



ONE HORTON HEATH, EASTLEIGH

FLOOD RISK ASSESSMENT

EASTLEIGH BOROUGH COUNCIL

PART 4 OF 5

APPENDICES 5 - 6

Document Reference: G277-DOC01-FRA-Issue 2

MAY 2021

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engineering the future

From: [Partnership and Strategic Overview team, H10W](#)
To: dbuciak@pfaplc.com
Cc: [SSD Enquiries](#)
Subject: Flood Risk Information (Product 4) for Site at Horton Heath - Ref: SSD/172634
Date: 25 June 2020 15:53:44
Attachments: [Defences Map.pdf](#)
[Flood Map for Planning \(Rivers and Sea\).pdf](#)
[Levels Map.pdf](#)
[Risk of Flooding from Surface Water.pdf](#)
[Open Government Licence.pdf](#)
[Use of EA Information for FRAs.pdf](#)

Dear Daniel,

Enquiry regarding Product 4 for site at Horton Heath – Grid Ref: SU 48484 16962 and SU 48376 17205.

Thank you for your enquiry which was received on 21 May 2020.

We respond to requests under the Freedom of Information Act 2000 and Environmental Information Regulations 2004. The information is attached.

The site may be affected by an extreme flood. According to our published flood map, which provides a general estimate of the likelihood of flooding across England & Wales, the site is shown to be within Flood Zone 3 - an area which may have a 1% chance of flooding annually (1 in 100), **ignoring** the presence and effect of any flood defences.

The Environment Agency has no record of flooding to this area, please note our records are not comprehensive and may not include all events. I recommend contacting the Lead Local Flooding Authority, Hampshire County Council or the Local Authority, Eastleigh Borough Council for a more comprehensive flood history check.

Defences – See attached map.

Flood Levels – Please see the attached map showing the TUFLOW flood levels for your site. These levels have been taken from the Itchen Tributaries Modelling that was carried out in 2019 by JBA Consulting.

The flood risk data provided is based on existing EA hydraulic models for existing 0.5% annual probability events with an allowance for climate change. Please note the climate change allowances provided are not up to date. These were updated on 17 December 2019. You should refer to '[Flood risk assessments: climate change allowances](#)' for the most up to date allowances. You will need to undertake further assessment of future flood risk using different allowances to ensure your assessment of future flood risk is based on best available evidence.

[FRA advisory text](#)

Name	Product 4
Description	Basic / Detailed Flood Risk Assessment Map for site at Horton Heath – Grid Ref: SU 48484 16962 and SU 48376 17205.

Licence	Open Government Licence
Information Warnings	The majority of our models will not have the new climate change allowances. +20% is not suitable for the majority of planning purposes and the new allowances to use should be checked here: https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances
Information Warning - OS background mapping	<i>The mapping of features provided as a background in this product is © Ordnance Survey. It is provided to give context to this product. The Open Government Licence does not apply to this background mapping. You are granted a non-exclusive, royalty free, revocable licence solely to view the Licensed Data for non-commercial purposes for the period during which the Environment Agency makes it available. You are not permitted to copy, sub-license, distribute, sell or otherwise make available the Licensed Data to third parties in any form. Third party rights to enforce the terms of this licence shall be reserved to OS.</i>
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Data Available Online

Many of our flood datasets are available online:

- Flood Map For Planning ([Flood Zone 2](#), [Flood Zone 3](#), [Flood Storage Areas](#), [Flood Defences](#), [Areas Benefiting from Defences](#))
- [Risk of Flooding from Rivers and Sea](#)
- [Historic Flood Map](#)
- [Current Flood Warnings](#)

Does Your Proposal Have Environmental Issues or Opportunities? Speak To Us Early!

If you are planning a new project or development, we want to work with you to make the process as smooth as possible. Early engagement can improve subsequent planning applications to you and your clients' benefit and deliver environmental outcomes. For a cost recovery fee of £100 per hour plus VAT we will provide you with a project manager who will coordinate all meetings and reviews in order to give you detailed specialist advice with guaranteed delivery dates. More information can be found on our website [here](#).

Please get in touch if you have any further queries or contact us within two months if you'd like us to review the information we have sent.

Yours sincerely,

Aimee Etheridge
Partnership and Strategic Overview team, Hampshire and Isle of Wight
Environment Agency

