.0	1.7	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
15 min Summer	70.770	0.0	19		
30 min Summer	46.698	0.0	34		
60 min Summer	29.629	0.0	64		
120 min Summer	18.344	0.0	122		
180 min Summer	13.747	0.0	182		
240 min Summer	11.169	0.0	242		
360 min Summer	8.317	0.0	362		
480 min Summer	6.743	0.0	480		
600 min Summer	5.728	0.0	600		
720 min Summer	5.011	0.0	672		
960 min Summer	4.057	0.0	788		
1440 min Summer	3.009	0.0	1040		
2160 min Summer	2.231	0.0	1452		
2880 min Summer	1.803	0.0	1872		
4320 min Summer	1.335	0.0	2680		
5760 min Summer	1.078	0.0	3456		
7200 min Summer	0.913	0.0	4184		
8640 min Summer	0.798	0.0	4928		
10080 min Summer	0.711	0.0	5640		
15 min Winter	70.770	0.0	19		
30 min Winter	46.698	0.0	33		
60 min Winter	29.629	0.0	62		
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Escher Silverman			Page 2		
Lone Barn Studios	Burndell Road				
Stanbridge Lane	Porous Carpark Simula...				
Romsey SO51 0HE	P41-42 (10 years + 30%)				
Date 14/03/2019	Designed by Hoa Nguyen				
File P41-42 (10 years...	Checked by KM				
Micro Drainage	Source Control 2013.1.1				
<u>Summary of Results for 10 year Return Period (+30%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
120 min Winter	6.787	0.087	0.0	2.2	O K
180 min Winter	6.797	0.097	0.0	2.4	O K
240 min Winter	6.804	0.104	0.0	2.6	O K
360 min Winter	6.813	0.113	0.0	2.9	O K
480 min Winter	6.818	0.118	0.0	3.0	O K
600 min Winter	6.821	0.121	0.0	3.1	O K
720 min Winter	6.824	0.124	0.0	3.2	O K
960 min Winter	6.825	0.125	0.0	3.2	Flood Risk
1440 min Winter	6.825	0.125	0.0	3.2	Flood Risk
2160 min Winter	6.822	0.122	0.0	3.1	O K
2880 min Winter	6.815	0.115	0.0	2.9	O K
4320 min Winter	6.800	0.100	0.0	2.5	O K
5760 min Winter	6.784	0.084	0.0	2.1	O K
7200 min Winter	6.770	0.070	0.0	1.7	O K
8640 min Winter	6.758	0.058	0.0	1.4	O K
10080 min Winter	6.750	0.050	0.0	1.2	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
120 min Winter	18.344	0.0	122		
180 min Winter	13.747	0.0	180		
240 min Winter	11.169	0.0	238		
360 min Winter	8.317	0.0	354		
480 min Winter	6.743	0.0	468		
600 min Winter	5.728	0.0	580		
720 min Winter	5.011	0.0	692		
960 min Winter	4.057	0.0	902		
1440 min Winter	3.009	0.0	1124		
2160 min Winter	2.231	0.0	1580		
2880 min Winter	1.803	0.0	2044		
4320 min Winter	1.335	0.0	2892		
5760 min Winter	1.078	0.0	3688		
7200 min Winter	0.913	0.0	4392		
8640 min Winter	0.798	0.0	5024		
10080 min Winter	0.711	0.0	5640		
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Escher Silverman		Page 3
Lone Barn Studios Stanbridge Lane Romsey SO51 0HE	Burndell Road Porous Carpark Simula... P41-42 (10 years + 30%)	
Date 14/03/2019 File P41-42 (10 years...)	Designed by Hoa Nguyen Checked by KM	
Micro Drainage Source Control 2013.1.1		

Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	10	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.000	Shortest Storm (mins)	15
Ratio R	0.350	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+30

