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Huntingdonshire Level 2 Strategic Flood Risk Assessment Site Summary

Site CfS:256

Final Draft Report

Prepared for

Huntingdonshire District Council

Date

November 2025

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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.

Acknowledgements

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

Contents

List of Figures

List of Tables

1 Background

This is a Level 2 Strategic Flood Risk Assessment (SFRA) site screening report for Local Plan Site CfS:256. 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:256

- Location: Lodge Farm, North of A141, Huntingdon (Wyton on the Hill)
- Existing site use: Agricultural with habitable farmhouses located within the site. 90% of the site is greenfield. The western site extent is separated from the rest of the site by the A141.
- Existing site use vulnerability: More vulnerable
- Proposed site use: Mixed use
- Proposed site use vulnerability: More vulnerable
- Site area (ha): 331.35
- Watercourse: Unnamed and unmodelled ordinary watercourses, tributaries to the River Great Ouse (main river) and High Lode (main river)
- Environment Agency (EA) model: Lower Ouse - Alconbury Brook 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

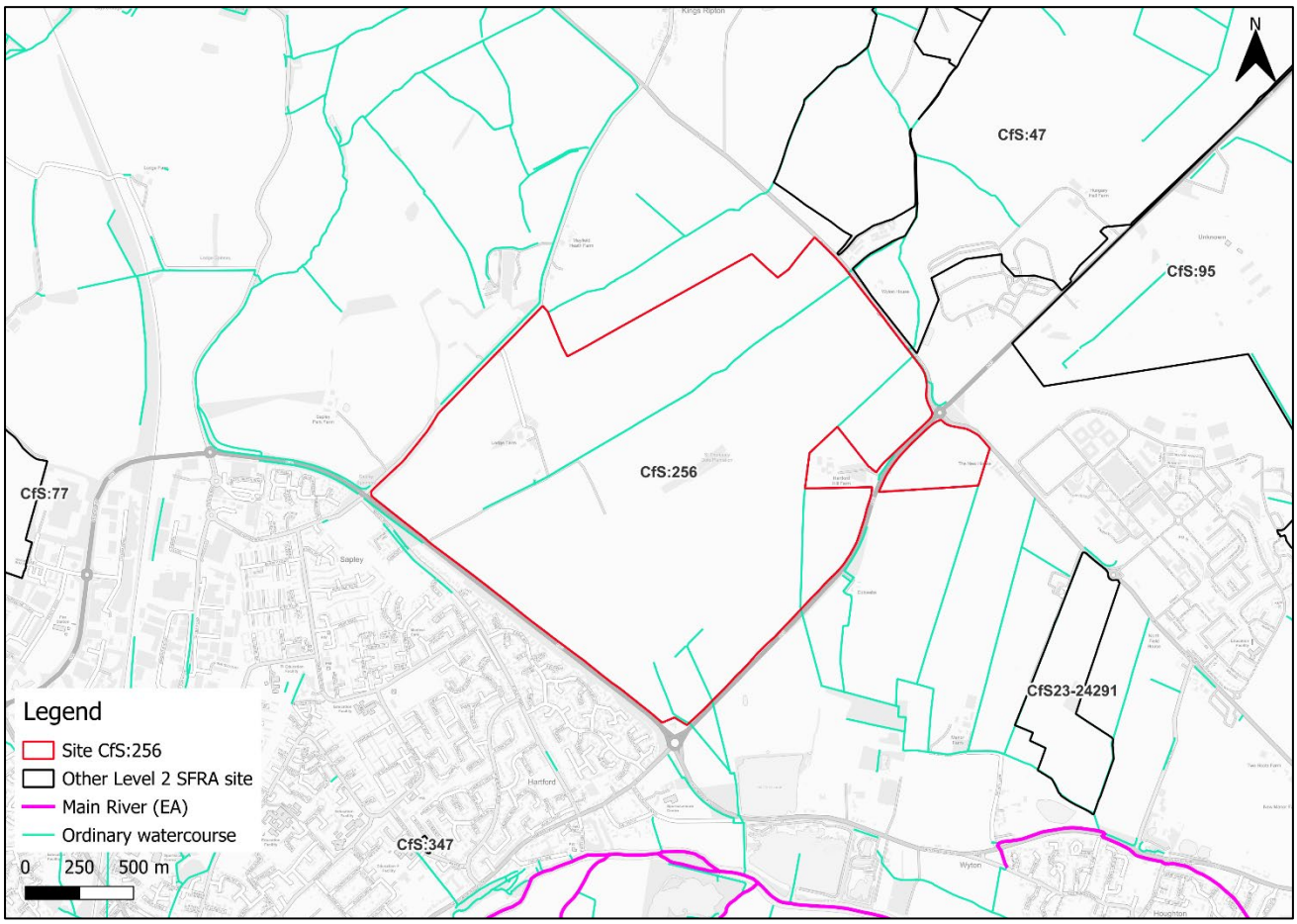

Figure 1-1: Existing site location boundary

Figure 1-2: Aerial photography

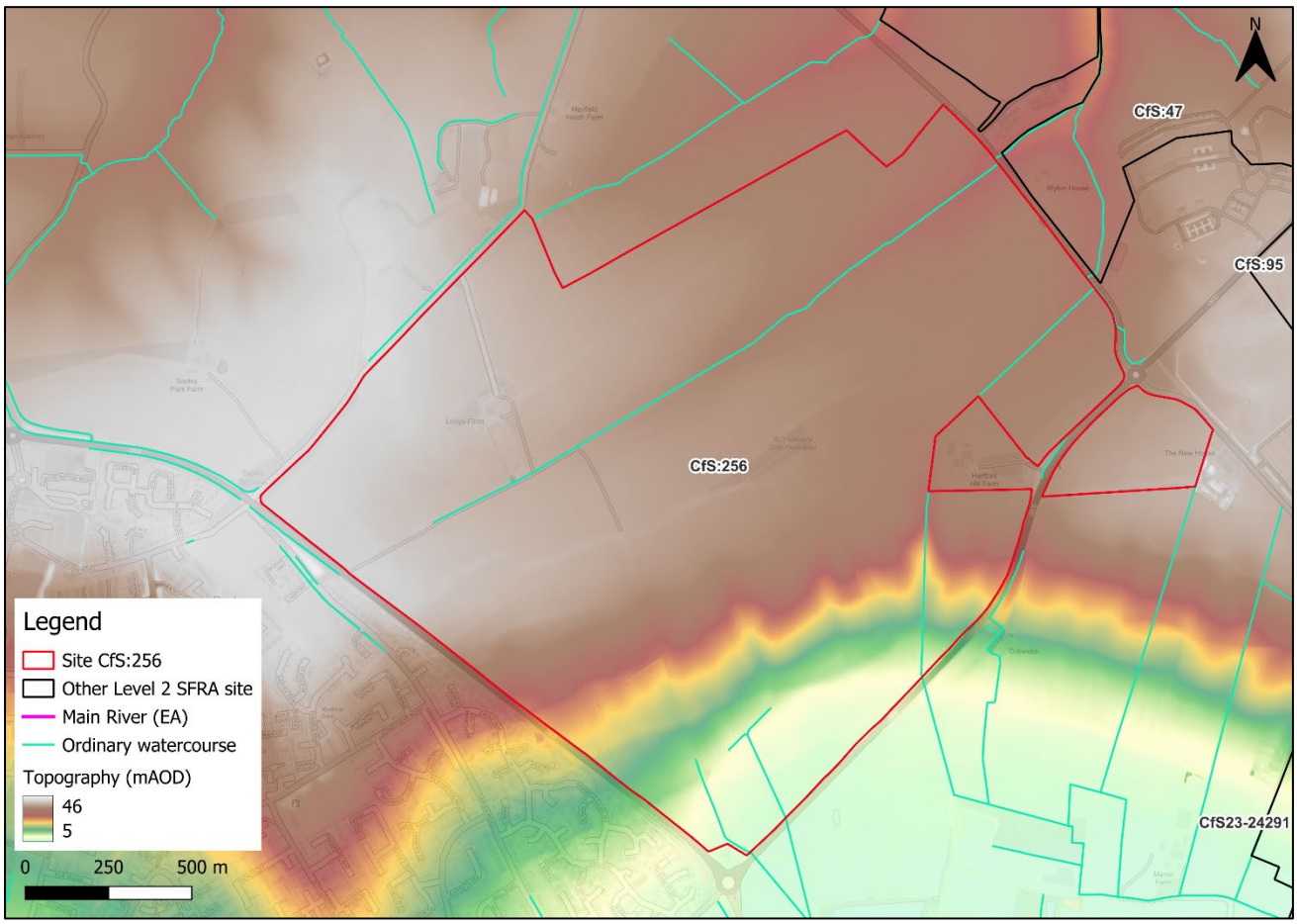

Figure 1-3: Topography

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

The site is located wholly within Flood Zone 1 and therefore at low risk from rivers and the sea. The southern site boundary is located in close proximity to Flood Zone 2 which is at risk of fluvial flooding. The site is located within the model domains of the Lower Ouse 2015 (Alconbury Brook) and Lower Ouse 2015 (Downstream) models. Flood Zone 3a appears to be based on the Lower Ouse 2015 (Downstream) detailed model. The source of Flood Zone 2 is unknown.

