

J D P Limited							Page 1
Townfoot Longtown, Carlisle Cumbria CA6 5LY			New Farm Building, Nook Farm Cleator CA23 3EY Tank Size: 8.4 x 7.8 x 0.84m				
Date 05-08-2026 File 2608-20 Farm Re-			Designed by JC Checked by				
Micro Drainage			Source Control 2014.1				
<u>Summary of Results for 100 year Return Period (+45%)</u> Half Drain Time : 24 minutes.							
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	9.134	0.474	0.0	15.4	15.4	29.5	O K
30 min Summer	9.297	0.637	0.0	17.4	17.4	39.6	O K
60 min Summer	9.435	0.775	0.0	19.2	19.2	48.2	O K
120 min Summer	9.473	0.813	0.0	19.7	19.7	50.6	O K
180 min Summer	9.442	0.782	0.0	19.3	19.3	48.7	O K
240 min Summer	9.396	0.736	0.0	18.7	18.7	45.8	O K
360 min Summer	9.302	0.642	0.0	17.5	17.5	39.9	O K
480 min Summer	9.217	0.557	0.0	16.3	16.3	34.7	O K
600 min Summer	9.141	0.481	0.0	15.4	15.4	29.9	O K
720 min Summer	9.063	0.403	0.0	15.4	15.4	25.1	O K
960 min Summer	8.987	0.327	0.0	14.3	14.3	20.3	O K
1440 min Summer	8.918	0.258	0.0	11.8	11.8	16.1	O K
2160 min Summer	8.869	0.209	0.0	9.3	9.3	13.0	O K
2880 min Summer	8.842	0.182	0.0	7.9	7.9	11.3	O K
4320 min Summer	8.812	0.152	0.0	6.3	6.3	9.5	O K
5760 min Summer	8.795	0.135	0.0	5.3	5.3	8.4	O K
7200 min Summer	8.783	0.123	0.0	4.7	4.7	7.6	O K
8640 min Summer	8.774	0.114	0.0	4.2	4.2	7.1	O K
10080 min Summer	8.767	0.107	0.0	3.8	3.8	6.6	O K
15 min Winter	9.134	0.474	0.0	15.4	15.4	29.5	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)			
15 min Summer	122.052	0.0	37.8	15			
30 min Summer	91.829	0.0	56.9	25			
60 min Summer	65.855	0.0	81.6	42			
120 min Summer	44.333	0.0	109.9	76			
180 min Summer	34.714	0.0	129.1	110			
240 min Summer	29.070	0.0	144.2	142			
360 min Summer	22.519	0.0	167.5	206			
480 min Summer	18.717	0.0	185.6	268			
600 min Summer	16.181	0.0	200.7	330			
720 min Summer	14.348	0.0	213.5	384			
960 min Summer	11.874	0.0	235.6	500			
1440 min Summer	9.116	0.0	271.3	736			
2160 min Summer	7.032	0.0	313.9	1100			
2880 min Summer	5.889	0.0	350.5	1468			
4320 min Summer	4.645	0.0	414.7	2200			
5760 min Summer	3.926	0.0	467.3	2904			
7200 min Summer	3.443	0.0	512.2	3672			
8640 min Summer	3.091	0.0	551.9	4400			
10080 min Summer	2.821	0.0	587.6	5120			
15 min Winter	122.052	0.0	37.8	15			
©1982-2014 XP Solutions							