Time Area Diagram

Total Area (ha) 0.009

Time (mins)	Area
From:	To: (ha)
0	4 0.009

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Escher Silverman		Page 4																								
Lone Barn Studios Stanbridge Lane Romsey SO51 0HE	Burndell Road Porous Carpark Simula... P41-42 (10 years + 30%)																									
Date 14/03/2019 File P41-42 (10 years...	Designed by Hoa Nguyen Checked by KM																									
Micro Drainage Source Control 2013.1.1																										
<u>Model Details</u> Storage is Online Cover Level (m) 7.125 <u>Porous Car Park Structure</u> <table> <tr> <td>Infiltration Coefficient Base (m/hr)</td> <td>0.00360</td> <td>Width (m)</td> <td>6.5</td> </tr> <tr> <td>Membrane Percolation (mm/hr)</td> <td>1000</td> <td>Length (m)</td> <td>13.9</td> </tr> <tr> <td>Max Percolation (l/s)</td> <td>25.1</td> <td>Slope (1:X)</td> <td>1000.0</td> </tr> <tr> <td>Safety Factor</td> <td>3.0</td> <td>Depression Storage (mm)</td> <td>5</td> </tr> <tr> <td>Porosity</td> <td>0.30</td> <td>Evaporation (mm/day)</td> <td>3</td> </tr> <tr> <td>Invert Level (m)</td> <td>6.700</td> <td>Cap Volume Depth (m)</td> <td>0.250</td> </tr> </table>			Infiltration Coefficient Base (m/hr)	0.00360	Width (m)	6.5	Membrane Percolation (mm/hr)	1000	Length (m)	13.9	Max Percolation (l/s)	25.1	Slope (1:X)	1000.0	Safety Factor	3.0	Depression Storage (mm)	5	Porosity	0.30	Evaporation (mm/day)	3	Invert Level (m)	6.700	Cap Volume Depth (m)	0.250
Infiltration Coefficient Base (m/hr)	0.00360	Width (m)	6.5																							
Membrane Percolation (mm/hr)	1000	Length (m)	13.9																							
Max Percolation (l/s)	25.1	Slope (1:X)	1000.0																							
Safety Factor	3.0	Depression Storage (mm)	5																							
Porosity	0.30	Evaporation (mm/day)	3																							
Invert Level (m)	6.700	Cap Volume Depth (m)	0.250																							
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Escher Silverman			Page 1		
Lone Barn Studios Stanbridge Lane Romsey SO51 0HE		Burndell Road Porous Carpark Simula... P41-42 (100 years + 30%)			
Date 14/03/2019 File P41-42 (100 year...		Designed by Hoa Nguyen Checked by KM			
Micro Drainage		Source Control 2013.1.1			
<u>Summary of Results for 100 year Return Period (+30%)</u> Half Drain Time : 1603 minutes.					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	6.759	0.059	0.0	1.5	O K
30 min Summer	6.783	0.083	0.0	2.1	O K
60 min Summer	6.808	0.108	0.0	2.8	O K
120 min Summer	6.834	0.134	0.0	3.6	Flood Risk
180 min Summer	6.849	0.149	0.0	4.0	Flood Risk
240 min Summer	6.858	0.158	0.0	4.2	Flood Risk
360 min Summer	6.870	0.170	0.0	4.6	Flood Risk
480 min Summer	6.878	0.178	0.0	4.8	Flood Risk
600 min Summer	6.883	0.183	0.0	4.9	Flood Risk
720 min Summer	6.886	0.186	0.0	5.0	Flood Risk
960 min Summer	6.890	0.190	0.0	5.1	Flood Risk
1440 min Summer	6.889	0.189	0.0	5.1	Flood Risk
2160 min Summer	6.885	0.185	0.0	5.0	Flood Risk
2880 min Summer	6.880	0.180	0.0	4.8	Flood Risk
4320 min Summer	6.866	0.166	0.0	4.4	Flood Risk
5760 min Summer	6.851	0.151	0.0	4.0	Flood Risk
