

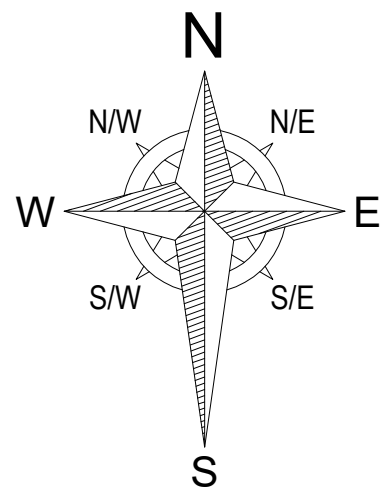
APPENDICES

Appendix A Site Layout

ORIGINAL SIZE OF THIS DRAWING IS A1



SCALE
1 METRE 25 METRES



NOTES: 1. DO NOT SCALE FROM THIS DRAWING (EXCEPT FOR PLANNING APPLICATION PURPOSES). 2. ALL DIMENSIONS AND LEVELS TO BE CHECKED ON SITE BEFORE CARRYING OUT WORK.
3. ALL DISCREPANCIES TO BE REPORTED TO THE ARCHITECT BEFORE CARRYING OUT WORK. 4. READ WITH OTHER CONTRACT DOCUMENTS S.I.F IN DOUBT ASK.
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CONSENT IS REQUIRED FOR ITS USE, REPRODUCTION OR FOR COPYING TO ANY THIRD PARTY.

C	27.03.25	Additional information included to site access.
B	12.12.24	General update.
A	18.11.24	Amended to accord with 'Bright Plan' comments.
REV.	DATE	REVISIONS

E-mail michael@admarchitects.co.uk
web site www.admarchitects.co.uk

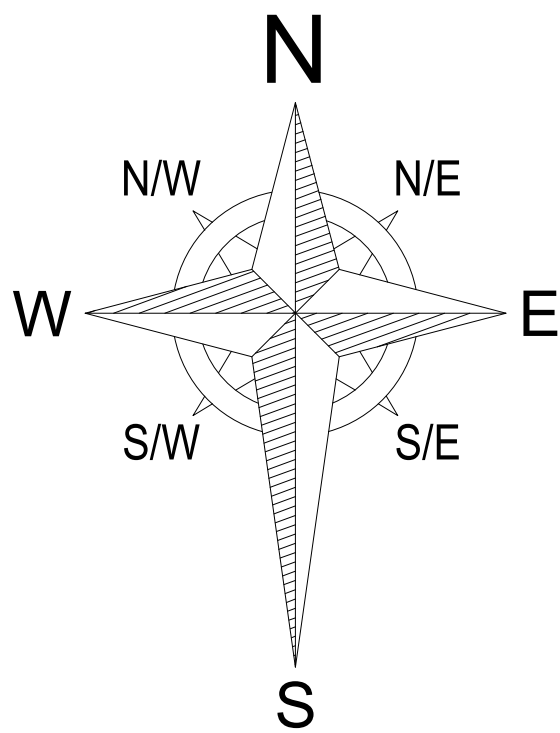
PROJECT Inglenook Residential Phase 2				CLIENT Honour			
DRAWING TITLE Site Plan as Proposed				COMPUTER FILE NAME 09WS.DWG			
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DRAWN	CHECKED	DATE	SCALE - AS SCALE	PROJECT NUMBER	ACTUAL DRAWING NUMBER	REVISION	
DCH	MB	April '23	1:200	1803	10	C	
TRINITY, STRETINGTON, CHICHESTER, WEST SUSSEX, PO18 0LA, UNITED KINGDOM.				TEL 01243 771166			

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ARCHITECTS
DESIGN
&
MANAGEMENT

Appendix B Topographic Survey

ORIGINAL SIZE OF THIS DRAWING IS A1



E-mail michael@admarchitects.co.uk
web site www.admarchitects.co.uk

PROJECT Inglenook Residential Phase 2				CLIENT Honour	
DRAWING TITLE Topographical Survey				COMPUTER FILE NAME DWG.DWG ORIGINAL SIZE OF THIS DRAWING IS A1	
				DRAWING NUMBER	
DRAWN		CHECKED	DATE	SCALE - AS SCALE RODS	PROJECT NUMBER
DCH MB		Nov '21	1:200		1803
					04
					-
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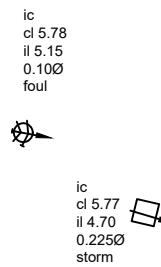
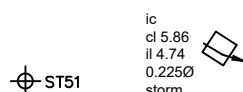
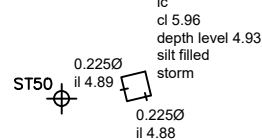
THE SURVEYOR WILL NOT BE RESPONSIBLE FOR THE OMISSION OF DETAILS OBSERVED DURING SITE SURVEY. RICS PROFESSIONAL STANDARDS 3RD EDITION RULE 1.19 APPLIES TO THIS SURVEY.

ALL LEVELS AND COORDINATES ARE IN METRES RELATED TO A THIRD PARTY SURVEY PROVIDED BY
ADM ARCHITECTS. SAM MORRIS SURVEYING TAKES NO RESPONSIBILITY FOR THE ACCURACY OF THE
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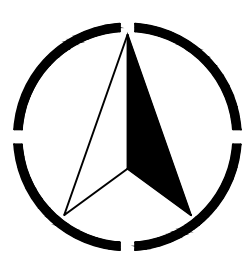
[illegible]

- b/w - barbed wire
- c/b - closeboard
- cl - chain link
- ir - iron railings
- mf - mesh
- mo/f - mixed for
- plf - picket
- pl - post and rail
- plw - post and wire

STATION	EASTINGS	NORTHINGS	LEVEL
ST04	4560213.102	90665.801	5.828
ST10	4560122.600	90665.219	5.838
ST15	4560181.038	90715.133	5.919
ST90	4560159.500	90660.777	5.854
ST51	4560171.331	90674.847	5.791



NORTH



TOPOGRAPHICAL SURVEYS
MEASURED BUILDING SURVEY

Project - The Inglenook Hotel, 255 Pagham Road, Bognor Regis, PO21 3DB

Drawing Title - Topographical Survey

Scale 1:200 @ A0	Date - March 2025	Drawing Number - SMS-1066-1	Surveyor - S.A.M.
------------------	-------------------	-----------------------------	-------------------

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Appendix C Site Investigation

GROUNDWATER MONITORING

AT

INGLENOOK HOTEL, PAGHAM

FOR

ANTHONY HONOUR

G6626

19 December 2024



Ground Management Ltd
Civil and Geotechnical Engineering Services

DOCUMENT CONTROL

Report Title: Groundwater Monitoring
Inglenook Hotel, Pagham

Report No./ Issue: G6626-01/1

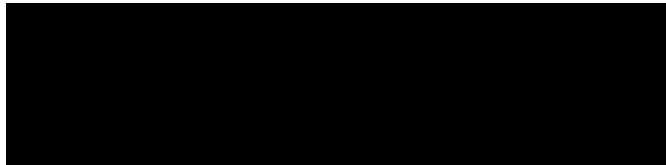
Report Status: Issued for Client Comment

Distribution: Anthony Honour PDF copy 19 December 2024

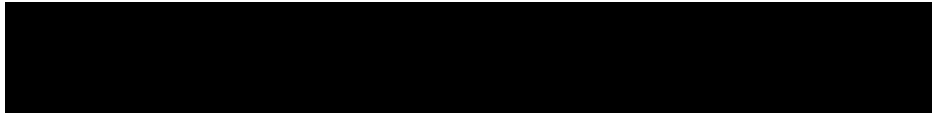
Whaleback RTPi Planning Consultants

Prepared by: Alistair Tyler BSc MSc DIC CEng MICE

Signed:

A large black rectangular box redacting the signature.

Ground Management Ltd Robin Hill Farm Clay Lane Fishbourne Chichester West Sussex PO18 8AB

A large black rectangular box redacting the contact information.

CONTENTS

1.0 Introduction

Figure 1: Site Location Plan

Figure 2: Existing Site Layout

Figure 3: Proposed Development

Figure 4: Exploratory Hole Location Plan

Exploratory Hole Logs: Boreholes BH1 and BH2

Groundwater Monitoring Results to 16 December 2024

1.0 INTRODUCTION

- 1.1 Ground Management Ltd have installed groundwater monitoring at Inglenook Hotel, Pagham (location indicated on Figure 1) to inform drainage design for a proposed new residential development as indicated on attached Figure 3.
- 1.2 The work included excavation of two boreholes referenced BH1 and BH2 by dynamic sampling at locations indicated on Figure 4 each to a depths of 3m to investigate the ground profile and install standpipes to allow future monitoring of groundwater level. Borehole logs are attached.
- 1.3 The standpipes were installed on 5/12/24 and a record of the monitoring observations up to 16/12/24 is appended.
- 1.4 The work was carried out for Anthony Honour under instruction from Whaleback RTPI Planning Consultants and nothing in this report confers or purports to confer on any third party, any benefit or any right to enforce any term of this report pursuant to the Contract (Rights of Third Parties) Act 1999.

PROJECT: Inglenook Pagham Residential Phase 2

PREPARED: AJHT

SECTION: Preliminary Ground Investigation

CHECKED: AJHT

TITLE: Site Location Plan

DATE: Dec 2024



North

(Not to scale)

Site Location



PROJECT: Inglenook Pagham Residential Phase 2

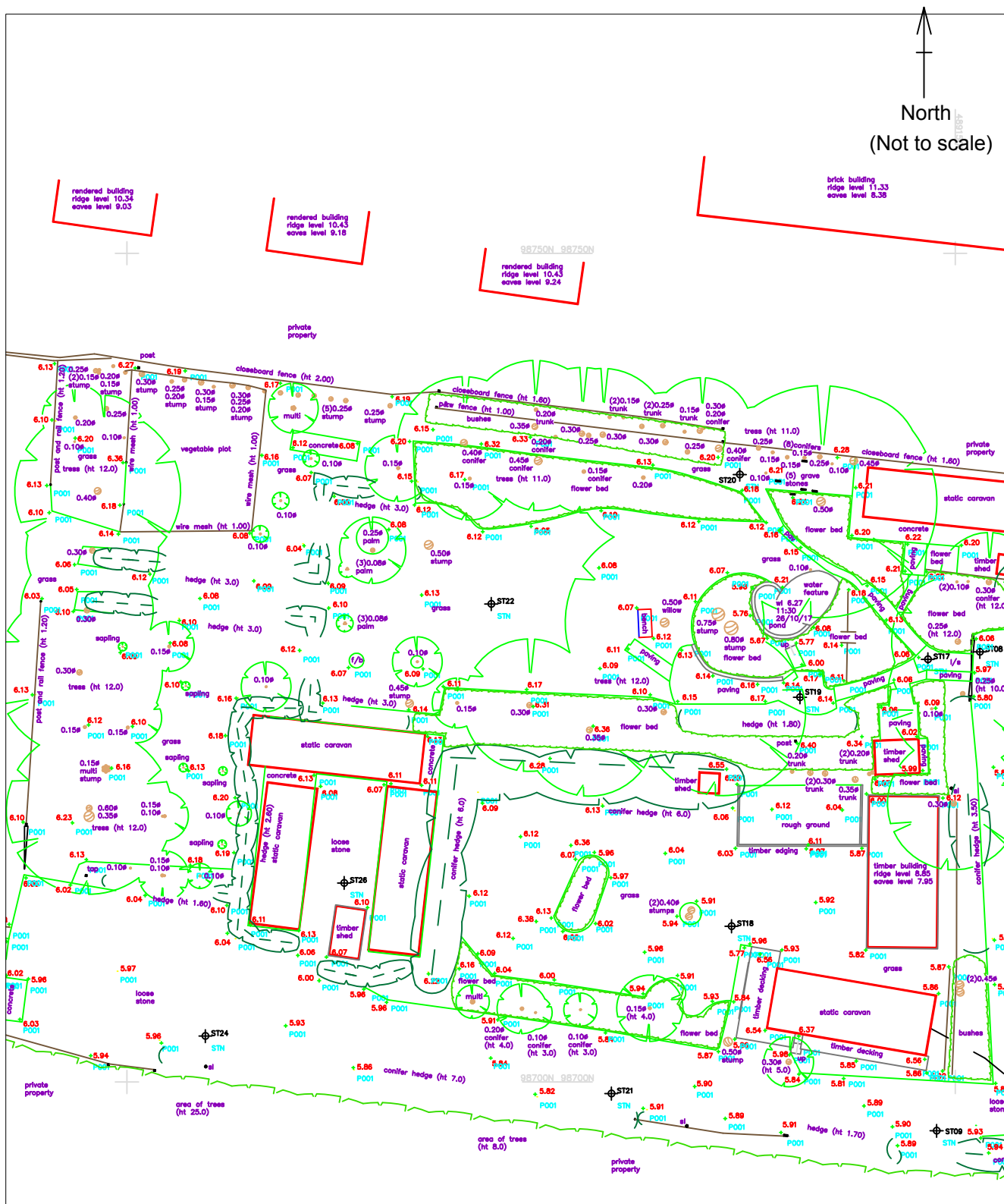
PREPARED: AJHT

SECTION: Preliminary Ground Investigation

CHECKED: AJHT

TITLE: Existing Site Layout

DATE: Dec 2024



Ground Management Ltd Civil and Geotechnical Engineering Services	Robin Hill Farm, Clay Lane, Fishbourne CHICHESTER, West Sussex PO18 8PB [REDACTED]	PROJECT NO: G6626
		FIGURE REF: Figure3
PROJECT: Inglenook Pagham Residential Phase 2		PREPARED: AJHT
SECTION: Preliminary Ground Investigation		CHECKED: AJHT
TITLE: Exploratory Hole Location Plan		DATE: Dec 2024

↑
North
(Not to scale)



