



Surface water storage requirements for sites

www.uksuds.com | Storage estimation tool

Calculated by:

Site name:

Site location:

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:

Longitude:

Reference:

Date:

Site characteristics

Total site area (ha):	<input type="text" value="0.19"/>
Significant public open space (ha):	<input type="text" value="0"/>
Area positively drained (ha):	<input type="text" value="0.19"/>
Impermeable area (ha):	<input type="text" value="0.19"/>
Percentage of drained area that is impermeable (%):	<input type="text" value="100"/>
Impervious area drained via infiltration (ha):	<input type="text" value="0"/>
Return period for infiltration system design (year):	<input type="text" value="10"/>
Impervious area drained to rainwater harvesting (ha):	<input type="text" value="0"/>
Return period for rainwater harvesting system (year):	<input type="text" value="10"/>
Compliance factor for rainwater harvesting system (%):	<input type="text" value="66"/>
Net site area for storage volume design (ha):	<input type="text" value="0.19"/>
Net impermeable area for storage volume design (ha):	<input type="text" value="0.19"/>
Pervious area contribution to runoff (%):	<input type="text" value="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:	<input type="text" value="1.4"/>
Urban creep allowance factor:	<input type="text" value="1.1"/>
Volume control approach	<input type="text" value="Use long term storage"/>
Interception rainfall depth (mm):	<input type="text" value="5"/>
Minimum flow rate (l/s):	<input type="text" value="5"/>

Site discharge rates

	Default	Edited
1 in 1 year (l/s):	<input type="text" value="5"/>	<input type="text" value="5"/>
1 in 30 years (l/s):	<input type="text" value="5"/>	<input type="text" value="5"/>
1 in 100 year (l/s):	<input type="text" value="5"/>	<input type="text" value="5"/>

Methodology

esti	<input type="text" value="IH124"/>
Q_{BAR} estimation method:	<input type="text" value="Calculate from SPR and SAAR"/>
SPR estimation method:	<input type="text" value="Calculate from SOIL type"/>

Soil characteristics

	Default	Edited
SOIL type:	<input type="text" value="2"/>	<input type="text" value="2"/>
SPR:	<input type="text" value="0.3"/>	<input type="text" value="0.3"/>

Hydrological characteristics

	Default	Edited
Rainfall 100 yrs 6 hrs:	<input type="text" value="--"/>	<input type="text" value="63"/>
Rainfall 100 yrs 12 hrs:	<input type="text" value="--"/>	<input type="text" value="101.64"/>
FEH / FSR conversion factor:	<input type="text" value="1.32"/>	<input type="text" value="1.32"/>
SAAR (mm):	<input type="text" value="600"/>	<input type="text" value="600"/>
M5-60 Rainfall Depth (mm):	<input type="text" value="20"/>	<input type="text" value="20"/>
'r' Ratio M5-60/M5-2 day:	<input type="text" value="0.4"/>	<input type="text" value="0.4"/>
Hydrological region:	<input type="text" value="6"/>	<input type="text" value="6"/>
Growth curve factor 1 year:	<input type="text" value="0.85"/>	<input type="text" value="0.85"/>
Growth curve factor 10 year:	<input type="text" value="1.62"/>	<input type="text" value="1.62"/>
Growth curve factor 30 year:	<input type="text" value="2.3"/>	<input type="text" value="2.3"/>
Growth curve factor 100 years:	<input type="text" value="3.19"/>	<input type="text" value="3.19"/>
Q_{BAR} for total site area (l/s):	<input type="text" value="0.29"/>	<input type="text" value="0.29"/>
Q_{BAR} for net site area (l/s):	<input type="text" value="0.29"/>	<input type="text" value="0.29"/>

Estimated storage volumes

	Default	Edited
Attenuation storage 1/100 years (m ³):	<input type="text" value="106"/>	<input type="text" value="106"/>
Long term storage 1/100 years (m ³):	<input type="text" value="0"/>	<input type="text" value="0"/>
Total storage 1/100 years (m ³):	<input type="text" value="106"/>	<input type="text" value="106"/>

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.