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

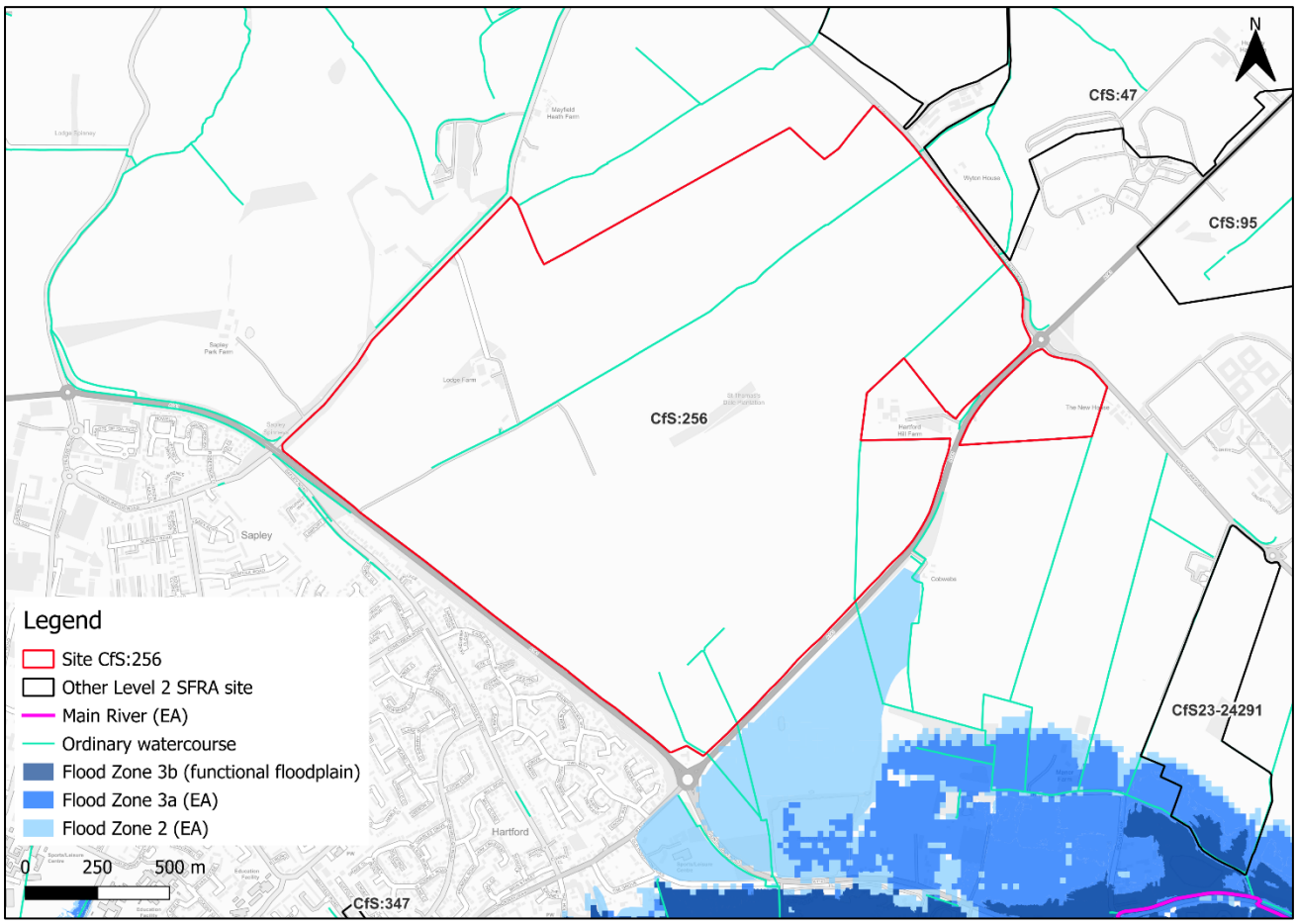

Figure 2-1: Existing risk

2.1.2 Fluvial undefended model outputs (Lower Ouse - Alconbury Brook 2015)

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

2.1.3 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. Flood Zone 3a appears to be based on the Lower Ouse 2015 (Downstream) detailed model. The source of Flood Zone 2 is unknown.

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 Fluvial defended model outputs (Lower Ouse - Alconbury Brook 2015)

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

2.2.3 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 2-3. 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 significant potential within and upstream of the site for tree planting to reduce flood risk.

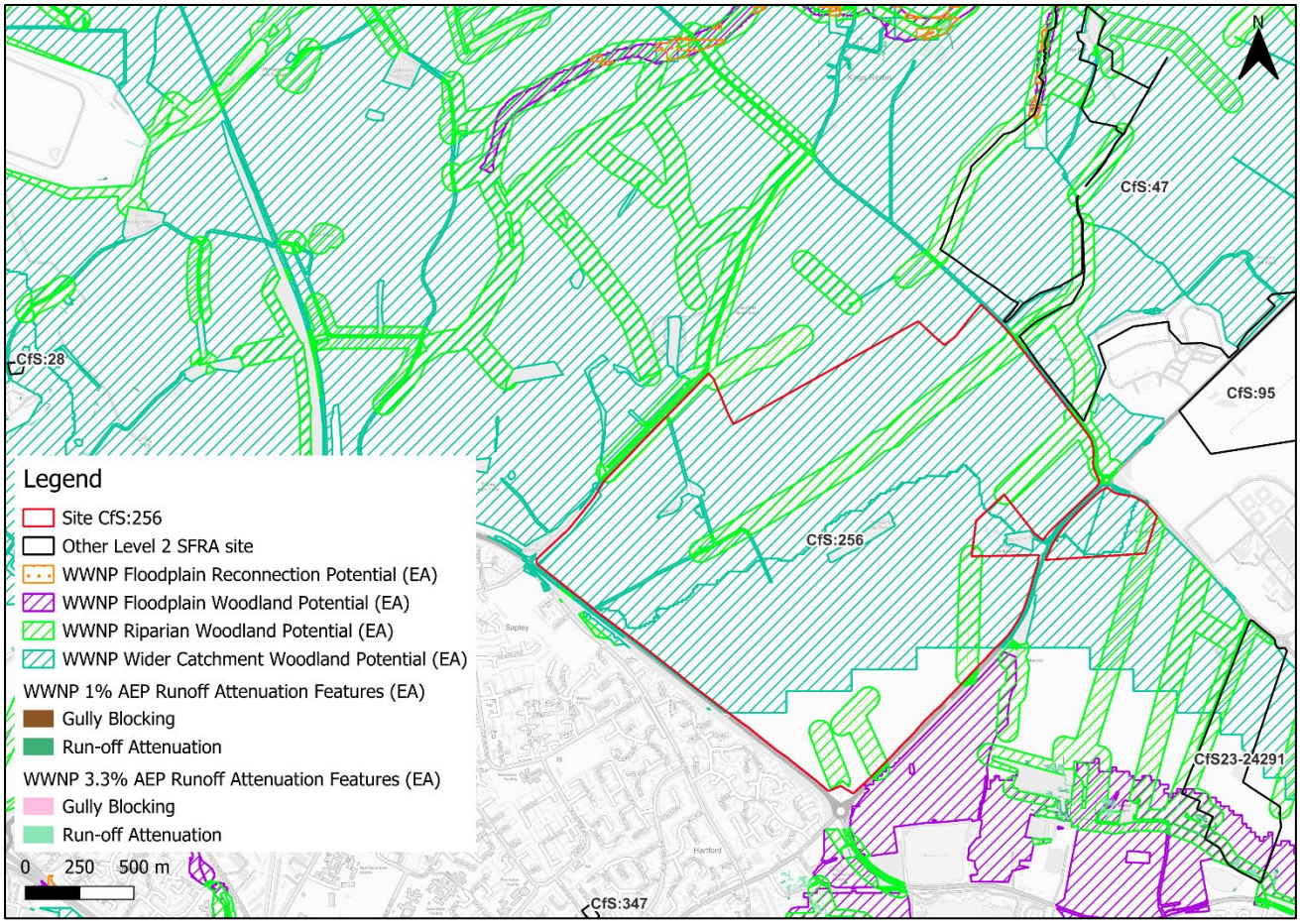

Figure 2-2: Natural Flood Management (NFM) potential mapping

2.3 Impacts from climate change

2.3.1 Fluvial

The EA's SFRA guidance states that SFRAs 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 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
1%	19	30
0.1%	Model would not run for this scenario	

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

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. However, it is in close proximity to the southern site extent.

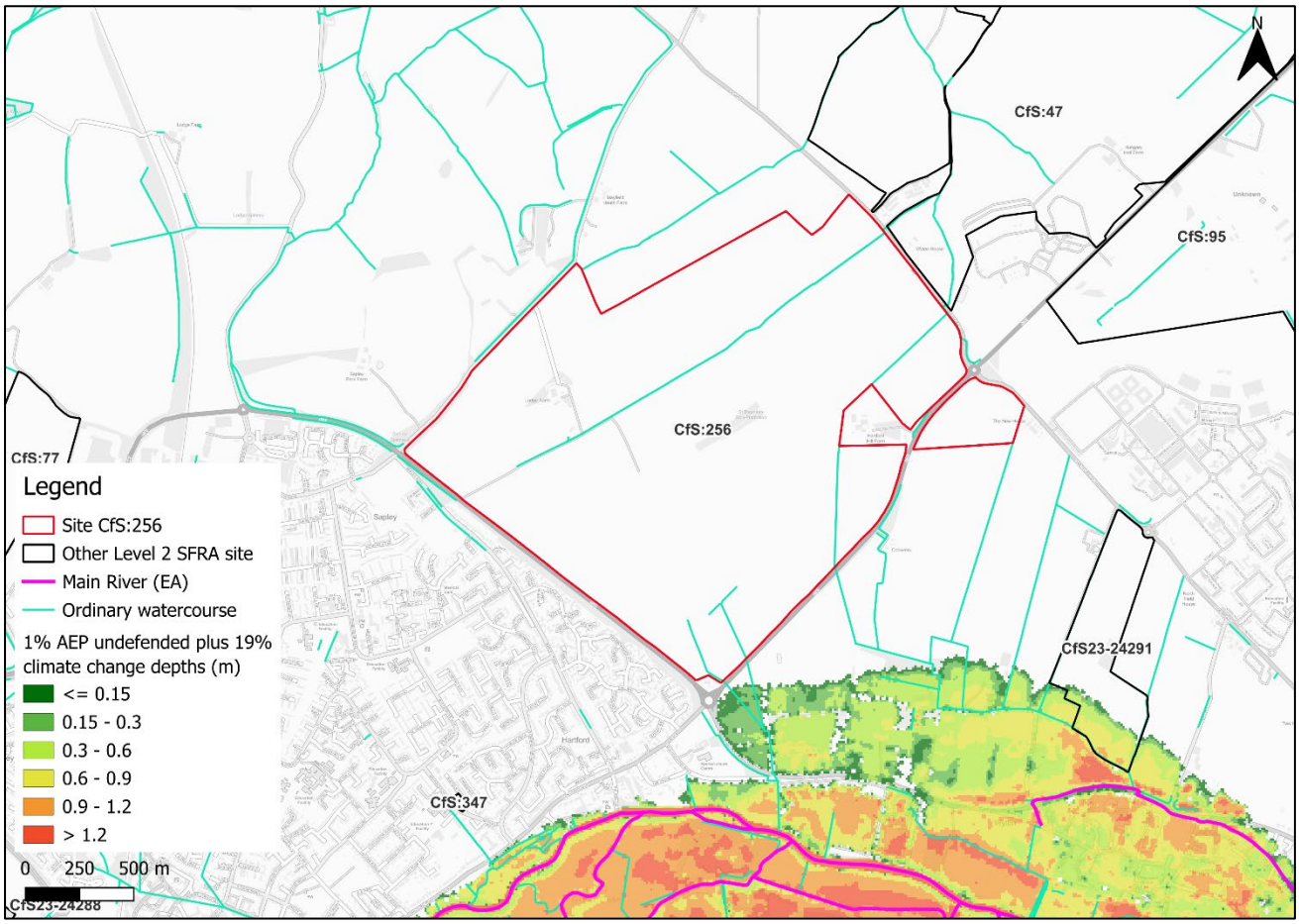

Figure 2-3: Flood depths for 1% AEP undefended flood event +19% (central climate change allowance) (Lower Ouse - Downstream (2015))