PROJECT: Inglenook Pagham Residential Phase 2

PREPARED: AJHT

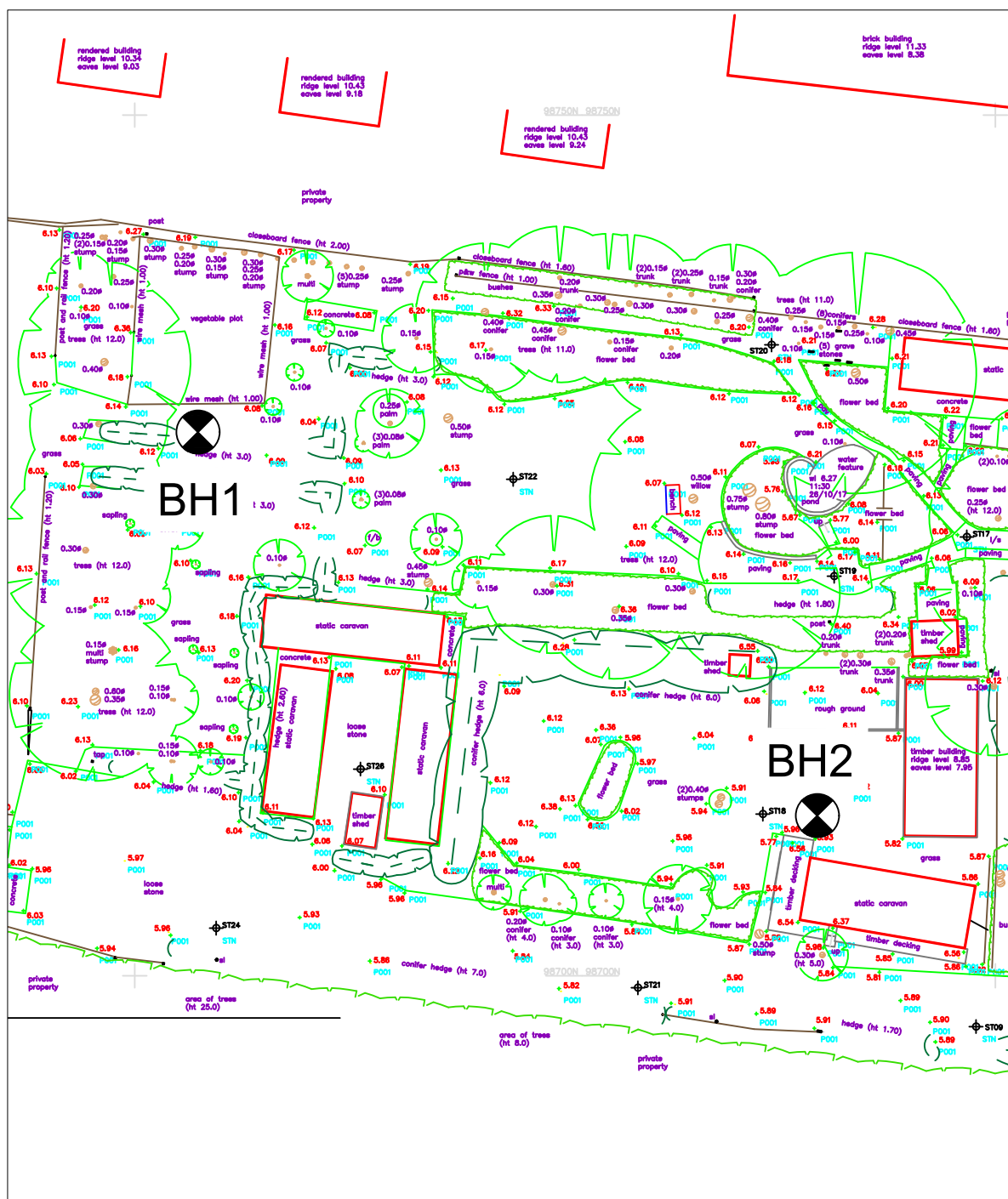
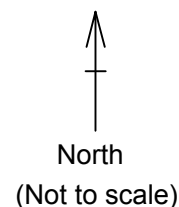
SECTION: Preliminary Ground Investigation

CHECKED: AJHT

TITLE: Exploratory Hole Location Plan

DATE: Dec 2024

Exploratory hole locations shown are indicative unless dimensioned



Ground Management Ltd

Civil and Geotechnical Engineering Services

Robin Hill Farm Clay Lane Fishbourne
CHICK
[REDACTED]
[REDACTED].com

Site Inglenook Hotel, Pagham	Number BH1
Client Anthony Honour	Job Number G6626
Engineer BP Civils	Sheet 1/1

Excavation Method Dynamic sampling using Archway Dart	Dimensions 80mm to 1.00m 70mm to 2.00m 60mm to 3.00m	Ground Level (mOD) 6.10
	Location See Location Plan	Dates 05/12/2024

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.90-1.20	D1		HV at 0.8m : 60,50,60 kPa HV at 1.2m : 50 kPa	5.80	(0.30)	Tree litter over slightly sandy (fine) slightly clayey silt TOPSOIL with occasional subangular medium flint gravel. Some roots up to 3mm dia.		
					0.30	Firm orange brown silty CLAY with occasional subangular fine flint gravel. Some fine rootlets		
					(1.05)			
					4.75	1.35	Orange brown and yellow brown coarse medium and fine angular to subangular flint GRAVEL with some silty fine to medium sand	
				3.70	(1.05)	... with some silty clay from 2.1m to 2.3m		
					2.40	Yellow brown slightly silty fine to medium SAND with a little coarse medium and fine rounded to subrounded flint gravel		
					(0.60)			
				3.10	3.00	Complete at 3.00m		

Remarks Some seepage below 1m 19mm dia. standpipe installed on completion - 2m slotted with geosoc and gravel surround, 1m plain with bentonite pellet seal Water level recorded 0.89m bgl after 30 minutes Ground level estimated by reference to topographic survey by Midlands Surveys dated Nov 2017	Scale (approx)	Logged By
	1:20	AT
	Figure No. G6626.BH1	

Ground Management Ltd

Civil and Geotechnical Engineering Services

Robin Hill Farm Clay Lane Fishbourne

Site

Inglenook Hotel, Pagham

Number
BH2

Excavation Method

Dynamic sampling using
Archway Dart

Dimensions

80mm to 1.00m
70mm to 2.00m
60mm to 3.00m

Ground Level (mOD)

5.93

Client

Anthony Honour

Job
Number
G6626

Location

See Location Plan

Dates

05/12/2024

Engineer

BP Civils

Sheet

1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.80-1.00	D1		HV at 0.8m : 40,40,40 kPa	5.63	(0.30) 0.30	Grass over moist brown slightly sandy (fine) slightly clayey silt TOPSOIL with occasional fine and medium subangular flint gravel. Some fine roots Firm orange brown silty CLAY		
1.20-1.60	D2		HV at 1.5m : 45,50,45 kPa	4.73	(0.90) 1.20	... with a little coarse medium and fine subrounded and rounded flint gravel below 1.0m Firm orange brown and yellow brown sandy (medium and fine) CLAY / SILT with some coarse medium and fine angular to subangular flint gravel.		
2.40-2.90	D3			3.53	(1.20) 2.40	... some roots up to 2mm dia above 1.9m Orange brown slightly silty fine to medium SAND		
2.90-3.00	D4		HV at 2.95m : 70,70,70 kPa	3.03 2.93	2.90 (0.10) 3.00	Firm to stiff brown CLAY Complete at 3.00m		

Remarks

Some seepage below 1m
19mm dia. standpipe installed on completion - 2m slotted with geosoc and gravel surround, 1m plain with bentonite pellet seal. Flush cover.
Water level recorded 0.65m bgl after 30 minutes
Ground level estimated by reference to topographic survey by Midlands Surveys dated Nov 2017

Scale
(approx)

1:20

Logged
By

AT

Figure No.

G6626.BH2

G6626 Inglenook Hotel, Pagham

Water Level Monitoring (relative to ground level)



G6626 Inglenook Hotel, Pagham

Water Level Monitoring (relative to Ordnance Datum)



Project No: G6626
Ingelnook Hotel, Pagham
15-Feb-25

		BH1	BH2			
Upstand (m)		0.360	0.000			
Ground Level (mAOD)		6.100	5.930			
Cover level (mAOD)		6.460	5.930			
Base dip (m)						

mAOD: metres Above Ordnance Datum

Ground levels estimated by reference to survey by Midlands Surveys dated Nov2017

[illegible]

G6626 Inglenook Hotel, Pagham

Water Level Monitoring (relative to ground level)



G6626 Inglenook Hotel, Pagham

Water Level Monitoring (relative to Ordnance Datum)



Project No: G6626
Ingelnook Hotel, Pagham
28-Mar-25

		BH1	BH2			
Upstand (m)		0.360	0.000			
Ground Level (mAOD)		6.100	5.930			
Cover level (mAOD)		6.460	5.930			
Base dip (m)						

mAOD: metres Above Ordnance Datum

Ground levels estimated by reference to survey by Midlands Surveys dated Nov2017

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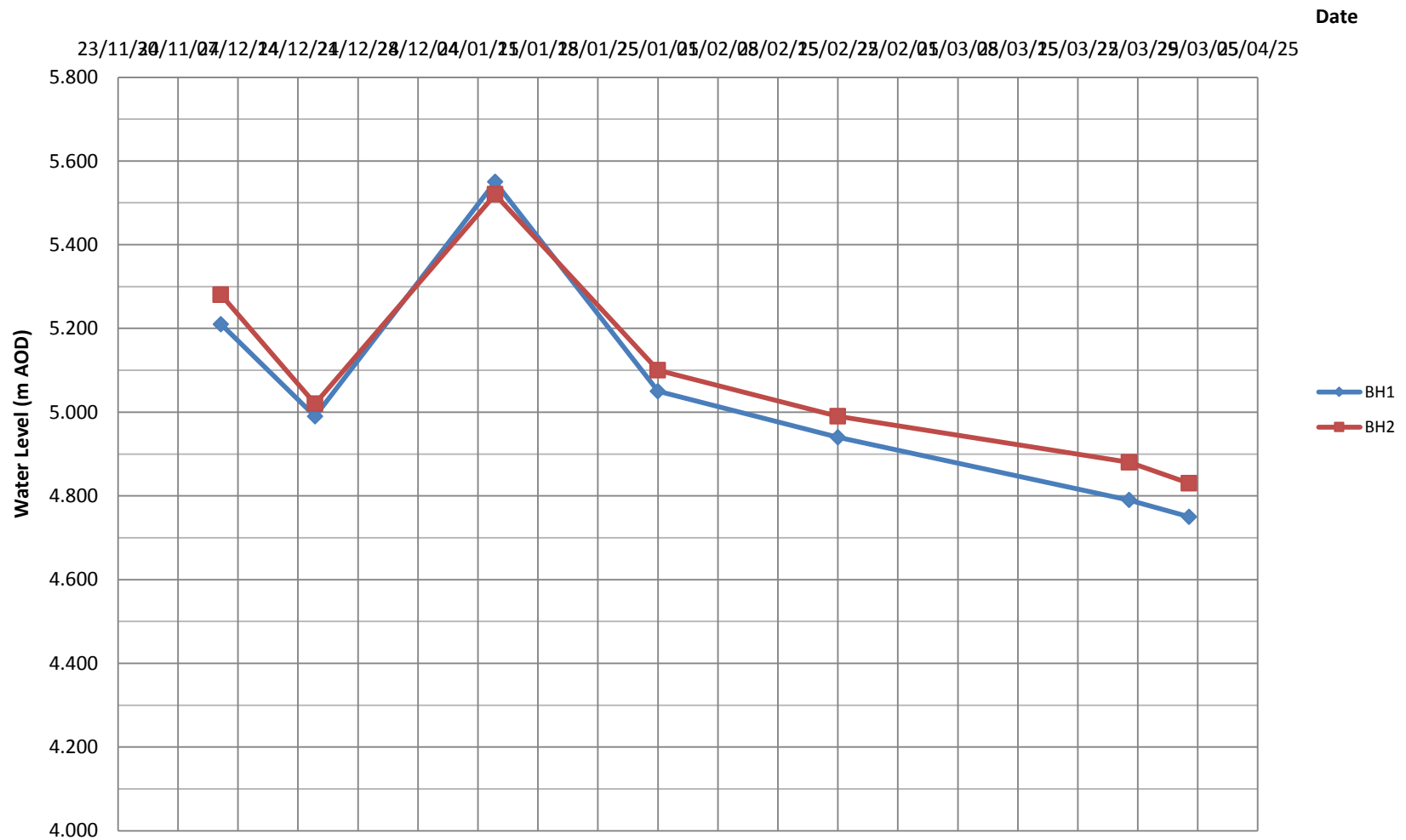
G6626 Inglenook Hotel, Pagham

Water Level Monitoring (relative to ground level)



G6626 Inglenook Hotel, Pagham

Water Level Monitoring (relative to Ordnance Datum)



Appendix D Public Sewer Records

Appendix E Flood Maps for Planning Extracts

Get a boundary report

 [Edit](#)

 [Delete](#)

Datasets

- ☒ Flood zones 2 and 3
- ☐ River and sea with defences
- ☐ River and sea without defences
- ☐ Surface water
- ☐ None

Map features

- ☒ Water storage
- ☒ Flood defence
- ☒ Main Rivers

 Search

Key



Flood zone 2



Flood zone 3



Water storage



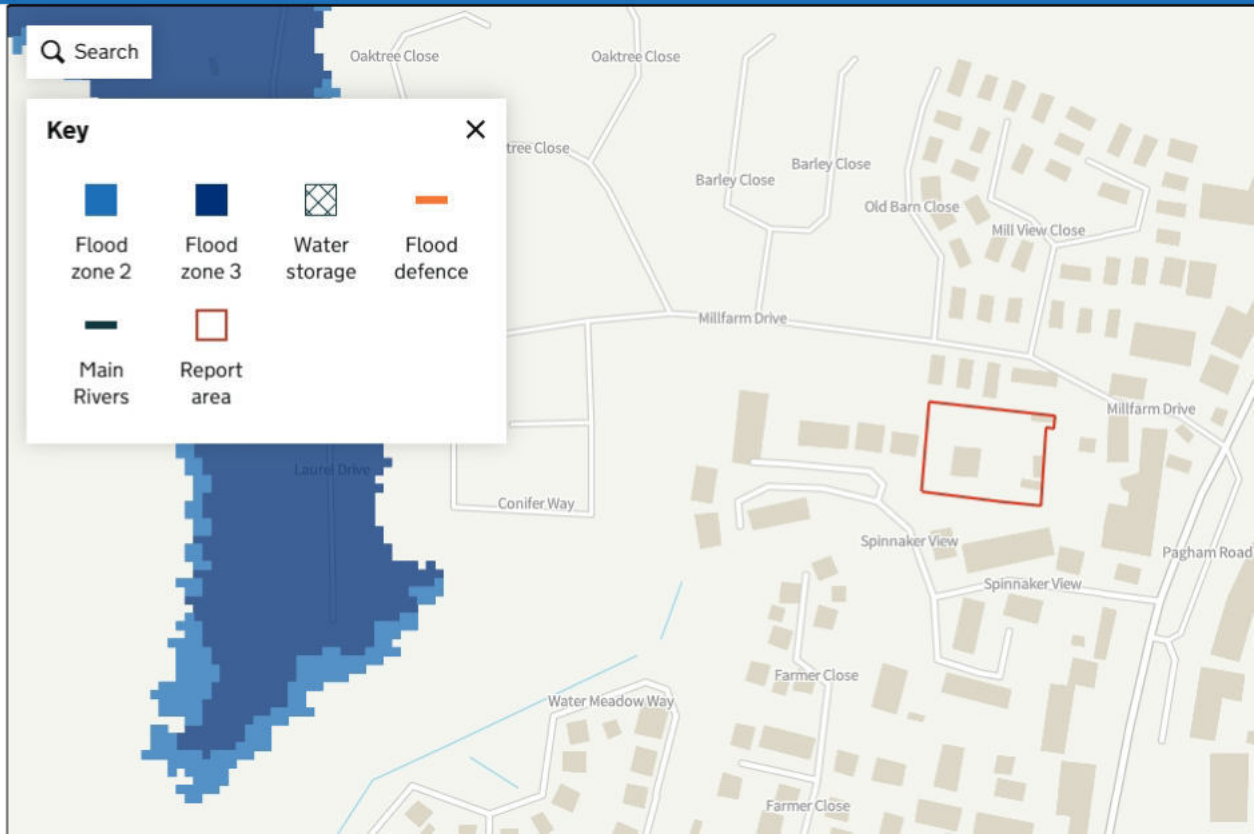
Flood defence



Main Rivers



Report area



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Datasets

- ☐ Flood zones 2 and 3
- ☒ River and sea with defences
- ☐ River and sea without defences
- ☐ Surface water
- ☐ None

