

# Surrey Heath Level 2 Strategic Flood Risk Assessment - NaFRA2 Addendum

## Final report

A1-C01

August 2025

Prepared for:  
Surrey Heath Borough Council

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# Contract

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This report describes work commissioned by Surrey Heath Borough Council by an instruction dated 3rd July 2025. The Client's representative for the contract is Kate Galloway of Surrey Heath Borough Council. Sarah Hambling and Elsa Holm of JBA Consulting carried out this work.

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## Abbreviations

AEP	Annual Exceedance Probability
FMfP	Flood Map for Planning
FRA	Flood Risk Assessment
LLFA	Lead Local Flood Authority
NaFRA2	National Flood Risk Assessment 2
RoFfRS	Risk of Flooding from Rivers and Sea
RoFSW	Risk of Flooding from Surface Water
SFRA	Strategic Flood Risk Assessment
SHBC	Surrey Heath Borough Council



# 1 Introduction

## 1.1 Context

JBA Consulting was commissioned in 2024 to produce a Level 1 Strategic Flood Risk Assessment (SFRA) for Surrey Heath Borough Council (SHBC) following by a Level 2 SFRA to form part of the evidence base for the Surrey Heath Local Plan 2019-2038. The SFRAs were published by SHBC earlier in 2025 and SHBC are now preparing for examination in Autumn 2025.

During the preparation of the SFRAs, the Environment Agency published the first outputs of their National Flood Risk Assessment 2 (NaFRA2) updating the national flood risk mapping for England. Outputs were published in January 2025 (updated Risk of Flooding from Surface Water (RoFSW) mapping and Risk of Flooding from Rivers and Sea (RoFfRS) mapping) and March 2025 (updated Flood Map for Planning (FMfP) including Flood Zones).

The Level 2 SFRA was prepared using the updated RoFSW and RoFfRS mapping. However, the Level 2 SFRA was prepared prior to the updates to the FMfP. The RoFfRS takes account of flood defences whilst the FMfP Flood Zones provide undefended risk, however, due to the lack of formal flood defences within the study area it was agreed with the Environment Agency that the RoFfRS could be used to inform the Level 2 SFRA alongside detailed hydraulic modelling where available, with an update made following publication of the FMfP in the form of this addendum.

This addendum provides a short overview of the new NaFRA2 FMfP mapping data available, a review of any changes to fluvial flood risk at all sites, and a summary of the sites shown to be at fluvial risk with accompanying mapping, and recommendations for developers.

The mapping for the Level 2 SFRA is published online on the [Surrey Heath SFRA 2025 Map \(cudasvc.com\)](https://cudasvc.com).

## 1.2 NaFRA2 FMfP

The Environment Agency updated the [FMfP \(gov.uk\)](https://gov.uk) on 25 March 2025. The FMfP includes the Flood Zones data which shows the extent of land at present day risk of flooding from rivers. The Flood Zones do not take defences into account. The Flood Zones are:

- **Flood Zone 1 (Low risk):** Less than a 0.1% chance of flooding from rivers in any given year.
- **Flood Zone 2 (Medium risk):** Between a 1% and 0.1% chance of flooding from rivers in any given year.
- **Flood Zone 3 (High risk):** Greater than a 1% chance of flooding from rivers in any given year.

The FMfP now shows updated extents for Flood Zone 2 (0.1% Annual Exceedance Probability (AEP)) and Flood Zone 3 (1% AEP) which incorporate new national modelling as well as local models where appropriate. In addition to the Flood Zones, the following information is now also provided in the FMfP:

- **Rivers and sea with defences**
  - Mapping for the 3.3% AEP, 1% AEP, and 0.1% AEP events for present day and climate change (using the Central allowance for the 2080s epoch) taking account the presence of flood defences (extents only).
- **Rivers and sea without defences**
  - Mapping for the 3.3% AEP, 1% AEP, and 0.1% AEP events for present day and climate change (using the Central allowance for the 2080s epoch) which ignores the presence and condition of flood defences (extents only).
- **Surface water**
  - Mapping for the 3.3% AEP, 1% AEP, and 0.1% AEP events for the present day only (extents only).

