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Tufthorn Avenue Coleford GL16 8PR			155 Middleton Lane West Sussex Aquaflow Design rev A																																																																																																																																																																																																																																																																																																		
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<u>Summary of Results for 100 year Return Period (+40%)</u> Half Drain Time : 26 minutes. <table><tr><th>Storm Event</th><th>Max Level (m)</th><th>Max Depth (m)</th><th>Max Infiltration (l/s)</th><th>Max Control (l/s)</th><th>Max Outflow (l/s)</th><th>Max Volume (m³)</th><th>Status</th></tr><tr><td>15 min Summer</td><td>19.655</td><td>0.165</td><td>0.0</td><td>5.7</td><td>5.7</td><td>11.5</td><td>0 K</td></tr><tr><td>30 min Summer</td><td>19.690</td><td>0.200</td><td>0.0</td><td>6.8</td><td>6.8</td><td>13.9</td><td>0 K</td></tr><tr><td>60 min Summer</td><td>19.714</td><td>0.224</td><td>0.0</td><td>7.4</td><td>7.4</td><td>15.5</td><td>0 K</td></tr><tr><td>120 min Summer</td><td>19.714</td><td>0.224</td><td>0.0</td><td>7.4</td><td>7.4</td><td>15.5</td><td>0 K</td></tr><tr><td>180 min Summer</td><td>19.699</td><td>0.209</td><td>0.0</td><td>7.0</td><td>7.0</td><td>14.5</td><td>0 K</td></tr><tr><td>240 min Summer</td><td>19.683</td><td>0.193</td><td>0.0</td><td>6.6</td><td>6.6</td><td>13.4</td><td>0 K</td></tr><tr><td>360 min Summer</td><td>19.658</td><td>0.168</td><td>0.0</td><td>5.8</td><td>5.8</td><td>11.7</td><td>0 K</td></tr><tr><td>480 min Summer</td><td>19.643</td><td>0.153</td><td>0.0</td><td>5.1</td><td>5.1</td><td>10.6</td><td>0 K</td></tr><tr><td>600 min Summer</td><td>19.632</td><td>0.142</td><td>0.0</td><td>4.5</td><td>4.5</td><td>9.9</td><td>0 K</td></tr><tr><td>720 min Summer</td><td>19.625</td><td>0.135</td><td>0.0</td><td>4.0</td><td>4.0</td><td>9.3</td><td>0 K</td></tr><tr><td>960 min Summer</td><td>19.613</td><td>0.123</td><td>0.0</td><td>3.3</td><td>3.3</td><td>8.5</td><td>0 K</td></tr><tr><td>1440 min Summer</td><td>19.598</td><td>0.108</td><td>0.0</td><td>2.5</td><td>2.5</td><td>7.5</td><td>0 K</td></tr><tr><td>2160 min Summer</td><td>19.584</td><td>0.094</td><td>0.0</td><td>1.9</td><td>1.9</td><td>6.5</td><td>0 K</td></tr><tr><td>2880 min Summer</td><td>19.576</td><td>0.086</td><td>0.0</td><td>1.5</td><td>1.5</td><td>6.0</td><td>0 K</td></tr><tr><td>4320 min Summer</td><td>19.569</td><td>0.079</td><td>0.0</td><td>1.1</td><td>1.1</td><td>5.5</td><td>0 K</td></tr><tr><td>5760 min Summer</td><td>19.564</td><td>0.074</td><td>0.0</td><td>0.9</td><td>0.9</td><td>5.1</td><td>0 K</td></tr><tr><td>7200 min Summer</td><td>19.560</td><td>0.070</td><td>0.0</td><td>0.7</td><td>0.7</td><td>4.8</td><td>0 K</td></tr><tr><td>8640 min Summer</td><td>19.557</td><td>0.067</td><td>0.0</td><td>0.6</td><td>0.6</td><td>4.6</td><td>0 