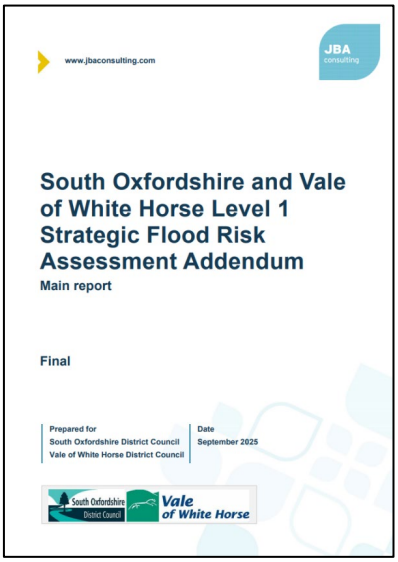
Cover note for the:

South Oxfordshire and Vale of White Horse Level 1 Strategic Flood Risk Assessment Addendum (September 2025)



This is an addendum to our September 2024 South Oxfordshire and Vale of White Horse Level 1 Strategic Flood Risk Assessment (SFRA) (examination library references CEQ11 and CEQ11.1).

This addendum takes account of changes made to the Environment Agency's Flood Map for Planning in March 2025.

The Councils agreed to update our SFRA in our June 2025 Statement of Common Ground with the Environment Agency (examination library reference LPA37).

This addendum should be read alongside our September 2024 Level 1 SFRA and September 2025 Level 2 SFRA (examination library reference LPA45).

The following components of the September 2024 Level 1 SFRA (CEQ11 and CEQ11.1) are superseded by this addendum:

- Appendix B – Functional floodplain delineation *(replaced by Addendum Appendix A)*
- Appendix C - Site screening assessment spreadsheet *(replaced by Addendum Appendix B)*
- Appendix D – Strategic recommendations of the proposed sites *(replaced by Addendum Appendix C)*
- Appendix E – Catchment-level assessment of cumulative impacts of development on flood risk *(replaced by Addendum Appendix D)*

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South Oxfordshire and Vale of White Horse Level 1 Strategic Flood Risk Assessment Addendum

Main report

Final

Prepared for
South Oxfordshire District Council
Vale of White Horse District Council

Date
September 2025

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Contract

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JBA Project Code	2025s1048

This report describes work commissioned by South Oxfordshire District Council and Vale of White Horse District Council by an instruction dated 30 June 2025. The Client's representative for the contract was Rebekah Goodwill of South Oxfordshire and Vale of White Horse District Councils. Laura Thompson of JBA Consulting carried out this work.

Purpose and Disclaimer

Jeremy Benn Associates Limited ("JBA") has prepared this Report for the sole use of South Oxfordshire and Vale of White Horse Joint Local Plan Team and its appointed agents in accordance with the Agreement under which our services were performed.

JBA has no liability for any use that is made of this Report except to South Oxfordshire and Vale of White Horse Joint Local Plan Team for the purposes for which it was originally commissioned and prepared.

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JBA disclaims any undertaking or obligation to advise any person of any change in any matter affecting the Report, which may come or be brought to JBA's attention after the date of the Report.

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 30 June 2025 and 22 September 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. Information obtained by JBA has not been independently verified by JBA, unless otherwise stated in the Report.

Acknowledgements

JBA would like to thank the representatives of South Oxfordshire District Council, Vale of White Horse District Council and the Environment Agency for information provided to inform this assessment.

Contents

List of Tables

Abbreviations

AEP	Annual Exceedance Probability
FMfP	Flood Map for Planning
FRA	Flood Risk Assessment
JLP	Joint Local Plan
NaFRA2	National Flood Risk Assessment 2
NNM	New National Model
NPPF	National Planning Policy Framework
NPPG	National Planning Policy Guidance
RoFSW	Risk of Flooding from Surface Water
SCG	Statement of Common Ground
SFRA	Strategic Flood Risk Assessment
SuDS	Sustainable Drainage Systems

1 Introduction

JBA Consulting were commissioned to produce a Level 1 Strategic Flood Risk Assessment (SFRA) for South Oxfordshire and Vale of White Horse District Councils (the Councils) to support their Joint Local Plan (JLP). The Level 1 SFRA was finalised in September 2024. Since finalisation of the Level 1 SFRA, the Environment Agency (EA) have published the first outputs of their National Flood Risk Assessment 2 (NaFRA2), updating the national flood risk mapping for England (Section 1.1).

The Councils are working with the Environment Agency (EA) to establish a Statement of Common Ground (SCG) as part of the JLP examination process. A summary SCG was agreed in June 2025, which is to be followed by a more detailed SCG at a later stage. Within the summary SCG, at paragraph 2.6, the EA raised a need to update the Level 1 and Level 2 SFRAs to account for changes to the Flood Map for Planning (FMfP) within the study area, stating:

"The Flood Map for Planning (FMfP) was updated on 25 March 2025, following the submission of the plan, as part of the new National Flood Risk Assessment (NaFRA2). Changes to the FMfP include the introduction of the New National Model (NNM) – which supersedes the JFLOW modelling that affects sites across the districts. It is the EA's opinion that, following these changes, both the Level 1 and Level 2 SFRAs will require updating and that, depending on the outcome of that process, the sequential test may need to be re-applied."

It was agreed with the EA that this addendum to the 2024 Level 1 SFRA would be produced to understand any changes to flood risk within the districts. This addendum provides an overview of the newly available NaFRA2 mapping, outlines changes to national planning policy since the completion of the Level 1 SFRA and summarises updates to the appendices included as part of this addendum.

The following components of the 2024 Level 1 SFRA have been superseded by the documents within this addendum:

- Functional floodplain extent and technical note - previously Appendix B
- Site screening assessment spreadsheet - previously Appendix C
- Site screening assessment summary document - previously Appendix D
- Cumulative impact assessment methodology report - previously Appendix E

The Level 2 SFRA has also been updated. This entails an update to 18 individual site assessment reports completed as part of the 2024 Level 2 SFRA, an update to the 2024 Level 2 SFRA main report and the production of three additional individual site assessment reports.

1.1 NaFRA2

The EA published the updated Flood Map for Planning (FMfP) on the 25 March 2025. 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 detailed model outputs where available. In addition to the updated flood zones, the following information is now also provided:

- 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).

The EA published the updated Risk of Flooding from Surface Water (RoFSW) dataset on the 28 January 2025. This includes for high, medium and low risk event extents and depths. However, at the time of writing, the EA have confirmed that the depth information available is not structured in a way that is suitable for planning purposes, and it is therefore not considered in this SFRA.

1.2 Recommendations for developers

It is recommended that developers use the Level 1 SFRA and this accompanying addendum as a starting point to assess the flood risk to their sites and to identify the requirements for site-specific Flood Risk Assessments (FRAs) and any further work that might be required. The EA data available online (data.gov) should be referred to for the latest flood risk data.

It should be noted that the EA intend to publish further NaFRA2 datasets over time, which are expected to include fluvial and surface water depth and hazard information as well as suitable climate change outputs for surface water. Developers should consult with the EA as early as possible in the planning process to understand the requirements for a site-specific FRA and additional assessments they may need to undertake in the interim before publication of additional datasets.

2 Policy and guidance updates

In addition to the release of NaFRA2, there have been a number of updates to key policy and guidance documents since the finalisation of the 2024 Level 1 SFRA.

2.1 National Planning Policy Framework, 2024[1]

The National Planning Policy Framework (NPPF) received a significant revision and was published on 12 December 2024. There has also been a further, minor amendment to the NPPF in February 2025. A summary of the key changes to the NPPF paragraphs relating to planning and flood risk (paragraphs 170 to 182) is provided below:

- Paragraph 173: A new paragraph has been added with the purpose of specifying that the Sequential Test should apply to individual planning applications as well as to local plans. Previously the only reference to applying the Sequential Test was contained within the paragraph above this and it related only to local plans rather than to individual planning applications. This was already included within the Planning Practice Guidance and as such has been included in the NPPF for completeness.
- Paragraph 174 (previously paragraph 168): Reference to the sequential approach has been deleted from this paragraph. (The sequential approach should be used in areas known to be at risk now or in the future from any form of flooding.)
- Paragraph 175: A new paragraph has been added which brings across changes which were made in the Environment Agency standing advice. This addition clarifies under what circumstances the Sequential Test would not need to be applied; where a site-specific flood risk assessment demonstrates that no built development within the site boundary, including access or escape routes, land raising or other potentially vulnerable elements, would be located on an area that would be at risk of flooding from any source, now and in the future (having regard to potential changes in flood risk).
- Paragraph 176: This paragraph is largely the same as paragraph 174 in the previous version of the NPPF, but it has been moved further up the document to a more appropriate location.
- Paragraph 177 (previously paragraph 169): The start of this paragraph has been updated to include “Having applied the sequential test” - providing more clarification that the Sequential Test needs to be applied before the Exception Test.
- Paragraph 182 (previously paragraph 175): The reference to “Major developments” has been removed, thus applying the need for SuDS to all development. A statement on proportionality has also been included in place

1 The South Oxfordshire and Vale of White Horse JLP is being examined against the December 2023 version of the NPPF; however, the December 2024 version should still be considered within planning applications.

of “unless there is clear evidence that this would be inappropriate”. Greater emphasis has also been placed on the multifunctional benefits of SuDS.

2.2 How to prepare a strategic flood risk assessment, 2025

The EA's 'How to prepare a strategic flood risk assessment' guidance was updated 10 April 2025. The key changes to this guidance include greater importance being placed on maintaining SFRAs and keeping the documents as live and as updateable as possible to reflect the latest information, as well as updated guidance on defining the functional floodplain extent (Section 3.1).

There is also increased emphasis on the requirement to assess the effects of climate change on all sources of flooding. The FMfP now includes for climate change allowances for river flooding and check your long term flood risk includes a climate change scenario for surface water flooding (note that the climate change scenario available, at the time of writing, falls short of what is needed for use in planning so additional assessment at the site-specific FRA stage will be required).

2.3 National standards for sustainable drainage systems, 2025

The 'National standards for sustainable drainage systems (SuDS)' was revised 19 June 2025. The revised national standards represent a significant evolution from the original 2015 version. The key developments are outlined below:

- Wider planning role - the 2025 standards are now a material consideration in planning, closely aligned with the latest NPPF (paragraphs 181 and 182), and national planning practice guidance. The standards emphasise nature-based, multifunctional solutions that deliver broader outcomes.
- Runoff management - the updated standards clarify and improve the hierarchy for runoff destinations, with a new emphasis and priority on natural discharge locations.
- Flood risk and extreme rainfall - there is a stronger focus on managing extreme rainfall events and exceedance, with explicit recognition of climate change impacts:
    - The focus is now on peak flow and volume control.
    - Climate change should not be accounted for when determining baseline greenfield runoff rates.
- Amenity and placemaking - there is increased emphasis on integrating SuDS with public open space and wider placemaking, recognising the value of green infrastructure, climate adaptation and community engagement.
- Biodiversity - the standards are now aligned to biodiversity opportunities, particularly linking to biodiversity net gain and local nature recovery strategies.

3 Level 1 SFRA appendix updates

The Level 1 SFRA appendices documents that required updating following the release of NaFRA2 are discussed in the subsequent sections.