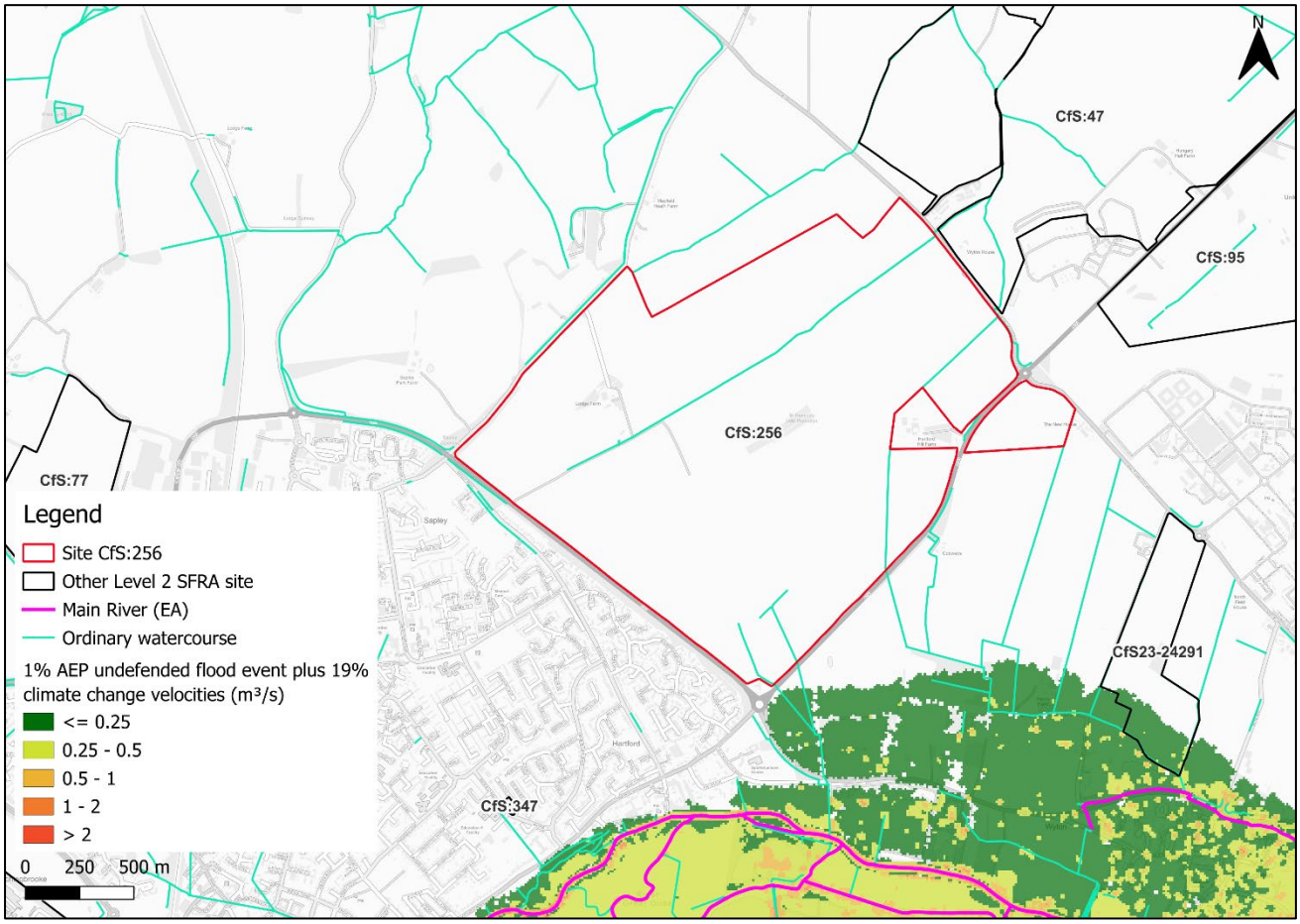

Figure 2-4: Flood velocities for 1% AEP undefended flood event +19% (central climate change allowance) (Lower Ouse - Downstream (2015))

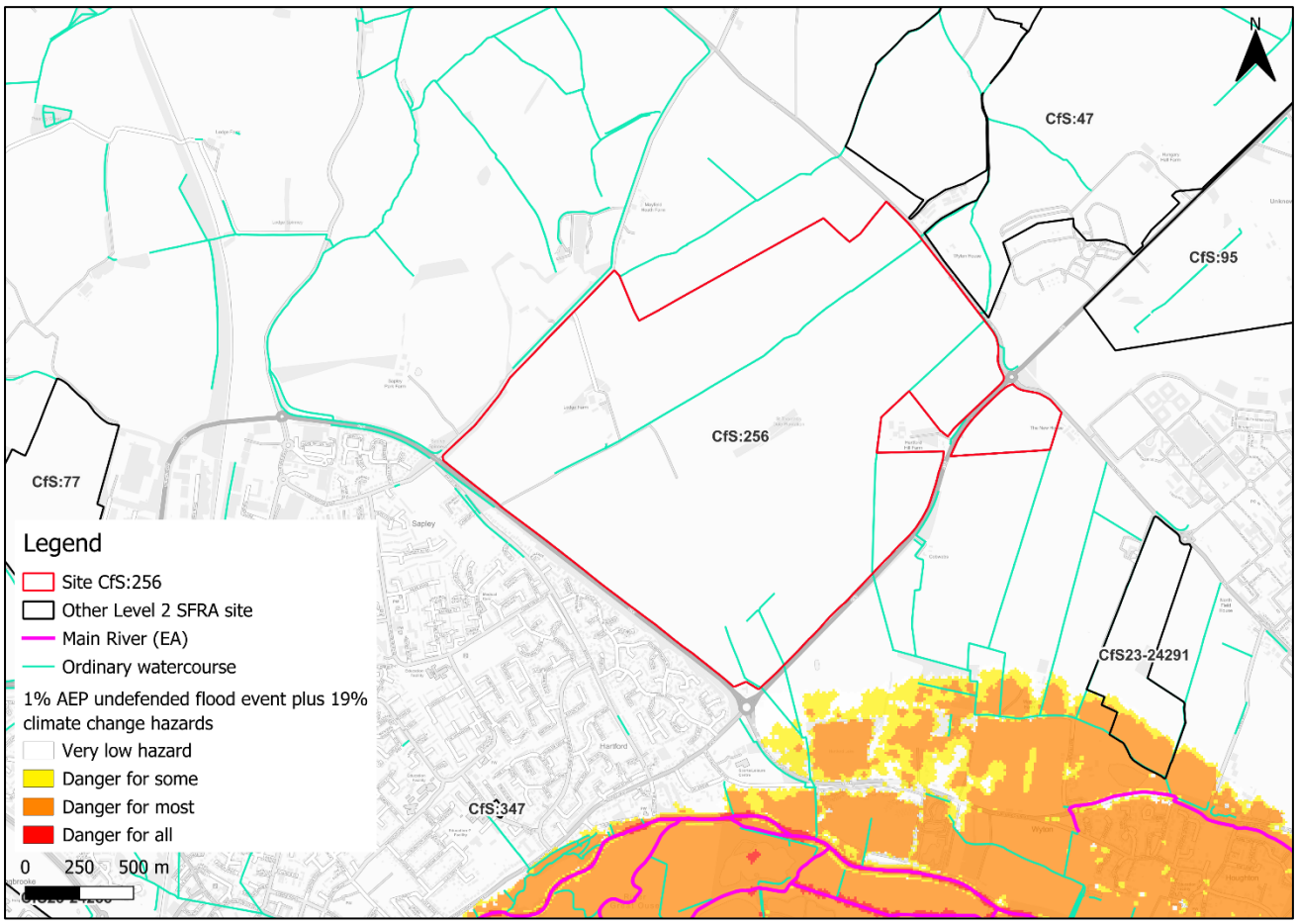

Figure 2-5: Flood hazard[Error! Bookmark not defined.] for 1% AEP undefended flood event +19% (central climate change allowance) (Lower Ouse - Downstream (2015))

The impacts of climate change on flood risk from the River Great Ouse have been modelled by the EA through the New National Model which models the central allowance (+19% on peak river flows for the Upper and Bedford Ouse management catchment EA management catchment) for the 3.3% AEP defended, 1% AEP defended and undefended, and 0.1% AEP defended and undefended fluvial events.

The EA New National Model also shows that the climate change flood risk from the River Great Ouse is not modelled to impact the site. However, it is in close proximity to the southern site extent (Figure 2-6).

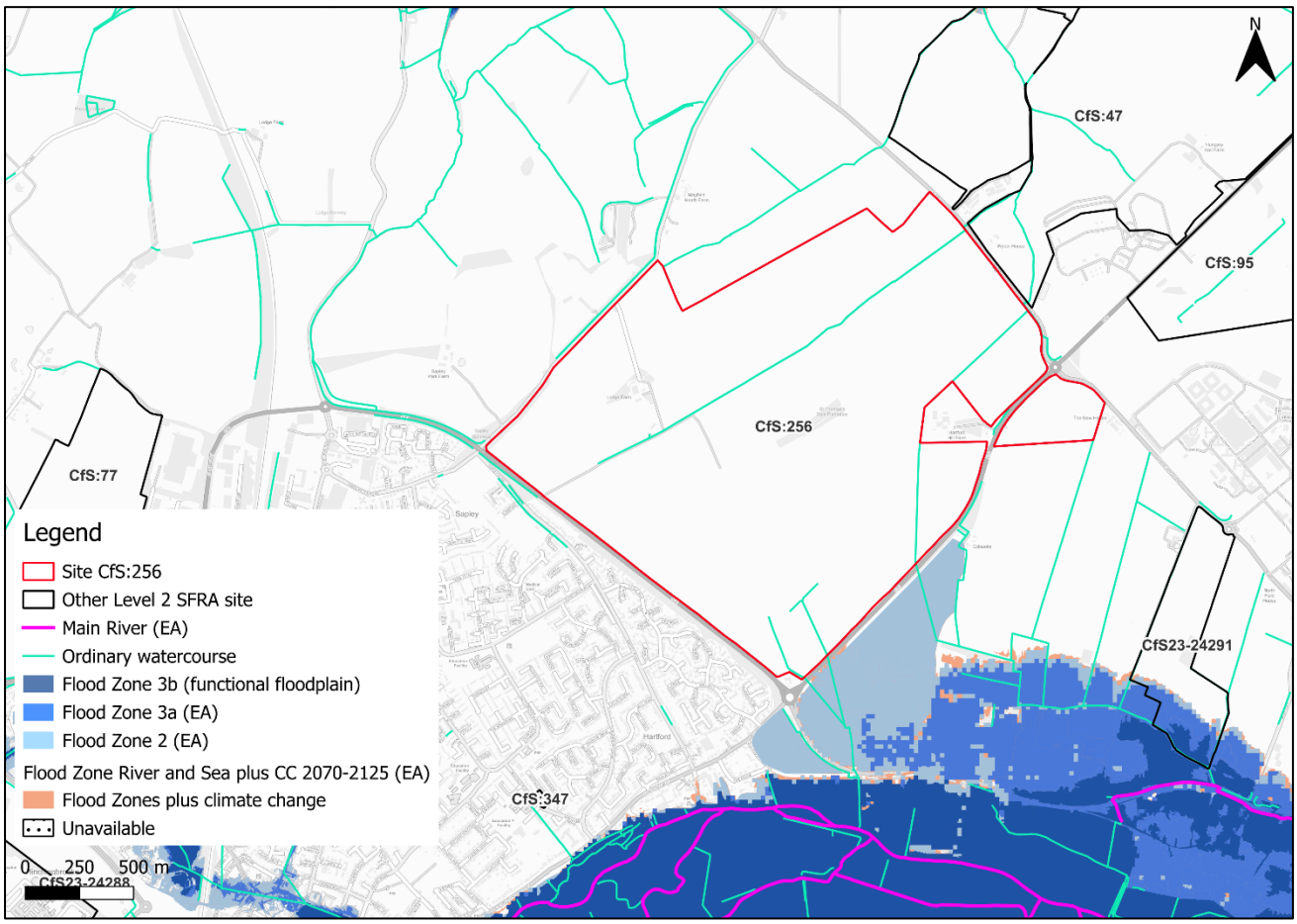

Figure 2-6 Flood Map for Planning 1% and 0.1% AEP undefended flood events +6% (central climate change allowance)

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 2-7 which shows two historic flood events in close proximity to the site. The sources of the March 1947 and the April 1998 events are unknown.

