



# Huntingdonshire Level 2 Strategic Flood Risk Assessment Site Summary

Site CfS:156

## Final Report

Prepared for  
Huntingdonshire District  
Council

Date  
November 2025

## Document Status

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# Contract

|                     |                                                                 |
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This report describes work commissioned by Huntingdonshire District Council by an instruction via email dated 21 July 2025. The Client's representative for the contract was Frances Schulz of Huntingdonshire District Council. Amy Ewens of JBA Consulting carried out this work.

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The methodology adopted and the sources of information used by JBA in providing its services are outlined in this Report. The work described in this Report was undertaken between 21 July 2025 and 6 November 2025 and is based on the conditions encountered and the information available during the said period. The scope of this Report and the services are accordingly factually limited by these circumstances.

The conclusions and recommendations contained in this Report are based upon information provided by others and upon the assumption that all relevant information has been provided by those parties from whom it has been requested and that such information is accurate.

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## Acknowledgements

We would like to thank the Environment Agency, Cambridgeshire County Council for their assistance with this work.

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# 1 Background

This is a Level 2 Strategic Flood Risk Assessment (SFRA) site screening report for Local Plan Site CfS:156. The content of this report assumes the reader has already consulted the 'HDC Level 1 SFRA' (2024) and read the 'HDC Level 2 SFRA Main Report' (2025) and is therefore familiar with the terminology used in this report.

## 1.1 Site CfS:156

- Location: Land West of High Street and North of Dunstall Close (smaller site), Offord Cluny
- Existing site use: Agricultural
- Existing site use vulnerability: Less vulnerable
- Proposed site use: Residential
- Proposed site use vulnerability: More vulnerable
- Site area (ha): 3.09
- Watercourse: River Great Ouse (main river)
- Environment Agency (EA) model: River Great Ouse (Lower Ouse - Downstream 2015)
- Summary of requirements from Level 2 SFRA scoping stage:
  - Assessment of surface water flood extent, depths and hazards
  - Assessment of all other sources of flood risk

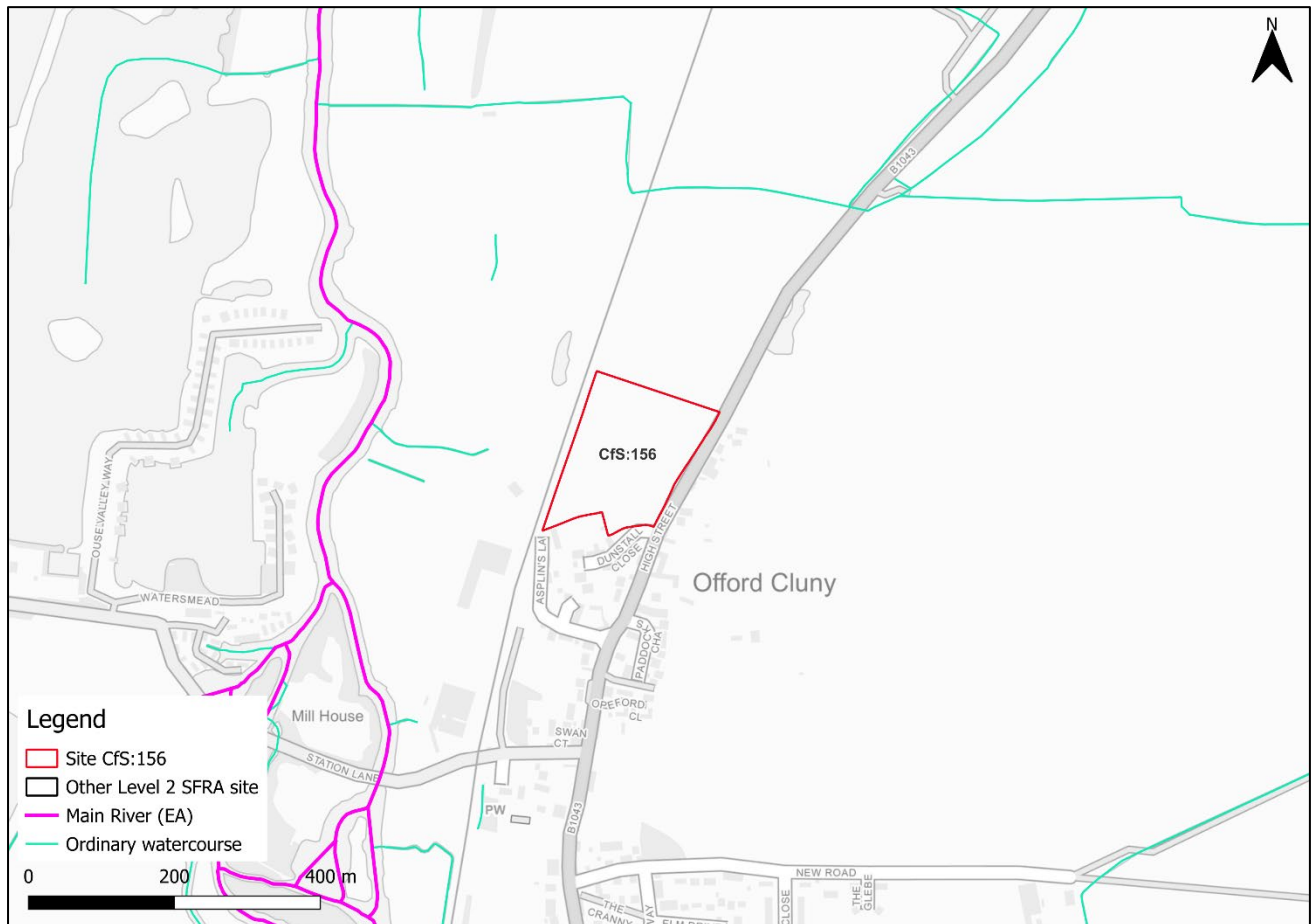


Figure 1-1: Existing site location boundary

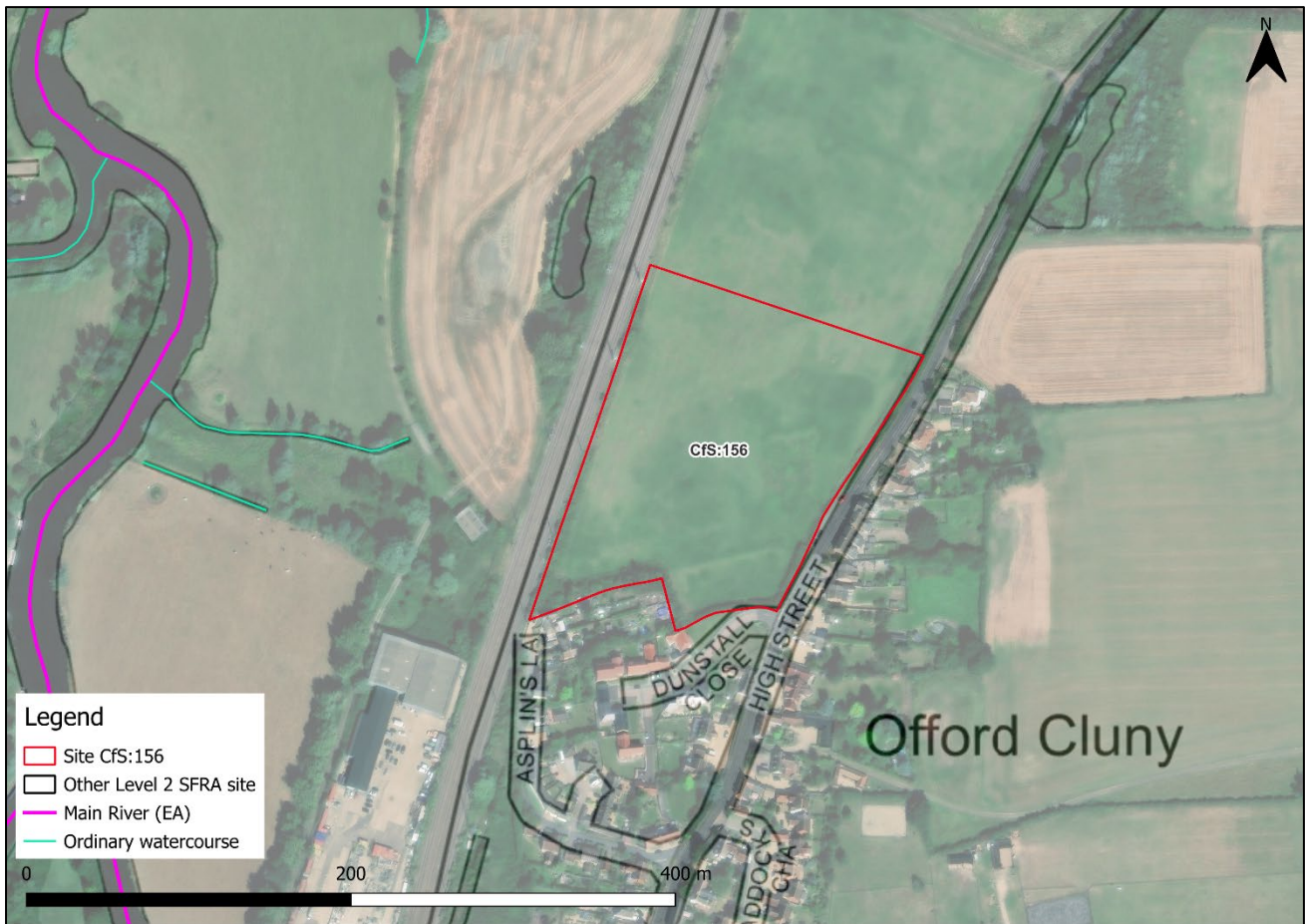


Figure 1-2: Aerial photography



Figure 1-3: Topography

## 2 Flood risk from rivers and sea

### 2.1 Existing risk

#### 2.1.1 Flood Map for Planning and functional floodplain

Based on the EA's Flood Map for Planning (accessed July 2025) and Flood Zone 3b (functional floodplain), as updated in this Level 2 SFRA, the percentage areas of the site within each flood zone are stated in Table 2-1 and can be viewed on Figure 2-1. This version of the Flood Map for Planning does not consider flood defence infrastructure (Section 2.2.1) or the impacts of climate change (Section 2.3).

The site is wholly located within Flood Zone 1 and is therefore at low risk of flooding from rivers and the sea. However, fluvial flood zones are in close proximity to the west of the site. The site is located within the Lower Ouse 2015 (Downstream Lower Ouse) model domain and the Flood Map for Planning 3.3% AEP defended scenario has been used to define Flood Zone 3b in this area. Flood Zones 3a and 2 are slightly different to the equivalent model outputs for reasons unknown at this stage.

Table 2-1: Existing flood risk based on percentage area of site at risk

| Flood Zone 1 (% area) | Flood Zone 2 (% area) | Flood Zone 3a (% area) | Flood Zone 3b (% area) |
|-----------------------|-----------------------|------------------------|------------------------|
| 100                   | 0                     | 0                      | 0                      |

