

T J Booth Associates		Page 1
104 Yorkshire St Rochdale Lancashire OL16 1JY		
Date 14 August 2026 18:14 File calc-tjba-B&L-star works-attenuatio...	Designed By Pc3 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 (m³)	Status
15 Summer	5.0	5.0	121.1117	0.3117	5.1	O K
30 Summer	5.0	5.0	121.1547	0.3547	5.9	O K
60 Summer	5.0	5.0	121.1523	0.3522	5.8	O K
120 Summer	5.0	5.0	121.0742	0.2742	4.5	O K
180 Summer	5.0	5.0	120.9772	0.1772	2.9	O K
240 Summer	5.0	5.0	120.9078	0.1078	1.8	O K
360 Summer	4.3	4.3	120.8408	0.0407	0.7	O K
480 Summer	4.0	4.0	120.8058	0.0058	0.1	O K
600 Summer	3.5	3.5	120.8000	0.0000	0.0	O K
720 Summer	3.1	3.1	120.8000	0.0000	0.0	O K
960 Summer	2.5	2.5	120.8000	0.0000	0.0	O K
1440 Summer	1.8	1.8	120.8000	0.0000	0.0	O K
2160 Summer	1.3	1.3	120.8000	0.0000	0.0	O K
2880 Summer	1.1	1.1	120.8000	0.0000	0.0	O K
4320 Summer	0.8	0.8	120.8000	0.0000	0.0	O K
5760 Summer	0.6	0.6	120.8000	0.0000	0.0	O K
7200 Summer	0.5	0.5	120.8000	0.0000	0.0	O K
8640 Summer	0.5	0.5	120.8000	0.0000	0.0	O K
10080 Summer	0.4	0.4	120.8000	0.0000	0.0	O K
15 Winter	5.0	5.0	121.1693	0.3692	6.1	O K
30 Winter	5.0	5.0	121.2113	0.4112	6.8	O K
60 Winter	5.0	5.0	121.1898	0.3897	6.4	O K
120 Winter	5.0	5.0	121.0498	0.2497	4.1	O K
180 Winter	5.0	5.0	120.9113	0.1113	1.8	O K
240 Winter	4.5	4.5	120.8508	0.0508	0.8	O K
360 Winter	3.7	3.7	120.8000	0.0000	0.0	O K
480 Winter	3.0	3.0	120.8000	0.0000	0.0	O K
600 Winter	2.5	2.5	120.8000	0.0000	0.0	O K
720 Winter	2.2	2.2	120.8000	0.0000	0.0	O K
960 Winter	1.8	1.8	120.8000	0.0000	0.0	O K

Storm Duration (mins)	Rain (mm/hr)	Time-Peak (mins)
15 Summer	89.23	14
30 Summer	61.54	23
60 Summer	40.51	40
120 Summer	25.63	74
180 Summer	19.23	104
240 Summer	15.63	132
360 Summer	11.65	190
480 Summer	9.44	246
600 Summer	8.01	0
720 Summer	7.00	0
960 Summer	5.65	0
1440 Summer	4.17	0
2160 Summer	3.07	0
2880 Summer	2.46	0
4320 Summer	1.81	0
5760 Summer	1.45	0
7200 Summer	1.23	0
8640 Summer	1.07	0
10080 Summer	0.95	0
15 Winter	89.23	15
30 Winter	61.54	25
60 Winter	40.51	44
120 Winter	25.63	78
180 Winter	19.23	106
240 Winter	15.63	134
360 Winter	11.65	0
480 Winter	9.44	0
600 Winter	8.01	0
720 Winter	7.00	0
960 Winter	5.65	0

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 (m³)	Status
1440 Winter	1.3	1.3	120.8000	0.0000	0.0	O K
2160 Winter	1.0	1.0	120.8000	0.0000	0.0	O K
2880 Winter	0.8	0.8	120.8000	0.0000	0.0	O K
4320 Winter	0.6	0.6	120.8000	0.0000	0.0	O K
5760 Winter	0.5	0.5	120.8000	0.0000	0.0	O K
7200 Winter	0.4	0.4	120.8000	0.0000	0.0	O K
8640 Winter	0.3	0.3	120.8000	0.0000	0.0	O K
10080 Winter	0.3	0.3	120.8000	0.0000	0.0	O K

Storm Duration (mins)	Rain (mm/hr)	Time-Peak (mins)
1440 Winter	4.17	0
2160 Winter	3.07	0
2880 Winter	2.46	0
4320 Winter	1.81	0
5760 Winter	1.45	0
7200 Winter	1.23	0
8640 Winter	1.07	0
10080 Winter	0.95	0

Rainfall Details

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

Time / Area Diagram

Total Area (ha) = 0.037

Time	(mins)	Area
from:	to:	(ha)
	0	4
		0.037

Tank/Pond Details

Invert Level (m)		120.800	Ground Level (m)		121.700								
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)	Depth (m)	Area (m ²)
0.00	16.5	0.40	16.5	0.80	16.5	1.20	16.5	1.60	16.5	2.00	16.5	2.40	16.5
0.10	16.5	0.50	16.5	0.90	16.5	1.30	16.5	1.70	16.5	2.10	16.5	2.50	16.5
0.20	16.5	0.60	16.5	1.00	16.5	1.40	16.5	1.80	16.5	2.20	16.5		
0.30	16.5	0.70	16.5	1.10	16.5	1.50	16.5	1.90	16.5	2.30	16.5		

Depth / Flow Outflow Control

Invert Level of Control 120.700											
Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.10	3.9	0.60	5.4	1.60	7.9	2.60	10.1	5.00	14.0	7.50	17.2
0.20	5.0	0.80	5.7	1.80	8.4	3.00	10.9	5.50	14.7	8.00	17.8
0.30	4.8	1.00	6.3	2.00	8.9	3.50	11.7	6.00	15.4	8.50	18.3
0.40	4.5	1.20	6.9	2.20	9.3	4.00	12.6	6.50	16.0	9.00	18.8
0.50	5.0	1.40	7.4	2.40	9.7	4.50	13.3	7.00	16.6	9.50	19.4