SIMON DENT ASSOCIATES

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t 0754 658 3150

HORIZONTAL SOAKAWAY CALCULATIONS CIRIA C753 - EQ 25.4 - using FEH 22 rainfall data

PROJECT TITLE:	Southdown Inn Northcourt Road Worthing			JOB No:	1807
SOAKAWAY NO.:	GB1	LOCATION:	FORECOURT	DATE:	Nov-23

1. FEH Rainfall data		2. Design Inflow		3. Test rate calculations				4. Design Outflow results	
Event:	100 year	Roof (m^2):	156	Test pit L:	0.00	Tot vol.:	0	a_{s50} (sq.m):	0.00
CC %	1.45	Driveway (m^2):	0	Test pit W:	0.00	a_{p50}:	0	Inflow (cu.m):	106.00
Index:	10	Paths/patios (m^2):	106	Test pit D:	0.00	V_{p75-25}:	0	Outflow(cu.m):	#DIV/0!
		Total Area (sq.m):	262	Free vol (%):	0	t_{p75-25}:	0	Storage(cu.m):	#DIV/0!
						Effective depth:	0.000		
						Infiltration rate (f) (m/s):	#DIV/0!		

5. Infiltration system data						6. Infiltration coefficient (q) (m/h)		7. FOS
Length (m):	12.500	Width (m):	8.50	q value (m/h):	0.056	Rate (q) provided by SI:	0.083760	1.5
Eff depth:	0.500	Inlet IL:	-	Base IL:	#VALUE!	Calculated Soil Rate (f):	Using SI value	
Free vol (%):	30							

Summary of designer's sizes for chosen D min duration for 100 year storm

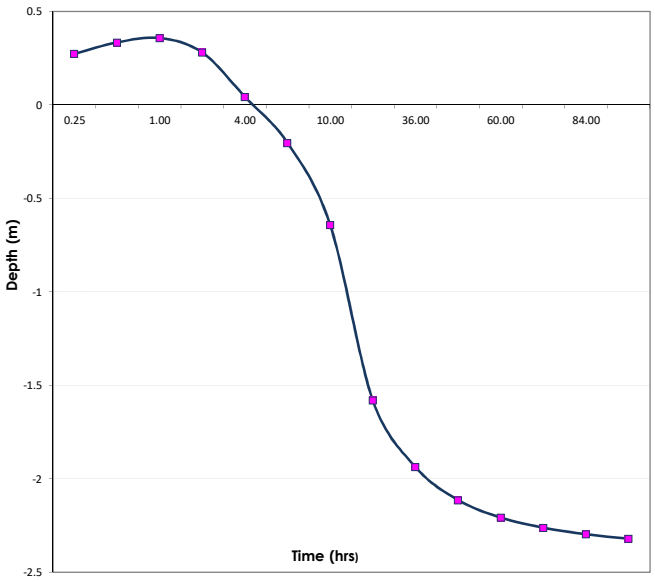
L	W	d	Ab	Ad	P	R	n
12.50	8.50	0.50	106.25	262.00	42.00	2.47	0.30

Soakaway calculations are based on BRE 365 infiltration results and the calculated method shown in CIRIA document C697 & C753 and uses FEH 22 rainfall data. The rainfall depths are factored by the climate change growth factor choses. The porosity rate is further factored for safety to suit risk from long term silting. Always refer to the project construction detail sheets 200 or 201 for the soakaway or permeable pavement make-up and the main general arrangement (GA) showing the size, levels and position of the soakaway.

Calculations used are derived from CIRIA document C753 - SUDS manual Eq 25.4

D (Hrs)	mm	*i* (m/h)	a	b	h_{max}
0.25	27.05	0.1569	-15.00	0.073577	0.2733
0.50	36.37	0.1055	-9.25	0.073577	0.3342
1.00	46.78	0.0678	-5.05	0.073577	0.3581
2.00	56.52	0.0410	-2.05	0.073577	0.2802
4.00	66.65	0.0242	-0.17	0.073577	0.0432
6.00	72.56	0.0175	0.57	0.073577	-0.2037
10.00	80.05	0.0116	1.23	0.073577	-0.6423
24.00	92.26	0.0056	1.91	0.073577	-1.5809
36.00	98.80	0.0040	2.09	0.073577	-1.9377
48.00	104.26	0.0031	2.18	0.073577	-2.1142
60.00	109.20	0.0026	2.23	0.073577	-2.2079
72.00	113.80	0.0023	2.27	0.073577	-2.2624
84.00	118.16	0.0020	2.30	0.073577	-2.2971
96.00	122.36	0.0018	2.32	0.073577	-2.3213

MAX HEIGHT (H_{max}): 0.3581



Time to empty

H_{max}:	0.3581	Time to empty (hrs):	15
R:	2.47		
		Recalculated q (m/h):	q OK
		Equivalent f rate:	#VALUE!