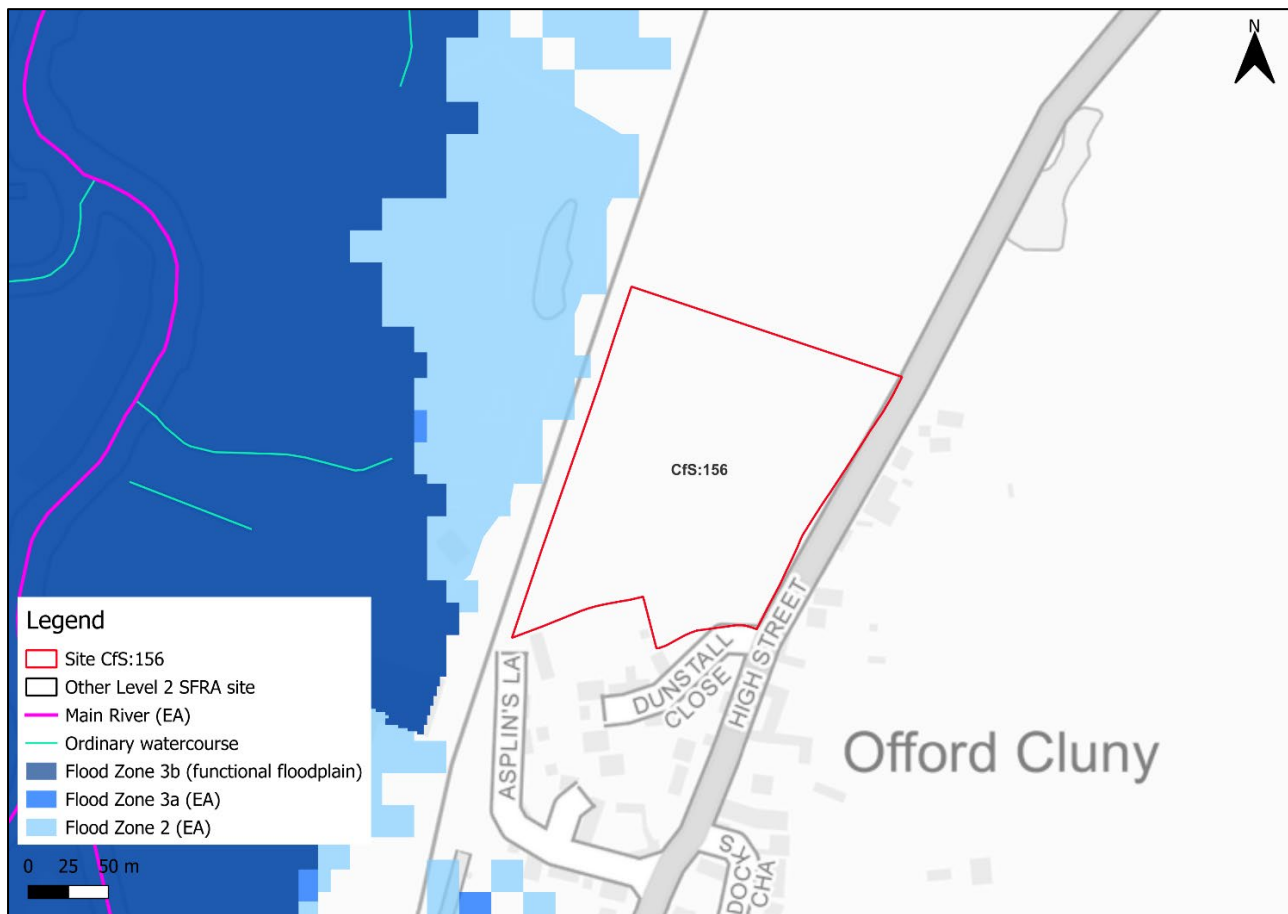


Figure 2-1: Existing risk

### 2.1.2 Fluvial undefended model outputs (Lower Ouse - Downstream, 2015)

The Lower Ouse - Downstream (2015) detailed model shows that the flood risk from the River Great Ouse is not modelled to impact the site.

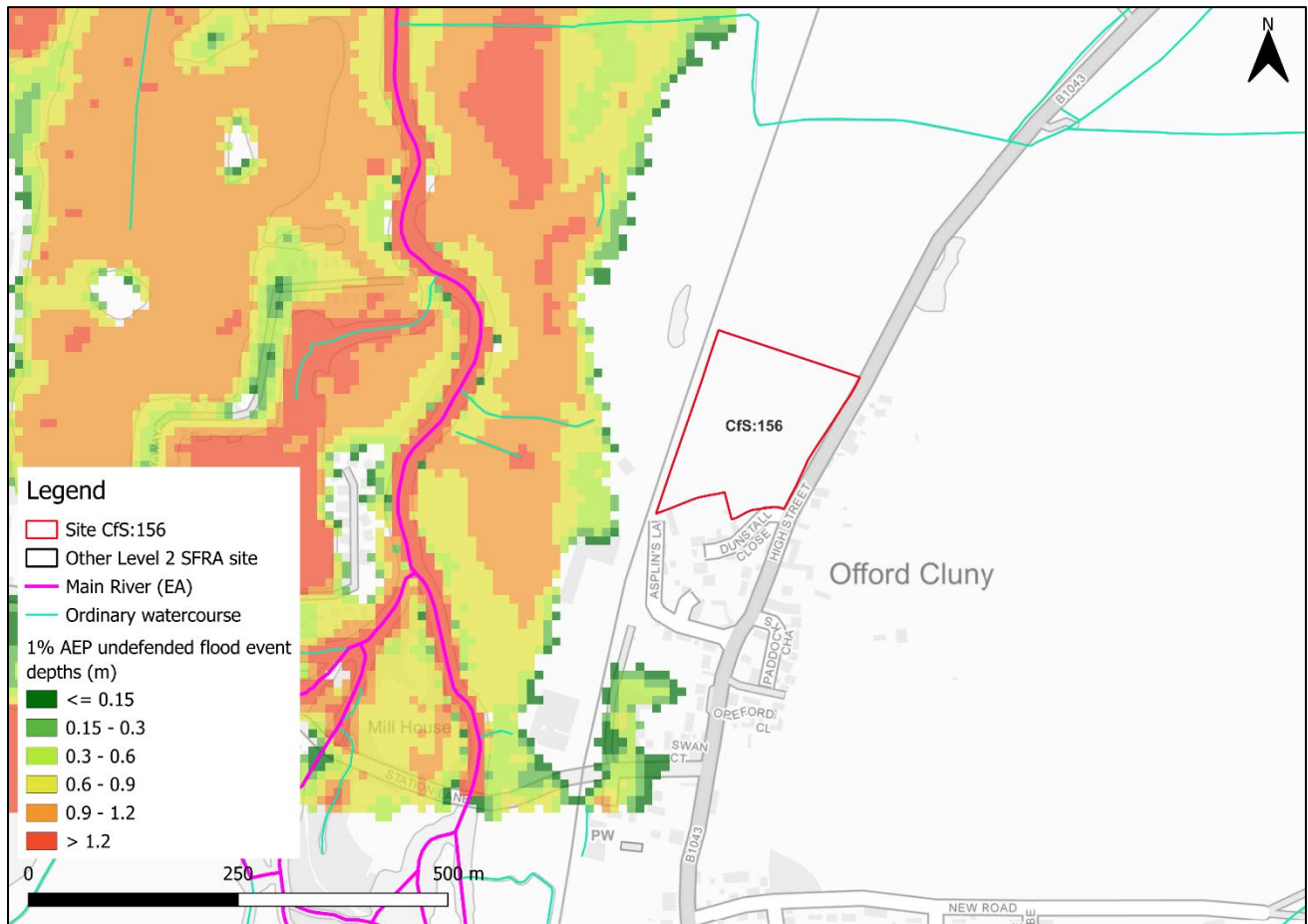


Figure 2-2: Flood depths for 1% AEP undefended flood event

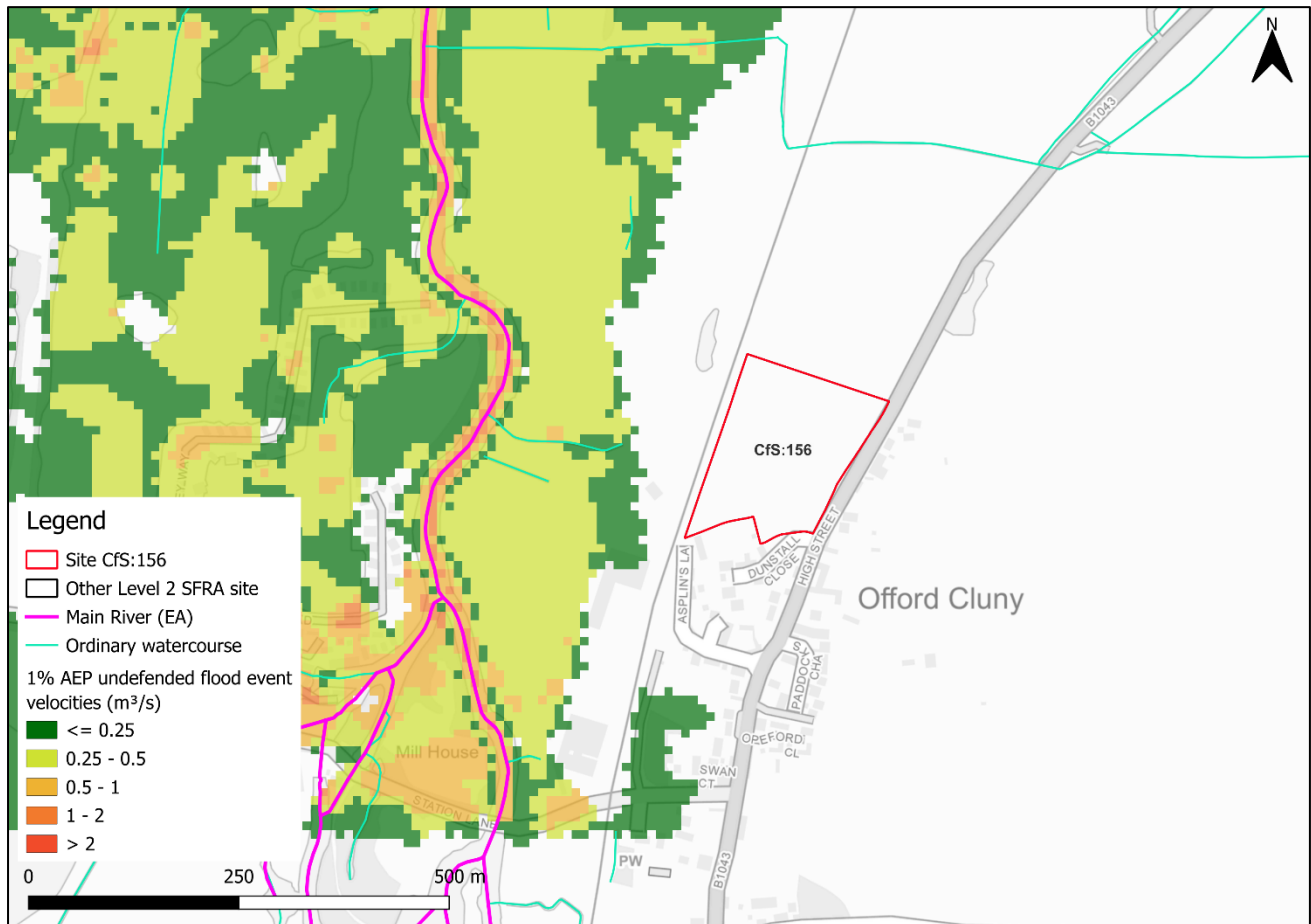


Figure 2-3: Flood velocities for 1% AEP undefended flood event

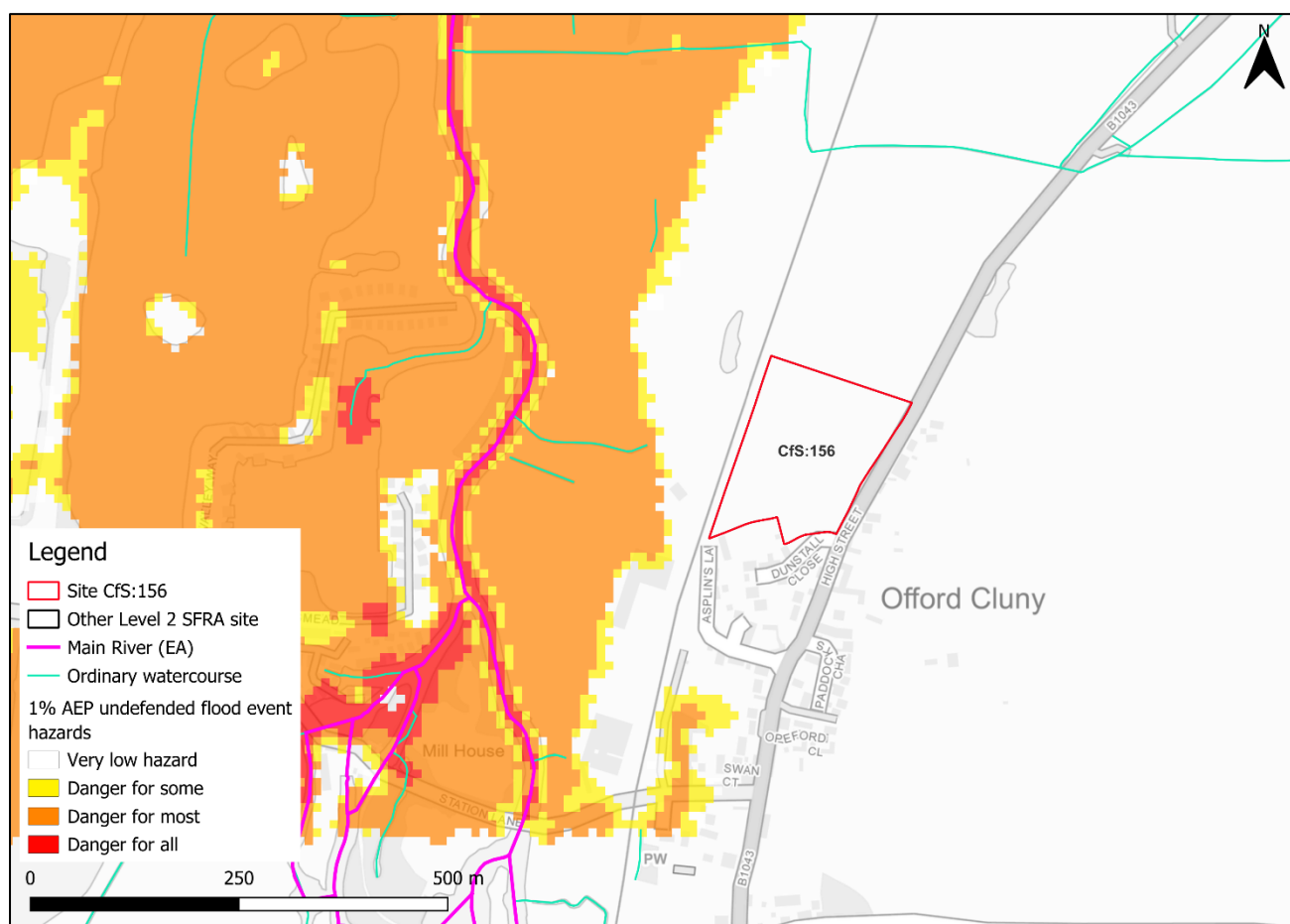


Figure 2-4: Flood hazard<sup>1</sup> for 1% AEP undefended flood event

## 2.2 Flood risk management

### 2.2.1 Flood defences

The site doesn't benefit from any formal engineered flood defences, according to the EA's spatial flood defences dataset.