### 1.3 Recommendations for developers

It is recommended that developers use the Level 2 SFRA and this accompanying addendum as a starting point to assess the flood risk to their sites. Developers should also identify the requirements for site-specific Flood Risk Assessments (FRAs) and further work that might be required. The [Environment Agency FRA Guidance \(gov.uk\)](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/614444/Environment_Agency_FRA_Guidance.pdf) was updated in April 2025. The [Environment Agency's online datasets \(gov.uk\)](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/614444/Environment_Agency_online_datasets.pdf) should be referred to for the latest available flood risk data or local detailed hydraulic modelling.

It should be noted that the Environment Agency intend to publish further NaFRA2 datasets over the course of the next 12-18 months. This data is expected to include fluvial and surface water depth information, as well as climate change outputs suitable for planning for surface water. Some inconsistencies in the layers have been identified (see the guidance on [how to use rivers and sea data \(gov.uk\)](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/614444/how_to_use_rivers_and_sea_data.pdf)). Improvements and updates are planned later in 2025/26, which will help to resolve many of these issues.

Developers should consult with the Environment Agency, Surrey County Council as the Lead Local Flood Authority (LLFA), and Thames Water as early as possible to understand the requirements for their site-specific FRA and additional assessments they may need to undertake in the interim before publication of the full data.

## 2 Overview of the implications of NaFRA2 on the Level 2 SFRA

### 2.1 Fluvial flood risk

SHBC provided 32 sites for assessment within the Level 2 SFRA. The following sites were identified to be at fluvial flood risk based on the RoFfRS data:

- The Deans, Bridge Road (Site 317)
- Swift Lane Extension (Site 1030)
- Broadford, Castle Grove Road (Site 447)
- Land adjacent to Sherrard Way (Site 912)
- The Grange, St Catherines Road (Site 920)

A screening exercise of all 32 sites was undertaken to assess how the percentage of each site at fluvial flood risk has changed between the RoFfRS data used for the Level 2 SFRA assessment and the new NaFRA2 FMfP. The updated fluvial flood risk can be viewed online on the [Surrey Heath SFRA 2025 Map \(cudasvc.com\)](https://cudasvc.com).

One additional site was identified to be at fluvial flood risk based on the new NaFRA2 FMfP:

- 439-445 London Road (Site 295)

Table 2-1 provides the percentage of the site identified to be at high, medium, and low risk within the RoFfRS data compared with the percentage of the site in the new NaFRA2 FMfP Flood Zones. A commentary is also provided to detail the change in risk.

Appendix A provides mapping for each of the sites showing the RoFfRS data and the new NaFRA2 FMfP Flood Zones where a change in the fluvial flood extents has been identified:

- Swift Lane Extension (Site 1030)
- Broadford, Castle Grove Road (Site 447)
- Land adjacent to Sherrard Way (Site 912)
- The Grange, St Catherines Road (Site 920)
- 439-445 London Road (Site 295)

It should be noted that Broadford, Castle Grove Road (Site 447) and Land adjacent to Sherrard Way (Site 912) were not assessed within the Level 2 SFRA as the site boundaries were identified by SHBC to not be reflective of the developable area which will be fully located outside of the areas of fluvial risk. At Site 912 this area is not affected by the change in fluvial flood risk identified within the new NaFRA2 FMfP Flood Zones so no further consideration of this site has been made within this addendum. The additional area of Flood Zone 2 shown on Broadford, Castle Grove Road (Site 447) affects an existing site access and may impede access and escape if this access is retained as part of the development. This is discussed further in Section 2.2.4.

Table 2-1: Comparison of the extent of the site at fluvial risk between the RoFfRS (used in the Level 2 SFRA assessment) and the updated NaFRA2 FMfP Flood Zones.

Site reference	% of site in the high risk RoFfRS (>3.3% AEP)	% of site in the high risk RoFfRS (3.3%-1% AEP)	% of site in the high risk RoFfRS (1%-0.1% AEP)	% of site in NaFRA2 FMfP Flood Zone 3	% of site in NaFRA2 FMfP Flood Zone 2	Comment on change in risk between RoFfRS and NaFRA2 FMfP
The Deans, Bridge Road (Site 317)	0	0	53	0	53	No change in extent of flood risk.
Swift Lane Extension (Site 1030)	1	1	2	1	100	No change in the 1% AEP flood extent (Flood Zone 3) but entire site now shown to be located within Flood Zone 2.
Broadford, Castle Grove Road (Site 447)	31	34	40	34	44	No change in the fluvial risk in the north of the site. Slight increase in the 0.1% AEP flood extent (Flood Zone 2) which now extends onto the southern end of the site where there is an access track.
Land adjacent to Sherrard Way (Site 912)	68	68	72	66	82	Slight reduction in the 1% AEP flood extent (Flood Zone 3) but increase in the 0.1% AEP flood extent (Flood Zone 2). The eastern part of the site is still not shown to be at fluvial flood risk.
The Grange, St Catherines Road (Site 920)	2	3	8	0	0	No fluvial flood risk shown to the site within the updated Flood Zones.

