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104 Yorkshire St Rochdale Lancashire OL16 1JY	rear site attenuation GB Services Riverside Business Park	
Date jan 2025 rev0 File CALC-T~1.SRC	Designed By ds Checked By	
Micro Drainage	Source Control W.10.4	

Summary of Results for 1 year Return Period

Storm Duration (mins)	Maximum Control (1/s)	Maximum Outflow (1/s)	Maximum Water Level (m OD)	Maximum Depth (m)	Maximum Volume (m ³)	Status
15 Summer	3.3	3.3	144.4872	0.0372	4.7	O K
30 Summer	3.7	3.7	144.4962	0.0463	5.8	O K
60 Summer	3.8	3.8	144.5038	0.0538	6.8	O K
120 Summer	3.9	3.9	144.5098	0.0598	7.5	O K
180 Summer	3.9	3.9	144.5098	0.0598	7.6	O K
240 Summer	3.9	3.9	144.5078	0.0578	7.3	O K
360 Summer	3.8	3.8	144.5022	0.0523	6.6	O K
480 Summer	3.7	3.7	144.4973	0.0473	6.0	O K
600 Summer	3.5	3.5	144.4928	0.0427	5.4	O K
720 Summer	3.4	3.4	144.4888	0.0387	4.9	O K
960 Summer	3.1	3.1	144.4823	0.0322	4.1	O K
1440 Summer	2.7	2.7	144.4717	0.0217	2.8	O K
2160 Summer	2.3	2.3	144.4612	0.0113	1.4	O K
2880 Summer	2.1	2.1	144.4547	0.0048	0.6	O K
4320 Summer	1.7	1.7	144.4500	0.0000	0.0	O K
5760 Summer	1.5	1.5	144.4500	0.0000	0.0	O K
7200 Summer	1.3	1.3	144.4500	0.0000	0.0	O K
8640 Summer	1.1	1.1	144.4500	0.0000	0.0	O K
10080 Summer	1.0	1.0	144.4500	0.0000	0.0	O K
15 Winter	3.5	3.5	144.4932	0.0433	5.5	O K
30 Winter	3.8	3.8	144.5038	0.0538	6.8	O K
60 Winter	3.9	3.9	144.5112	0.0613	7.8	O K
120 Winter	4.0	4.0	144.5143	0.0643	8.1	O K
180 Winter	3.9	3.9	144.5107	0.0608	7.7	O K
240 Winter	3.9	3.9	144.5052	0.0553	7.0	O K

Storm Duration (mins)	Rain (mm/hr)	Time-Peak (mins)
15 Summer	24.64	15
30 Summer	17.85	24
60 Summer	12.80	42
120 Summer	9.13	76
180 Summer	7.44	110
240 Summer	6.40	142
360 Summer	5.18	204
480 Summer	4.46	266
600 Summer	3.97	328
720 Summer	3.61	390
960 Summer	3.11	510
1440 Summer	2.52	752
2160 Summer	2.02	1108
2880 Summer	1.72	1472
4320 Summer	1.36	0
5760 Summer	1.15	0
7200 Summer	1.01	0
8640 Summer	0.91	0
10080 Summer	0.83	0
15 Winter	24.64	15
30 Winter	17.85	25
60 Winter	12.80	44
120 Winter	9.13	82
180 Winter	7.44	116
240 Winter	6.40	150

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Summary of Results for 1 year Return Period

Storm Duration (mins)	Maximum Control (l/s)	Maximum Outflow (l/s)	Maximum Water Level (m OD)	Maximum Depth (m)	Maximum Volume (m ³)	Status
360 Winter	3.6	3.6	144.4957	0.0457	5.8	O K
480 Winter	3.4	3.4	144.4888	0.0387	4.9	O K
600 Winter	3.1	3.1	144.4823	0.0322	4.1	O K
720 Winter	2.9	2.9	144.4772	0.0272	3.4	O K
960 Winter	2.6	2.6	144.4688	0.0188	2.4	O K
1440 Winter	2.2	2.2	144.4577	0.0078	1.0	O K
2160 Winter	1.8	1.8	144.4500	0.0000	0.0	O K
2880 Winter	1.6	1.6	144.4500	0.0000	0.0	O K
4320 Winter	1.2	1.2	144.4500	0.0000	0.0	O K
5760 Winter	1.0	1.0	144.4500	0.0000	0.0	O K
7200 Winter	0.9	0.9	144.4500	0.0000	0.0	O K
8640 Winter	0.8	0.8	144.4500	0.0000	0.0	O K
10080 Winter	0.8	0.8	144.4500	0.0000	0.0	O K

Storm Duration (mins)	Rain (mm/hr)	Time-Peak (mins)
360 Winter	5.18	214
480 Winter	4.46	276
600 Winter	3.97	338
720 Winter	3.61	398
960 Winter	3.11	522
1440 Winter	2.52	764
2160 Winter	2.02	0
2880 Winter	1.72	0
4320 Winter	1.36	0
5760 Winter	1.15	0
7200 Winter	1.01	0
8640 Winter	0.91	0
10080 Winter	0.83	0

Rainfall Details

Region	ENG+WAL	Shortest Storm (mins)	15
Return Period (years)	1	Longest Storm (mins)	10080
M5-60 (mm)	20.000	Summer Storms	Yes
Ratio-R	0.200	Winter Storms	Yes
Cv (Summer)	0.750	Climate Change %	+0
Cv (Winter)	0.840		

Time / Area Diagram

Total Area (ha) = 0.154

Time	(mins)	Area
from:	to:	(ha)
0	4	0.154

Tank/Pond Details

Invert Level (m) 144.450 Ground Level (m) 145.700

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)
0.00	126.5	0.60	126.5	1.20	126.5	1.80	126.5	2.40	126.5
0.10	126.5	0.70	126.5	1.30	126.5	1.90	126.5	2.50	126.5
0.20	126.5	0.80	126.5	1.40	126.5	2.00	126.5		
0.30	126.5	0.90	126.5	1.50	126.5	2.10	126.5		
0.40	126.5	1.00	126.5	1.60	126.5	2.20	126.5		
0.50	126.5	1.10	126.5	1.70	126.5	2.30	126.5		

Depth / Flow Outflow Control

Invert Level of Control 144.400

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	3.8	0.80	5.4	2.00	8.5	4.00	12.0	7.00	15.9
0.20	5.0	1.00	6.0	2.20	8.9	4.50	12.8	7.50	16.5
0.30	4.9	1.20	6.6	2.40	9.3	5.00	13.5	8.00	17.0
0.40	4.6	1.40	7.1	2.60	9.7	5.50	14.1	8.50	17.6
0.50	4.4	1.60	7.6	3.00	10.4	6.00	14.8	9.00	18.1
0.60	4.8	1.80	8.1	3.50	11.3	6.50	15.4	9.50	18.6