

## Surface water Drainage Calculations

**Applicant :** Stella browne

**Development :**

*For new dwelling house and associated works at 29 Ballyboden Road , Rathfarnham , Dublin 14*

**Date of test :** 02/07/2022

**BDCS Ltd**  
**Consulting Building Surveyors**  
**Lower Friarstown , Bohernabreena**  
**Dublin 24**  
**Phone : 087-2825326**

*Impereable area of main dwelling house & extension : 35m<sup>2</sup>*

*Soil Infiltration rate 0.25 \*10( to the power of 5 )*

### Soakaway Design

*refer to bre digest 365 in respect of design of soakaway*

*design soakaway with contributing area 41m<sup>2</sup> ( new dwelling only )*

*Soil Infiltration rate 0.25 \*10( to the power of 5 )*

*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*

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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	0.369	0.002	0.367
10mins	10.6mm	1.19	12.61	0.517	0.005	0.512
15mins	12.8mm	1.2	15.3	0.627	0.008	0.619
30mins	16.2mm	1.2	19.4mm	0.795	0.017	0.778
1 hour	20.0mm	1.19	23.8mm	0.975	0.035	0.94
2 hours	24.0mm	1.18	28.4mm	1.164	0.07	1.094
4 hours	28.4mm	1.18	33.5mm	1.373	0.014	1.359
6 hours	31.4mm	1.18	37.0mm	1.517	0.21	1.307
10hrs	34.8mm	1.18	40.2mm	1.648	0.351	1.297
24hrs	43.2mm	1.17	50.4mm	2.066	0.84	1.226

Maximum storage required 1.359m3

Hence a soakaway of 2\*2\*1.3m effective depth and containing 30% free volume should be satisfactory

The soakaway shall be constructed strictly in accordance with the requirements of bre digest 365 .

An inspection well shall be constructed in the soakaway . A Geotextile membrane shall be fitted around the sides and top of the granular fill in the soakaway .

**The soakaway shall not adversely affect structures of buildings , sewers , boundary walls and this to be checked by a structural engineer on site during soakaway construction .**