Time frame

- ☒ Present day
- ☐ Climate change

Annual likelihood of flooding

- ☒ Rivers and sea 1 in 30
- ☐ Rivers 1 in 100, Sea 1 in 200
- ☐ Rivers and sea 1 in 1000

 Search

Key



Flood
extent



Water
storage



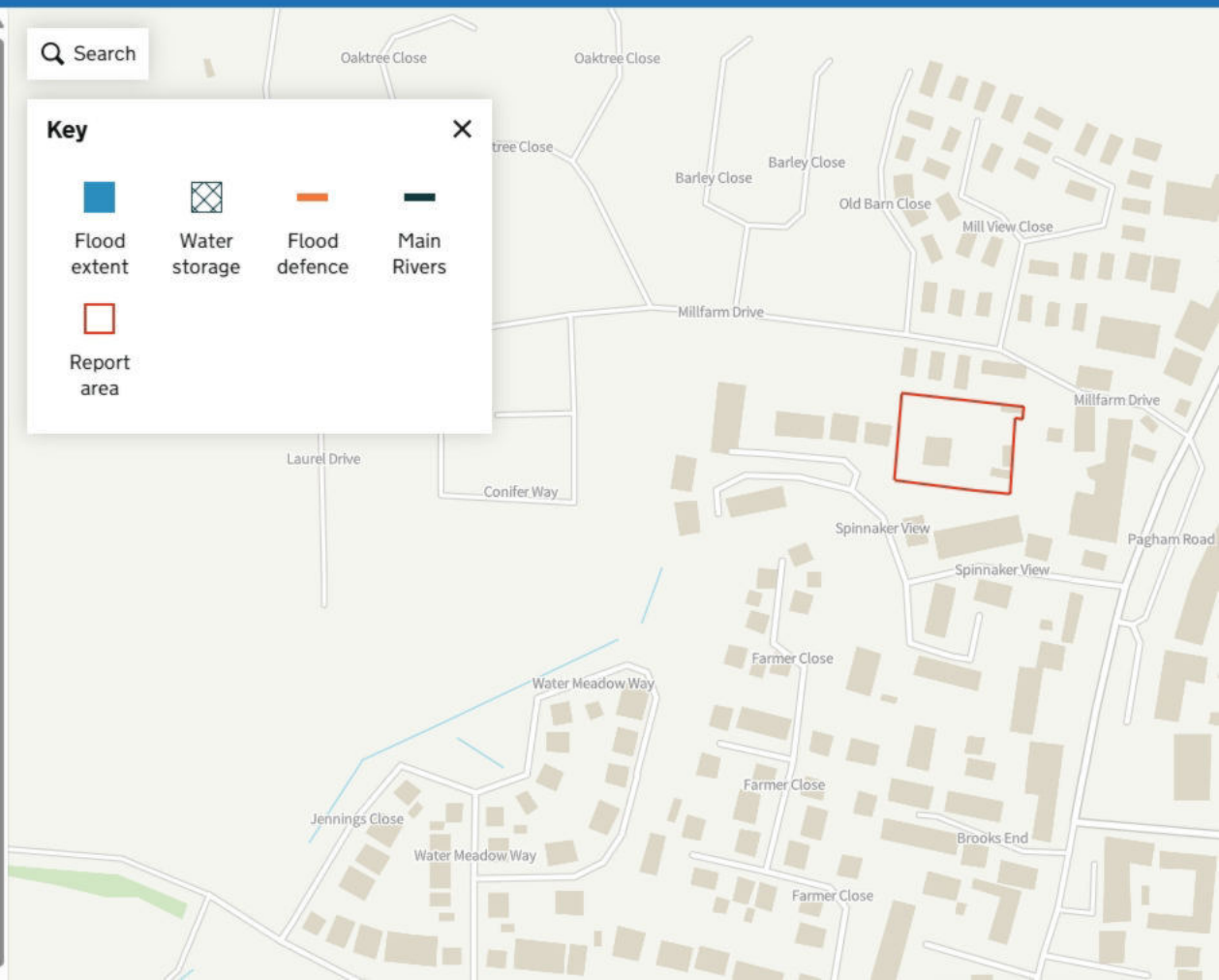
Flood
defence



Main
Rivers



Report
area



Get a boundary report

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Datasets

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- ☐ Rivers and sea 1 in 1000

Search

Key



Flood extent



Water storage



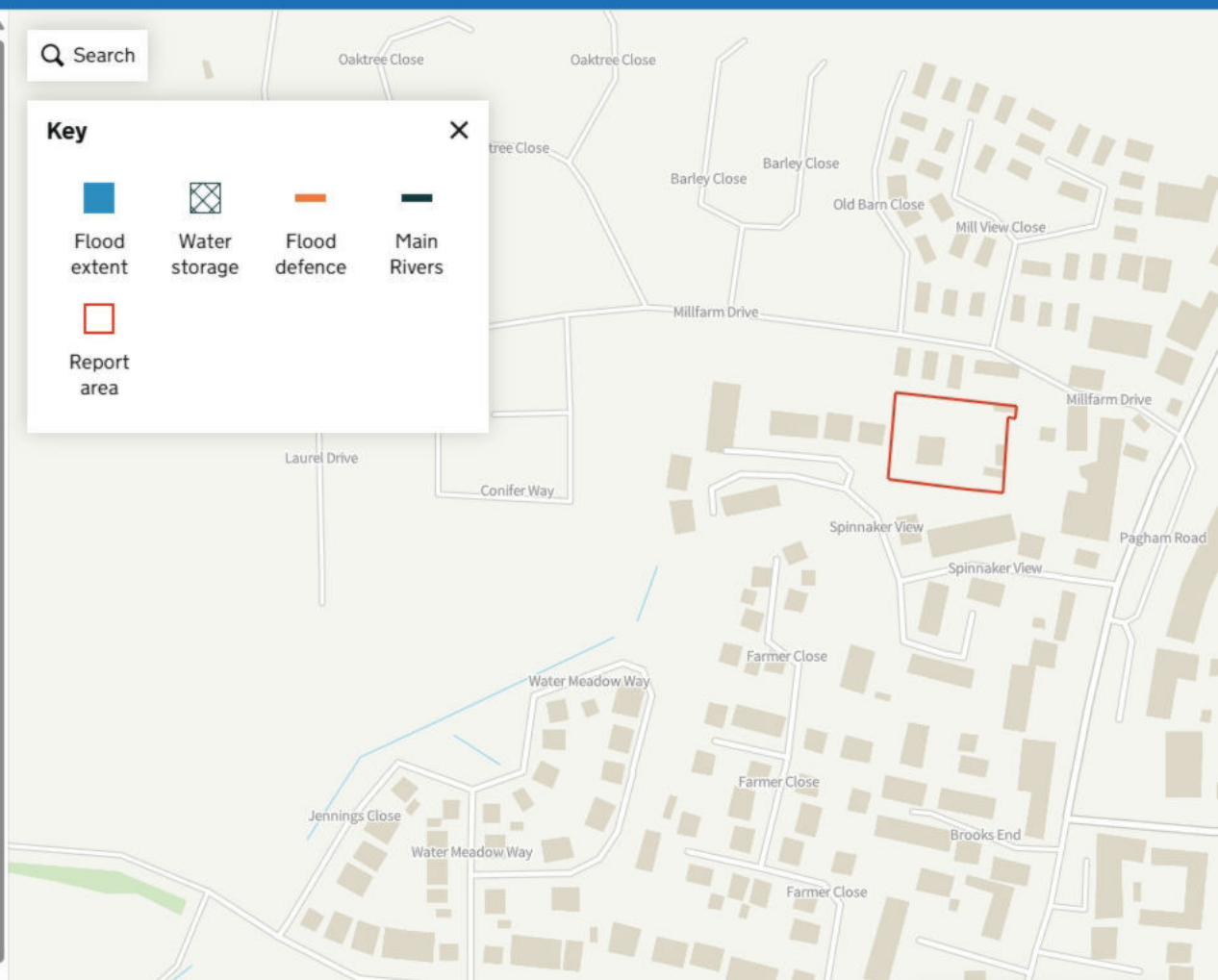
Flood defence



Main Rivers



Report area



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Datasets

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Search

Key



Flood extent



Water storage



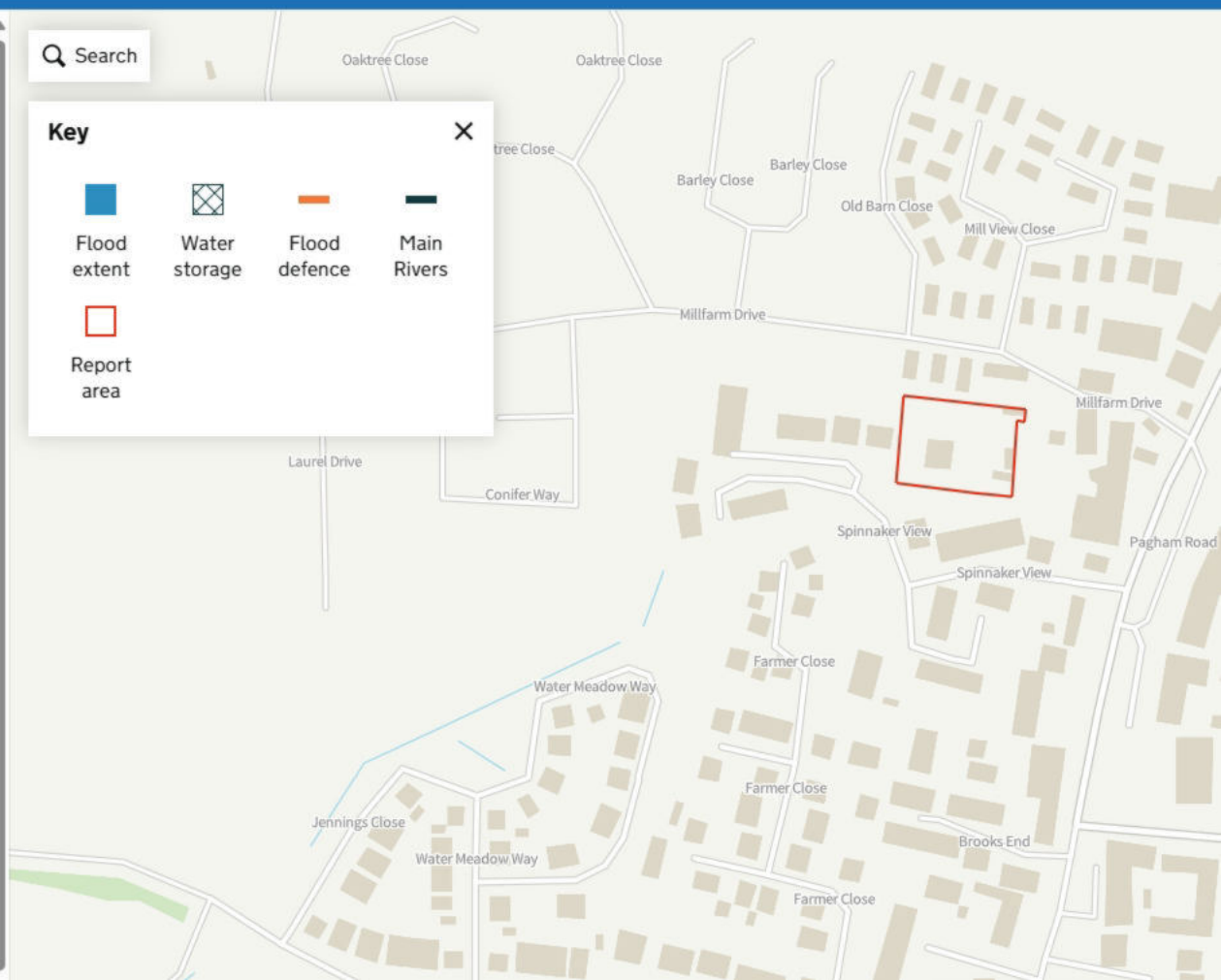
Flood defence



Main Rivers



Report area



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Datasets

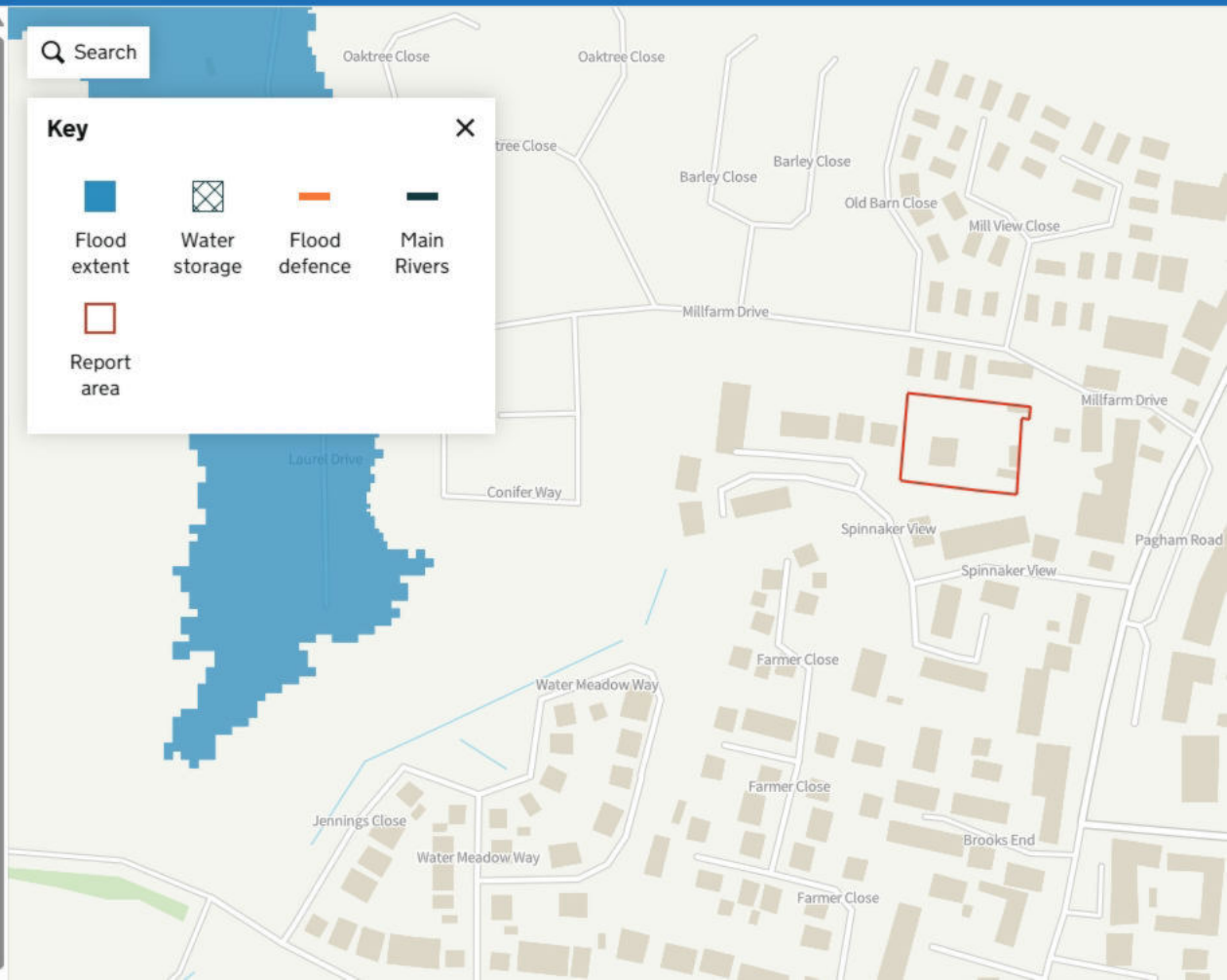
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- ☒ River and sea with defences
- ☐ River and sea without defences
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Time frame

