

## **Surface water Drainage Calculations**

**Applicant :**                 **Hillary Garvey**

**Development :**

*Proposed demolition & extensions at 52 cypress grove road , Dublin 6w ,D6W Y720*

**Date of test :**                 **31/07/2021**



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### Soakaway Design

refer to bre digest 365 in respect of design of soakaway

design soakaway with contributing impermeable area 123m<sup>2</sup> ( Main dwelling area side two storey & rear single storey rear extension +paved area + some hard surfacing )

Soil Infiltration rate 0.71 \*10( to the power of 5 )-- **very slow percolation here**

Assume soakaway with plan dimensions 3.0\* 3.0m with 650mm effective depth

The internal surface area of soakaway to 50% effective depth excluding base is 3.9m<sup>2</sup>

Effective volume of proposed soakaway ( allowing for 30% free volume ) = 2.04m<sup>3</sup>

Location of soakaway : Scotland & Ireland

Return period of 10 years

r = 0.42

Duration	m5 rainfall mm	growth factor z2	10 year rainfall mm	inflow m3	Outflow m3	storage req m3
5mins	7.6	1.18	9	1.1	0.008	1.092
10mins	10.6mm	1.19	12.61	1.55	0.016	1.534
15mins	12.8mm	1.2	15.3	1.88	0.024	1.856
30mins	16.2mm	1.2	19.4mm	2.38	0.049	2.331
1 hour	20.0mm	1.19	23.8mm	2.92	0.099	2.821
2 hours	24.0mm	1.18	28.4mm	3.49	0.199	3.291
4 hours	28.4mm	1.18	33.5mm	4.12	0.398	3.722
6 hours	31.4mm	1.18	37.0mm	4.55	0.598	3.952
10hrs	34.8mm	1.18	40.2mm	4.94	0.996	3.944
24hrs	43.2mm	1.17	50.4mm	6.19	2.392	3.798

Maximum storage required 3.952m<sup>3</sup>

**The ground is not sufficiently permeable to form a soakaway .**

**Water Butts to be formed at all surface water downpipe locations .**

**In as much as possible , patios be formed with water permeable materials**