

Job No.:
Job Name: **The Steddles, Yapton**

**Average soil infiltration rate
Permeable car parking areas**

Test	Result	Ref.	Area (m2)	Ref.	Area (m2)
Location 1 Min.	3.95E-06	Unit 1	85	Access Road	531
Location 2 Min.	6.75E-06	Unit 2	86		
Location 3 Min.	5.73E-06	Unit 3	86		
Min	3.95E-06	Unit 4	95		
		Unit 5	95		
		Unit 6	52.5		
		Unit 7	52.5		
FOS	3.00	Unit 8	86.5		
		Unit 9	98		
Use infiltration rate	1.32E-06	Unit 10	98		
		Unit 11	87		

Soakaway Design

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Car park + driveway + roofs

Area 50 m2
Run off Coeff 1 m2
 50 m2

100 year return period + 40% CC

Storm duration (Min.) T N r

R5 0.03242 m 5 0.083333 0.1 0.023154

R10 0.04017 m 10 0.166667 0.1 0.028694

R15 0.04546 m 15 0.25 0.1 0.032473

R30 0.05603 m 30 0.5 0.1 0.040022

R60 0.06888 m 60 1 0.1 0.0492

R120 0.08450 m 120 2 0.1 0.060356

R240 0.10348 m 240 4 0.1 0.073917

R360 0.11643 m 360 6 0.1 0.083168

R600 0.13500 m 600 10 0.1 0.096432

R1440 0.17376 m 1440 24 0.1 0.124113

Inflow to attenuation system

I5 1.621 m3

I10 2.009 m3

I15 2.273 m3

I30 2.802 m3

I60 3.444 m3

I120 4.225 m3

I240 5.174 m3

I360 5.822 m3

I600 6.750 m3

I1440 8.688 m3

Outflow from Tank

f 1.32E-06 m3/s (From site investigation)

Soakaway dims:

Plan area 50 m (Area of driveway to be used as storage blanket)

1 m

Depth 0.3 m (below invert depth of inlet pipe)

As50 50 (Base area only)

Void ratio 30 % (Permavoid or simiar system)

Outflow from Tank:

O5 0.02 m3

O10 0.04 m3

O15 0.06 m3

O30 0.12 m3

O60 0.24 m3

O120 0.47 m3

O240 0.95 m3

O360 1.42 m3

O600 2.37 m3

O1440 5.69 m3

Storage required:

S5 1.60 m3 ts50 3.38 hours

S10 1.97 m3 ts50 4.15 hours

S15 2.21 m3 ts50 4.67 hours

S30 2.68 m3 ts50 5.66 hours

S60 3.21 m3 ts50 6.77 hours

S120 3.75 m3 ts50 7.91 hours

S240 4.23 m3 ts50 8.92 hours

S360 4.40 m3 ts50 9.28 hours

S600 4.38 m3 ts50 9.24 hours

S1440 3.00 m3 ts50 6.33 hours

Storage provided 4.5 m3

Critical storm = **S360**

Storage required = **4.40**

Time to discharge= **9.28** Hours (Should be less than 24 hours)

Soakaway size proposed is satisfactory

Location	Stratum	Trial Pit Base Depth	Infiltration Rate (m/sec)	Notes
SA201 Test 1	Silt	0.6m	3.95 x 10 ⁻⁶	Final data point extrapolated. Indicative only
SA201 Test 2		0.6m	9.02 x 10 ⁻⁶	Test complete
SA201 Test 3		0.6m	8.92 x 10 ⁻⁶	Test complete

Location	Stratum	Trial Pit Base Depth	Infiltration Rate (m/sec)	Notes
SA202 Test 1	Silty Clay	0.6m	6.75 x 10 ⁻⁶	Test complete
SA202 Test 2	Silty Clay	0.6m	1.44 x 10 ⁻⁵	Test complete
SA202 Test 3	Silty Clay	0.6m	1.07 x 10 ⁻⁵	Test complete

Location	Stratum	Trial Pit Base Depth	Infiltration Rate (m/sec)	Notes
SA203 Test 1	Silty Clay	0.6m	4.14 x 10 ⁻⁶	Final data point extrapolated. Indicative only
SA203 Test 2	Silty Clay	0.6m	2.97 x 10 ⁻⁶	Final data point extrapolated. Indicative only
SA203 Test 3	Silty Clay	0.6m	5.73 x 10 ⁻⁶	Test complete

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