

Simpson Associates				Page 1																																																																																																																																																																																																																			
1 Market Place Mews Henley-on-Thames RG9 2AH		LINESIDE INDUSTRIAL ESTATE SOAKAWAY DESIGN																																																																																																																																																																																																																					
Date 01/04/2020 File 1 in 100yr +40% Soakawa...		Designed by JDC Checked by AR																																																																																																																																																																																																																					
Micro Drainage		Source Control 2019.1																																																																																																																																																																																																																					
<u>Summary of Results for 1 year Return Period</u> Half Drain Time : 586 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 Volume (m³)</th><th>Status</th></tr><tr><td>15 min Summer</td><td>3.752</td><td>0.038</td><td>0.5</td><td>15.5</td><td>O K</td></tr><tr><td>30 min Summer</td><td>3.763</td><td>0.049</td><td>0.7</td><td>20.2</td><td>O K</td></tr><tr><td>60 min Summer</td><td>3.776</td><td>0.062</td><td>0.7</td><td>25.6</td><td>O K</td></tr><tr><td>120 min Summer</td><td>3.790</td><td>0.076</td><td>0.7</td><td>31.4</td><td>O K</td></tr><tr><td>180 min Summer</td><td>3.799</td><td>0.085</td><td>0.7</td><td>34.8</td><td>O K</td></tr><tr><td>240 min Summer</td><td>3.804</td><td>0.090</td><td>0.7</td><td>37.1</td><td>O K</td></tr><tr><td>360 min Summer</td><td>3.811</td><td>0.097</td><td>0.7</td><td>39.7</td><td>O K</td></tr><tr><td>480 min Summer</td><td>3.814</td><td>0.100</td><td>0.7</td><td>41.0</td><td>O K</td></tr><tr><td>600 min Summer</td><td>3.816</td><td>0.102</td><td>0.7</td><td>42.0</td><td>O K</td></tr><tr><td>720 min Summer</td><td>3.818</td><td>0.104</td><td>0.7</td><td>42.6</td><td>O K</td></tr><tr><td>960 min Summer</td><td>3.820</td><td>0.106</td><td>0.7</td><td>43.4</td><td>O K</td></tr><tr><td>1440 min Summer</td><td>3.820</td><td>0.106</td><td>0.7</td><td>43.7</td><td>O K</td></tr><tr><td>2160 min Summer</td><td>3.817</td><td>0.103</td><td>0.7</td><td>42.4</td><td>O K</td></tr><tr><td>2880 min Summer</td><td>3.812</td><td>0.098</td><td>0.7</td><td>40.4</td><td>O K</td></tr><tr><td>4320 min Summer</td><td>3.801</td><td>0.087</td><td>0.7</td><td>35.7</td><td>O K</td></tr><tr><td>5760 min Summer</td><td>3.790</td><td>0.076</td><td>0.7</td><td>31.4</td><td>O K</td></tr><tr><td>7200 min Summer</td><td>3.781</td><td>0.067</td><td>0.7</td><td>27.6</td><td>O K</td></tr><tr><td>8640 min Summer</td><td>3.773</td><td>0.059</td><td>0.7</td><td>24.3</td><td>O K</td></tr><tr><td>10080 min Summer</td><td>3.767</td><td>0.053</td><td>0.7</td><td>21.8</td><td>O K</td></tr><tr><td>15 min Winter</td><td>3.756</td><td>0.042</td><td>0.6</td><td>17.3</td><td>O K</td></tr></table> <table><tr><th>Storm Event</th><th>Rain (mm/hr)</th><th>Flooded Volume (m³)</th><th>Time-Peak (mins)</th></tr><tr><td>15 min Summer</td><td>28.110</td><td>0.0</td><td>19</td></tr><tr><td>30 min Summer</td><td>18.645</td><td>0.0</td><td>33</td></tr><tr><td>60 min Summer</td><td>12.084</td><td>0.0</td><td>62</td></tr><tr><td>120 min Summer</td><td>7.690</td><td>0.0</td><td>122</td></tr><tr><td>180 min Summer</td><td>5.881</td><td>0.0</td><td>182</td></tr><tr><td>240 min Summer</td><td>4.857</td><td>0.0</td><td>242</td></tr><tr><td>360 min Summer</td><td>3.685</td><td>0.0</td><td>360</td></tr><tr><td>480 min Summer</td><td>3.020</td><td>0.0</td><td>430</td></tr><tr><td>600 min Summer</td><td>2.589</td><td>0.0</td><td>494</td></tr><tr><td>720 min Summer</td><td>2.283</td><td>0.0</td><td>558</td></tr><tr><td>960 min Summer</td><td>1.872</td><td>0.0</td><td>692</td></tr><tr><td>1440 min Summer</td><td>1.416</td><td>0.0</td><td>968</td></tr><tr><td>2160 min Summer</td><td>1.071</td><td>0.0</td><td>1384</td></tr><tr><td>2880 min Summer</td><td>0.878</td><td>0.0</td><td>1788</td></tr><tr><td>4320 min Summer</td><td>0.664</td><td>0.0</td><td>2592</td></tr><tr><td>5760 min Summer</td><td>0.545</td><td>0.0</td><td>3336</td></tr><tr><td>7200 min Summer</td><td>0.468</td><td>0.0</td><td>4032</td></tr><tr><td>8640 min Summer</td><td>0.412</td><td>0.0</td><td>4752</td></tr><tr><td>10080 min Summer</td><td>0.370</td><td>0.0</td><td>5352</td></tr><tr><td>15 min Winter</td><td>28.110</td><td>0.0</td><td>18</td></tr></table>						Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status	15 min Summer	3.752	0.038	0.5	15.5	O K	30 min Summer	3.763	0.049	0.7	20.2	O K	60 min Summer	3.776	0.062	0.7	25.6	O K	120 min Summer	3.790	0.076	0.7	31.4	O K	180 min Summer	3.799	0.085	0.7	34.8	O K	240 min Summer	3.804	0.090	0.7	37.1	O K	360 min Summer	3.811	0.097	0.7	39.7	O K	480 min Summer	3.814	0.100	0.7	41.0	O K	600 min Summer	3.816	0.102	0.7	42.0	O K	720 min Summer	3.818	0.104	0.7	42.6	O K	960 min Summer	3.820	0.106	0.7	43.4	O K	1440 min Summer	3.820	0.106	0.7	43.7	O K	2160 min Summer	3.817	0.103	0.7	42.4	O K	2880 min Summer	3.812	0.098	0.7	40.4	O K	4320 min Summer	3.801	0.087	0.7	35.7	O K	5760 min Summer	3.790	0.076	0.7	31.4	O K	7200 min Summer	3.781	0.067	0.7	27.6	O K	8640 min Summer	3.773	0.059	0.7	24.3	O K	10080 min Summer	3.767	0.053	0.7	21.8	O K	15 min Winter	3.756	0.042	0.6	17.3	O K	Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)	15 min Summer	28.110	0.0	19	30 min Summer	18.645	0.0	33	60 min Summer	12.084	0.0	62	120 min Summer	7.690	0.0	122	180 min Summer	5.881	0.0	182	240 min Summer	4.857	0.0	242	360 min Summer	3.685	0.0	360	480 min Summer	3.020	0.0	430	600 min Summer	2.589	0.0	494	720 min Summer	2.283	0.0	558	960 min Summer	1.872	0.0	692	1440 min Summer	1.416	0.0	968	2160 min Summer	1.071	0.0	1384	2880 min Summer	0.878	0.0	1788	4320 min Summer	0.664	0.0	2592	5760 min Summer	0.545	0.0	3336	7200 min Summer	0.468	0.0	4032	8640 min Summer	0.412	0.0	4752	10080 min Summer	0.370	0.0	5352	15 min Winter	28.110	0.0	18
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status																																																																																																																																																																																																																		
15 min Summer	3.752	0.038	0.5	15.5	O K																																																																																																																																																																																																																		
30 min Summer	3.763	0.049	0.7	20.2	O K																																																																																																																																																																																																																		
60 min Summer	3.776	0.062	0.7	25.6	O K																																																																																																																																																																																																																		
120 min Summer	3.790	0.076	0.7	31.4	O K																																																																																																																																																																																																																		
180 min Summer	3.799	0.085	0.7	34.8	O K																																																																																																																																																																																																																		
240 min Summer	3.804	0.090	0.7	37.1	O K																																																																																																																																																																																																																		
360 min Summer	3.811	0.097	0.7	39.7	O K																																																																																																																																																																																																																		
480 min Summer	3.814	0.100	0.7	41.0	O K																																																																																																																																																																																																																		