7200 min Summer	6.837	0.137	0.0	3.6	Flood Risk
8640 min Summer	6.824	0.124	0.0	3.3	O K
10080 min Summer	6.811	0.111	0.0	2.9	O K
15 min Winter	6.768	0.068	0.0	1.7	O K
30 min Winter	6.794	0.094	0.0	2.4	O K
60 min Winter	6.822	0.122	0.0	3.2	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
15 min Summer	115.731	0.0	19		
30 min Summer	77.804	0.0	34		
60 min Summer	49.937	0.0	64		
120 min Summer	30.956	0.0	124		
180 min Summer	23.058	0.0	184		
240 min Summer	18.577	0.0	242		
360 min Summer	13.656	0.0	362		
480 min Summer	10.974	0.0	482		
600 min Summer	9.254	0.0	602		
720 min Summer	8.046	0.0	722		
960 min Summer	6.447	0.0	960		
1440 min Summer	4.709	0.0	1254		
2160 min Summer	3.432	0.0	1620		
2880 min Summer	2.739	0.0	2016		
4320 min Summer	1.989	0.0	2812		
5760 min Summer	1.583	0.0	3632		
7200 min Summer	1.325	0.0	4400		
8640 min Summer	1.147	0.0	5192		
10080 min Summer	1.015	0.0	5952		
15 min Winter	115.731	0.0	19		
30 min Winter	77.804	0.0	33		
60 min Winter	49.937	0.0	64		
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Escher Silverman			Page 2		
Lone Barn Studios	Burndell Road				
Stanbridge Lane	Porous Carpark Simula...				
Romsey SO51 0HE	P41-42 (100 years + 30%)				
Date 14/03/2019	Designed by Hoa Nguyen				
File P41-42 (100 year...	Checked by KM				
Micro Drainage	Source Control 2013.1.1				
<u>Summary of Results for 100 year Return Period (+30%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
120 min Winter	6.852	0.152	0.0	4.0	Flood Risk
180 min Winter	6.868	0.168	0.0	4.5	Flood Risk
240 min Winter	6.879	0.179	0.0	4.8	Flood Risk
360 min Winter	6.893	0.193	0.0	5.2	Flood Risk
480 min Winter	6.903	0.203	0.0	5.5	Flood Risk
600 min Winter	6.909	0.209	0.0	5.6	Flood Risk
720 min Winter	6.913	0.213	0.0	5.8	Flood Risk
960 min Winter	6.918	0.218	0.0	5.9	Flood Risk
1440 min Winter	6.920	0.220	0.0	5.9	Flood Risk
2160 min Winter	6.913	0.213	0.0	5.7	Flood Risk
2880 min Winter	6.905	0.205	0.0	5.5	Flood Risk
4320 min Winter	6.884	0.184	0.0	4.9	Flood Risk
5760 min Winter	6.862	0.162	0.0	4.3	Flood Risk
7200 min Winter	6.840	0.140	0.0	3.7	Flood Risk
8640 min Winter	6.820	0.120	0.0	3.2	O K
10080 min Winter	6.802	0.102	0.0	2.6	O K
Storm Event	Rain (mm/hr)		Flooded Volume (m³)	Time-Peak (mins)	
120 min Winter	30.956		0.0	122	
180 min Winter	23.058		0.0	180	
240 min Winter	18.577		0.0	240	
360 min Winter	13.656		0.0	356	
480 min Winter	10.974		0.0	474	
600 min Winter	9.254		0.0	590	
720 min Winter	8.046		0.0	706	
960 min Winter	6.447		0.0	932	
1440 min Winter	4.709		0.0	1370	
2160 min Winter	3.432		0.0	1732	
2880 min Winter	2.739		0.0	2188	
4320 min Winter	1.989		0.0	3072	
5760 min Winter	1.583		0.0	3968	
7200 min Winter	1.325		0.0	4760	
8640 min Winter	1.147		0.0	5536	
10080 min Winter	1.015		0.0	6256	
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Escher Silverman		Page 3
Lone Barn Studios Stanbridge Lane Romsey SO51 0HE	Burndell Road Porous Carpark Simula... P41-42 (100 years + 30%)	
Date 14/03/2019 File P41-42 (100 year...	Designed by Hoa Nguyen Checked by KM	
Micro Drainage Source Control 2013.1.1		