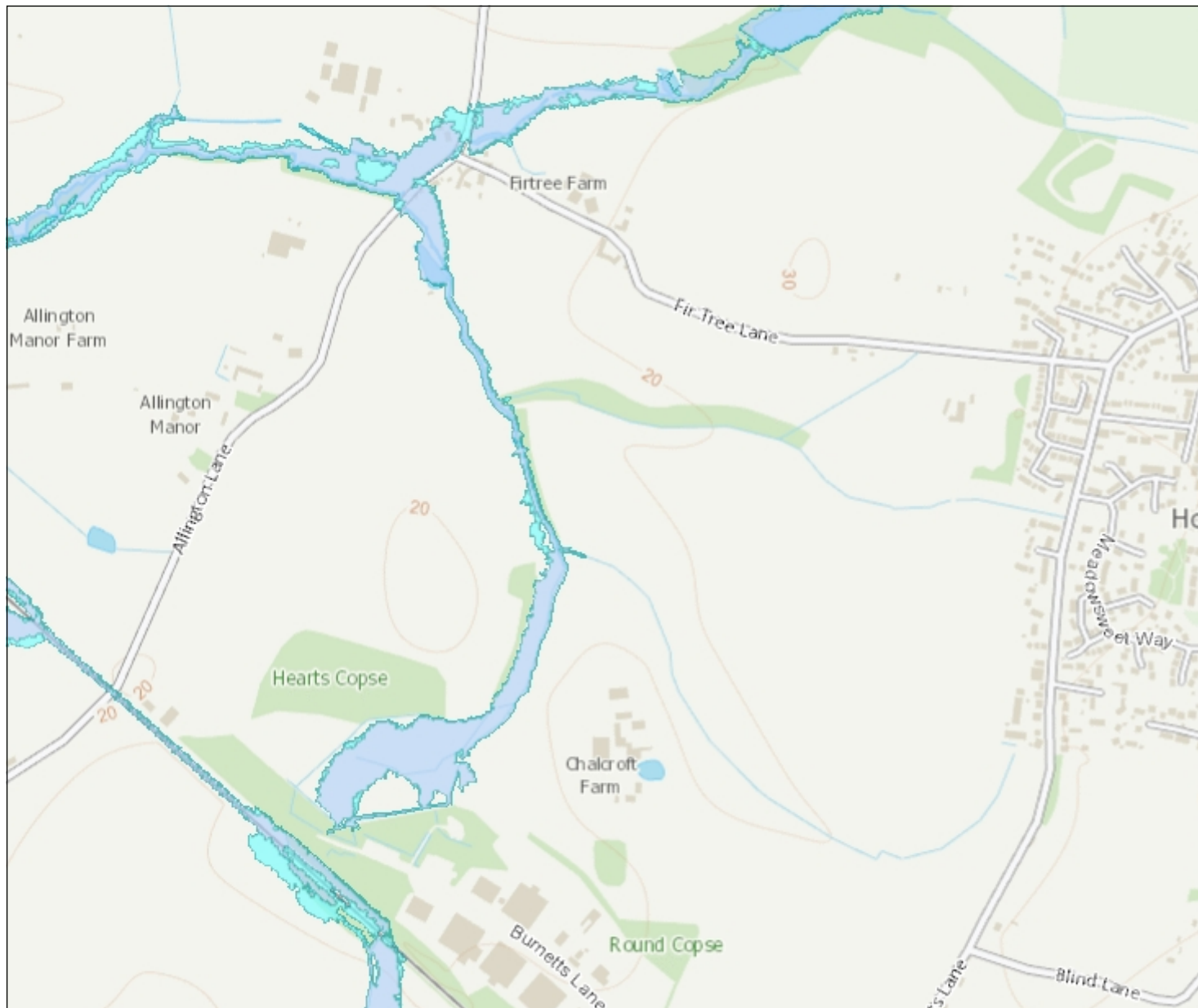
Direct dial 020 8474 5815

Email psohiow@environment-agency.gov.uk

-

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Flood Map for Planning (Rivers and Sea) Centred on Grid Ref: SU 48484 16962 - Created 25 June 2020



1: 10,000

0 Metres 250



Flood Map for Planning (Rivers & Sea)

- Defences
- Flood Storage Areas
- Areas benefiting from flood defences
- Flood Zone 3
- Flood Zone 2

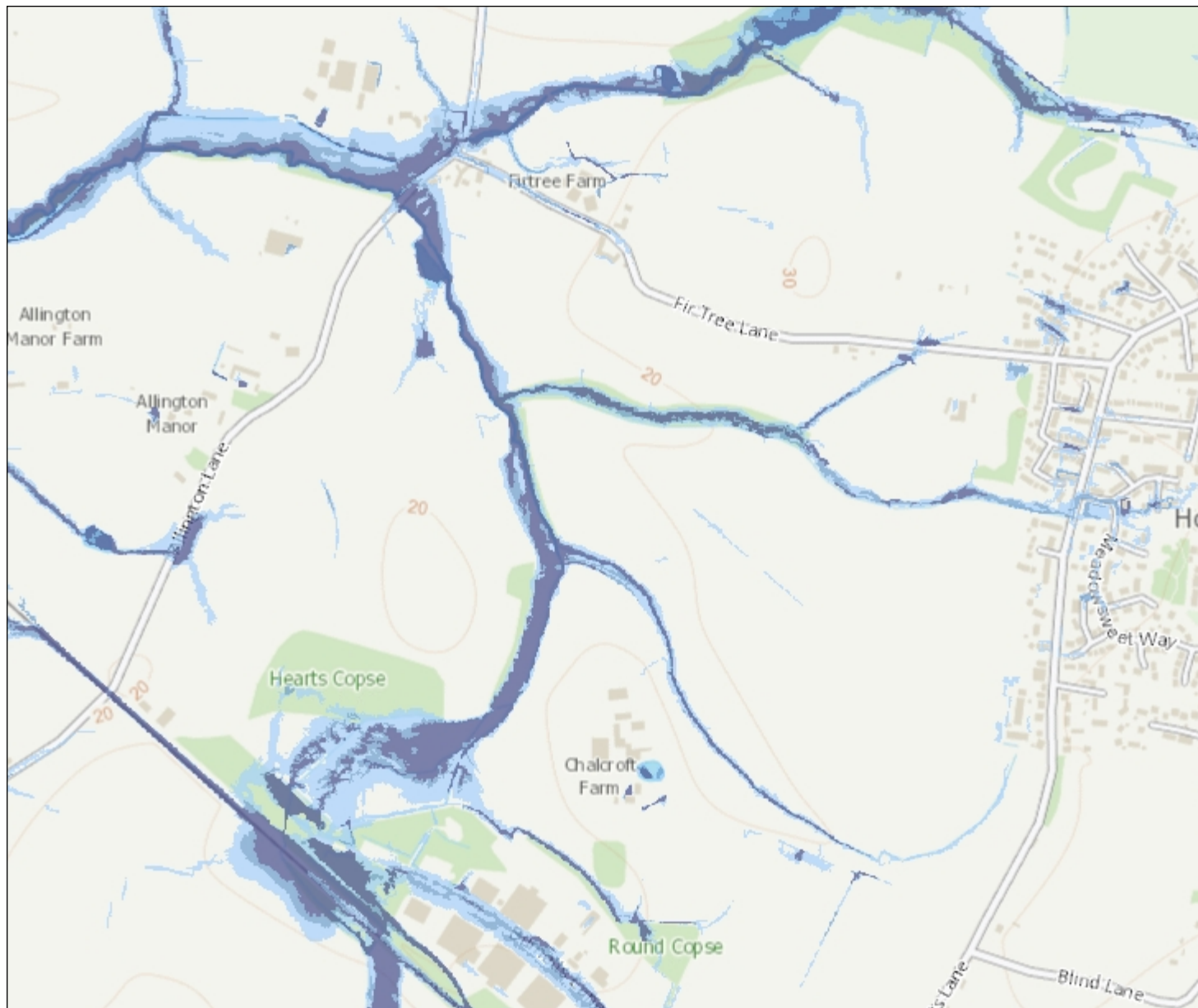
Flood Map Areas (assuming no defences)