3.1 Functional floodplain

The updated FMfP now includes for the 3.3% AEP defended event (rivers and sea) extent, for both present day and accounting for climate change. It is recommended within the 'How to prepare a strategic flood risk assessment' guidance that the present day dataset can be used as a starting point to define the functional floodplain through the SFRA. It was confirmed with the EA that this dataset was appropriate for use within the South Oxfordshire and Vale of White Horse districts, with minor known issues not impacting areas proposed for development.

Appendix A documents the methodology used to update the functional floodplain through this Level 1 SFRA addendum. This document supersedes Appendix B of the 2024 Level 1 SFRA.

3.2 Site screening assessment

The Councils provided a dataset containing 64 JLP potential development sites for assessment. There have been some boundary changes and additions to the sites since the previous site screening was undertaken in 2024.

The screening assessment completed as part of this Level 1 SFRA addendum uses the latest flood risk data available from the EA. Each site was assigned one of three strategic recommendations to assist the LPAs in carrying out the sequential test and to highlight those sites at greatest flood risk:

- Strategic Recommendation A - recommend for withdrawal if built development cannot avoid Flood Zone 3b;
- Strategic Recommendation B - Level 2 SFRA required due to high and/or medium fluvial and/or surface water flood risk. Exception test required if site is at high and/or medium fluvial risk and categorised as more vulnerable or essential infrastructure; and
- Strategic Recommendation C - progress to developer-led FRA.

The outcomes of this assessment can be found in the site screening spreadsheet in Appendix B and the site assessment summary report in Appendix C. These documents supersede Appendix C and Appendix D of the 2024 Level 1 SFRA.

3.3 Cumulative impact assessment

The catchment-level cumulative impact assessment completed for the 2024 Level 1 SFRA relied on the use of Flood Zone 2 and Flood Zone 3 of the FMfP and the low and medium RoFSW extents to understand existing and proxy future fluvial and surface water risk to

properties. It also used the JLP potential development sites for South Oxfordshire and Vale of White Horse to understand future development pressures in each EA Water Framework Directive catchment. Therefore, the assessment has been updated to account for the documented changes in national flood risk data. The methodology used to undertake the cumulative impact assessment is documented in Appendix D. This document supersedes Appendix E of the 2024 Level 1 SFRA.

Of the 51 EA catchments covering both districts, 18 have changed sensitivity score as a result of the new NaFRA2 data to either a higher or lower sensitivity. Table 3-1 documents these changes.

Table 3-1: Cumulative impact assessment catchment changes

Catchment	2024 sensitivity score	2025 sensitivity score
Childrey Brook and Norbrook at Common Barn	Medium	High
Cherwell (Ray to Thames) and Woodeaton Brook	Medium	High
Sulham Brook	Low	High
Mill Brook and Bradfords Brook system, Wallingford	Low	High
Moor Ditch and Ladygrove Ditch	High	Medium
Thames (Reading to Cookham)	High	Medium
Thames (Leach to Evenlode)	High	Medium
Oxon Ray (upstream A41 to Cherwell) including Otmoor	High	Medium
Coln (from Coln Rogers) and Thames (Coln to Leach)	Low	Medium
Tuckmill Brook and tributaries	Low	Medium
Bayswater Brook	Medium	Low
Thame (Scotsgrove Brook to Thames)	Medium	Low
Cole (Bower Bridge to Thames) including Coleshill	Medium	Low
Pang	Medium	Low

4 Level 2 SFRA requirements

Following the Councils' application of the Sequential Test to the assessed sites, where development cannot be appropriately accommodated in low-risk areas, the Councils may need to show that allocated sites can be safe for their lifetime. Some sites may also require application of the Exception Test. In these circumstances, a Level 2 SFRA is required to assess in more detail the nature and implications of the flood characteristics in order for the LPAs to allocate such sites in the JLP.

The 2024 Level 2 SFRA has therefore also been updated, superseding the Level 2 SFRA finalised in September 2024. This has included updating 18 individual site assessment reports with the latest data and information on flood risk. One site report was not updated as this site now has planning permission (site HOU2v North-West of Abingdon-on-Thames).

Through the updated site screening assessment (Section 3.2), 45 **additional** JLP potential development sites have been identified as requiring further assessment through a Level 2 SFRA, largely due to the requirement to carry out a Level 2 SFRA for sites at high or medium risk from surface water flooding. 42 of these sites are not proposed to be taken forward in the JLP (see Appendix 4 of the Site Selection (incorporating Sequential Flood Risk and Exception Test) Topic Paper). Therefore, three **additional** JLP potential development sites have been taken forward for further Level 2 SFRA assessment, namely:

- AS15 - Harcourt Hill Campus
- JT1b - Grove Technology Park
- JT1d - Hithercroft Industrial Estate, Wallingford

A Appendix A - Functional Floodplain Delineation

An update to the technical note explaining the methodology behind the delineation of the functional floodplain (Flood Zone 3b) and the future functional floodplain for this Level 1 SFRA Addendum.

B Appendix B - Site Screening Assessment

Excel spreadsheet containing an updated screening assessment of flood risk to the proposed JLP site allocations and alternative sites based on Flood Zones 1, 2, 3a and 3b, as delineated through this Level 1 SFRA Addendum and accounting for climate change, and the Risk of Flooding from Surface Water (RoFSW), also accounting for climate change. Each site is assigned a strategic recommendation based on the level of flood risk, vulnerability and subsequent developability.

C Appendix C - Site Assessment Summary

Summarises the outcomes of the updated Sites Assessment process recorded in Appendix B.

D Appendix D - Catchment-level Assessment of Cumulative Impacts of Development on Flood Risk

Cumulative impact assessment report outlining the methodology and results of the updated assessment.

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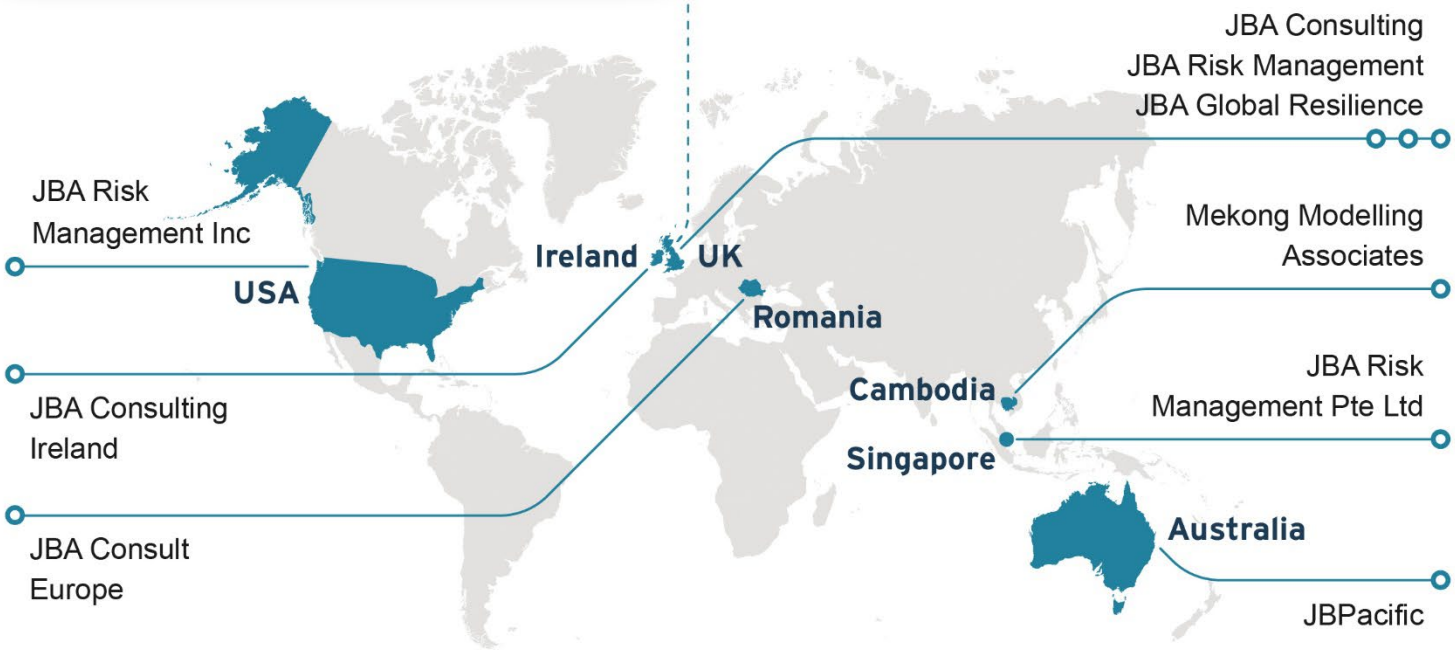

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South Oxfordshire and Vale of White Horse Level 1 SFRA Addendum

Appendix A - Functional Floodplain Delineation Methodology

Final

Prepared for
South Oxfordshire District Council
Vale of White Horse District Council

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Contents

List of Tables

1 Introduction

The Flood Risk and Coastal Change Planning Practice Guidance[1] (FRCC-PPG) states that local planning authorities (LPA) should identify and assess, in their Strategic Flood Risk Assessments (SFRA), areas of functional floodplain and its boundaries accordingly, in agreement with the Environment Agency (EA). The South Oxfordshire and Vale of White Horse functional floodplain (Flood Zone 3b) extent was delineated as part of the Level 1 SFRA, completed in September 2024. In March 2025 the EA updated the Flood Map for Planning, which now includes for the 3.3% AEP (1 in 30 year) defended event. Updated EA guidance[2] recommends that this dataset should be used as the starting point for delineating the functional floodplain extent, as the best available information. Therefore, an update to the South Oxfordshire and Vale of White Horse functional floodplain extent is required. This methodology note explains the updated delineation process.

Note that the functional floodplain (Flood Zone 3b) is not included in the Flood Map for Planning. Although the updated Flood Map for Planning does include for the 3.3% AEP defended event, the functional floodplain should also account for other available data indicating land where water has to flow, or which stores water, in times of flooding. This SFRA therefore sub-divides Flood Zone 3 into Flood Zone 3a and Flood Zone 3b (functional floodplain). This distinction is for the use of LPAs and developers in development planning. Flood Zone 3a can be considered to be Flood Zone 3 of the Flood Map for Planning that is not functional floodplain.

The LPA, Lead Local Flood Authority (LLFA) and the EA must all be consulted on the extent of the functional floodplain outline and the methodology used. The identification of functional floodplain should take account of local circumstances and not be defined solely on rigid probability parameters. The local knowledge of the LPA, LLFA and EA is therefore crucial in defining the functional floodplain as robustly and realistically as possible.

1 Flood Risk and Coastal Change Planning Practice Guidance | UK Government | 2022
2 How to Prepare a Strategic Flood Risk Assessment | Environment Agency | 2025

2 Functional floodplain definition

The EA's SFRA guidance[2] states that the Level 1 SFRA should include the functional floodplain extent on maps with a detailed explanation of how the functional floodplain was defined. This methodology note provides this explanation.

The EA's SFRA guidance (2025) states that functional floodplain mapping should show land that:

"Would flood from rivers or the sea with an annual probability of 1 in 30 (3.3%), with flood risk management features and structures operating effectively

Would normally form the river channel

Is designed to flood (such as flood attenuation schemes), even if it would only flood in more extreme events (such as 0.1% annual probability)"

How to Prepare an SFRA, Environment Agency, 2025

Regarding the impact of defences on the functional floodplain, the EA's guidance states:

"In any modelling used to identify the functional floodplain, include existing defences and other flood risk management features and structures.