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	0.350	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+30

Time Area Diagram

Total Area (ha) 0.009

Time (mins)	Area
From:	To: (ha)
0	4 0.009

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Escher Silverman		Page 4																								
Lone Barn Studios Stanbridge Lane Romsey SO51 0HE	Burndell Road Porous Carpark Simula... P41-42 (100 years + 30%)																									
Date 14/03/2019 File P41-42 (100 year...	Designed by Hoa Nguyen Checked by KM																									
Micro Drainage Source Control 2013.1.1																										
<u>Model Details</u> Storage is Online Cover Level (m) 7.125 <u>Porous Car Park Structure</u> <table> <tr> <td>Infiltration Coefficient Base (m/hr)</td> <td>0.00360</td> <td>Width (m)</td> <td>6.7</td> </tr> <tr> <td>Membrane Percolation (mm/hr)</td> <td>1000</td> <td>Length (m)</td> <td>13.9</td> </tr> <tr> <td>Max Percolation (l/s)</td> <td>25.9</td> <td>Slope (1:X)</td> <td>1000.0</td> </tr> <tr> <td>Safety Factor</td> <td>3.0</td> <td>Depression Storage (mm)</td> <td>5</td> </tr> <tr> <td>Porosity</td> <td>0.30</td> <td>Evaporation (mm/day)</td> <td>3</td> </tr> <tr> <td>Invert Level (m)</td> <td>6.700</td> <td>Cap Volume Depth (m)</td> <td>0.250</td> </tr> </table>			Infiltration Coefficient Base (m/hr)	0.00360	Width (m)	6.7	Membrane Percolation (mm/hr)	1000	Length (m)	13.9	Max Percolation (l/s)	25.9	Slope (1:X)	1000.0	Safety Factor	3.0	Depression Storage (mm)	5	Porosity	0.30	Evaporation (mm/day)	3	Invert Level (m)	6.700	Cap Volume Depth (m)	0.250
Infiltration Coefficient Base (m/hr)	0.00360	Width (m)	6.7																							
Membrane Percolation (mm/hr)	1000	Length (m)	13.9																							
Max Percolation (l/s)	25.9	Slope (1:X)	1000.0																							
Safety Factor	3.0	Depression Storage (mm)	5																							
Porosity	0.30	Evaporation (mm/day)	3																							
Invert Level (m)	6.700	Cap Volume Depth (m)	0.250																							
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Lone Barn Studios	Burndell Road				
Stanbridge Lane	Porous Carpark Simula...				
Romsey SO51 0HE	P44-45 (10 years + 30%)				
Date 14/03/2019	Designed by Hoa Nguyen				
File P44-45 (10 years...	Checked by KM				
Micro Drainage	Source Control 2013.1.1				
<u>Summary of Results for 10 year Return Period (+30%)</u>					
Half Drain Time : 1044 minutes.					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	6.465	0.036	0.0	0.5	O K
30 min Summer	6.480	0.051	0.0	0.8	O K
60 min Summer	6.496	0.067	0.0	1.0	O K
120 min Summer	6.513	0.084	0.0	1.3	O K
180 min Summer	6.523	0.094	0.0	1.5	O K
240 min Summer	6.530	0.101	0.0	1.6	O K
360 min Summer	6.539	0.110	0.0	1.7	O K
480 min Summer	6.544	0.115	0.0	1.8	O K
600 min Summer	6.548	0.119	0.0	1.9	O K
720 min Summer	6.550	0.121	0.0	1.9	O K
960 min Summer	6.552	0.123	0.0	1.9	O K
1440 min Summer	6.554	0.125	0.0	2.0	O K
2160 min Summer	6.554	0.125	0.0	1.9	O K
2880 min Summer	6.550	0.121	0.0	1.9	O K
4320 min Summer	6.541	0.112	0.0	1.7	O K