Site reference	% of site in the high risk RoFfRS (>3.3% AEP)	% of site in the high risk RoFfRS (3.3%-1% AEP)	% of site in the high risk RoFfRS (1%-0.1% AEP)	% of site in NaFRA2 FMfP Flood Zone 3	% of site in NaFRA2 FMfP Flood Zone 2	Comment on change in risk between RoFfRS and NaFRA2 FMfP
439-445 London Road (Site 295)	0	0	0	0	1	Small area in the northwest corner of the site shown to be located in Flood Zone 2.

## 2.2 Recommendations

The following section details recommendations for developers for the sites assessed within the Level 2 SFRA where a change in fluvial flood risk has been identified between the updated NaFRA2 FMfP and the RoFfRS data used within the Level 2 SFRA assessment.

### 2.2.1 Swift Lane Extension (Site 1030)

The entire site is shown to be located in the updated Flood Zone 2. However, this extent is based on the inclusion of the Environment Agency's Historic Flood Map extent which includes a record of flooding at Swift Lane from September 1968 rather than national or detailed hydraulic modelling.

Therefore, the recommendations made within the Level 2 assessment will still need to be considered for development to proceed at this site:

- *'Further assessment of the risk to the site should be undertaken within a site-specific FRA to refine the fluvial flood risk to the site. This site-specific FRA should either show that the site is not at fluvial risk or that the exception test can be passed'*
- *'A site-specific FRA should also investigate the mechanism of the historic flood event in September 1968 and whether there have been changes to the site since this event. This is necessary to identify whether a similar event could occur in future, or if there are any mitigating factors that suggest the site is no longer at risk.'*

Planning history of the site provided by the Council suggests that between 1968 and the early 1980s, when the site was first brought into use as a Gypsy & Traveller site, there had been an increase in land levels as a result of the use of the site for landfill. This is likely to explain the difference in the historic flood extent shown at the site and the new national modelling. It is therefore likely that the flood risk issues at the site can be addressed through site design and an appropriate FRA at Planning Application stage.

### 2.2.2 The Grange, St Catherines Road (Site 920)

Although the site is not shown to be located within the updated Flood Zones, the RoFfRS mapping shows a fluvial risk along the south-eastern side of the site. It has not been confirmed why this fluvial risk is not represented within the FMfP, and whether this is likely to be amended in future updates.

The recommendations made within the Level 2 assessment are therefore still relevant for development to proceed at this site:

- *'A detailed hydraulic model of the tributary of the River Blackwater will be required at FRA stage to accurately represent the risk from this watercourse and set the height of any mitigation measures.'*
- *'Development should be steered outside of the Flood Zones 2 and 3 in the southeast of the site. Further assessment of the fluvial risk at the site will likely be*

*required within a site-specific FRA to include assessment of the depths, hazard, and velocity of risk at the site. Existing flow paths should be retained and integrated with blue-green infrastructure and public open space.'*

### 2.2.3 439-445 London Road (Site 295)

No fluvial or surface water risk was identified at this site during the screening exercise undertaken as part of the Level 2 SFRA and therefore this site was not assessed.

The updated Flood Zones now show a small area of Flood Zone 2 encroaches on the northwest corner of the site. The Exception Test is not required for the site as the development type is classified to be 'More Vulnerable'; however, the fluvial flood risk identified at the site means a site-specific FRA will be required.

The following should be considered in development of this site:

- Development should be steered outside the area of Flood Zone 2 in the northwest corner of the site.
- Safe access and escape should be demonstrated in the 1% AEP plus climate change fluvial event using the appropriate allowances for climate change. An initial assessment shows that safe access and escape are likely to be maintained along London Road from the east where the road remains unimpeded by fluvial flood risk.

