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104 Yorkshire St Rochdale Lancashire OL16 1JY	full site SW soakaway iqbal belfield lane	
Date nov 2023 File calc-tjba-iqbal-belfield lane-full site ...	Designed By ds Checked By	
Micro Drainage	Source Control W.10.4	

Summary of Results for 100 year Return Period (+45%)

Half Drain Time : 457 minutes

Storm Duration (mins)	Maximum Filtration (1/s)	Maximum Outflow (1/s)	Maximum Water Level (m OD)	Maximum Depth (m)	Maximum Volume (m ³)	Status
15 Summer	1.1	1.1	97.8867	0.3967	25.3	O K
30 Summer	1.1	1.1	98.0288	0.5387	34.3	O K
60 Summer	1.2	1.2	98.1788	0.6888	43.9	O K
120 Summer	1.3	1.3	98.3178	0.8278	52.8	O K
180 Summer	1.3	1.3	98.3758	0.8858	56.4	O K
240 Summer	1.3	1.3	98.4033	0.9133	58.2	O K
360 Summer	1.3	1.3	98.4198	0.9298	59.3	O K
480 Summer	1.3	1.3	98.4178	0.9278	59.1	O K
600 Summer	1.3	1.3	98.4093	0.9193	58.6	O K
720 Summer	1.3	1.3	98.3978	0.9078	57.9	O K
960 Summer	1.3	1.3	98.3713	0.8813	56.2	O K
1440 Summer	1.3	1.3	98.3133	0.8233	52.5	O K
2160 Summer	1.2	1.2	98.2238	0.7338	46.8	O K
2880 Summer	1.2	1.2	98.1373	0.6473	41.2	O K
4320 Summer	1.1	1.1	97.9842	0.4942	31.5	O K
5760 Summer	1.1	1.1	97.8593	0.3692	23.5	O K
7200 Summer	1.0	1.0	97.7597	0.2697	17.2	O K
8640 Summer	1.0	1.0	97.6812	0.1912	12.2	O K
10080 Summer	1.0	1.0	97.6218	0.1318	8.4	O K
15 Winter	1.1	1.1	97.9358	0.4457	28.4	O K
30 Winter	1.2	1.2	98.0968	0.6068	38.7	O K
60 Winter	1.2	1.2	98.2688	0.7788	49.6	O K
120 Winter	1.3	1.3	98.4308	0.9408	60.0	O K
180 Winter	1.3	1.3	98.5028	1.0128	64.5	O K

Storm Duration (mins)	Rain (mm/hr)	Time-Peak (mins)
15 Summer	89.23	19
30 Summer	61.54	33
60 Summer	40.51	62
120 Summer	25.63	122
180 Summer	19.23	182
240 Summer	15.63	240
360 Summer	11.65	344
480 Summer	9.44	400
600 Summer	8.01	464
720 Summer	7.00	528
960 Summer	5.65	664
1440 Summer	4.17	940
2160 Summer	3.07	1360
2880 Summer	2.46	1756
4320 Summer	1.81	2512
5760 Summer	1.45	3240
7200 Summer	1.23	3968
8640 Summer	1.07	4672
10080 Summer	0.95	5344
15 Winter	89.23	18
30 Winter	61.54	33
60 Winter	40.51	62
120 Winter	25.63	120
180 Winter	19.23	178

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Summary of Results for 100 year Return Period (+45%)

Storm Duration (mins)	Maximum Filtration (l/s)	Maximum Outflow (l/s)	Maximum Water Level (m OD)	Maximum Depth (m)	Maximum Volume (m ³)	Status
240 Winter	1.4	1.4	98.5413	1.0513	67.0	O K
360 Winter	1.4	1.4	98.5733	1.0833	69.1	O K
480 Winter	1.4	1.4	98.5728	1.0828	69.0	O K
600 Winter	1.4	1.4	98.5593	1.0693	68.2	O K
720 Winter	1.4	1.4	98.5453	1.0553	67.3	O K
960 Winter	1.3	1.3	98.5073	1.0173	64.9	O K
1440 Winter	1.3	1.3	98.4188	0.9288	59.2	O K
2160 Winter	1.3	1.3	98.2798	0.7898	50.3	O K
2880 Winter	1.2	1.2	98.1483	0.6583	42.0	O K
4320 Winter	1.1	1.1	97.9252	0.4352	27.7	O K
5760 Winter	1.0	1.0	97.7532	0.2632	16.8	O K
7200 Winter	1.0	1.0	97.6263	0.1363	8.7	O K
8640 Winter	1.0	1.0	97.5487	0.0587	3.7	O K
10080 Winter	0.9	0.9	97.5363	0.0462	2.9	O K

Storm Duration (mins)	Rain (mm/hr)	Time-Peak (mins)
240 Winter	15.63	234
360 Winter	11.65	346
480 Winter	9.44	450
600 Winter	8.01	488
720 Winter	7.00	562
960 Winter	5.65	716
1440 Winter	4.17	1024
2160 Winter	3.07	1452
2880 Winter	2.46	1876
4320 Winter	1.81	2676
5760 Winter	1.45	3400
7200 Winter	1.23	4032
8640 Winter	1.07	4504
10080 Winter	0.95	5120

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) = 0.108

Time	(mins)	Area
from:	to:	(ha)
0	4	0.108

Cellular Storage Details

Infil Coef - Base (m/hr) 0.100000 Porosity 0.95
Infil Coef - Sides (m/hr) 0.100000 Invert Level (m) 97.490
Safety Factor 2.0 Ground Level (m) 100.000

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	67.1	0.50	67.1	1.00	67.1	1.50	67.1	2.00	67.1	2.50	67.1
0.10	67.1	0.60	67.1	1.10	67.1	1.60	67.1	2.10	67.1		
0.20	67.1	0.70	67.1	1.20	67.1	1.70	67.1	2.20	67.1		
0.30	67.1	0.80	67.1	1.30	67.1	1.80	67.1	2.30	67.1		
0.40	67.1	0.90	67.1	1.40	67.1	1.90	67.1	2.40	67.1		