### 2.2.2 Working with Natural Processes

The EA's Working with Natural Processes (WwNP) dataset has been interrogated to identify opportunities for Natural Flood Management (NFM) to reduce flood risk to the site and surrounding areas. These areas are shown in Figure 2-5. Note, the WwNP mapping is broadscale and indicative, therefore further investigation will be required for any land shown to have potential for WwNP. There is the potential for runoff attenuation features during the 3.3% and 1% AEP events along the eastern site boundary.

<sup>1</sup> Fluvial hazard ratings based on Table 4 of the SUPPLEMENTARY NOTE ON FLOOD HAZARD RATINGS AND THRESHOLDS FOR DEVELOPMENT PLANNING AND CONTROL PURPOSE – Clarification of the Table 13.1 of FD2320/TR2 and Figure 3.2 of FD2321/TR1. May 2008.

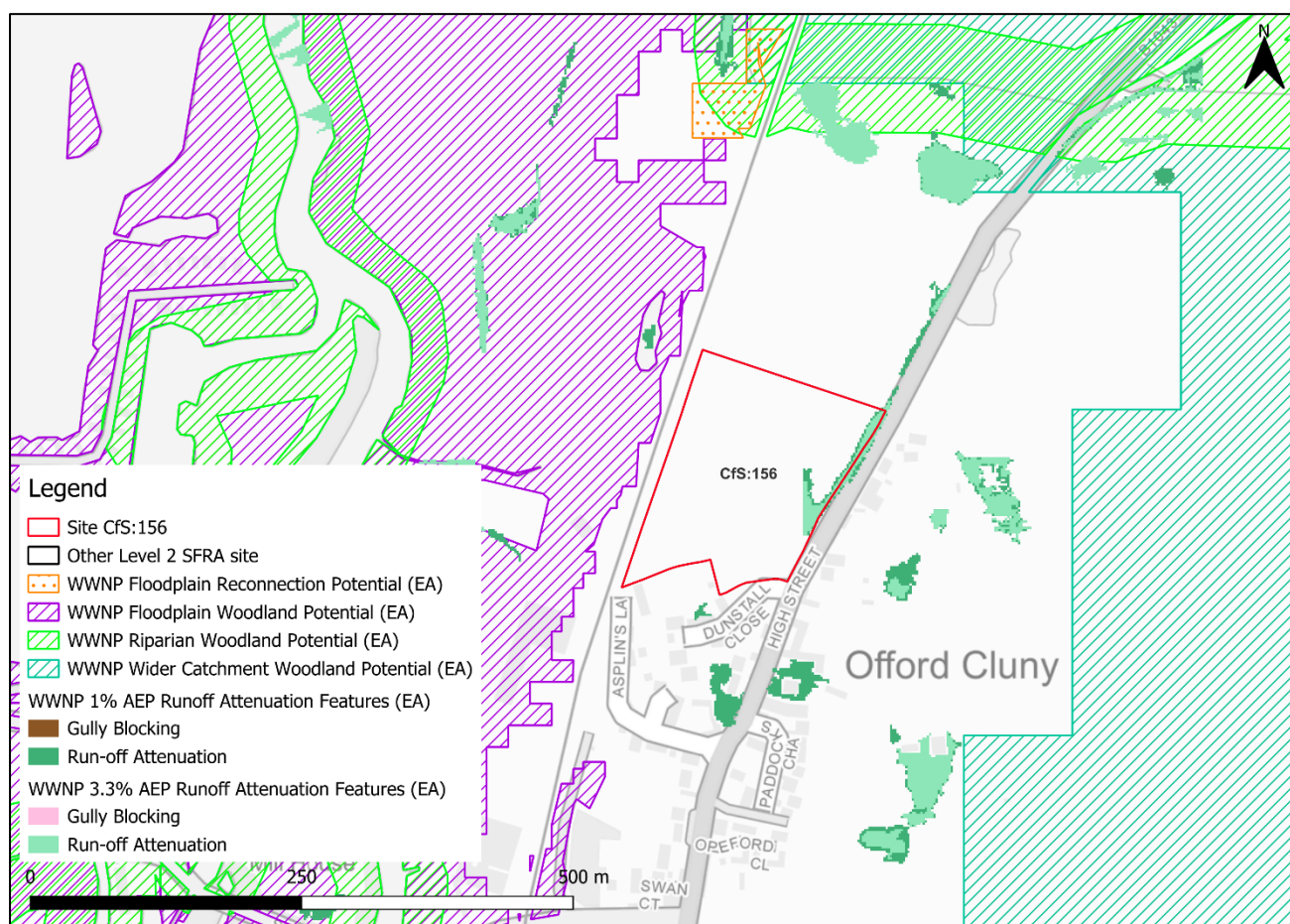


Figure 2-5: Natural Flood Management (NFM) potential mapping

## 2.3 Impacts from climate change

### 2.3.1 Fluvial

The EA's SFRA guidance states that SFRA's should assess the central allowance for less, more, highly vulnerable, and water compatible development. The higher central allowance should be assessed for essential infrastructure.

The impacts of climate change on flood risk from the River Great Ouse have been modelled with and without flood defence infrastructure in place, where applicable.

With consideration of the EA's SFRA guidance, the latest central and higher central climate change allowances have been modelled as shown in Table 2-2.

Table 2-2: Modelled climate change allowances for peak river flows for the Upper and Bedford Ouse management catchment

| Return period (AEP event)                     | Central allowance 2080s (% increase) | Higher central allowance 2080s (% increase) |
|-----------------------------------------------|--------------------------------------|---------------------------------------------|
| 2% as a proxy for 3.3% which is not available | 19                                   | 30                                          |

| Return period (AEP event) | Central allowance 2080s (% increase)  | Higher central allowance 2080s (% increase) |
|---------------------------|---------------------------------------|---------------------------------------------|
| 1%                        | 19                                    | 30                                          |
| 0.1%                      | Model would not run for this scenario |                                             |

The Lower Ouse - Downstream (2015) detailed model shows that the climate change flood risk from the River Great Ouse is not modelled to impact the site.

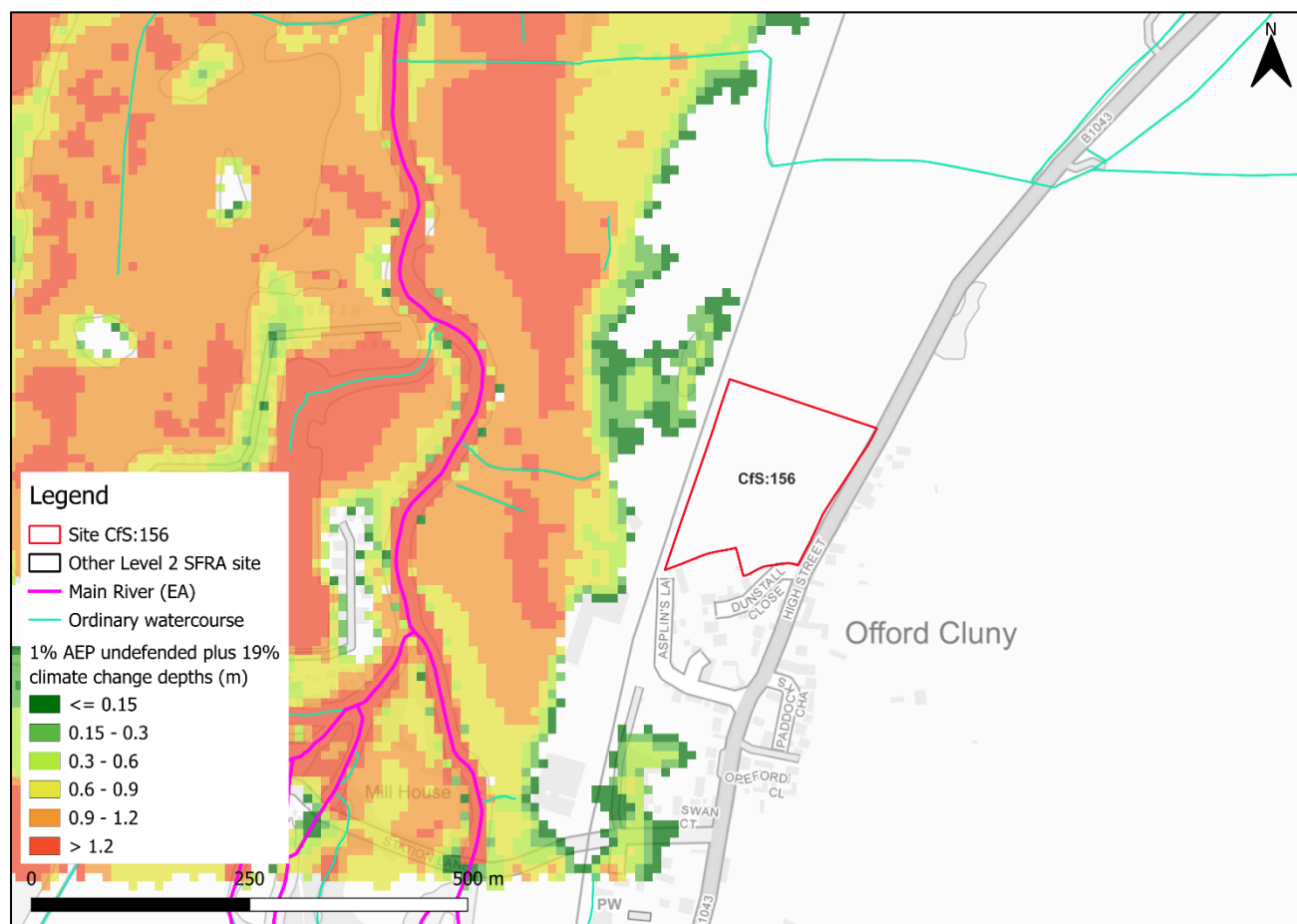


Figure 2-6: Flood depths for 1% AEP undefended flood event +19% (central climate change allowance)

