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104 Yorkshire St Rochdale Lancashire OL16 1JY	SW attenuation design hoyle devs woodheys rd smithy bridge	
Date sept 2023 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 (l/s)	Maximum Overflow (l/s)	Maximum Outflow (l/s)	Maximum Water Level (m OD)	Maximum Depth (m)	Overflow Volume (m ³)	Maximum Volume (m ³)	Status
15 Summer	2.1	0.0	2.1	176.6532	0.0432	0.0	0.5	O K
30 Summer	2.1	0.0	2.1	176.6517	0.0418	0.0	0.5	O K
60 Summer	2.0	0.0	2.0	176.6398	0.0297	0.0	0.4	O K
120 Summer	1.8	0.0	1.8	176.6198	0.0098	0.0	0.1	O K
180 Summer	1.7	0.0	1.7	176.6102	0.0003	0.0	0.0	O K
240 Summer	1.5	0.0	1.5	176.6100	0.0000	0.0	0.0	O K
360 Summer	1.1	0.0	1.1	176.6100	0.0000	0.0	0.0	O K
480 Summer	0.9	0.0	0.9	176.6100	0.0000	0.0	0.0	O K
600 Summer	0.8	0.0	0.8	176.6100	0.0000	0.0	0.0	O K
720 Summer	0.7	0.0	0.7	176.6100	0.0000	0.0	0.0	O K
960 Summer	0.6	0.0	0.6	176.6100	0.0000	0.0	0.0	O K
1440 Summer	0.5	0.0	0.5	176.6100	0.0000	0.0	0.0	O K
2160 Summer	0.4	0.0	0.4	176.6100	0.0000	0.0	0.0	O K
2880 Summer	0.3	0.0	0.3	176.6100	0.0000	0.0	0.0	O K
4320 Summer	0.2	0.0	0.2	176.6100	0.0000	0.0	0.0	O K
5760 Summer	0.2	0.0	0.2	176.6100	0.0000	0.0	0.0	O K
7200 Summer	0.2	0.0	0.2	176.6100	0.0000	0.0	0.0	O K
8640 Summer	0.1	0.0	0.1	176.6100	0.0000	0.0	0.0	O K
10080 Summer	0.1	0.0	0.1	176.6100	0.0000	0.0	0.0	O K
15 Winter	2.2	0.0	2.2	176.6588	0.0488	0.0	0.6	O K
30 Winter	2.1	0.0	2.1	176.6523	0.0423	0.0	0.5	O K
60 Winter	1.9	0.0	1.9	176.6308	0.0207	0.0	0.3	O K
120 Winter	1.6	0.0	1.6	176.6100	0.0000	0.0	0.0	O K
180 Winter	1.3	0.0	1.3	176.6100	0.0000	0.0	0.0	O K
240 Winter	1.1	0.0	1.1	176.6100	0.0000	0.0	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	66
180 Summer	6.56	94
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	38
120 Winter	8.41	0
180 Winter	6.56	0
240 Winter	5.47	0

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360 Winter	0.8	0.0	0.8	176.6100	0.0000	0.0	0.0	O K
480 Winter	0.7	0.0	0.7	176.6100	0.0000	0.0	0.0	O K
600 Winter	0.6	0.0	0.6	176.6100	0.0000	0.0	0.0	O K
720 Winter	0.5	0.0	0.5	176.6100	0.0000	0.0	0.0	O K
960 Winter	0.4	0.0	0.4	176.6100	0.0000	0.0	0.0	O K
1440 Winter	0.3	0.0	0.3	176.6100	0.0000	0.0	0.0	O K
2160 Winter	0.3	0.0	0.3	176.6100	0.0000	0.0	0.0	O K
2880 Winter	0.2	0.0	0.2	176.6100	0.0000	0.0	0.0	O K
4320 Winter	0.2	0.0	0.2	176.6100	0.0000	0.0	0.0	O K
5760 Winter	0.1	0.0	0.1	176.6100	0.0000	0.0	0.0	O K
7200 Winter	0.1	0.0	0.1	176.6100	0.0000	0.0	0.0	O K
8640 Winter	0.1	0.0	0.1	176.6100	0.0000	0.0	0.0	O K
10080 Winter	0.1	0.0	0.1	176.6100	0.0000	0.0	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		

Time / Area Diagram

Total Area (ha) = 0.033

Time	(mins)	Area
from:	to:	(ha)
0	4	0.033

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Tank/Pond Details

Invert Level (m) 176.610 Ground Level (m) 177.800

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	12.6	0.50	12.6	1.00	12.6	1.50	12.6	2.00	12.6	2.50	12.6
0.10	12.6	0.60	12.6	1.10	12.6	1.60	12.6	2.10	12.6		
0.20	12.6	0.70	12.6	1.20	12.6	1.70	12.6	2.20	12.6		
0.30	12.6	0.80	12.6	1.30	12.6	1.80	12.6	2.30	12.6		
0.40	12.6	0.90	12.6	1.40	12.6	1.90	12.6	2.40	12.6		

Orifice Outflow Control

Diameter (m) 0.055 Invert Level (m) 176.510
Discharge Coefficient 0.600

Pipe Overflow Control

Pipe Diameter (m) 0.100 Entry Loss Coef 0.500
Slope (1:x) 100.0 Coef of Contraction 0.600
Length (m) 1.000 Invert Level (m) 177.160
Roughness (mm) 0.600