

Cadsquare Midlands Ltd					Page 1																																																																																																																																																																																																																		
The Stables Woodbury Lane, Norton Worcester WR5 2PT			CAVERSHAM 4 PLOTS CELLULAR SOAKAWAY 13-054 / 600																																																																																																																																																																																																																				
Date 10/01/2018 11:09 File Trench soakaway 15000x5...			Designed by SCH Checked by																																																																																																																																																																																																																				
Micro Drainage			Source Control 2017.1																																																																																																																																																																																																																				
Summary of Results for 100 year Return Period (+30%) Half Drain Time : 1027 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>45.105</td><td>1.005</td><td>0.1</td><td>7.2</td><td>O K</td></tr><tr><td>30 min Summer</td><td>45.412</td><td>1.312</td><td>0.1</td><td>9.4</td><td>O K</td></tr><tr><td>60 min Summer</td><td>45.724</td><td>1.624</td><td>0.1</td><td>11.6</td><td>O K</td></tr><tr><td>120 min Summer</td><td>46.021</td><td>1.921</td><td>0.2</td><td>13.7</td><td>O K</td></tr><tr><td>180 min Summer</td><td>46.173</td><td>2.073</td><td>0.2</td><td>14.8</td><td>O K</td></tr><tr><td>240 min Summer</td><td>46.263</td><td>2.163</td><td>0.2</td><td>15.4</td><td>O K</td></tr><tr><td>360 min Summer</td><td>46.364</td><td>2.264</td><td>0.2</td><td>16.1</td><td>O K</td></tr><tr><td>480 min Summer</td><td>46.413</td><td>2.313</td><td>0.2</td><td>16.5</td><td>O K</td></tr><tr><td>600 min Summer</td><td>46.429</td><td>2.329</td><td>0.2</td><td>16.6</td><td>O K</td></tr><tr><td>720 min Summer</td><td>46.432</td><td>2.332</td><td>0.2</td><td>16.6</td><td>O K</td></tr><tr><td>960 min Summer</td><td>46.433</td><td>2.333</td><td>0.2</td><td>16.6</td><td>O K</td></tr><tr><td>1440 min Summer</td><td>46.415</td><td>2.315</td><td>0.2</td><td>16.5</td><td>O K</td></tr><tr><td>2160 min Summer</td><td>46.353</td><td>2.253</td><td>0.2</td><td>16.1</td><td>O K</td></tr><tr><td>2880 min Summer</td><td>46.274</td><td>2.174</td><td>0.2</td><td>15.5</td><td>O K</td></tr><tr><td>4320 min Summer</td><td>46.108</td><td>2.008</td><td>0.2</td><td>14.3</td><td>O K</td></tr><tr><td>5760 min Summer</td><td>45.956</td><td>1.856</td><td>0.1</td><td>13.2</td><td>O K</td></tr><tr><td>7200 min Summer</td><td>45.822</td><td>1.722</td><td>0.1</td><td>12.3</td><td>O K</td></tr><tr><td>8640 min Summer</td><td>45.704</td><td>1.604</td><td>0.1</td><td>11.4</td><td>O K</td></tr><tr><td>10080 min Summer</td><td>45.601</td><td>1.501</td><td>0.1</td><td>10.7</td><td>O K</td></tr><tr><td>15 min Winter</td><td>45.226</td><td>1.126</td><td>0.1</td><td>8.0</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>15 min Summer</td><td>128.285</td><td>0.0</td><td>19</td></tr><tr><td>30 min Summer</td><td>84.226</td><td>0.0</td><td>34</td></tr><tr><td>60 min Summer</td><td>52.662</td><td>0.0</td><td>64</td></tr><tr><td>120 min Summer</td><td>31.800</td><td>0.0</td><td>124</td></tr><tr><td>180 min Summer</td><td>23.353</td><td>0.0</td><td>182</td></tr><tr><td>240 min Summer</td><td>18.644</td><td>0.0</td><td>242</td></tr><tr><td>360 min Summer</td><td>13.543</td><td>0.0</td><td>362</td></tr><tr><td>480 min Summer</td><td>10.792</td><td>0.0</td><td>480</td></tr><tr><td>600 min Summer</td><td>9.043</td><td>0.0</td><td>600</td></tr><tr><td>720 min Summer</td><td>7.823</td><td>0.0</td><td>656</td></tr><tr><td>960 min Summer</td><td>6.219</td><td>0.0</td><td>762</td></tr><tr><td>1440 min Summer</td><td>4.493</td><td>0.0</td><td>1022</td></tr><tr><td>2160 min