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Huntingdonshire Level 2 Strategic Flood Risk Assessment Site Summary

Site CfS:348

Final Draft Report

Prepared for

Huntingdonshire District Council

Date

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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.

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:348. 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:348

- Location: Sibson Garden Community
- Existing site use: Mostly agricultural with a flying school in the southwest and residential farmhouse in the north. The site is divided into two sections with the northern extent of the site being separated from the rest of the site by the A1. The A1 is not situated with the site boundary. Existing unnamed access roads in the north and west of the site.
- Existing site use vulnerability: More vulnerable
- Proposed site use: Mixed use
- Proposed site use vulnerability: More vulnerable
- Site area (ha): 263.24
- Watercourse: Multiple unnamed and unmodelled ordinary watercourses which are tributaries to the River Nene (EA Main River) which runs adjacent to the northeast site boundary.
- Environment Agency (EA) model: N/A
- 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

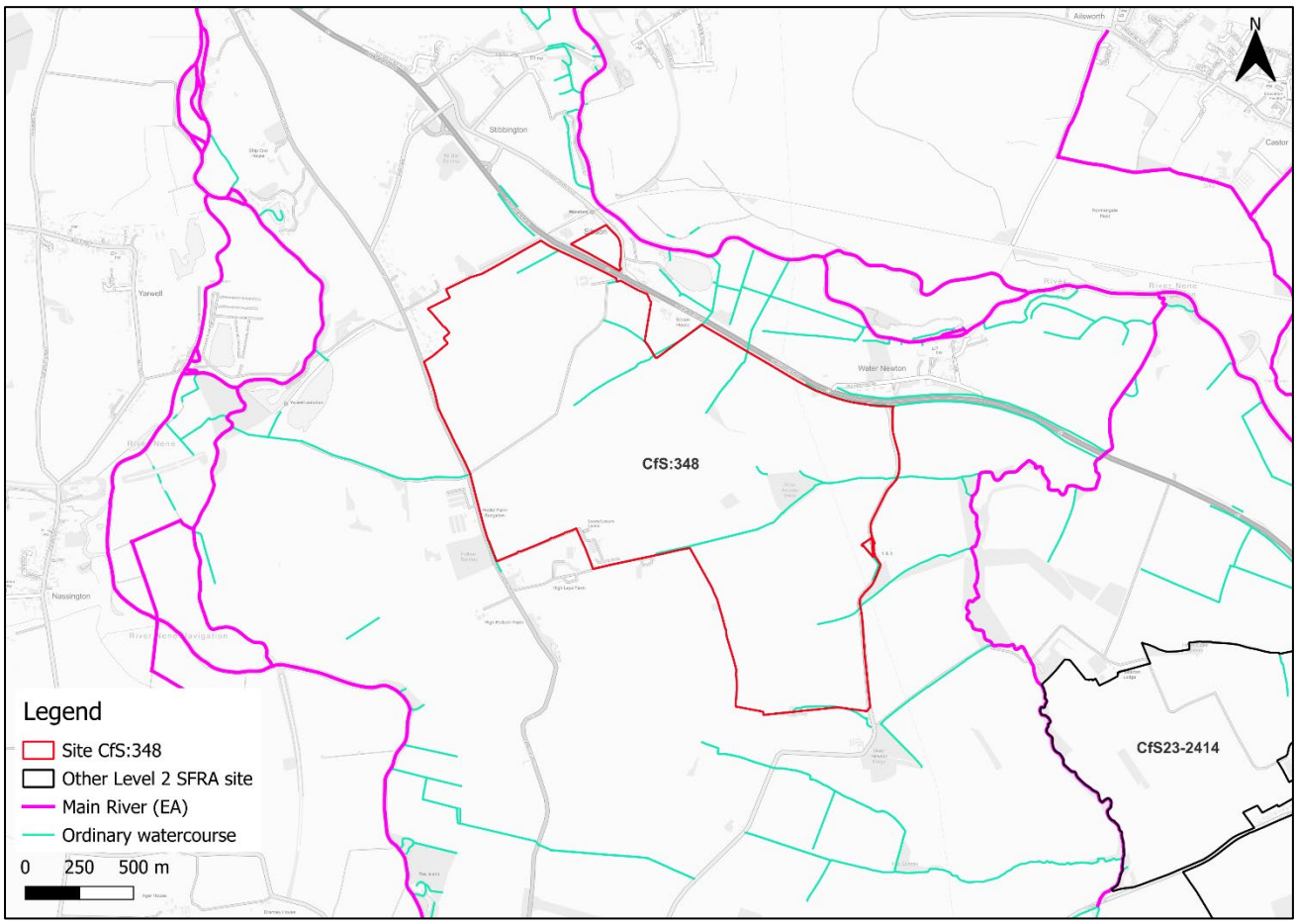

Figure 1-1: Existing site location boundary

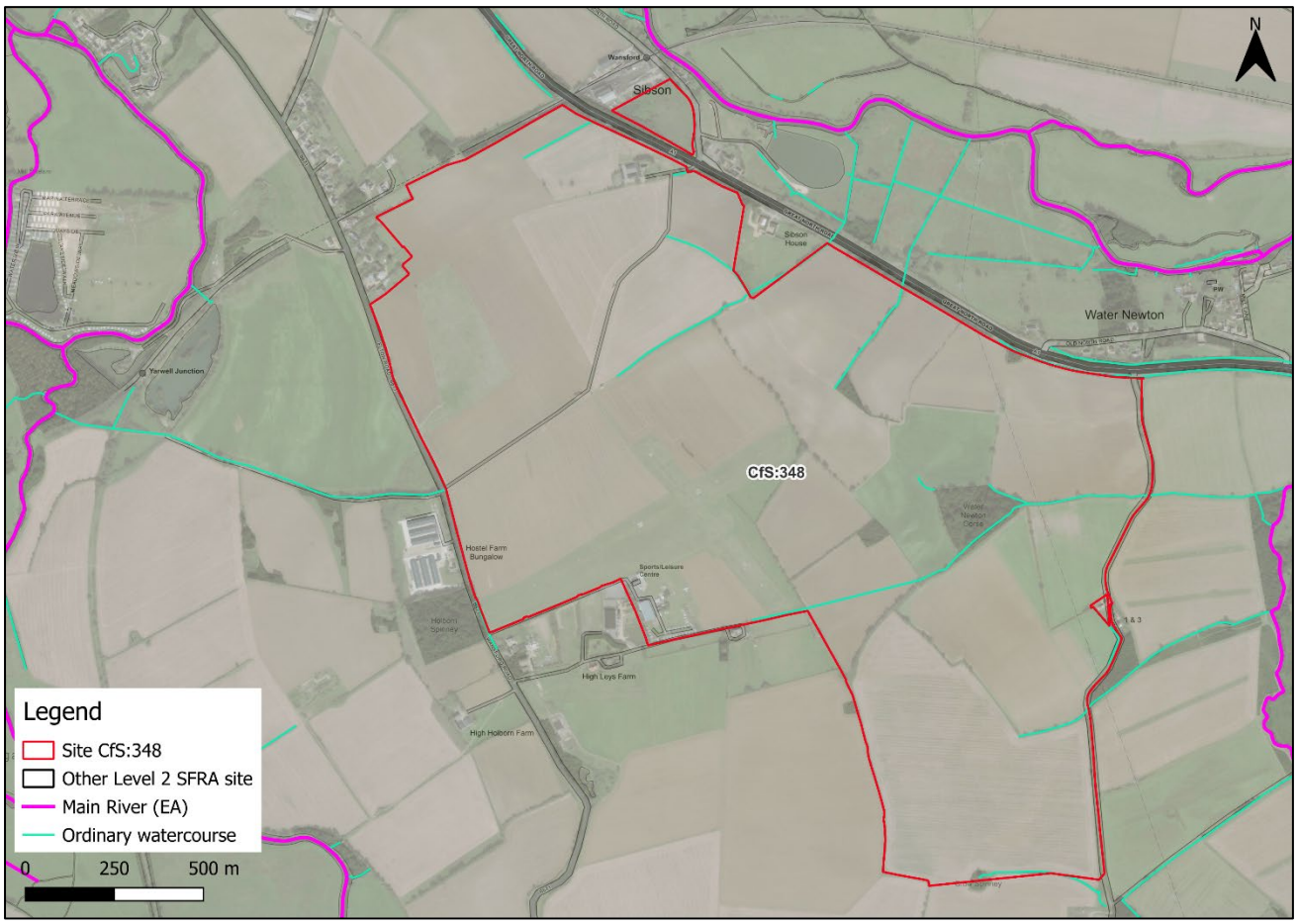

Figure 1-2: Aerial photography

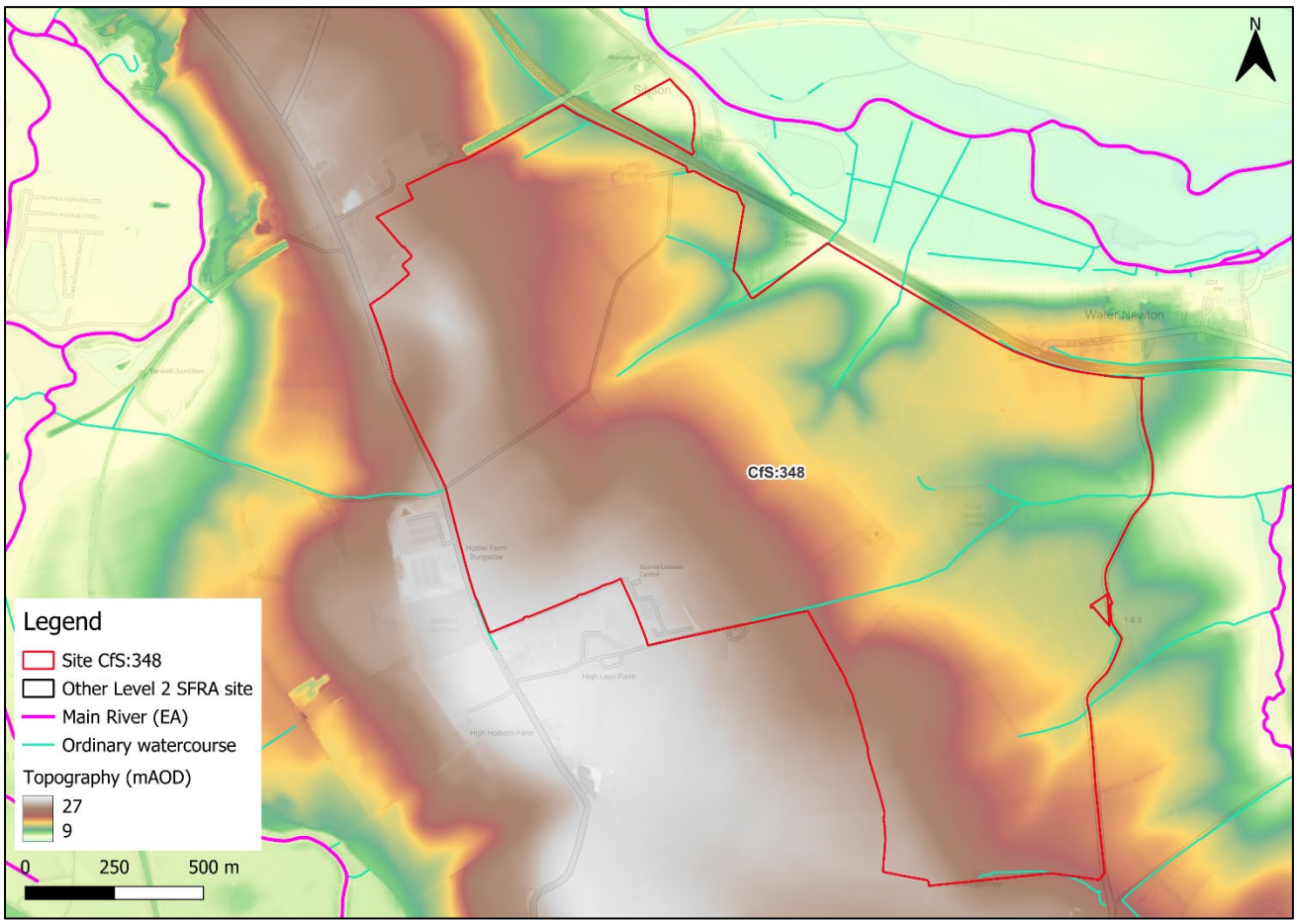

Figure 1-3: Topography

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) or the impacts of climate change (Section 2.3).

The whole site is modelled to be within Flood Zone 1 indicating it is at low risk of flooding from rivers and the sea.

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

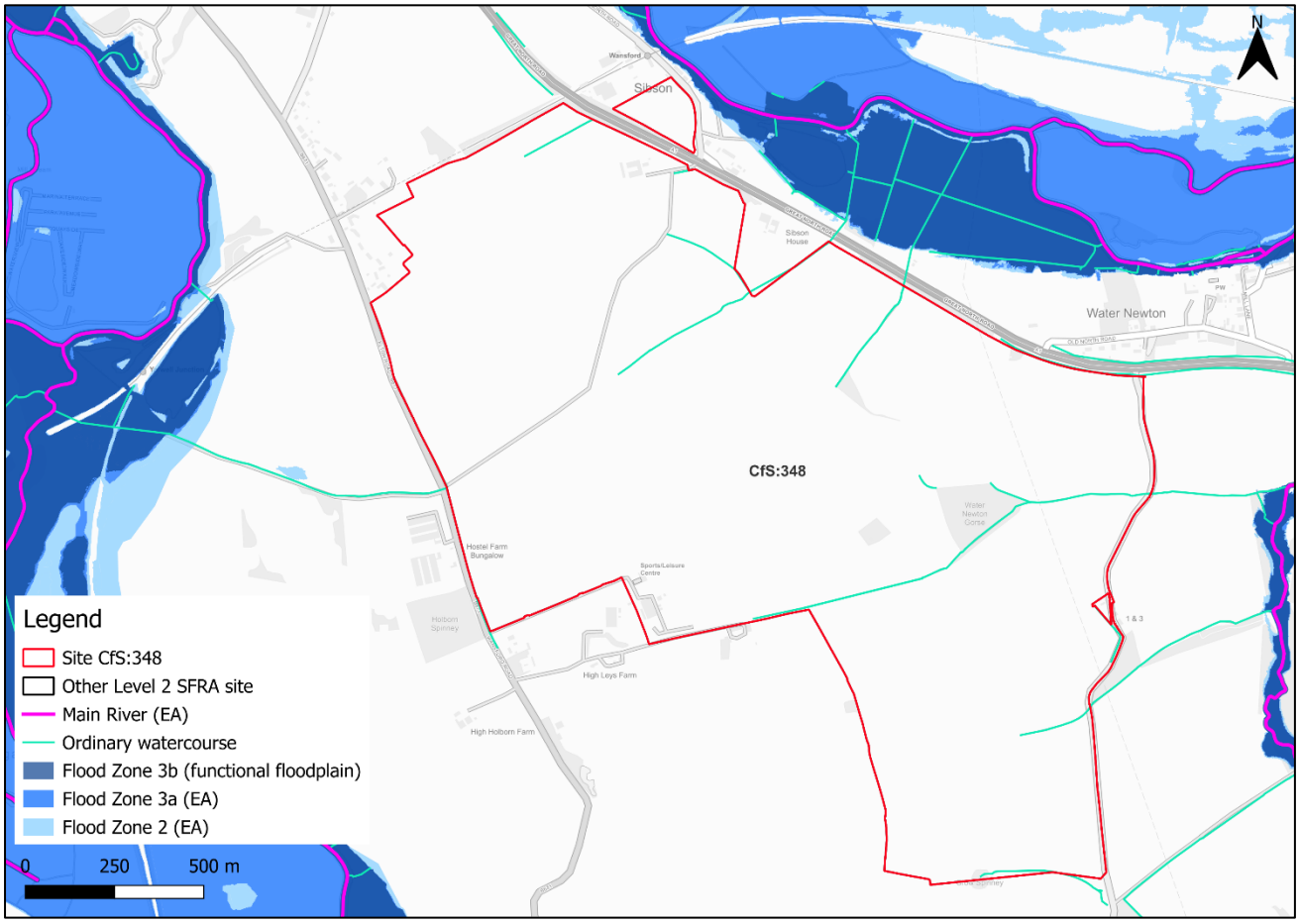

Figure 2-1: Existing risk

2.2 Flood risk management

2.2.1 Flood defences

The site does not 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 2-2. Note, the WwNP mapping is broadscale and indicative, therefore further investigation will be required for any land shown to have potential for WwNP. Both within and upstream of the site, there is some potential for tree planting along ordinary watercourses and within the floodplains to reduce runoff.