### 2.2.4 Broadford Castle Grove Road (Site 447)

This site was not assessed as part of the Level 2 SFRA as SHBC confirmed that the site boundary is not reflective of the developable area which will only be in the central area of the site which is not shown to be at fluvial flood risk.

However, the updated Flood Zones show Flood Zone 2 encroaching onto the existing access track in the south of the site. The Flood Zone 2 extent in this area is based on inclusion of the Environment Agency Historic Flood Map and reflects a recorded flood event from September 1968 and is not based on national or detailed hydraulic modelling. An initial assessment shows that the Flood Zone 2 extent is unlikely to be representative of the current fluvial flood risk on the site as the elevation of the south end of the site is approximately 1m higher than the elevation of the outer extent of the 0.1% AEP extent within the national modelling. However, this will need to be investigated further within a site-specific FRA to demonstrate that safe access and escape can be maintained, in the event that this access is retained as part of any development. Alternatively an initial assessment shows that safe access and escape are likely to be secured if the access is re-routed away from the area at risk to provide a more direct route between the developable area and Castle Grove Road.

## **A Fluvial flood risk comparison maps**

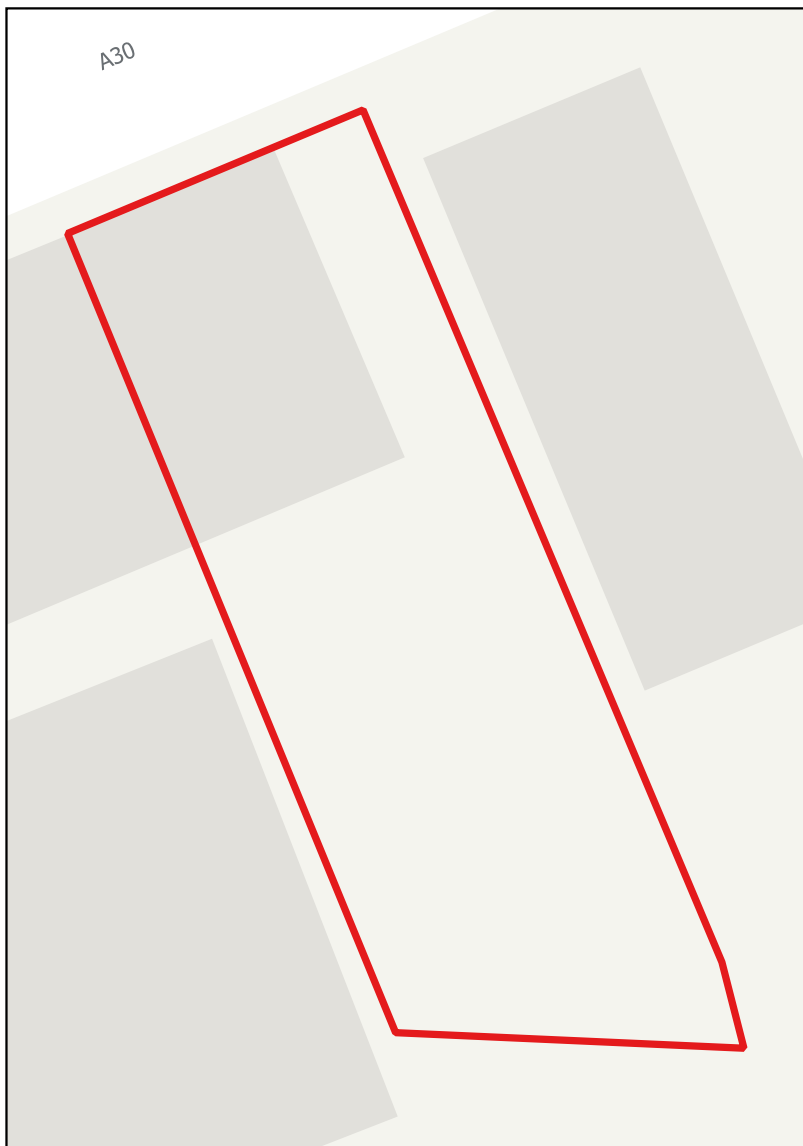




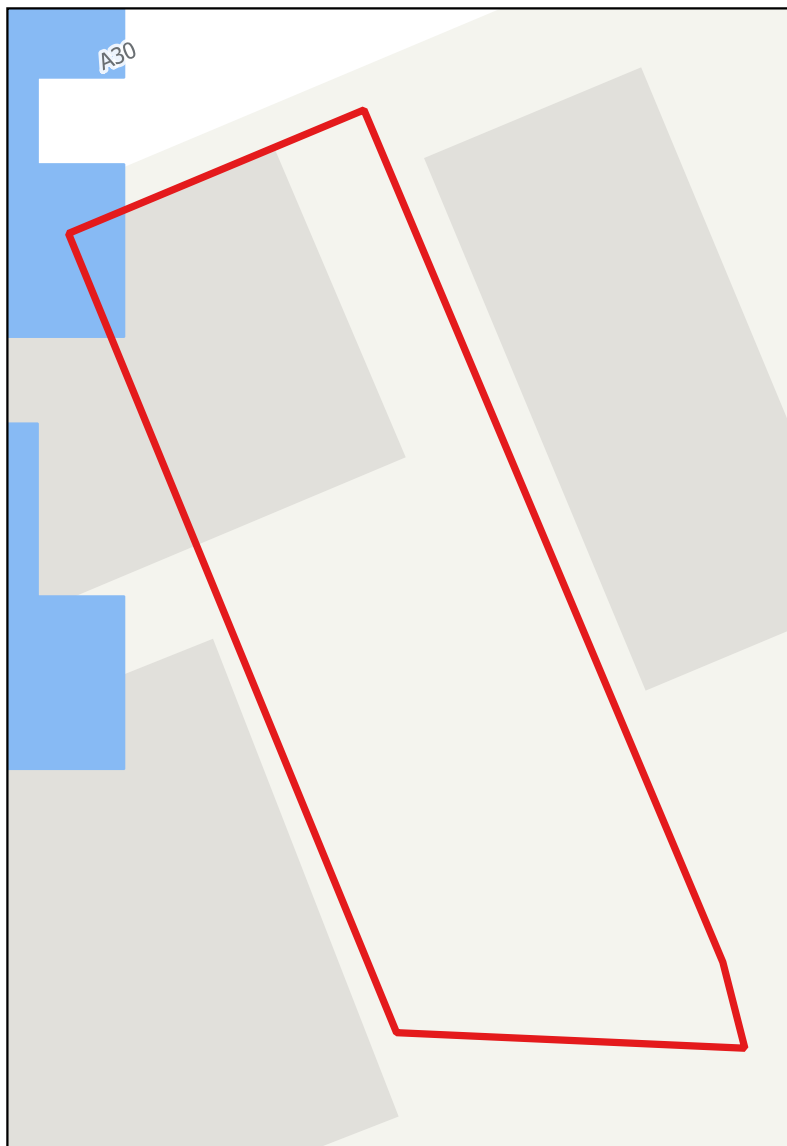
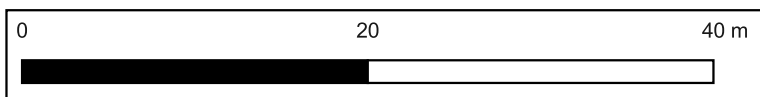
# Site: 294 439-445 London Road

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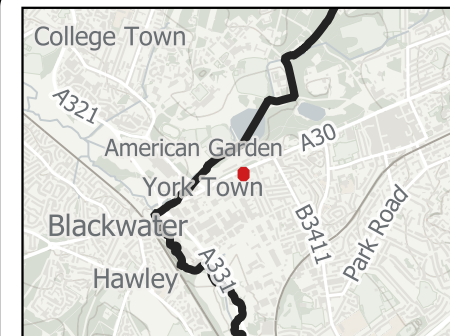
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**Risk of Flooding from Rivers and Sea (RoFfRS)**



**Flood Map for Planning (FMfP)**



## NaFRA2 Fluvial Data Comparison

- Surrey Heath Borough
- Site Boundary

### FMfP

- Flood Zone 3 (>1% AEP)
- Flood Zone 2  
(1% to 0.1% AEP)

### RoFfRS

- High Risk (>3.3% AEP)
- Medium Risk  
(1% to 3.3% AEP)
- Low Risk  
(0.1% to 1% AEP)
- Very Low Risk  
(<0.1% AEP)

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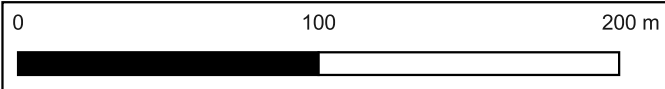
N **Site: 920**  
**The Grange, St Catherines Road**

