

Project Title
Little Eau

Job Number	TBC		
Version	Draft v1.0		
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Calculation of Greenfield Runoff Rates - Institute of Hydrology Report 124 FSR 3-parameter equation

Site name	AREA (km2)	SPRHOST (%)	SAAR (mm)	SOIL	QBAR (m^3/s)
Little Eau	0.50	27.8	564	0.3	0.07

Type 2

For Small Catchments
 $QBAR(rural) = 0.00108 * AREA^{0.89} * SAAR^{1.17} * SOIL^{2.17}$

Greenfield runoff in m3/s	Return Period						
	QBAR	1	2	10	30	100	100 + CC
Region	0.07	0.06	0.06	0.12	0.17	0.25	0.30
5	0.00	0.88	0.89	1.65	2.39	3.56	

Greenfield runoff in l/s for 50 ha (0.5km2) Area	Return Period						
	QBAR	1	2	10	30	100	100 + CC
	70.77	62.28	62.99	116.77	169.14	251.95	302.33

Greenfield runoff in l/s/ha	Return Period						
	QBAR	1	2	10	30	100	100 + CC
	1.41542	1.25	1.26	2.34	3.38	5.04	6.05

Actual Site Area (Existing)	0.002868 ha						
	Return Period						
	QBAR	1	2	10	30	100	100 + CC
Existing total discharge from site (l/s)	0.004	0.004	0.004	0.004	0.004	0.004	0.004

Notes

REFERENCES

SUDS Manual (2007) CIRIA. This documents provides guidelines for the calculation of Greenfield runoff, Chapter 4, Section 4.2 (pg 4-4). Based on guidance from the National SUDS Working Group (2004) the IOH 124 method only applies to catchments of 50ha and above and for smaller catchment should be linearly interpolated from a 50ha area. (Table 4.2 of SUDS Manual).

Technical Report W5-074/A/TR1 Revision D (2005) - Preliminary Rainfall Runoff Management for Developments The 1 in 1 year return period event is defined as the highest probability event to be specifically considered to ensure that flows to the watercourse are tightly controlled for these more frequent events.

For SOIL Index: **Flood Studies Report (FSR) Vol. 1 Pg 303 and 312.**

For small catchments: **IoH Report No. 124, Institute of Hydrology, 1994.**

For Growth Curve Factors: **Flood Studies Supplementary Report (FSSR) 14, UK Hydrological Growth Curve Regions**

SOIL INDEX

$= (0.15S1 + 0.30S2 + 0.40S3 + 0.45S4 + 0.50S5) / (S1 + S2 + S3 + S4 + S5)$

Where S1..... S5 are classifications from the Winter Rain Soil Acceptance (WRAP) map.

It is also recognised in Report 124 (1994) pg29 that 'It is possible that, for small catchments in particular, the generalised nature of the soil map could lead to misleading data being assigned to the catchment'.

SOIL values can be verified using Soil survey Maps of England and Wales for reference. Site investigation results (borehole data) can also be used for reference where available.