Flood Zone 3 shows the area that could be affected by flooding:

- from the sea with a 1 in 200 or greater chance of happening each year
- or from a river with a 1 in 100 or greater chance of happening each year.

Flood Zone 2 shows the extent of an extreme flood from rivers or the sea with up to a 1 in 1000 chance of occurring each year.

Risk of flooding from Surface Water Centred on Grid Ref: SU 48484 16962 - Created 25 June 2020



1: 10,000

0 Metres 250



Likelihood of flooding from Surface Water

- High ($\geq 3.3\%$)
- Medium (3.3% - 1%)
- Low (1% - 0.1%)
- Very Low

Likelihood of flooding from Surface Water

- High: Greater than or equal to 3.3% (1 in 30) chance in any given year
- Medium: Less than 3.3% (1 in 30) but greater than or equal to 1% (1 in 100) chance in any given year
- Low: Less than 1% (1 in 100) but greater than or equal to 0.1% (1 in 1,000) chance in any given year
- Very Low: Less than 0.1% (1 in 1,000) chance in any given year

This information is shown on the Risk of Flooding from Surface Water map on GOV.UK.

Defences Centred on Grid Ref: SU 48484 16962 - Created 24 June 2020



Legend

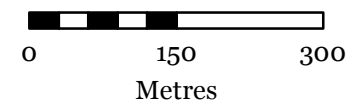
ASSET_ID

- 9940
- 64689
- 139052
- 170902
- 185111
- 186082

Asset Id	Asset Sub-type	Length (m)	Asset Maintainer	Actual Condition	Estimated SoP	Last Inspection Date
9940	high_grou	140.43	unknown	Fair	1:25	25/03/2014
64689	high_grou	4720.94	unknown	Fair	1:25	25/03/2014
139052	high_grou	4729.02	unknown	Fair	1:25	26/03/2014
170902	high_grou	1112.19	unknown	Fair		25/03/2014
185111	high_grou	1095.84	unknown	Fair	1:25	25/03/2014
186082	high_grou	144.32	unknown	Fair	1:25	26/03/2014

1:7,721 *

*when printed at A4.



Modelled Levels Centred on Grid Ref: SU 48484 16962 - Created 24 June 2020



Legend

-  Location Points
-  Flood Zone 3
-  Flood Zone 2

Flood Map Areas (assuming no defences)

Flood Zone 3

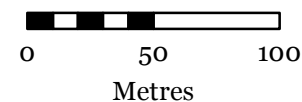
Shows the area that could be affected by flooding:
- from the sea with an 1 in 200 or greater chance of happening each year.
- or from a river with a 1 in 100 or greater chance of happening each year.

Flood Zone 2

Shows the extent of an extreme flood from rivers of the sea with up to a 1 in 1000 chance of occurring each year.

1:3,000 *

*when printed at A4.



Water Depths & Levels for Site at Horton Heath

Point	Water Surface Level (mAOD*)					
	5% Annual Probability/1 in 20 Year	1% Annual Probability/1 in 100 Year (Flood Zone 3)	1% Annual Probability/1 in 100 Year + 35% Climate Change	1% Annual Probability/1 in 100 Year + 45% Climate Change	1% Annual Probability/1 in 100 Year + 105% Climate Change	0.1% Annual Probability/1 in 1000 Year (Flood Zone 2)
1	14.12	14.30	14.38	14.39	14.48	14.48
2	14.23	14.38	14.45	14.47	14.55	14.56
3	14.33	14.45	14.52	14.53	14.61	14.62
4	14.45	14.55	14.62	14.63	14.71	14.72
5	15.05	15.15	15.20	15.22	15.29	15.29
6	15.15	15.24	15.28	15.29	15.35	15.35
7	No data	15.32	15.30	15.37	15.42	15.42
8	15.38	15.44	15.47	15.48	15.51	15.51
9	No data	15.50	15.51	15.51	15.53	15.53
10	15.52	15.57	15.58	15.59	15.61	15.61
11	15.61	15.64	15.65	15.65	15.67	15.67
12	15.62	15.65	15.67	15.67	15.68	15.68

