

HBL Associates		Page 1																																																																																																																																																																																																																																																																																		
Brook House Weybrook Road Stockport, M19 2QD		8796 Nell Lane, Chorlton Infiltration Tank Model																																																																																																																																																																																																																																																																																		
Date 01/04/2021 File SW ATTENUATION TANK CHE...		Designed by Adam Prince Checked by																																																																																																																																																																																																																																																																																		
Innovyze		Source Control 2018.1.1																																																																																																																																																																																																																																																																																		
Summary of Results for 100 year Return Period (+40%) Half Drain Time : 455 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 Σ Outflow (l/s)</th><th>Max Volume (m³)</th><th>Status</th></tr><tr><td>15 min Summer</td><td>97.420</td><td>0.420</td><td>1.0</td><td>0.0</td><td>1.0</td><td>25.2</td><td>O K</td></tr><tr><td>30 min Summer</td><td>97.544</td><td>0.544</td><td>1.0</td><td>0.0</td><td>1.0</td><td>32.6</td><td>O K</td></tr><tr><td>60 min Summer</td><td>97.664</td><td>0.664</td><td>1.1</td><td>0.0</td><td>1.1</td><td>39.8</td><td>O K</td></tr><tr><td>120 min Summer</td><td>97.767</td><td>0.767</td><td>1.1</td><td>0.0</td><td>1.1</td><td>46.0</td><td>O K</td></tr><tr><td>180 min Summer</td><td>97.809</td><td>0.809</td><td>1.1</td><td>0.0</td><td>1.1</td><td>48.5</td><td>O K</td></tr><tr><td>240 min Summer</td><td>97.824</td><td>0.824</td><td>1.1</td><td>0.0</td><td>1.1</td><td>49.5</td><td>O K</td></tr><tr><td>360 min Summer</td><td>97.818</td><td>0.818</td><td>1.1</td><td>0.0</td><td>1.1</td><td>49.1</td><td>O K</td></tr><tr><td>480 min Summer</td><td>97.798</td><td>0.798</td><td>1.1</td><td>0.0</td><td>1.1</td><td>47.9</td><td>O K</td></tr><tr><td>600 min Summer</td><td>97.776</td><td>0.776</td><td>1.1</td><td>0.0</td><td>1.1</td><td>46.6</td><td>O K</td></tr><tr><td>720 min Summer</td><td>97.756</td><td>0.756</td><td>1.1</td><td>0.0</td><td>1.1</td><td>45.4</td><td>O K</td></tr><tr><td>960 min Summer</td><td>97.718</td><td>0.718</td><td>1.1</td><td>0.0</td><td>1.1</td><td>43.1</td><td>O K</td></tr><tr><td>1440 min Summer</td><td>97.647</td><td>0.647</td><td>1.1</td><td>0.0</td><td>1.1</td><td>38.8</td><td>O K</td></tr><tr><td>2160 min Summer</td><td>97.550</td><td>0.550</td><td>1.0</td><td>0.0</td><td>1.0</td><td>33.0</td><td>O K</td></tr><tr><td>2880 min Summer</td><td>97.463</td><td>0.463</td><td>1.0</td><td>0.0</td><td>1.0</td><td>27.8</td><td>O K</td></tr><tr><td>4320 min Summer</td><td>97.318</td><td>0.318</td><td>0.9</td><td>0.0</td><td>0.9</td><td>19.1</td><td>O K</td></tr><tr><td>5760 min Summer</td><td>97.210</td><td>0.210</td><td>0.9</td><td>0.0</td><td>0.9</td><td>12.6</td><td>O K</td></tr><tr><td>7200 min Summer</td><td>97.131</td><td>0.131</td><td>0.9</td><td>0.0</td><td>0.9</td><td>7.9</td><td>O K</td></tr><tr><td>8640 min Summer</td><td>97.081</td><td>0.081</td><td>0.8</td><td>0.0</td><td>0.8</td><td>4.8</td><td>O K</td></tr><tr><td>10080 min Summer</td><td>97.053</td><td>0.053</td><td>0.8</td><td>0.0</td><td>0.8</td><td>3.2</td><td>O K</td></tr><tr><td>15 min Winter</td><td>97.471</td><td>0.471</td><td>1.0</td><td>0.0</td><td>1.0</td><td>28.3</td><td>O 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>115.584</td><td>0.0</td><td>26.0</td><td>19</td></tr><tr><td>30 min Summer</td><td>76.054</td><td>0.0</td><td>34.2</td><td>33</td></tr><tr><td>60 min Summer</td><td>47.821</td><td>0.0</td><td>43.0</td><td>62</td></tr><tr><td>120 min Summer</td><td>29.168</td><td>0.0</td><td>52.5</td><td>122</td></tr><tr><td>180 min Summer</td><td>21.604</td><td>0.0</td><td>58.3</td><td>182</td></tr><tr><td>240 min Summer</td><td>17.380</td><td>0.0</td><td>62.5</td><td>240</td></tr><tr><td>360 min Summer</td><td>12.705</td><td>0.0</td><td>68.6</td><td>338</td></tr><tr><td>480 min Summer</td><td>10.119</td><td>0.0</td><td>72.8</td><td>392</td></tr><tr><td>600 min Summer</td><td>8.477</td><td>0.0</td><td>76.3</td><td>454</td></tr><tr><td>720 min Summer</td><td>7.340</td><td>0.0</td><td>79.2</td><td>520</td></tr><tr><td>960 min Summer</td><td>5.844</td><td>0.0</td><td>84.1</td><td>656</td></tr><tr><td>1440 min Summer</td><td>4.232</td><td>0.0</td><td>91.4</td><td>926</td></tr><tr><td>2160 min Summer</td><td>3.059</td><td>0.0</td><td>99.1</td><td>1340</td></tr><tr><td>2880 min Summer</td><td>2.428</td><td>0.0</td><td>104.9</td><td>1728</td></tr><tr><td>4320 min Summer</td><td>1.751</td><td>0.0</td><td>113.4</td><td>2468</td></tr><tr><td>5760 min Summer</td><td>1.387</td><td>0.0</td><td>119.8</td><td>3176</td></tr><tr><td>7200 min Summer</td><td>1.157</td><td>0.0</td><td>124.9</td><td>3888</td></tr><tr><td>8640 min Summer</td><td>0.998</td><td>0.0</td><td>129.3</td><td>4496</td></tr><tr><td>10080 min Summer</td><td>0.880</td><td>0.0</td><td>133.0</td><td>5144</td></tr><tr><td>15 min Winter</td><td>115.584</td><td>0.0</td><td>29.1</td><td>18</td></tr></table>				Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status	15 min Summer	97.420	0.420	1.0	0.0	1.0	25.2	O K	30 min Summer	97.544	0.544	1.0	0.0	1.0	32.6	O K	60 min Summer	97.664	0.664	1.1	0.0	1.1	39.8	O K	120 min Summer	97.767	0.767	1.1	0.0	1.1	46.0	O K	180 min Summer	97.809	0.809	1.1	0.0	1.1	48.5	O K	240 min Summer	97.824	0.824	1.1	0.0	1.1	49.5	O K	360 min Summer	97.818	0.818	1.1	0.0	1.1	49.1	O K	480 min Summer	97.798	0.798	1.1	0.0	1.1	47.9	O K	600 min Summer	97.776	0.776	1.1	0.0	1.1	46.6	O K	720 min Summer	97.756	0.756	1.1	0.0	1.1	45.4	O K	960 min Summer	97.718	0.718	1.1	0.0	1.1	43.1	O K	1440 min Summer	97.647	0.647	1.1	0.0	1.1	38.8	O K	2160 min Summer	97.550	0.550	1.0	0.0	1.0	33.0	O K	2880 min Summer	97.463	0.463	1.0	0.0	1.0	27.8	O K	4320 min Summer	97.318	0.318	0.9	0.0	0.9	19.1	O K	5760 min Summer	97.210	0.210	0.9	0.0	0.9	12.6	O K	7200 min Summer	97.131	0.131	0.9	0.0	0.9	7.9	O K	8640 min Summer	97.081	0.081	0.8	0.0	0.8	4.8	O K	10080 min Summer	97.053	0.053	0.8	0.0	0.8	3.2	O K	15 min Winter	97.471	0.471	1.0	0.0	1.0	28.3	O K	Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)	15 min Summer	115.584	0.0	26.0	19	30 min Summer	76.054	0.0	34.2	33	60 min Summer	47.821	0.0	43.0	62	120 min Summer	29.168	0.0	52.5	122	180 min Summer	21.604	0.0	58.3	182	240 min Summer	17.380	0.0	62.5	240	360 min Summer	12.705	0.0	68.6	338	480 min Summer	10.119	0.0	72.8	392	600 min Summer	8.477	0.0	76.3	454	720 min Summer	7.340	0.0	79.2	520	960 min Summer	5.844	0.0	84.1	656	1440 min Summer	4.232	0.0	91.4	926	2160 min Summer	3.059	0.0	99.1	1340	2880 min Summer	2.428	0.0	104.9	1728	4320 min Summer	1.751	0.0	113.4	2468	5760 min Summer	1.387	0.0	119.8	3176	7200 min Summer	1.157	0.0	124.9	3888	8640 min Summer	0.998	0.0	129.3	4496	10080 min Summer	0.880	0.0	133.0	5144	15 min Winter	115.584	0.0	29.1	18