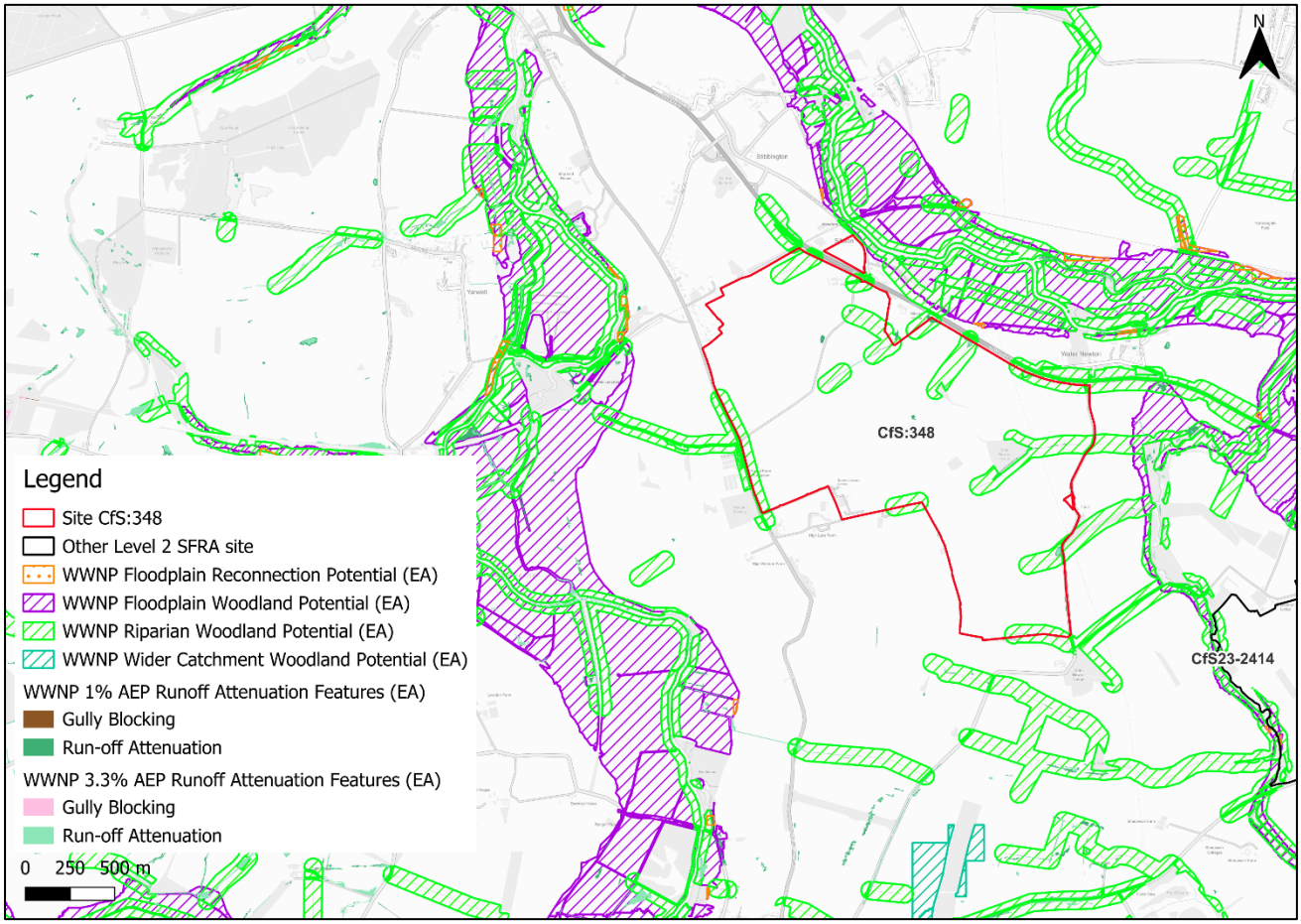

Figure 2-2: Natural Flood Management (NFM) potential mapping

2.3 Impacts from climate change

2.3.1 Fluvial

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

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 2-3 which shows a historic flood event adjacent to the northeast site boundary. This event occurred in March 1947, and the source of flooding was from the River Nene. It is reported that the flooding occurred due to an operational failure/breach of a defence.

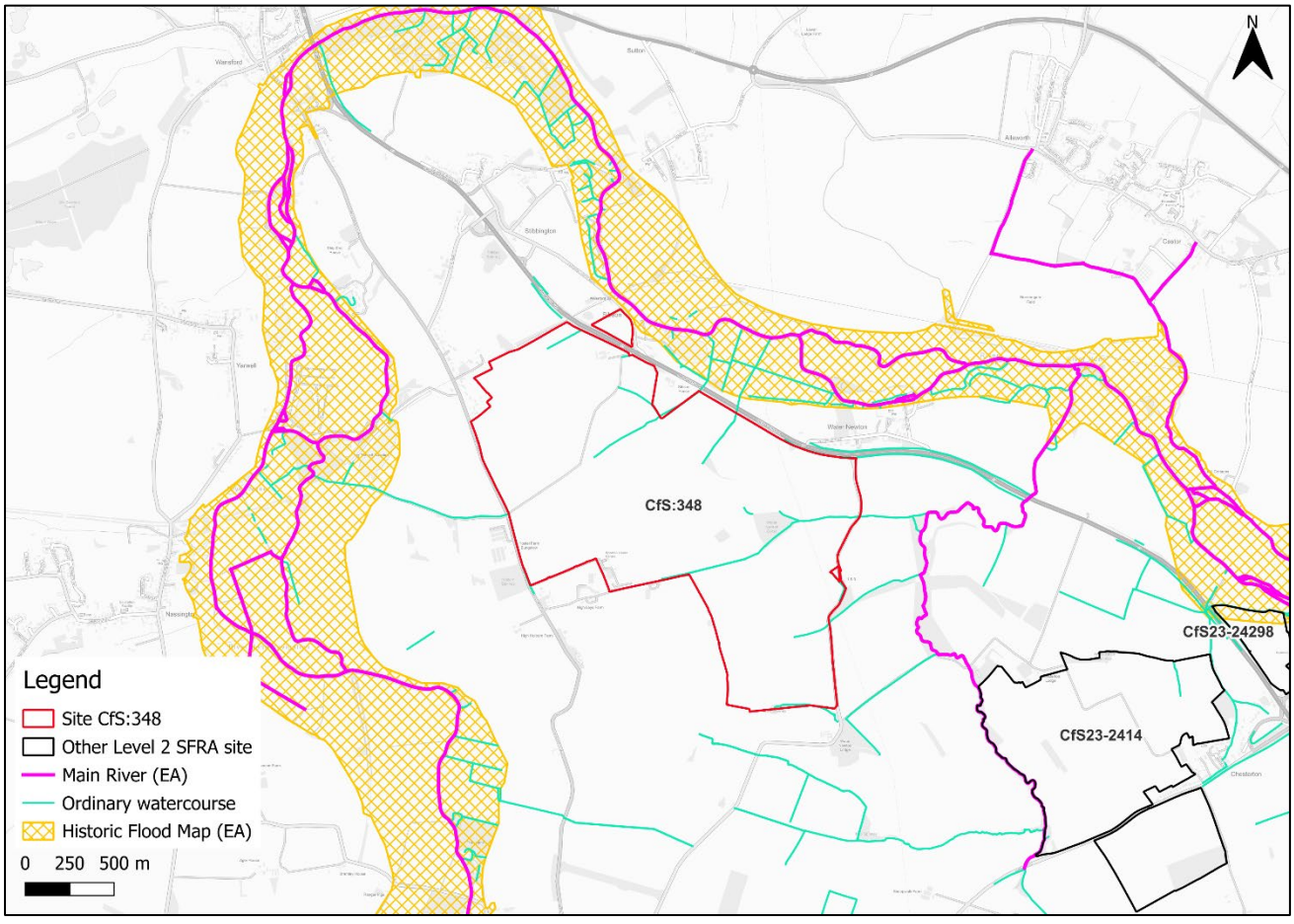

Figure 2-3: Recorded historic flood events onsite and around the site

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. The site is not located within a FAA.

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 Elton Gated Road to the south, the B671 (option to access via two unnamed roads) to the west, the A1 to the northeast (option to access via unnamed access road) and Elton Road to the east.

The section of the site which is separated by the A1 could be accessed/escaped via Old Great North Road in the east or the A1 to the southwest.

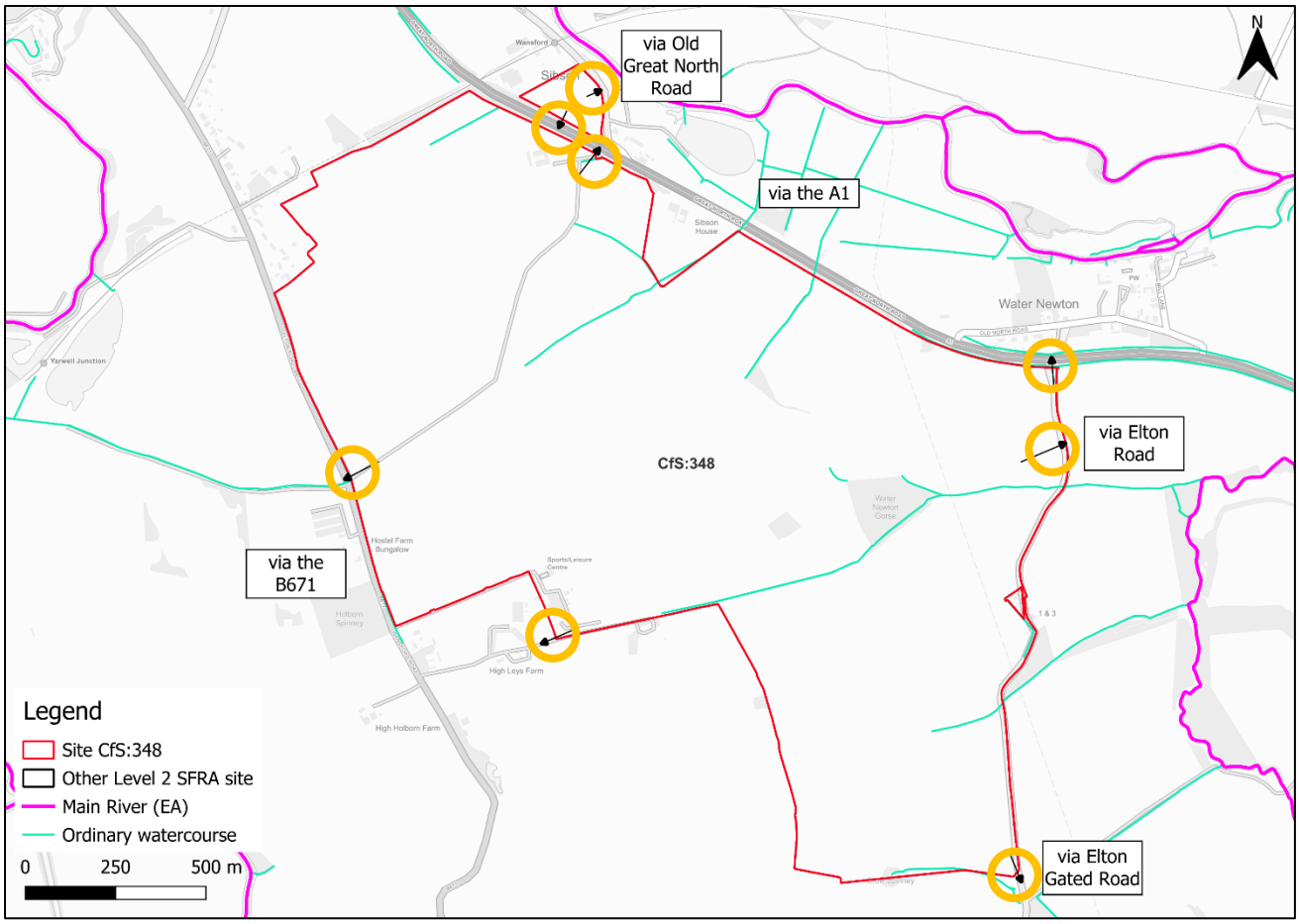

Figure 2-4: Potential access and escape routes

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

- Observations:
  - The site is wholly within Flood Zone 1 and not shown to be at any additional risk from climate change.
  - The extent of fluvial risk from the unmodelled watercourses on and around the site is currently unknown. Using the 0.1% AEP surface water event as a proxy, risk is modelled to remain largely confined to the channels and the northeast of the site where the watercourses are culverted underneath the A1.
- Mitigation:
  - The site-specific FRA should risk from the ordinary watercourses to understand any potential fluvial risk.
  - The ordinary watercourses should be included within the site design and layout. Infilling of drainage ditches should be avoided.
  - If works are proposed on or near a watercourse, a separate permission may be required. The type of permission needed and whether it must be sought from the Environment Agency, Lead Local Flood Authority or Internal Drainage Board will depend on the activity and location proposed.
  - Were development of this site to proceed, given the large area of the site and its proximity to neighbouring sites CfS-2414 and CfS23-2498, it would be prudent to formulate a strategy to develop these sites in tandem and for consultation between each developer to take place to ensure a joined-up approach for sustainable development is in place.
- Access and escape:
  - Safe access and escape routes must be available at times of flood and appear to be available from the south, east, northeast and west of the site, via Elton Gated Road, Elton Road, the A1 and the B671.
  - The section of the site which is separated by the A1 could be accessed/escaped via Old Great North Road in the east or the A1 to the southwest.

