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104 Yorkshire St Rochdale Lancashire OL16 1JY	attenuation 1yr noon glenavon dr	
Date oct 2020 rev0 File CALC-T~2.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	4.3	4.3	20.2918	0.0518	0.6	O K
30 Summer	4.3	4.3	20.2868	0.0468	0.5	O K
60 Summer	3.9	3.9	20.2598	0.0197	0.2	O K
120 Summer	3.5	3.5	20.2400	0.0000	0.0	O K
180 Summer	2.8	2.8	20.2400	0.0000	0.0	O K
240 Summer	2.4	2.4	20.2400	0.0000	0.0	O K
360 Summer	1.8	1.8	20.2400	0.0000	0.0	O K
480 Summer	1.5	1.5	20.2400	0.0000	0.0	O K
600 Summer	1.4	1.4	20.2400	0.0000	0.0	O K
720 Summer	1.2	1.2	20.2400	0.0000	0.0	O K
960 Summer	1.0	1.0	20.2400	0.0000	0.0	O K
1440 Summer	0.8	0.8	20.2400	0.0000	0.0	O K
2160 Summer	0.6	0.6	20.2400	0.0000	0.0	O K
2880 Summer	0.5	0.5	20.2400	0.0000	0.0	O K
4320 Summer	0.4	0.4	20.2400	0.0000	0.0	O K
5760 Summer	0.3	0.3	20.2400	0.0000	0.0	O K
7200 Summer	0.3	0.3	20.2400	0.0000	0.0	O K
8640 Summer	0.3	0.3	20.2400	0.0000	0.0	O K
10080 Summer	0.2	0.2	20.2400	0.0000	0.0	O K
15 Winter	4.4	4.4	20.2973	0.0573	0.6	O K
30 Winter	4.2	4.2	20.2793	0.0392	0.4	O K
60 Winter	3.7	3.7	20.2433	0.0033	0.0	O K
120 Winter	2.6	2.6	20.2400	0.0000	0.0	O K
180 Winter	2.1	2.1	20.2400	0.0000	0.0	O K
240 Winter	1.7	1.7	20.2400	0.0000	0.0	O K

Storm Duration (mins)	Rain (mm/hr)	Time-Peak (mins)
15 Summer	28.17	12
30 Summer	19.18	20
60 Summer	12.80	36
120 Summer	8.41	0
180 Summer	6.56	0
240 Summer	5.47	0
360 Summer	4.21	0
480 Summer	3.50	0
600 Summer	3.03	0
720 Summer	2.70	0
960 Summer	2.25	0
1440 Summer	1.73	0
2160 Summer	1.33	0
2880 Summer	1.11	0
4320 Summer	0.85	0
5760 Summer	0.71	0
7200 Summer	0.61	0
8640 Summer	0.54	0
10080 Summer	0.49	0
15 Winter	28.17	13
30 Winter	19.18	21
60 Winter	12.80	34
120 Winter	8.41	0
180 Winter	6.56	0
240 Winter	5.47	0

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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	1.4	1.4	20.2400	0.0000	0.0	O K
480 Winter	1.1	1.1	20.2400	0.0000	0.0	O K
600 Winter	0.9	0.9	20.2400	0.0000	0.0	O K
720 Winter	0.9	0.9	20.2400	0.0000	0.0	O K
960 Winter	0.7	0.7	20.2400	0.0000	0.0	O K
1440 Winter	0.5	0.5	20.2400	0.0000	0.0	O K
2160 Winter	0.4	0.4	20.2400	0.0000	0.0	O K
2880 Winter	0.4	0.4	20.2400	0.0000	0.0	O K
4320 Winter	0.3	0.3	20.2400	0.0000	0.0	O K
5760 Winter	0.2	0.2	20.2400	0.0000	0.0	O K
7200 Winter	0.2	0.2	20.2400	0.0000	0.0	O K
8640 Winter	0.2	0.2	20.2400	0.0000	0.0	O K
10080 Winter	0.2	0.2	20.2400	0.0000	0.0	O K

Storm Duration (mins)	Rain (mm/hr)	Time-Peak (mins)
360 Winter	4.21	0
480 Winter	3.50	0
600 Winter	3.03	0
720 Winter	2.70	0
960 Winter	2.25	0
1440 Winter	1.73	0
2160 Winter	1.33	0
2880 Winter	1.11	0
4320 Winter	0.85	0
5760 Winter	0.71	0
7200 Winter	0.61	0
8640 Winter	0.54	0
10080 Winter	0.49	0

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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	0.300	Winter Storms	Yes
Cv (Summer)	0.750	Climate Change %	+0
Cv (Winter)	0.840		

Pipe Network

Volume in Pipe Network (m ³)	1	Dia of Outfall Pipe (m)	0.200
Slope of Outfall Pipe (1:x)	100.0	Roughness of Outfall Pipe	0.600

Time / Area Diagram

Total Area (ha) = 0.053

Time	(mins)	Area
from:	to:	(ha)
0	4	0.053

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Tank/Pond Details

Invert Level (m) 20.240 Ground Level (m) 21.770

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	11.0	0.50	11.0	1.00	11.0	1.50	11.0	2.00	11.0	2.50	11.0
0.10	11.0	0.60	11.0	1.10	11.0	1.60	11.0	2.10	11.0		
0.20	11.0	0.70	11.0	1.20	11.0	1.70	11.0	2.20	11.0		
0.30	11.0	0.80	11.0	1.30	11.0	1.80	11.0	2.30	11.0		
0.40	11.0	0.90	11.0	1.40	11.0	1.90	11.0	2.40	11.0		

Depth / Flow Outflow Control

Invert Level of Control 20.120

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	3.4	0.80	4.1	2.00	6.5	4.00	9.2	7.00	12.2
0.20	4.7	1.00	4.6	2.20	6.8	4.50	9.8	7.50	12.6
0.30	5.0	1.20	5.0	2.40	7.2	5.00	10.3	8.00	13.1
0.40	5.0	1.40	5.4	2.60	7.4	5.50	10.8	8.50	13.5
0.50	4.9	1.60	5.8	3.00	8.0	6.00	11.3	9.00	13.8
0.60	4.7	1.80	6.2	3.50	8.6	6.50	11.8	9.50	14.2