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status																																																																																																																																																																																																																																																																													
15 min Summer	97.420	0.420	1.0	0.0	1.0	25.2	O K																																																																																																																																																																																																																																																																													
30 min Summer	97.544	0.544	1.0	0.0	1.0	32.6	O K																																																																																																																																																																																																																																																																													
60 min Summer	97.664	0.664	1.1	0.0	1.1	39.8	O K																																																																																																																																																																																																																																																																													
120 min Summer	97.767	0.767	1.1	0.0	1.1	46.0	O K																																																																																																																																																																																																																																																																													
180 min Summer	97.809	0.809	1.1	0.0	1.1	48.5	O K																																																																																																																																																																																																																																																																													
240 min Summer	97.824	0.824	1.1	0.0	1.1	49.5	O K																																																																																																																																																																																																																																																																													
360 min Summer	97.818	0.818	1.1	0.0	1.1	49.1	O K																																																																																																																																																																																																																																																																													
480 min Summer	97.798	0.798	1.1	0.0	1.1	47.9	O K																																																																																																																																																																																																																																																																													
600 min Summer	97.776	0.776	1.1	0.0	1.1	46.6	O K																																																																																																																																																																																																																																																																													
720 min Summer	97.756	0.756	1.1	0.0	1.1	45.4	O K																																																																																																																																																																																																																																																																													
960 min Summer	97.718	0.718	1.1	0.0	1.1	43.1	O K																																																																																																																																																																																																																																																																													
1440 min Summer	97.647	0.647	1.1	0.0	1.1	38.8	O K																																																																																																																																																																																																																																																																													
2160 min Summer	97.550	0.550	1.0	0.0	1.0	33.0	O K																																																																																																																																																																																																																																																																													
2880 min Summer	97.463	0.463	1.0	0.0	1.0	27.8	O K																																																																																																																																																																																																																																																																													
4320 min Summer	97.318	0.318	0.9	0.0	0.9	19.1	O K																																																																																																																																																																																																																																																																													
5760 min Summer	97.210	0.210	0.9	0.0	0.9	12.6	O K																																																																																																																																																																																																																																																																													
7200 min Summer	97.131	0.131	0.9	0.0	0.9	7.9	O K																																																																																																																																																																																																																																																																													
8640 min Summer	97.081	0.081	0.8	0.0	0.8	4.8	O K																																																																																																																																																																																																																																																																													
10080 min Summer	97.053	0.053	0.8	0.0	0.8	3.2	O K																																																																																																																																																																																																																																																																													