You may not need to designate the functional floodplain in locations where evidence shows flooding would be prevented by existing flood defences, flood risk management features or structures, or buildings"

How to Prepare an SFRA, Environment Agency, 2025

Regarding the impact of existing buildings on the functional floodplain, the EA's guidance states:

"The footprints of existing buildings may be removed from functional floodplain extents. However, it may be simpler to include existing buildings and use local policies to control the redevelopment or changes of use that may be acceptable.

Use local policies or guidance to explain the approach you will take when buildings are demolished in functional floodplain. It may be reasonable to assume that sites revert to functional floodplain when buildings have been demolished for more than a year."

How to Prepare an SFRA, Environment Agency, 2025

If there is not enough detailed modelled information available to identify the functional floodplain, this should be made clear on the Level 1 SFRA maps to ensure risk is not underestimated. In these areas, site-specific flood risk assessments should determine whether a site is affected by functional floodplain through additional modelling. If sites are proposed for development in such areas in the local plan, a Level 2 SFRA will be required to robustly map the functional floodplain extent[2].

3 Available datasets

3.1 Rivers and Sea 3.3% defended flood risk extents - present day

Areas within the modelled defended 3.3% AEP extent should be considered as functional floodplain, which is defined as land having a 3.3% or greater annual probability of flooding. The EA have developed a 3.3% AEP defended event (rivers and sea) dataset for both present day and accounting for climate change. The defended scenario considers the presence of flood defences and assumes that they operate in the way they were designed to function. This scenario does not include any asset failure or removal scenarios.

The 3.3% AEP event extent is recommended to be used as a starting point for the functional floodplain delineation. However, this process should also consider other datasets that indicate where water has to flow, or where water is stored, in times of flooding. The additional datasets included within the functional floodplain extent are outlined in Section 3.2.

3.1.1 Known Flood Map for Planning issues in the authority areas

The EA have noted that there are some minor issues with the Flood Map for Planning within the South Oxfordshire and Vale of White Horse authority areas. Notably, these include in the East Hanney area, the western boundary of Vale of White Horse and in the north of South Oxfordshire. However, these areas do not impact any of the proposed site allocations within the study area.

3.2 Additional datasets

In addition to the Rivers and Sea 3.3% defended flood risk extent, the datasets outlined below were also used to assist with the delineation of the functional floodplain:

- EA Statutory Main River Map
  - To define areas of the channel that are designated as main river by the EA.
  - This dataset includes both open channel and culverted watercourses.
  - The dataset has been buffered by 8m either side of the channel line to broadly represent the width of the river across the area. It is recognised that this is an approximation. Policy relating to functional floodplain applies to the actual location of the river and not the buffered channel within the functional floodplain mapping in locations where they may differ.
- The EA Flood Map for Planning - Flood Storage Areas data was considered to define areas of land which store water during a flood event. EA defined Flood Storage Areas are not preset within the study area.

4 Functional floodplain delineation methodology

4.1 GIS methodology

The below steps summarise the methodology used to delineate the functional floodplain:

- The Rivers and Sea 3.3% defended event flood risk extent covering the South Oxfordshire and Vale of White Horse authority areas was used as a starting point.
- All main river channels, including culverted sections of river, were added to the functional floodplain outline. This is required by the EA SFRA guidance to define areas that would normally form the river channel and where water has to flow in times of flooding. At a local scale, this may lead to some inaccuracies, especially in hydrologically complex areas where there are man-made interactions or interactions with other bodies of water such as reservoirs or canals.
- Recognising this, functional floodplain policy relates to the river and not the mapping where they are different. For main rivers, the functional floodplain includes for an 8m buffer either side of the channel to dissuade development to allow for access to the channel for maintenance.
- Each polygon within the functional floodplain outline has been attributed with the source dataset so it is possible to ascertain which dataset each polygon within the outline is based on.
- Checks on the geometry of the functional floodplain outline were carried out to ensure geometric correctness in GIS.

4.2 Methodology hierarchy

The hierarchy of methods used to define the functional floodplain is outlined below:

1. Use of the Rivers and Sea 3.3% defended event flood risk extent (downloaded March 2025)
2. Use of the buffered EA Statutory Main River Map (8 metres either side of the channel)

Table 4-1 provides a description of each source attribute within the functional floodplain dataset. No alternative proxies have been considered within the functional floodplain extent, as where there is no detailed modelled data included within the Rivers and Sea 3.3% defended event flood risk extent, it has been assumed that this has been covered by the EA New National Model (NNM).

Table 4-1: Functional floodplain source attribute definitions

Source attribute	Description
Rivers and Sea 3.3% AEP defended outline (EA) - modelled fluvial	Areas of the Rivers and Sea 3.3% AEP defended outline contributed to by fluvial model outputs
Rivers and Sea 3.3% AEP defended outline (EA) - modelled direct rainfall	Areas of the Rivers and Sea 3.3% AEP defended outline contributed to by direct rainfall model outputs
Rivers and Sea 3.3% AEP defended outline (EA) - modelled fluvial and direct rainfall	Areas of the Rivers and Sea 3.3% AEP defended outline contributed to by a combination of both fluvial and direct rainfall model outputs
Main River (EA)	8m buffered polygon of the Statutory Main River map indicating areas of river channel.

4.3 Environment Agency models

More recently available models may not have been captured as part of the Rivers and Sea 3.3% defended event flood risk extent. Therefore, all available EA models covering the study area were obtained, and the outlines reviewed against the Flood Map for Planning. Table 4-2 lists these models.

All available EA models covering the study area were completed in or before 2022. Therefore, modelled flood outlines have either been superseded by more up to date national modelling or have been included within the Rivers and Sea 3.3% defended event flood risk extent.

Table 4-2: Available Environment Agency models within the study area

Model	Watercourse(s)	Model year
Pang & Sulham Brook (M4 to Thames Confluence)	River Pang, Sulham Brook	2016
Northfield & Littlemore Brooks	Northfield Brook, Littlemore Brook	2011
Thames (Shifford to Eynsham) & Windrush (A40 to Thames Confluence)	River Thames	2011
Thames (St Johns to Shifford)	River Thames	2011
Cole EDA (A419 to South Marston Brook)	River Cole, Dorcan Stream, Liden Brook, Lenta Brook, South Marston Brook	2011

Model	Watercourse(s)	Model year
Stert (A34 to Thames confluence)	River Stert, River Pen	2012
Assendon Stream (Middle Assendon to Thames confluence)	Assendon Stream	2014
Moor Ditch (Didcot to Thames Confluence)	Moor Ditch, Hakkas Brook	2007
Thames (Eynsham to Sandford)	River Thames	2018 / 2022
Ginge Brook	Ginge Brook	2018
Ock (East Hanney to Thames Confluence)	River Ock, Letcombe Brook, Hanney Ditch, Childrey Brook, Nor Brook, Cow Common Brook, Marcham Brook, Portobello Ditch, Landmead Ditch, Mere Dyke, Sandford Brook	2017
Chalgrove Brook (Watlington)	Chalgrove Brook	2016
South Moreton (Flood Map Challenge)	Mill Brook, Mill Brook Spur	2019
Ewelme Stream (Benson)	Ewelme Brook	2019
Didcot Valley Park	Unnamed watercourses	2019
Thames (Sandford to Pangbourne)	River Thames	2018
Thames (Pangbourne to Sonning)	River Thames	2019
Thames (Sonning to Hurley)	River Thames	2019
Letcombe Brook	Letcombe Brook, Humber Ditch	2009
Chalgrove Brook (Chalgrove)	Chalgrove Brook	2022
Thames (MRL to St Johns)	River Thames	2014

4.4 Culverted rivers

The EA Statutory Main River Map includes a high-level and approximate representation of culverted sections of watercourses. These sections are subject to a higher degree of uncertainty as it is more challenging to identify and verify below ground alignments. Within culverted sections, functional floodplain policy relates to the actual confirmed alignment of culverted sections, as identified through site investigation, rather than the alignment shown

in the functional floodplain where it differs. The EA or LLFA may be able to advise on the culverted sections in the functional floodplain.

It is recommended that investigations of onsite culverted watercourses to establish their full route, condition and capacity are carried out through a site-specific flood risk assessment and incorporated into the surface water sustainable drainage strategy, as required.

4.5 Waterbodies

The river channel datasets contain open river channels and culverted sections of channel only and do not include other types of waterbodies such as reservoirs, canals, lakes or ponds. Waterbodies are only included in the delineated functional floodplain where they are present within the Rivers and Sea 3.3% defended event flood risk extent. There is no reliable dataset to identify waterbodies that can be used to delineate the functional floodplain.

4.6 Buildings and infrastructure

Buildings and infrastructure within the functional floodplain have been retained within the outline, i.e. they have not been removed on the assumption that floodwater ingress may occur. EA SFRA guidance states that you do not need to designate functional floodplain in locations where evidence shows flooding would be prevented by existing buildings, however it may be simpler to include them and use local policies to control the redevelopment or changes of use that may be acceptable.

4.7 Dry islands

Areas of higher land shown as 'dry islands' within the functional floodplain should also be considered undevelopable where safe access and escape routes are unachievable. The only exception to this is for water compatible or essential infrastructure uses where the exception test has been passed. It has been assumed that any 'dry islands' within the functional floodplain outlines should be considered as functional floodplain where these areas are located within Flood Zone 3 of the EA's Flood Map for Planning.

5 Future functional floodplain

In addition to the present day functional floodplain outline, a future functional floodplain outline, as advised in EA guidance, has been delineated. The same approach to producing the present day outline has been taken for the future functional floodplain, however the Rivers and Sea 3.3% AEP plus climate change defended outline has been used as the starting point. The climate change allowances used to produce this dataset are based on the latest UK Climate Projections (UKCP18) from the Met Office, using the Representative Concentration Pathway (RCP) 8.5.

6 Recommendations

The functional floodplain outline has been assessed and agreed upon by the LPA, LLFA and the EA. The extent of the functional floodplain outline produced from this Level 1 SFRA addendum should always be assessed in greater detail where any more detailed study such as updated hydraulic modelling, a Level 2 SFRA or site-specific FRA are undertaken.

Were additional information to be made available, such as photographic evidence of main river flooding, the functional floodplain update can be updated to reflect this. However, given the functional floodplain extent represents main river flooding, the EA should be consulted on any future updates.