EMPTY TIME IS SATISFACTORY

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HORIZONTAL SOAKAWAY CALCULATIONS CIRIA C753 - EQ 25.4 - using FEH 22 rainfall data

PROJECT TITLE:	Southdown Inn Northcourt Road Worthing			JOB No:	1807
SOAKAWAY NO.:	GB2	LOCATION:	FORECOURT	DATE:	Nov-23

1. FEH Rainfall data		2. Design Inflow		3. Test rate calculations				4. Design Outflow results	
Event:	100 year	Roof (m^2):	69	Test pit L:	0.00	Tot vol.:	0	a_{s50} (sq.m):	0.00
CC %	1.45	Driveway (m^2):	0	Test pit W:	0.00	a_{p50}:	0	Inflow (cu.m):	33.00
Index:	10	Paths/patios (m^2):	33	Test pit D:	0.00	V_{p75-25}:	0	Outflow(cu.m):	#DIV/0!
		Total Area (sq.m):	102	Free vol (%):	0	t_{p75-25}:	0	Storage(cu.m):	#DIV/0!
						Effective depth:	0.000		
						Infiltration rate (f) (m/s):	#DIV/0!		

5. Infiltration system data						6. Infiltration coefficient (q) (m/h)		7. FOS
Length (m):	8.000	Width (m):	4.00	q value (m/h):	0.056	Rate (q) provided by SI:	0.083760	1.5
Eff depth:	0.500	Inlet IL:	-	Base IL:	#VALUE!	Calculated Soil Rate (f):	Using SI value	
Free vol (%):	30							

Summary of designer's sizes for chosen D min duration for 100 year storm

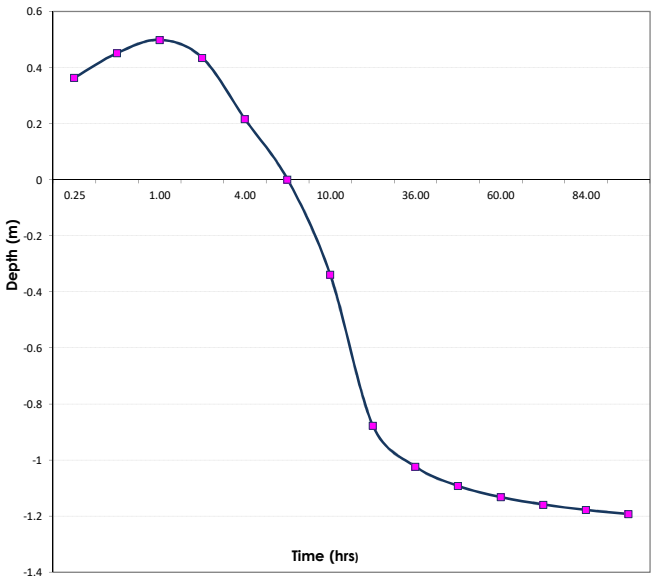
L	W	d	Ab	Ad	P	R	n
8.00	4.00	0.50	32.00	102.00	24.00	3.19	0.30

Soakaway calculations are based on BRE 365 infiltration results and the calculated method shown in CIRIA document C697 & C753 and uses FEH 22 rainfall data. The rainfall depths are factored by the climate change growth factor choses. The porosity rate is further factored for safety to suit risk from long term silting. Always refer to the project construction detail sheets 200 or 201 for the soakaway or permeable pavement make-up and the main general arrangement (GA) showing the size, levels and position of the soakaway.

Calculations used are derived from CIRIA document C753 - SUDS manual Eq 25.4

D (Hrs)	mm	*i* (m/h)	a	b	h_{max}
0.25	27.05	0.1569	-10.61	0.139600	0.3638
0.50	36.37	0.1055	-6.69	0.139600	0.4513
1.00	46.78	0.0678	-3.83	0.139600	0.4989
2.00	56.52	0.0410	-1.79	0.139600	0.4350
4.00	66.65	0.0242	-0.51	0.139600	0.2163
6.00	72.56	0.0175	0.00	0.139600	0.0007
10.00	80.05	0.0116	0.45	0.139600	-0.3385
24.00	92.26	0.0056	0.91	0.139600	-0.8772
36.00	98.80	0.0040	1.03	0.139600	-1.0237
48.00	104.26	0.0031	1.09	0.139600	-1.0923
60.00	109.20	0.0026	1.13	0.139600	-1.1322
72.00	113.80	0.0023	1.16	0.139600	-1.1589
84.00	118.16	0.0020	1.18	0.139600	-1.1781
96.00	122.36	0.0018	1.19	0.139600	-1.1927

MAX HEIGHT (H_{max}): 0.4989



Time to empty

H_{max}: 0.4989
R: 3.19

Time to empty (hrs): 8

Recalculated q (m/h): q OK

Equivalent f rate: #VALUE!