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- ☒ Climate change

Annual likelihood of flooding

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- ☐ Rivers 1 in 100, Sea 1 in 200
- ☐ Rivers and sea 1 in 1000



Key



Flood extent



Water storage



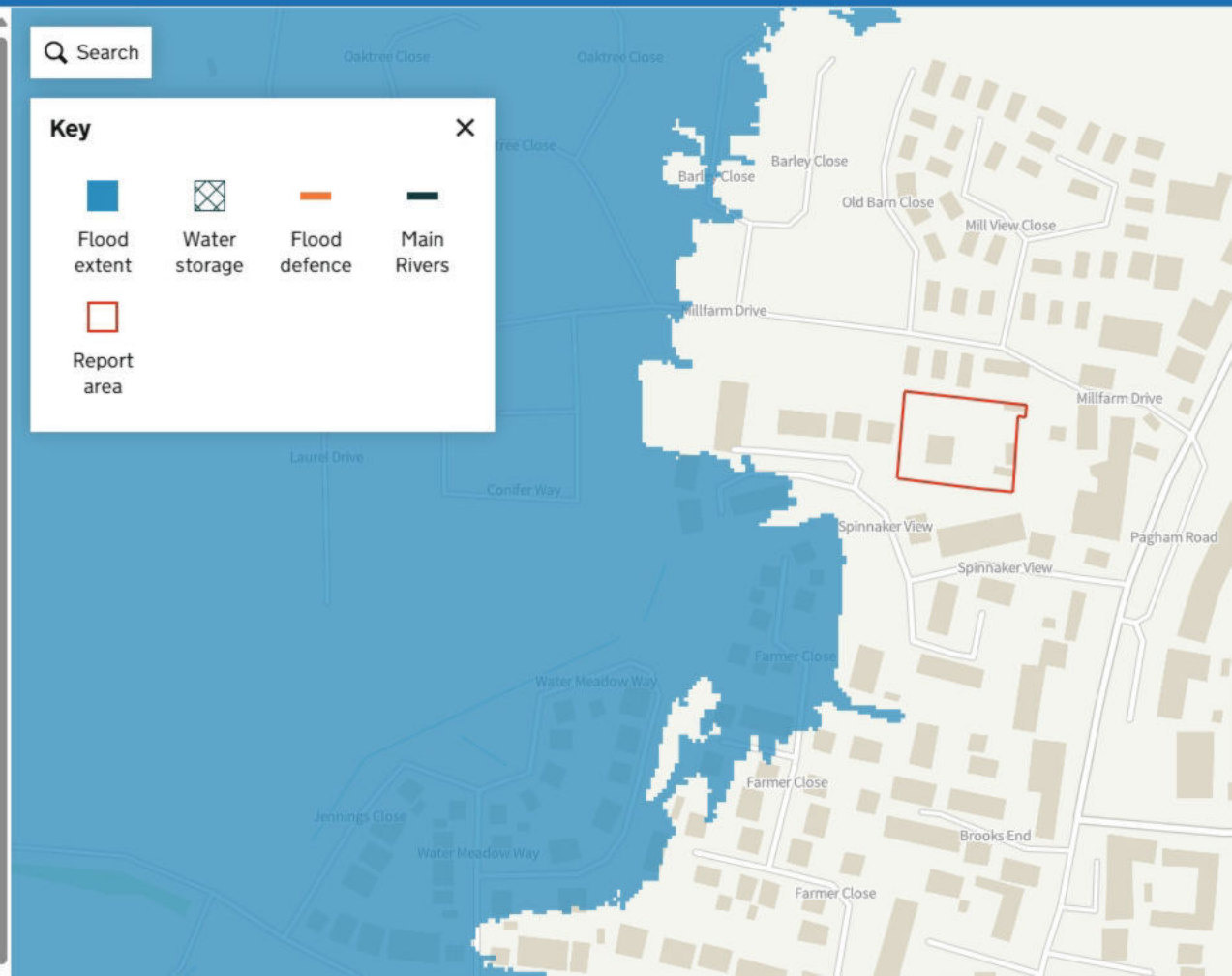
Flood defence



Main Rivers



Report area



Get a boundary report

Edit

Delete

Datasets

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Get a boundary report

 [Edit](#)

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Key



Flood
extent



Water
storage



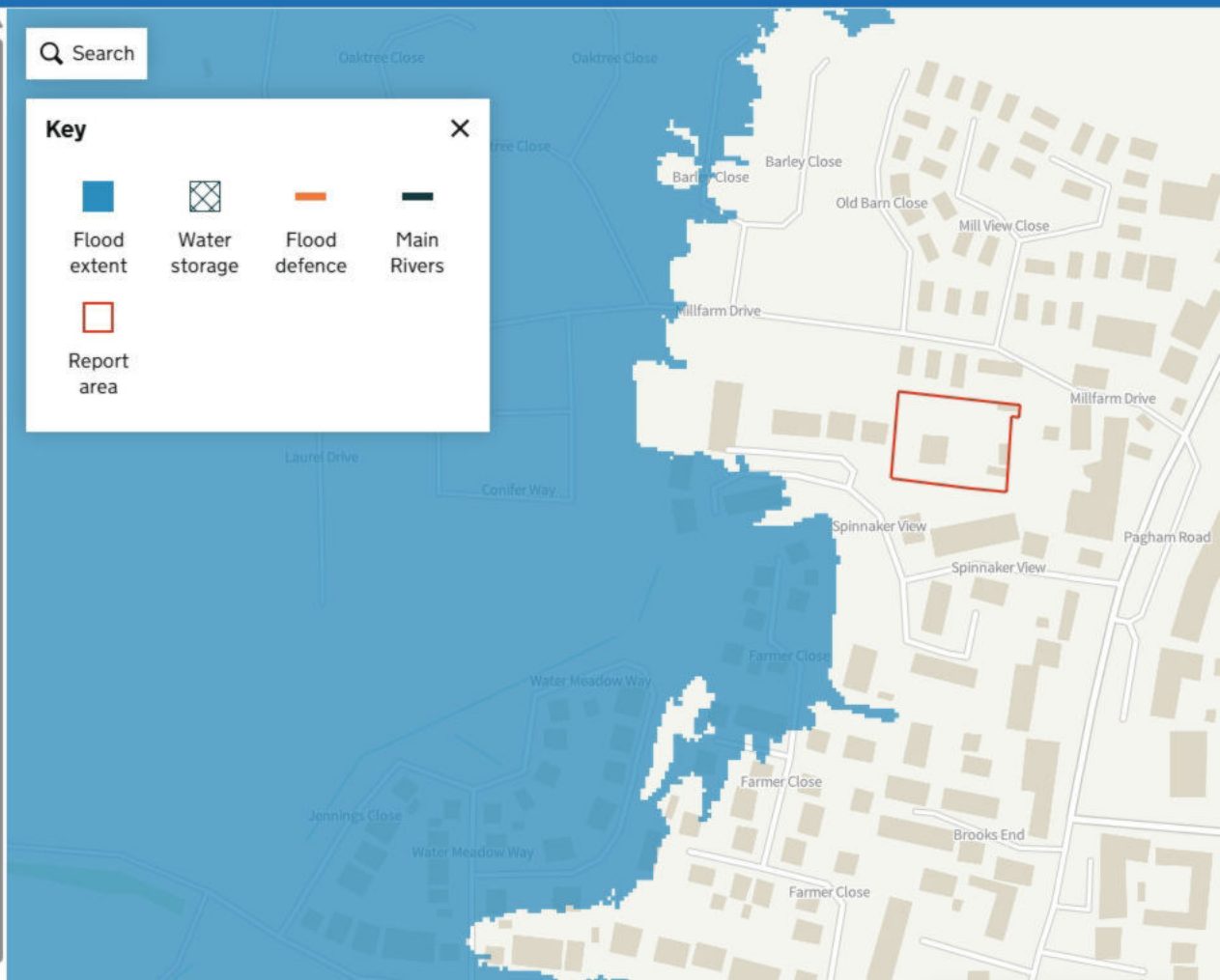
Flood
defence



Main
Rivers



Report
area



Get a boundary report

-  [Edit](#)
-  [Delete](#)

Datasets

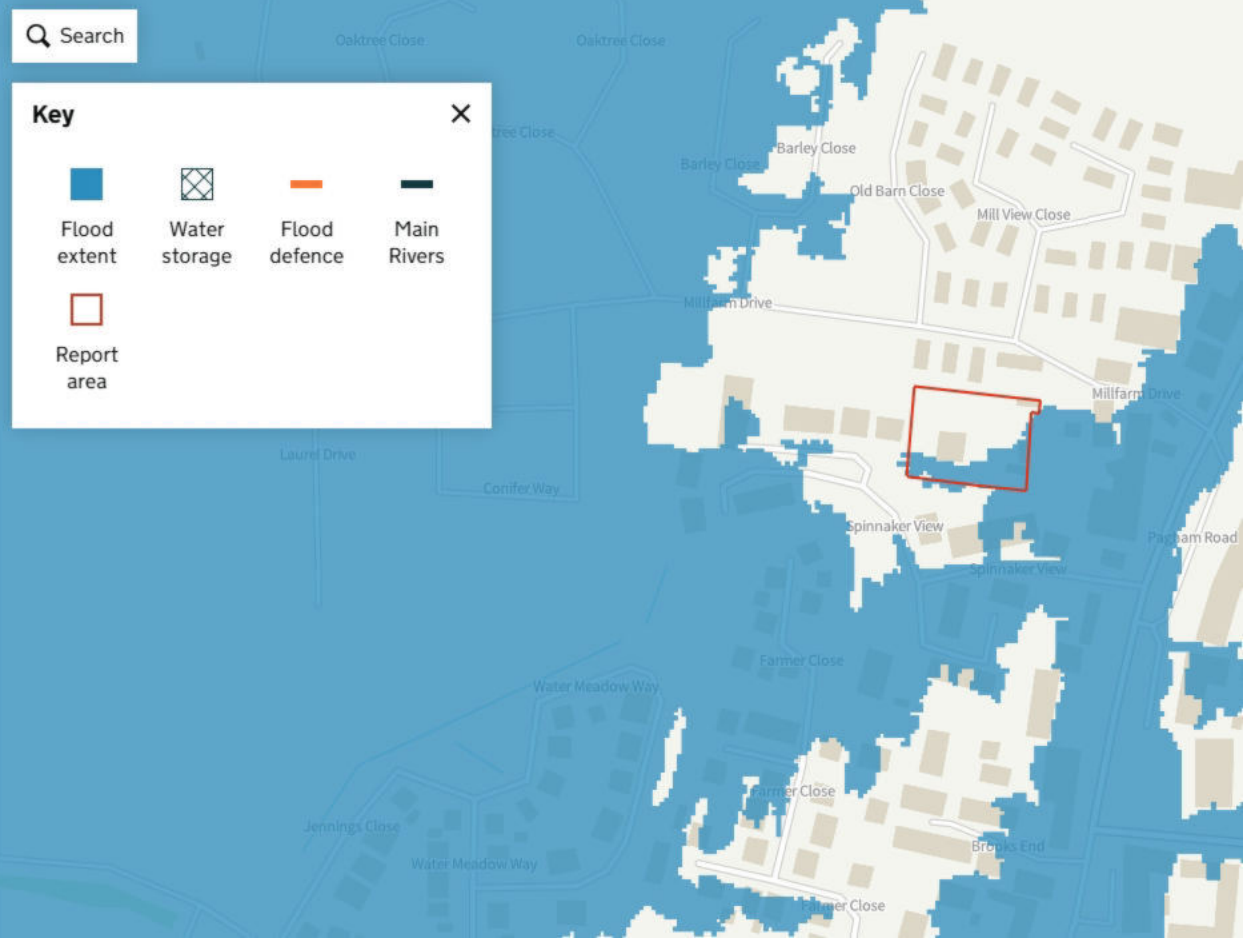
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- ☐ None

Time frame

- ☐ Present day
- ☒ Climate change

Annual likelihood of flooding

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Get a boundary report

 [Edit](#)

 [Delete](#)