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, surface water risk to the site is predominantly very low. Approximately 1% of the site is at high surface water risk. A further 1% is at medium surface water risk and 1% at low surface water risk. risk is modelled to remain largely confined to the northeast of the site where the watercourses are culverted underneath the A1. There are isolated areas of risk which follow the ordinary watercourses as well as nominal areas of ponding throughout the site.

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)
97	1	1	1

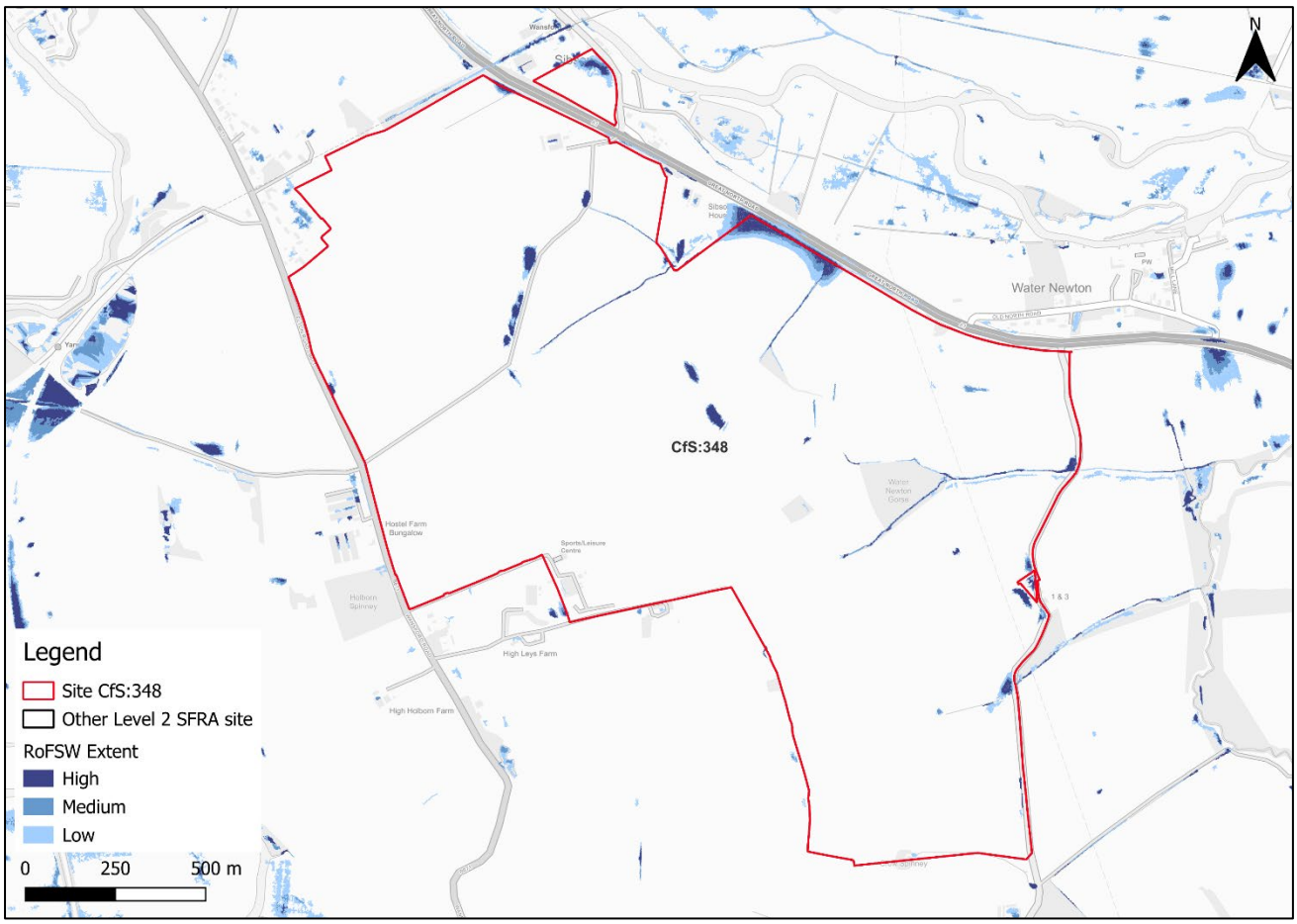

Figure 3-1: Surface water flood extents (NaFRA2 - Risk of Flooding from Surface Water map)

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

The EA's national scale third generation RoFSW map shows a reduction in surface water risk compared to NaFRA2, therefore the depth and hazard mapping may not be fully representative of potential risk. This reinforces the requirement for more detailed assessment of surface water at the FRA stage.

Some nominal areas of ponding are present which are predicted to remain below 0.60m in depth (Figure 3-2) and be a low or moderate hazard (Figure 3-3). Areas of predicted flooding where the ordinary watercourses are culverted underneath the A1 are predicted to reach depths of up to 0.90m and be a significant hazard.

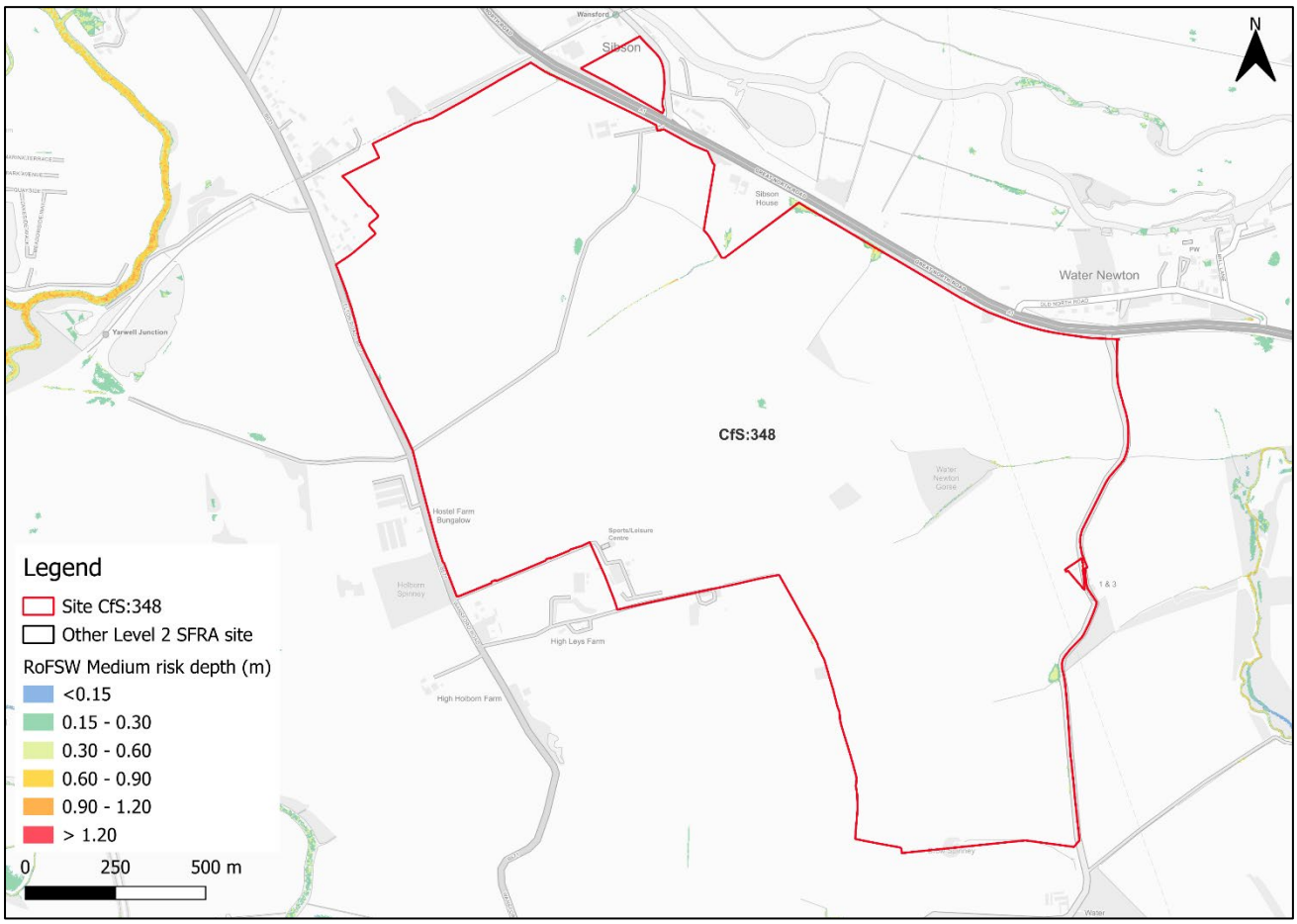

Figure 3-2: Medium risk event surface water flood depths (Third generation - Risk of Flooding from Surface Water map)

