

Attenuation Tank - Cherrywood

Discharge at 1.0 l/s

Date 08/07/2022



Summary of Results for 100 year Return Period (+30%)

Half Drain Time : 42 minutes.

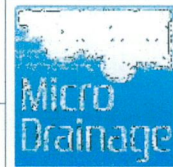
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m ³)	Status
15 min Summer	98.636	0.636	0.0	0.8	0.8	2.5	O K
30 min Summer	98.807	0.807	0.0	0.9	0.9	3.2	O K
60 min Summer	98.859	0.859	0.0	0.9	0.9	3.4	O K
120 min Summer	98.831	0.831	0.0	0.9	0.9	3.3	O K
180 min Summer	98.773	0.773	0.0	0.9	0.9	3.1	O K
240 min Summer	98.711	0.711	0.0	0.9	0.9	2.8	O K
360 min Summer	98.586	0.586	0.0	0.8	0.8	2.3	O K
480 min Summer	98.466	0.466	0.0	0.8	0.8	1.9	O K
600 min Summer	98.316	0.316	0.0	0.8	0.8	1.3	O K
720 min Summer	98.225	0.225	0.0	0.8	0.8	0.9	O K
960 min Summer	98.127	0.127	0.0	0.8	0.8	0.5	O K
1440 min Summer	98.067	0.067	0.0	0.7	0.7	0.3	O K
2160 min Summer	98.048	0.048	0.0	0.5	0.5	0.2	O K
2880 min Summer	98.040	0.040	0.0	0.4	0.4	0.2	O K
15 min Winter	98.726	0.726	0.0	0.9	0.9	2.9	O K
30 min Winter	98.927	0.927	0.0	1.0	1.0	3.7	O K
60 min Winter	98.993	0.993	0.0	1.0	1.0	4.0	O K
120 min Winter	98.936	0.936	0.0	1.0	1.0	3.7	O K
180 min Winter	98.838	0.838	0.0	0.9	0.9	3.3	O K
240 min Winter	98.738	0.738	0.0	0.9	0.9	2.9	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Discharge Volume (m ³)	Time-Peak (mins)
15 min Summer	99.655	0.0	3.4	22
30 min Summer	67.880	0.0	4.6	32
60 min Summer	43.328	0.0	5.8	52
120 min Summer	26.980	0.0	7.3	86
180 min Summer	20.276	0.0	8.2	120
240 min Summer	16.534	0.0	8.9	154
360 min Summer	12.363	0.0	10.0	220
480 min Summer	10.046	0.0	10.8	286
600 min Summer	8.548	0.0	11.5	340
720 min Summer	7.489	0.0	12.1	394
960 min Summer	6.076	0.0	13.1	504
1440 min Summer	4.523	0.0	14.7	736
2160 min Summer	3.366	0.0	16.4	1092
2880 min Summer	2.728	0.0	17.7	1460
15 min Winter	99.655	0.0	3.8	22
30 min Winter	67.880	0.0	5.1	33
60 min Winter	43.328	0.0	6.5	54
120 min Winter	26.980	0.0	8.2	92
180 min Winter	20.276	0.0	9.2	128
240 min Winter	16.534	0.0	10.0	164

Attenuation Tank - CHERRYWOOD

Discharge at 1.0 l/s

Date 08/07/2022



Summary of Results for 100 year Return Period (+30%)

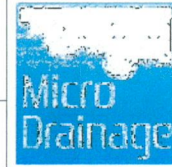
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m ³)	Status
360 min Winter	98.543	0.543	0.0	0.8	0.8	2.2	O K
480 min Winter	98.298	0.298	0.0	0.8	0.8	1.2	O K
600 min Winter	98.163	0.163	0.0	0.8	0.8	0.7	O K
720 min Winter	98.103	0.103	0.0	0.8	0.8	0.4	O K
960 min Winter	98.065	0.065	0.0	0.6	0.6	0.3	O K
1440 min Winter	98.047	0.047	0.0	0.5	0.5	0.2	O K
2160 min Winter	98.036	0.036	0.0	0.4	0.4	0.1	O K
2880 min Winter	98.032	0.032	0.0	0.3	0.3	0.1	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Discharge Volume (m ³)	Time-Peak (mins)
360 min Winter	12.363	0.0	11.2	236
480 min Winter	10.046	0.0	12.2	290
600 min Winter	8.548	0.0	12.9	338
720 min Winter	7.489	0.0	13.6	386
960 min Winter	6.076	0.0	14.7	492
1440 min Winter	4.523	0.0	16.4	726
2160 min Winter	3.366	0.0	18.3	1104
2880 min Winter	2.728	0.0	19.8	1444

Attenuation Tank- CHERRYWOOD

Discharge at 1.0 l/s

Date 08/07/2022



Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	0.750
Region	Scotland and Ireland	Cv (Winter)	0.840
M5-60 (mm)	17.000	Shortest Storm (mins)	15
Ratio R	0.300	Longest Storm (mins)	2880
Summer Storms	Yes	Climate Change %	+30

Time Area Diagram

Total Area (ha) 0.018

Time (mins)	Area (ha)	Time (mins)	Area (ha)	Time (mins)	Area (ha)
From:	To:	From:	To:	From:	To:
0	4	4	8	8	12
	0.006		0.006		0.006

Attenuation Tank - CHERRYWOOD

Discharge at 1.0 l/s

Date 08/07/2022



Model Details

Storage is Online Cover Level (m) 100.000

Cellular Storage Structure

Invert Level (m) 98.000 Safety Factor 2.0
 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
 Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	4.2	0.0	1.001	0.1	0.0
1.000	4.2	0.0	2.000	0.1	0.0

Hydro-Brake® Optimum Outflow Control

Unit Reference MD-SHE-0047-1000-1000-1000
 Design Head (m) 1.000
 Design Flow (l/s) 1.0
 Flush-Flo™ Calculated
 Objective Minimise upstream storage
 Application Surface
 Sump Available Yes
 Diameter (mm) 47
 Invert Level (m) 98.000
 Minimum Outlet Pipe Diameter (mm) 75
 Suggested Manhole Diameter (mm) 1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.000	1.0
Flush-Flo™	0.205	0.8
Kick-Flo®	0.415	0.7
Mean Flow over Head Range	-	0.8

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	0.8	1.200	1.1	3.000	1.6	7.000	2.4
0.200	0.8	1.400	1.2	3.500	1.8	7.500	2.5
0.300	0.8	1.600	1.2	4.000	1.9	8.000	2.6
0.400	0.7	1.800	1.3	4.500	2.0	8.500	2.7
0.500	0.7	2.000	1.4	5.000	2.1	9.000	2.7
0.600	0.8	2.200	1.4	5.500	2.2	9.500	2.8
0.800	0.9	2.400	1.5	6.000	2.3		
1.000	1.0	2.600	1.5	6.500	2.3		