* Levels in metres above Ordnance Datum Newlyn

From: [Partnership and Strategic Overview team, HIOW](#)
To: dbuciak@pfaplc.com
Cc: [SSD Enquiries](#)
Subject: Flood Risk Information (Product 4) for Horton Heath - Ref: SSD/178449
Date: 24 July 2020 08:58:54
Attachments: [Flood Map for Planning \(Rivers and Sea\).pdf](#)
[Levels Map.pdf](#)
[Risk of Flooding from Surface Water.pdf](#)
[Defences Map.pdf](#)
[Open Government Licence.pdf](#)
[Use of EA Information for FRAs.pdf](#)

Dear Daniel,

Enquiry regarding Product 4 for site at Horton Heath – Grid Ref: SU 448499, 117709

Thank you for your enquiry which was received on 8 July 2020.

We respond to requests under the Freedom of Information Act 2000 and Environmental Information Regulations 2004. The information is attached.

The site may be affected by an extreme flood. According to our published flood map, which provides a general estimate of the likelihood of flooding across England & Wales, the site is shown to be within Flood Zone 3 - an area which may have a 1% chance of flooding annually (1 in 100), **ignoring** the presence and effect of any flood defences.

The Environment Agency has no record of flooding to this area, please note our records are not comprehensive and may not include all events. I recommend contacting the Lead Local Flooding Authority, Hampshire County Council or the Local Authority, Eastleigh Borough Council for a more comprehensive flood history check.

Defences – See attached map.

Flood Levels – Please see the attached map showing the TUFLOW flood levels for your site. These levels have been taken from the Itchen Tributaries Modelling that was carried out in 2019 by JBA Consulting.

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[FRA advisory text](#)

Name	Product 4
Description	Basic / Detailed Flood Risk Assessment Map for site at Horton Heath – Grid Ref: 448499, 117709

Licence	Open Government Licence
Information Warnings	The majority of our models will not have the new climate change allowances. +20% is not suitable for the majority of planning purposes and the new allowances to use should be checked here: https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances
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Yours sincerely,

Aimee Etheridge
Partnership and Strategic Overview team, Hampshire and Isle of Wight
Environment Agency