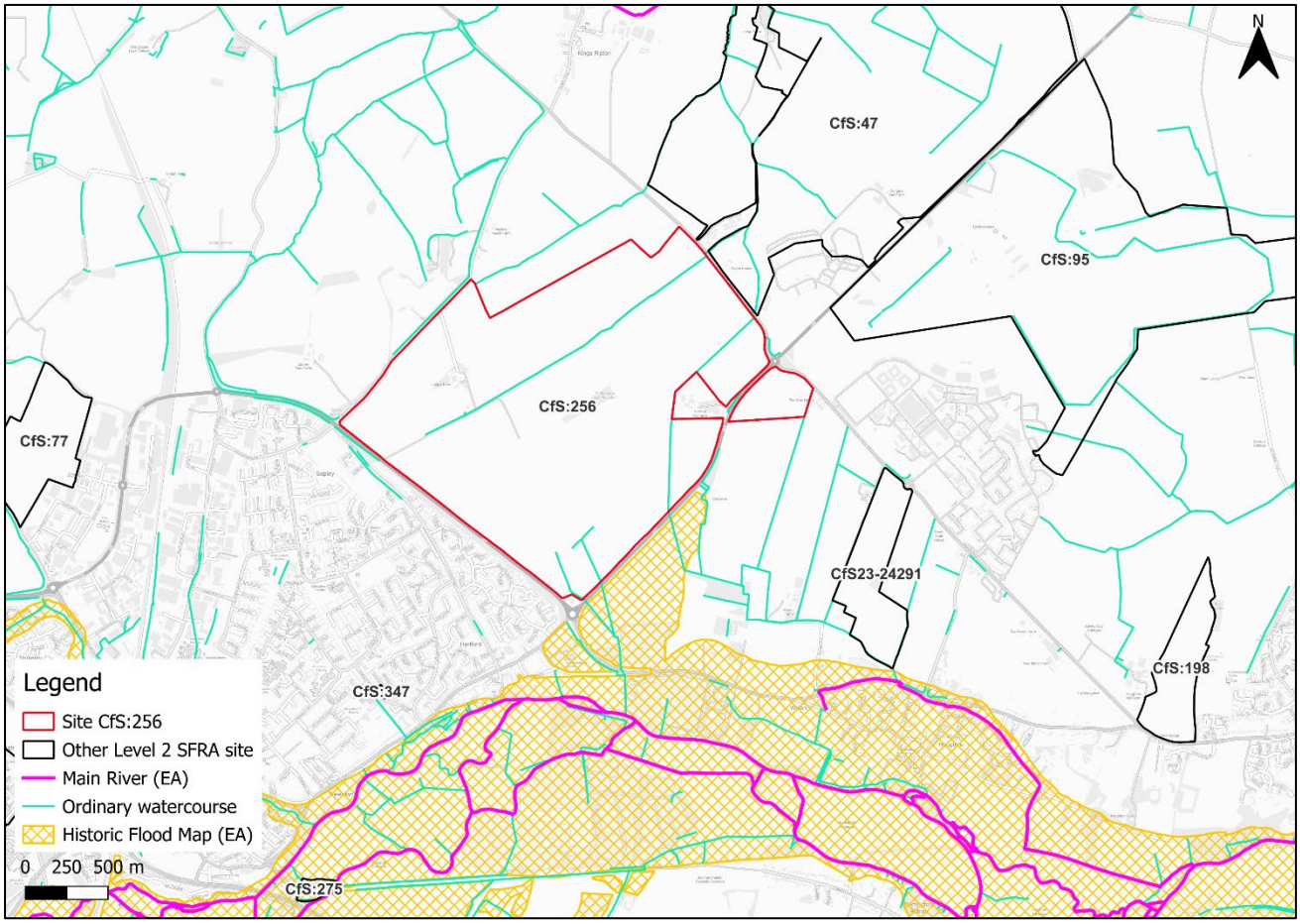

Figure 2-7: Recorded historic flood events onsite and around the site

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 the B1090 to the northeast, Kings Ripton Road to the northwest and the A141 to the east and southwest as shown in Figure 2-8.

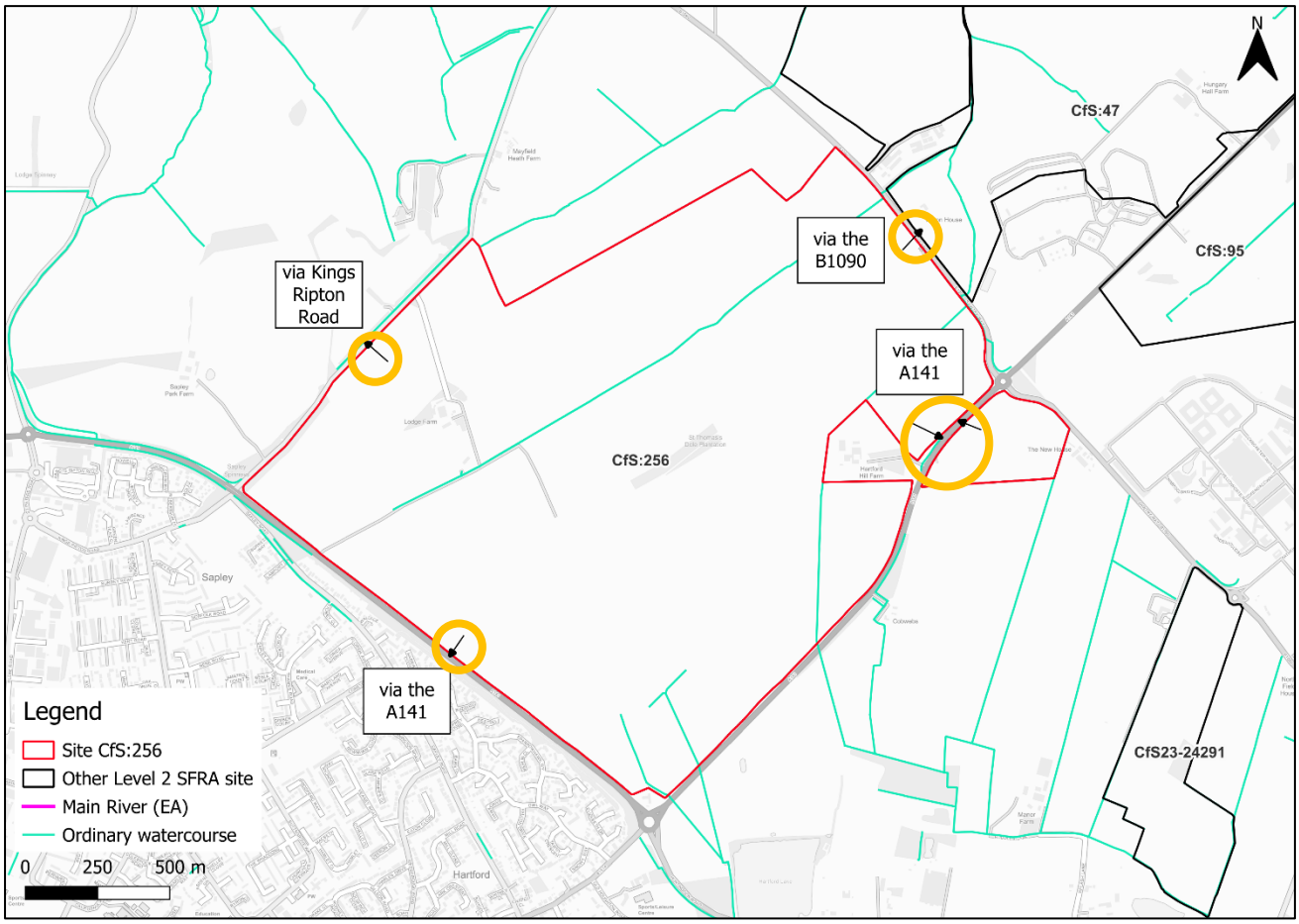

Figure 2-8: Potential access and escape routes

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

- Observations:
  - The proposed development of the site would see the risk classification remain at more vulnerable, according to the NPPF.
  - The site is wholly located within fluvial Flood Zone 1 and not shown to be at additional risk from climate change.
  - The extent of fluvial risk from the unmodelled ordinary watercourses is currently unknown. Using the 0.1% AEP surface water event as a proxy, risk is modelled to remain largely confined to the areas immediately surrounding the watercourse in the east and through the centre of the site. It is likely that

modelling of these ordinary watercourses would highlight a fluvial risk of flooding.

- Mitigation:
  - The site-specific FRA should develop a model of the unnamed ordinary watercourses to fully understand the onsite fluvial risk and look to include the channel and risk areas within a blue green corridor.
  - Were development of this site to proceed, given the proximity of this site to neighbouring sites CfS:47, CfS:95 and CfS23-24291 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.
  - 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 river or flood defence, 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.
- Access and escape:
  - Safe access and escape routes must be available at times of flood and appear to be available from northeast of the site via the B1090, to the northwest via Kings Ripton Road and to the east and southwest via the A141.

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 5% of the site is at high surface water risk. A further 2% is at medium surface water risk and 4% at low surface water risk

Surface water risk is predominantly located along the ordinary watercourses through the centre and northeast of the site as well as an area of ponding in the south within a topographic low spot.

