Calculation Sheet

ref. D1647/GW

project 51 CLIFTON RD, BLACKPOOL

Bingham Yates Limited

Consulting Engineers

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part of structure SW DRAINAGE

drawing 214/24/01A

date Feb '21

calculations by GW checked by ✓

sheet no. SW1/A

Member Ref.	Calculations	Output
	Proposal Design SW drainage system to suit new bldg roof water outflow (no additional headlandings). Limit outflow into SW sewer to Qbar. Site Area 71.5 lg × 41.5 w = 2967 m² (0.30 ha) Determine Qbar Base on 50 ha > 0.30 ha. SAAR av annual rainfall Blackpool = 900 mm Soil Class 4 low Ref Wallingford Sheet SW 2 Size of Bldg 16.5 × 10.3m roof area = 170 m² (Ref BYL drg D1647/01) A	Rev A: 16.2.21 Revised to suit lesser sized building Qbar 1.94 l/sec CONT ON SHT SW 3

HR Wallingford
Working with water

Sheet SW2

Greenfield runoff rate estimation for sites

www.uksuds.com | Greenfield runoff tool

Calculated by:	Bingham Yates Ltd
Site name:	51 Chorley Road
Site location:	Blackpool

This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance "Rainfall runoff management for developments", SC030219 (2013) , the SuDS Manual C753 (Ciria, 2015) and the non-statutory standards for SuDS (Defra, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

Site Details

Latitude:	53.84301° N
Longitude:	3.02791° W
Reference:	3791712572
Date:	Feb 08 2021 14:46

Runoff estimation approach IH124

Site characteristics

Total site area (ha): 0.30

Methodology

Q_{BAR} estimation method:	Calculate from SPR and SAAR
SPR estimation method:	Calculate from SOIL type

Soil characteristics

	Default	Edited
SOIL type:	4	4
HOST class:	N/A	N/A
SPR/SPRHOST:	0.47	0.47

Hydrological characteristics

	Default	Edited
SAAR (mm):	899	899
Hydrological region:	10	10
Growth curve factor 1 year:	0.87	0.87
Growth curve factor 30 years:	1.7	1.7
Growth curve factor 100 years:	2.08	2.08
Growth curve factor 200 years:	2.37	2.37

Notes

(1) Is Q_{BAR} < 2.0 l/s/ha?

When Q_{BAR} is < 2.0 l/s/ha then limiting discharge rates are set at 2.0 l/s/ha.

(2) Are flow rates < 5.0 l/s?

Where flow rates are less than 5.0 l/s consent for discharge is usually set at 5.0 l/s if blockage from vegetation and other materials is possible. Lower consent flow rates may be set where the blockage risk is addressed by using appropriate drainage elements.

(3) Is SPR/SPRHOST ≤ 0.3?

Where groundwater levels are low enough the use of soakaways to avoid discharge offsite would normally be preferred for disposal of surface water runoff.

Greenfield runoff rates

	Default	Edited
Q_{BAR} (l/s):	1.94	1.94
1 in 1 year (l/s):	1.69	1.69
1 in 30 years (l/s):	3.3	3.3
1 in 100 year (l/s):	4.04	4.04
1 in 200 years (l/s):	4.6	4.6

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Bingham Yates Limited

ref. D1647/GJ | part of structure SW STORAGE

project 51 CHORLEY RD, BLACKPOOL | drawing

date Feb'21 | calculations by GJ | checked by ✓ | sheet no. SW 3/A

Member Ref.	Calculations	Output
GOV.UK CC All Feb 17	Determine required storage to suit 1:100 year occurence (less vulnerable development – in Flood Zone 1 – Central Allowance +30% cc) NW Region	Climate Change Addition +30%
	Blackpool say MS-60 = 20mm : Roof Area 170 m² (A) r ≥ 0.25	Rev A : 16.2.21 Building size reduced (C)
	Mins' (1:100 +30%) Hrs	
	5 10 15 30 1 2 4 6 10 24	
Z1	0.31 0.40 0.55 0.70 1.0 1.3 1.7 2.0 2.4 3.4	Fig A3a.
MS-60 20mm	6.2 8.0 11 14 20 26 34 40 48 68	
M100 Z_2	1.80 1.83 1.92 1.98 2.03 2.01 1.97 1.87 1.87 1.69	Table A1
M100 D mm	11.2 14.6 21 27.7 40.6 52 65.6 75.6 87.8 115	mm
Inflow A=170 m³	1.9 2.5 3.6 4.7 6.9 8.8 11.2 12.9 14.7 19.6	m³ (A)
+30% cc	2.47 3.25 4.7 6.1 9 11.4 ⟶	m³ incl cc
Outflow @ Qbar @ 1.5l/s/ha	0.58 1.16 1.74 3.5 7 14 ⟶ less	
Reqd Vol	1.9 2.1 (3) 2.6 ⟶ less	Reqd storage to suit 1:100 + 30% climate change 3m³ (A)
	required storage 3.0m³ (A)	
	1800ø chamber, 1200 ht between in/outflows = 3.057 3.0 m³	