

Job :

Structural Engineers

**EXTENSION
WESTBURY COURT CARE HOME**

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Job number Sheet date
12046 01 28/02/25

T M Ventham
Practice

Attenuation Tank Design Return Period 100 Years + 45%

Location England and Wales

Ratio of 60 minute to 2 day rainfalls of 5 year return period (BRE digest 365-fig 1) $r = 0.35$

Impermeable area (sq.m.) 115

Outflow from tank in litres/second 1.13

Depth of tank (m) 0.35

Duration	M5 rainfalls	Growth factor Z2	Return Period rainfall	Inflow m3	Outflow m3	Storage required m3
5mins	7.10	1.86	13.22	2.20	0.17	2.03
10mins	10.10	1.93	19.45	3.24	0.34	2.90
15mins	12.30	1.96	24.08	4.02	0.51	3.51
30mins	15.70	2.00	31.37	5.23	1.02	4.21
1 hour	20.00	2.03	40.60	6.77	2.03	4.74
2 hour	24.40	2.01	49.04	8.18	4.07	4.11
4 hour	29.90	1.97	58.90	9.82	8.14	1.69
6 hour	33.80	1.94	65.50	10.92	12.20	-1.28
10 hour	38.90	1.90	73.83	12.31	20.34	-8.03
24 hour	49.60	1.81	89.78	14.97	48.82	-33.85

Note:- If Orifice plate used then only 50% of outflow rate used

Max storage required = 4.74 cubic metres

$\sqrt{(\text{Max storage required}/\text{tank depth})}$ 3.68 Square Tank required

Orifice Diameter = $\sqrt{463.627 \cdot \text{flow rate}/\sqrt{\text{head}}}$ = 29.76 mm

Use 8.0 x 2.0 x 0.35m deep Tank = 5.6 cubic metres