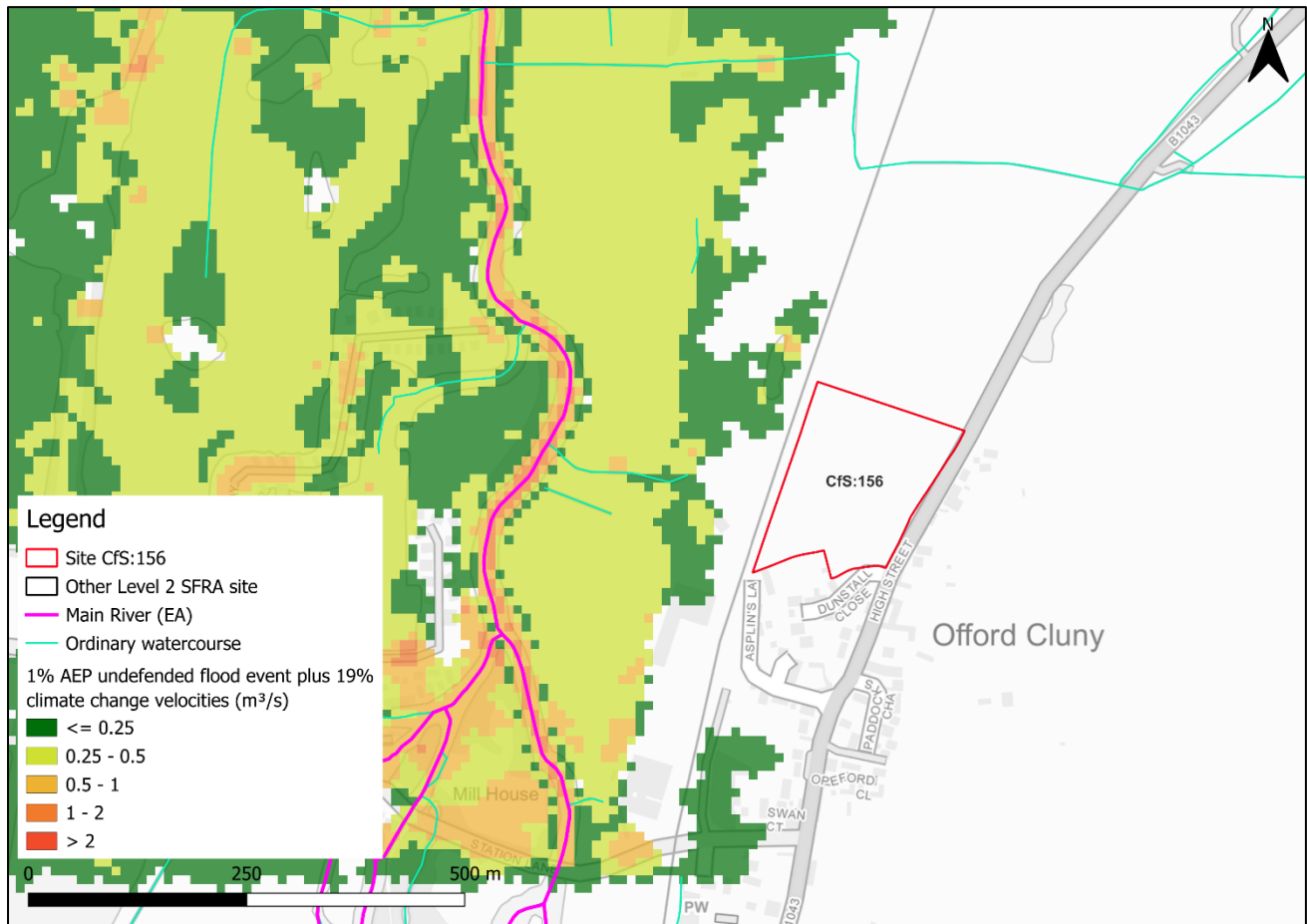


Figure 2-7: Flood velocities for 1% AEP undefended flood event +19% (central climate change allowance)

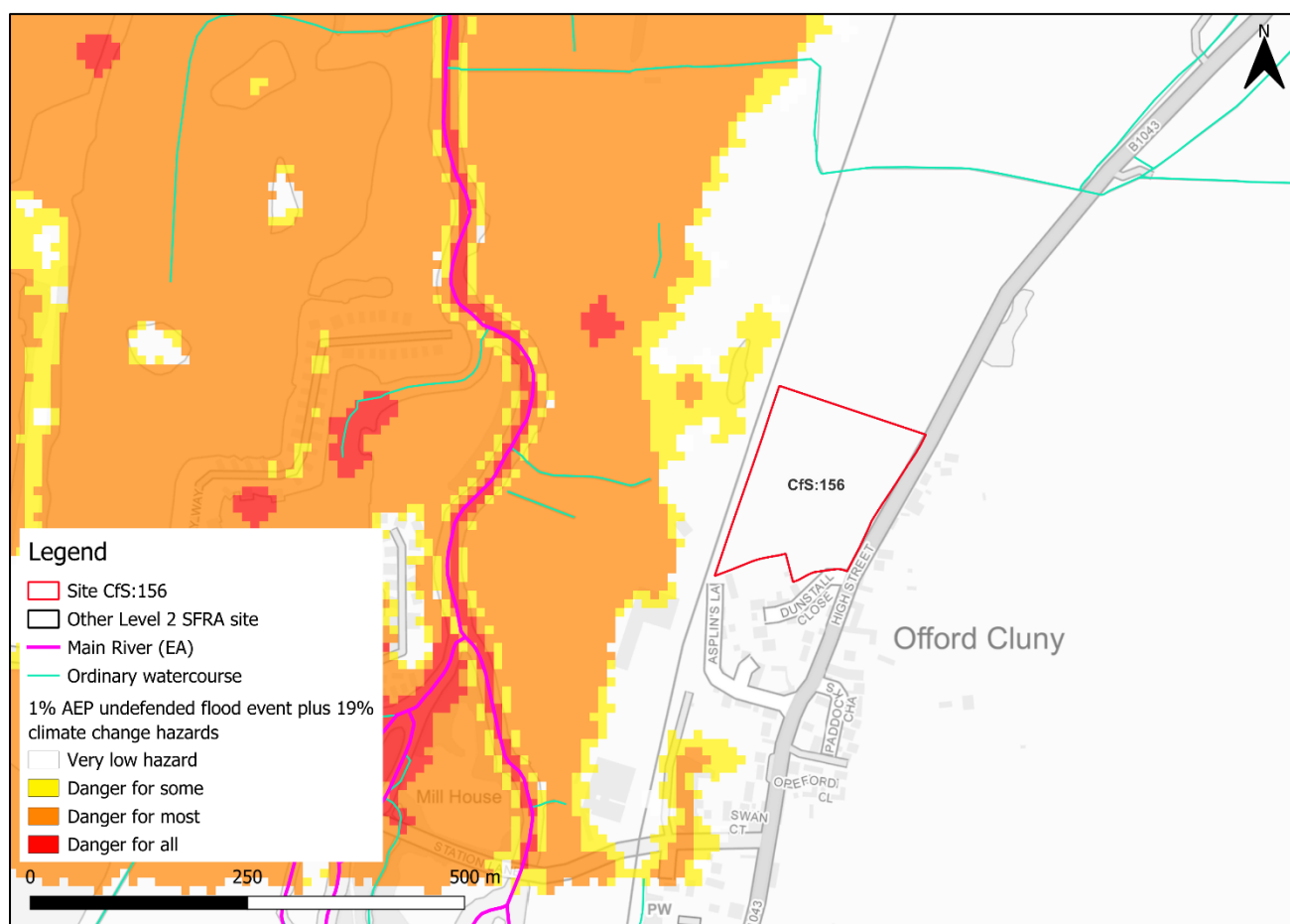


Figure 2-8: Flood hazard<sup>1</sup> for 1% AEP undefended flood event +19% (central climate change allowance)

### 2.3.2 Tidal

The EA's Flood Map for Planning shows the site is not at risk from tidal climate change.

## 2.4 Historic flood incidents

The EA's Historic Flood Map (HFM) and Recorded Flood Outlines (RFO) datasets have been considered and mapped in Figure 2-9 which shows that the southwestern site extent has been subject to flooding in the past. The RFO dataset references that this event occurred in March 1947. The cause of flooding is unknown.

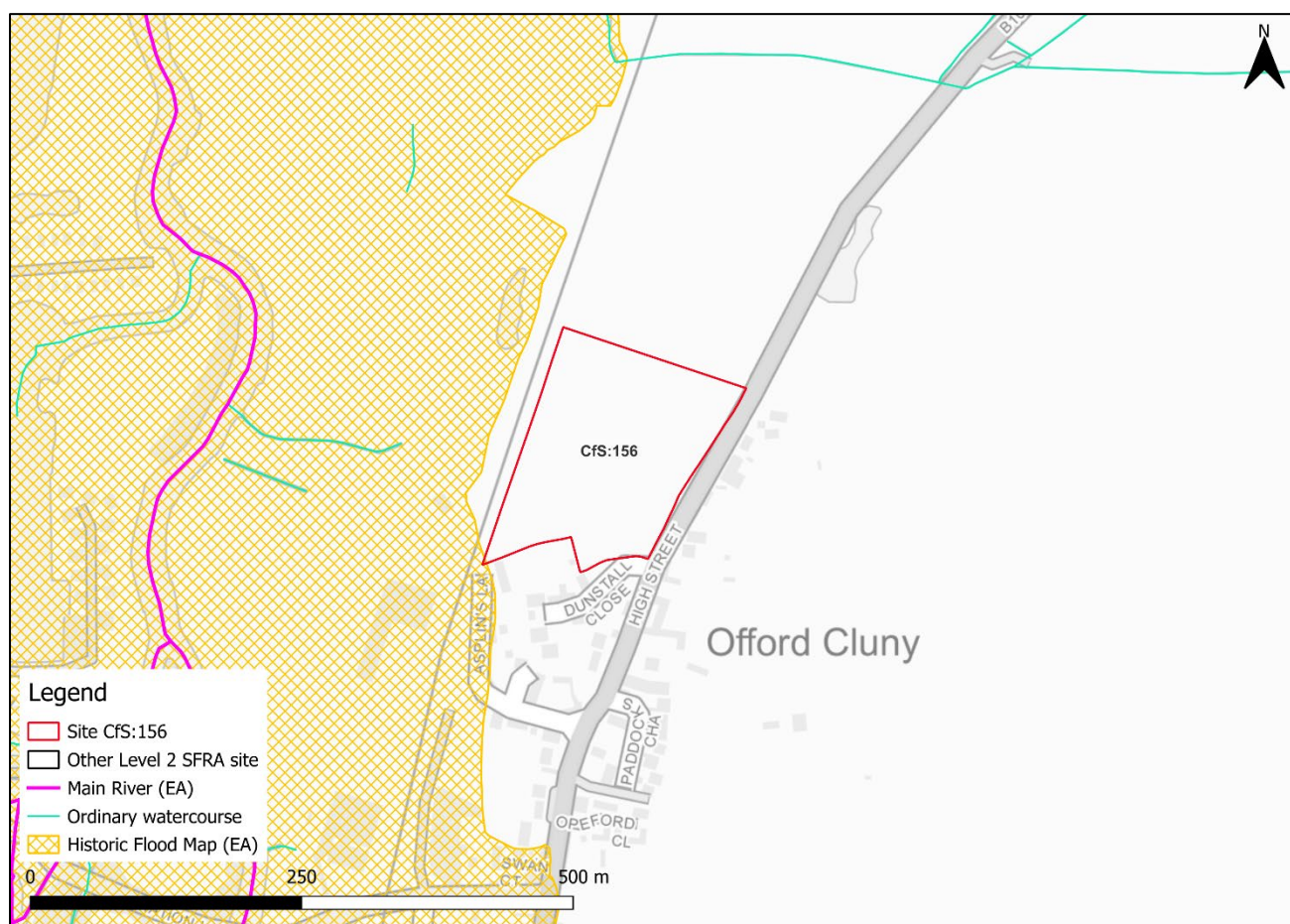


Figure 2-9: Recorded historic flood events onsite and around the site

## 2.5 Emergency planning

### 2.5.1 Flood warning

The EA operates a Flood Warning Service for properties located within a Flood Warning Area (FWA) for when a flood event is expected to occur. The site is not located within a FWA.

Flood alerts may be issued before a flood warning for properties located within a Flood Alert Area (FAA) to provide advance notice of the possibility of flooding. A flood alert may be issued when there is less confidence that flooding will occur in a FWA. As shown in Figure 2-29, this site is located within a FAA. The site is not located within a FWA.

### 2.5.2 Access and escape routes

Based on available information, safe access and escape routes could likely be achieved during a flood event via the B1043 along the eastern site boundary, as shown in Figure 2-10.

