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Surface water storage requirements for sites

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Site name:	Flosh Meadows
Site location:	Cleator

This is an estimation of the storage volume requirements that are needed 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). It is not to be used for detailed design of drainage systems. It is recommended that hydraulic modelling software is used to calculate volume requirements and design details before finalising the design of the drainage scheme.

Site Details

Latitude:	54.51111° N
Longitude:	3.51919° W
Reference:	3674296973
Date:	Jul 13 2022 13:12

Site characteristics

Total site area (ha):	3.3
Significant public open space (ha):	2.219
Area positively drained (ha):	1.081
Impermeable area (ha):	1.081
Percentage of drained area that is impermeable (%):	100
Impervious area drained via infiltration (ha):	0
Return period for infiltration system design (year):	10
Impervious area drained to rainwater harvesting (ha):	0
Return period for rainwater harvesting system (year):	10
Compliance factor for rainwater harvesting system (%):	66
Net site area for storage volume design (ha):	1.08
Net impermeable area for storage volume design (ha):	1.08
Pervious area contribution to runoff (%):	30

* where rainwater harvesting or infiltration has been used for managing surface water runoff such that the effective impermeable area is less than 50% of the 'area positively drained', the 'net site area' and the estimates of Q_{BAR} and other flow rates will have been reduced accordingly.

Design criteria

Climate change allowance factor:	1.4
Urban creep allowance factor:	1.1
Volume control approach	Use long term storage
Interception rainfall depth (mm):	5
Minimum flow rate (l/s):	2

Methodology

esti	IH124	
Q_{BAR} estimation method:	Calculate from SPR and SAAR	
SPR estimation method:	Calculate from SOIL type	
Soil characteristics	Default	Edited
SOIL type:	4	4
SPR:	0.47	0.47
Hydrological characteristics	Default	Edited
Rainfall 100 yrs 6 hrs:	--	70
Rainfall 100 yrs 12 hrs:	--	79.8
FEH / FSR conversion factor:	0.95	0.95
SAAR (mm):	1271	1271
M5-60 Rainfall Depth (mm):	20	20
'r' Ratio M5-60/M5-2 day:	0.3	0.3
Hydrological region:	10	10
Growth curve factor 1 year:	0.87	0.87
Growth curve factor 10 year:	1.38	1.38
Growth curve factor 30 year:	1.7	1.7
Growth curve factor 100 years:	2.08	2.08
Q_{BAR} for total site area (l/s):	32.02	32.02
Q_{BAR} for net site area (l/s):	10.49	10.49

Site discharge rates	Default	Edited	Estimated storage volumes	Default	Edited
1 in 1 year (l/s):	9.1	9.1	Attenuation storage 1/100 years (m³):	539	539
1 in 30 years (l/s):	17.8	17.8	Long term storage 1/100 years (m³):	250	250
1 in 100 year (l/s):	21.8	21.8	Total storage 1/100 years (m³):	789	789

This report was produced using the storage estimation tool developed by HRWallingford and available at www.uksuds.com. The use of this tool is subject to the UK SuDS terms and conditions and licence agreement, which can both be found at <http://uksuds.com/terms-and-conditions.htm>. The outputs from this tool have been used to estimate storage volume requirements. The use of these results is the responsibility of the users of this tool. No liability will be accepted by HR Wallingford, the Environment Agency, CEH, Hydrosolutions or any other organisation for the use of these data in the design or operational characteristics of any drainage scheme.