Direct dial 020 8474 5815

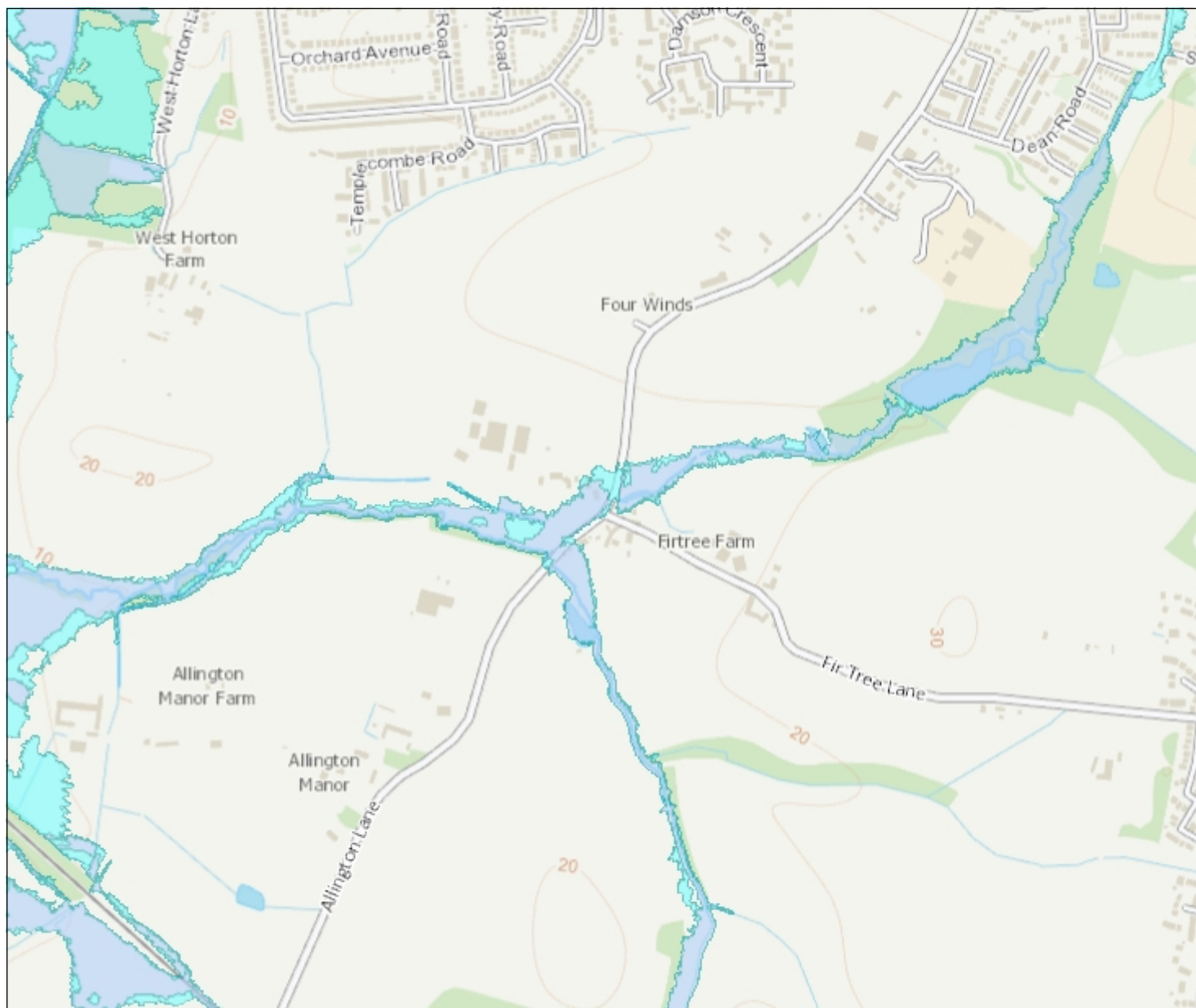
Email psohiow@environment-agency.gov.uk

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Flood Map for Planning (Rivers and Sea) Centred on Grid Ref: 448499, 117709

Created 23 July 2020



1: 10,000

0 Metres 250



Flood Map for Planning (Rivers & Sea)

- Defences
- Flood Storage Areas
- Areas benefiting from flood defences
- Flood Zone 3
- Flood Zone 2

Flood Map Areas (assuming no defences)

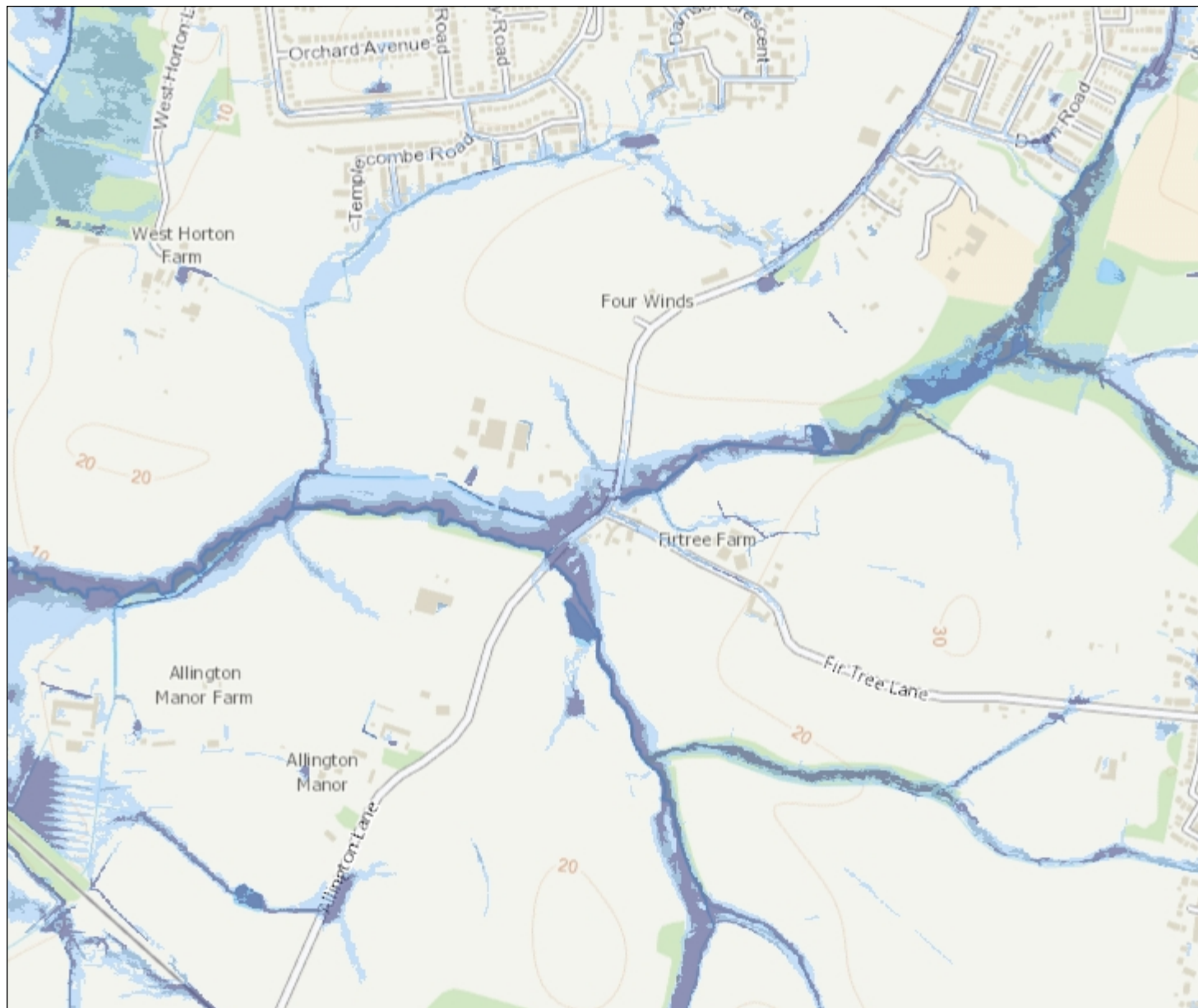
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- or from a river with a 1 in 100 or greater chance of happening each year.

Flood Zone 2 shows the extent of an extreme flood from rivers or the sea with up to a 1 in 1000 chance of occurring each year.