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**Risk of Flooding from Rivers and Sea (RoFfRS)**



**Flood Map for Planning (FMfP)**



**NaFRA2 Fluvial Data Comparison**

- Surrey Heath Borough
- Site Boundary

**FMfP**

- Flood Zone 3 (>1% AEP)
- Flood Zone 2 (1% to 0.1% AEP)

**RoFfRS**

- High Risk (>3.3% AEP)
- Medium Risk (1% to 3.3% AEP)
- Low Risk (0.1% to 1% AEP)
- Very Low Risk (<0.1% AEP)

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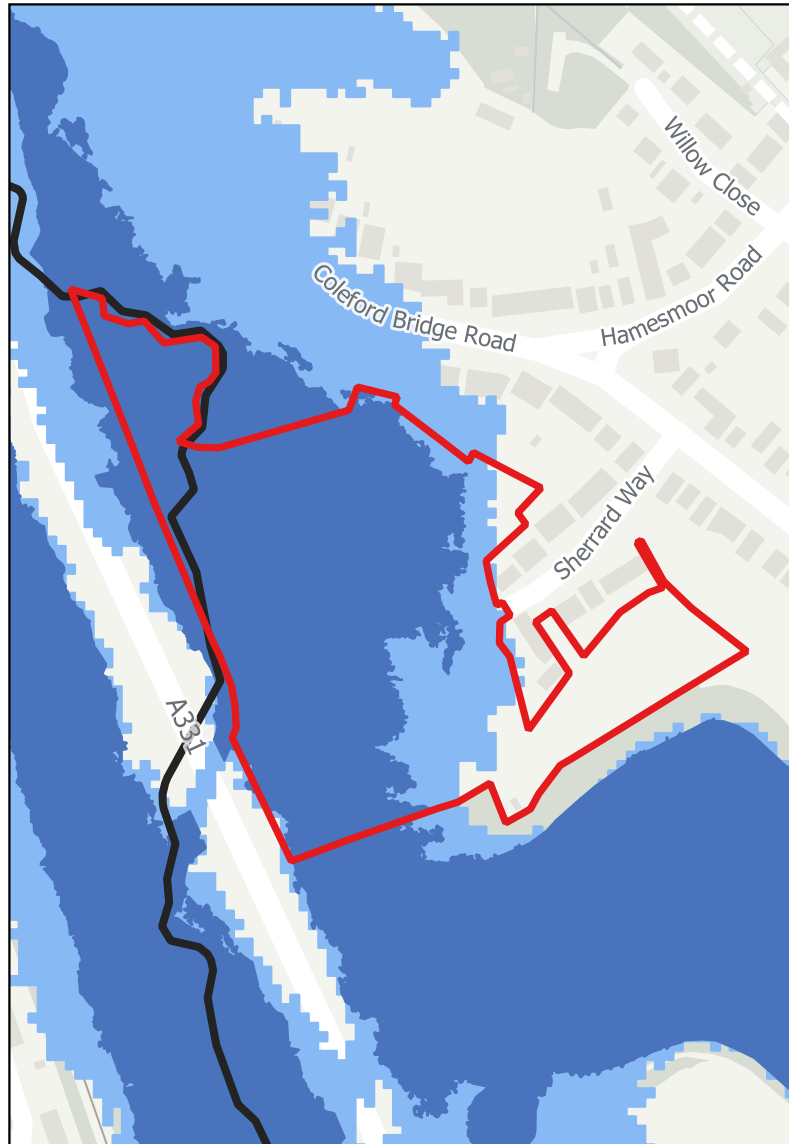
N **Site: 912**  
**Land adjacent to Sherrard Way**

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**Risk of Flooding from Rivers and Sea (RoFfRS)**



**Flood Map for Planning (FMfP)**



**NaFRA2 Fluvial Data Comparison**

- Surrey Heath Borough
- Site Boundary

**FMfP**

- Flood Zone 3 (>1% AEP)
- Flood Zone 2 (1% to 0.1% AEP)

**RoFfRS**

- High Risk (>3.3% AEP)
- Medium Risk (1% to 3.3% AEP)
- Low Risk (0.1% to 1% AEP)
- Very Low Risk (<0.1% AEP)