5760 min Summer	6.531	0.102	0.0	1.6	O K
7200 min Summer	6.521	0.092	0.0	1.4	O K
8640 min Summer	6.512	0.083	0.0	1.3	O K
10080 min Summer	6.503	0.074	0.0	1.1	O K
15 min Winter	6.471	0.042	0.0	0.6	O K
30 min Winter	6.488	0.059	0.0	0.9	O K
60 min Winter	6.506	0.077	0.0	1.2	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
15 min Summer	70.770	0.0	19		
30 min Summer	46.698	0.0	34		
60 min Summer	29.629	0.0	64		
120 min Summer	18.344	0.0	122		
180 min Summer	13.747	0.0	182		
240 min Summer	11.169	0.0	242		
360 min Summer	8.317	0.0	362		
480 min Summer	6.743	0.0	482		
600 min Summer	5.728	0.0	600		
720 min Summer	5.011	0.0	720		
960 min Summer	4.057	0.0	830		
1440 min Summer	3.009	0.0	1082		
2160 min Summer	2.231	0.0	1488		
2880 min Summer	1.803	0.0	1904		
4320 min Summer	1.335	0.0	2724		
5760 min Summer	1.078	0.0	3512		
7200 min Summer	0.913	0.0	4256		
8640 min Summer	0.798	0.0	5016		
10080 min Summer	0.711	0.0	5744		
15 min Winter	70.770	0.0	19		
30 min Winter	46.698	0.0	33		
60 min Winter	29.629	0.0	62		
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Lone Barn Studios		Burndell Road			
Stanbridge Lane		Porous Carpark Simula...			
Romsey SO51 0HE		P44-45 (10 years + 30%)			
Date 14/03/2019		Designed by Hoa Nguyen			
File P44-45 (10 years...		Checked by KM			
Micro Drainage		Source Control 2013.1.1			
<u>Summary of Results for 10 year Return Period (+30%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
120 min Winter	6.525	0.096	0.0	1.5	O K
180 min Winter	6.537	0.108	0.0	1.7	O K
240 min Winter	6.545	0.116	0.0	1.8	O K
360 min Winter	6.555	0.126	0.0	2.0	O K
480 min Winter	6.562	0.133	0.0	2.1	O K
600 min Winter	6.566	0.137	0.0	2.1	Flood Risk
720 min Winter	6.569	0.140	0.0	2.2	Flood Risk
960 min Winter	6.572	0.143	0.0	2.2	Flood Risk
1440 min Winter	6.572	0.143	0.0	2.3	Flood Risk
2160 min Winter	6.570	0.141	0.0	2.2	Flood Risk
2880 min Winter	6.564	0.135	0.0	2.1	O K
4320 min Winter	6.549	0.120	0.0	1.9	O K
5760 min Winter	6.532	0.103	0.0	1.6	O K
7200 min Winter	6.516	0.087	0.0	1.3	O K
8640 min Winter	6.502	0.073	0.0	1.1	O K
10080 min Winter	6.490	0.061	0.0	0.9	O K
Storm Event	Rain (mm/hr)		Flooded Volume (m³)	Time-Peak (mins)	
120 min Winter	18.344		0.0	122	
180 min Winter	13.747		0.0	180	
240 min Winter	11.169		0.0	238	
360 min Winter	8.317		0.0	354	
480 min Winter	6.743		0.0	470	
600 min Winter	5.728		0.0	584	
720 min Winter	5.011		0.0	694	
960 min Winter	4.057		0.0	914	
1440 min Winter	3.009		0.0	1166	
2160 min Winter	2.231		0.0	1620	
2880 min Winter	1.803		0.0	2076	
4320 min Winter	1.335		0.0	2940	
5760 min Winter	1.078		0.0	3752	
7200 min Winter	0.913		0.0	4536	
8640 min Winter	0.798		0.0	5264	
10080 min Winter	0.711		0.0	5856	
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Escher Silverman		Page 3
Lone Barn Studios Stanbridge Lane Romsey SO51 0HE	Burndell Road Porous Carpark Simula... P44-45 (10 years + 30%)	
Date 14/03/2019 File P44-45 (10 years...)	Designed by Hoa Nguyen Checked by KM	
Micro Drainage Source Control 2013.1.1		

Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	10	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.000	Shortest Storm (mins)	15
Ratio R	0.350	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+30

Time Area Diagram

Total Area (ha) 0.006

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

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Micro Drainage		Source Control 2013.1.1			
<u>Summary of Results for 100 year Return Period (+30%)</u> Half Drain Time : 1940 minutes.					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	6.496	0.067	0.0	1.0	O K
30 min Summer	6.523	0.094	0.0	1.5	O K
60 min Summer	6.553	0.124	0.0	1.9	O K
120 min Summer	6.583	0.154	0.0	2.4	Flood Risk
180 min Summer	6.600	0.171	0.0	2.7	Flood Risk
240 min Summer	6.611	0.182	0.0	2.9	Flood Risk
360 min Summer	6.626	0.197	0.0	3.1	Flood Risk
480 min Summer	6.636	0.207	0.0	3.3	Flood Risk
600 min Summer	6.643	0.214	0.0	3.4	Flood Risk
720 min Summer	6.647	0.218	0.0	3.5	Flood Risk
960 min Summer	6.653	0.224	0.0	3.5	Flood Risk
1440 min Summer	6.654	0.225	0.0	3.6	Flood Risk
2160 min Summer	6.650	0.221	0.0	3.5	Flood Risk
2880 min Summer	6.645	0.216	0.0	3.4	Flood Risk
4320 min Summer	6.631	0.202	0.0	3.2	Flood Risk
5760 min Summer	6.616	0.187	0.0	3.0	Flood Risk
7200 min Summer	6.601	0.172	0.0	2.7	Flood Risk
8640 min Summer	6.586	0.157	0.0	2.5	Flood Risk
10080 min Summer	6.573	0.144	0.0	2.3	Flood Risk
15 min Winter	6.506	0.077	0.0	1.2	O K
30 min Winter	6.536	0.107	0.0	1.7	O K
60 min Winter	6.569	0.140	0.0	2.2	Flood Risk
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
15 min Summer	115.731	0.0	19		
30 min Summer	77.804	0.0	34		
60 min Summer	49.937	0.0	64		
120 min Summer	30.956	0.0	124		
180 min Summer	23.058	0.0	184		
240 min Summer	18.577	0.0	242		
360 min Summer	13.656	0.0	362		
480 min Summer	10.974	0.0	482		
600 min Summer	9.254	0.0	602		
720 min Summer	8.046	0.0	722		
960 min Summer	6.447	0.0	960		
1440 min Summer	4.709	0.0	1398		
2160 min Summer	3.432	0.0	1712		
2880 min Summer	2.739	0.0	2100		
4320 min Summer	1.989	0.0	2896		
5760 min Summer	1.583	0.0	3696		
7200 min Summer	1.325	0.0	4536		
8640 min Summer	1.147	0.0	5280		
10080 min Summer	1.015	0.0	6056		
15 min Winter	115.731	0.0	19		
30 min Winter	77.804	0.0	33		
60 min Winter	49.937	0.0	64		
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Time (mins)	Area
From:	To: (ha)
0	4 0.006

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