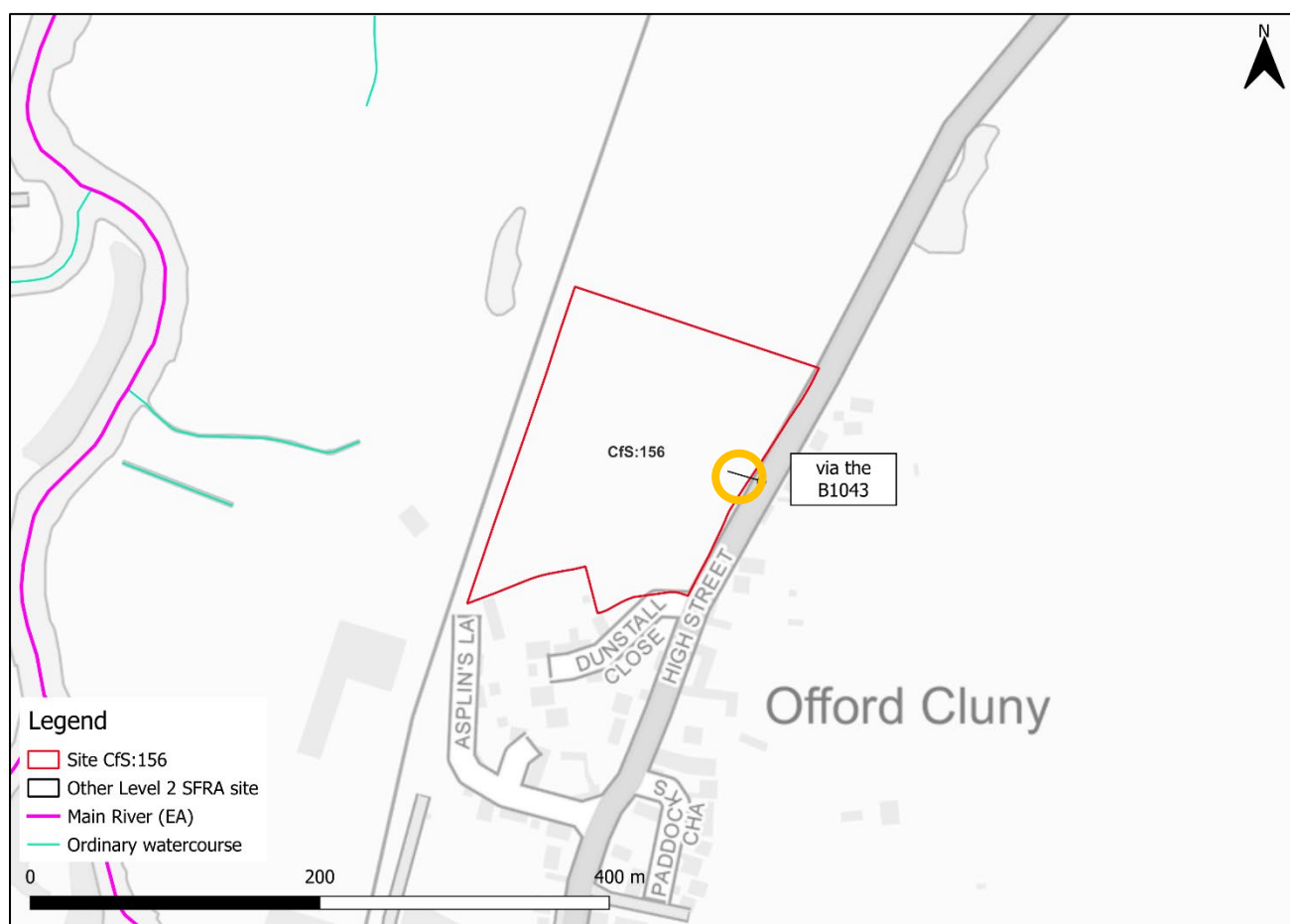


Figure 2-10: Potential access and escape routes

## 2.6 Observations, mitigation options, site suitability, sequential approach to development management - fluvial and tidal

- Observations:
  - The proposed development of the site would see a change in the risk classification from less vulnerable to more vulnerable, according to the NPPF.
  - Local detailed modelling of the River Great Ouse shows that the flood risk from the River Great Ouse is not modelled to impact the site. This is also the case with the flood zones of the Flood Map for Planning. However, the flood zones are slightly different to the equivalent modelled events.
- Access and escape:
  - Safe access and egress routes must be available at times of flood and appear to be available from the east of the site, via the B1043.

## 3 Flood risk from surface water

### 3.1 Existing risk

The NaFRA2 Risk of Flooding from Surface Water (RoFSW) mapping received a significant update and was published January 2025, including for surface water flood extents and depths. However, at the time of writing, the EA has confirmed that the depth information available is not structured in a way that is suitable for planning purposes. Therefore, this Level 2 SFRA considers the third generation RoFSW depth and hazard mapping in addition to the NaFRA2 extents, as agreed with the EA. Surface water depth and hazard should be modelled at the site-specific FRA stage.

#### 3.1.1 Risk of Flooding from Surface Water - NaFRA2 extents

Based on the EA's national scale RoFSW map, as updated in January 2025, shows that the majority of the site is within the very low flood risk zone. However, approximately 15% of the site, in the east and northeast, is within the high surface risk zone. Approximately 6% of the site, in the east and southwest, is within the medium surface water risk zone. Approximately 17% of the site, in the east, west and centre of the site, is within the low surface water risk zone.

Table 3-1: Existing surface water flood risk based on percentage area at risk using the NaFRA2 RoFSW map

| Very low risk (% area) | Low risk (% area) | Medium risk (% area) | High risk (% area) |
|------------------------|-------------------|----------------------|--------------------|
| 62                     | 17                | 6                    | 15                 |

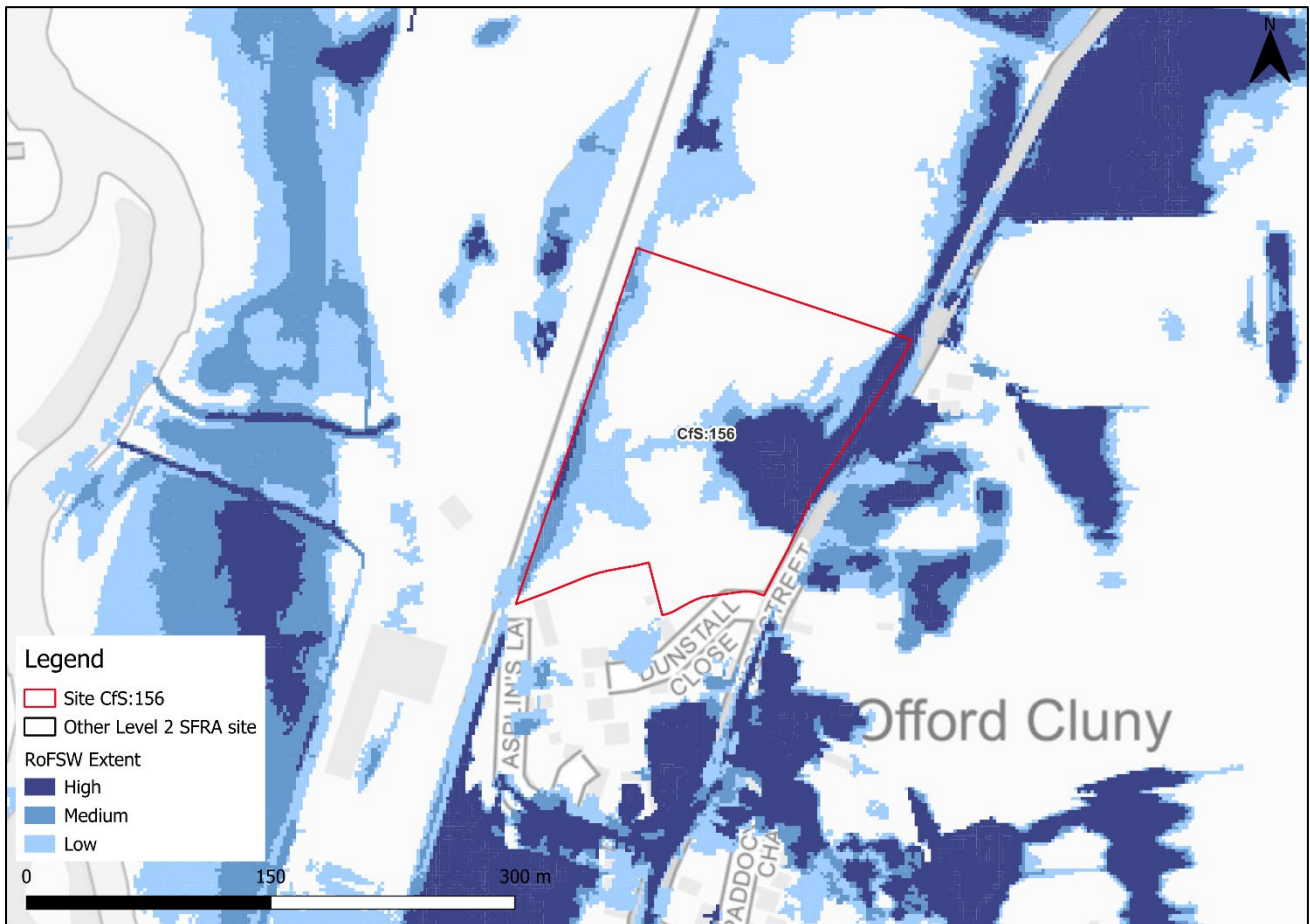


Figure 3-1: Surface water flood extents (NaFRA2 - Risk of Flooding from Surface Water map)

### 3.1.2 Risk of Flooding from Surface Water - third generation depths and hazard

Based on the EA's national scale third generation RoFSW map, in a medium risk event, flood depths are predicted to reach between 0.3m and 0.6m in the east, northeast and southwest of the site (Figure 3-2). Small areas of flooding along the northeast site boundary are predicted to reach between 0.60m and 0.90m.

The areas of flooding are predicted to be predominantly a moderate hazard. However, small areas along the northeastern and southwestern site boundaries are predicted to be a significant hazard.

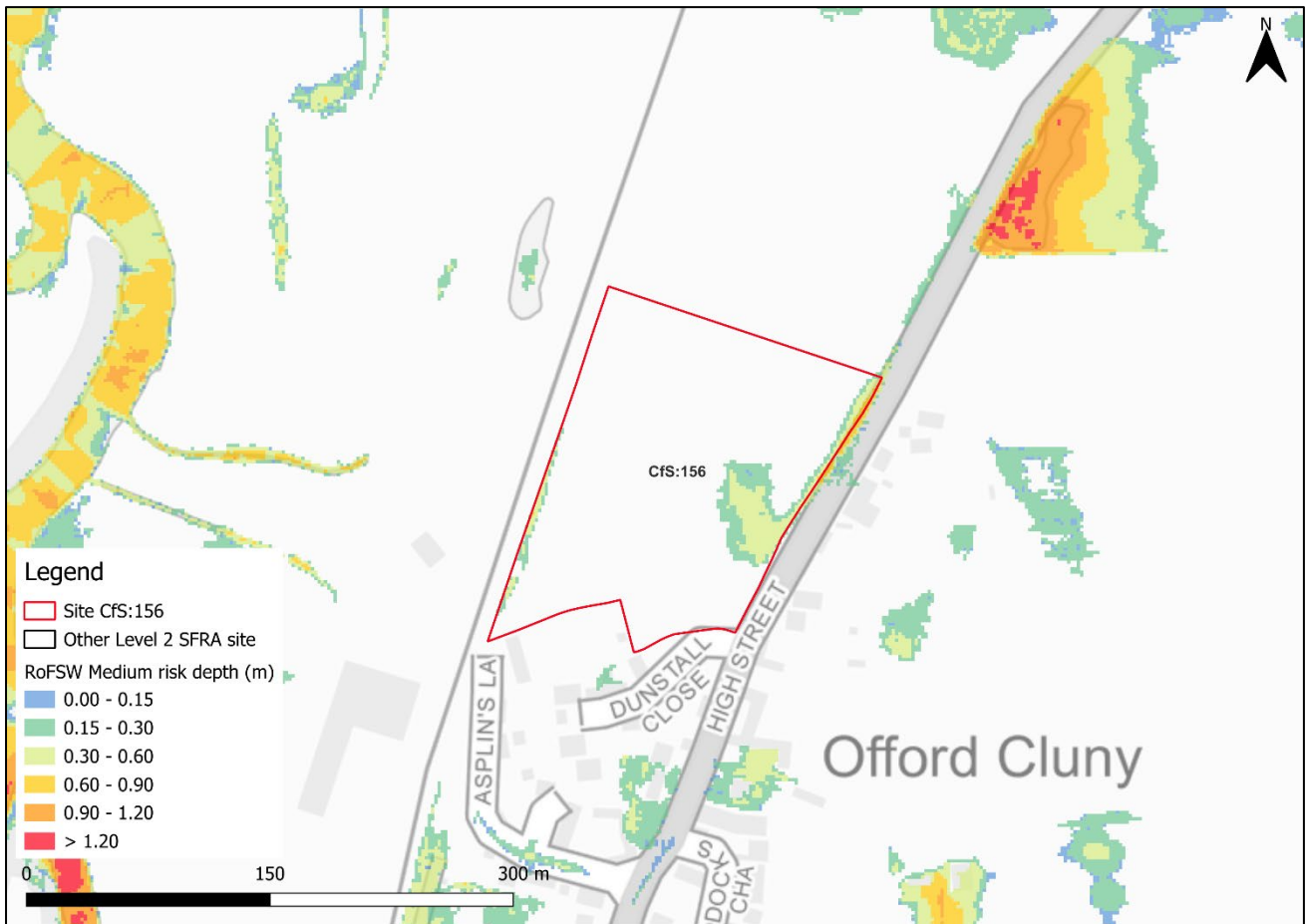


Figure 3-2: Medium risk event surface water flood depths (Third generation - Risk of Flooding from Surface Water map)