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)
89	4	2	5

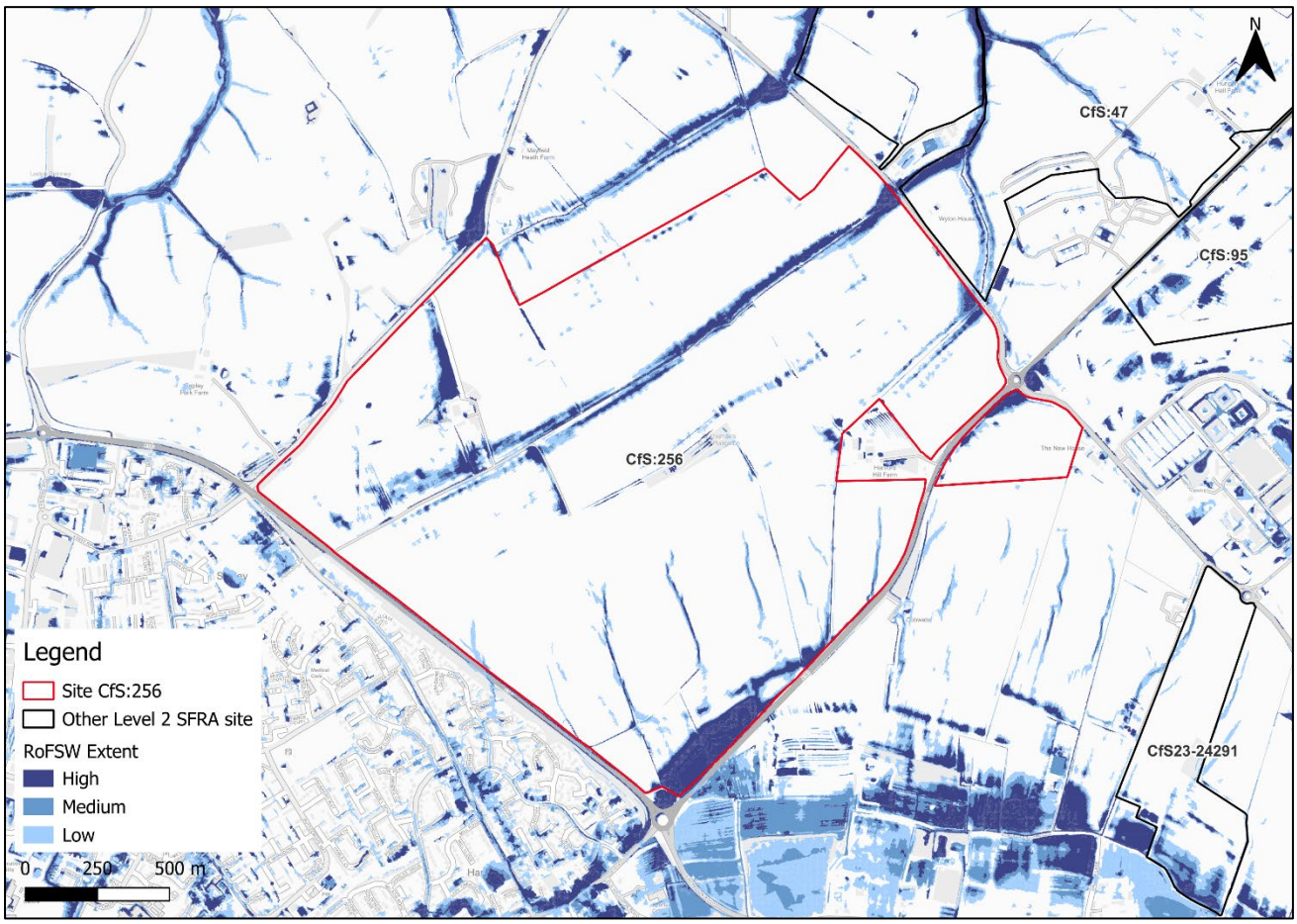

Figure 3-1: Surface water flood extents (NaFRA2 - Risk of Flooding from Surface Water map)

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, flooding along the central ordinary watercourse is predicted to mostly remain below 0.15m in depth (Figure 3-2) and be a low hazard (Figure 3-3). Flooding in the south of the site is predicted to reach up to 0.9m in depths and be a significant hazard.

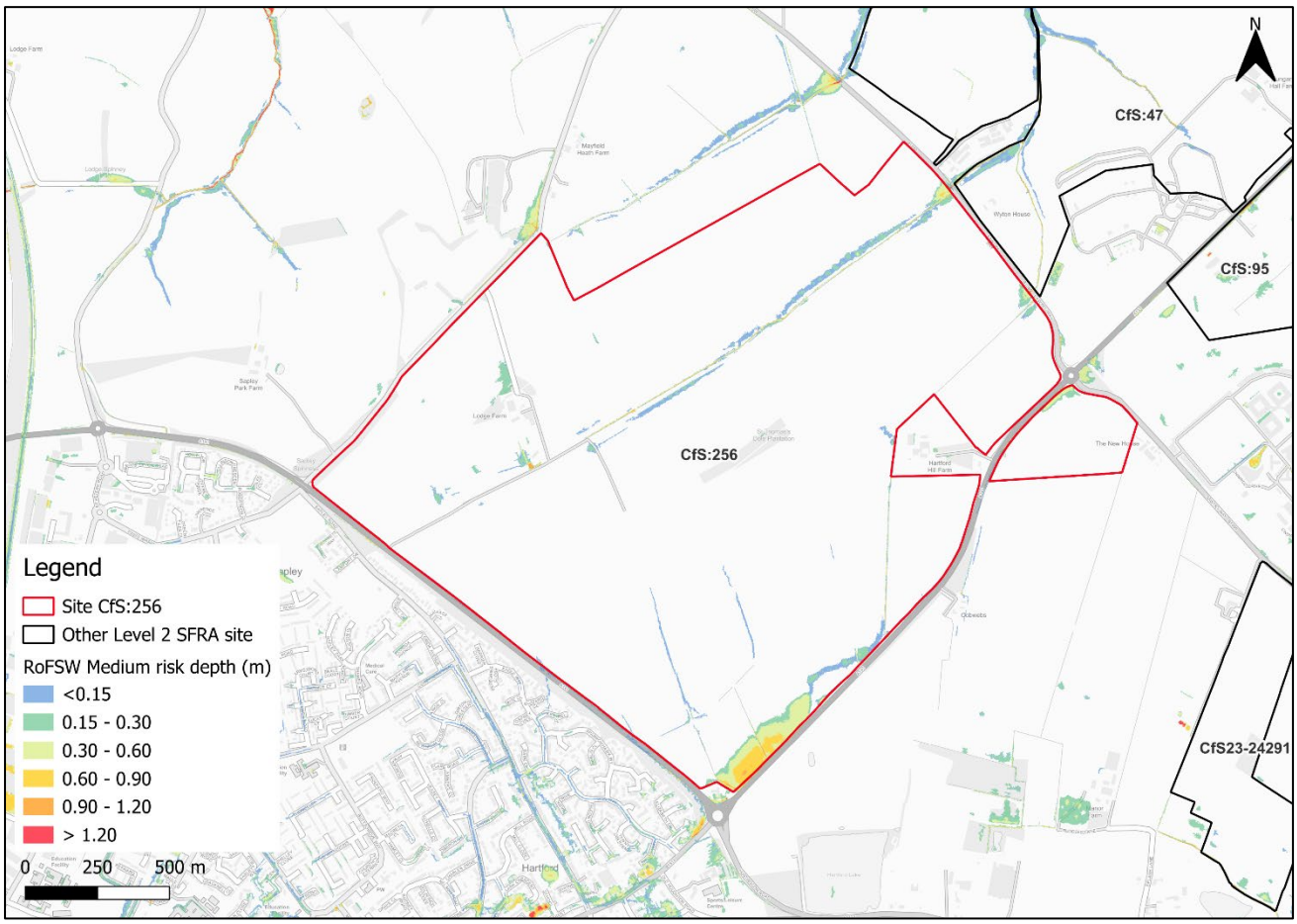

Figure 3-2: Medium risk event surface water flood depths (Third generation - Risk of Flooding from Surface Water map)

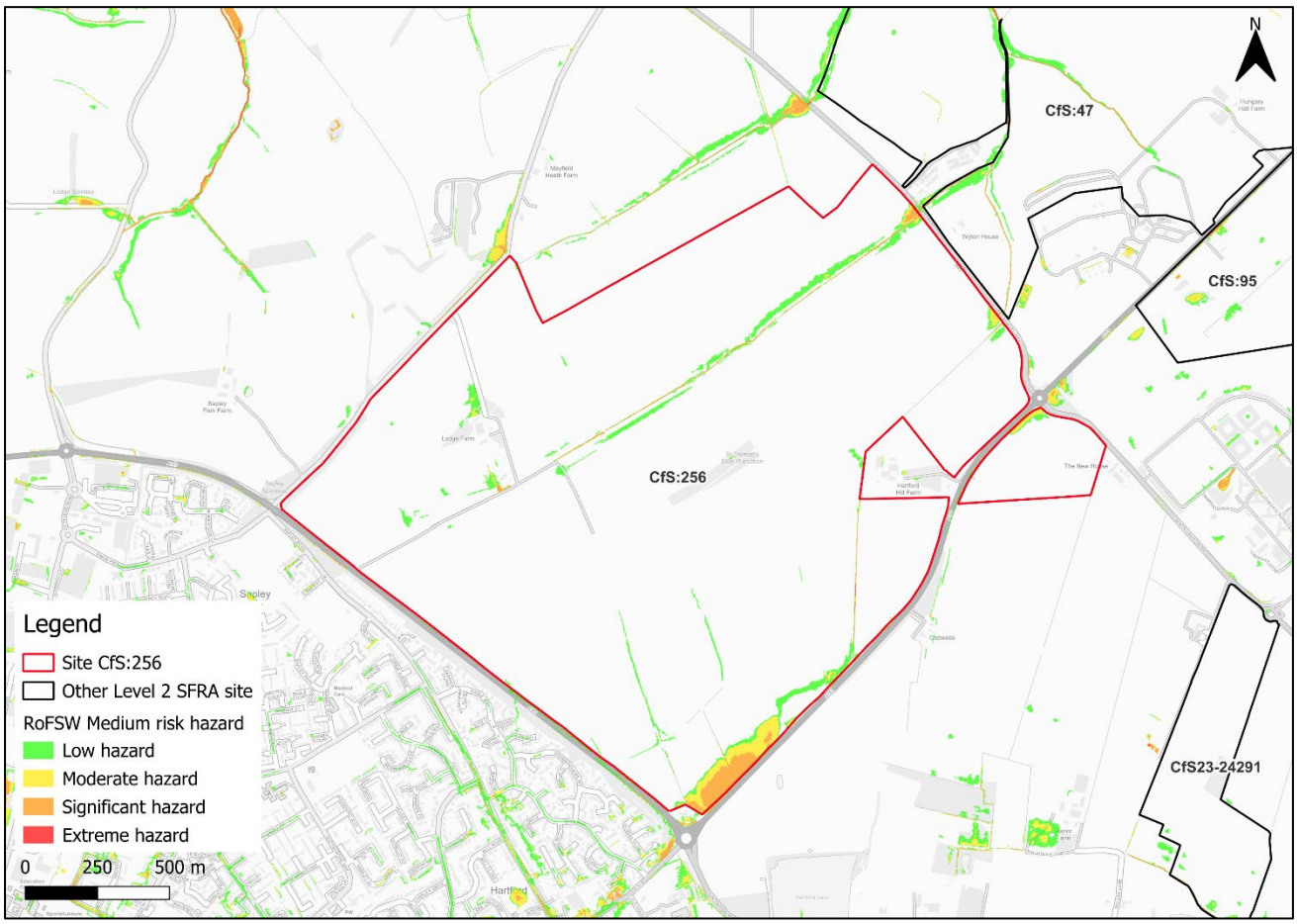

Figure 3-3: Medium risk event surface water flood hazard[1] (Third generation - Risk of Flooding from Surface Water map)

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 current information, existing flood risk areas are predicted to increase slightly in size (Figure 3-4). Flooding along the central ordinary watercourse is no predicted to reach up to 0.6m in depth (Figure 3-5) and could pose a significant hazard in small areas (Figure 3-6). Flooding in the south of the site could reach depths of up to 1.2m and a larger area is predicted to pose a significant hazard.