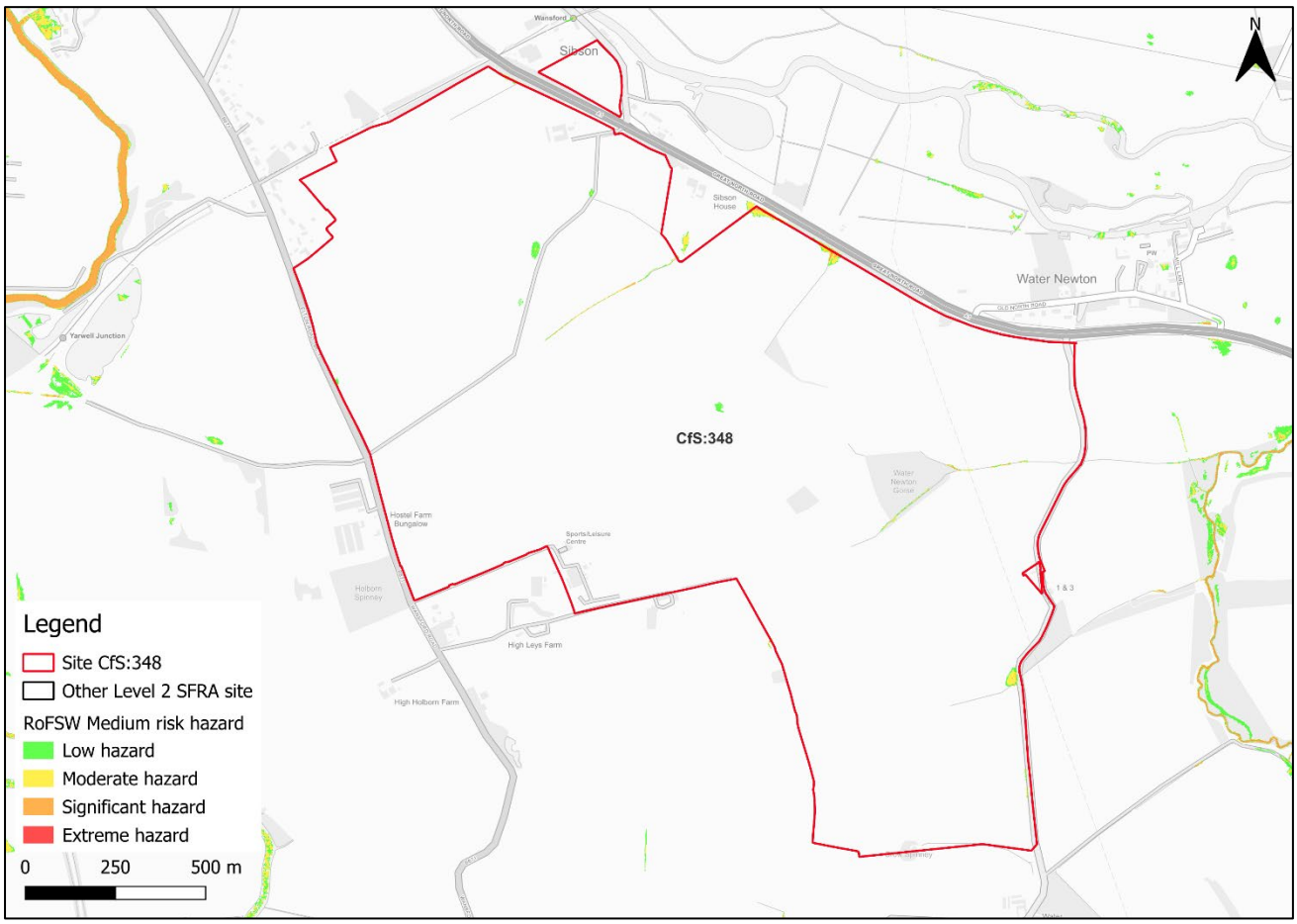

Figure 3-3: Medium risk event surface water flood hazard[1] (Third generation - Risk of Flooding from Surface Water map)

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.

Based on the information available, it is predicted that the existing areas of risk will increase in size. The area of flooding predicted at the culverts underneath the A1 is predicted to 1.2m in depth and be predominantly a significant hazard. The other nominal areas of ponding are predicted to still predominantly remain below 0.60m with one are on the north predicted to reach up to 0.90m in depth.

1 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

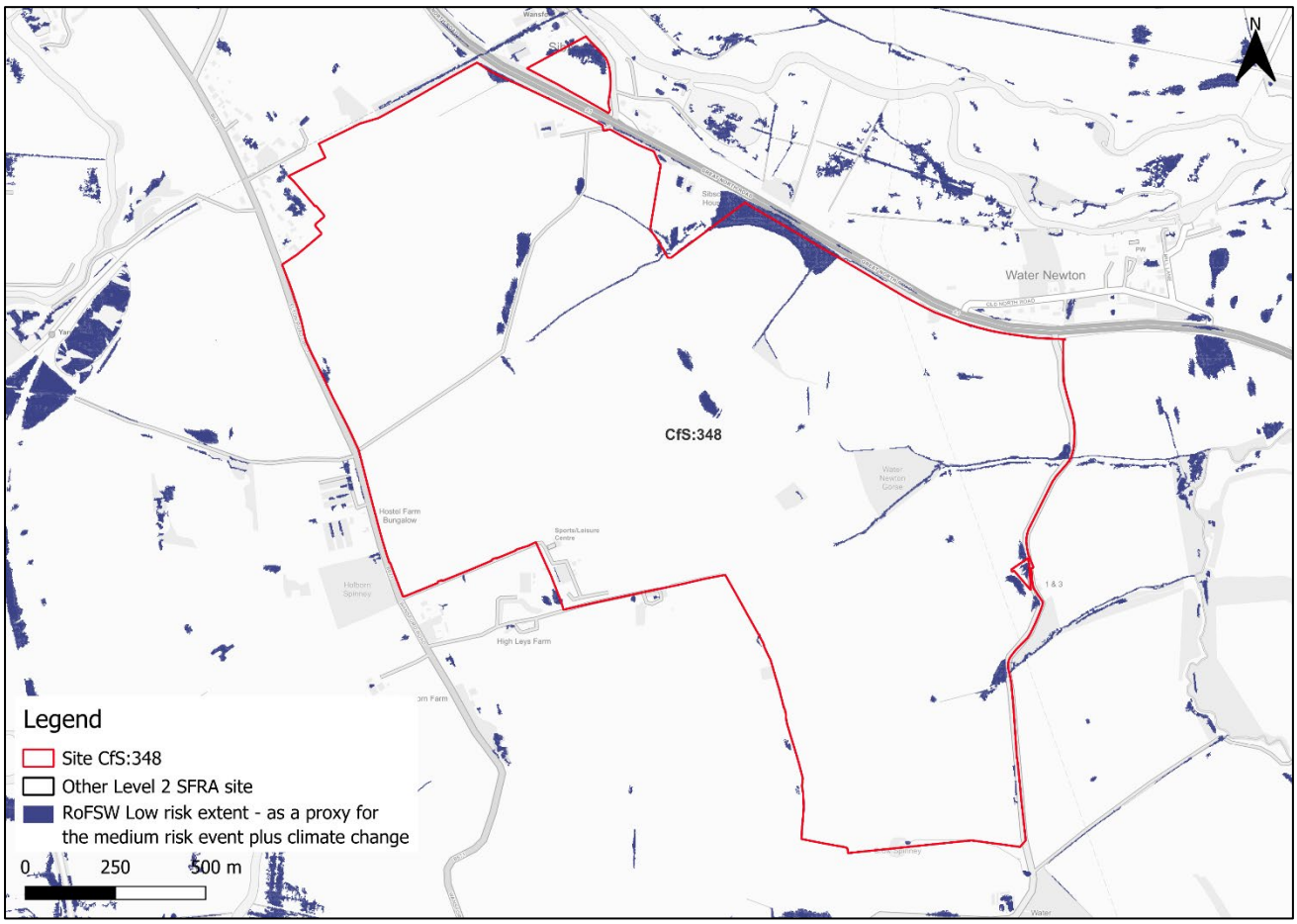

Figure 3-4: Low risk event surface water flood extent, as a proxy for the medium risk event plus climate change (NaFRA2 - Risk of Flooding from Surface Water map)