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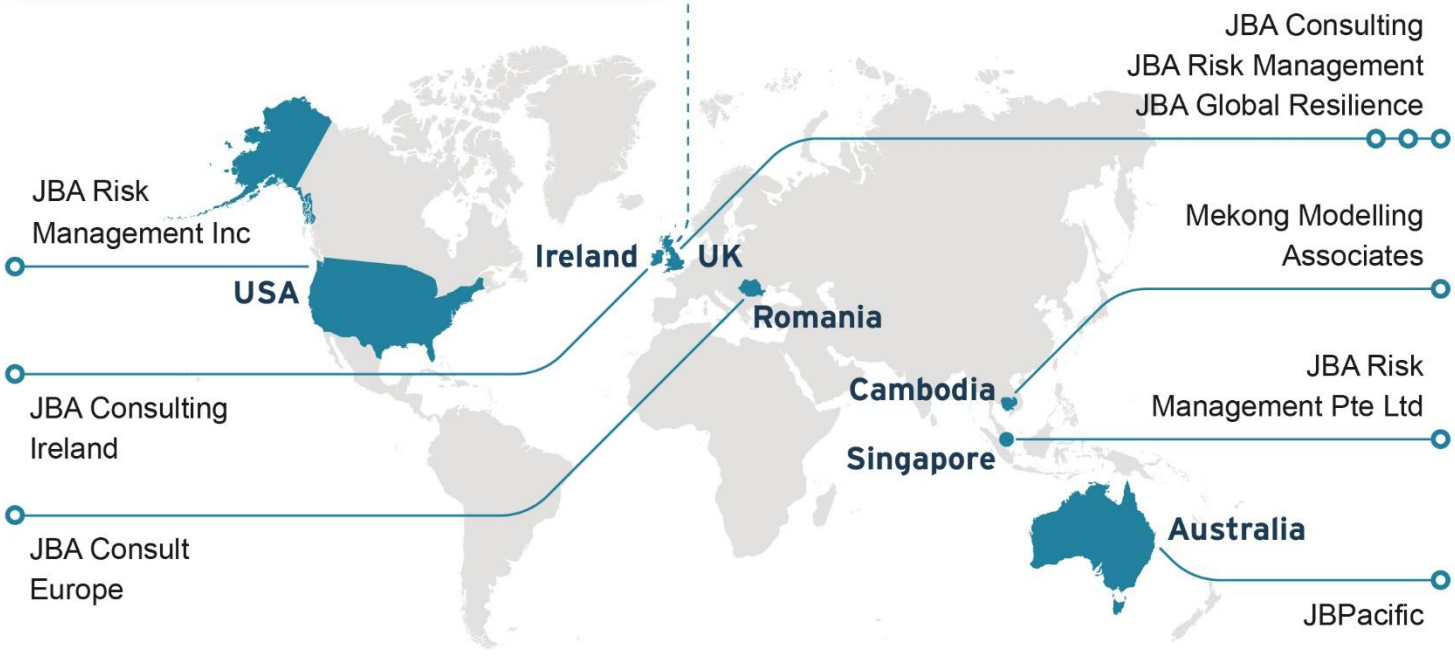

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Level 1 SFRA Addendum Appendix B - Joint Local Plan Site Screening Assessment

South Oxfordshire and Vale of White Horse

Summary Table

Level 1 SFRA Addendum Appendix B - Joint Local Plan Site Screening Assessment

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Proposed Use	Number of Sites	Area (ha)	Fluvial Flood Zone Coverage: Flood Zone 1 Area (ha)	No. 100%	Flood Zone 2 Area (ha)	No.	Flood Zone 3a Area (ha)	No.	Flood Zone 3b Area (ha)	No.	Risk of Flooding from Surface Water: Very Low Risk (less than a 1 in 1000 year event) Area (ha)	No. 100%	Low Risk (1 in 1000 year event) Area (ha)	No.	Medium Risk (1 in 100 year event) Area (ha)	No.	High Risk (1 in 30 year event) Area (ha)	No.	Risk of Flooding from Fluvial Climate Change: Flood Zone 3b + climate change (additional risk) Area (ha)	No.	Flood Zone 3a + climate change (additional risk) Area (ha)	No.	Flood Zone 2 + climate change (additional risk) Area (ha)	No.	Risk of Flooding from Surface Water Climate Change: Medium Risk plus Climate Change (using Low Risk as a proxy) Area (ha)	No.	Reservoir Flooding: Reservoir Flood Maps Dry Day Extent Area (ha)	No.
Residential	39	2900.16	2738.63	20	51.80	19	14.20	18	95.53	17	2685.94	1	91.18	38	35.32	38	87.72	37	9.21	17	0.58	1	22.21	18	91.18	38	15.93	3
Employment	15	440.93	434.01	8	5.39	6	0.84	5	0.69	5	395.09	0	30.75	15	8.21	14	6.88	15	1.13	5	0.00	0	11.93	5	30.75	15	0.12	2
Educational and Leisure	1	22.74	22.74	1	0.00	0	0.00	0	0.00	0	22.14	0	0.35	1	0.11	1	0.14	1	0.00	0	0.00	0	0.00	0	0.35	1	0.00	0
Mixed Use	9	729.49	685.70	4	10.16	5	9.45	4	24.18	3	670.91	0	29.12	9	10.37	9	19.09	9	3.89	3	0.04	1	2.47	5	29.12	9	13.12	1
TOTAL	**64**	**4093.32**	**3881.08**	**33**	**67.35**	**30**	**24.49**	**27**	**120.40**	**25**	**3774.08**	**1**	**151.40**	**63**	**54.01**	**62**	**113.83**	**62**	**14.23**	**25**	**0.62**	**2**	**36.61**	**28**	**151.40**	**63**	**29.17**	**6**

Key

Flood Zone 3b / Flood Zone 3b plus	The colour coding shows the highest risk element of the flood zone that is present on site and is not in itself an indication of whether the site should or shouldn't be developed for flooding reason
Flood Zone 3a / Flood Zone 3a plus	
Flood Zone 2 / Flood Zone 2 plus climate change	
Flood Zone 1 + Sur	
Flood Zone 1	