Summer</td><td>3.241</td><td>0.0</td><td>1428</td></tr><tr><td>2880 min Summer</td><td>2.568</td><td>0.0</td><td>1844</td></tr><tr><td>4320 min Summer</td><td>1.847</td><td>0.0</td><td>2676</td></tr><tr><td>5760 min Summer</td><td>1.461</td><td>0.0</td><td>3464</td></tr><tr><td>7200 min Summer</td><td>1.217</td><td>0.0</td><td>4248</td></tr><tr><td>8640 min Summer</td><td>1.048</td><td>0.0</td><td>5016</td></tr><tr><td>10080 min Summer</td><td>0.923</td><td>0.0</td><td>5752</td></tr><tr><td>15 min Winter</td><td>128.285</td><td>0.0</td><td>19</td></tr></tbody></table>						Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status	15 min Summer	45.105	1.005	0.1	7.2	O K	30 min Summer	45.412	1.312	0.1	9.4	O K	60 min Summer	45.724	1.624	0.1	11.6	O K	120 min Summer	46.021	1.921	0.2	13.7	O K	180 min Summer	46.173	2.073	0.2	14.8	O K	240 min Summer	46.263	2.163	0.2	15.4	O K	360 min Summer	46.364	2.264	0.2	16.1	O K	480 min Summer	46.413	2.313	0.2	16.5	O K	600 min Summer	46.429	2.329	0.2	16.6	O K	720 min Summer	46.432	2.332	0.2	16.6	O K	960 min Summer	46.433	2.333	0.2	16.6	O K	1440 min Summer	46.415	2.315	0.2	16.5	O K	2160 min Summer	46.353	2.253	0.2	16.1	O K	2880 min Summer	46.274	2.174	0.2	15.5	O K	4320 min Summer	46.108	2.008	0.2	14.3	O K	5760 min Summer	45.956	1.856	0.1	13.2	O K	7200 min Summer	45.822	1.722	0.1	12.3	O K	8640 min Summer	45.704	1.604	0.1	11.4	O K	10080 min Summer	45.601	1.501	0.1	10.7	O K	15 min Winter	45.226	1.126	0.1	8.0	O K	Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)	15 min Summer	128.285	0.0	19	30 min Summer	84.226	0.0	34	60 min Summer	52.662	0.0	64	120 min Summer	31.800	0.0	124	180 min Summer	23.353	0.0	182	240 min Summer	18.644	0.0	242	360 min Summer	13.543	0.0	362	480 min Summer	10.792	0.0	480	600 min Summer	9.043	0.0	600	720 min Summer	7.823	0.0	656	960 min Summer	6.219	0.0	762	1440 min Summer	4.493	0.0	1022	2160 min Summer	3.241	0.0	1428	2880 min Summer	2.568	0.0	1844	4320 min Summer	1.847	0.0	2676	5760 min Summer	1.461	0.0	3464	7200 min Summer	1.217	0.0	4248	8640 min Summer	1.048	0.0	5016	10080 min Summer	0.923	0.0	5752	15 min Winter	128.285	0.0	19
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The Stables Woodbury Lane, Norton Worcester WR5 2PT		CAVERSHAM 4 PLOTS CELLULAR SOAKAWAY 13-054 / 600			
Date 10/01/2018 11:09 File Trench soakaway 15000x5...		Designed by SCH Checked by			
Micro Drainage		Source Control 2017.1			
<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
30 min Winter	45.571	1.471	0.1	10.5	O K
60 min Winter	45.920	1.820	0.1	13.0	O K
120 min Winter	46.255	2.155	0.2	15.4	O K
180 min Winter	46.429	2.329	0.2	16.6	O K
240 min Winter	46.531	2.431	0.2	17.3	O K
360 min Winter	46.651	2.551	0.2	18.2	O K
480 min Winter	46.712	2.612	0.2	18.6	O K
600 min Winter	46.739	2.639	0.2	18.8	O K
720 min Winter	46.745	2.645	0.2	18.8	O K
960 min Winter	46.728	2.628	0.2	18.7	O K
1440 min Winter	46.694	2.594	0.2	18.5	O K
2160 min Winter	46.589	2.489	0.2	17.7	O K
2880 min Winter	46.466	2.366	0.2	16.9	O K
4320 min Winter	46.225	2.125	0.2	15.1	O K
5760 min Winter	46.015	1.915	0.2	13.6	O K
7200 min Winter	45.837	1.737	0.1	12.4	O K
8640 min Winter	45.685	1.585	0.1	11.3	O K
10080 min Winter	45.555	1.455	0.1	10.4	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
30 min Winter	84.226	0.0	33		
60 min Winter	52.662	0.0	62		
120 min Winter	31.800	0.0	122		
180 min Winter	23.353	0.0	180		
240 min Winter	18.644	0.0	238		
360 min Winter	13.543	0.0	352		
480 min Winter	10.792	0.0	466		
600 min Winter	9.043	0.0	576		
720 min Winter	7.823	0.0	680		
960 min Winter	6.219	0.0	782		
1440 min Winter	4.493	0.0	1082		
2160 min Winter	3.241	0.0	1536		
2880 min Winter	2.568	0.0	1988		
4320 min Winter	1.847	0.0	2852		
5760 min Winter	1.461	0.0	3688		
7200 min Winter	1.217	0.0	4472		
8640 min Winter	1.048	0.0	5272		
10080 min Winter	0.923	0.0	6048		
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The Stables Woodbury Lane, Norton Worcester WR5 2PT	CAVERSHAM 4 PLOTS CELLULAR SOAKAWAY 13-054 / 600	
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Micro Drainage		Source Control 2017.1