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 Search

Key



Flood extent



Water storage



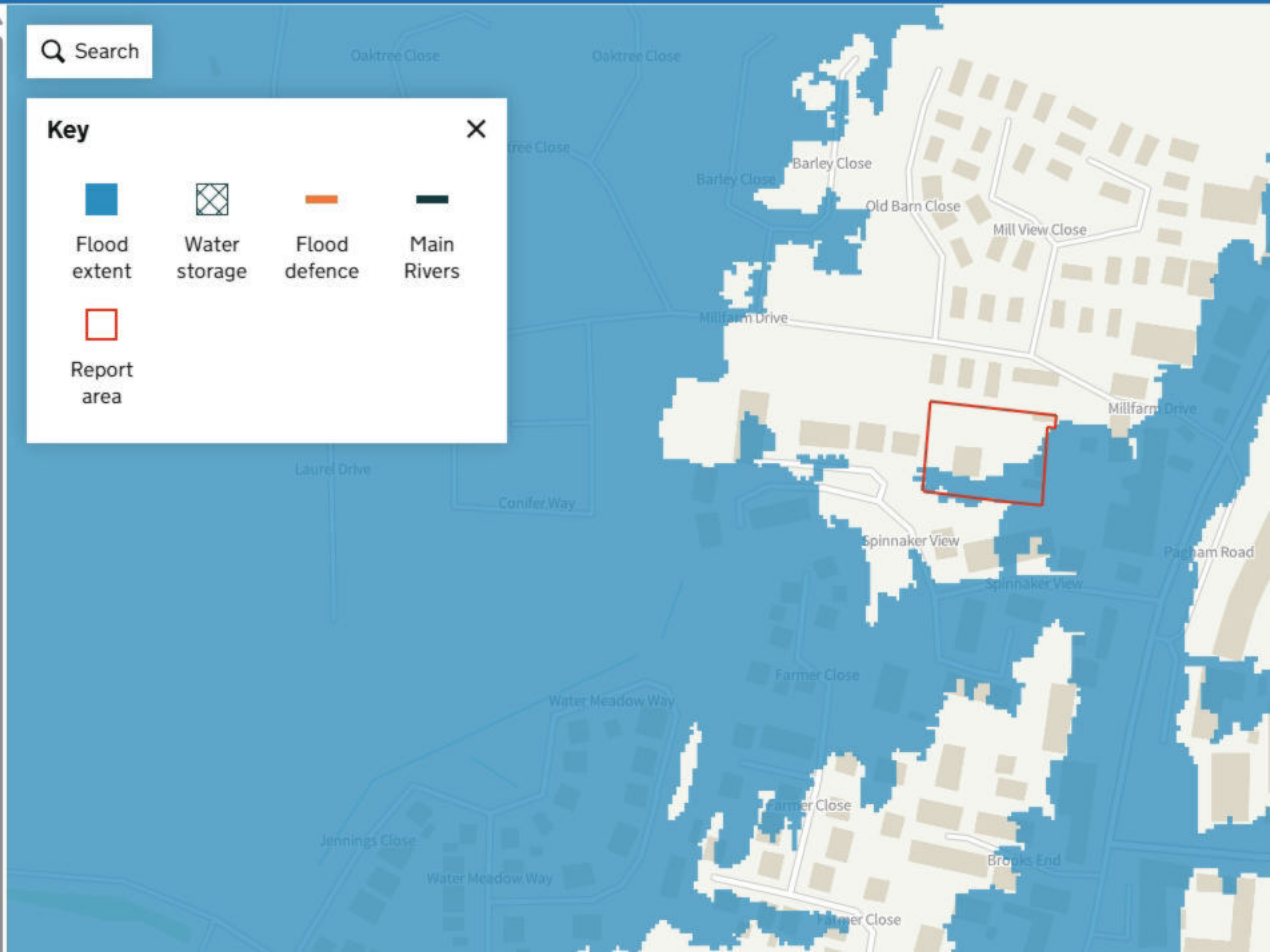
Flood defence



Main Rivers



Report area



Get a boundary report

 [Edit](#)

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Flood extent



Water storage



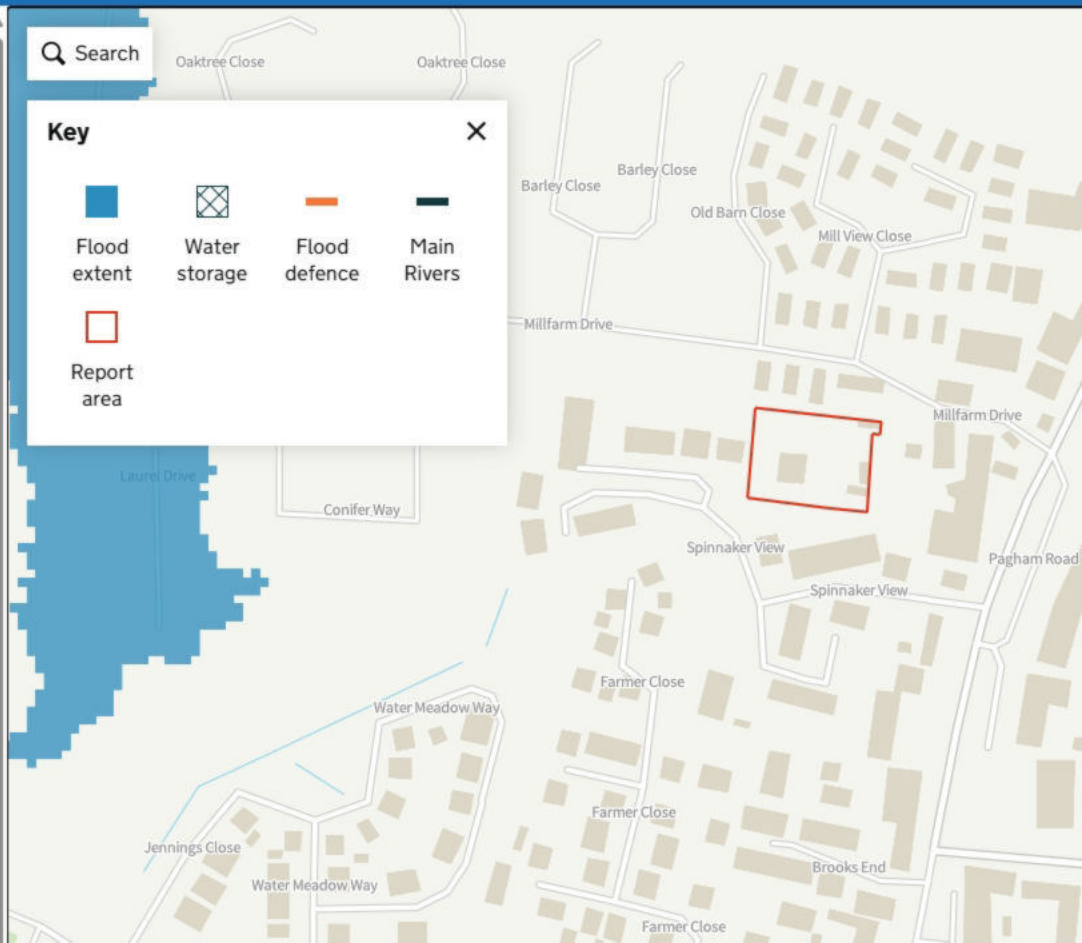
Flood defence



Main Rivers



Report area



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Flood extent



Water storage



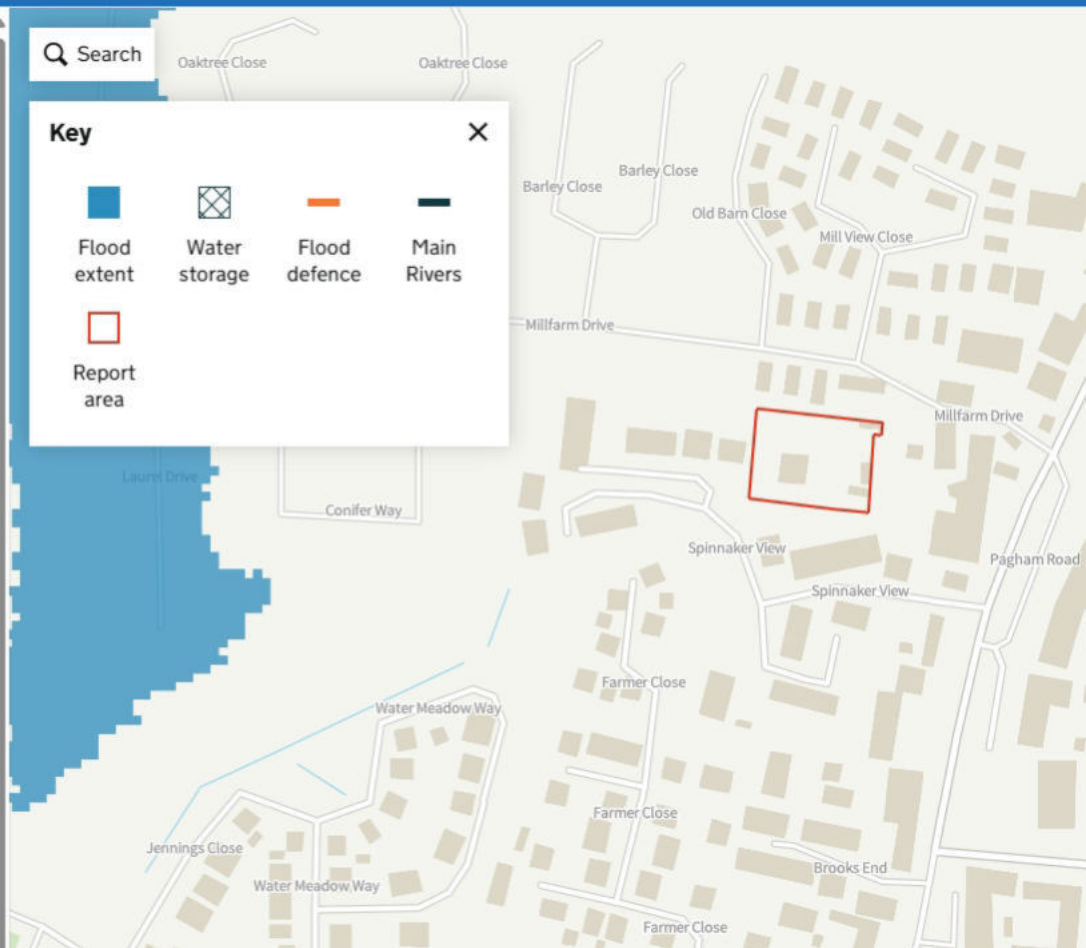
Flood defence



Main Rivers



Report area



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[Delete](#)

Datasets

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- ☐ River and sea without defences
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Annual likelihood of flooding

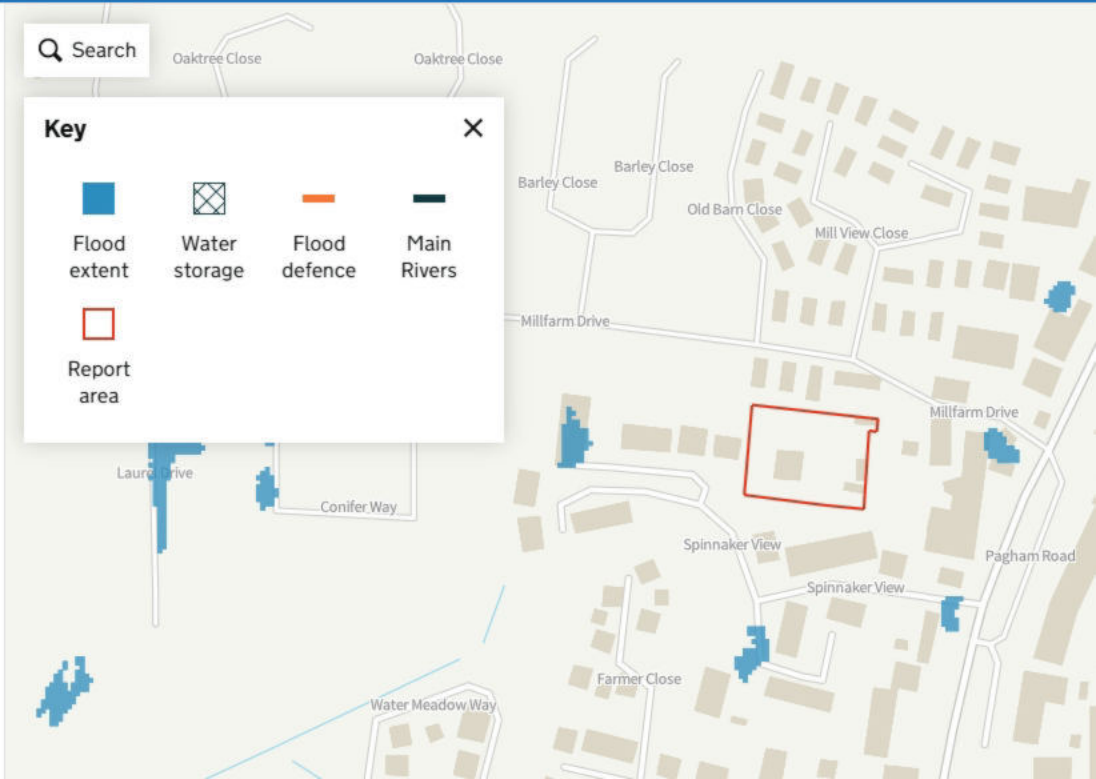
- ☒ 1 in 30
- ☐ 1 in 100
- ☐ 1 in 1000

Search

Key

×

Flood extent	Water storage	Flood defence	Main Rivers
Report area			



Get a boundary report

 [Edit](#)

 [Delete](#)

Datasets

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Annual likelihood of flooding