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

There are therefore clear differences between the NaFRA2 RoFSW map and the third-generation depths and hazard mapping. This reinforces the requirement for detailed assessment of surface water at the FRA stage to establish surface water flood risk conditions.

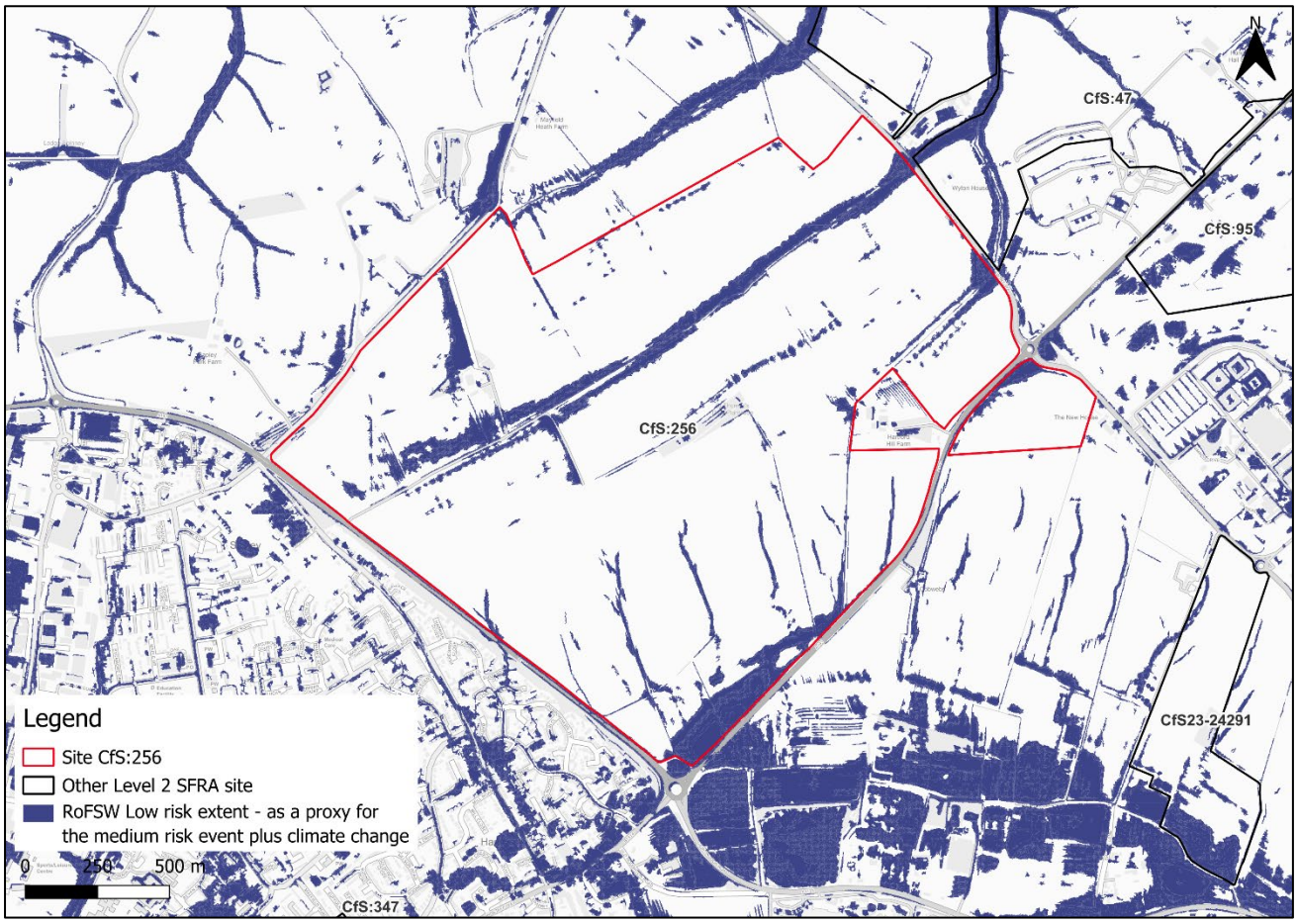

Figure 3-4: Low risk event surface water flood extent, as a proxy for the medium risk event plus climate change (NaFRA2 - Risk of Flooding from Surface Water map)

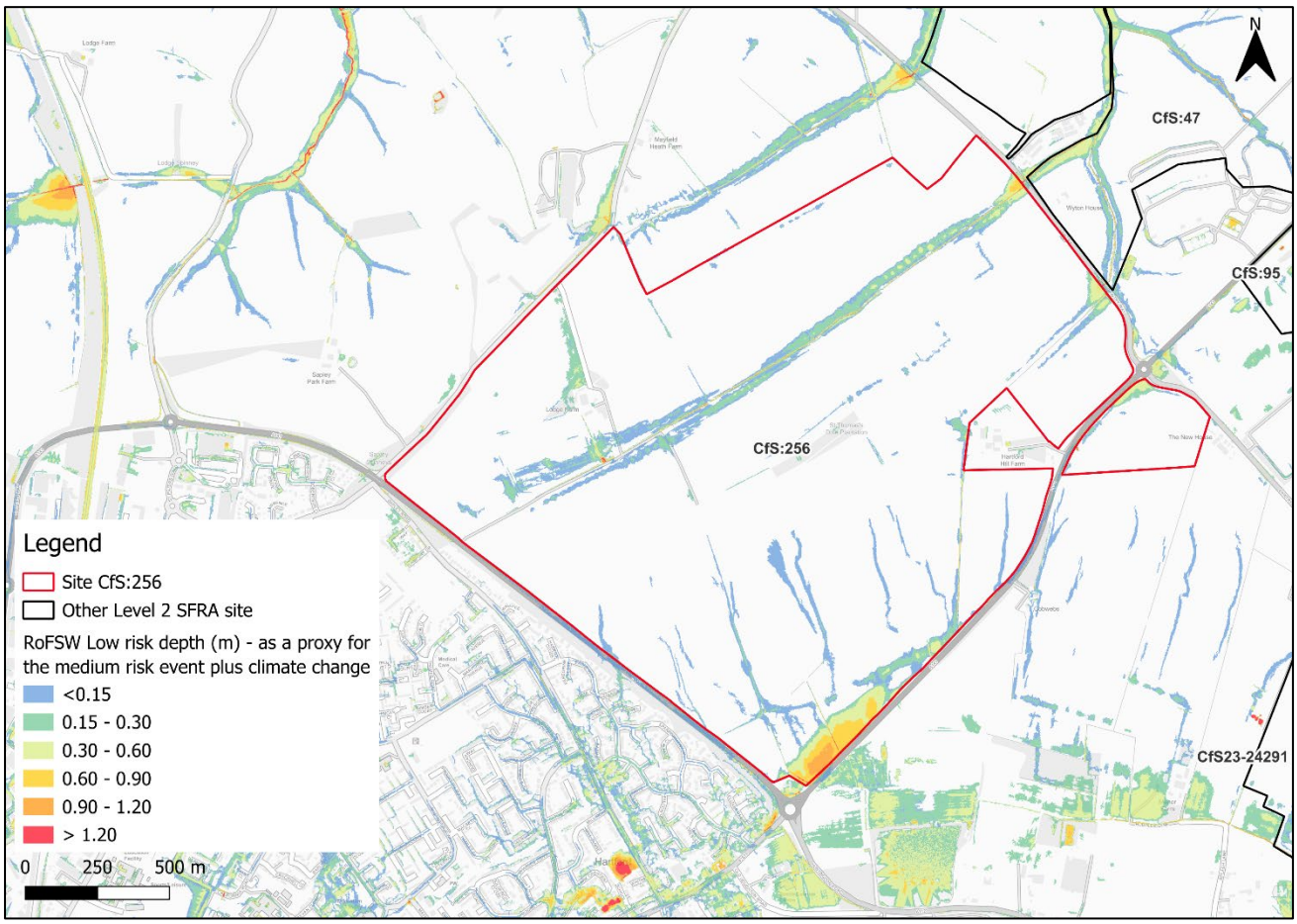

Figure 3-5: Low risk event surface water flood depths, as a proxy for the medium risk event plus climate change (Third generation - Risk of Flooding from Surface Water map)

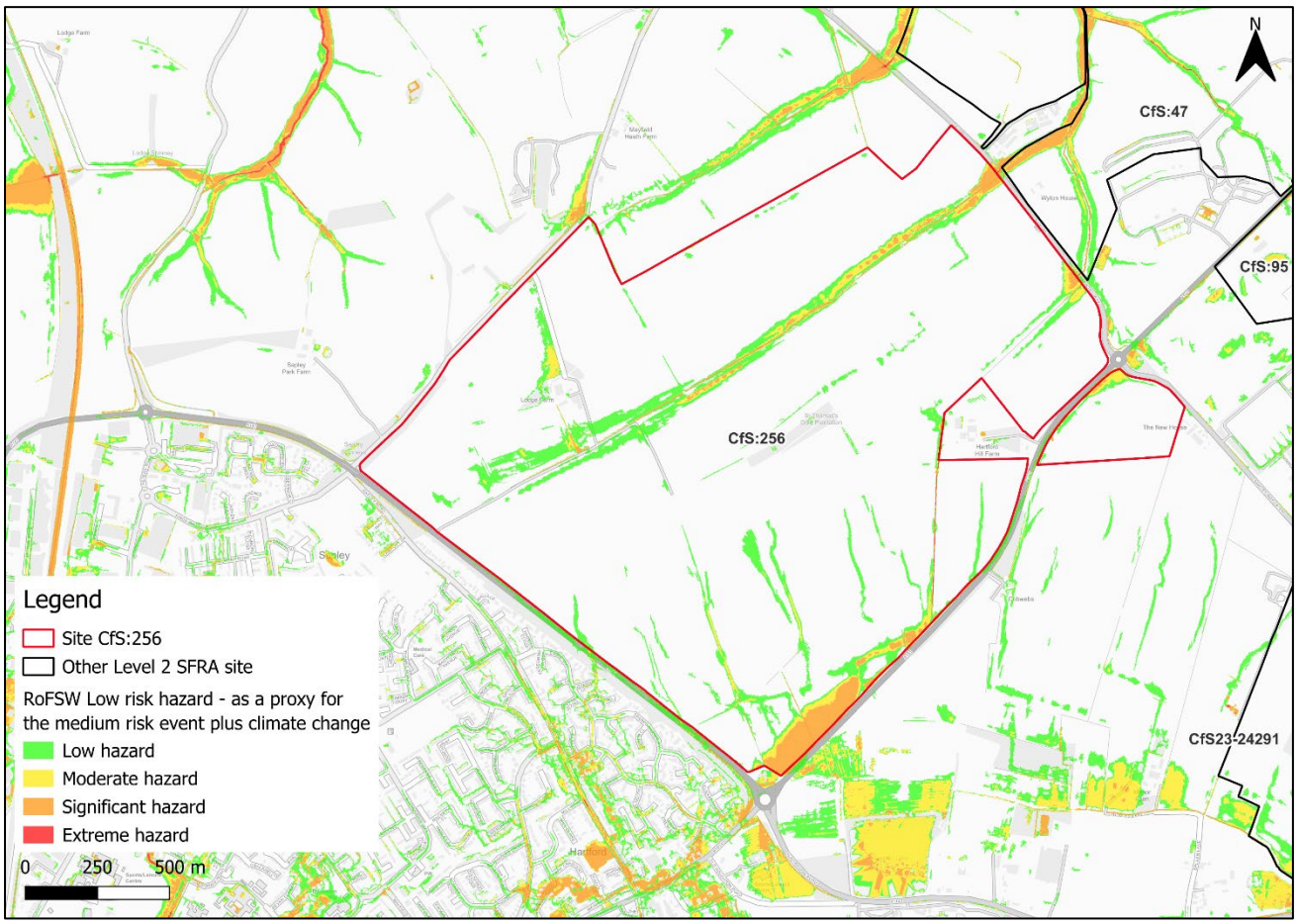

Figure 3-6: Low risk event surface water flood hazard, as a proxy for the medium risk event plus climate change (Third generation - Risk of Flooding from Surface Water map)

