

CONDITION 15

SPR HOOPER

CONSULTING CIVIL AND STRUCTURAL ENGINEERS

**HYDRAULIC CALCULATIONS
PROPOSED REPLACEMENT
OF EXISTING SOAKAWAY
OLD WELFARE HALL SITE
GLYNNEATH
NEATH PORT TALBOT**

SPR Hooper

Consulting Civil & Structural Engineers
7 Coychurch Road
Bridgend
CF31 3AR

Tel:07977555746

Proj: 4913.016

Ref : Ex. Highway

Date: 17/10/19

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Residential Development Glynneath
General components

REPLACEMENT OF EXISTING SOAKAWAYAREA CONTRIBUTING

ROAD - $19.0 \times 5.5 = 104.5$

FOOTPATHS - $19.0 \times 2.0 \times 2 = 76$
180.5 m²

SOIL INFILTRATION RATE FROM TRIAL PITS = 0.000063 m/sec

FROM CALCULATIONS USE:- 3.0 LONG X 2.0 WIDE X 0.8m DEEP

WAVIN BLUE AQUA CRATES.

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Residential Development Glynneath
General components

Soakaway design

Soakaway location - England/Wales
Area draining to soakaway A = 180.5 m²
Invert to soakaway = 1 m
Soakaway type - Trench
Breadth of soakaway = 2 m
Effective storage depth D_e = 0.8 m
Soil infiltration rate f = 0.000063 m/s
Rainfall ratio r = 0.25
Permeability of fill P_{er} = 95 %
Length increment = 0.1 m (computed length will be rounded to this value)

Design calculations to BRE Digest 365

Length of soakaway L = 2.7 m
Effective outflow area a_{s50} = 0.5*((2*B*D_e)+(2*L*D_e))
= 0.5*((2*2*0.8)+(2*2.7*0.8))
= 3.76 m²
Storage volume V_s = L*B*D_e*P_{er}/100
= 2.7*2*0.8*95/100
= 4.1 m³
Time of emptying half storage volume t_{s50} = V_s*0.5/(a_{s50}*f*60*60)
= 4.1*0.5/(3.76*0.000063*60*60)
= 2.4 hrs.

D min.	R m	I m ³	O m ³	S m ³	A _{max} m ²
10	0.011	2.07	0.14	1.93	370
20	0.015	2.8	0.28	2.51	283
30	0.019	3.36	0.43	2.93	244
40	0.021	3.76	0.57	3.19	224
60	0.025	4.48	0.85	3.62	200
120	0.032	5.77	1.71	4.07	182
240	0.041	7.38	3.41	3.97	184
360	0.047	8.42	5.12	3.3	198
600	0.055	10.01	8.53	1.48	228
1440	0.075	13.58	20.47	-	-

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REPLACEMENT OF EXISTING SOAKAWAY

AREA CONTRIBUTING

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