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 Search

Key



Flood
extent



Water
storage



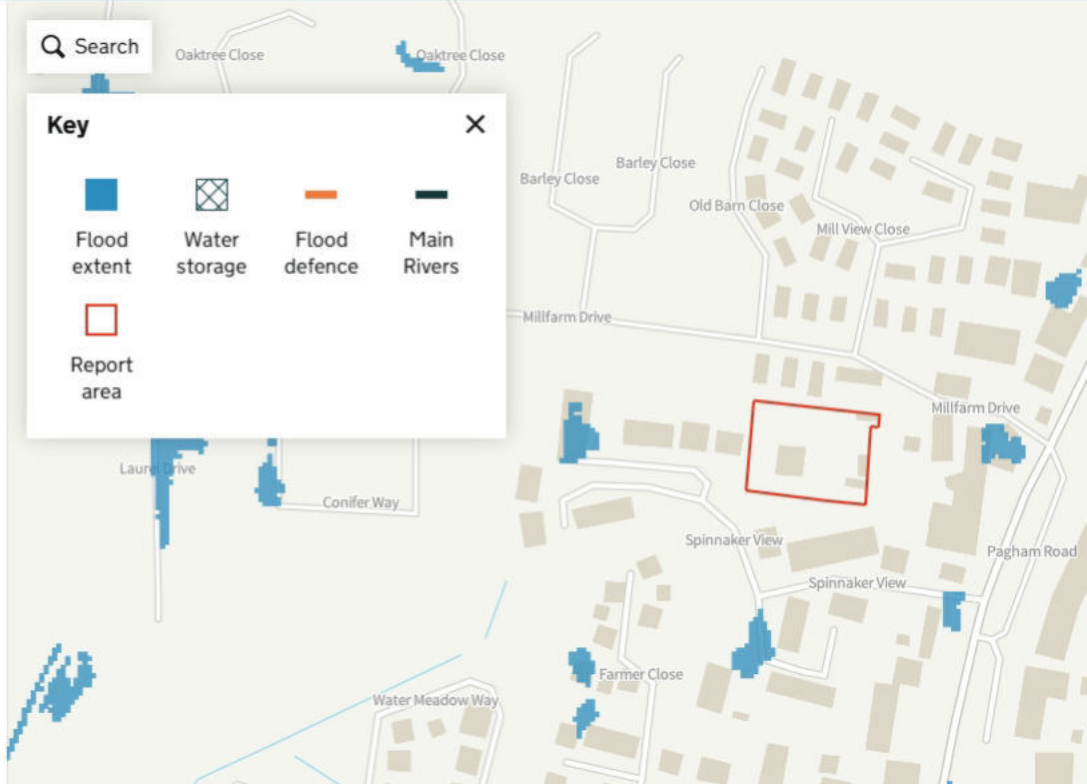
Flood
defence



Main
Rivers



Report
area



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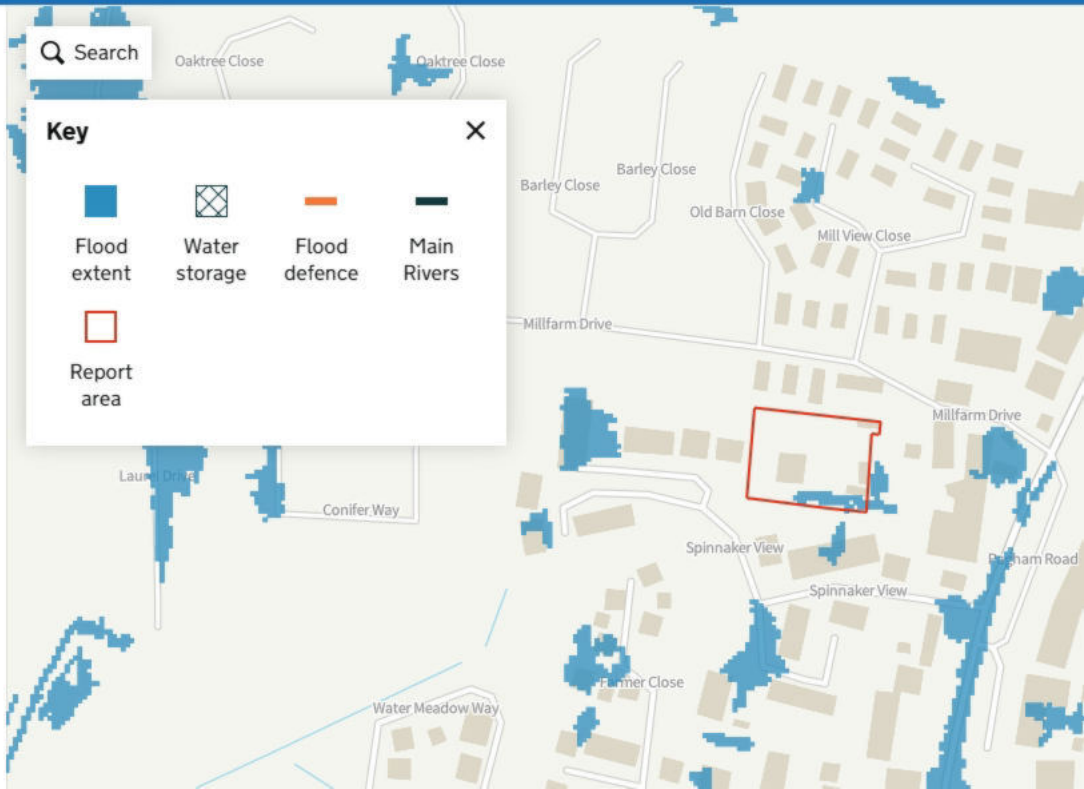
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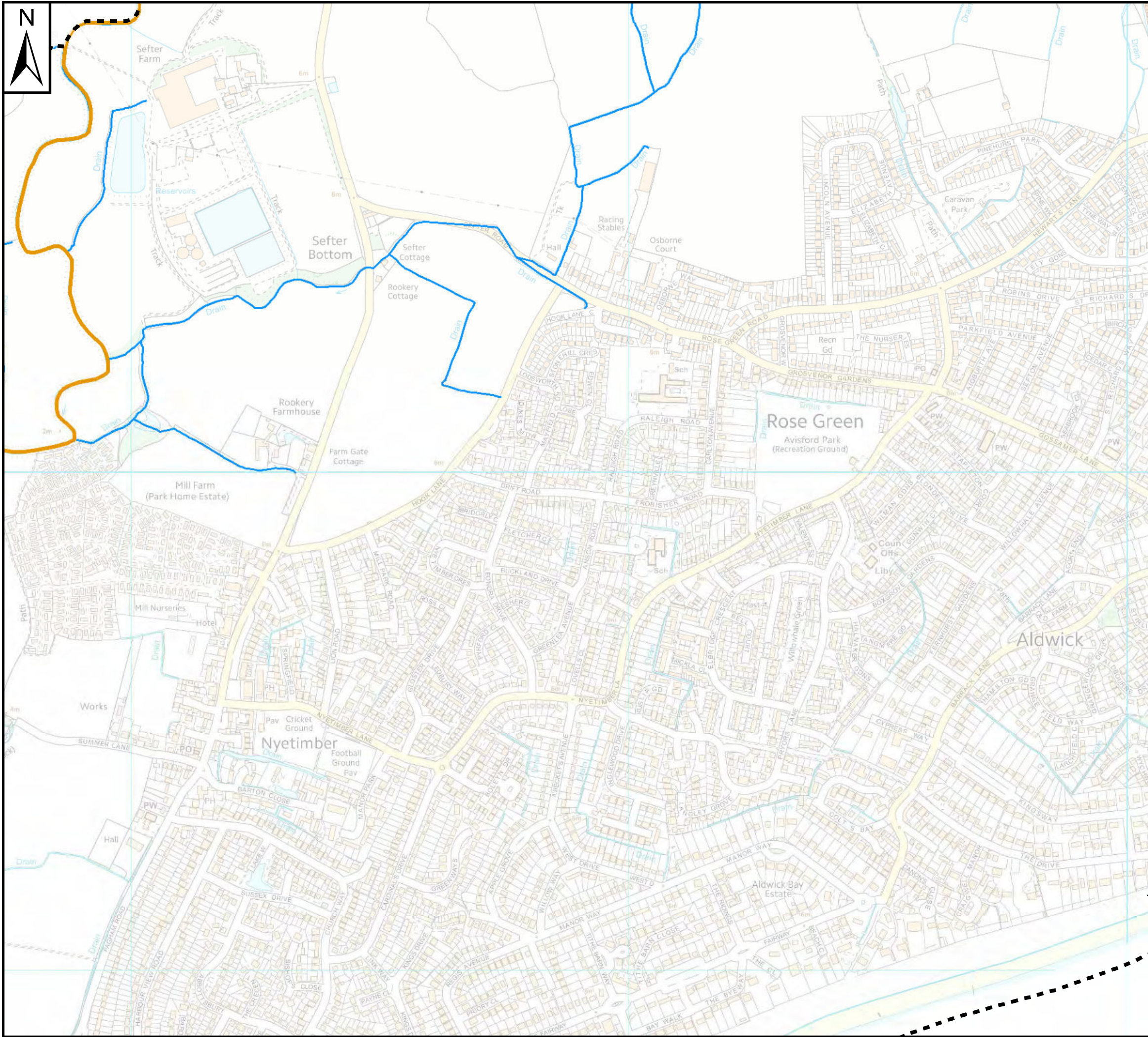
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- ☐ None

Annual likelihood of flooding

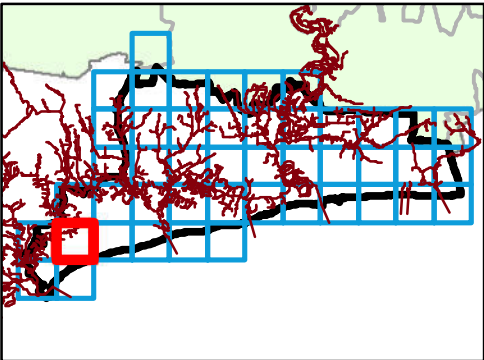
- ☐ 1 in 30
- ☐ 1 in 100
- ☒ 1 in 1000



Appendix F Strategic Flood Risk Assessment Extracts



Key Plan



Legend

- Arun District SFRA boundary
- Main Rivers**
- Aldingbourne Rife
- Ash Grove
- Barnham Lane Ditch
- Barnham Rife
- Black Ditch
- Decoy Ponds Ditch
- East Poling Drain
- Eel Springs Ditch
- Ferring Rife
- Forebridge Rife
- Lidsy Rife
- Little Tortington Stream
- North Bersted Ditch
- Pagham Harbour Channels
- Pagham Rife
- River Arun
- Rope Walk Ditch
- Ryebank Rife
- Shripney Manor Ditch
- West Poling Drain
- Yapton Rife
- Ordinary watercourse



REF	Date	Comments
A	June 2016	-
B		
C		

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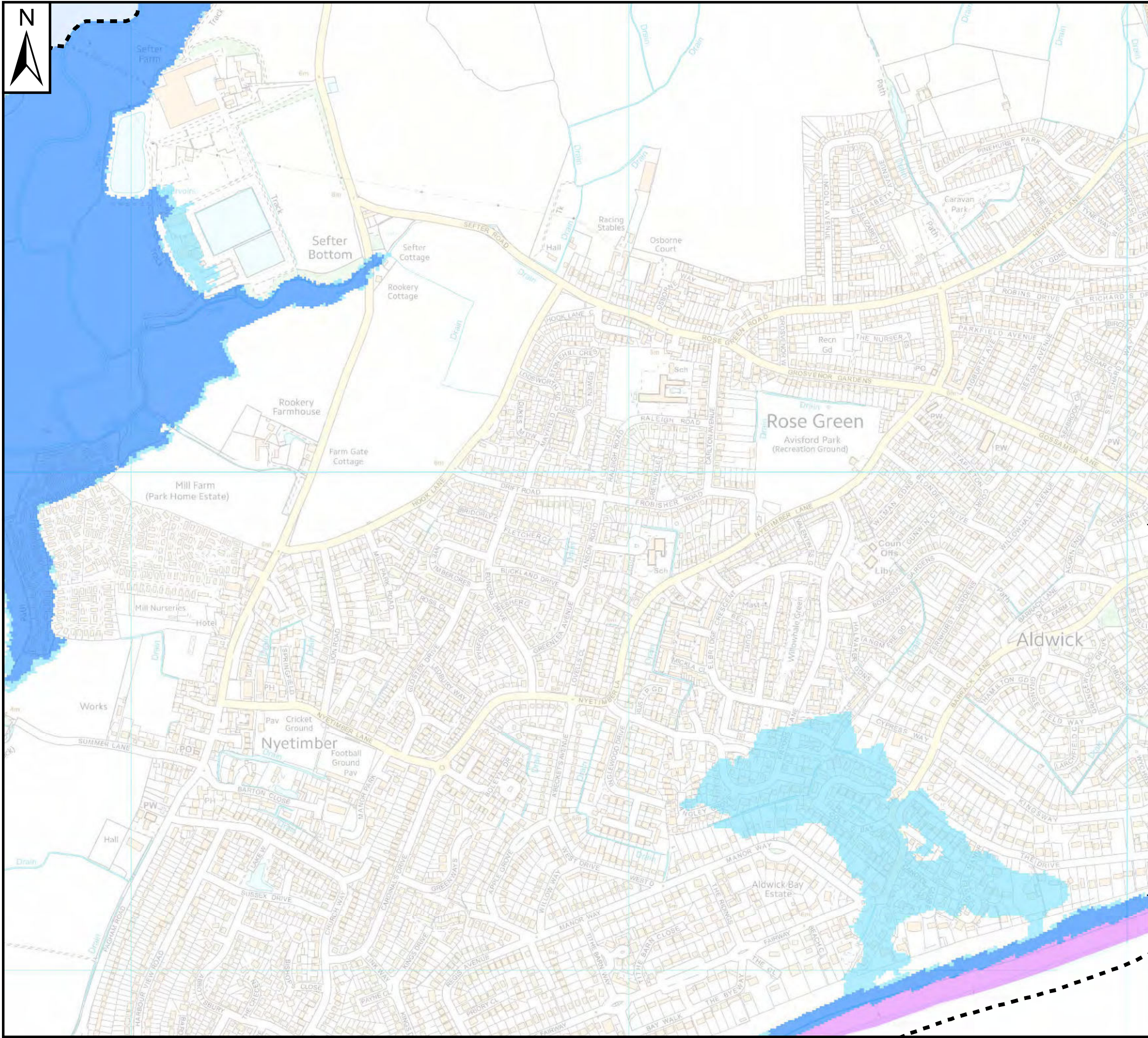
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LEVEL 1 SFRA: APPENDIX B
WATERCOURSES

Sheet No: 4 of 46 Index Number: ADC_04

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Notes

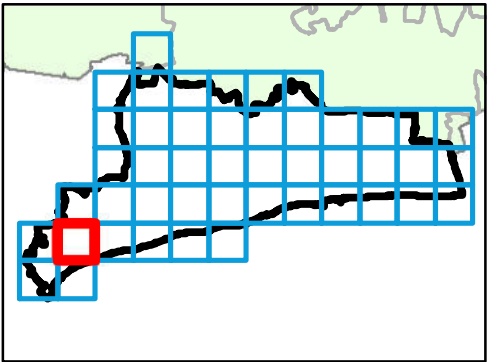
Zone 1: Comprised of land having a less than 1 in 1,000 annual probability of river or sea flooding in any year.

Zone 2: Comprised of land having between a 1 in 100 and 1 in 1,000 annual probability of river flooding or 1 in 200 and 1 in 1,000 annual probability of sea flooding in any year.

Zone 3a: This zone comprises land assessed as having a greater than 1 in 100 annual probability of river flooding or a greater than 1 in 200 annual probability of flooding from sea in any year.