15 min Winter	97.471	0.471	1.0	0.0	1.0	28.3	O K																																																																																																																																																																																																																																																																													
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)																																																																																																																																																																																																																																																																																
15 min Summer	115.584	0.0	26.0	19																																																																																																																																																																																																																																																																																
30 min Summer	76.054	0.0	34.2	33																																																																																																																																																																																																																																																																																
60 min Summer	47.821	0.0	43.0	62																																																																																																																																																																																																																																																																																
120 min Summer	29.168	0.0	52.5	122																																																																																																																																																																																																																																																																																
180 min Summer	21.604	0.0	58.3	182																																																																																																																																																																																																																																																																																
240 min Summer	17.380	0.0	62.5	240																																																																																																																																																																																																																																																																																
360 min Summer	12.705	0.0	68.6	338																																																																																																																																																																																																																																																																																
480 min Summer	10.119	0.0	72.8	392																																																																																																																																																																																																																																																																																
600 min Summer	8.477	0.0	76.3	454																																																																																																																																																																																																																																																																																
720 min Summer	7.340	0.0	79.2	520																																																																																																																																																																																																																																																																																
960 min Summer	5.844	0.0	84.1	656																																																																																																																																																																																																																																																																																
1440 min Summer	4.232	0.0	91.4	926																																																																																																																																																																																																																																																																																
2160 min Summer	3.059	0.0	99.1	1340																																																																																																																																																																																																																																																																																
2880 min Summer	2.428	0.0	104.9	1728																																																																																																																																																																																																																																																																																
4320 min Summer	1.751	0.0	113.4	2468																																																																																																																																																																																																																																																																																
5760 min Summer	1.387	0.0	119.8	3176																																																																																																																																																																																																																																																																																
7200 min Summer	1.157	0.0	124.9	3888																																																																																																																																																																																																																																																																																
8640 min Summer	0.998	0.0	129.3	4496																																																																																																																																																																																																																																																																																
10080 min Summer	0.880	0.0	133.0	5144																																																																																																																																																																																																																																																																																
15 min Winter	115.584	0.0	29.1	18																																																																																																																																																																																																																																																																																
©1982-2018 Innovyze																																																																																																																																																																																																																																																																																				