600 min Summer	3.816	0.102	0.7	42.0	O K																																																																																																																																																																																																																		
720 min Summer	3.818	0.104	0.7	42.6	O K																																																																																																																																																																																																																		
960 min Summer	3.820	0.106	0.7	43.4	O K																																																																																																																																																																																																																		
1440 min Summer	3.820	0.106	0.7	43.7	O K																																																																																																																																																																																																																		
2160 min Summer	3.817	0.103	0.7	42.4	O K																																																																																																																																																																																																																		
2880 min Summer	3.812	0.098	0.7	40.4	O K																																																																																																																																																																																																																		
4320 min Summer	3.801	0.087	0.7	35.7	O K																																																																																																																																																																																																																		
5760 min Summer	3.790	0.076	0.7	31.4	O K																																																																																																																																																																																																																		
7200 min Summer	3.781	0.067	0.7	27.6	O K																																																																																																																																																																																																																		
8640 min Summer	3.773	0.059	0.7	24.3	O K																																																																																																																																																																																																																		
10080 min Summer	3.767	0.053	0.7	21.8	O K																																																																																																																																																																																																																		
15 min Winter	3.756	0.042	0.6	17.3	O K																																																																																																																																																																																																																		
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)																																																																																																																																																																																																																				
15 min Summer	28.110	0.0	19																																																																																																																																																																																																																				
30 min Summer	18.645	0.0	33																																																																																																																																																																																																																				
60 min Summer	12.084	0.0	62																																																																																																																																																																																																																				
120 min Summer	7.690	0.0	122																																																																																																																																																																																																																				
180 min Summer	5.881	0.0	182																																																																																																																																																																																																																				
240 min Summer	4.857	0.0	242																																																																																																																																																																																																																				
360 min Summer	3.685	0.0	360																																																																																																																																																																																																																				
480 min Summer	3.020	0.0	430																																																																																																																																																																																																																				
600 min Summer	2.589	0.0	494																																																																																																																																																																																																																				
720 min Summer	2.283	0.0	558																																																																																																																																																																																																																				
960 min Summer	1.872	0.0	692																																																																																																																																																																																																																				
1440 min Summer	1.416	0.0	968																																																																																																																																																																																																																				
2160 min Summer	1.071	0.0	1384																																																																																																																																																																																																																				
2880 min Summer	0.878	0.0	1788																																																																																																																																																																																																																				
4320 min Summer	0.664	0.0	2592																																																																																																																																																																																																																				
5760 min Summer	0.545	0.0	3336																																																																																																																																																																																																																				
7200 min Summer	0.468	0.0	4032																																																																																																																																																																																																																				
8640 min Summer	0.412	0.0	4752																																																																																																																																																																																																																				
10080 min Summer	0.370	0.0	5352																																																																																																																																																																																																																				
15 min Winter	28.110	0.0	18																																																																																																																																																																																																																				
©1982-2019 Innovyze																																																																																																																																																																																																																							