EMPTY TIME IS SATISFACTORY

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HORIZONTAL SOAKAWAY CALCULATIONS CIRIA C753 - EQ 25.4 - using FEH 22 rainfall data

PROJECT TITLE:	Southdown Inn Northcourt Road Worthing			JOB No:	1807
SOAKAWAY NO.:	GB3	LOCATION:	REAR FORECOURT	DATE:	Nov-23

1. FEH Rainfall data		2. Design Inflow		3. Test rate calculations				4. Design Outflow results	
Event:	100 year	Roof (m^2):	85	Test pit L:	0.00	Tot vol.:	0	a_{s50} (sq.m):	0.00
CC %	1.45	Driveway (m^2):	0	Test pit W:	0.00	a_{p50}:	0	Inflow (cu.m):	40.00
Index:	10	Paths/patios (m^2):	40	Test pit D:	0.00	V_{p75-25}:	0	Outflow(cu.m):	#DIV/0!
		Total Area (sq.m):	125	Free vol (%):	0	t_{p75-25}:	0	Storage(cu.m):	#DIV/0!
						Effective depth:	0.000		
						Infiltration rate (f) (m/s):	#DIV/0!		

5. Infiltration system data						6. Infiltration coefficient (q) (m/h)		7. FOS
Length (m):	7.000	Width (m):	6.00	q value (m/h):	0.056	Rate (q) provided by SI:	0.083760	1.5
Eff depth:	0.500	Inlet IL:	-	Base IL:	#VALUE!	Calculated Soil Rate (f):	Using SI value	
Free vol (%):	30							

Summary of designer's sizes for chosen D min duration for 100 year storm

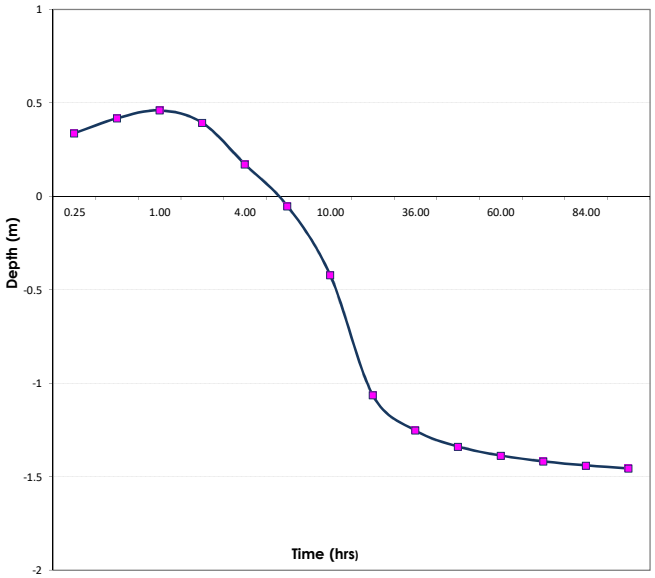
L	W	d	Ab	Ad	P	R	n
7.00	6.00	0.50	42.00	125.00	26.00	2.98	0.30

Soakaway calculations are based on BRE 365 infiltration results and the calculated method shown in CIRIA document C697 & C753 and uses FEH 22 rainfall data. The rainfall depths are factored by the climate change growth factor choses. The porosity rate is further factored for safety to suit risk from long term silting. Always refer to the project construction detail sheets 200 or 201 for the soakaway or permeable pavement make-up and the main general arrangement (GA) showing the size, levels and position of the soakaway.

Calculations used are derived from CIRIA document C753 - SUDS manual Eq 25.4

D (Hrs)	mm	*i* (m/h)	a	b	h_{max}
0.25	27.05	0.1569	-11.89	0.115225	0.3377
0.50	36.37	0.1055	-7.47	0.115225	0.4180
1.00	46.78	0.0678	-4.22	0.115225	0.4598
2.00	56.52	0.0410	-1.91	0.115225	0.3937
4.00	66.65	0.0242	-0.46	0.115225	0.1716
6.00	72.56	0.0175	0.11	0.115225	-0.0527
10.00	80.05	0.0116	0.62	0.115225	-0.4214
24.00	92.26	0.0056	1.14	0.115225	-1.0640
36.00	98.80	0.0040	1.27	0.115225	-1.2527
48.00	104.26	0.0031	1.34	0.115225	-1.3389
60.00	109.20	0.0026	1.39	0.115225	-1.3868
72.00	113.80	0.0023	1.42	0.115225	-1.4177
84.00	118.16	0.0020	1.44	0.115225	-1.4397
96.00	122.36	0.0018	1.46	0.115225	-1.4562

MAX HEIGHT (H_{max}): 0.4598



Time to empty

H_{max}:	0.4598	Time to empty (hrs):	9
R:	2.98		
		Recalculated q (m/h):	q OK
		Equivalent f rate:	#VALUE!

EMPTY TIME IS SATISFACTORY