

EWE Associates Ltd					Page 1		
Windy Ridge Barn Thealby Lane Winterton DN15 9TG							
Date 06/03/2023 10:07 File 100yr+CC40% tank ...			Designed By Lea Checked By				
Micro Drainage			Source Control W.12.4				
<u>Summary of Results for 100 year Return Period (+40%)</u>							
Half Drain Time : 109 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	99.819	0.619	0.0	0.8	0.8	6.5	O K
30 min Summer	99.891	0.691	0.0	0.8	0.8	7.2	O K
60 min Summer	99.933	0.733	0.0	0.8	0.8	7.7	O K
120 min Summer	99.930	0.730	0.0	0.8	0.8	7.6	O K
180 min Summer	99.912	0.712	0.0	0.8	0.8	7.4	O K
240 min Summer	99.887	0.687	0.0	0.8	0.8	7.2	O K
360 min Summer	99.839	0.639	0.0	0.8	0.8	6.7	O K
480 min Summer	99.794	0.594	0.0	0.7	0.7	6.2	O K
600 min Summer	99.752	0.552	0.0	0.7	0.7	5.8	O K
720 min Summer	99.714	0.514	0.0	0.7	0.7	5.4	O K
960 min Summer	99.663	0.463	0.0	0.6	0.6	4.8	O K
1440 min Summer	99.575	0.375	0.0	0.6	0.6	3.9	O K
2160 min Summer	99.478	0.278	0.0	0.5	0.5	2.9	O K
2880 min Summer	99.405	0.205	0.0	0.5	0.5	2.1	O K
4320 min Summer	99.260	0.060	0.0	0.4	0.4	0.6	O K
5760 min Summer	99.248	0.048	0.0	0.3	0.3	0.5	O K
7200 min Summer	99.242	0.042	0.0	0.3	0.3	0.4	O K
8640 min Summer	99.238	0.038	0.0	0.2	0.2	0.4	O K
Storm Event			Rain (mm/hr)	Time-Peak (mins)			
15 min Summer			169.531	18			
30 min Summer			99.761	32			
60 min Summer			58.705	60			
120 min Summer			34.545	94			
180 min Summer			25.332	126			
240 min Summer			20.328	162			
360 min Summer			14.907	230			
480 min Summer			11.962	298			
600 min Summer			10.085	364			
720 min Summer			8.772	430			
960 min Summer			7.195	560			
1440 min Summer			5.441	810			
2160 min Summer			4.115	1188			
2880 min Summer			3.375	1560			
4320 min Summer			2.414	2200			
5760 min Summer			1.904	2912			
7200 min Summer			1.583	3592			
8640 min Summer			1.362	4320			
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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
10080 min Summer	99.235	0.035		0.0	0.2	0.2	0.4 O K
15 min Winter	99.897	0.697		0.0	0.8	0.8	7.3 O K
30 min Winter	99.982	0.782		0.0	0.8	0.8	8.2 O K
60 min Winter	100.043	0.843	0.0	0.9	0.9	8.8	O K
120 min Winter	100.040	0.840	0.0	0.9	0.9	8.7	O K
180 min Winter	100.012	0.812	0.0	0.9	0.9	8.5	O K
240 min Winter	99.977	0.777	0.0	0.8	0.8	8.1	O K
360 min Winter	99.903	0.703	0.0	0.8	0.8	7.3	O K
480 min Winter	99.834	0.634	0.0	0.8	0.8	6.6	O K
600 min Winter	99.773	0.573	0.0	0.7	0.7	6.0	O K
720 min Winter	99.718	0.518	0.0	0.7	0.7	5.4	O K
960 min Winter	99.642	0.442	0.0	0.6	0.6	4.6	O K
1440 min Winter	99.526	0.326	0.0	0.5	0.5	3.4	O K
2160 min Winter	99.399	0.199	0.0	0.5	0.5	2.1	O K
2880 min Winter	99.261	0.061	0.0	0.4	0.4	0.6	O K
4320 min Winter	99.245	0.045	0.0	0.3	0.3	0.5	O K
5760 min Winter	99.238	0.038	0.0	0.3	0.3	0.4	O K
7200 min Winter	99.234	0.034	0.0	0.2	0.2	0.4	O K
8640 min Winter	99.231	0.031	0.0	0.2	0.2	0.3	O K
	Storm Event		Rain (mm/hr)		Time-Peak (mins)		
	10080 min Summer		1.199		5120		
	15 min Winter		169.531		18		
	30 min Winter		99.761		32		
	60 min Winter		58.705		60		
	120 min Winter		34.545		98		
	180 min Winter		25.332		136		
	240 min Winter		20.328		174		
	360 min Winter		14.907		248		
	480 min Winter		11.962		320		
	600 min Winter		10.085		388		
	720 min Winter		8.772		456		
	960 min Winter		7.195		588		
	1440 min Winter		5.441		850		
	2160 min Winter		4.115		1256		
	2880 min Winter		3.375		1472		
	4320 min Winter		2.414		2180		
	5760 min Winter		1.904		2928		
	7200 min Winter		1.583		3576		
	8640 min Winter		1.362		4344		
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Rainfall Details

