

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

**Average soil infiltration rate
For carpark and roof design soakaway blanket**

Test	Result
Location 1 Min.	3.95E-06
Location 2 Min.	6.75E-06
Location 3 Min.	5.73E-06
Min	3.95E-06
FOS	3.00
Use infiltration rate	1.32E-06 Min

Area drainage to the soakaway

Ref.	Area (m2)	Ref.
Unit 1	85	Access Road
Unit 2	86	
Unit 3	86	
Unit 4	95	
Unit 5	95	
Unit 6	52.5	
Unit 7	52.5	
Unit 8	86.5	
Unit 9	98	
Unit 10	98	
Unit 11	87	

Area (m2) 531

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

Soakaway Design

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Car park + driveway + roofs

Area 1452.5 m2

Run off Coeff 1 m2

1452.5 m2

100 year return period + 40% CC

Storm duration (Min.)

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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 47.083 m3

I10 58.349 m3

I15 66.034 m3

I30 81.385 m3

I60 100.047 m3

I120 122.733 m3

I240 150.310 m3

I360 169.122 m3

I600 196.095 m3

I1440 252.383 m3

Outflow from Tank

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

Soakaway dims:

Plan area 531 m (Area of driveway to be used as storage blanket)

1 m

Depth 0.4 m (below invert depth of inlet pipe)

As50 531 (Base area only)

Void ratio 95 % (Permavoid or simiar system)

Outflow from Tank:

O5 0.21 m3

O10 0.42 m3

O15 0.63 m3

O30 1.26 m3

O60 2.52 m3

O120 5.03 m3

O240 10.07 m3

O360 15.10 m3

O600 25.17 m3

O1440 60.41 m3

Storage required:

S5 46.87 m3 ts50 9.31 hours

S10 57.93 m3 ts50 11.51 hours

S15 65.40 m3 ts50 12.99 hours

S30 80.13 m3 ts50 15.92 hours

S60 97.53 m3 ts50 19.37 hours

S120 117.70 m3 ts50 23.38 hours

S240 140.24 m3 ts50 27.86 hours

S360 154.02 m3 ts50 30.60 hours

S600 170.93 m3 ts50 33.95 hours

S1440 191.98 m3 ts50 38.14 hours

Storage provided 201.8 m3

Critical storm = **S1440**

Storage required = **191.98**

Time to discharge= **23.38** Hours (Should be less than 24 hours)

Soakaway Blanket size proposed is satisfactory