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)	20.000	Shortest Storm (mins)	15
Ratio R	0.400	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+30

Time Area Diagram

Total Area (ha) 0.030

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

0	4 0.030
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<u>Model Details</u> Storage is Online Cover Level (m) 47.080 <u>Trench Soakaway Structure</u> <table> <tr> <td>Infiltration Coefficient Base (m/hr)</td> <td>0.01620</td> <td>Trench Width (m)</td> <td>0.5</td> </tr> <tr> <td>Infiltration Coefficient Side (m/hr)</td> <td>0.01620</td> <td>Trench Length (m)</td> <td>15.0</td> </tr> <tr> <td>Safety Factor</td> <td>2.0</td> <td>Slope (1:X)</td> <td>0.0</td> </tr> <tr> <td>Porosity</td> <td>0.95</td> <td>Cap Volume Depth (m)</td> <td>0.000</td> </tr> <tr> <td>Invert Level (m)</td> <td>44.100</td> <td>Cap Infiltration Depth (m)</td> <td>0.000</td> </tr> </table>			Infiltration Coefficient Base (m/hr)	0.01620	Trench Width (m)	0.5	Infiltration Coefficient Side (m/hr)	0.01620	Trench Length (m)	15.0	Safety Factor	2.0	Slope (1:X)	0.0	Porosity	0.95	Cap Volume Depth (m)	0.000	Invert Level (m)	44.100	Cap Infiltration Depth (m)	0.000
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