Main Table

Site Reference	Site Name	Proposed Use	Area (ha)	Fluvial Flood Zone Coverage: Flood Zone 1 Area (ha)	%	Flood Zone 2 Area (ha)	%	Flood Zone 3a Area (ha)	%	Flood Zone 3b Area (ha)	%	Risk of Flooding from Surface Water: Very Low Risk (less than a 1 in 1000 year event) Area (ha)	%	Low Risk (1 in 1000 year event) Area (ha)	%	Medium Risk (1 in 100 year event) Area (ha)	%	High Risk (1 in 30 year event) Area (ha)	%	Risk of Flooding from Fluvial Climate Change: Flood Zone 3b + climate change (additional risk) Area (ha)	%	Flood Zone 3a + climate change (additional risk) Area (ha)	%	Flood Zone 2 + climate change (additional risk) Area (ha)	%	Risk of Flooding from Surface Water Climate Change: Medium Risk plus Climate Change (additional risk - using Low Risk as a proxy) Area (ha)	%	Reservoir Flooding: Reservoir Flood Maps Dry Day Extent Area (ha)	%
AS1	Land at Berinsfield Garden Village	Mixed	132.5200	125.8800	95.0	1.1900	0.9	5.4500	4.1	0.0000	0.0	127.7	96.4	3.3500	2.5	0.8000	0.6	0.6500	0.5	0.000	0.0	0.040	0.0	0.800	0.6	3.3500	2.5	0.000	0.0
AS2	Land adjacent to Culham Campus	Mixed	217.4300	189.9100	87.3	5.2900	2.4	2.5200	1.2	19.7100	9.1	206.2	94.8	6.6100	3.0	1.8100	0.8	2.7800	1.3	2.590	1.2	0.000	0.0	0.600	0.3	6.6100	3.0	13.120	6.0
AS3	Land South of Grenoble Road, Edge of Oxford	Mixed	136.1100	128.5800	94.5	1.8500	1.4	1.4500	1.1	4.2300	3.1	113.0	83.0	8.9900	6.6	3.7500	2.8	10.4000	7.6	1.280	0.9	0.000	0.0	0.770	0.6	8.9900	6.6	0.000	0.0
AS4	Land at Northfield, Edge of Oxford	Residential	68.0500	56.0400	82.4	1.9400	2.9	0.0600	0.1	10.0100	14.7	59.8	87.9	3.6700	5.4	2.2900	3.4	2.2700	3.3	0.040	0.1	0.000	0.0	0.120	0.2	3.6700	5.4	0.000	0.0
AS5	Land at Bayswater Brook, Edge of Oxford	Residential	105.0800	90.3200	86.0	2.8500	2.7	1.0700	1.0	10.8400	10.3	99.3	94.5	3.1000	3.0	0.7900	0.8	1.8700	1.8	0.590	0.6	0.000	0.0	0.460	0.4	3.1000	3.0	0.000	0.0
AS6	Rich's Sidings and Broadway, Didcot	Mixed	2.9600	2.9600	100.0	0.0000	0.0	0.0000	0.0	0.0000	0.0	2.7	92.6	0.0800	2.7	0.0300	1.0	0.1100	3.7	0.000	0.0	0.000	0.0	0.000	0.0	0.0800	2.7	0.000	0.0
AS7	Didcot Gateway, Didcot	Mixed	4.3400	4.3400	100.0	0.0000	0.0	0.0000	0.0	0.0000	0.0	3.2	73.0	0.5400	12.4	0.2900	6.7	0.3400	7.8	0.000	0.0	0.000	0.0	0.000	0.0	0.5400	12.4	0.000	0.0
AS8	North West of Grove, Grove	Residential	28.3700	28.3700	100.0	0.0000	0.0	0.0000	0.0	0.0000	0.0	24.2	85.4	1.0200	3.6	0.8600	3.0	2.2600	8.0	0.000	0.0	0.000	0.0	0.000	0.0	1.0200	3.6	0.000	0.0
AS9	North West of Valley Park, Didcot	Residential	33.2800	29.1100	87.5	1.4500	4.4	1.6800	5.0	1.0400	3.1	30.6	92.1	0.8800	2.6	0.5000	1.5	1.2600	3.8	1.640	4.9	0.000	0.0	1.410	4.2	0.8800	2.6	0.000	0.0
AS10	Land at Dalton Barracks Garden Village, Shippon	Mixed	145.5200	145.1900	99.8	0.0600	0.0	0.0300	0.0	0.2400	0.2	134.7	92.5	6.2700	4.3	2.2400	1.5	2.3400	1.6	0.020	0.0	0.000	0.0	0.030	0.0	6.2700	4.3	0.000	0.0
AS11	Culham Campus	Employment	77.3500	77.3500	100.0	0.0000	0.0	0.0000	0.0	0.0000	0.0	62.4	80.7	9.0300	11.7	2.5300	3.3	3.3500	4.3	0.000	0.0	0.000	0.0	0.000	0.0	9.0300	11.7	0.000	0.0
AS12	Harwell Campus	Employment	282.2600	282.2600	100.0	0.0000	0.0	0.0000	0.0	0.0000	0.0	262.7	93.1	15.6800	5.6	3.1100	1.1	0.7400	0.3	0.000	0.0	0.000	0.0	0.000	0.0	15.6800	5.6	0.000	0.0
AS15	Harcourt Hill Campus	Educational & Leisure	22.7400	22.7400	100.0	0.0000	0.0	0.0000	0.0	0.0000	0.0	22.1	97.4	0.3500	1.5	0.1100	0.5	0.1400	0.6	0.000	0.0	0.000	0.0	0.000	0.0	0.3500	1.5	0.000	0.0
AS16	Vauxhall Barracks, Didcot	Mixed	9.8700	9.8700	100.0	0.0000	0.0	0.0000	0.0	0.0000	0.0	9.6	97.4	0.1700	1.7	0.0100	0.1	0.0800	0.8	0.000	0.0	0.000	0.0	0.000	0.0	0.1700	1.7	0.000	0.0
JT1a	Southmead Industrial Estate, Didcot	Employment	2.6400	2.5400	96.2	0.0000	0.0	0.0000	0.0	0.1000	3.8	2.5	93.6	0.0400	1.5	0.0400	1.5	0.0900	3.4	0.000	0.0	0.000	0.0	1.010	38.3	0.0400	1.5	0.000	0.0
JT1b	Grove Technology Park	Employment	13.2200	13.2200	100.0	0.0000	0.0	0.0000	0.0	0.0000	0.0	11.3	85.6	1.0400	7.9	0.3000	2.3	0.5600	4.2	0.000	0.0	0.000	0.0	0.000	0.0	1.0400	7.9	0.000	0.0
JT1d	Hithercroft Industrial Estate, Wallingford	Employment	0.5700	0.5700	100.0	0.0000	0.0	0.0000	0.0	0.0000	0.0	0.5	86.0	0.0700	12.3	0.0000	0.0	0.0100	1.8	0.000	0.0	0.000	0.0	0.000	0.0	0.0700	12.3	0.000	0.0
JT1e	Monument Business Park, Chalgrove	Employment	2.2500	2.2500	100.0	0.0000	0.0	0.0000	0.0	0.0000	0.0	1.3	55.6	0.3600	16.0	0.1700	7.6	0.4700	20.9	0.000	0.0	0.000	0.0	0.000	0.0	0.3600	16.0	0.000	0.0
JT1f	Abingdon Science Park	Employment	16.7200	14.3700	85.9	1.8600	11.1	0.2400	1.4	0.2500	1.5	14.3	85.3	1.4100	8.4	0.6600	3.9	0.3900	2.3	0.390	2.3	0.000	0.0	6.800	40.7	1.4100	8.4	0.060	0.4
JT1i	Former Esso Research Centre	Employment	11.0200	11.0200	100.0	0.0000	0.0	0.0000	0.0	0.0000	0.0	10.3	93.5	0.3700	3.4	0.1400	1.3	0.2100	1.9	0.000	0.0	0.000	0.0	0.000	0.0	0.3700	3.4	0.000	0.0
JT1k	South of Park Road, Faringdon	Employment	3.7000	3.7000	100.0	0.0000	0.0	0.0000	0.0	0.0000	0.0	3.2	85.4	0.2600	7.0	0.0900	2.4	0.1900	5.1	0.000	0.0	0.000	0.0	0.000	0.0	0.2600	7.0	0.000	0.0
SH574	Former South Oxfordshire District Council offices, Crowmarsh Gifford	Mixed	2.7800	1.0100	36.3	1.7700	63.7	0.0000	0.0	0.0000	0.0	2.1	74.1	0.4400	15.8	0.1200	4.3	0.1600	5.8	0.000	0.0	0.000	0.0	0.270	9.7	0.4400	15.8	0.000	0.0
SH602	Land north of Wallingford	Residential	21.4700	21.4700	100.0	0.0000	0.0	0.0000	0.0	0.0000	0.0	20.9	97.4	0.1900	0.9	0.1400	0.7	0.2200	1.0	0.000	0.0	0.000	0.0	0.000	0.0	0.1900	0.9	0.000	0.0
SH605	Land off Wantage Road, Wallingford	Residential	55.0400	55.0400	100.0	0.0000	0.0	0.0000	0.0	0.0000	0.0	49.5	89.9	2.4100	4.4	1.1500	2.1	1.9900	3.6	0.000	0.0	0.000	0.0	0.000	0.0	2.4100	4.4	0.000	0.0
SH609	Land at Cholsey Fields, Cholsey	Residential	28.4400	28.4400	100.0	0.0000	0.0	0.0000	0.0	0.0000	0.0	27.4	96.5	0.4800	1.7	0.1700	0.6	0.3500	1.2	0.000	0.0	0.000	0.0	0.000	0.0	0.4800	1.7	0.000	0.0
SH628	Richmead Park	Residential	60.3100	60.3100	100.0	0.0000	0.0	0.0000	0.0	0.0000	0.0	57.6	95.4	2.1600	3.6	0.2200	0.4	0.3700	0.6	0.000	0.0	0.000	0.0	0.000	0.0	2.1600	3.6	0.000	0.0
SH649	Blackditch Farm	Residential	25.8100	25.8100	100.0	0.0000	0.0	0.0000	0.0	0.0000	0.0	21.3	82.7	1.4000	5.4	0.6700	2.6	2.4000	9.3	0.000	0.0	0.000	0.0	0.000	0.0	1.4000	5.4	0.000	0.0
SH668	Chalgrove Airfield	Residential	444.3200	432.5100	97.3	2.7900	0.6	0.2900	0.1	8.7300	2.0	404.1	90.9	15.2000	3.4	5.4500	1.2	19.6200	4.4	0.340	0.1	0.000	0.0	0.350	0.1	15.2000	3.4	9.350	2.1
SH685	Land southwest of Chinnor	Residential	51.2900	51.0900	99.6	0.0500	0.1	0.0200	0.0	0.1300	0.3	51.1	99.6	0.1500	0.3	0.0500	0.1	0.0200	0.04	0.020	0.0	0.000	0.0	0.030	0.1	0.1500	0.3	0.000	0.0
SH692	South Fleet	Residential	33.4900	33.4900	100.0	0.0000	0.0	0.0000	0.0	0.0000	0.0	33.2	99.2	0.1300	0.4	0.0800	0.2	0.0700	0.2	0.000	0.0	0.000	0.0	0.000	0.0	0.1300	0.4	0.000	0.0
SH787	Land Off Wantage Road	Mixed	77.9600	77.9600	100.0	0.0000	0.0	0.0000	0.0	0.0000	0.0	71.7	92.0	2.6700	3.4	1.3200	1.7	2.2300	2.9	0.000	0.0	0.000	0.0	0.000	0.0	2.6700	3.4	0.000	0.0
SH811	Land south west of Thame (Highfields)	Residential	40.2700	36.7800	91.3	1.0300	2.6	0.2600	0.6	2.2000	5.5	35.5	88.1	2.0600	5.1	0.9800	2.4	1.7600	4.4	0.310	0.8	0.000	0.0	0.760	1.9	2.0600	5.1	1.260	3.1
SH816	Land southeast of Moorend Lane, Thame, OX9 3JL	Residential	30.9500	30.9500	100.0	0.0000	0.0	0.0000	0.0	0.0000	0.0	29.8	96.3	0.6500	2.1	0.2600	0.8	0.2500	0.8	0.000	0.0	0.000	0.0	0.000	0.0	0.6500	2.1	0.000	0.0
SH830	Land to the North of the A329 at Cholsey	Residential	33.2700	33.2700	100.0	0.0000	0.0	0.0000	0.0	0.0000	0.0	31.8	95.6	0.9700	2.9	0.2000	0.6	0.3100	0.9	0.000	0.0	0.000	0.0	0.000	0.0	0.9700	2.9	0.000	0.0
VH128	Kingston Bagpuize House	Residential	7.6200	7.6200	100.0	0.0000	0.0	0.0000	0.0	0.0000	0.0	7.5	97.8	0.0900	1.2	0.0400	0.5	0.0400	0.5	0.000	0.0	0.000	0.0	0.000	0.0	0.0900	1.2	0.000	0.0
VH139	Land at Crown Packaging, Wantage	Residential	7.0200	7.0200	100.0	0.0000	0.0	0.0000	0.0	0.0000	0.0	6.1	87.0	0.6500	9.3	0.1600	2.3	0.1000	1.4	0.000	0.0	0.000	0.0	0.000	0.0	0.6500	9.3	0.000	0.0
VH235	Land at The Potting Shed Nursery, Longworth	Residential	5.1300	5.1300	100.0	0.0000	0.0	0.0000	0.0	0.0000	0.0	4.5	87.5	0.1700	3.3	0.0500	1.0	0.4200	8.2	0.000	0.0	0.000	0.0	0.000	0.0	0.1700	3.3	0.000	0.0
VH267	Land at The Croft and Little Croft, Milton Heights	Residential	3.2500	3.2500	100.0	0.0000	0.0	0.0000	0.0	0.0000	0.0	3.0	92.0	0.1400	4.3	0.0600	1.8	0.0600	1.8	0.000	0.0	0.000	0.0	0.000	0.0	0.1400	4.3	0.000	0.0

