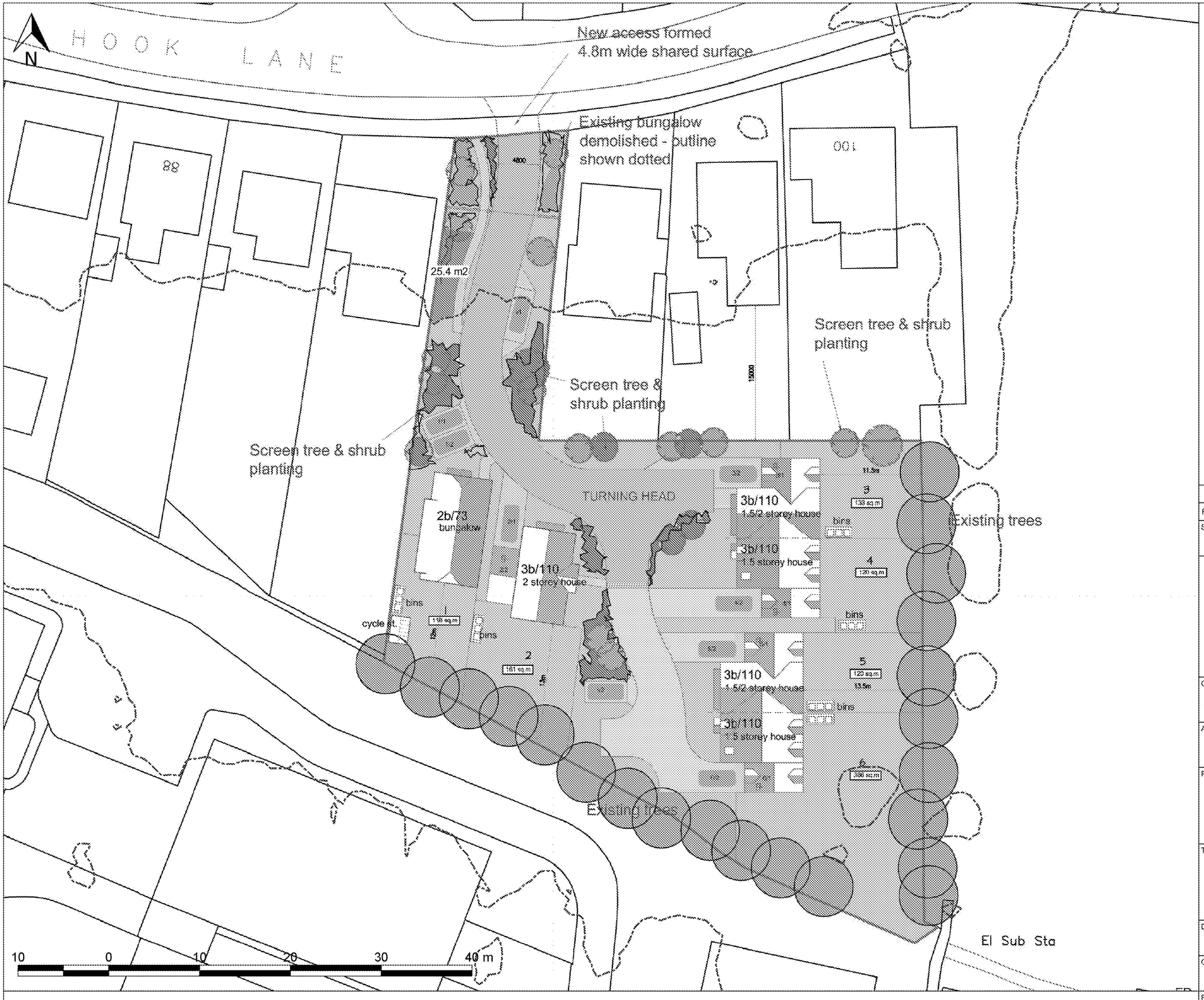
Appendix F

FLOOD COMPENSATION AREA

ARUN DISTRICT COUNCIL BR/124/21/OUT



KEY:

Site Boundary

Environment Agency - LiDAR derived data

Contours 1.93 mAOD

Flood Compensation Area

NOTE:
Proposed Development based on Feasibility Site Plan (April 2018) by Crossley Design Architecture

REV	DATE	DRW	DESCRIPTION	CHK	APP
	13/07/18	ES	FIRST ISSUE		

STATUS:
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ARCHITECT:
CROSSLEY DESIGN ARCHITECTURE

PROJECT:
94 - 100 HOOK LANE
BOGNOR REGIS

TITLE:
PROPOSED FLOOD COMPENSARION AREA

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ARUN DISTRICT COUNCIL BR/124/21/OUT

Appendix G

SURFACE WATER DRAINAGE STRATEGY

ARUN DISTRICT COUNCIL BR/124/21/OUT

HR Wallingford
Working with water

Greenfield runoff estimation for sites

www.uksuds.com | Greenfield runoff tool

Calculated by:	Emiliya Stoykova
Site name:	Hook Lane
Site location:	Bognor Regis

This is an estimation of the greenfield runoff rate limits that are needed to meet normal best practice criteria in line with Environment Agency guidance "Preliminary rainfall runoff management for developments", W5-074/A/TR1/1 rev. E (2012) and the SuDS Manual, C753 (Ciria, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

