

Priestley Johnson Ltd				Page 1																																																																																																																																																																																																																			
Bank House 105-109 New St, Blackrod Bolton BL6 5AG		LINCOLN WAY JAMES ALPE BUILDING 7																																																																																																																																																																																																																					
Date 01-Apr-19 File DRAINAGE SOAKAWAY 100 YEA...		Designed by SMJ Checked by																																																																																																																																																																																																																					
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Summary of Results for 100 year Return Period (+30%) Half Drain Time : 322 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>95.080</td><td>1.580</td><td>1.0</td><td>13.5</td><td>O K</td></tr><tr><td>30 min Summer</td><td>95.353</td><td>1.853</td><td>1.0</td><td>18.7</td><td>O K</td></tr><tr><td>60 min Summer</td><td>95.647</td><td>2.147</td><td>1.0</td><td>24.3</td><td>O K</td></tr><tr><td>120 min Summer</td><td>95.909</td><td>2.409</td><td>1.0</td><td>29.3</td><td>O K</td></tr><tr><td>180 min Summer</td><td>96.001</td><td>2.501</td><td>1.0</td><td>31.0</td><td>O K</td></tr><tr><td>240 min Summer</td><td>96.024</td><td>2.524</td><td>1.0</td><td>31.5</td><td>O K</td></tr><tr><td>360 min Summer</td><td>96.021</td><td>2.521</td><td>1.0</td><td>31.4</td><td>O K</td></tr><tr><td>480 min Summer</td><td>96.005</td><td>2.505</td><td>1.0</td><td>31.1</td><td>O K</td></tr><tr><td>600 min Summer</td><td>95.982</td><td>2.482</td><td>1.0</td><td>30.7</td><td>O K</td></tr><tr><td>720 min Summer</td><td>95.955</td><td>2.455</td><td>1.0</td><td>30.2</td><td>O K</td></tr><tr><td>960 min Summer</td><td>95.887</td><td>2.387</td><td>1.0</td><td>28.9</td><td>O K</td></tr><tr><td>1440 min Summer</td><td>95.724</td><td>2.224</td><td>1.0</td><td>25.8</td><td>O K</td></tr><tr><td>2160 min Summer</td><td>95.463</td><td>1.963</td><td>1.0</td><td>20.8</td><td>O K</td></tr><tr><td>2880 min Summer</td><td>95.217</td><td>1.717</td><td>1.0</td><td>16.2</td><td>O K</td></tr><tr><td>4320 min Summer</td><td>94.827</td><td>1.327</td><td>1.0</td><td>8.8</td><td>O K</td></tr><tr><td>5760 min Summer</td><td>94.571</td><td>1.071</td><td>1.0</td><td>3.9</td><td>O K</td></tr><tr><td>7200 min Summer</td><td>94.433</td><td>0.933</td><td>1.0</td><td>1.3</td><td>O K</td></tr><tr><td>8640 min Summer</td><td>94.395</td><td>0.895</td><td>0.9</td><td>0.5</td><td>O K</td></tr><tr><td>10080 min Summer</td><td>94.385</td><td>0.885</td><td>0.8</td><td>0.4</td><td>O K</td></tr><tr><td>15 min Winter</td><td>95.172</td><td>1.672</td><td>1.0</td><td>15.3</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>103.546</td><td>0.0</td><td>18</td></tr><tr><td>30 min Summer</td><td>73.269</td><td>0.0</td><td>33</td></tr><tr><td>60 min Summer</td><td>49.663</td><td>0.0</td><td>62</td></tr><tr><td>120 min Summer</td><td>32.373</td><td>0.0</td><td>122</td></tr><tr><td>180 min Summer</td><td>24.673</td><td>0.0</td><td>180</td></tr><tr><td>240 min Summer</td><td>20.227</td><td>0.0</td><td>240</td></tr><tr><td>360 min Summer</td><td>15.279</td><td>0.0</td><td>304</td></tr><tr><td>480 min Summer</td><td>12.492</td><td>0.0</td><td>368</td></tr><tr><td>600 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Bank House 105-109 New St, Blackrod Bolton BL6 5AG		LINCOLN WAY JAMES ALPE BUILDING 7			