Site Reference	Risk of groundwater emergence (JBA Groundwater Map)	Flood Risk Vulnerability Classification (NPPF)	Level 1 Strategic Recommendation (see SFRA Report)	Development Considerations	Recommended Next Steps	Councils Comments	Councils Decision on Site for Joint Local Plan
AS1	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.	More vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high risk from fluvial sources. Exception test required. Groundwater risk should be investigated further at FRA stage.	Withdraw from allocation if built development cannot avoid Flood Zone 3a or carry out Level 2 SFRA.	Policy AS1 requires built development at this site to be focused within Flood Zone 1. The indicative site concept plan (Figure 8.1 of the Joint Local Plan Pre-submission Publication Version, October 2024) shows the part of the site within Flood Zone 3a to be identified for green infrastructure.	Progress to Level 2 SFRA.
AS2	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.	More vulnerable	Strategic Recommendation A	Recommend for withdrawal if built development cannot avoid Flood Zone 3b. Groundwater and reservoir risk should be investigated further at FRA stage.	Development not permitted in Flood Zone 3b or future functional floodplain. Check whether site boundary can be redrawn or whether it may be possible to incorporate functional floodplain into site layout and design as open greenspace. This may be possible for sites where percentage area of functional floodplain is lower. Site should be withdrawn if these criteria cannot be met. A Level 2 SFRA may be required to inform this process.	The part of this site identified as being at risk of fluvial flooding is along the northern boundary with the River Thames. Policy AS2 requires built development at this site to be focused within Flood Zone 1. Policy AS2 also requires that development at this site must have a layout which retains undeveloped land to the northern border of the site, which should be utilised for floodplain storage. The indicative site concept plan (Figure 8.2 of the Joint Local Plan Pre-submission Publication Version, October 2024) shows the northern part of the site to be identified for green infrastructure.	Progress to Level 2 SFRA.
AS3	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.	More vulnerable	Strategic Recommendation A	Recommend for withdrawal if built development cannot avoid Flood Zone 3b. Groundwater risk should be investigated further at FRA stage.	Development not permitted in Flood Zone 3b or future functional floodplain. Check whether site boundary can be redrawn or whether it may be possible to incorporate functional floodplain into site layout and design as open greenspace. This may be possible for sites where percentage area of functional floodplain is lower. Site should be withdrawn if these criteria cannot be met. A Level 2 SFRA may be required to inform this process.	Policy AS3 requires built development at this site to be focused within Flood Zone 1. The indicative site concept plan (Figure 8.3 of the Joint Local Plan Pre-submission Publication Version, October 2024) shows the part of the site at risk of fluvial flooding to be identified for green infrastructure. However, essential infrastructure (road access) may be required in this area, subject to the exception test.	Progress to Level 2 SFRA.
AS4	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.	More vulnerable	Strategic Recommendation A	Recommend for withdrawal if built development cannot avoid Flood Zone 3b. Groundwater risk should be investigated further at FRA stage.	Development not permitted in Flood Zone 3b or future functional floodplain. Check whether site boundary can be redrawn or whether it may be possible to incorporate functional floodplain into site layout and design as open greenspace. This may be possible for sites where percentage area of functional floodplain is lower. Site should be withdrawn if these criteria cannot be met. A Level 2 SFRA may be required to inform this process.	Policy AS4 requires built development at this site to be focused within Flood Zone 1. The indicative site concept plan (Figure 8.4 of the Joint Local Plan Pre-submission Publication Version, October 2024) shows the part of the site at risk of fluvial flooding to be identified for green infrastructure.	Progress to Level 2 SFRA.
AS5	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.	More vulnerable	Strategic Recommendation A	Recommend for withdrawal if built development cannot avoid Flood Zone 3b. Groundwater risk should be investigated further at FRA stage.	Development not permitted in Flood Zone 3b or future functional floodplain. Check whether site boundary can be redrawn or whether it may be possible to incorporate functional floodplain into site layout and design as open greenspace. This may be possible for sites where percentage area of functional floodplain is lower. Site should be withdrawn if these criteria cannot be met. A Level 2 SFRA may be required to inform this process.	Policy AS5 requires built development at this site to be focused within Flood Zone 1. The indicative site concept plan (Figure 8.5 of the Joint Local Plan Pre-submission Publication Version, October 2024) shows the part of the site at risk of fluvial flooding to be identified for green infrastructure. However, essential infrastructure (road access) may be required in this area, subject to the exception test.	Progress to Level 2 SFRA.
AS6	No risk.	More vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources.	Withdraw from allocation or carry out Level 2 SFRA to further inform on surface water flood risk. Note: RoFSW depth, hazard, velocity data not currently available from the EA. Guidance from the EA will therefore be required as to how any Level 2 SFRA would consider surface water flood risk.	Progress to Level 2 SFRA.	Progress to Level 2 SFRA.
AS7	No risk.	More vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources.	Withdraw from allocation or carry out Level 2 SFRA to further inform on surface water flood risk. Note: RoFSW depth, hazard, velocity data not currently available from the EA. Guidance from the EA will therefore be required as to how any Level 2 SFRA would consider surface water flood risk.	Progress to Level 2 SFRA.	Progress to Level 2 SFRA.
AS8	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.	More vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Groundwater risk should be investigated further at FRA stage.	Withdraw from allocation or carry out Level 2 SFRA to further inform on surface water flood risk. Note: RoFSW depth, hazard, velocity data not currently available from the EA. Guidance from the EA will therefore be required as to how any Level 2 SFRA would consider surface water flood risk.	Progress to Level 2 SFRA.	Progress to Level 2 SFRA.
AS9	No risk.	More vulnerable	Strategic Recommendation A	Recommend for withdrawal if built development cannot avoid Flood Zone 3b.	Development not permitted in Flood Zone 3b or future functional floodplain. Check whether site boundary can be redrawn or whether it may be possible to incorporate functional floodplain into site layout and design as open greenspace. This may be possible for sites where percentage area of functional floodplain is lower. Site should be withdrawn if these criteria cannot be met. A Level 2 SFRA may be required to inform this process.	Policy AS9 requires built development at this site to be focused within Flood Zone 1. The indicative site concept plan (Figure 8.9 of the Joint Local Plan Pre-submission Publication Version, October 2024) shows the part of the site at risk of fluvial flooding to be identified for green infrastructure or safeguarded for highways improvements (essential infrastructure), subject to the exception test.	Progress to Level 2 SFRA.
AS10	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.	More vulnerable	Strategic Recommendation A	Recommend for withdrawal if built development cannot avoid Flood Zone 3b. Groundwater risk should be investigated further at FRA stage.	Development not permitted in Flood Zone 3b or future functional floodplain. Check whether site boundary can be redrawn or whether it may be possible to incorporate functional floodplain into site layout and design as open greenspace. This may be possible for sites where percentage area of functional floodplain is lower. Site should be withdrawn if these criteria cannot be met. A Level 2 SFRA may be required to inform this process.	Only a very small area at the periphery of this site is within Flood Zones 3a or 3b. Policy AS10 requires built development at this site to be focused within Flood Zone 1. The indicative site concept plan (Figure 8.10 of the Joint Local Plan Pre-submission Publication Version, October 2024) shows the part of the site within Flood Zone 3a to be identified for green infrastructure.	Progress to Level 2 SFRA.
AS11	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.	Less vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Groundwater risk should be investigated further at FRA stage.	Withdraw from allocation or carry out Level 2 SFRA to further inform on surface water flood risk. Note: RoFSW depth, hazard, velocity data not currently available from the EA. Guidance from the EA will therefore be required as to how any Level 2 SFRA would consider surface water flood risk.	Progress to Level 2 SFRA.	Progress to Level 2 SFRA.
AS12	There is a risk of flooding to subsurface assets, but surface manifestation of groundwater is unlikely.	Less vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources.	Withdraw from allocation or carry out Level 2 SFRA to further inform on surface water flood risk. Note: RoFSW depth, hazard, velocity data not currently available from the EA. Guidance from the EA will therefore be required as to how any Level 2 SFRA would consider surface water flood risk.	Progress to Level 2 SFRA.	Progress to Level 2 SFRA.
AS15	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.	More vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Groundwater risk should be investigated further at FRA stage.	Withdraw from allocation or carry out Level 2 SFRA to further inform on surface water flood risk. Note: RoFSW depth, hazard, velocity data not currently available from the EA. Guidance from the EA will therefore be required as to how any Level 2 SFRA would consider surface water flood risk.	Progress to Level 2 SFRA.	Progress to Level 2 SFRA.
AS16	No risk.	More vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources.	Withdraw from allocation or carry out Level 2 SFRA to further inform on surface water flood risk. Note: RoFSW depth, hazard, velocity data not currently available from the EA. Guidance from the EA will therefore be required as to how any Level 2 SFRA would consider surface water flood risk.	Progress to Level 2 SFRA.	Progress to Level 2 SFRA.
JT1a	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.	Less vulnerable	Strategic Recommendation A	Recommend for withdrawal if built development cannot avoid Flood Zone 3b. Groundwater risk should be investigated further at FRA stage.	Development not permitted in Flood Zone 3b or future functional floodplain. Check whether site boundary can be redrawn or whether it may be possible to incorporate functional floodplain into site layout and design as open greenspace. This may be possible for sites where percentage area of functional floodplain is lower. Site should be withdrawn if these criteria cannot be met. A Level 2 SFRA may be required to inform this process.	Fluvial flood risk is focused along the site's eastern boundary. It is possible for built development, including access, to avoid this area.	Progress to Level 2 SFRA.
JT1b	There is a risk of groundwater flooding to surface and subsurface assets. There is the possibility of groundwater emerging at the surface locally.	Less vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Groundwater risk should be investigated further at FRA stage.	Withdraw from allocation or carry out Level 2 SFRA to further inform on surface water flood risk. Note: RoFSW depth, hazard, velocity data not currently available from the EA. Guidance from the EA will therefore be required as to how any Level 2 SFRA would consider surface water flood risk.	Progress to Level 2 SFRA.	Progress to Level 2 SFRA.
JT1d	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.	Less vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Groundwater risk should be investigated further at FRA stage.	Withdraw from allocation or carry out Level 2 SFRA to further inform on surface water flood risk. Note: RoFSW depth, hazard, velocity data not currently available from the EA. Guidance from the EA will therefore be required as to how any Level 2 SFRA would consider surface water flood risk.	Progress to Level 2 SFRA.	Progress to Level 2 SFRA.
JT1e	There is a risk of groundwater flooding to surface and subsurface assets. There is the possibility of groundwater emerging at the surface locally.	Less vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Groundwater risk should be investigated further at FRA stage.	Withdraw from allocation or carry out Level 2 SFRA to further inform on surface water flood risk. Note: RoFSW depth, hazard, velocity data not currently available from the EA. Guidance from the EA will therefore be required as to how any Level 2 SFRA would consider surface water flood risk.	Progress to Level 2 SFRA.	Progress to Level 2 SFRA.
JT1f	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.	Less vulnerable	Strategic Recommendation A	Recommend for withdrawal if built development cannot avoid Flood Zone 3b. Groundwater and reservoir risk should be investigated further at FRA stage.	Development not permitted in Flood Zone 3b or future functional floodplain. Check whether site boundary can be redrawn or whether it may be possible to incorporate functional floodplain into site layout and design as open greenspace. This may be possible for sites where percentage area of functional floodplain is lower. Site should be withdrawn if these criteria cannot be met. A Level 2 SFRA may be required to inform this process.	Fluvial flood risk is focused towards the edges of the site. It is possible for built development, including access, to avoid these areas.	Progress to Level 2 SFRA.