J D P Limited							Page 2
Townfoot Longtown, Carlisle Cumbria CA6 5LY			New Farm Building, Nook Farm Cleator CA23 3EY Tank Size: 8.4 x 7.8 x 0.84m				
Date 05-08-2026 File 2608-20 Farm Re-			Designed by JC Checked by				
Micro Drainage			Source Control 2014.1				
<u>Summary of Results for 100 year Return Period (+45%)</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	9.291	0.631	0.0	17.3	17.3	39.2	O K
60 min Winter	9.408	0.748	0.0	18.9	18.9	46.6	O K
120 min Winter	9.402	0.742	0.0	18.8	18.8	46.2	O K
180 min Winter	9.335	0.675	0.0	17.9	17.9	42.0	O K
240 min Winter	9.261	0.601	0.0	16.9	16.9	37.4	O K
360 min Winter	9.116	0.456	0.0	15.4	15.4	28.4	O K
480 min Winter	9.007	0.347	0.0	14.8	14.8	21.6	O K
600 min Winter	8.957	0.297	0.0	13.4	13.4	18.5	O K
720 min Winter	8.925	0.265	0.0	12.1	12.1	16.5	O K
960 min Winter	8.885	0.225	0.0	10.2	10.2	14.0	O K
1440 min Winter	8.842	0.182	0.0	7.9	7.9	11.3	O K
2160 min Winter	8.810	0.150	0.0	6.1	6.1	9.3	O K
2880 min Winter	8.791	0.131	0.0	5.1	5.1	8.2	O K
4320 min Winter	8.771	0.111	0.0	4.1	4.1	6.9	O K
5760 min Winter	8.759	0.099	0.0	3.4	3.4	6.1	O K
7200 min Winter	8.750	0.090	0.0	3.0	3.0	5.6	O K
8640 min Winter	8.744	0.084	0.0	2.7	2.7	5.2	O K
10080 min Winter	8.739	0.079	0.0	2.5	2.5	4.9	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)			
30 min Winter	91.829	0.0	56.9	26			
60 min Winter	65.855	0.0	81.6	44			
120 min Winter	44.333	0.0	109.9	82			
180 min Winter	34.714	0.0	129.1	116			
240 min Winter	29.070	0.0	144.2	150			
360 min Winter	22.519	0.0	167.5	214			
480 min Winter	18.717	0.0	185.7	266			
600 min Winter	16.181	0.0	200.6	322			
720 min Winter	14.348	0.0	213.5	382			
960 min Winter	11.874	0.0	235.6	500			
1440 min Winter	9.116	0.0	271.3	736			
2160 min Winter	7.032	0.0	313.9	1100			
2880 min Winter	5.889	0.0	350.5	1468			
4320 min Winter	4.645	0.0	414.7	2188			
5760 min Winter	3.926	0.0	467.3	2904			
7200 min Winter	3.443	0.0	512.2	3648			
8640 min Winter	3.091	0.0	551.9	4368			
10080 min Winter	2.821	0.0	587.6	5024			
©1982-2014 XP Solutions							

J D P Limited		Page 3
Townfoot Longtown, Carlisle Cumbria CA6 5LY	New Farm Building, Nook Farm Cleator CA23 3EY Tank Size: 8.4 x 7.8 x 0.84m	
Date 05-08-2026 File 2608-20 Farm Re-	Designed by JC Checked by	
Micro Drainage Source Control 2014.1		

Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	1.000
Region	England and Wales	Cv (Winter)	1.000
M5-60 (mm)	22.400	Shortest Storm (mins)	15
Ratio R	0.178	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+45