Simpson Associates				Page 2	
1 Market Place Mews Henley-on-Thames RG9 2AH		LINESIDE INDUSTRIAL ESTATE SOAKAWAY DESIGN			
Date 01/04/2020 File 1 in 100yr +40% Soakawa...		Designed by JDC Checked by AR			
Micro Drainage		Source Control 2019.1			
<u>Summary of Results for 1 year Return Period</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	3.769	0.055	0.7	22.7	O K
60 min Winter	3.784	0.070	0.7	28.8	O K
120 min Winter	3.800	0.086	0.7	35.4	O K
180 min Winter	3.810	0.096	0.7	39.4	O K
240 min Winter	3.817	0.103	0.7	42.2	O K
360 min Winter	3.825	0.111	0.7	45.4	O K
480 min Winter	3.829	0.115	0.7	47.1	O K
600 min Winter	3.831	0.117	0.7	48.1	O K
720 min Winter	3.832	0.118	0.7	48.5	O K
960 min Winter	3.834	0.120	0.7	49.2	O K
1440 min Winter	3.833	0.119	0.7	48.8	O K
2160 min Winter	3.826	0.112	0.7	46.0	O K
2880 min Winter	3.817	0.103	0.7	42.3	O K
4320 min Winter	3.798	0.084	0.7	34.5	O K
5760 min Winter	3.781	0.067	0.7	27.7	O K
7200 min Winter	3.769	0.055	0.7	22.5	O K
8640 min Winter	3.762	0.048	0.7	19.6	O K
10080 min Winter	3.758	0.044	0.6	17.9	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
30 min Winter	18.645	0.0	33		
60 min Winter	12.084	0.0	62		
120 min Winter	7.690	0.0	120		
180 min Winter	5.881	0.0	178		
240 min Winter	4.857	0.0	236		
360 min Winter	3.685	0.0	350		
480 min Winter	3.020	0.0	458		
600 min Winter	2.589	0.0	564		
720 min Winter	2.283	0.0	642		
960 min Winter	1.872	0.0	742		
1440 min Winter	1.416	0.0	1054		
2160 min Winter	1.071	0.0	1512		
2880 min Winter	0.878	0.0	1932		
4320 min Winter	0.664	0.0	2724		
5760 min Winter	0.545	0.0	3456		
7200 min Winter	0.468	0.0	4104		
8640 min Winter	0.412	0.0	4752		
10080 min Winter	0.370	0.0	5448		
©1982-2019 Innovyze					