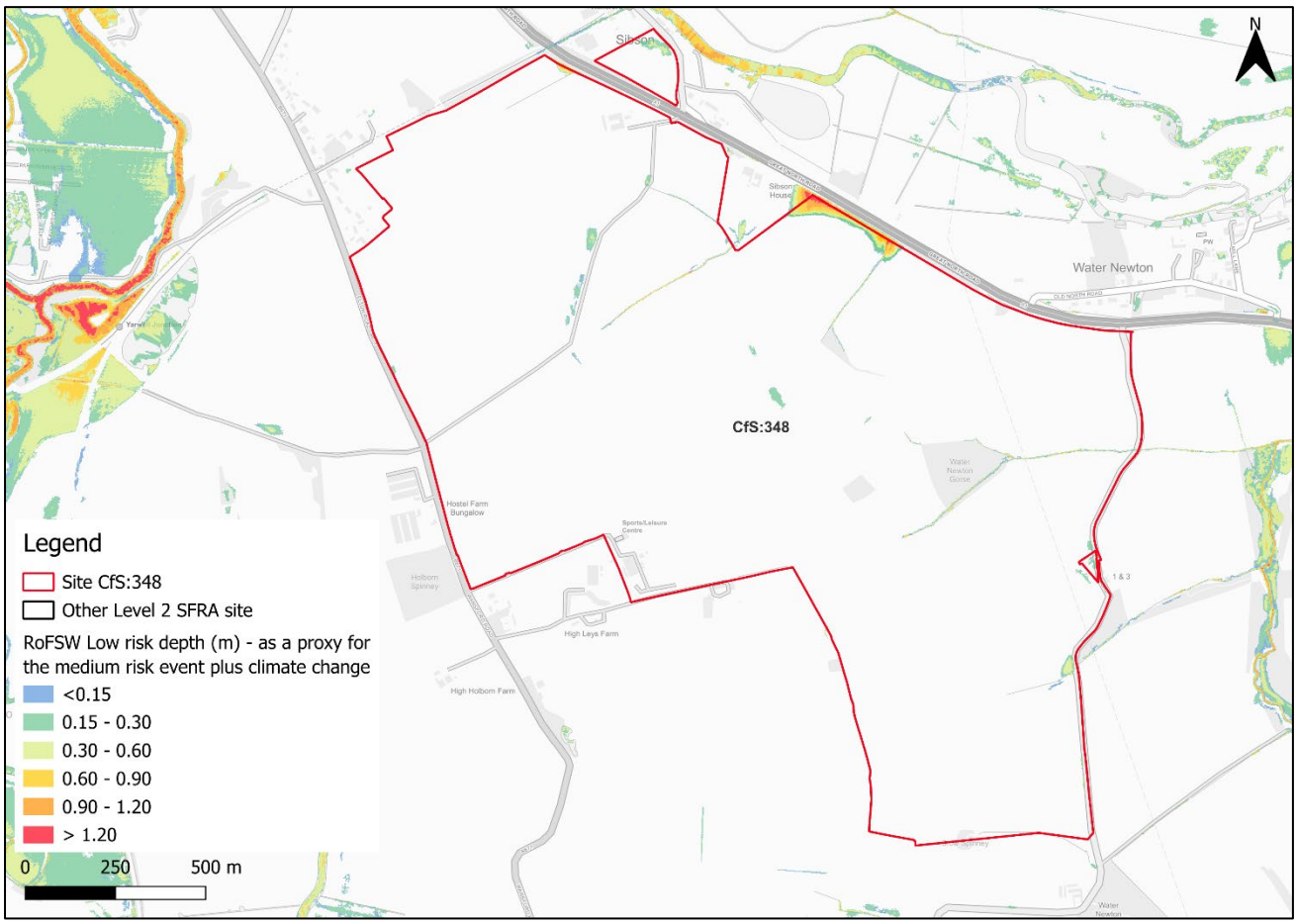

Figure 3-5: Low risk event surface water flood depths, as a proxy for the medium risk event plus climate change (Third generation - Risk of Flooding from Surface Water map)

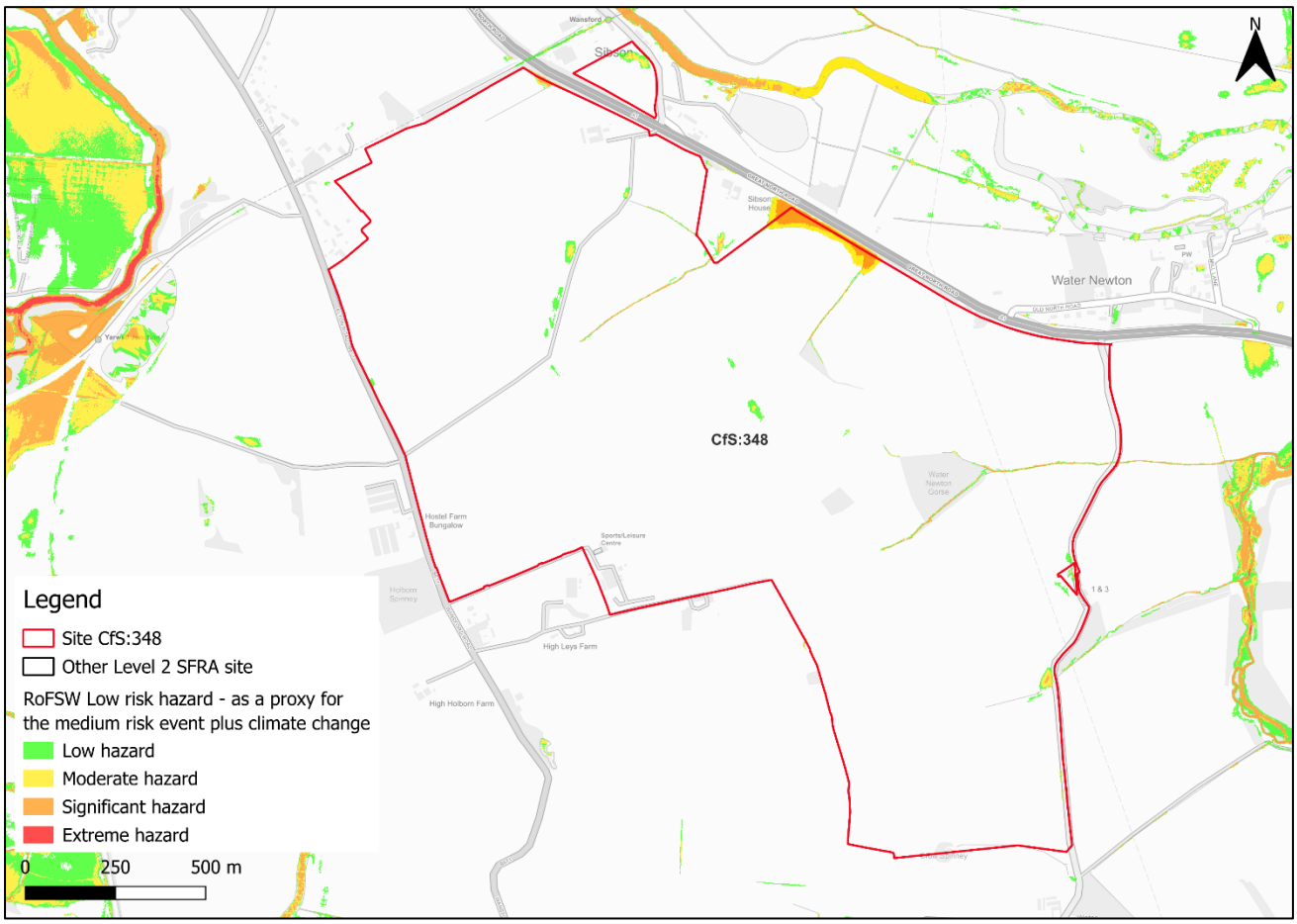

Figure 3-6: Low risk event surface water flood hazard, as a proxy for the medium risk event plus climate change (Third generation - Risk of Flooding from Surface Water map)

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

- Current risk to the site is predominantly very low, with 97% of the site being at very low surface water flood risk. Surface water risk in the high and medium risk events is predominantly confined to the northeast of the site where the watercourses are culverted underneath the A1.
- 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 medium risk event, with a greater extent of ponding.
- Surface water flood depths, hazards, including for the impact of climate change should be considered further through the site-specific FRA and drainage strategy. Any surface water modelling at the FRA stage should consider flood depths and hazards.
- The drainage strategy must ensure there is no increase in surface water flood risk elsewhere as a result of new development. Greenfield rates will apply, and the developer should follow the National SuDS guidance and any local guidance available from the LLFA.

- The main area of risk at the ordinary watercourses in the northeast should be left free of development and included in site design and layout.
- Safe access and escape appear to be possible when accounting for climate change.
- 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.

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 two catchments, namely, the Nene - Islip to tidal catchment and the Billing Brook catchment. These catchments are ranked as low sensitivity catchments. Planning considerations for sites at low 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[2]. Figure 5-1 shows the map covering this site and the surrounding areas. Table 5-1 explains the risk classifications.