Time Area Diagram

Total Area (ha) 0.124

Time (mins)	Area
From: To:	(ha)
0	4 0.124

©1982-2014 XP Solutions

J D P Limited		Page 4																																																																																										
Townfoot Longtown, Carlisle Cumbria CA6 5LY	New Farm Building, Nook Farm Cleator CA23 3EY Tank Size: 8.4 x 7.8 x 0.84m																																																																																											
Date 05-08-2026 File 2608-20 Farm Re-	Designed by JC Checked by																																																																																											
Micro Drainage		Source Control 2014.1																																																																																										
<u>Model Details</u> Storage is Online Cover Level (m) 10.000 <u>Cellular Storage Structure</u> Invert Level (m) 8.660 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.00000 <table border="1"> <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>65.5</td> <td>65.5</td> <td>0.841</td> <td>0.0</td> <td>91.4</td> </tr> <tr> <td>0.840</td> <td>65.5</td> <td>91.4</td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <u>Crown Vortex Valve® Outflow Control</u> Design Head (m) 0.840 Vortex Valve® Type R1 SW Only Invert Level (m) 8.660 Design Flow (l/s) 20.0 Diameter (mm) 192 <table border="1"> <thead> <tr> <th>Depth (m)</th> <th>Flow (l/s)</th> <th>Depth (m)</th> <th>Flow (l/s)</th> <th>Depth (m)</th> <th>Flow (l/s)</th> <th>Depth (m)</th> <th>Flow (l/s)</th> </tr> </thead> <tbody> <tr> <td>0.100</td> <td>3.5</td> <td>1.200</td> <td>23.9</td> <td>3.000</td> <td>37.8</td> <td>7.000</td> <td>57.7</td> </tr> <tr> <td>0.200</td> <td>8.9</td> <td>1.400</td> <td>25.8</td> <td>3.500</td> <td>40.8</td> <td>7.500</td> <td>59.7</td> </tr> <tr> <td>0.300</td> <td>13.5</td> <td>1.600</td> <td>27.6</td> <td>4.000</td> <td>43.6</td> <td>8.000</td> <td>61.7</td> </tr> <tr> <td>0.400</td> <td>15.4</td> <td>1.800</td> <td>29.3</td> <td>4.500</td> <td>46.2</td> <td>8.500</td> <td>63.6</td> </tr> <tr> <td>0.500</td> <td>15.4</td> <td>2.000</td> <td>30.8</td> <td>5.000</td> <td>48.8</td> <td>9.000</td> <td>65.4</td> </tr> <tr> <td>0.600</td> <td>16.9</td> <td>2.200</td> <td>32.3</td> <td>5.500</td> <td>51.1</td> <td>9.500</td> <td>67.2</td> </tr> <tr> <td>0.800</td> <td>19.5</td> <td>2.400</td> <td>33.8</td> <td>6.000</td> <td>53.4</td> <td></td> <td></td> </tr> <tr> <td>1.000</td> <td>21.8</td> <td>2.600</td> <td>35.2</td> <td>6.500</td> <td>55.6</td> <td></td> <td></td> </tr> </tbody> </table>			Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)	0.000	65.5	65.5	0.841	0.0	91.4	0.840	65.5	91.4				Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	0.100	3.5	1.200	23.9	3.000	37.8	7.000	57.7	0.200	8.9	1.400	25.8	3.500	40.8	7.500	59.7	0.300	13.5	1.600	27.6	4.000	43.6	8.000	61.7	0.400	15.4	1.800	29.3	4.500	46.2	8.500	63.6	0.500	15.4	2.000	30.8	5.000	48.8	9.000	65.4	0.600	16.9	2.200	32.3	5.500	51.1	9.500	67.2	0.800	19.5	2.400	33.8	6.000	53.4			1.000	21.8	2.600	35.2	6.500	55.6		
Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)																																																																																							
0.000	65.5	65.5	0.841	0.0	91.4																																																																																							
0.840	65.5	91.4																																																																																										
Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)																																																																																					
0.100	3.5	1.200	23.9	3.000	37.8	7.000	57.7																																																																																					
0.200	8.9	1.400	25.8	3.500	40.8	7.500	59.7																																																																																					
0.300	13.5	1.600	27.6	4.000	43.6	8.000	61.7																																																																																					
0.400	15.4	1.800	29.3	4.500	46.2	8.500	63.6																																																																																					
0.500	15.4	2.000	30.8	5.000	48.8	9.000	65.4																																																																																					
0.600	16.9	2.200	32.3	5.500	51.1	9.500	67.2																																																																																					
0.800	19.5	2.400	33.8	6.000	53.4																																																																																							
1.000	21.8	2.600	35.2	6.500	55.6																																																																																							
©1982-2014 XP Solutions																																																																																												