

T J Booth Associates		Page 1
104 Yorkshire St Rochdale Lancashire OL16 1JY	attenuation pond morris 1 wildhouse ct milnrow	
Date nov 2025 - rev0 File calc-tjba-morris-1 wildhouse ct-pon...	Designed By ds Checked By	
Micro Drainage	Source Control W.10.4	

Summary of Results for 100 year Return Period (+45%)

Storm Duration (mins)	Maximum Control (l/s)	Maximum Outflow (l/s)	Maximum Water Level (m OD)	Maximum Depth (m)	Maximum Volume (m ³)	Status
15 Summer	4.1	4.1	174.1563	0.3562	11.9	O K
30 Summer	4.5	4.5	174.2207	0.4207	14.7	O K
60 Summer	4.8	4.8	174.2617	0.4617	16.6	O K
120 Summer	4.8	4.8	174.2657	0.4657	16.8	O K
180 Summer	4.7	4.7	174.2437	0.4437	15.7	O K
240 Summer	4.5	4.5	174.2182	0.4182	14.6	O K
360 Summer	4.2	4.2	174.1702	0.3702	12.5	O K
480 Summer	4.0	4.0	174.1288	0.3287	10.7	O K
600 Summer	3.7	3.7	174.0932	0.2932	9.3	O K
720 Summer	3.5	3.5	174.0632	0.2632	8.2	O K
960 Summer	3.1	3.1	174.0163	0.2162	6.5	O K
1440 Summer	2.6	2.6	173.9557	0.1558	4.5	O K
2160 Summer	2.0	2.0	173.9088	0.1088	3.0	O K
2880 Summer	1.7	1.7	173.8858	0.0858	2.3	O K
4320 Summer	1.3	1.3	173.8692	0.0692	1.8	O K
5760 Summer	1.0	1.0	173.8603	0.0602	1.6	O K
7200 Summer	0.9	0.9	173.8542	0.0542	1.4	O K
8640 Summer	0.8	0.8	173.8503	0.0502	1.3	O K
10080 Summer	0.7	0.7	173.8468	0.0467	1.2	O K
15 Winter	4.4	4.4	174.1927	0.3927	13.4	O K
30 Winter	4.8	4.8	174.2648	0.4647	16.7	O K
60 Winter	5.0	5.0	174.3047	0.5047	18.7	FLOOD RISK
120 Winter	5.0	5.0	174.2982	0.4982	18.4	O K
180 Winter	4.8	4.8	174.2617	0.4617	16.6	O K
240 Winter	4.6	4.6	174.2227	0.4227	14.8	O K

Storm Duration (mins)	Rain (mm/hr)	Time-Peak (mins)
15 Summer	89.23	16
30 Summer	61.54	27
60 Summer	40.51	44
120 Summer	25.63	78
180 Summer	19.23	112
240 Summer	15.63	146
360 Summer	11.65	210
480 Summer	9.44	272
600 Summer	8.01	332
720 Summer	7.00	392
960 Summer	5.65	512
1440 Summer	4.17	750
2160 Summer	3.07	1104
2880 Summer	2.46	1468
4320 Summer	1.81	2200
5760 Summer	1.45	2920
7200 Summer	1.23	3624
8640 Summer	1.07	4368
10080 Summer	0.95	5088
15 Winter	89.23	16
30 Winter	61.54	29
60 Winter	40.51	48
120 Winter	25.63	86
180 Winter	19.23	120
240 Winter	15.63	156

T J Booth Associates		Page 2
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360 Winter	4.1	4.1	174.1532	0.3532	11.7	O K
480 Winter	3.7	3.7	174.0963	0.2962	9.5	O K
600 Winter	3.4	3.4	174.0513	0.2512	7.8	O K
720 Winter	3.1	3.1	174.0157	0.2157	6.5	O K
960 Winter	2.7	2.7	173.9648	0.1648	4.8	O K
1440 Winter	2.1	2.1	173.9098	0.1098	3.1	O K
2160 Winter	1.6	1.6	173.8798	0.0798	2.1	O K
2880 Winter	1.2	1.2	173.8688	0.0688	1.8	O K
4320 Winter	0.9	0.9	173.8562	0.0562	1.5	O K
5760 Winter	0.7	0.7	173.8497	0.0497	1.3	O K
7200 Winter	0.6	0.6	173.8443	0.0442	1.2	O K
8640 Winter	0.5	0.5	173.8403	0.0402	1.0	O K
10080 Winter	0.5	0.5	173.8372	0.0372	1.0	O K

Storm Duration (mins)	Rain (mm/hr)	Time-Peak (mins)
360 Winter	11.65	220
480 Winter	9.44	282
600 Winter	8.01	342
720 Winter	7.00	402
960 Winter	5.65	520
1440 Winter	4.17	752
2160 Winter	3.07	1100
2880 Winter	2.46	1468
4320 Winter	1.81	2204
5760 Winter	1.45	2880
7200 Winter	1.23	3560
8640 Winter	1.07	4336
10080 Winter	0.95	5080

Rainfall Details

Region	ENG+WAL	Shortest Storm (mins)	15
Return Period (years)	100	Longest Storm (mins)	10080
M5-60 (mm)	20.000	Summer Storms	Yes
Ratio-R	0.300	Winter Storms	Yes
Cv (Summer)	0.750	Climate Change %	+45
Cv (Winter)	0.840		

Time / Area Diagram

Total Area (ha) = 0.059

Time	(mins)	Area
from:	to:	(ha)
0	4	0.059

Tank/Pond Details

Invert Level (m) 173.800 Ground Level (m) 174.500

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.00	25.0	0.50	50.0	1.00	50.0	1.50	50.0	2.00	50.0	2.50	50.0
0.10	30.0	0.60	50.0	1.10	50.0	1.60	50.0	2.10	50.0		
0.20	34.0	0.70	50.0	1.20	50.0	1.70	50.0	2.20	50.0		
0.30	39.0	0.80	50.0	1.30	50.0	1.80	50.0	2.30	50.0		
0.40	44.0	0.90	50.0	1.40	50.0	1.90	50.0	2.40	50.0		

Orifice Outflow Control

Diameter (m) 0.060 Invert Level (m) 173.800

Discharge Coefficient 0.580