Risk of flooding from Surface Water Centred on Grid Ref: 448499, 117709

Created 23 July 2020



1: 10,000

0 Metres 250



Likelihood of flooding from Surface Water

- High ($\geq 3.3\%$)
- Medium (3.3% - 1%)
- Low (1% - 0.1%)
- Very Low

Likelihood of flooding from Surface Water

- High: Greater than or equal to 3.3% (1 in 30) chance in any given year
- Medium: Less than 3.3% (1 in 30) but greater than or equal to 1% (1 in 100) chance in any given year
- Low: Less than 1% (1 in 100) but greater than or equal to 0.1% (1 in 1,000) chance in any given year
- Very Low: Less than 0.1% (1 in 1,000) chance in any given year

This information is shown on the Risk of Flooding from Surface Water map on GOV.UK.

Defences Centred on Grid Ref: SU 448499, 117709 - Created 24 July 2020



Legend

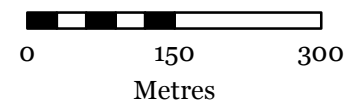
ASSET_ID

- 9940
- 64689
- 139052
- 170902
- 185111
- 186082

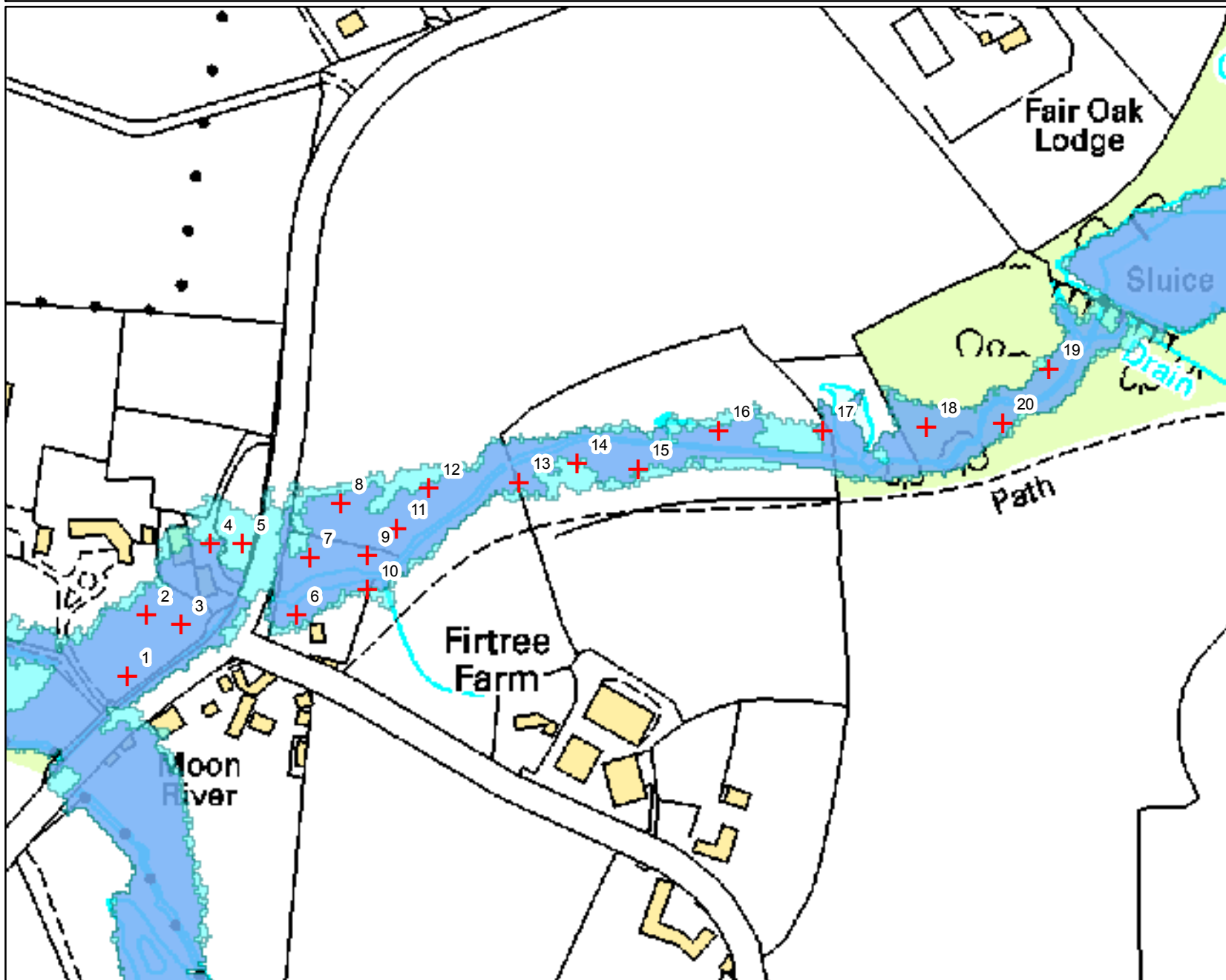
Asset Id	Asset Sub-type	Length (m)	Asset Maintainer	Actual Condition	Estimated SoP	Last Inspection Date
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185111	high_grou	1095.84	unknown	Fair	1:25	25/03/2014
186082	high_grou	144.32	unknown	Fair	1:25	26/03/2014

1:7,721 *

*when printed at A4.



