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Project	Job no.
59 Warren Road, Worthing	19059
Calcs for: Soakaway design to buildings - Building B	Start page no./Revision: 6 A

Calcs by	Calcs date	Checked by	Checked date	Approved by	Approved date
PSG	23/04/2024				

REAR SOAKAWAY

Soakaway design in accordance with BRE Digest 365 - Soakaway design

Tedds calculation version 2.0.05

Design rainfall intensity

Location of catchment area	Brighton
Impermeable area drained to the system	A = **146.0** m^2
Return period	Period = **10** yr
Ratio 60 min to 2 day rainfall of 5 yr return period	r = **0.350**
5-year return period rainfall of 60 minutes duration	M5_60min = **20.0** mm
Increase of rainfall intensity due to global warming	$p_{climate}$ = **20** %

Soakaway / infiltration trench details

Soakaway type	Rectangular
Minimum depth of pit (below incoming invert)	d = **1404** mm
Width of pit	w = **1500** mm
Length of pit	l = **3000** mm
Percentage free volume	V_{free} = **95** %
Soil infiltration rate	f = **8.90×10^{-6}** m/s
Wetted area of pit 50% full	a_{s50} = l × d + w × d = **6317268** mm^2

Table equations

Inflow (cl.3.3.1)	I = M10 × A
Outflow (cl.3.3.2)	O = a_{s50} × f × D
Storage (cl.3.3.3)	S = I - O

Duration, D (min)	Growth factor Z1	M5 rainfalls (mm)	Growth factor Z2	10 year rainfall, M10 (mm)	Inflow (m^3)	Outflow (m^3)	Storage required (m^3)
5	0.36;	8.6;	1.21;	10.4;	1.51;	0.02;	1.50
10	0.51;	12.2;	1.23;	14.9;	2.18;	0.03;	2.15
15	0.62;	14.8;	1.24;	18.3;	2.68;	0.05;	2.63
30	0.79;	18.9;	1.24;	23.4;	3.42;	0.10;	3.32
60	1.00;	24.0;	1.24;	29.8;	4.34;	0.20;	4.14
120	1.22;	29.4;	1.22;	35.9;	5.24;	0.40;	4.84
240	1.50;	35.9;	1.20;	43.2;	6.30;	0.81;	5.50
360	1.69;	40.6;	1.19;	48.2;	7.04;	1.21;	5.83
600	1.95;	46.7;	1.18;	55.0;	8.03;	2.02;	6.00
1440	2.48;	59.5;	1.16;	69.0;	10.07;	4.86;	5.21

Required storage volume S_{req} = **6.00** m^3

Soakaway storage volume S_{act} = l × d × w × V_{free} = **6.00** m^3

PASS - Soakaway storage volume

Time for emptying soakaway to half volume t_{s50} = S_{req} × 0.5 / (a_{s50} × f) = 14hr 49min 19s

PASS - Soakaway discharge time less than or equal to 24 hours