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

- Current risk to the site is predominantly very low, with 89% of the site being at very low surface water flood risk. Surface water risk in the high and medium risk events is confined to areas surrounding the ordinary watercourses in the centre and northeast of the site as well as an area of ponding within the topographic low spot in the south of 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 medium risk event, with a greater extent of ponding along the ordinary watercourses and in the topographic low spot.
- 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 areas of risk along the ordinary watercourses should be left free of development and used as blue green corridors which can provide multiple benefits alongside flood risk, including ecological, social and amenity benefits.
- Topographic low spots and flow paths should be incorporated into site design and layout.
- 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 Bury Brook and Ouse (Roxton to Earith) catchments. These catchments are ranked as medium and high sensitivity catchments. Planning considerations for sites at medium and 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[2]. Figure 5-1 shows the map covering this site and the surrounding areas. Table 5-1 explains the risk classifications.

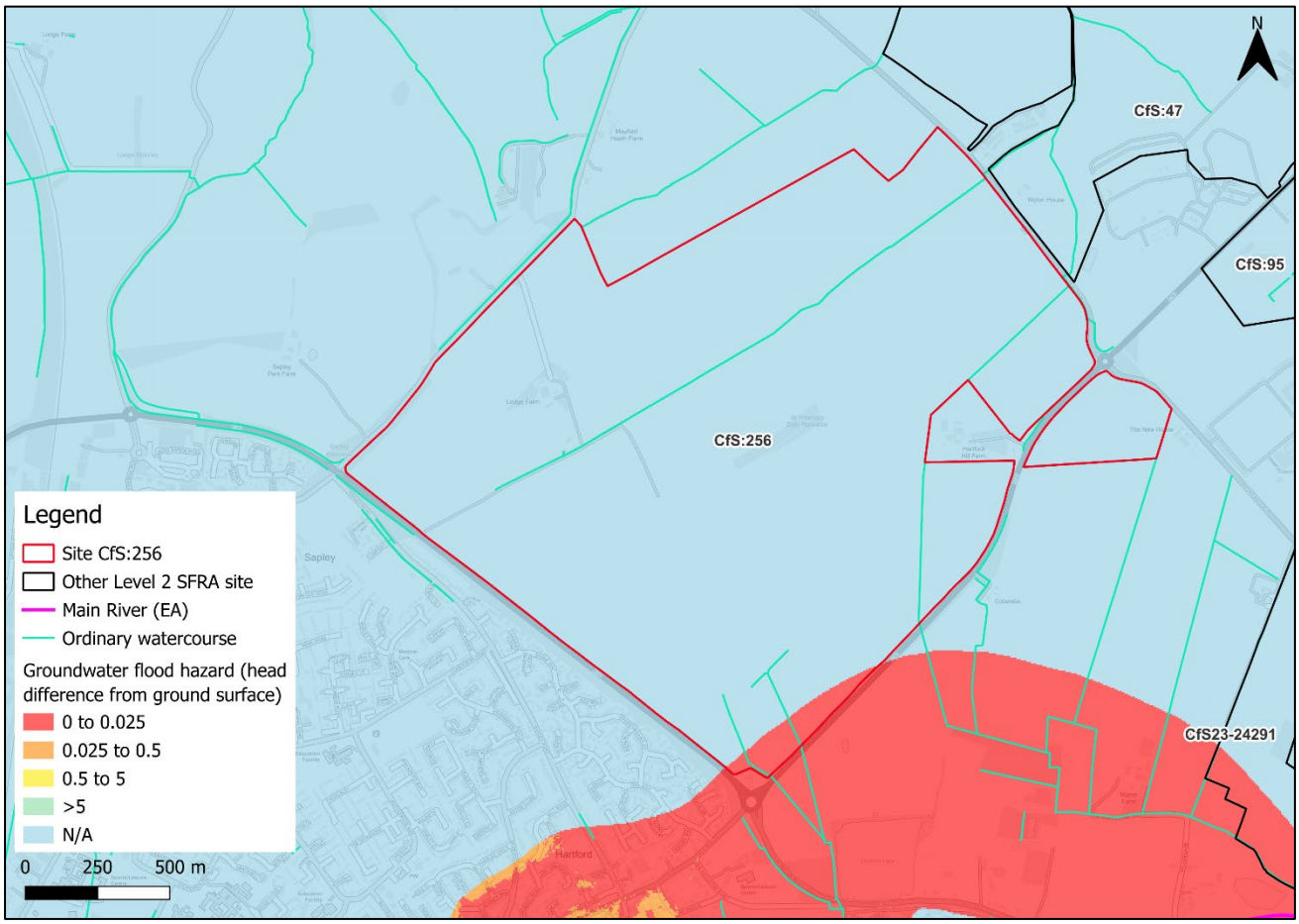

Figure 5-1: JBA 5m Groundwater Emergence Map

The majority of the site is classified as no risk. Infiltration SuDS should therefore be suitable at this 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.	

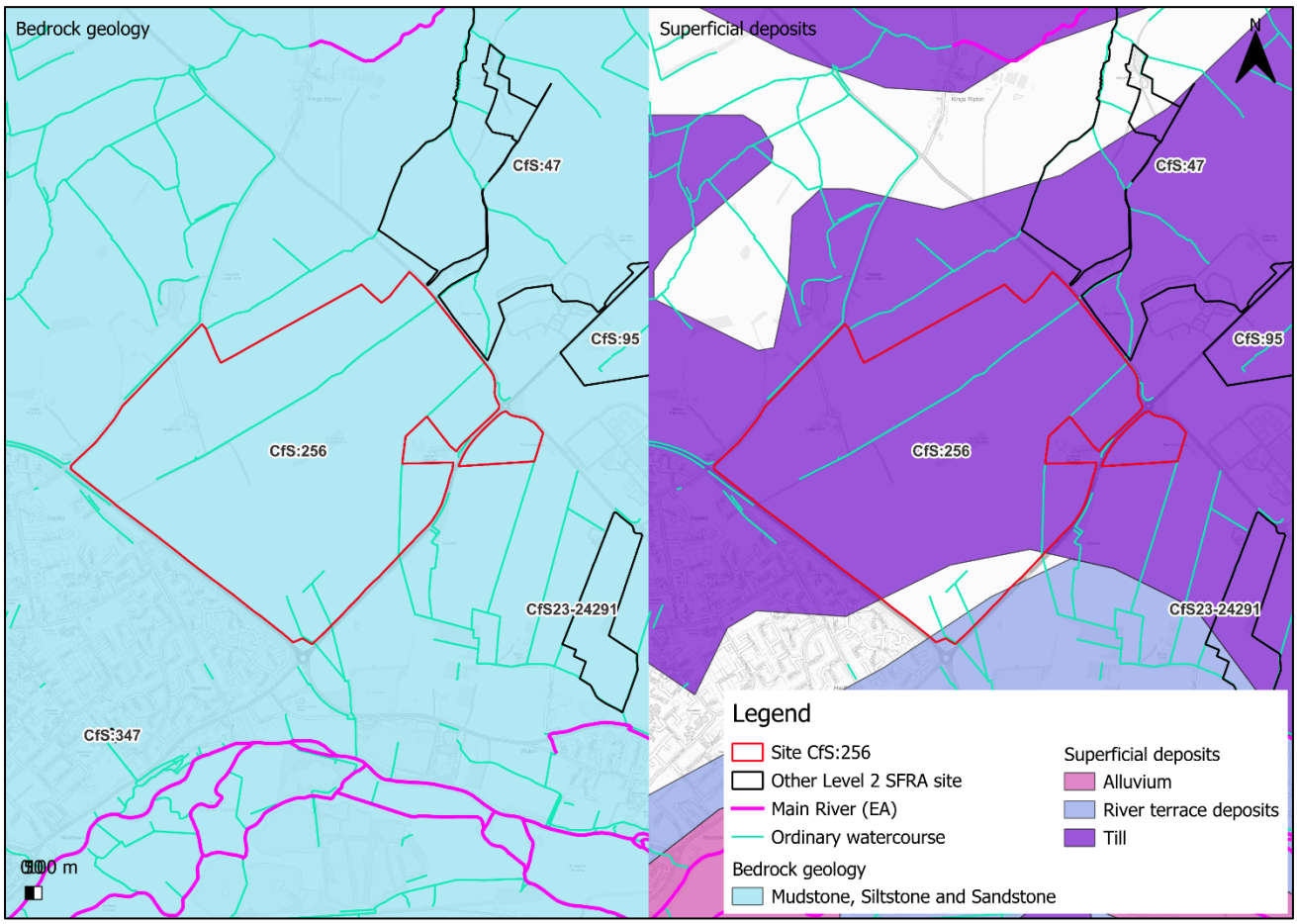

Figure 5-2: Soils and geology

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 the structure beneath roads to the northeast and south of the site.

6.1 Potential blockage

A blockage of culverts beneath the B1090 to the northeast of the site and beneath the A141 to the south of the site 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.

