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104 Yorkshire St Rochdale Lancashire OL16 1JY	atten' tank 30yr units 13-18 hallmark-dexine-rochdale	
Date Nov 2021 - revision1 File CALC-T~1.SRC	Designed By ds Checked By	
Micro Drainage		Source Control W.10.4

Summary of Results for 30 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	33.0	0.0	33.0	125.4688	0.5687	0.0	85.3	O K
30 Summer	37.4	0.0	37.4	125.6083	0.7083	0.0	106.2	O K
60 Summer	40.5	0.0	40.5	125.7183	0.8183	0.0	122.7	O K
120 Summer	41.4	0.0	41.4	125.7503	0.8503	0.0	127.6	O K
180 Summer	40.3	0.0	40.3	125.7108	0.8108	0.0	121.6	O K
240 Summer	38.8	0.0	38.8	125.6588	0.7588	0.0	113.8	O K
360 Summer	35.9	0.0	35.9	125.5598	0.6598	0.0	98.9	O K
480 Summer	33.3	0.0	33.3	125.4782	0.5782	0.0	86.7	O K
600 Summer	31.1	0.0	31.1	125.4122	0.5122	0.0	76.8	O K
720 Summer	29.1	0.0	29.1	125.3587	0.4587	0.0	68.8	O K
960 Summer	25.9	0.0	25.9	125.2783	0.3782	0.0	56.7	O K
1440 Summer	21.3	0.0	21.3	125.1803	0.2802	0.0	42.0	O K
2160 Summer	17.2	0.0	17.2	125.1117	0.2117	0.0	31.8	O K
2880 Summer	14.1	0.0	14.1	125.0843	0.1843	0.0	27.6	O K
4320 Summer	10.6	0.0	10.6	125.0523	0.1523	0.0	22.8	O K
5760 Summer	8.6	0.0	8.6	125.0343	0.1343	0.0	20.1	O K
7200 Summer	7.3	0.0	7.3	125.0223	0.1223	0.0	18.3	O K
8640 Summer	6.4	0.0	6.4	125.0113	0.1113	0.0	16.7	O K
10080 Summer	5.7	0.0	5.7	125.0028	0.1028	0.0	15.4	O K
15 Winter	35.2	0.0	35.2	125.5378	0.6378	0.0	95.6	O K
30 Winter	40.3	0.0	40.3	125.7113	0.8113	0.0	121.7	O K
60 Winter	43.0	0.0	43.0	125.8178	0.9178	0.0	137.7	O K
120 Winter	42.9	0.0	42.9	125.8108	0.9108	0.0	136.6	O K
180 Winter	40.9	0.0	40.9	125.7348	0.8348	0.0	125.2	O K
240 Winter	38.7	0.0	38.7	125.6528	0.7528	0.0	112.9	O K

Storm Duration (mins)	Rain (mm/hr)	Time-Peak (mins)
15 Summer	68.99	16
30 Summer	47.08	27
60 Summer	30.81	44
120 Summer	19.53	78
180 Summer	14.75	112
240 Summer	12.05	144
360 Summer	9.05	206
480 Summer	7.38	268
600 Summer	6.29	330
720 Summer	5.52	390
960 Summer	4.49	510
1440 Summer	3.35	750
2160 Summer	2.49	1100
2880 Summer	2.02	1468
4320 Summer	1.50	2200
5760 Summer	1.21	2928
7200 Summer	1.03	3672
8640 Summer	0.90	4408
10080 Summer	0.81	5136
15 Winter	68.99	16
30 Winter	47.08	29
60 Winter	30.81	46
120 Winter	19.53	84
180 Winter	14.75	118
240 Winter	12.05	152

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Summary of Results for 30 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
360 Winter	34.4	0.0	34.4	125.5128	0.6128	0.0	91.9	O K
480 Winter	30.9	0.0	30.9	125.4072	0.5072	0.0	76.1	O K
600 Winter	27.9	0.0	27.9	125.3282	0.4282	0.0	64.3	O K
720 Winter	25.5	0.0	25.5	125.2692	0.3692	0.0	55.4	O K
960 Winter	21.7	0.0	21.7	125.1878	0.2877	0.0	43.2	O K
1440 Winter	16.9	0.0	16.9	125.1087	0.2088	0.0	31.3	O K
2160 Winter	12.7	0.0	12.7	125.0713	0.1713	0.0	25.7	O K
2880 Winter	10.3	0.0	10.3	125.0498	0.1498	0.0	22.5	O K
4320 Winter	7.7	0.0	7.7	125.0253	0.1253	0.0	18.8	O K
5760 Winter	6.2	0.0	6.2	125.0093	0.1093	0.0	16.3	O K
7200 Winter	5.3	0.0	5.3	124.9973	0.0973	0.0	14.6	O K
8640 Winter	4.6	0.0	4.6	124.9888	0.0888	0.0	13.3	O K
10080 Winter	4.2	0.0	4.2	124.9843	0.0843	0.0	12.6	O K

Storm Duration (mins)	Rain (mm/hr)	Time-Peak (mins)
360 Winter	9.05	216
480 Winter	7.38	278
600 Winter	6.29	338
720 Winter	5.52	398
960 Winter	4.49	518
1440 Winter	3.35	738
2160 Winter	2.49	1100
2880 Winter	2.02	1468
4320 Winter	1.50	2204
5760 Winter	1.21	2944
7200 Winter	1.03	3648
8640 Winter	0.90	4400
10080 Winter	0.81	5128

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Rainfall Details

Region	ENG+WAL	Shortest Storm (mins)	15
Return Period (years)	30	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 (m³)	10	Dia of Outfall Pipe (m)	0.100
Slope of Outfall Pipe (1:x)	100.0	Roughness of Outfall Pipe	0.600

Time / Area Diagram

Total Area (ha) = 0.867

Time	(mins)	Area
from:	to:	(ha)
0	4	0.867

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Tank/Pond Details

Invert Level (m) 124.900 Ground Level (m) 126.500

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	150.0	0.60	150.0	1.20	150.0	1.80	150.0	2.40	150.0
0.10	150.0	0.70	150.0	1.30	150.0	1.90	150.0	2.50	150.0
0.20	150.0	0.80	150.0	1.40	150.0	2.00	150.0		
0.30	150.0	0.90	150.0	1.50	150.0	2.10	150.0		
0.40	150.0	1.00	150.0	1.60	150.0	2.20	150.0		
0.50	150.0	1.10	150.0	1.70	150.0	2.30	150.0		

Pipe Outflow Control

Pipe Diameter (m) 0.150 Entry Loss Coef 0.500
Slope (1:x) 48.0 Coef of Contraction 0.600
Length (m) 8.500 Invert Level (m) 124.900
Roughness (mm) 0.600

Pipe Overflow Control

Pipe Diameter (m) 0.150 Entry Loss Coef 0.500
Slope (1:x) 48.0 Coef of Contraction 0.600
Length (m) 8.500 Invert Level (m) 126.500
Roughness (mm) 0.600