K</td></tr><tr><td>10080 min Summer</td><td>19.555</td><td>0.065</td><td>0.0</td><td>0.6</td><td>0.6</td><td>4.5</td><td>0 K</td></tr><tr><td>15 min Winter</td><td>19.677</td><td>0.187</td><td>0.0</td><td>6.4</td><td>6.4</td><td>12.9</td><td>0 K</td></tr><tr><td>30 min Winter</td><td>19.714</td><td>0.224</td><td>0.0</td><td>7.4</td><td>7.4</td><td>15.5</td><td>0 K</td></tr></table> <table><tr><th>Storm Event</th><th>Rain (mm/hr)</th><th>Flooded Volume (m³)</th><th>Discharge Volume (m³)</th><th>Time-Peak (mins)</th></tr><tr><td>15 min Summer</td><td>124.633</td><td>0.0</td><td>11.6</td><td>16</td></tr><tr><td>30 min Summer</td><td>83.789</td><td>0.0</td><td>16.8</td><td>24</td></tr><tr><td>60 min Summer</td><td>53.779</td><td>0.0</td><td>22.5</td><td>40</td></tr><tr><td>120 min Summer</td><td>33.337</td><td>0.0</td><td>28.7</td><td>74</td></tr><tr><td>180 min Summer</td><td>24.832</td><td>0.0</td><td>32.4</td><td>106</td></tr><tr><td>240 min Summer</td><td>20.006</td><td>0.0</td><td>35.0</td><td>136</td></tr><tr><td>360 min Summer</td><td>14.706</td><td>0.0</td><td>38.9</td><td>196</td></tr><tr><td>480 min Summer</td><td>11.818</td><td>0.0</td><td>41.9</td><td>254</td></tr><tr><td>600 min Summer</td><td>9.966</td><td>0.0</td><td>44.3</td><td>314</td></tr><tr><td>720 min Summer</td><td>8.665</td><td>0.0</td><td>46.3</td><td>376</td></tr><tr><td>960 min Summer</td><td>6.943</td><td>0.0</td><td>49.6</td><td>494</td></tr><tr><td>1440 min Summer</td><td>5.071</td><td>0.0</td><td>54.4</td><td>738</td></tr><tr><td>2160 min Summer</td><td>3.696</td><td>0.0</td><td>59.6</td><td>1104</td></tr><tr><td>2880 min Summer</td><td>2.949</td><td>0.0</td><td>63.3</td><td>1468</td></tr><tr><td>4320 min Summer</td><td>2.142</td><td>0.0</td><td>68.6</td><td>2200</td></tr><tr><td>5760 min Summer</td><td>1.705</td><td>0.0</td><td>72.5</td><td>2936</td></tr><tr><td>7200 min Summer</td><td>1.427</td><td>0.0</td><td>75.5</td><td>3672</td></tr><tr><td>8640 min Summer</td><td>1.235</td><td>0.0</td><td>77.9</td><td>4360</td></tr><tr><td>10080 min Summer</td><td>1.093</td><td>0.0</td><td>80.0</td><td>5128</td></tr><tr><td>15 min Winter</td><td>124.633</td><td>0.0</td><td>13.4</td><td>16</td></tr><tr><td>30 min Winter</td><td>83.789</td><td>0.0</td><td>19.2</td><td>25</td></tr></table>								Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Outflow (l/s)	Max Volume (m³)	Status	15 min Summer	19.655	0.165	0.0	5.7	5.7	11.5	0 K	30 min Summer	19.690	0.200	0.0	6.8	6.8	13.9	0 K	60 min Summer	19.714	0.224	0.0	7.4	7.4	15.5	0 K	120 min Summer	19.714	0.224	0.0	7.4	7.4	15.5	0 K	180 min Summer	19.699	0.209	0.0	7.0	7.0	14.5	0 K	240 min Summer	19.683	0.193	0.0	6.6	6.6	13.4	0 K	360 min Summer	19.658	0.168	0.0	5.8	5.8	11.7	0 K	480 min Summer	19.643	0.153	0.0	5.1	5.1	10.6	0 K	600 min Summer	19.632	0.142	0.0	4.5	4.5	9.9	0 K	720 min Summer	19.625	0.135	0.0	4.0	4.0	9.3	0 K	960 min Summer	19.613	0.123	0.0	3.3	3.3	8.5	0 K	1440 min Summer	19.598	0.108	0.0	2.5	2.5	7.5	0 K	2160 