Zone 3b: This zone comprises land where water has to flow or be stored in times of flood (the functional floodplain). The SFRA identified this Flood Zone as land which would flood with an annual probability of 1 in 20 years, where detailed modelling exists. In the absence of detailed hydraulic model information, a precautionary approach has been adopted with the assumption that the extent of Flood Zone 3b would be equal to Flood Zone 3a. If development is shown to be in Flood Zone 3a, further work should be undertaken as part of a detailed site specific

Key Plan



Legend

- Arun District SFRA boundary
- Flood Zone 3b
- Flood Zone 3a
- Flood Zone 2



REF	Date	Comments
A	June 2016	-
B		
C		

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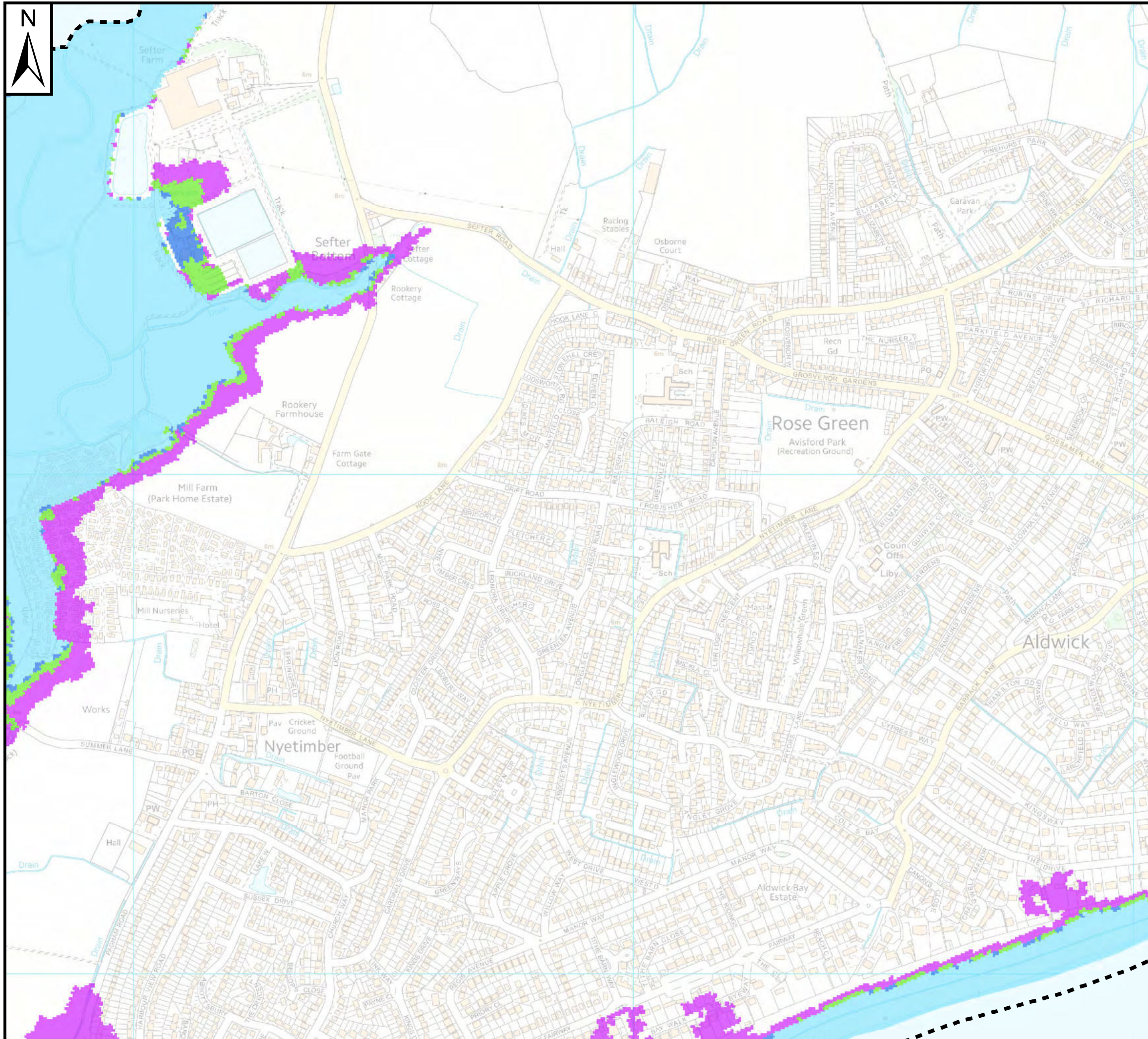
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LEVEL 1 SFRA: APPENDIX C FLOOD ZONES

Sheet No: 4 of 46 Index Number: ADC_04

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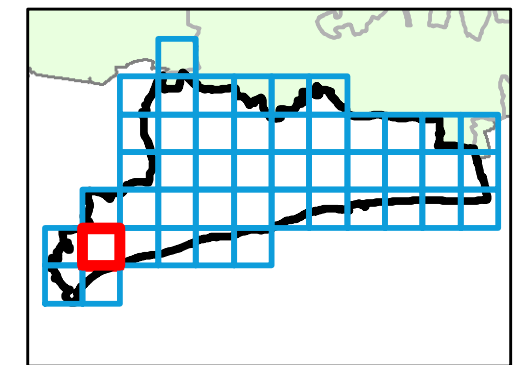
Notes

Hydraulic modelling has been undertaken as part of this SFRA to provide updated climate change flood mapping in the Arun District for Flood Zone 3a. This modelling followed the latest guidance for climate change in FRAs/SFRAs released by the Environment Agency in February 2016 (and updated in April 2016). Climate change for fluvial events has been based on the Higher Central estimates for the years 2031, 2061 and 2111. Present day flood risk information is available for comparison. Arun District is within the South East River Basin District and therefore allowance are:

- 2031 = +15% flows
- 2061 = +30% flows
- 2111 = +45% flows

For tidal/coastal models, undefended case still water level and defended case still water level with wave overtopping simulations have been completed to inform future flood risk within the Arun District. Again, climate change allowance predictions are for the years 2031, 2061 and 2111, with present day outputs for comparison.

Key Plan



Legend

- Arun District SFRA boundary
- Future Flood Zone 3a (2061)
- Present Flood Zone 3a
- Future Flood Zone 3a (2111)
- Future Flood Zone 3a (2031)



REF	Date	Comments
A	August 2016	
B		
C		

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LEVEL 1 SFRA: APPENDIX D CLIMATE CHANGE MAPPING

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Notes

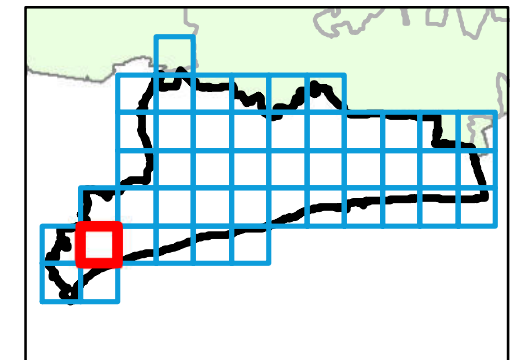
The updated Flood Map for Surface Water (uFMfSW) shows the flooding that takes place from the 'surface runoff' generated by rainwater (including snow and other precipitation) which:

- (a) is on the surface of the ground (whether or not it is moving), and
- (b) has not yet entered a watercourse, drainage system or public sewer.

The uFMfSW will pick out natural drainage channels, rivers, low areas in the floodplain and flow paths between buildings but it will only indicate flooding caused by local rainfall.

Note: The uFMfSW shows predictions of flooded areas but does not show whether individual properties will be affected by surface water flooding or have been affected in the past. The uFMfSW should not be used to predict if individual properties will flood.

Key Plan



Legend

- Arun District SFRA boundary
- uFMfSW 30-year extent
- uFMfSW 100-year extent
- uFMfSW 1,000-year extent



REF	Date	Comments
A	June 2016	-
B		
C		

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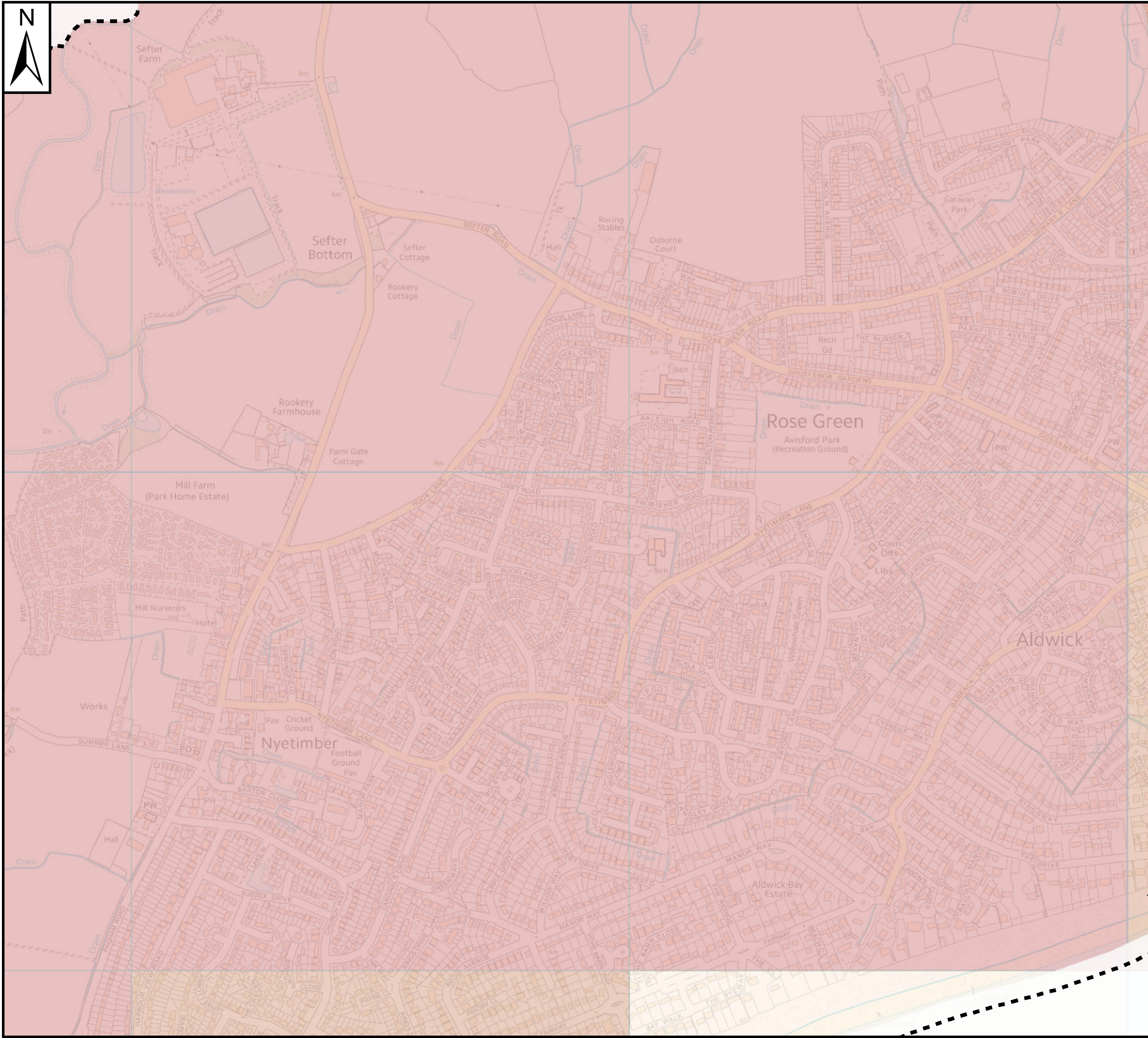
LEVEL 1 SFRA: APPENDIX E SURFACE WATER FLOOD RISK

Sheet No: 4 of 46

Index Number: ADC_04

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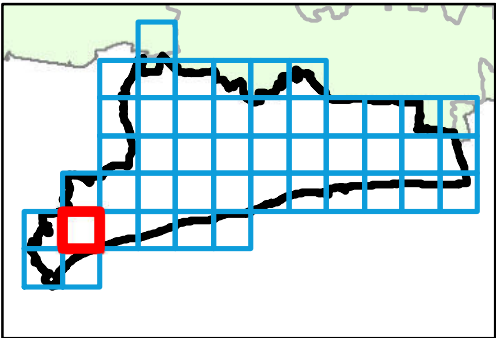
Notes

The Areas Susceptible to Groundwater Flooding (AS_tGWF) is a strategic scale map showing groundwater flood areas on a 1km square grid. The data was produced to annotate indicative Flood Risk Areas for Preliminary Flood Risk Assessment (PFRA) studies and allow the Lead Local Flood Authorities (LLFAs) to determine whether there may be a risk of flooding from groundwater.

This data shows the proportion of each 1km grid square where geological and hydrogeological condition show that groundwater might emerge. It does not show the likelihood of groundwater flooding occurring. It does not take account of the chance of flooding from groundwater rebound. This dataset covers a large area of land, and only isolated locations within the overall susceptible area are actually likely to suffer the consequences of groundwater flooding.

The AS_tGWF data should be used only in combination with other information, for example local data or historic data. It should not be used as sole evidence for any specific flood risk management, land use planning or other decisions at any scale. However, the data can help to identify areas for assessment at a local scale where finer resolution datasets exist.

Key Plan



Legend

- Arun District SFRA boundary
- < 25%
- >= 25% <50%
- >= 50% <75%
- >= 75%



REF	Date	Comments
A	June 2016	-
B		
C		

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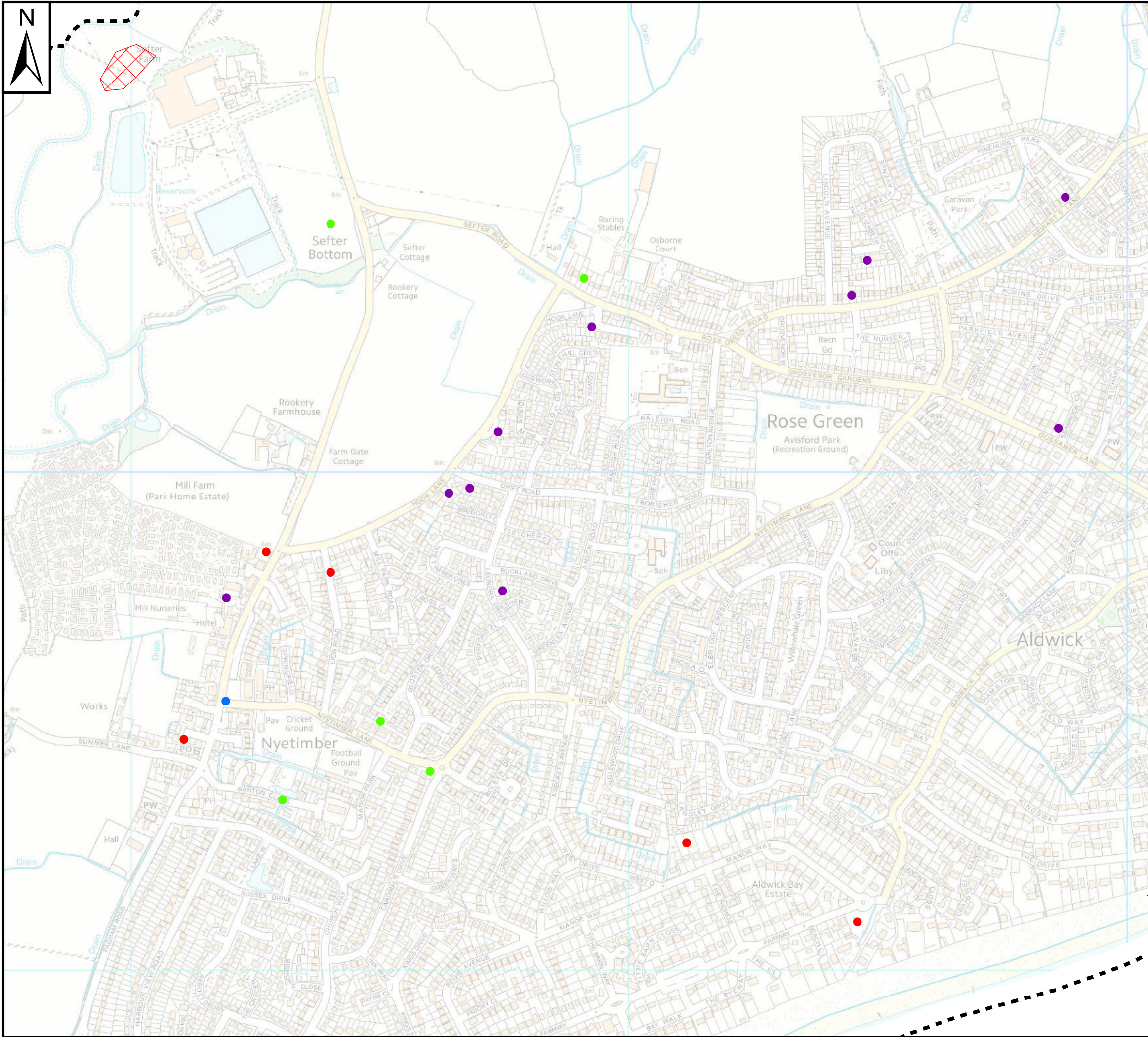
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LEVEL 1 SFRA: APPENDIX F AREAS SUSCEPTIBLE TO GROUNDWATER