Site coordinates

Latitude:	50.78937° N
Longitude:	0.66349° W

Reference:	6402286
Date:	2018-07-12T14:27:38

Methodology	IH124

Site characteristics

Total site area (ha)	0.28

Methodology

Qbar estimation method	Calculate from SPR and SAAR
SPR estimation method	Calculate from SOIL type

	Default	Edited
SOIL type	3	3
HOST class	---	---
SPR/SPRHOST	0.37	0.37

Hydrological characteristics

	Default	Edited
SAAR (mm)	704	704
Hydrological region	7	7
Growth curve factor: 1 year	0.85	0.85
Growth curve factor: 30 year	2.3	2.3
Growth curve factor: 100 year	3.19	3.19

Notes:

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

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

Where flow rates are less than 5.0 l/s consents are usually set at 5.0l/s if blockage from vegetation and other materials is possible. Lower consent flow rates may be set in which case blockage work must be addressed by using appropriate drainage elements.

(3) Is SPR/SPRHOST ≤ 0.3?

Greenfield runoff rates

	Default	Edited
Qbar (l/s)	0.81	0.81
1 in 1 year (l/s)	0.69	0.69
1 in 30 years (l/s)	1.86	1.86
1 in 100 years (l/s)	2.58	2.58

This report was produced using the greenfield runoff tool developed by HR Wallingford 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 www.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 use of this data in the design or operational characteristics of any drainage scheme.

HR Wallingford
Working with water

Surface water storage requirements for sites

www.uksuds.com | Storage estimation tool

Calculated by:	Emiliya Stoykova
Site name:	Hook Lane
Site location:	Bognor Regis

Site coordinates

Latitude:	50.78939° N
Longitude:	0.66334° W

This is an estimation of the storage volume requirements that are needed to meet normal best practice criteria in line with Environment Agency guidance "Preliminary rainfall runoff management for developments", W5-074/A/TR1/1 rev. E (2012) and the SuDS Manual, C753 (Ciria, 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 drainage scheme.

Reference:	6401967
Date:	2018-07-11T17:06:41

Methodology	IH124

Site characteristics

Total site area (ha)	0.28
Significant public open space (ha)	0.18
Area positively drained (ha)	0.100000000
Pervious area contribution (%)	30
Impermeable area (ha)	0.1
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 systems (ha)	0
Return period for rainwater harvesting system design (year)	10
Compliance factor for rainwater harvesting system design (%)	66
Net site area for storage volume design (ha)	0.1
Net impermeable area for storage volume design (ha)	0.1

* 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 Qbar and other flow rates will have been reduced accordingly.

Design criteria

Volume control approach	Use long term storage

	Default	Edited
Climate change allowance factor	1.4	1.4
Urban creep allowance factor	1.1	1.1
Interception rainfall depth (mm)	5	5
Minimum flow rate (l/s)	5	5

Qbar estimation method	Calculate from SPR and SAAR
SPR estimation method	Calculate from SOIL type

	Default	Edited
Qbar total site area (l/s)	0.81	--
SOIL type	3	3
HOST class	N/A	N/A
SPR	0.37	0.37

Hydrology

	Default	Edited
SAAR (mm)	704	704
M5-60 Rainfall Depth (mm)	17	17
'r' Ratio M5-60/M5-2 day	0.4	0.4
Rainfall 100 yrs 6 hrs	55	
Rainfall 100 yrs 12 hrs	74.34	
FEH/FSR conversion factor	1.18	1.18
Hydrological region	7	
Growth curve factor: 1 year	0.85	0.85
Growth curve factor: 10 year	1.62	1.62
Growth curve factor: 30 year	2.3	2.3
Growth curve factor: 100 year	3.19	3.19

Site discharge rates

	Default	Edited
Qbar total site area (l/s)	0.81	0.81
Qbar net site area (l/s)	0.29	0.29
1 in 1 year (l/s)	5	5
1 in 30 years (l/s)	5	5
1 in 100 years (l/s)	5	5

Estimated storage volumes

	Default	Edited
Interception storage (m^3)	4	4
Attenuation storage (m^3)	24	24
Long term storage (m^3)	0	0
Treatment storage (m^3)	12	12
Total storage *(excluding treatment)* (m^3)	28	28

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ARUN DISTRICT COUNCIL: BR/124/21/OUT

KEY:

- Site Boundary
- Permeable Paving
- Ordinary Watercourse
- Section not confirmed
- Surface water sewer
- Surface water drainage connection
- Surface water flow
- 3m from surface water sewer

NOTE:
The location of the features is indicative and it needs to be confirmed during the detailed drainage design.

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PROJECT:
94 - 100 HOOK LANE
BOGNOR REGIS

TITLE:
PRELIMINARY DRAINAGE STRATEGY

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ARUN DISTRICT COUNCIL BR/124/21/OUT

Appendix H

BGS BOREHOLE SCAN

ARUN DISTRICT COUNCIL BR/124/21/OUT