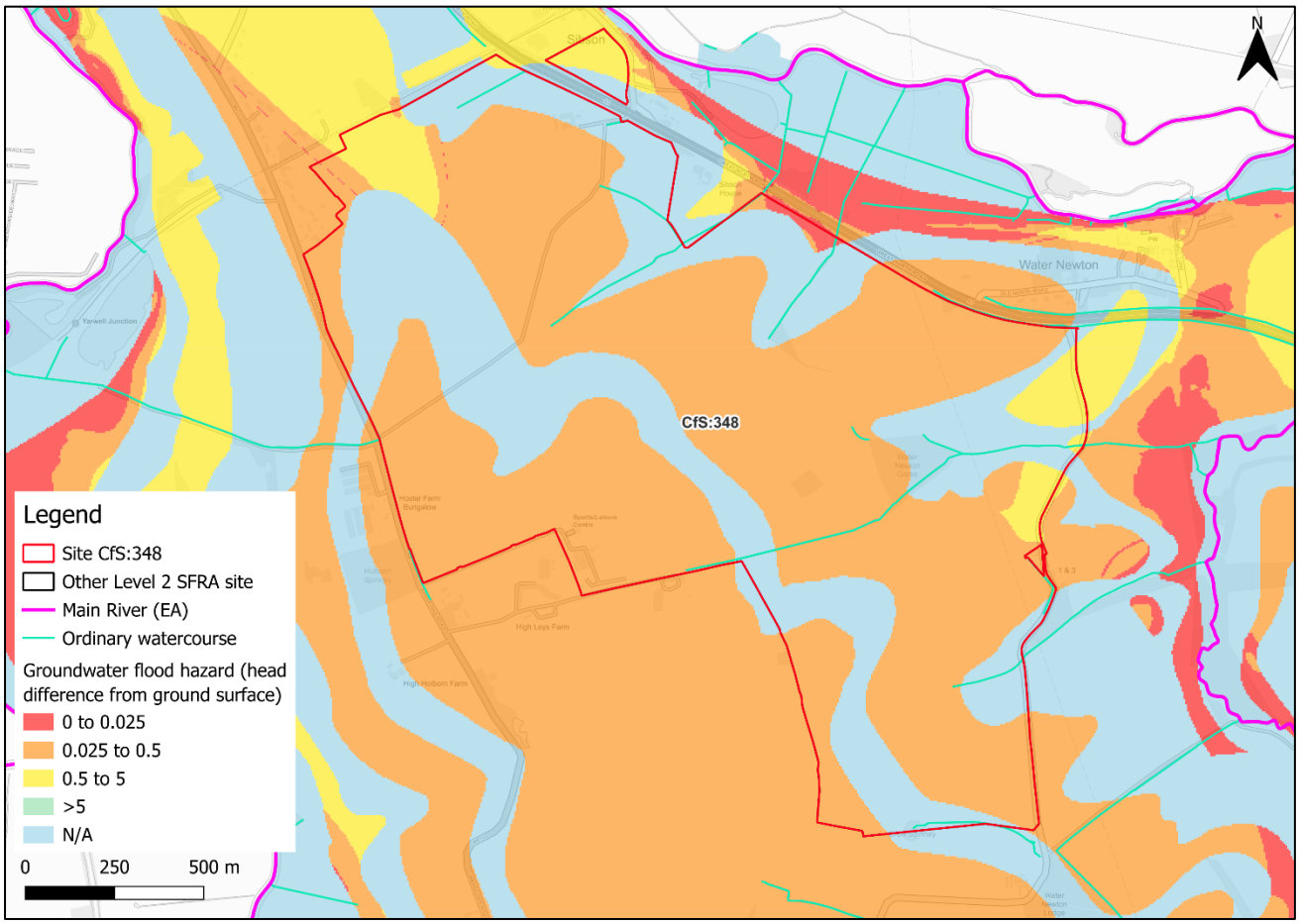

Figure 5-1: JBA 5m Groundwater Emergence Map

The majority of the site is shown to have groundwater levels between 0.025m and 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.

2 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. 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. 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 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. Flooding from groundwater is not likely.
N/A	No risk. 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.	

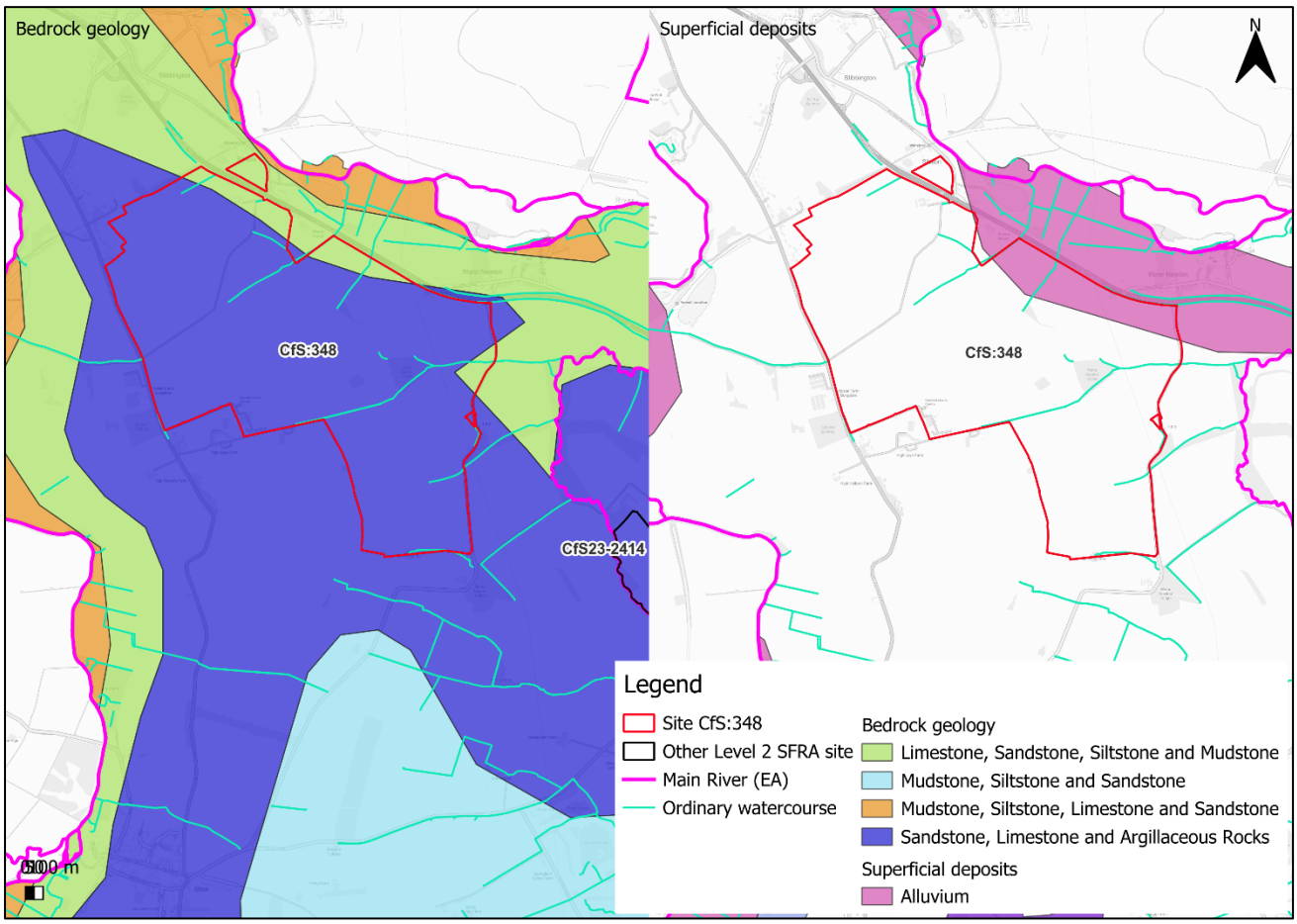

Figure 5-2: Soils and geology

6 Residual risk

Although a site may be afforded some protection from defences and / or drainage infrastructure, there is always a residual risk of flooding from asset failure i.e. breaching / overtopping of flood defences, blockages of culverts or drainage assets.

Residual risk at this site comes from the potential blockage of culvert structures beneath the A1 and Elton Road.

6.1 Potential blockage / breach

Potential blockages of the culverts underneath the A1 and Elton Road may cause flooding to the site, depending on the severity of the blockage and the magnitude of the flood event. Such a scenario should be investigated at the FRA stage. Culvert course and condition surveys may be required, including for consultation with the culvert owner.

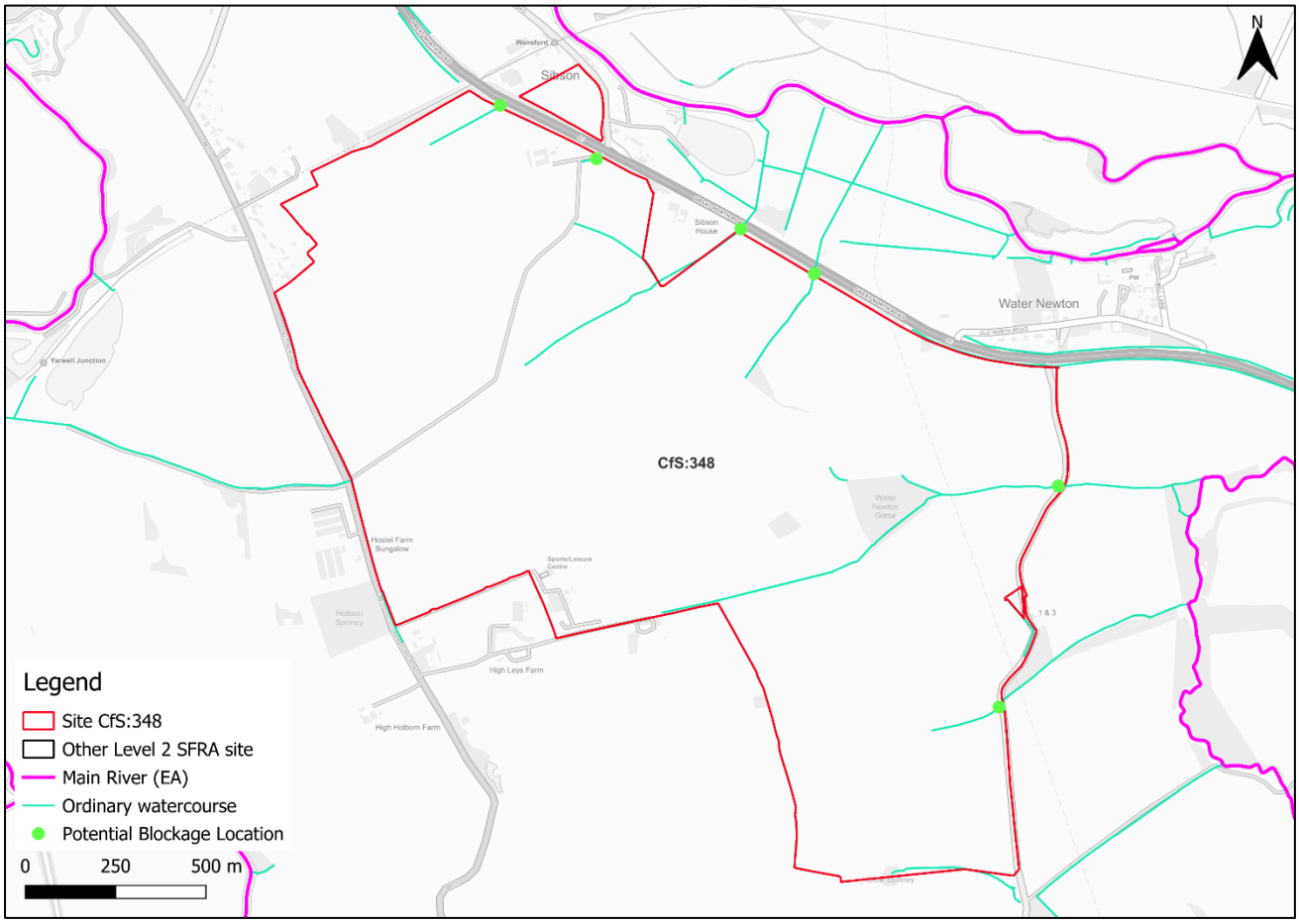

Figure 6-1: Potential blockage / breach locations

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 6-2 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 not modelled to be at risk from reservoir flooding.