Sheet No: 4 of 46 Index Number: ADC_04

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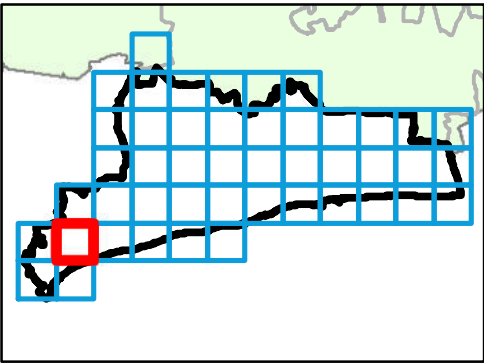
Notes

The Historic Flooding Map shows the recorded incidents and flood outlines provided by Arun District Council, West Sussex County Council, Southern Water and Environment Agency. Historical flood extent was obtained from the Environment Agency.

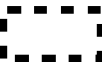
Flooding incidents provided have been categorised based upon the details provided in the records. Unknown flood points could not be determined from the information provided, and therefore could be from a number of sources.

Please note that not all historical records may be shown on this map, and that it is therefore advised you contact Arun District Council for updated information post 2015.

Key Plan



Legend

-  Arun District SFRA boundary
-  Historic flood outline
- Source of flooding**
-  Fluvial
-  Coastal
-  Tidal
-  Surface Water
-  Failure
-  Unknown



REF	Date	Comments
A	June 2016	-
B		
C		

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ARUN DISTRICT COUNCIL LEVEL 1 SFRA: APPENDIX H HISTORIC FLOODING RECORDS

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Appendix G Greenfield Run-off Calculations

Calculated by:	Stuart Burnett
Site name:	Land west of the Inglenook Hotel
Site location:	Pagham Road

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:	50.78117° N
Longitude:	0.73725° W
Reference:	3381763459
Date:	Jan 22 2025 09:45

Runoff estimation approach

IH124

Site characteristics

Total site area (ha):	0.2399
-----------------------	--------

Methodology

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

Notes

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

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

Soil characteristics

	Default	Edited
SOIL type:	3	3
HOST class:	N/A	N/A
SPR/SPRHOST:	0.37	0.37

(2) Are flow rates $< 5.0 \text{ l/s}$?

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.

Hydrological characteristics

	Default	Edited
SAAR (mm):	694	694
Hydrological region:	7	7
Growth curve factor 1 year:	0.85	0.85
Growth curve factor 30 years:	2.3	2.3
Growth curve factor 100 years:	3.19	3.19
Growth curve factor 200 years:	3.74	3.74

(3) Is $\text{SPR/SPRHOST} \leq 0.3$?

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

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Default

Edited

Q_{BAR} (l/s):	0.68	0.68
1 in 1 year (l/s):	0.58	0.58
1 in 30 years (l/s):	1.57	1.57
1 in 100 year (l/s):	2.18	2.18
1 in 200 years (l/s):	2.55	2.55

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 are estimates of greenfield runoff rates. 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 this data in the design or operational characteristics of any drainage scheme.

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Appendix H Proposed Surface Water Drainage Calculations

Network Details

Manhole Schedule

Manhole	Catchment Area (ha)	Diameter (m)	Type	CL (m)	IL (m)	Depth To Soffit (m)	Easting (m)	Northing (m)
S1	0.000	1.350	Type C	6.023	5.180	0.618	489090.585	98705.815
S5	0.012	0.450	Unknown	6.058	5.315	0.593	489104.592	98710.136
S6	0.065	1.200	Unknown	6.028	5.091	0.788	489137.986	98706.114
S7	0.000	0.450	Unknown	5.988	4.989	0.774	489137.660	98702.047
S2	0.000	0.450	Unknown	5.960	4.890	0.845	489161.899	98700.106
S3	0.000	0.450	Unknown	5.860	4.740	0.895	489176.462	98675.708
S4	0.000	0.450	Unknown	5.770	4.700	0.845	489198.285	98669.118

Pipe Schedule

Pipe Number	US Manhole	US IL (m)	DS Manhole	DS IL (m)	Shape	Dimension (m)	Length (m)	Gradient (1:x)	Roughness (mm)	US Depth To Soffit (m)	DS Depth To Soffit (m)
1.000	S1	5.180	S7	4.989	Circ	0.225mØ	47.226	246.7	0.600	0.618	0.774
2.000	S5	5.315	S6	5.091	Circ	0.15mØ	33.634	150.0	0.600	0.593	0.788
2.001	S6	5.091	S7	5.064	Circ	0.15mØ	4.080	150.0	0.600	0.788	0.774
1.001	S7	4.989	S2	4.890	Circ	0.225mØ	24.317	246.7	0.600	0.774	0.845
1.002	S2	4.890	S3	4.740	Circ	0.225mØ	28.413	189.4	0.600	0.845	0.895
1.003	S3	4.740	S4	4.700	Circ	0.225mØ	22.797	569.9	0.600	0.895	0.845

Permeable Paving Schedule

Permeable Paving	Assigned Manhole	Effective Storage Volume (m3)	CL (m)	IL (m)	Storage Infil Rate (m/hr)	Safety Factor	Easting (m)	Northing (m)
PP1	S5	6.582	6.058	5.378	0.00000000	2.00	489102.766	98712.410
PP2	S6	11.852	6.028	5.298	0.00000000	2.00	489114.468	98710.862
PP3	S6	14.657	6.028	5.298	0.00000000	2.00	489128.483	98708.332
PP4	S6	7.654	6.028	5.298	0.00000000	2.00	489146.261	98710.586

Outfall Details

Outfall Manhole S4 : Free Discharge

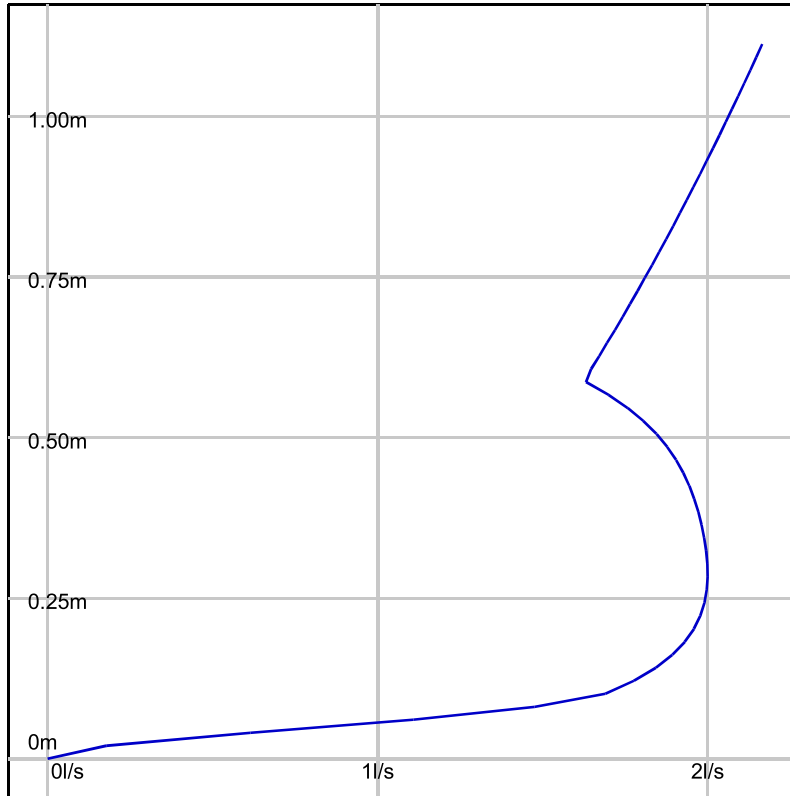
Flow Control Details

Controls within Manhole S6

Hydro-Brake® Optimum Control at Manhole S6

Model Ref	Design Depth (m)	Design Flow (l/s)	Depth Above Invert (m)	FF Head (m)	FF Flow (l/s)	KF Head (m)	KF Flow (l/s)
SHE-0068-2000-0937-2000	0.938	2.000	0.000	0.288	2.001	0.588	1.624

Hydro-Brake® Optimum Control at S6



Simulation Settings

FEH2022 (point): Filename=FEH_Point_Descriptors_489089_98712_v5_0_1.xml

Summer (Cv: 1.00), Winter (Cv: 1.00)

Global Time of Entry: 5.0 mins

Durations (mins): 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080

Return Periods (yrs) + Climate Change: (100, +45%)

Simulated Rainfall Events

Storm	Average Intensity (mm/hr)	Runoff Continuity %	Flow Continuity %	Storm	Average Intensity (mm/hr)	Runoff Continuity %	Flow Continuity %
100Yr+45% 15Min Winter	145.455	-4.63	0.91	100Yr+45% 720Min Winter	8.857	0.00	0.00
100Yr+45% 15Min Summer	145.455	0.00	0.97	100Yr+45% 960Min Summer	6.942	0.00	0.00
100Yr+45% 30Min Winter	96.698	-1.06	1.02	100Yr+45% 960Min Winter	6.942	0.00	0.00
100Yr+45% 30Min Summer	96.698	0.00	1.03	100Yr+45% 1440Min Summer	4.962	0.00	0.00
100Yr+45% 60Min Summer	61.667	0.00	1.03	100Yr+45% 1440Min Winter	4.962	0.00	0.00
100Yr+45% 60Min Winter	61.667	0.00	1.03	100Yr+45% 2160Min Summer	3.581	0.00	0.00
100Yr+45% 120Min Winter	36.408	0.00	0.99	100Yr+45% 2160Min Winter	3.581	0.00	0.00
100Yr+45% 120Min Summer	36.408	0.00	0.78	100Yr+45% 2880Min Summer	2.844	0.00	0.00
100Yr+45% 180Min Summer	26.544	0.00	0.55	100Yr+45% 2880Min Winter	2.844	0.00	0.00
100Yr+45% 180Min Winter	26.544	0.00	0.56	100Yr+45% 4320Min Summer	2.083	0.00	0.00
100Yr+45% 240Min Summer	21.357	0.00	0.33	100Yr+45% 4320Min Winter	2.083	0.00	0.00
100Yr+45% 240Min Winter	21.357	0.00	0.34	100Yr+45% 5760Min Summer	1.691	0.00	0.00
100Yr+45% 360Min Winter	15.544	0.00	0.00	100Yr+45% 5760Min Winter	1.691	0.00	0.00
100Yr+45% 360Min Summer	15.544	0.00	0.00	100Yr+45% 7200Min Summer	1.450	0.00	0.00
100Yr+45% 480Min Summer	12.347	0.00	0.00	100Yr+45% 7200Min Winter	1.450	0.00	0.00
100Yr+45% 480Min Winter	12.347	0.00	0.00	100Yr+45% 8640Min Summer	1.286	0.00	0.00
100Yr+45% 600Min Summer	10.301	0.00	0.00	100Yr+45% 8640Min Winter	1.286	0.00	0.00
100Yr+45% 600Min Winter	10.301	0.00	0.00	100Yr+45% 10080Min Winter	1.167	0.00	0.00
100Yr+45% 720Min Summer	8.857	0.00	0.00	100Yr+45% 10080Min Summer	1.167	0.00	0.00

Simulation Results

Return Period Yrs: 100.0

Climate Change %: 45

Manholes

Manhole	Critical Storm	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Flood (m3)	Status
S1	-	0	5.180	0.000	0.000		OK
S5	120 min Winter	117	5.898	0.583	0.048		Flood Risk
S6	120 min Winter	117	5.898	0.807	0.679		Flood Risk
S7	1440 min Winter	906	5.026	0.037	2.000		OK
S2	1440 min Winter	907	4.925	0.035	2.000		OK
S3	1440 min Winter	908	4.788	0.048	2.000		OK
S4	1440 min Winter	908	4.736	0.036	2.000		Outfall

Conduits

Pipe No.	Critical Storm	Peak (mins)	US Manhole	DS Manhole	Flow Depth (m)	Max Velocity (m/s)	Max Flow (l/s)	Flow / Capacity	Status
1.000	1440 min Winter	906	S1	S7	0.019	0.000	0.000	0.000	OK
2.000	30 min Winter	42	S5	S6	0.150	0.147	2.595	0.180	Surcharged
2.001	600 min Summer	758	S6	S7	0.037	0.581	2.000	0.139	OK
1.001	1440 min Winter	906	S7	S2	0.036	0.484	2.000	0.061	OK
1.002	1440 min Winter	907	S2	S3	0.041	0.401	2.000	0.053	OK
1.003	1440 min Winter	908	S3	S4	0.042	0.395	2.000	0.093	OK

Permeable Paving Storage

Permeable Paving	Critical Storm	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Flood (m3)	Status
PP1	120 min Winter	113	5.899	0.521	0.409		OK
PP2	120 min Winter	115	5.900	0.601	0.750		Surcharged
PP3	120 min Winter	115	5.900	0.601	0.883		Surcharged
PP4	120 min Winter	115	5.899	0.601	0.481		Surcharged