min Summer	19.584	0.094	0.0	1.9	1.9	6.5	0 K	2880 min Summer	19.576	0.086	0.0	1.5	1.5	6.0	0 K	4320 min Summer	19.569	0.079	0.0	1.1	1.1	5.5	0 K	5760 min Summer	19.564	0.074	0.0	0.9	0.9	5.1	0 K	7200 min Summer	19.560	0.070	0.0	0.7	0.7	4.8	0 K	8640 min Summer	19.557	0.067	0.0	0.6	0.6	4.6	0 K	10080 min Summer	19.555	0.065	0.0	0.6	0.6	4.5	0 K	15 min Winter	19.677	0.187	0.0	6.4	6.4	12.9	0 K	30 min Winter	19.714	0.224	0.0	7.4	7.4	15.5	0 K	Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)	15 min Summer	124.633	0.0	11.6	16	30 min Summer	83.789	0.0	16.8	24	60 min Summer	53.779	0.0	22.5	40	120 min Summer	33.337	0.0	28.7	74	180 min Summer	24.832	0.0	32.4	106	240 min Summer	20.006	0.0	35.0	136	360 min Summer	14.706	0.0	38.9	196	480 min Summer	11.818	0.0	41.9	254	600 min Summer	9.966	0.0	44.3	314	720 min Summer	8.665	0.0	46.3	376	960 min Summer	6.943	0.0	49.6	494	1440 min Summer	5.071	0.0	54.4	738	2160 min Summer	3.696	0.0	59.6	1104	2880 min Summer	2.949	0.0	63.3	1468	4320 min Summer	2.142	0.0	68.6	2200	5760 min Summer	1.705	0.0	72.5	2936	7200 min Summer	1.427	0.0	75.5	3672	8640 min Summer	1.235	0.0	77.9	4360	10080 min Summer	1.093	0.0	80.0	5128	15 min Winter	124.633	0.0	13.4	16	30 min Winter	83.789	0.0	19.2	25
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Outflow (l/s)	Max Volume (m³)	Status																																																																																																																																																																																																																																																																																														
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2160 min Summer	19.584	0.094	0.0	1.9	1.9	6.5	0 K																																																																																																																																																																																																																																																																																														
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Date 15.12.2017 File FSC3933-Aquaflow Desig...		Designed by TU Checked by NB					
XP Solutions		Source Control 2015.2					
Summary of Results for 100 year Return Period (+40%)							
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Outflow (l/s)	Max Volume (m³)	Status
60 min Winter	19.732	0.242	0.0	7.9	7.9	16.8	0 K
120 min Winter	19.716	0.226	0.0	7.5	7.5	15.7	0 K
180 min Winter	19.691	0.201	0.0	6.8	6.8	13.9	0 K
240 min Winter	19.669	0.179	0.0	6.2	6.2	12.4	0 K
360 min Winter	19.642	0.152	0.0	5.1	5.1	10.5	0 K
480 min Winter	19.628	0.138	0.0	4.2	4.2	9.5	0 K
600 min Winter	19.618	0.128	0.0	3.6	3.6	8.8	0 K
720 min Winter	19.610	0.120	0.0	3.2	3.2	8.3	0 K
960 min Winter	19.599	0.109	0.0	2.5	2.5	7.6	0 K
1440 min Winter	19.584	0.094	0.0	1.9	1.9	6.5	0 K
2160 min Winter	19.574	0.084	0.0	1.4	1.4	5.8	0 K
2880 min Winter	19.569	0.079	0.0	1.1	1.1	5.5	0 K
4320 min Winter	19.562	0.072	0.0	0.8	0.8	5.0	0 K
5760 min Winter	19.557	0.067	0.0	0.6	0.6	4.6	0 K