JT1i	No risk.	Less vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources.	Withdraw from allocation or carry out Level 2 SFRA to further inform on surface water flood risk. Note: RoFSW depth, hazard, velocity data not currently available from the EA. Guidance from the EA will therefore be required as to how any Level 2 SFRA would consider surface water flood risk.	Progress to Level 2 SFRA.	Progress to Level 2 SFRA.
JT1k	There is a risk of groundwater flooding to surface and subsurface assets. There is the possibility of groundwater emerging at the surface locally.	Less vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Groundwater risk should be investigated further at FRA stage.	Withdraw from allocation or carry out Level 2 SFRA to further inform on surface water flood risk. Note: RoFSW depth, hazard, velocity data not currently available from the EA. Guidance from the EA will therefore be required as to how any Level 2 SFRA would consider surface water flood risk.	Progress to Level 2 SFRA.	Progress to Level 2 SFRA.
SH574	There is a risk of flooding to subsurface assets, but surface manifestation of groundwater is unlikely.	More vulnerable	Strategic Recommendation B	Level 2 SFRA required due to medium risk from fluvial sources.	Carry out Level 2 SFRA to understand fluvial flood risk.	This site is not proposed to be taken forward as an allocation in the Joint Local Plan. Please see Appendix 4 of our Site Selection (incorporating Sequential Flood Risk and Exception Test) Topic Paper for the reason why this site is not taken forward.	Do **not** progress to Level 2 SFRA.
SH602	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.	More vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Groundwater risk should be investigated further at FRA stage.	Withdraw from allocation or carry out Level 2 SFRA to further inform on surface water flood risk. Note: RoFSW depth, hazard, velocity data not currently available from the EA. Guidance from the EA will therefore be required as to how any Level 2 SFRA would consider surface water flood risk.	This site is not proposed to be taken forward as an allocation in the Joint Local Plan. Please see Appendix 4 of our Site Selection (incorporating Sequential Flood Risk and Exception Test) Topic Paper for the reason why this site is not taken forward.	Do **not** progress to Level 2 SFRA.
SH605	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.	More vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Groundwater risk should be investigated further at FRA stage.	Withdraw from allocation or carry out Level 2 SFRA to further inform on surface water flood risk. Note: RoFSW depth, hazard, velocity data not currently available from the EA. Guidance from the EA will therefore be required as to how any Level 2 SFRA would consider surface water flood risk.	This site is not proposed to be taken forward as an allocation in the Joint Local Plan. Please see Appendix 4 of our Site Selection (incorporating Sequential Flood Risk and Exception Test) Topic Paper for the reason why this site is not taken forward.	Do **not** progress to Level 2 SFRA.
SH609	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.	More vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Groundwater risk should be investigated further at FRA stage.	Withdraw from allocation or carry out Level 2 SFRA to further inform on surface water flood risk. Note: RoFSW depth, hazard, velocity data not currently available from the EA. Guidance from the EA will therefore be required as to how any Level 2 SFRA would consider surface water flood risk.	This site is not proposed to be taken forward as an allocation in the Joint Local Plan. Please see Appendix 4 of our Site Selection (incorporating Sequential Flood Risk and Exception Test) Topic Paper for the reason why this site is not taken forward.	Do **not** progress to Level 2 SFRA.
SH628	No risk.	More vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources.	Withdraw from allocation or carry out Level 2 SFRA to further inform on surface water flood risk. Note: RoFSW depth, hazard, velocity data not currently available from the EA. Guidance from the EA will therefore be required as to how any Level 2 SFRA would consider surface water flood risk.	This site is not proposed to be taken forward as an allocation in the Joint Local Plan. Please see Appendix 4 of our Site Selection (incorporating Sequential Flood Risk and Exception Test) Topic Paper for the reason why this site is not taken forward.	Do **not** progress to Level 2 SFRA.
SH649	There is a risk of groundwater flooding to surface and subsurface assets. There is the possibility of groundwater emerging at the surface locally.	More vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Groundwater risk should be investigated further at FRA stage.	Withdraw from allocation or carry out Level 2 SFRA to further inform on surface water flood risk. Note: RoFSW depth, hazard, velocity data not currently available from the EA. Guidance from the EA will therefore be required as to how any Level 2 SFRA would consider surface water flood risk.	This site is not proposed to be taken forward as an allocation in the Joint Local Plan. Please see Appendix 4 of our Site Selection (incorporating Sequential Flood Risk and Exception Test) Topic Paper for the reason why this site is not taken forward.	Do **not** progress to Level 2 SFRA.
SH668	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.	More vulnerable	Strategic Recommendation A	Recommend for withdrawal if built development cannot avoid Flood Zone 3b. Groundwater and reservoir risk should be investigated further at FRA stage.	Development not permitted in Flood Zone 3b or future functional floodplain. Check whether site boundary can be redrawn or whether it may be possible to incorporate functional floodplain into site layout and design as open greenspace. This may be possible for sites where percentage area of functional floodplain is lower. Site should be withdrawn if these criteria cannot be met. A Level 2 SFRA may be required to inform this process.	This site is not proposed to be taken forward as an allocation in the Joint Local Plan. Please see Appendix 4 of our Site Selection (incorporating Sequential Flood Risk and Exception Test) Topic Paper for the reason why this site is not taken forward.	Do **not** progress to Level 2 SFRA.
SH685	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.	More vulnerable	Strategic Recommendation A	Recommend for withdrawal if built development cannot avoid Flood Zone 3b. Groundwater risk should be investigated further at FRA stage.	Development not permitted in Flood Zone 3b or future functional floodplain. Check whether site boundary can be redrawn or whether it may be possible to incorporate functional floodplain into site layout and design as open greenspace. This may be possible for sites where percentage area of functional floodplain is lower. Site should be withdrawn if these criteria cannot be met. A Level 2 SFRA may be required to inform this process.	This site is not proposed to be taken forward as an allocation in the Joint Local Plan. Please see Appendix 4 of our Site Selection (incorporating Sequential Flood Risk and Exception Test) Topic Paper for the reason why this site is not taken forward.	Do **not** progress to Level 2 SFRA.
SH692	No risk.	More vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources.	Withdraw from allocation or carry out Level 2 SFRA to further inform on surface water flood risk. Note: RoFSW depth, hazard, velocity data not currently available from the EA. Guidance from the EA will therefore be required as to how any Level 2 SFRA would consider surface water flood risk.	This site is not proposed to be taken forward as an allocation in the Joint Local Plan. Please see Appendix 4 of our Site Selection (incorporating Sequential Flood Risk and Exception Test) Topic Paper for the reason why this site is not taken forward.	Do **not** progress to Level 2 SFRA.
SH787	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.	More vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Groundwater risk should be investigated further at FRA stage.	Withdraw from allocation or carry out Level 2 SFRA to further inform on surface water flood risk. Note: RoFSW depth, hazard, velocity data not currently available from the EA. Guidance from the EA will therefore be required as to how any Level 2 SFRA would consider surface water flood risk.	This site is not proposed to be taken forward as an allocation in the Joint Local Plan. Please see Appendix 4 of our Site Selection (incorporating Sequential Flood Risk and Exception Test) Topic Paper for the reason why this site is not taken forward.	Do **not** progress to Level 2 SFRA.
SH811	No risk.	More vulnerable	Strategic Recommendation A	Recommend for withdrawal if built development cannot avoid Flood Zone 3b. Reservoir risk should be investigated further at FRA stage.	Development not permitted in Flood Zone 3b or future functional floodplain. Check whether site boundary can be redrawn or whether it may be possible to incorporate functional floodplain into site layout and design as open greenspace. This may be possible for sites where percentage area of functional floodplain is lower. Site should be withdrawn if these criteria cannot be met. A Level 2 SFRA may be required to inform this process.	This site is not proposed to be taken forward as an allocation in the Joint Local Plan. Please see Appendix 4 of our Site Selection (incorporating Sequential Flood Risk and Exception Test) Topic Paper for the reason why this site is not taken forward.	Do **not** progress to Level 2 SFRA.
SH816	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.	More vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Groundwater risk should be investigated further at FRA stage.	Withdraw from allocation or carry out Level 2 SFRA to further inform on surface water flood risk. Note: RoFSW depth, hazard, velocity data not currently available from the EA. Guidance from the EA will therefore be required as to how any Level 2 SFRA would consider surface water flood risk.	This site is not proposed to be taken forward as an allocation in the Joint Local Plan. Please see Appendix 4 of our Site Selection (incorporating Sequential Flood Risk and Exception Test) Topic Paper for the reason why this site is not taken forward.	Do **not** progress to Level 2 SFRA.
SH830	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.	More vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Groundwater risk should be investigated further at FRA stage.	Withdraw from allocation or carry out Level 2 SFRA to further inform on surface water flood risk. Note: RoFSW depth, hazard, velocity data not currently available from the EA. Guidance from the EA will therefore be required as to how any Level 2 SFRA would consider surface water flood risk.	This site is not proposed to be taken forward as an allocation in the Joint Local Plan. Please see Appendix 4 of our Site Selection (incorporating Sequential Flood Risk and Exception Test) Topic Paper for the reason why this site is not taken forward.	Do **not** progress to Level 2 SFRA.
VH128	There is a risk of groundwater flooding to surface and subsurface assets. There is the possibility of groundwater emerging at the surface locally.	More vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Groundwater risk should be investigated further at FRA stage.	Withdraw from allocation or carry out Level 2 SFRA to further inform on surface water flood risk. Note: RoFSW depth, hazard, velocity data not currently available from the EA. Guidance from the EA will therefore be required as to how any Level 2 SFRA would consider surface water flood risk.	This site is not proposed to be taken forward as an allocation in the Joint Local Plan. Please see Appendix 4 of our Site Selection (incorporating Sequential Flood Risk and Exception Test) Topic Paper for the reason why this site is not taken forward.	Do **not** progress to Level 2 SFRA.
VH139	There is a risk of groundwater flooding to surface and subsurface assets. There is the possibility of groundwater emerging at the surface locally.	More vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Groundwater risk should be investigated further at FRA stage.	Withdraw from allocation or carry out Level 2 SFRA to further inform on surface water flood risk. Note: RoFSW depth, hazard, velocity data not currently available from the EA. Guidance from the EA will therefore be required as to how any Level 2 SFRA would consider surface water flood risk.	This site is not proposed to be taken forward as an allocation in the Joint Local Plan. Please see Appendix 4 of our Site Selection (incorporating Sequential Flood Risk and Exception Test) Topic Paper for the reason why this site is not taken forward.	Do **not** progress to Level 2 SFRA.
VH235	There is a risk of groundwater flooding to surface and subsurface assets. There is the possibility of groundwater emerging at the surface locally.	More vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Groundwater risk should be investigated further at FRA stage.	Withdraw from allocation or carry out Level 2 SFRA to further inform on surface water flood risk. Note: RoFSW depth, hazard, velocity data not currently available from the EA. Guidance from the EA will therefore be required as to how any Level 2 SFRA would consider surface water flood risk.	This site is not proposed to be taken forward as an allocation in the Joint Local Plan. Please see Appendix 4 of our Site Selection (incorporating Sequential Flood Risk and Exception Test) Topic Paper for the reason why this site is not taken forward.	Do **not** progress to Level 2 SFRA.
VH267	No risk.	More vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources.	Withdraw from allocation or carry out Level 2 SFRA to further inform on surface water flood risk. Note: RoFSW depth, hazard, velocity data not currently available from the EA. Guidance from the EA will therefore be required as to how any Level 2 SFRA would consider surface water flood risk.	This site is not proposed to be taken forward as an allocation in the Joint Local Plan. Please see Appendix 4 of our Site Selection (incorporating Sequential Flood Risk and Exception Test) Topic Paper for the reason why this site is not taken forward.	Do **not** progress to Level 2 SFRA.