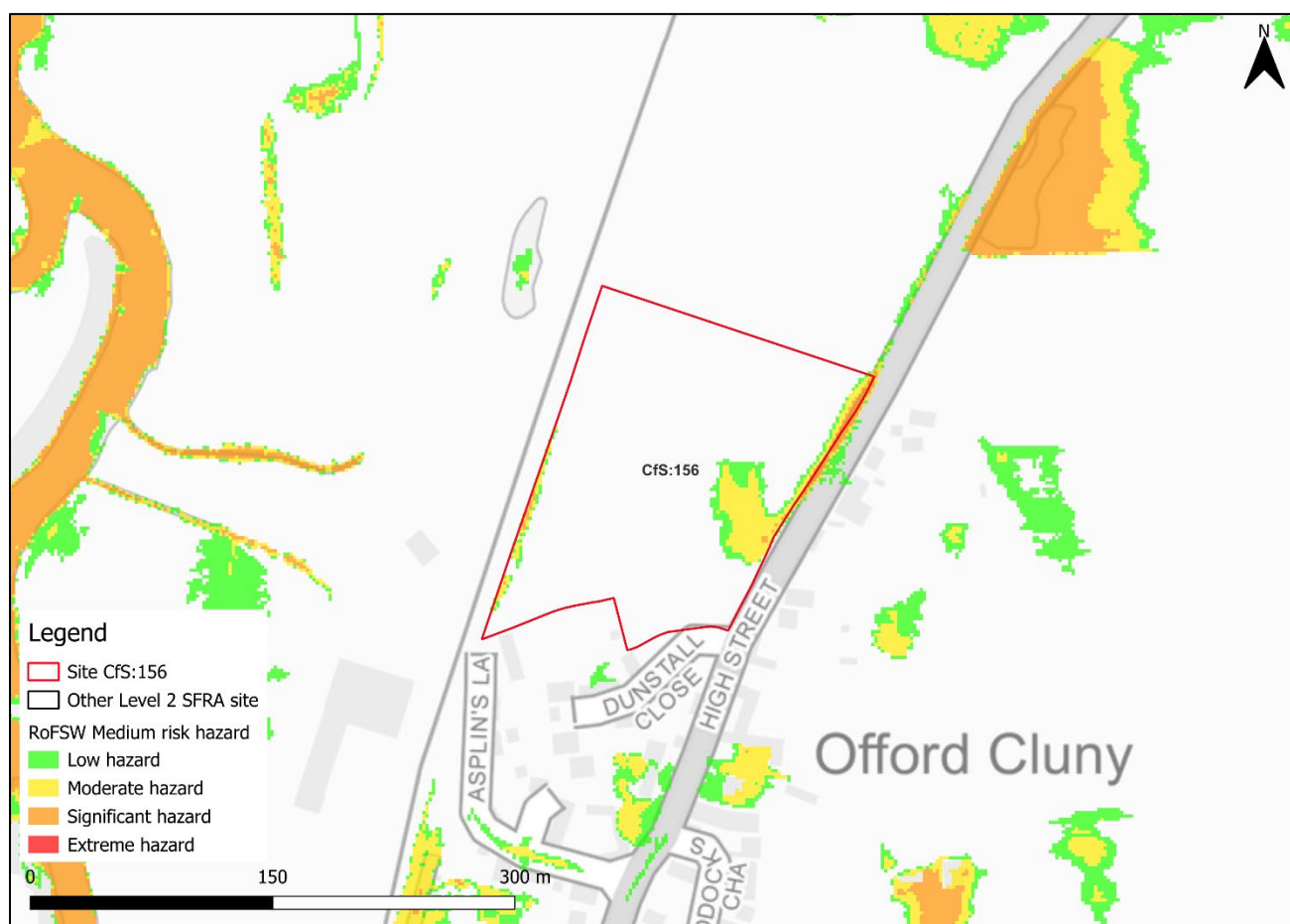


Figure 3-3: Medium risk event surface water flood hazard<sup>2</sup> (Third generation - Risk of Flooding from Surface Water map)

### 3.2 Impacts from climate change

The NaFRA2 RoFSW mapping now includes one modelled climate change scenario, the 2050s central allowance for the high, medium and low risk events. However, the upper end allowance on peak rainfall for the 2070s should be assessed in SFRAs. Therefore, at the time of writing, the available national surface water climate change mapping is unsuitable for consideration in development planning. This Level 2 SFRA considers the low risk surface water event as a conservative proxy for the medium risk event plus climate change, as agreed with the EA. The impact of climate change on surface water flood risk should be fully accounted for at the site-specific FRA stage.

Areas of flooding are predicted along the entire western site boundary, in the east and northeastern site extents and within the centre of the site (Figure 3-4). Larger areas of flooding are predicted to reach depths of 0.30m and 0.60m as well as between 0.60m and 0.90m in the east and west of the site (Figure 3-5). There is also a new area of flooding in the southwest of the site which is predicted to reach depths of between 0.15m and 0.30m.

<sup>2</sup> Based on Section 7.5 Hazard rating. What is the Risk of Flooding from Surface Water map? Report version 2.0. April 2019. Environment Agency

Areas of moderate and significant risk are predicted to increase in size in the east and west of the site (Figure 3-6). There is also a new area of flooding in the southwest of the site which is predicted to be a low hazard.

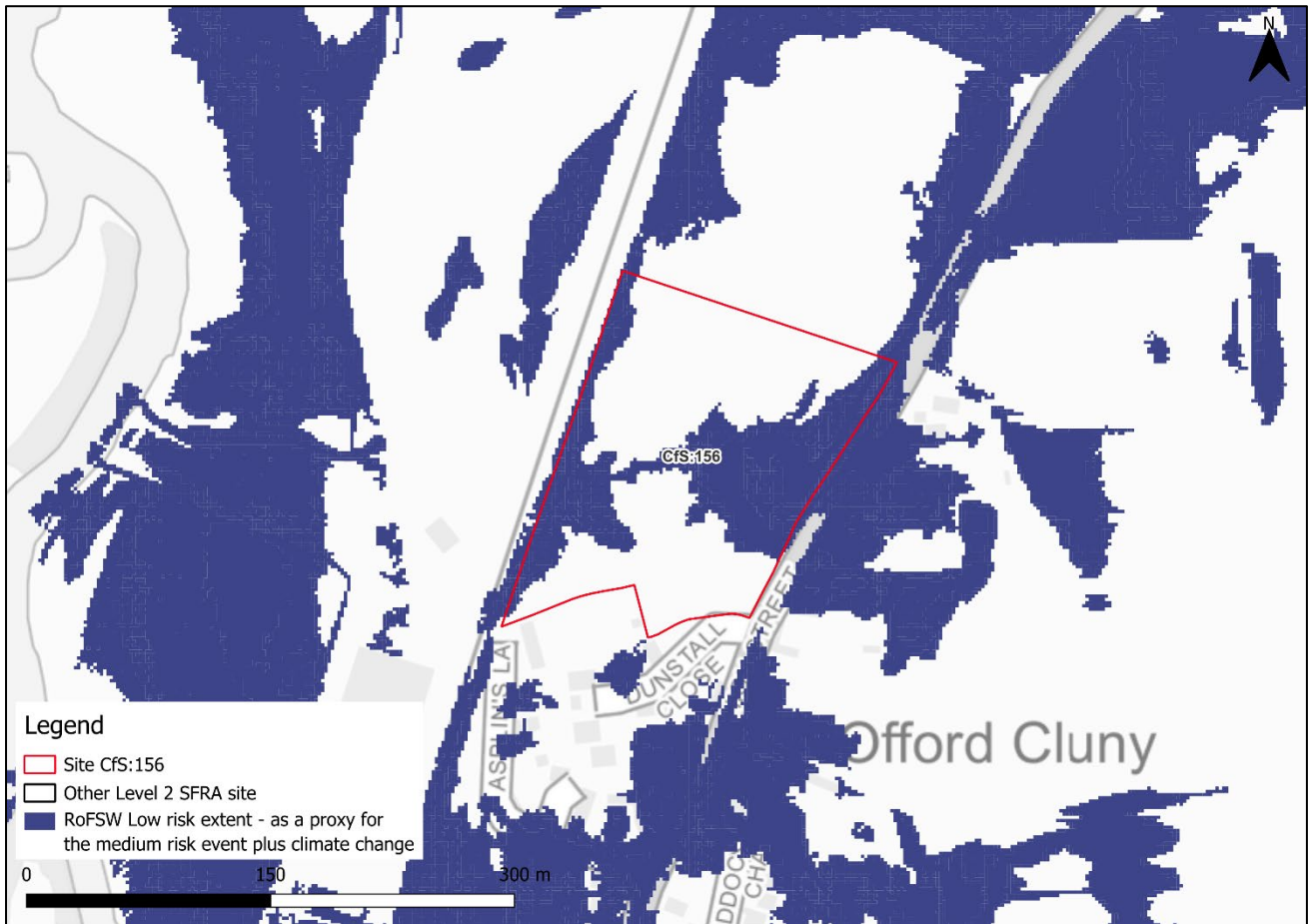


Figure 3-4: Low risk event surface water flood extent, as a proxy for the medium risk event plus climate change (NaFRA2 - Risk of Flooding from Surface Water map)

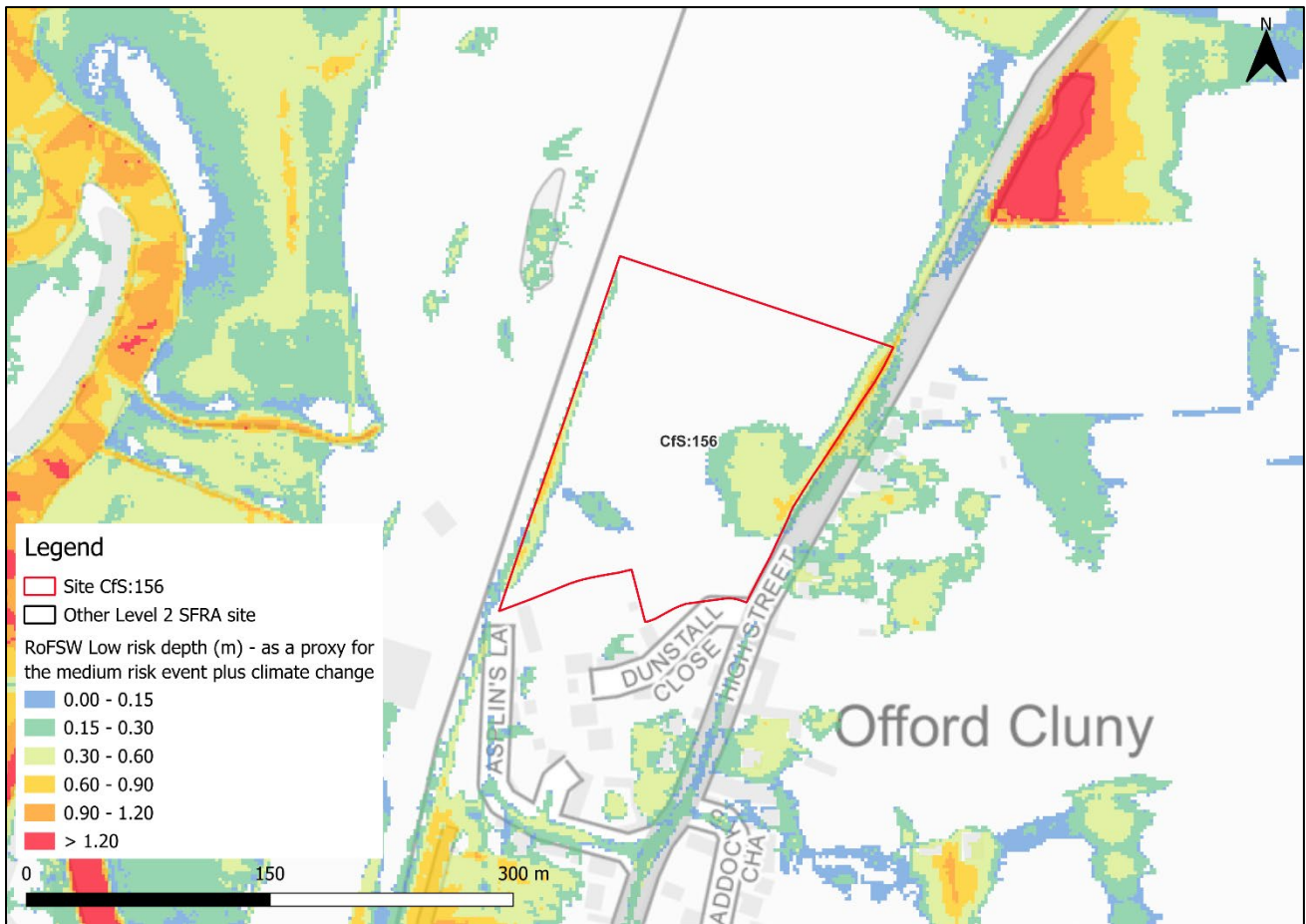


Figure 3-5: Low risk event surface water flood depths, as a proxy for the medium risk event plus climate change (Third generation - Risk of Flooding from Surface Water map)