7200 min Winter	19.554	0.064	0.0	0.5	0.5	4.4	0 K
8640 min Winter	19.551	0.061	0.0	0.5	0.5	4.2	0 K
10080 min Winter	19.549	0.059	0.0	0.4	0.4	4.1	0 K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)			
60 min Winter	53.779	0.0	25.6	44			
120 min Winter	33.337	0.0	32.5	78			
180 min Winter	24.832	0.0	36.7	110			
240 min Winter	20.006	0.0	39.6	140			
360 min Winter	14.706	0.0	44.0	198			
480 min Winter	11.818	0.0	47.3	258			
600 min Winter	9.966	0.0	50.0	320			
720 min Winter	8.665	0.0	52.3	378			
960 min Winter	6.943	0.0	56.0	504			
1440 min Winter	5.071	0.0	61.4	750			
2160 min Winter	3.696	0.0	67.2	1104			
2880 min Winter	2.949	0.0	71.4	1472			
4320 min Winter	2.142	0.0	77.5	2196			
5760 min Winter	1.705	0.0	81.9	2896			
7200 min Winter	1.427	0.0	85.3	3608			
8640 min Winter	1.235	0.0	88.2	4408			
10080 min Winter	1.093	0.0	90.6	5144			
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XP Solutions Source Control 2015.2		

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 %	+40

Time Area Diagram

Total Area (ha) 0.064

Time (mins)		Area
From:	To:	(ha)
0	4	0.064

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Tufthorn Avenue Coleford GL16 8PR	155 Middleton Lane West Sussex Aquaflow Design rev A																																									
Date 15.12.2017 File FSC3933-Aquaflow Desig...	Designed by TU Checked by NB																																									
XP Solutions Source Control 2015.2																																										
<u>Model Details</u> Storage is Online Cover Level (m) 20.000 <u>Porous Car Park Structure</u> <table> <tr> <td>Infiltration Coefficient Base (m/hr)</td> <td>0.00000</td> <td>Width (m)</td> <td>15.2</td> </tr> <tr> <td>Membrane Percolation (mm/hr)</td> <td>4500</td> <td>Length (m)</td> <td>15.2</td> </tr> <tr> <td>Max Percolation (l/s)</td> <td>288.8</td> <td>Slope (1:X)</td> <td>100000.0</td> </tr> <tr> <td>Safety Factor</td> <td>2.0</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>19.490</td> <td>Membrane Depth (m)</td> <td>0</td> </tr> </table> <u>Pipe Outflow Control</u> <table> <tr> <td>Diameter (m)</td> <td>0.100</td> <td>Entry Loss Coefficient</td> <td>0.500</td> </tr> <tr> <td>Slope (1:X)</td> <td>100.0</td> <td>Coefficient of Contraction</td> <td>0.600</td> </tr> <tr> <td>Length (m)</td> <td>5.000</td> <td>Upstream Invert Level (m)</td> <td>19.520</td> </tr> <tr> <td>Roughness k (mm)</td> <td>0.600</td> <td></td> <td></td> </tr> </table>			Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	15.2	Membrane Percolation (mm/hr)	4500	Length (m)	15.2	Max Percolation (l/s)	288.8	Slope (1:X)	100000.0	Safety Factor	2.0	Depression Storage (mm)	5	Porosity	0.30	Evaporation (mm/day)	3	Invert Level (m)	19.490	Membrane Depth (m)	0	Diameter (m)	0.100	Entry Loss Coefficient	0.500	Slope (1:X)	100.0	Coefficient of Contraction	0.600	Length (m)	5.000	Upstream Invert Level (m)	19.520	Roughness k (mm)	0.600		
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