Modelled Flood Levels Centred on Grid Ref 448499 117709 - Created 22 July 2020



Legend

- + Location Points
- Flood Zone 3
- Flood Zone 2

Flood Map Areas (assuming no defences)

Flood Zone 3

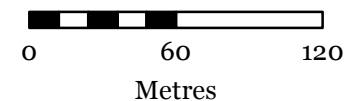
Shows the area that could be affected by flooding:
- from the sea with an 1 in 200 or greater chance of happening each year.
- or from a river with a 1 in 100 or greater chance of happening each year.

Flood Zone 2

Shows the extent of an extreme flood from rivers of the sea with up to a 1 in 1000 chance of occurring each year.

1:3,094 *

*when printed at A4.



Water Depths & Levels for Site at Horton Heath

Point	Water Surface Level (mAOD*)					
	5% Annual Probability/1 in 20 Year	1% Annual Probability/1 in 100 Year (Flood Zone 3)	1% Annual Probability/1 in 100 Year + 35% Climate Change	1% Annual Probability/1 in 100 Year + 45% Climate Change	1% Annual Probability/1 in 100 Year + 105% Climate Change	0.1% Annual Probability/1 in 1000 Year (Flood Zone 2)
1	14.24	14.32	14.36	14.36	14.41	14.39
2	14.32	14.42	14.46	14.48	14.54	14.52
3	14.33	14.42	14.48	14.49	14.56	14.53
4	No Data	14.67	14.72	14.75	14.85	14.81
5	No Data	No Data	14.89	14.92	15.02	14.99
6	15.01	15.13	15.25	15.27	15.37	15.33
7	15.04	15.16	15.27	15.29	15.37	15.34
8	15.04	15.17	15.28	15.30	15.39	15.35
9	15.04	15.17	15.28	15.29	15.39	15.35
10	15.04	15.17	15.28	15.29	15.38	15.35
11	No Data	15.17	15.28	15.30	15.40	15.36
12	No Data	15.22	15.33	15.35	15.45	15.41
13	No Data	15.42	15.49	15.50	15.60	15.56
14	No Data	15.52	15.59	15.61	15.72	15.67
15	No Data	15.70	15.76	15.78	15.89	15.84
16	No Data	15.88	15.95	15.97	16.10	16.04
17	16.01	16.01	16.36	16.39	16.54	16.48
18	17.13	17.13	17.23	17.24	17.30	17.28
19	17.23	17.23	17.40	17.41	17.52	17.48
20	17.15	17.15	17.28	17.29	17.37	17.34

* Levels in metres above Ordnance Datum Newlyn

Use of Environment Agency Information for Flood Risk Assessments

Important

The Environment Agency are keen to work with partners to enable development which is resilient to flooding for its lifetime and provides wider benefits to communities. If you have requested this information to help inform a development proposal, then we recommend engaging with us as early as possible by using the pre-application form available from our website:

<https://www.gov.uk/government/publications/pre-planning-application-enquiry-form-preliminary-opinion>

We recognise the value of early engagement in development planning decisions. This allows complex issues to be discussed, innovative solutions to be developed that both enables new development and protects existing communities. Such engagement can often avoid delays in the planning process following planning application submission, by reaching agreements up-front. We offer a charged pre-application advice service for applicants who wish to discuss a development proposal.

We can also provide a preliminary opinion for free which will identify environmental constraints related to our responsibilities including flooding, waste, land contamination, water quality, biodiversity, navigation, pollution, water resources, foul drainage or Environmental Impact Assessment.

In preparing your planning application submission, you should refer to the Environment Agency's Flood Risk Standing Advice and the Planning Practice Guidance for information about what flood risk assessment is needed for new development in the different Flood Zones. This information can be accessed via:

<https://www.gov.uk/flood-risk-assessment-standing-advice>
<http://planningguidance.planningportal.gov.uk/>

You should also consult the Strategic Flood Risk Assessment or other relevant materials produced by your local planning authority.

You should note that:

1. Information supplied by the Environment Agency may be used to assist in producing a Flood Risk Assessment (FRA) where one is required, but does not constitute such an assessment on its own.
2. This information covers flood risk from main rivers and the sea, and you will need to consider other potential sources of flooding, such as groundwater or surface water runoff. Information produced by the local planning authority referred to above may assist here.
3. Where a planning application requires an FRA and this is not submitted or is deficient, the Environment Agency may raise an objection.



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Strategic SuDS Features Schedule							
Strategic SuDS Feature	Contributing Catchment (ha)	% of Impermeability	Q ₁₀₀ for Catchment (l/s)	1 in 1 Year Storage Volume (m³)	1 in 1 Year Resulting Discharge (l/s)	1 in 100-40% CC Storage Volume (m³)	1 in 100-40% CC Resulting Discharge (l/s)
A	2.037	65	18.4	165	17.8	802	18.3
	0.260	100					
B	3.750	65	30.0	260	28.1	1224	29.9
C	6.808	65	54.5	405	50.1	2172	54.4
D	2.391	65	27.1	244	23.7	1112	27
	3.650	65					
E	0.382	100	32.3	337	24.8	1706	32.3
F	3.360	65	26.9	241	23.9	1103	26.9
G	2.762	65	41.5	267	34.7	1450	40.3
	2.415	50					
H	1.603	30					
	0.409	100	70.8	683	44.1	2694	70.8
I	6.831	65					
	1.556	65	29.6	314	26.7	1339	28.7
J	2.139	65					
K	1.696	65	13.6	127	11.0	560	13.5
L	3.884	65	39.6	433	32.5	1860	39.5
M	1.046	100					
	2.213	65	17.7	156	16.2	728	17.7
N	5.759	65	46.1	477	31.1	1924	46.0
EM(Employment)	2.029	85	16.3	150	15.5	878	16.3

