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

PROJECT TITLE:	Gardeners Arms Ardingly		JOB No:	25049
SOAKAWAY NO.:	SA1	LOCATION:	Car park	DATE: Dec-25

1. FEH Rainfall data		2. Design Inflow		3. Test rate calculations		4. Design Outflow results	
Event:	100 year	Roof (m ²):	262	Test pit L:	2.00	Tot vol.:	2
CC %	1.45	Driveway (m ²):	0	Test pit W:	1.00	q _{p50} :	3
Index:	10	Paths/patios (m ²):	0	Test pit D:	1.00	V _{p75-25} :	1
		Total Area (sq.m):	262	Free vol (%):	100	t _{p75-25} :	5550
				Effective depth:	1.000		
				Infiltration rate (f) (m/s):	1.001E-06		

5. Infiltration system data					6. Infiltration coefficient (q) (m/h)		7. FOS
Length (m):	17.000	Width (m):	4.00	q value (m/h):	0.002	Rate (q) provided by SI:	1.5
stimated depth (d):	0.500	Inlet IL:	9.355	Calculated base:	9.018	Calculated Soil Rate (f):	0.003604
Free vol (%):	96	diam inlet:	0.100	Top of s/away:	9.490		

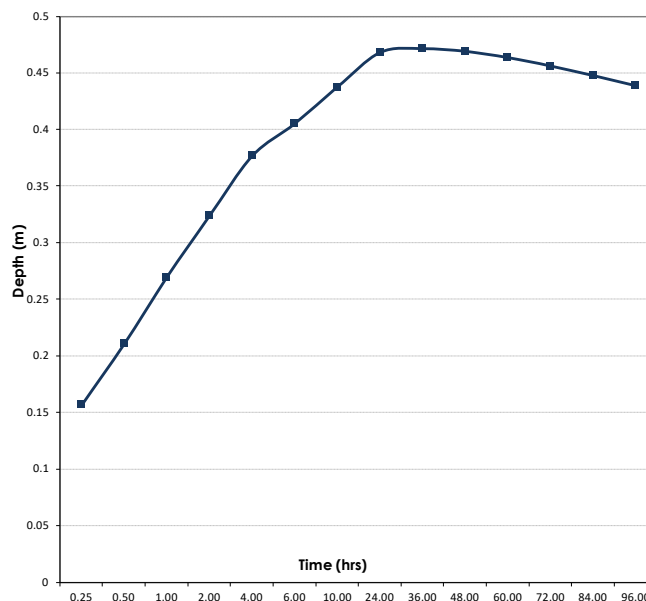
Summary of designer's sizes for chosen D min duration for 100 year storm							
L	W	d	Ab	Ad	P	R	n
17.00	4.00	0.500	68.00	262.00	42.00	3.85	0.96

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 chosen. The porosity rate is further factored for safety to suit risk from long term siltting. 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	-405.76	0.001546	0.1568
0.50	36.37	0.1055	-272.25	0.001546	0.2103
1.00	46.78	0.0678	-174.51	0.001546	0.2695
2.00	56.52	0.0410	-104.78	0.001546	0.3234
4.00	66.65	0.0242	-61.12	0.001546	0.3767
6.00	72.56	0.0175	-43.91	0.001546	0.4054
10.00	80.05	0.0116	-28.52	0.001546	0.4374
24.00	92.26	0.0056	-12.85	0.001546	0.4681
36.00	98.80	0.0040	-8.71	0.001546	0.4716
48.00	104.26	0.0031	-6.56	0.001546	0.4690
60.00	109.20	0.0026	-5.23	0.001546	0.4635
72.00	113.80	0.0023	-4.33	0.001546	0.4562
84.00	118.16	0.0020	-3.68	0.001546	0.4477
96.00	122.36	0.0018	-3.18	0.001546	0.4385

MAX HEIGHT (H_{max}): 0.4716



Time to empty	
H _{max} :	0.4716
R:	3.85
Time to empty (hrs):	844
Recalculated q (m/h):	0.00775065
Equivalent f rate:	0.00000215
EMPTY TIME IS GREATER THAN 24 HOURS SEE REQUIRED q ABOVE	