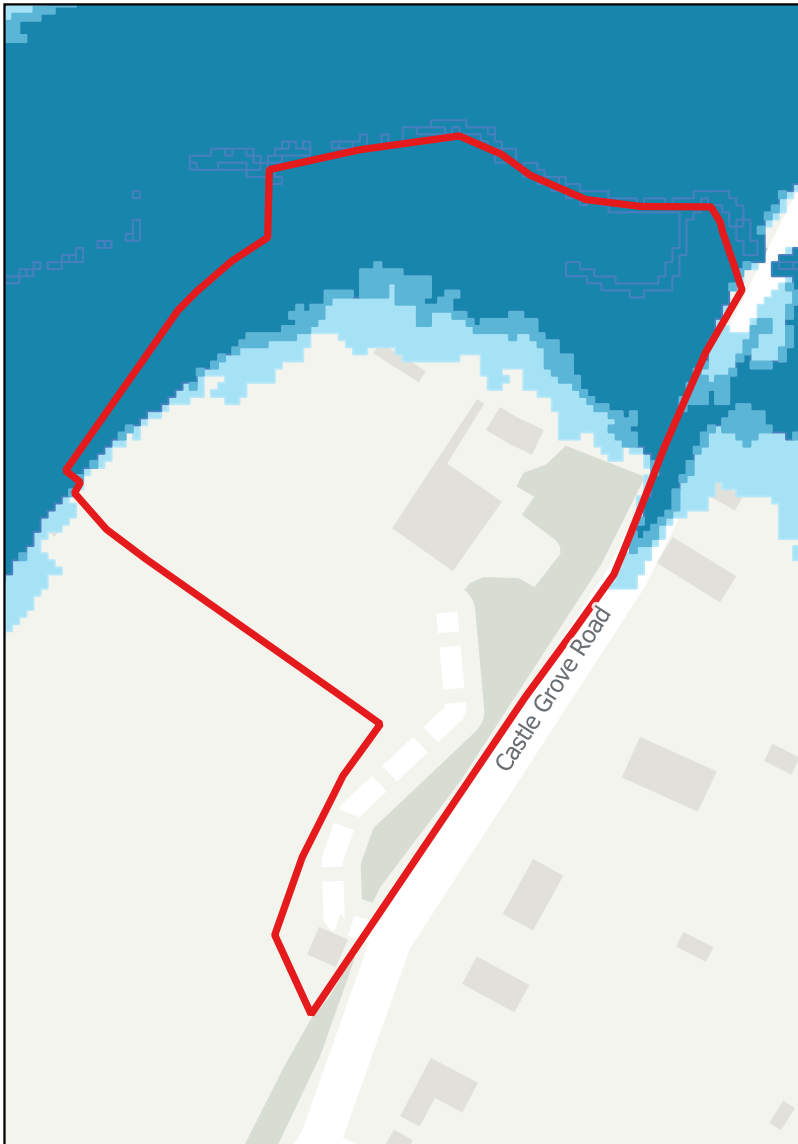
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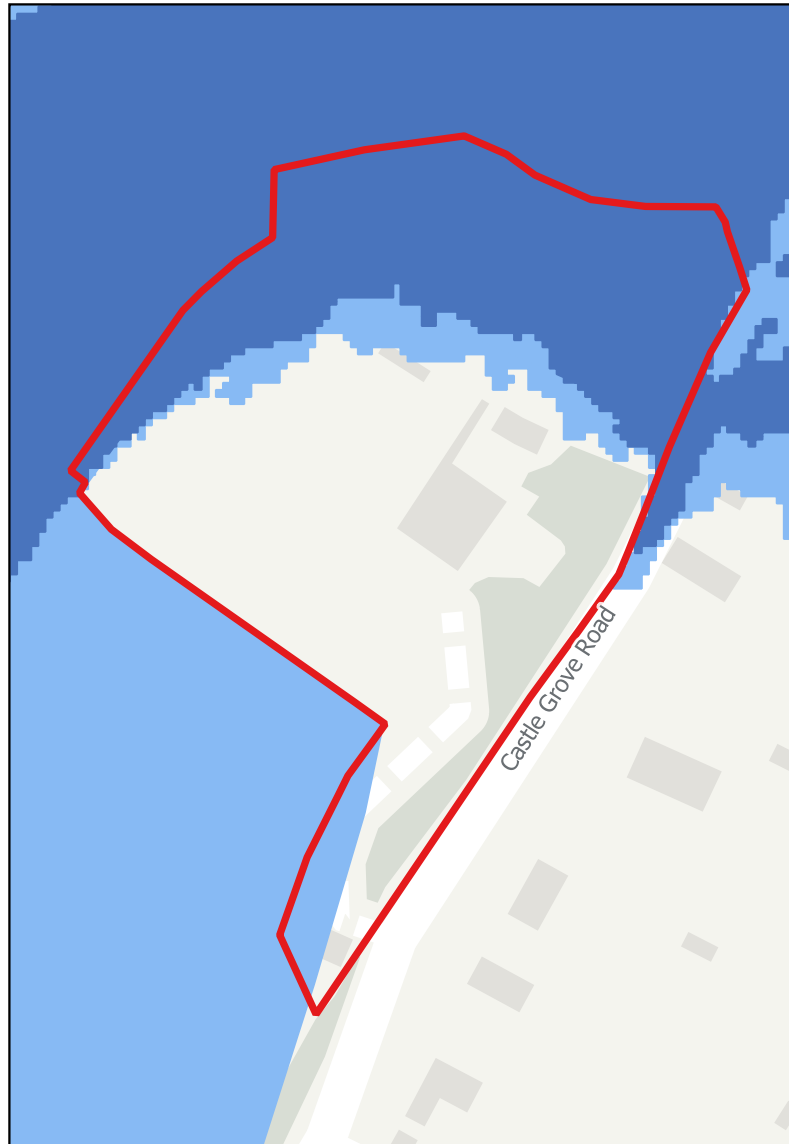
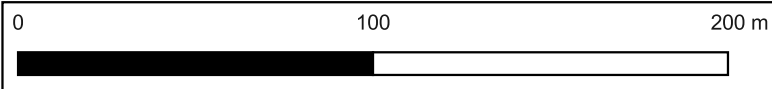
**Site: 447**  
**Broadford, Castle Grove Road**