Stratton Park House, Wanborough Road
Swindon, SN3 4HG

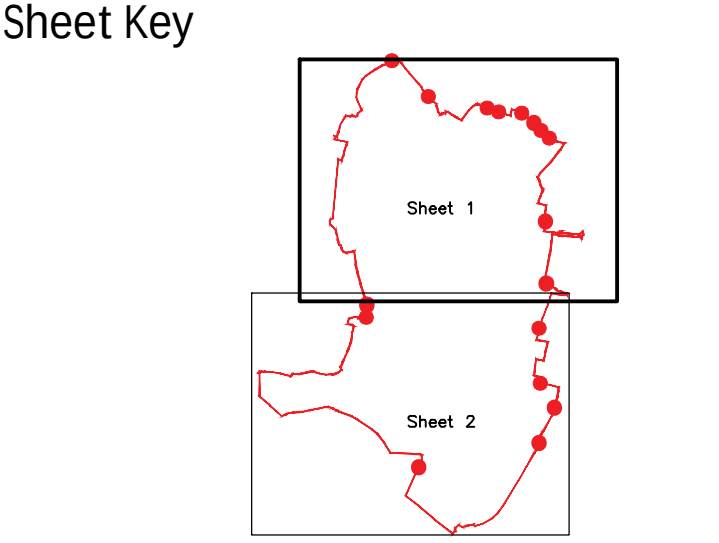
Telephone
01793 828000

Website
www.pfaplac.com

For Planning
This drawing is produced for the purposes of supporting a planning application and should not be relied upon for tender, pricing, or construction purposes.

- NOTES
- This drawing should be read in conjunction with PFA Consulting's Flood Risk Assessment (Doc ref G277-0001 FRA - Issue 2) dated May 2021.
 - This drawing is based on the Topographical Survey undertaken by Meyer Brown Limited, Drawing No:R.SAV.1.21.1, Rev E, dated 05 May 2014.
 - This site layout is based on Thrive's Concept Masterplan, Drawing number EAST200403 CMP 01 Rev P13, dated 04.12.20
 - Main River designation based on Flood Map for Planning.
 - All SuDS features shown on this drawing are subject to detailed design.
 - Typical Layout of Strategic SuDS Features to Inform Detailed Design shown on drawing number G277/23.
 - Detailed design of highway drainage features to provide attenuation and restrict flow to the downstream watercourse system. Sufficient attenuation should be provided to ensure discharge rates are restricted for all return periods up to the 100 year design event, including an appropriate allowance for climate change. Refer to PFA's Flood Risk Assessment (dated My 2021) document for guidance on flow rate restrictions.

- Key
- Risk of Flooding from Surface Water Outfall
 - Basin Catchment Allocation
 - Q100+1050C Flood Outlines
 - Q100+450C Flood Outlines
 - Indicative Location of Foul Water Sewage Pumping Station with 10m water effect
 - 5m Maintenance Access from Ordinary Watercourse
 - 8m Maintenance Access offset from Main Rivers
 - Opportunity for wide conveyance feature
 - Direction of Excessance Flows
 - Outlet from SuDS Feature to be conveyance swale where feasible
 - Indicative Proposed Foul Rising Main
 - Indicative Proposed Strategic Foul Sewer
 - Indicative Foul flow direction



Rev	Date	Description	Drawn	Check
#	27/11/20	First issue	DAB	SAM
A	11/12/20	Revised to latest Masterplan & link road design	DAB	SAM
B	20/05/21	Revised following EA comments	DAB	MWS
C	21/05/21	Updated Proposed Foul sewer routes	DAB	SAM

Status
FOR PLANNING

Client
Eastleigh Borough Council

Project
One Horton Heath Hampshire

Drawing Title
Preliminary Water Management Strategy Plan (Sheet 1 of 2)

Drawing No. **G277/21** Rev C
Date: November 2020 Scale: 1:1250 @ AO
E-Mail: DBuciak@pfaplac.com



Watercourse Crossing
Crossing requires a clear span of channel with soffit set to a minimum of 600mm above the 1 in 100 year flood level with an appropriate allowance for climate change.
Detailed design to include Level for Level Flood Plain Compensatory Storage.

Proposed location of highway drainage feature.
Refer to Note 7.

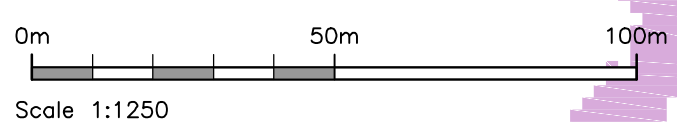
SOLAR FARM

Existing Drainage Ditch to be aligned with layout (subject to detail design)

SuDS feature serving Southern Access. Part of infrastructure works to be implemented under Planning Permission X/19/86475 : (0/14/75735)

Offsite Foul Sewer connection proposed via Bubbs Lane to existing 525mm Foul Water Sewer located at Grange Road/Lacks Road roundabout (node SU4913 3703)

Strategic SuDS Features Schedule							
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Sheet Key

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Status
FOR PLANNING

Client
Eastleigh Borough Council

Project
One Horton Heath Hampshire

Drawing Title
Preliminary Water Management Strategy Plan (Sheet 2 of 2)

Drawing No. **G277/22** Rev C
Date: November 2020 Scale: 1:1250 @ AO
E-Mail: DBuciak@pfapl.com