HBL Associates						Page 2	
Brook House			8796				
Weybrook Road			Nell Lane, Chorlton				
Stockport, M19 2QD			Infiltration Tank Model				
Date 01/04/2021			Designed by Adam Prince				
File SW ATTENUATION TANK CHE...			Checked by				
Innovyze			Source Control 2018.1.1				
<u>Summary of Results for 100 year Return Period (+40%)</u>							
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status
30 min Winter	97.612	0.612	1.0	0.0	1.0	36.7	O K
60 min Winter	97.750	0.750	1.1	0.0	1.1	45.0	O K
120 min Winter	97.872	0.872	1.1	0.0	1.1	52.3	O K
180 min Winter	97.925	0.925	1.2	0.0	1.2	55.5	O K
240 min Winter	97.949	0.949	1.2	0.0	1.2	56.9	O K
360 min Winter	97.953	0.953	1.2	0.0	1.2	57.2	O K
480 min Winter	97.930	0.930	1.2	0.0	1.2	55.8	O K
600 min Winter	97.902	0.902	1.2	0.0	1.2	54.1	O K
720 min Winter	97.878	0.878	1.1	0.0	1.1	52.7	O K
960 min Winter	97.826	0.826	1.1	0.0	1.1	49.5	O K
1440 min Winter	97.722	0.722	1.1	0.0	1.1	43.3	O K
2160 min Winter	97.577	0.577	1.0	0.0	1.0	34.6	O K
2880 min Winter	97.449	0.449	1.0	0.0	1.0	27.0	O K
4320 min Winter	97.247	0.247	0.9	0.0	0.9	14.8	O K
5760 min Winter	97.109	0.109	0.9	0.0	0.9	6.5	O K
7200 min Winter	97.049	0.049	0.8	0.0	0.8	2.9	O K
8640 min Winter	97.042	0.042	0.7	0.0	0.7	2.5	O K
10080 min Winter	97.037	0.037	0.6	0.0	0.6	2.2	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)			
30 min Winter	76.054	0.0	38.3	33			
60 min Winter	47.821	0.0	48.2	62			
120 min Winter	29.168	0.0	58.8	120			
180 min Winter	21.604	0.0	65.3	178			
240 min Winter	17.380	0.0	70.0	234			
360 min Winter	12.705	0.0	76.8	346			
480 min Winter	10.119	0.0	81.6	446			
600 min Winter	8.477	0.0	85.4	480			
720 min Winter	7.340	0.0	88.8	556			
960 min Winter	5.844	0.0	94.2	710			
1440 min Winter	4.232	0.0	102.3	1010			
2160 min Winter	3.059	0.0	111.0	1432			
2880 min Winter	2.428	0.0	117.5	1844			
4320 min Winter	1.751	0.0	127.0	2592			
5760 min Winter	1.387	0.0	134.2	3232			
7200 min Winter	1.157	0.0	139.9	3672			
8640 min Winter	0.998	0.0	144.8	4400			
10080 min Winter	0.880	0.0	148.9	5136			
©1982-2018 Innovyze							

HBL Associates		Page 3
Brook House Weybrook Road Stockport, M19 2QD	8796 Nell Lane, Chorlton Infiltration Tank Model	
Date 01/04/2021 File SW ATTENUATION TANK CHE...	Designed by Adam Prince Checked by	
Innovyze	Source Control 2018.1.1	

Model Details

Storage is Online Cover Level (m) 100.000

Infiltration Basin Structure

Invert Level (m) 97.000 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.09804 Porosity 1.00
Infiltration Coefficient Side (m/hr) 0.09804

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	60.0	1.000	60.0	1.001	0.0

Pipe Outflow Control

Diameter (m) 0.150 Entry Loss Coefficient 0.500
Slope (1:X) 150.0 Coefficient of Contraction 0.600
Length (m) 5.000 Upstream Invert Level (m) 98.500
Roughness k (mm) 0.600

©1982-2018 Innovyze