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104 Yorkshire St Rochdale Lancashire OL16 1JY	sw attenuation design wendy lane vets mason st heywood	
Date jun 2023 File calc-tjba-WLV-mason st-attenuation...	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	4.2	4.2	119.4617	0.4117	4.4	FLOOD RISK
30 Summer	4.5	4.5	119.5252	0.4752	5.0	FLOOD RISK
60 Summer	4.5	4.5	119.5293	0.4792	5.1	FLOOD RISK
120 Summer	4.2	4.2	119.4617	0.4117	4.4	FLOOD RISK
180 Summer	3.8	3.8	119.3897	0.3397	3.6	O K
240 Summer	3.5	3.5	119.3333	0.2832	3.0	O K
360 Summer	3.0	3.0	119.2533	0.2032	2.2	O K
480 Summer	2.6	2.6	119.2018	0.1517	1.6	O K
600 Summer	2.4	2.4	119.1663	0.1163	1.2	O K
720 Summer	2.1	2.1	119.1403	0.0903	1.0	O K
960 Summer	1.8	1.8	119.1077	0.0578	0.6	O K
1440 Summer	1.4	1.4	119.0768	0.0267	0.3	O K
2160 Summer	1.0	1.0	119.0623	0.0123	0.1	O K
2880 Summer	0.8	0.8	119.0543	0.0043	0.0	O K
4320 Summer	0.6	0.6	119.0500	0.0000	0.0	O K
5760 Summer	0.5	0.5	119.0500	0.0000	0.0	O K
7200 Summer	0.4	0.4	119.0500	0.0000	0.0	O K
8640 Summer	0.4	0.4	119.0500	0.0000	0.0	O K
10080 Summer	0.3	0.3	119.0500	0.0000	0.0	O K
15 Winter	4.4	4.4	119.5197	0.4697	5.0	FLOOD RISK
30 Winter	4.7	4.7	119.5837	0.5337	5.7	FLOOD RISK
60 Winter	4.6	4.6	119.5648	0.5147	5.5	FLOOD RISK
120 Winter	4.1	4.1	119.4498	0.3997	4.2	FLOOD RISK
180 Winter	3.6	3.6	119.3512	0.3012	3.2	O K
240 Winter	3.2	3.2	119.2808	0.2307	2.4	O K

Storm Duration (mins)	Rain (mm/hr)	Time-Peak (mins)
15 Summer	89.23	14
30 Summer	61.54	22
60 Summer	40.51	40
120 Summer	25.63	72
180 Summer	19.23	104
240 Summer	15.63	134
360 Summer	11.65	194
480 Summer	9.44	254
600 Summer	8.01	314
720 Summer	7.00	372
960 Summer	5.65	492
1440 Summer	4.17	734
2160 Summer	3.07	1088
2880 Summer	2.46	1464
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	14
30 Winter	61.54	24
60 Winter	40.51	42
120 Winter	25.63	76
180 Winter	19.23	108
240 Winter	15.63	138

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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	2.6	2.6	119.1938	0.1438	1.5	O K
480 Winter	2.2	2.2	119.1448	0.0948	1.0	O K
600 Winter	1.9	1.9	119.1152	0.0653	0.7	O K
720 Winter	1.6	1.6	119.0958	0.0457	0.5	O K
960 Winter	1.4	1.4	119.0758	0.0257	0.3	O K
1440 Winter	1.0	1.0	119.0613	0.0113	0.1	O K
2160 Winter	0.7	0.7	119.0508	0.0008	0.0	O K
2880 Winter	0.6	0.6	119.0500	0.0000	0.0	O K
4320 Winter	0.4	0.4	119.0500	0.0000	0.0	O K
5760 Winter	0.3	0.3	119.0500	0.0000	0.0	O K
7200 Winter	0.3	0.3	119.0500	0.0000	0.0	O K
8640 Winter	0.3	0.3	119.0500	0.0000	0.0	O K
10080 Winter	0.2	0.2	119.0500	0.0000	0.0	O K

Storm Duration (mins)	Rain (mm/hr)	Time-Peak (mins)
360 Winter	11.65	198
480 Winter	9.44	256
600 Winter	8.01	314
720 Winter	7.00	374
960 Winter	5.65	488
1440 Winter	4.17	736
2160 Winter	3.07	1076
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

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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) = 0.028

Time	(mins)	Area
from:	to:	(ha)
0	4	0.028

Tank/Pond Details

Invert Level (m) 119.050 Ground Level (m) 119.600

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	10.6	0.50	10.6	1.00	10.6	1.50	10.6	2.00	10.6	2.50	10.6
0.10	10.6	0.60	10.6	1.10	10.6	1.60	10.6	2.10	10.6		
0.20	10.6	0.70	10.6	1.20	10.6	1.70	10.6	2.20	10.6		
0.30	10.6	0.80	10.6	1.30	10.6	1.80	10.6	2.30	10.6		
0.40	10.6	0.90	10.6	1.40	10.6	1.90	10.6	2.40	10.6		

Orifice Outflow Control

Diameter (m) 0.055 Invert Level (m) 119.000
Discharge Coefficient 0.600