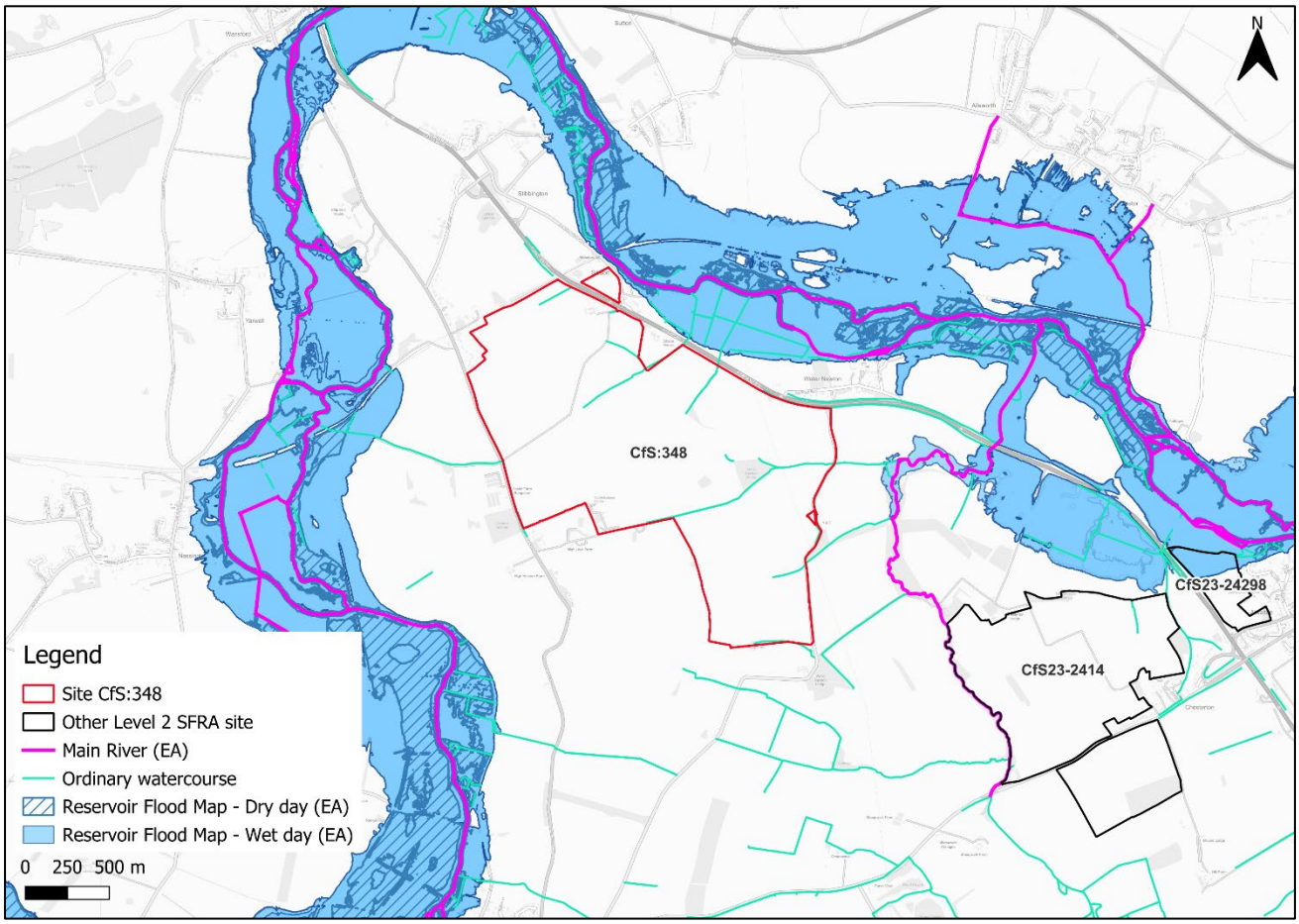

Figure 6-2: EA Reservoir Flood Map

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 and nominal surface water flood risk.
- Risk from the ordinary watercourses should be investigated at the FRA stage. Modelling may be required.
- Surface water flood risk is inconclusive between datasets. A drainage strategy should therefore investigate risk further.
- A detailed drainage strategy will be required for any new development, given the large area of the site and the fact it is currently greenfield.
- The ordinary watercourses should be included within the site design and layout. Infilling of drainage ditches should be avoided.
- There is potential residual risk to the site from a blockage of the culverts beneath the A1 and Elton Road.
- Groundwater conditions must be investigated further through the site-specific FRA. The potential use of infiltration 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.
- Safe access and escape routes should be available from the of the south, east, northeast and west of the site. The section of the site which is separated by the A1 could be accessed/escaped from the east and the southwest.
- Were development of this site to proceed, given the large area of the site and its proximity to neighbouring sites CfS-2414 and CfS23-2498, it would be prudent to formulate a strategy to develop these sites in tandem and for consultation between each developer to take place to ensure a joined-up approach for sustainable development is in place.

7.3 Site-specific FRA requirements and further work

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

- Potential modelling of the ordinary watercourses to assess site.
- Further modelling to understand the impacts of climate change on fluvial and surface water flood risk to the site.

- Investigation into groundwater conditions and the production of a detailed drainage strategy.
- Further consideration of surface water flood risk, including a drainage strategy. Discharge rates should remain at greenfield rates at a minimum.
- A condition assessment of the culverts underneath the A1 and Elton Road and investigate the impact of a potential blockage of the structures.
- 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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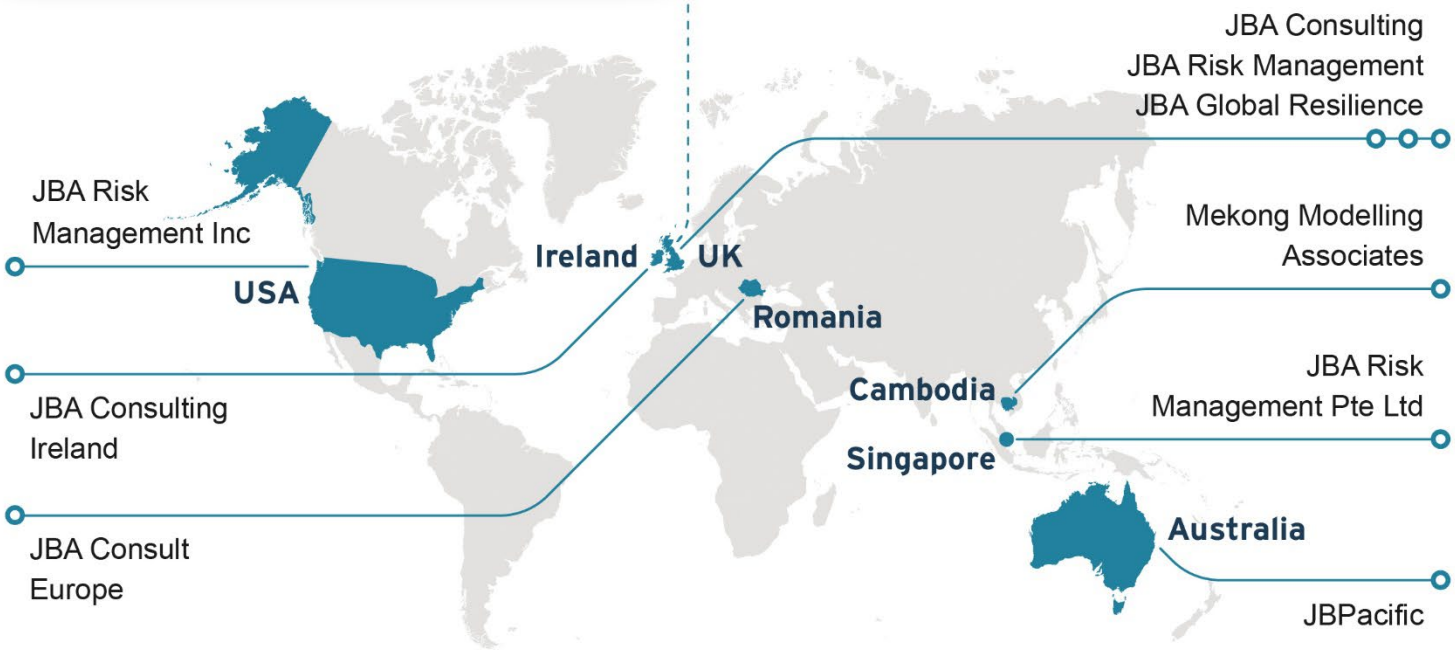

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