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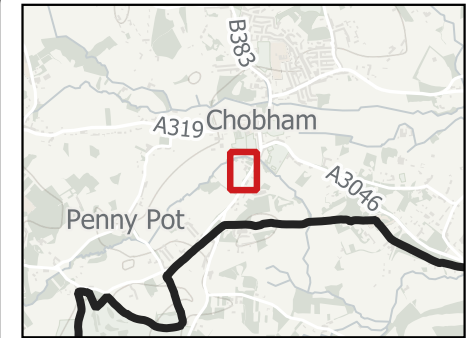
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**Risk of Flooding from Rivers and Sea (RoFFRS)**



**Flood Map for Planning (FMfP)**



**NaFRA2 Fluvial Data Comparison**

- Surrey Heath Borough
- Site Boundary

**FMfP**

- Flood Zone 3 (>1% AEP)
- Flood Zone 2 (1% to 0.1% AEP)

**RoFFRS**

- High Risk (>3.3% AEP)
- Medium Risk (1% to 3.3% AEP)
- Low Risk (0.1% to 1% AEP)
- Very Low Risk (<0.1% AEP)

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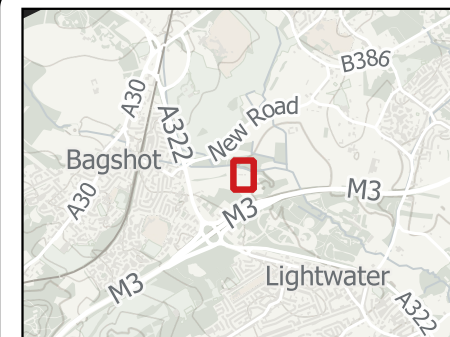


**Risk of Flooding from Rivers and Sea (RoFfRS)**

0 80 160 m



**Flood Map for Planning (FMfP)**



## NaFRA2 Fluvial Data Comparison

- Surrey Heath Borough
- Site Boundary

### FMfP

- Flood Zone 3 (>1% AEP)
- Flood Zone 2  
(1% to 0.1% AEP)

### RoFfRS

- High Risk (>3.3% AEP)
- Medium Risk  
(1% to 3.3% AEP)
- Low Risk  
(0.1% to 1% AEP)
- Very Low Risk  
(<0.1% AEP)

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