Date 01-Apr-19 File DRAINAGE SOAKAWAY 100 YEA...		Designed by SMJ Checked by			
Micro Drainage		Source Control 2018.1.1			
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	95.484	1.984	1.0	21.2	O K
60 min Winter	95.827	2.327	1.0	27.7	O K
120 min Winter	96.149	2.649	1.0	33.9	O K
180 min Winter	96.279	2.779	1.0	36.3	Flood Risk
240 min Winter	96.332	2.832	1.0	37.3	Flood Risk
360 min Winter	96.346	2.846	1.0	37.6	Flood Risk
480 min Winter	96.305	2.805	1.0	36.8	Flood Risk
600 min Winter	96.270	2.770	1.0	36.2	Flood Risk
720 min Winter	96.225	2.725	1.0	35.3	Flood Risk
960 min Winter	96.112	2.612	1.0	33.2	O K
1440 min Winter	95.841	2.341	1.0	28.0	O K
2160 min Winter	95.421	1.921	1.0	20.0	O K
2880 min Winter	95.044	1.544	1.0	12.9	O K
4320 min Winter	94.516	1.016	1.0	2.8	O K
5760 min Winter	94.392	0.892	0.9	0.5	O K
7200 min Winter	94.378	0.878	0.8	0.3	O K
8640 min Winter	94.369	0.869	0.7	0.2	O K
10080 min Winter	94.361	0.861	0.6	0.1	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
30 min Winter	73.269	0.0	32		
60 min Winter	49.663	0.0	62		
120 min Winter	32.373	0.0	120		
180 min Winter	24.673	0.0	176		
240 min Winter	20.227	0.0	232		
360 min Winter	15.279	0.0	340		
480 min Winter	12.492	0.0	394		
600 min Winter	10.672	0.0	468		
720 min Winter	9.375	0.0	544		
960 min Winter	7.631	0.0	700		
1440 min Winter	5.692	0.0	996		
2160 min Winter	4.231	0.0	1404		
2880 min Winter	3.424	0.0	1784		
4320 min Winter	2.547	0.0	2380		
5760 min Winter	2.067	0.0	2920		
7200 min Winter	1.759	0.0	3640		
8640 min Winter	1.544	0.0	4384		
10080 min Winter	1.384	0.0	5104		
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Bank House 105-109 New St, Blackrod Bolton BL6 5AG	LINCOLN WAY JAMES ALPE BUILDING 7	
Date 01-Apr-19 File DRAINAGE SOAKAWAY 100 YEA...	Designed by SMJ Checked by	
Micro Drainage	Source Control 2018.1.1	

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)	18.900	Shortest Storm (mins)	15
Ratio R	0.259	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+30

Time Area Diagram

Total Area (ha) 0.075

Time (mins)	Area
From: To:	(ha)
0	4 0.075

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Model Details

Storage is Online Cover Level (m) 96.450

Cellular Storage Structure

Invert Level (m) 93.500 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.36000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.36000

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	0.0	0.0	1.300	20.0	20.0
0.100	0.0	0.0	1.400	20.0	20.0
0.200	0.0	0.0	1.500	20.0	20.0
0.300	0.0	0.0	1.600	20.0	20.0
0.400	0.0	0.0	1.700	20.0	20.0
0.500	0.0	0.0	1.800	20.0	20.0
0.600	0.0	0.0	1.900	20.0	20.0
0.700	0.0	0.0	2.000	20.0	20.0
0.800	0.0	0.0	2.100	20.0	20.0
0.900	20.0	20.0	2.200	20.0	20.0
1.000	20.0	20.0	2.300	20.0	20.0
1.100	20.0	20.0	2.400	20.0	20.0
1.200	20.0	20.0	2.500	20.0	20.0

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