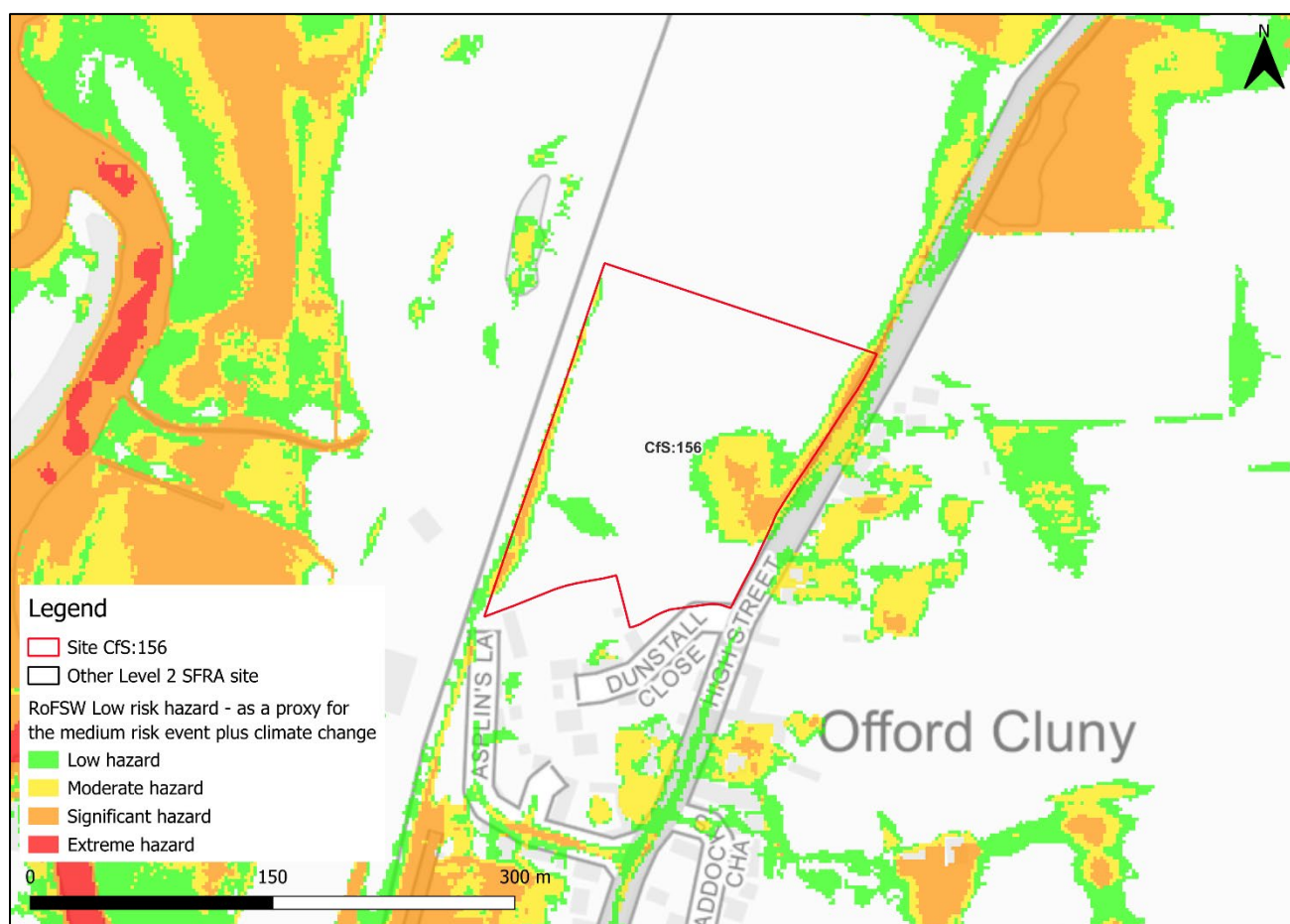


Figure 3-6: Low risk event surface water flood hazard, as a proxy for the medium risk event plus climate change (Third generation - Risk of Flooding from Surface Water map)

### 3.3 Observations, mitigation options, site suitability, sequential approach to development management - surface water

- Current risk to the site is predominantly very low, with 62% of the site being at very low surface water flood risk. Surface water risk in the high and medium risk events is confined to the east and west of the site.
- In the low risk surface water event, there are some additional areas of shallow surface water ponding across the site.
- The effects of climate change on surface water have not been modelled for this SFRA, however the low risk surface water event has been used as a proxy for the medium risk event plus climate change. Risk is largely similar to the high risk event, with a greater extent of ponding away towards the centre of the site.
- The impact of climate change on surface water should be considered further through a site-specific FRA. Any surface water modelling at the FRA stage should consider flood depths and hazards.
- The flow path and ponding onsite should be retained in site design and layout. However, this may impact on access to the High Street. Surface water must be retained onsite with runoff rates restricted to greenfield or betterment should be

aimed for if possible. Plot numbers may be impacted to enable onsite SuDS. The developer should follow the National SuDS guidance and any local guidance available from the LLFA.

- A full detailed drainage strategy would be required to ensure there is no increase in surface water flood risk elsewhere as a result of new development. This may require surface water modelling based on layout plans and detailed design and consultation with the LLFA.
- The RoFSW map is not suitable for identifying whether an individual property will flood and is therefore indicative. The RoFSW map is not appropriate to act as the sole evidence for any specific planning or regulatory decision or assessment of risk in relation to flooding at any scale without further supporting studies, modelling, or evidence.
- The LLFA are concerned that a significant proportion of this small site is at surface water flood risk (nearly 40%). Safe access and egress from the east of the site may not be available via the B1043 as the LLFA are aware of previous repeated flooding to a depth not suitable for vehicles, which has in the past required police road closure. Surface water management for this site is critical to reduce flood risk to neighbouring properties, and this must include the critical culverted land drain which runs across the site west to east, which is not included within the watercourse mapping. The flow path and ponding contribute significantly to flood risk for nearby residential properties. The LLFA recommend further detailed onsite investigation regarding soil types as it is possible this site constitutes 'made up ground' in its present condition. The LLFA should be consulted as early as possible in any proposals.

## 4 Cumulative impacts assessment and high risk catchments

### 4.1 Level 1 cumulative impacts assessment

A cumulative impact assessment was completed through the Huntingdonshire Level 1 SFRA (2024), which aimed to identify catchments sensitive to the cumulative impact of new development. This site is located within one catchment, namely, the River Ouse (Roxton to Earith) catchment. This catchment is ranked as a high sensitivity catchment. Planning considerations for sites at high sensitivity to the cumulative impacts of development can be found in Appendix G of the Level 1 SFRA. Cumulative impacts of development should also be considered as part of a site-specific FRA.

## 5 Groundwater, geology, soils, SuDS suitability

Risk of groundwater emergence is assessed in this SFRA using JBA's 5m Groundwater Emergence Map. This dataset is recommended for use by the EA in the SFRA Good Practice Guide<sup>3</sup>. Figure 5-1 shows the map covering this site and the surrounding areas. Table 5-1 explains the risk classifications.

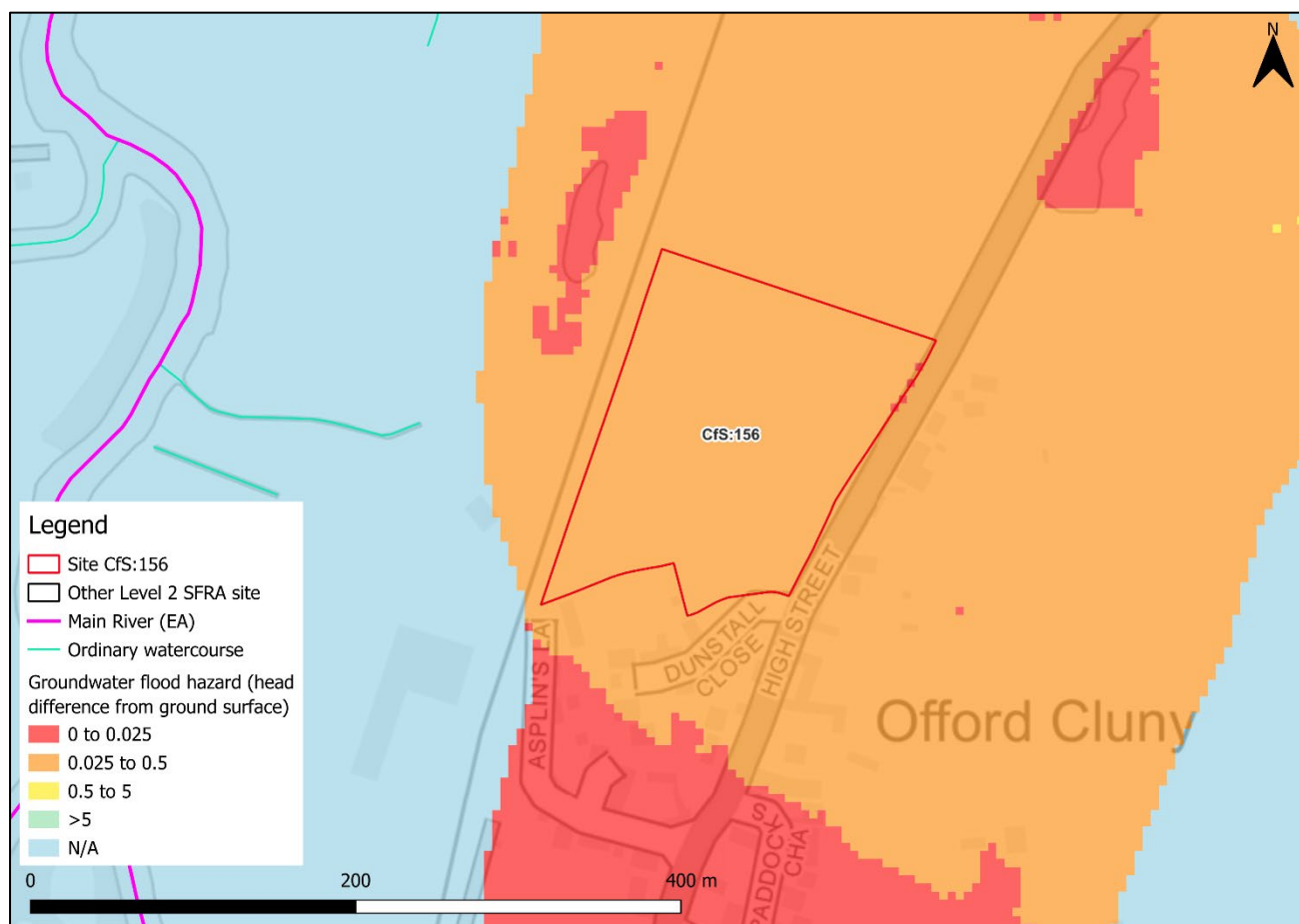


Figure 5-1: JBA 5m Groundwater Emergence Map

The majority of the site is shown to have groundwater levels within 0.025m to 0.5m from the ground surface in the 100-year return period flood event. Infiltration SuDS are therefore unlikely to be appropriate at this site. The site-specific FRA should further investigate groundwater levels through percolation testing in both wet and dry weather conditions across the site.

