

Soakaway Design

Job No.:
Job Name 17-19 Swaythling road
House Roofs, single soakaway

Area 112.5 m2
Run off Coeff 1 m2
112.5 m2

BRE 365 site test results		
Hole 1	2.24E-06	m/s
Hole 2	2.18E-06	m/s
Min	2.18E-06	m/s

100 year return period + 40% CC + 10% U Storm duration (Min.)

100 year return period + 40% CC + 10% U Storm duration (Min.)					T	N	r
R5	0.03473	m	5	0.08 hrs	0.083333	0.1	0.023154
R10	0.04448	m	10	0.17 hrs	0.166667	0.1	0.028694
R15	0.05033	m	15	0.25 hrs	0.25	0.1	0.032473
R30	0.06203	m	30	0.50 hrs	0.5	0.1	0.040022
R60	0.07626	m	60	1.00 hrs	1	0.1	0.0492
R120	0.09355	m	120	2.00 hrs	2	0.1	0.060356
R240	0.11457	m	240	4.00 hrs	4	0.1	0.073917
R360	0.12891	m	360	6.00 hrs	6	0.1	0.083168
R600	0.14947	m	600	10.00 hrs	10	0.1	0.096432
R1440	0.19237	m	1440	24.00 hrs	24	0.1	0.124113

Inflow to attenuation system

I5 3.907 m3
I10 5.003 m3
I15 5.662 m3
I30 6.979 m3
I60 8.579 m3
I120 10.524 m3
I240 12.889 m3
I360 14.502 m3
I600 16.815 m3
I1440 21.642 m3

TABLE 25.2 Suggested factors of safety, F, for use in hydraulic design of infiltration systems (designed using Bettess (1996). Note: not relevant for BRE method)			
Size of area to be drained	Consequences of failure		
	No damage or inconvenience	Minor damage to external areas or inconvenience (eg surface water on car parking)	Damage to buildings or structures, or major inconvenience (eg flooding of roads)
< 100 m²	1.5	2	10
100–1000 m²	1.5	3	10
> 1000 m²	1.5	5	10

Outflow from Tank

f 1.09E-06 m3/s
FOS 2

Soakaway dims:

L 5 m
W 5 m
Depth 0.8 m (below invert depth of inlet pipe)

As50 33 (50% effective depth + base area as BRE365)

Void ratio 95 %

Outflow from Tank:

O5 0.01 m3
O10 0.02 m3
O15 0.03 m3
O30 0.06 m3
O60 0.13 m3
O120 0.26 m3
O240 0.52 m3
O360 0.78 m3
O600 1.29 m3
O1440 3.11 m3

Storage required:

S5 3.90 m3
S10 4.98 m3
S15 5.63 m3
S30 6.91 m3
S60 8.45 m3
S120 10.27 m3
S240 12.37 m3
S360 13.73 m3
S600 15.52 m3
S1440 18.53 m3

Time to drain:

ts50 15.04 hours
ts50 19.24 hours
ts50 21.74 hours
ts50 26.70 hours
ts50 32.63 hours
ts50 39.64 hours
ts50 47.77 hours
ts50 53.00 hours
ts50 59.93 hours
ts50 71.57 hours

Storage provided 19.0 m3

Critical storm = S1440

Storage required = 18.53

Time to discharge= 71.57 Hours (Should be less than 24 hours)

Soakaway size proposed is satisfactory