Simpson Associates		Page 3
1 Market Place Mews Henley-on-Thames RG9 2AH	LINESIDE INDUSTRIAL ESTATE SOAKAWAY DESIGN	
Date 01/04/2020 File 1 in 100yr +40% Soakawa...	Designed by JDC Checked by AR	
Micro Drainage Source Control 2019.1		

Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	1	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 %	+0

Time Area Diagram

Total Area (ha) 0.299

Time (mins)	Area
From:	To: (ha)
0	4 0.299

©1982-2019 Innovyze

Simpson Associates		Page 4
1 Market Place Mews Henley-on-Thames RG9 2AH	LINESIDE INDUSTRIAL ESTATE SOAKAWAY DESIGN	
Date 01/04/2020 File 1 in 100yr +40% Soakawa...	Designed by JDC Checked by AR	
Micro Drainage Source Control 2019.1		

Model Details

Storage is Online Cover Level (m) 5.350

Complex Structure

Tank or Pond

Invert Level (m) 3.714

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	1.1	1.000	1.1	1.001	0.0

Tank or Pond

Invert Level (m) 3.714

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	1.1	1.000	1.1	1.001	0.0

Cellular Storage

Invert Level (m) 3.714 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.01150 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.01150

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	430.0	430.0	0.751	0.0	514.8
0.750	430.0	514.8			

©1982-2019 Innovyze