

Robert Clark Associates					Page 1																																																																																																																																																																																																																			
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Summary of Results for 100 year Return Period (+30%) Half Drain Time : 129 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>0.211</td><td>0.211</td><td>0.2</td><td>1.4</td><td>0 K</td></tr><tr><td>30 min Summer</td><td>0.272</td><td>0.272</td><td>0.2</td><td>1.8</td><td>0 K</td></tr><tr><td>60 min Summer</td><td>0.322</td><td>0.322</td><td>0.2</td><td>2.1</td><td>0 K</td></tr><tr><td>120 min Summer</td><td>0.345</td><td>0.345</td><td>0.2</td><td>2.3</td><td>0 K</td></tr><tr><td>180 min Summer</td><td>0.347</td><td>0.347</td><td>0.2</td><td>2.3</td><td>0 K</td></tr><tr><td>240 min Summer</td><td>0.340</td><td>0.340</td><td>0.2</td><td>2.3</td><td>0 K</td></tr><tr><td>360 min Summer</td><td>0.322</td><td>0.322</td><td>0.2</td><td>2.1</td><td>0 K</td></tr><tr><td>480 min Summer</td><td>0.303</td><td>0.303</td><td>0.2</td><td>2.0</td><td>0 K</td></tr><tr><td>600 min Summer</td><td>0.284</td><td>0.284</td><td>0.2</td><td>1.9</td><td>0 K</td></tr><tr><td>720 min Summer</td><td>0.265</td><td>0.265</td><td>0.2</td><td>1.8</td><td>0 K</td></tr><tr><td>960 min Summer</td><td>0.231</td><td>0.231</td><td>0.2</td><td>1.5</td><td>0 K</td></tr><tr><td>1440 min Summer</td><td>0.176</td><td>0.176</td><td>0.2</td><td>1.2</td><td>0 K</td></tr><tr><td>2160 min Summer</td><td>0.115</td><td>0.115</td><td>0.1</td><td>0.8</td><td>0 K</td></tr><tr><td>2880 min Summer</td><td>0.076</td><td>0.076</td><td>0.1</td><td>0.5</td><td>0 K</td></tr><tr><td>4320 min Summer</td><td>0.046</td><td>0.046</td><td>0.1</td><td>0.3</td><td>0 K</td></tr><tr><td>5760 min Summer</td><td>0.037</td><td>0.037</td><td>0.1</td><td>0.2</td><td>0 K</td></tr><tr><td>7200 min Summer</td><td>0.031</td><td>0.031</td><td>0.1</td><td>0.2</td><td>0 K</td></tr><tr><td>8640 min Summer</td><td>0.027</td><td>0.027</td><td>0.1</td><td>0.2</td><td>0 K</td></tr><tr><td>10080 min Summer</td><td>0.024</td><td>0.024</td><td>0.1</td><td>0.2</td><td>0 K</td></tr><tr><td>15 min Winter</td><td>0.238</td><td>0.238</td><td>0.2</td><td>1.6</td><td>0 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>115.731</td><td>0.0</td><td>18</td></tr><tr><td>30 min Summer</td><td>77.804</td><td>0.0</td><td>32</td></tr><tr><td>60 min Summer</td><td>49.937</td><td>0.0</td><td>60</td></tr><tr><td>120 min Summer</td><td>30.956</td><td>0.0</td><td>100</td></tr><tr><td>180 min Summer</td><td>23.058</td><td>0.0</td><td>132</td></tr><tr><td>240 min Summer</td><td>18.577</td><td>0.0</td><td>166</td></tr><tr><td>360 min Summer</td><td>13.656</td><td>0.0</td><td>236</td></tr><tr><td>480 min Summer</td><td>10.974</td><td>0.0</td><td>304</td></tr><tr><td>600 min Summer</td><td>9.254</td><td>0.0</td><td>372</td></tr><tr><td>720 min Summer</td><td>8.046</td><td>0.0</td><td>440</td></tr><tr><td>960 min Summer</td><td>6.447</td><td>0.0</td><td>568</td></tr><tr><td>1440 min Summer</td><td>4.709</td><td>0.0</td><td>822</td></tr><tr><td>2160 min Summer</td><td>3.432</td><td>0.0</td><td>1172</td></tr><tr><td>2880 min Summer</td><td>2.739</td><td>0.0</td><td>1528</td></tr><tr><td>4320 min Summer</td><td>1.989</td><td>0.0</td><td>2204</td></tr><tr><td>5760 min Summer</td><td>1.583</td><td>0.0</td><td>2936</td></tr><tr><td>7200 min Summer</td><td>1.325</td><td>0.0</td><td>3672</td></tr><tr><td>8640 min Summer</td><td>1.147</td><td>0.0</td><td>4408</td></tr><tr><td>10080 min Summer</td><td>1.015</td><td>0.0</td><td>5136</td></tr><tr><td>15 min Winter</td><td>115.731</td><td>0.0</td><td>18</td></tr></tbody></table>							Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status	15 min Summer	0.211	0.211	0.2	1.4	0 K	30 min Summer	0.272	0.272	0.2	1.8	0 K	60 min Summer	0.322	0.322	0.2	2.1	0 K	120 min Summer	0.345	0.345	0.2	2.3	0 K	180 min Summer	0.347	0.347	0.2	2.3	0 K	240 min Summer	0.340	0.340	0.2	2.3	0 K	360 min Summer	0.322	0.322	0.2	2.1	0 K	480 min Summer	0.303	0.303	0.2	2.0	0 K	600 min Summer	0.284	0.284	0.2	1.9	0 K	720 min Summer	0.265	0.265	0.2	1.8	0 K	960 min Summer	0.231	0.231	0.2	1.5	0 K	1440 min Summer	0.176	0.176	0.2	1.2	0 K	2160 min Summer	0.115	0.115	0.1	0.8	0 K	2880 min Summer	0.076	0.076	0.1	0.5	0 K	4320 min Summer	0.046	0.046	0.1	0.3	0 K	5760 min Summer	0.037	0.037	0.1	0.2	0 K	7200 min Summer	0.031	0.031	0.1	0.2	0 K	8640 min Summer	0.027	0.027	0.1	0.2	0 K	10080 min Summer	0.024	0.024	0.1	0.2	0 K	15 min Winter	0.238	0.238	0.2	1.6	0 K	Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)	15 min Summer	115.731	0.0	18	30 min Summer	77.804	0.0	32	60 min Summer	49.937	0.0	60	120 min Summer	30.956	0.0	100	180 min Summer	23.058	0.0	132	240 min Summer	18.577	0.0	166	360 min 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Date 25.1.18 File Geocell-front.SRCX	Designed by RTFC Checked by	
Micro Drainage	Source Control 2016.1	