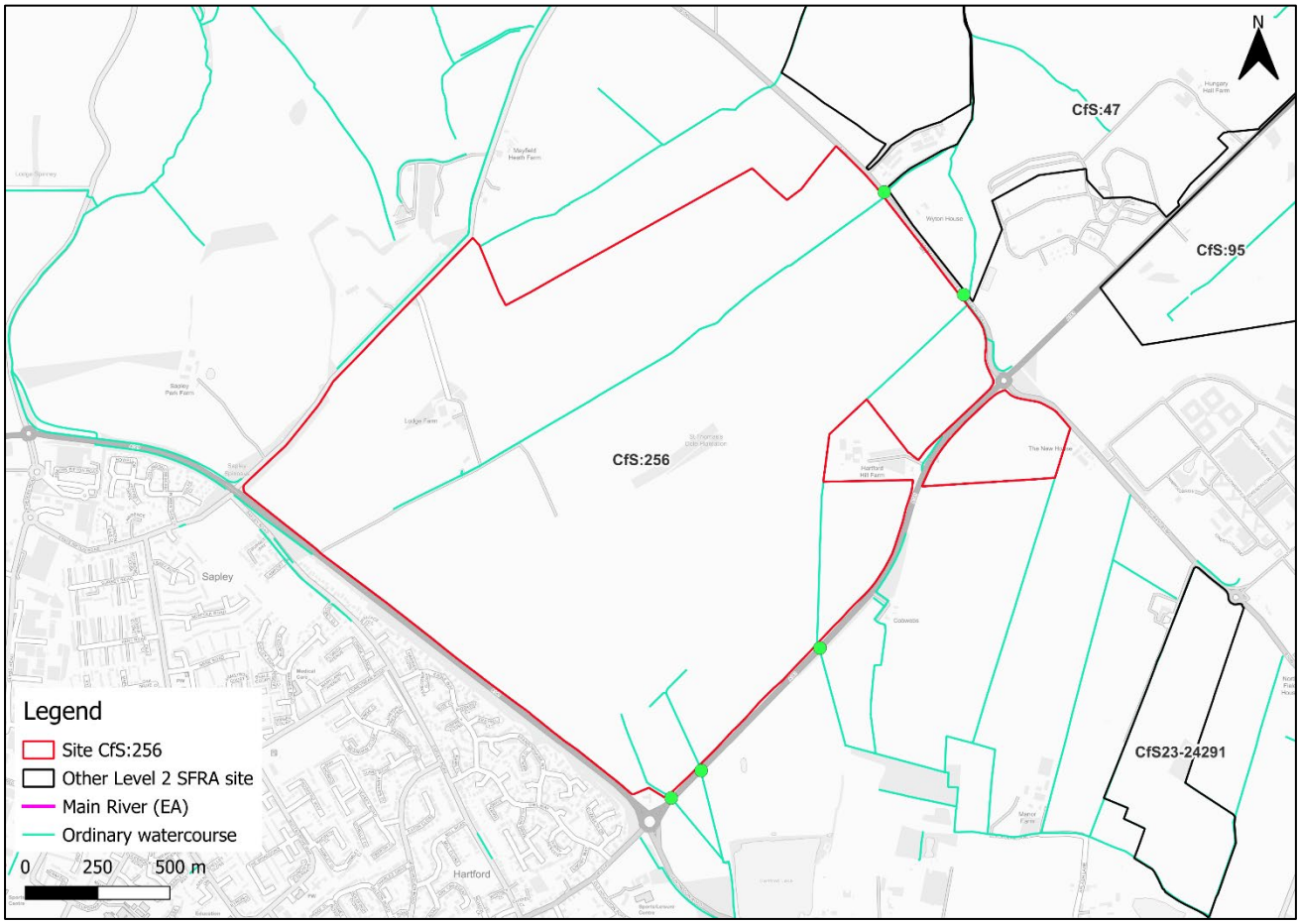

Figure 6-1: Potential blockage locations

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 small proportion of the site is potentially at risk from flooding during a 'wet day' scenario from Grafham Water reservoir, located within the Cambridgeshire LLFA. The undertaker for this 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 Services Ltd to ascertain whether the proposed development could affect the reservoir's risk designation, it's 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.

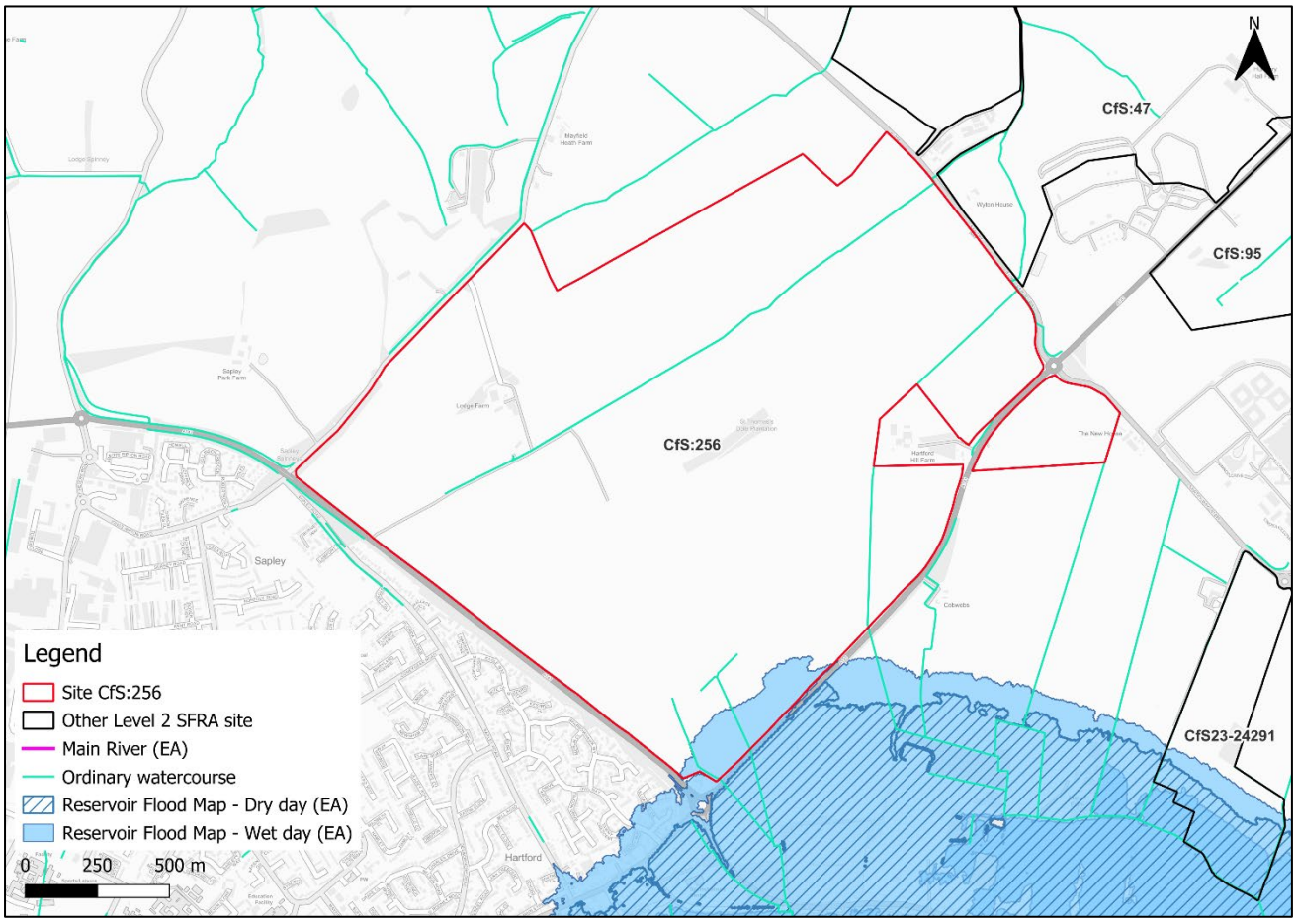

Figure 6-2: EA Reservoir Flood Map

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.
- Risk from the ordinary watercourses should be investigated at the FRA stage. Modelling may be required.
- A detailed drainage strategy will be required for any new development, given the large area of the site and the fact it is predominantly 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 culvert beneath the roads to the northeast and south of the site. The reservoir owner should be consulted on ant new development.
- 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 considered further to ensure safe evacuation of site users during the low risk surface water flood event.
- Were development of this site to proceed, given the proximity of this site to neighbouring sites CfS:47, CfS:95 and CfS23-24291 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:

- Full detailed flood modelling of the unnamed watercourses to assess up to date risk to the site.
- Further consideration of surface water flood risk, including a drainage strategy. Discharge rates should remain at greenfield rates at a minimum in consultation with the LLFA.
- Condition assessments of the culverts to the northeast and south of the site 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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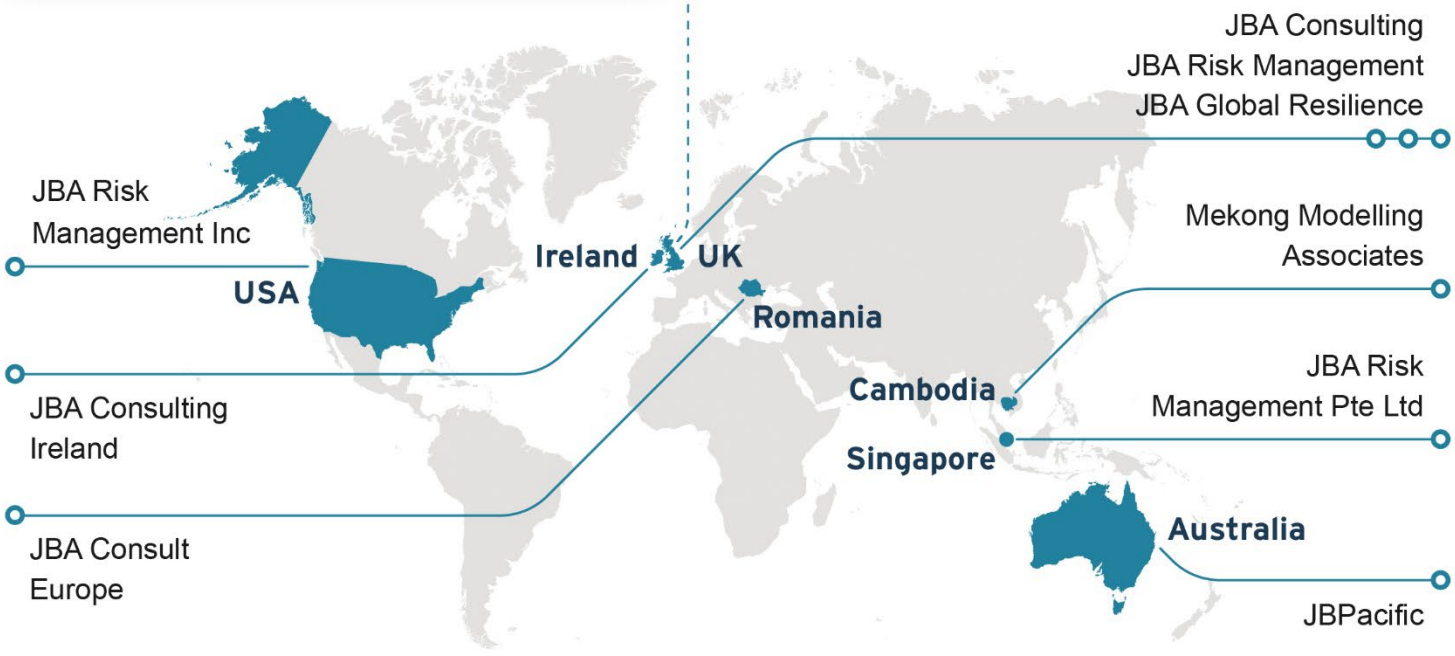

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