Rainfall Model	FEH
Return Period (years)	100
Site Location	418750 422100 SE 18750 22100
C (1km)	-0.025
D1 (1km)	0.350
D2 (1km)	0.426
D3 (1km)	0.289
E (1km)	0.300
F (1km)	2.356
Summer Storms	Yes
Winter Storms	Yes
Cv (Summer)	0.750
Cv (Winter)	0.840
Shortest Storm (mins)	15
Longest Storm (mins)	10080
Climate Change %	+40

Time / Area Diagram

Total Area (ha) 0.022

Time (mins)	Area (ha)
0-4	0.022

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<u>Model Details</u> Storage is Online Cover Level (m) 100.500 <u>Cellular Storage Structure</u> Invert Level (m) 99.200 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>11.0</td><td>11.0</td><td>2.600</td><td>0.0</td><td>22.9</td></tr> <tr><td>0.200</td><td>11.0</td><td>13.7</td><td>2.800</td><td>0.0</td><td>22.9</td></tr> <tr><td>0.400</td><td>11.0</td><td>16.3</td><td>3.000</td><td>0.0</td><td>22.9</td></tr> <tr><td>0.600</td><td>11.0</td><td>19.0</td><td>3.200</td><td>0.0</td><td>22.9</td></tr> <tr><td>0.800</td><td>11.0</td><td>21.6</td><td>3.400</td><td>0.0</td><td>22.9</td></tr> <tr><td>1.000</td><td>0.0</td><td>22.9</td><td>3.600</td><td>0.0</td><td>22.9</td></tr> <tr><td>1.200</td><td>0.0</td><td>22.9</td><td>3.800</td><td>0.0</td><td>22.9</td></tr> <tr><td>1.400</td><td>0.0</td><td>22.9</td><td>4.000</td><td>0.0</td><td>22.9</td></tr> <tr><td>1.600</td><td>0.0</td><td>22.9</td><td>4.200</td><td>0.0</td><td>22.9</td></tr> <tr><td>1.800</td><td>0.0</td><td>22.9</td><td>4.400</td><td>0.0</td><td>22.9</td></tr> <tr><td>2.000</td><td>0.0</td><td>22.9</td><td>4.600</td><td>0.0</td><td>22.9</td></tr> <tr><td>2.200</td><td>0.0</td><td>22.9</td><td>4.800</td><td>0.0</td><td>22.9</td></tr> <tr><td>2.400</td><td>0.0</td><td>22.9</td><td>5.000</td><td>0.0</td><td>22.9</td></tr> </tbody> </table> <u>Hydro-Brake® Outflow Control</u> Design Head (m) 1.200 Hydro-Brake® Type Md4 Invert Level (m) 99.200 Design Flow (l/s) 1.0 Diameter (mm) 35 <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>0.4</td><td>1.200</td><td>1.0</td><td>3.000</td><td>1.6</td><td>7.000</td><td>2.5</td></tr> <tr><td>0.200</td><td>0.4</td><td>1.400</td><td>1.1</td><td>3.500</td><td>1.8</td><td>7.500</td><td>2.6</td></tr> <tr><td>0.300</td><td>0.5</td><td>1.600</td><td>1.2</td><td>4.000</td><td>1.9</td><td>8.000</td><td>2.7</td></tr> <tr><td>0.400</td><td>0.6</td><td>1.800</td><td>1.3</td><td>4.500</td><td>2.0</td><td>8.500</td><td>2.7</td></tr> <tr><td>0.500</td><td>0.7</td><td>2.000</td><td>1.3</td><td>5.000</td><td>2.1</td><td>9.000</td><td>2.8</td></tr> <tr><td>0.600</td><td>0.7</td><td>2.200</td><td>1.4</td><td>5.500</td><td>2.2</td><td>9.500</td><td>2.9</td></tr> <tr><td>0.800</td><td>0.8</td><td>2.400</td><td>1.5</td><td>6.000</td><td>2.3</td><td></td><td></td></tr> <tr><td>1.000</td><td>0.9</td><td>2.600</td><td>1.5</td><td>6.500</td><td>2.4</td><td></td><td></td></tr> </tbody> </table>			Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)	0.000	11.0	11.0	2.600	0.0	22.9	0.200	11.0	13.7	2.800	0.0	22.9	0.400	11.0	16.3	3.000	0.0	22.9	0.600	11.0	19.0	3.200	0.0	22.9	0.800	11.0	21.6	3.400	0.0	22.9	1.000	0.0	22.9	3.600	0.0	22.9	1.200	0.0	22.9	3.800	0.0	22.9	1.400	0.0	22.9	4.000	0.0	22.9	1.600	0.0	22.9	4.200	0.0	22.9	1.800	0.0	22.9	4.400	0.0	22.9	2.000	0.0	22.9	4.600	0.0	22.9	2.200	0.0	22.9	4.800	0.0	22.9	2.400	0.0	22.9	5.000	0.0	22.9	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	0.100	0.4	1.200	1.0	3.000	1.6	7.000	2.5	0.200	0.4	1.400	1.1	3.500	1.8	7.500	2.6	0.300	0.5	1.600	1.2	4.000	1.9	8.000	2.7	0.400	0.6	1.800	1.3	4.500	2.0	8.500	2.7	0.500	0.7	2.000	1.3	5.000	2.1	9.000	2.8	0.600	0.7	2.200	1.4	5.500	2.2	9.500	2.9	0.800	0.8	2.400	1.5	6.000	2.3			1.000	0.9	2.600	1.5	6.500	2.4		
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