<sup>3</sup> [Strategic flood risk assessment good practice guide. ADEPT. December 2021.](#)

Table 5-1: Groundwater Hazard Classification

| Groundwater head difference (m)*                                                           | Class label                                                                                                                                                                                                                                                                                                                                                    |
|--------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0 to 0.025                                                                                 | Groundwater levels are either at very near (within 0.025m of) the ground surface in the 100-year return period flood event.<br>Within this zone there is a risk of groundwater flooding to both surface and subsurface assets. Groundwater may emerge at significant rates and has the capacity to flow overland and/or pond within any topographic low spots. |
| 0.025 to 0.5                                                                               | Groundwater levels are between 0.025m and 0.5m below the ground surface in the 100-year return period flood event.<br>Within this zone there is a risk of groundwater flooding to surface and subsurface assets. There is the possibility of groundwater emerging at the surface locally.                                                                      |
| 0.5 to 5                                                                                   | Groundwater levels are between 0.5m and 5m below the ground surface in the 100-year return period flood event<br>There is a risk of flooding to subsurface assets, but surface manifestation of groundwater is unlikely.                                                                                                                                       |
| >5                                                                                         | Groundwater levels are at least 5m below the ground surface in the 100-year return period flood event.<br>Flooding from groundwater is not likely.                                                                                                                                                                                                             |
| N/A                                                                                        | No risk.<br>This zone is deemed as having a negligible risk from groundwater flooding due to the nature of the local geological deposits.                                                                                                                                                                                                                      |
| *Difference is defined as ground surface in mAOD minus modelled groundwater table in mAOD. |                                                                                                                                                                                                                                                                                                                                                                |

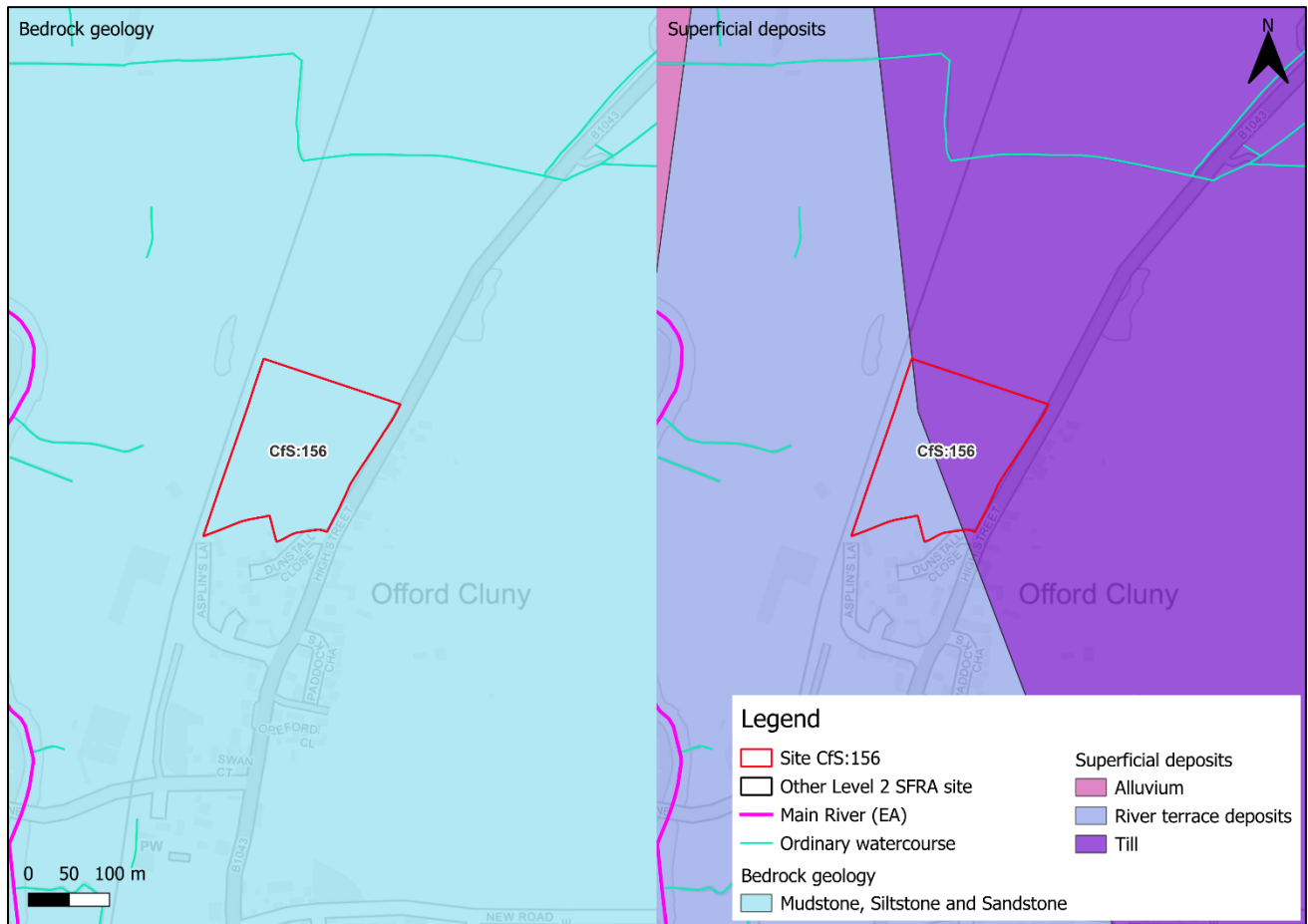


Figure 5-2: Soils and geology

## 6 Residual risk

Current information shows that there is a residual risk to the site from reservoir or dam failure.

### 6.1 Potential blockage / breach

The site is not shown to be at a residual risk from a potential breach or blockage.

### 6.2 Flood risk from reservoirs

The EA's Reservoir Flood Maps (RFM) (2021) show where water may go in the unlikely event of a reservoir or dam failure. Figure 6-1 shows the RFM in a 'dry day' and 'wet day' scenario. A 'dry day' scenario assumes that the water level in the reservoir is the same as the spillway level or the underside of the roof for a service reservoir and the watercourses upstream and downstream of the reservoir are at a normal level. A 'wet day' scenario assumes a worst-case scenario where a reservoir releases water held on a 'wet day' when local rivers have already overflowed their banks.

The site is potentially at risk from Grafham Water. Grafham Water is located within the Cambridgeshire LLFA and the undertaker of the reservoir is Anglian Water Services Ltd.

The EA's SFRA guidance states that where a proposed development site is shown to be at potential risk from reservoir failure, then an assessment into whether the reservoir design or maintenance schedule needs improving should be carried out. Expert advice may be required from an all-reservoirs panel engineer. The Council should consult Anglian Water to ascertain whether the proposed development could affect the reservoir's risk designation, its design category or how it is operated. The Council, as category 1 responders, can access more detailed information about reservoir risk and reservoir owners using the [Resilience Direct](#) system.

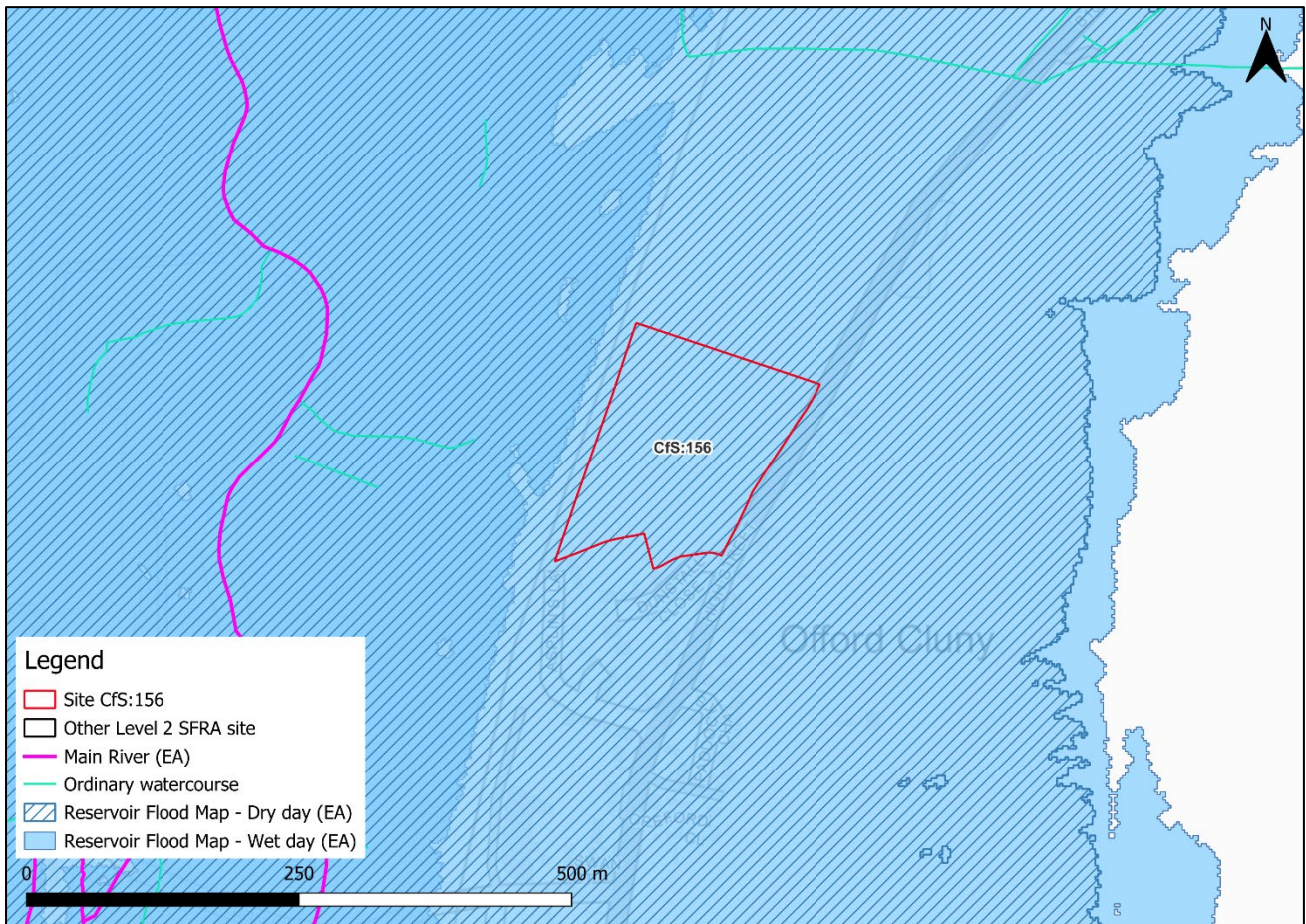


Figure 6-1: EA Reservoir Flood Map

## 7 Overall site assessment

### 7.1 Can part b) of the exception test be passed?

This site is not required to pass part b) of the exception test as it is not located within Flood Zone 3a, however it must still be proven that the development can be safe for its lifetime, which is 100 years for residential development.

### 7.2 Recommendations summary

Based on the evidence presented in the Level 1 SFRA (2024) and this Level 2 SFRA:

- It should be appropriate to develop this site for more vulnerable purposes given its location within Flood Zone 1.
- However, a detailed drainage strategy will be required for any new development due to surface water conditions and potential significant groundwater emergence risk.
- Ideally, existing topographic flow paths and depressions will be retained onsite. Any regrading of land must ensure surface water is retained onsite.
- Groundwater conditions must be investigated further, and the use of SuDS should be investigated.
- Opportunities for NFM features to reduce flood risk to the site and surrounding areas should be explored at the site-specific FRA stage.
- Consultation with the reservoir owner is required on any new development.
- Safe access and escape routes should be considered further to ensure safe evacuation of site users during a flood event.

### 7.3 Site-specific FRA requirements and further work

At the planning application stage, the following should be considered:

- Investigation into groundwater conditions and the production of a detailed drainage strategy.
- Detailed consideration of surface water flood risk through the drainage strategy. Discharge rates should remain at greenfield rates at a minimum.
- FRA should be carried out in line with the latest versions of the NPPF; FRCC-PPG; EA online guidance; the HDC Local Plan, and national and local SuDS policy and guidelines.
- Throughout the FRA process, consultation should be carried out with, where applicable, the local planning authority; the lead local flood authority; emergency planning officers; the Environment Agency; Anglian Water; the highways authorities; and the emergency services.

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