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
30 min Winter	0.308	0.308	0.2	2.0	0 K
60 min Winter	0.367	0.367	0.2	2.4	0 K
120 min Winter	0.396	0.396	0.2	2.6	0 K
180 min Winter	0.396	0.396	0.2	2.6	0 K
240 min Winter	0.386	0.386	0.2	2.6	0 K
360 min Winter	0.359	0.359	0.2	2.4	0 K
480 min Winter	0.329	0.329	0.2	2.2	0 K
600 min Winter	0.300	0.300	0.2	2.0	0 K
720 min Winter	0.273	0.273	0.2	1.8	0 K
960 min Winter	0.224	0.224	0.2	1.5	0 K
1440 min Winter	0.148	0.148	0.1	1.0	0 K
2160 min Winter	0.072	0.072	0.1	0.5	0 K
2880 min Winter	0.046	0.046	0.1	0.3	0 K
4320 min Winter	0.034	0.034	0.1	0.2	0 K
5760 min Winter	0.027	0.027	0.1	0.2	0 K
7200 min Winter	0.023	0.023	0.1	0.1	0 K
8640 min Winter	0.020	0.020	0.0	0.1	0 K
10080 min Winter	0.017	0.017	0.0	0.1	0 K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
30 min Winter	77.804	0.0	32
60 min Winter	49.937	0.0	60
120 min Winter	30.956	0.0	112
180 min Winter	23.058	0.0	140
240 min Winter	18.577	0.0	180
360 min Winter	13.656	0.0	256
480 min Winter	10.974	0.0	328
600 min Winter	9.254	0.0	400
720 min Winter	8.046	0.0	470
960 min Winter	6.447	0.0	606
1440 min Winter	4.709	0.0	854
2160 min Winter	3.432	0.0	1192
2880 min Winter	2.739	0.0	1472
4320 min Winter	1.989	0.0	2204
5760 min Winter	1.583	0.0	2944
7200 min Winter	1.325	0.0	3672
8640 min Winter	1.147	0.0	4400
10080 min Winter	1.015	0.0	5136

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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) 0.007 <table> <tr> <th colspan="2">Time (mins)</th> <th>Area</th> </tr> <tr> <th>From:</th> <th>To:</th> <th>(ha)</th> </tr> <tr> <td>0</td> <td>4</td> <td>0.007</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	0.007
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<u>Model Details</u> Storage is Online Cover Level (m) 1.000 <u>Cellular Storage Structure</u> Invert Level (m) 0.000 Infiltration Coefficient Base (m/hr) 0.08406 Infiltration Coefficient Side (m/hr) 0.08406 Safety Factor 1.5 Porosity 0.95 <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Depth (m)</th> <th>Area (m²)</th> <th>Inf. Area (m²)</th> <th>Depth (m)</th> <th>Area (m²)</th> <th>Inf. Area (m²)</th> </tr> </thead> <tbody> <tr> <td>0.000</td> <td>7.0</td> <td>7.0</td> <td>0.500</td> <td>0.0</td> <td>13.4</td> </tr> <tr> <td>0.400</td> <td>7.0</td> <td>13.4</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>			Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)	0.000	7.0	7.0	0.500	0.0	13.4	0.400	7.0	13.4			
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