VH288	Land to the south of East Hanney	Residential	43.5300	41.7000	95.8	1.6100	3.7	0.2200	0.5	0.0000	0.0	41.3	94.8	0.9500	2.2	0.5100	1.2	0.8200	1.9	0.000	0.0	0.000	0.0	0.190	0.4	0.9500	2.2	0.000	0.0	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.	More vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high risk from fluvial sources. Exception test required. Groundwater risk should be investigated further at FRA stage.	Withdraw from allocation if built development cannot avoid Flood Zone 3a or carry out Level 2 SFRA.	This site is not proposed to be taken forward as an allocation in the Joint Local Plan. Please see Appendix 4 of our Site Selection (incorporating Sequential Flood Risk and Exception Test) Topic Paper for the reason why this site is not taken forward.	Do **not** progress to Level 2 SFRA.
VH290	Grove Road, Wantage OX12 7BZ	Residential	3.6400	2.9800	81.9	0.3800	10.4	0.0800	2.2	0.2000	5.5	3.1	85.7	0.2500	6.9	0.1200	3.3	0.1500	4.1	0.060	1.6	0.000	0.0	0.000	0.0	0.2500	6.9	0.000	0.0	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.	More vulnerable	Strategic Recommendation A	Recommend for withdrawal if built development cannot avoid Flood Zone 3b. Groundwater risk should be investigated further at FRA stage.	Development not permitted in Flood Zone 3b or future functional floodplain. Check whether site boundary can be redrawn or whether it may be possible to incorporate functional floodplain into site layout and design as open greenspace. This may be possible for sites where percentage area of functional floodplain is lower. Site should be withdrawn if these criteria cannot be met. A Level 2 SFRA may be required to inform this process.	This site is not proposed to be taken forward as an allocation in the Joint Local Plan. Please see Appendix 4 of our Site Selection (incorporating Sequential Flood Risk and Exception Test) Topic Paper for the reason why this site is not taken forward.	Do **not** progress to Level 2 SFRA.
VH310	Land north of Reading Road and Grove Road, Harwell OX11 0HT	Residential	35.4400	35.4400	100.0	0.0000	0.0	0.0000	0.0	0.0000	0.0	33.6	94.9	0.6900	1.9	0.3200	0.9	0.8000	2.3	0.000	0.0	0.000	0.0	0.000	0.0	0.6900	1.9	0.000	0.0	There is a risk of groundwater flooding to surface and subsurface assets. There is the possibility of groundwater emerging at the surface locally.	More vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Groundwater risk should be investigated further at FRA stage.	Withdraw from allocation or carry out Level 2 SFRA to further inform on surface water flood risk. Note: RoFSW depth, hazard, velocity data not currently available from the EA. Guidance from the EA will therefore be required as to how any Level 2 SFRA would consider surface water flood risk.	This site is not proposed to be taken forward as an allocation in the Joint Local Plan. Please see Appendix 4 of our Site Selection (incorporating Sequential Flood Risk and Exception Test) Topic Paper for the reason why this site is not taken forward.	Do **not** progress to Level 2 SFRA.
VH314	Haynes of Challow, Roadside Farm	Residential	3.5200	3.5200	100.0	0.0000	0.0	0.0000	0.0	0.0000	0.0	3.2	91.5	0.1600	4.5	0.0400	1.1	0.1000	2.8	0.000	0.0	0.000	0.0	0.000	0.0	0.1600	4.5	0.000	0.0	No risk.	More vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources.	Withdraw from allocation or carry out Level 2 SFRA to further inform on surface water flood risk. Note: RoFSW depth, hazard, velocity data not currently available from the EA. Guidance from the EA will therefore be required as to how any Level 2 SFRA would consider surface water flood risk.	This site is not proposed to be taken forward as an allocation in the Joint Local Plan. Please see Appendix 4 of our Site Selection (incorporating Sequential Flood Risk and Exception Test) Topic Paper for the reason why this site is not taken forward.	Do **not** progress to Level 2 SFRA.
VH376	Land at Old Mill Nurseries, Upper Green, Stanford-in-the-Vale	Residential	3.1800	3.1800	100.0	0.0000	0.0	0.0000	0.0	0.0000	0.0	3.2	100.0	0.0000	0.0	0.0000	0.0	0.0000	0.0	0.000	0.0	0.000	0.0	0.000	0.0	0.0000	0.0	0.000	0.0	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.	More vulnerable	Strategic Recommendation C	Progress to developer-led FRA. Groundwater risk should be investigated further at FRA stage.	Site appropriate to allocate. Developer-led FRA required. Planning permission subject to FRA.	This site is not proposed to be taken forward as an allocation in the Joint Local Plan. Please see Appendix 4 of our Site Selection (incorporating Sequential Flood Risk and Exception Test) Topic Paper for the reason why this site is not taken forward.	Do **not** progress to Level 2 SFRA.
VH381	Land adjacent to Peewit Farm, 95 Drayton Road, Drayton	Residential	3.7600	3.7600	100.0	0.0000	0.0	0.0000	0.0	0.0000	0.0	3.7	98.9	0.0300	0.8	0.0100	0.3	0.0000	0.0	0.000	0.0	0.000	0.0	0.010	0.3	0.0300	0.8	0.000	0.0	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.	More vulnerable	Strategic Recommendation B	Level 2 SFRA required due to medium risk from fluvial sources. Groundwater risk should be investigated further at FRA stage.	Carry out Level 2 SFRA to understand fluvial flood risk.	This site is not proposed to be taken forward as an allocation in the Joint Local Plan. Please see Appendix 4 of our Site Selection (incorporating Sequential Flood Risk and Exception Test) Topic Paper for the reason why this site is not taken forward.	Do **not** progress to Level 2 SFRA.
VH386	Land to the South of Marcham	Residential	47.2900	31.9500	67.6	5.6600	12.0	1.3700	2.9	8.3100	17.6	45.2	95.6	1.4800	3.1	0.4300	0.9	0.1500	0.3	1.280	2.7	0.580	1.2	2.440	5.2	1.4800	3.1	0.000	0.0	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.	More vulnerable	Strategic Recommendation A	Recommend for withdrawal if built development cannot avoid Flood Zone 3b. Groundwater risk should be investigated further at FRA stage.	Development not permitted in Flood Zone 3b or future functional floodplain. Check whether site boundary can be redrawn or whether it may be possible to incorporate functional floodplain into site layout and design as open greenspace. This may be possible for sites where percentage area of functional floodplain is lower. Site should be withdrawn if these criteria cannot be met. A Level 2 SFRA may be required to inform this process.	This site is not proposed to be taken forward as an allocation in the Joint Local Plan. Please see Appendix 4 of our Site Selection (incorporating Sequential Flood Risk and Exception Test) Topic Paper for the reason why this site is not taken forward.	Do **not** progress to Level 2 SFRA.
VH399	Tulwick Park, Grove	Residential	47.9500	47.9500	100.0	0.0000	0.0	0.0000	0.0	0.0000	0.0	43.3	90.2	1.6200	3.4	0.9100	1.9	2.1500	4.5	0.000	0.0	0.000	0.0	0.000	0.0	1.6200	3.4	0.000	0.0	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.	More vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Groundwater risk should be investigated further at FRA stage.	Withdraw from allocation or carry out Level 2 SFRA to further inform on surface water flood risk. Note: RoFSW depth, hazard, velocity data not currently available from the EA. Guidance from the EA will therefore be required as to how any Level 2 SFRA would consider surface water flood risk.	This site is not proposed to be taken forward as an allocation in the Joint Local Plan. Please see Appendix 4 of our Site Selection (incorporating Sequential Flood Risk and Exception Test) Topic Paper for the reason why this site is not taken forward.	Do **not** progress to Level 2 SFRA.
VH400	Land south of Shrivenham	Residential	31.6300	31.6300	100.0	0.0000	0.0	0.0000	0.0	0.0000	0.0	25.3	80.1	2.9600	9.4	1.3600	4.3	1.9900	6.3	0.000	0.0	0.000	0.0	0.000	0.0	2.9600	9.4	0.000	0.0	No risk.	More vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources.	Withdraw from allocation or carry out Level 2 SFRA to further inform on surface water flood risk. Note: RoFSW depth, hazard, velocity data not currently available from the EA. Guidance from the EA will therefore be required as to how any Level 2 SFRA would consider surface water flood risk.	This site is not proposed to be taken forward as an allocation in the Joint Local Plan. Please see Appendix 4 of our Site Selection (incorporating Sequential Flood Risk and Exception Test) Topic Paper for the reason why this site is not taken forward.	Do **not** progress to Level 2 SFRA.
VH403	Land east of Hendred	Residential	124.6700	123.4100	99.0	0.1800	0.1	0.0400	0.0	1.0400	0.8	121.9	97.8	1.3900	1.1	0.4100	0.3	0.9800	0.8	0.040	0.0	0.000	0.0	1.360	1.1	1.3900	1.1	0.000	0.0	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.	More vulnerable	Strategic Recommendation A	Recommend for withdrawal if built development cannot avoid Flood Zone 3b. Groundwater risk should be investigated further at FRA stage.	Development not permitted in Flood Zone 3b or future functional floodplain. Check whether site boundary can be redrawn or whether it may be possible to incorporate functional floodplain into site layout and design as open greenspace. This may be possible for sites where percentage area of functional floodplain is lower. Site should be withdrawn if these criteria cannot be met. A Level 2 SFRA may be required to inform this process.	This site is not proposed to be taken forward as an allocation in the Joint Local Plan. Please see Appendix 4 of our Site Selection (incorporating Sequential Flood Risk and Exception Test) Topic Paper for the reason why this site is not taken forward.	Do **not** progress to Level 2 SFRA.
VH404	Land north of Grove	Residential	409.2800	379.5900	92.7	15.8100	3.9	2.8900	0.7	10.9900	2.7	380.2	92.9	13.3200	3.3	5.2700	1.3	10.4800	2.6	0.810	0.2	0.000	0.0	6.630	1.6	13.3200	3.3	0.000	0.0	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.	More vulnerable	Strategic Recommendation A	Recommend for withdrawal if built development cannot avoid Flood Zone 3b. Groundwater risk should be investigated further at FRA stage.	Development not permitted in Flood Zone 3b or future functional floodplain. Check whether site boundary can be redrawn or whether it may be possible to incorporate functional floodplain into site layout and design as open greenspace. This may be possible for sites where percentage area of functional floodplain is lower. Site should be withdrawn if these criteria cannot be met. A Level 2 SFRA may be required to inform this process.	This site is not proposed to be taken forward as an allocation in the Joint Local Plan. Please see Appendix 4 of our Site Selection (incorporating Sequential Flood Risk and Exception Test) Topic Paper for the reason why this site is not taken forward.	Do **not** progress to Level 2 SFRA.
VH541	Land at Drayton East Way and Land South of Drayton Road	Residential	37.5300	32.7500	87.3	0.1200	0.3	0.4700	1.3	4.1900	11.2	36.5	97.2	0.9100	2.4	0.1400	0.4	0.0100	0.03	0.470	1.3	0.000	0.0	0.000	0.0	0.9100	2.4	0.000	0.0	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.	More vulnerable	Strategic Recommendation A	Recommend for withdrawal if built development cannot avoid Flood Zone 3b. Groundwater risk should be investigated further at FRA stage.	Development not permitted in Flood Zone 3b or future functional floodplain. Check whether site boundary can be redrawn or whether it may be possible to incorporate functional floodplain into site layout and design as open greenspace. This may be possible for sites where percentage area of functional floodplain is lower. Site should be withdrawn if these criteria cannot be met. A Level 2 SFRA may be required to inform this process.	This site is not proposed to be taken forward as an allocation in the Joint Local Plan. Please see Appendix 4 of our Site Selection (incorporating Sequential Flood Risk and Exception Test) Topic Paper for the reason why this site is not taken forward.	Do **not** progress to Level 2 SFRA.
VH544	Land North of the A420 at Shrivenham, Sandhill Farm, Shrivenham, SN6 8BH	Residential	221.0000	212.9000	96.3	3.2500	1.5	0.3000	0.1	4.5500	2.1	210.7	95.3	3.4600	1.6	1.6800	0.8	5.1400	2.3	0.370	0.2	0.000	0.0	0.710	0.3	3.4600	1.6	5.320	2.4	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.	More vulnerable	Strategic Recommendation A	Recommend for withdrawal if built development cannot avoid Flood Zone 3b. Groundwater and reservoir risk should be investigated further at FRA stage.	Development not permitted in Flood Zone 3b or future functional floodplain. Check whether site boundary can be redrawn or whether it may be possible to incorporate functional floodplain into site layout and design as open greenspace. This may be possible for sites where percentage area of functional floodplain is lower. Site should be withdrawn if these criteria cannot be met. A Level 2 SFRA may be required to inform this process.	This site is not proposed to be taken forward as an allocation in the Joint Local Plan. Please see Appendix 4 of our Site Selection (incorporating Sequential Flood Risk and Exception Test) Topic Paper for the reason why this site is not taken forward.	Do **not** progress to Level 2 SFRA.
VH560	Land South of Majors Road, Watchfield, SN7 7TR, Majors Road, Watchfield, SN7 7TR	Residential	33.2000	33.2000	100.0	0.0000	0.0	0.0000	0.0	0.0000	0.0	19.7	59.2	4.5700	13.8	1.3500	4.1	7.6100	22.9	0.000	0.0	0.000	0.0	0.350	1.1	4.5700	13.8	0.000	0.0	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.	More vulnerable	Strategic Recommendation B	Level 2 SFRA required due to medium risk from fluvial sources. Groundwater risk should be investigated further at FRA stage.	Carry out Level 2 SFRA to understand fluvial flood risk.	This site is not proposed to be taken forward as an allocation in the Joint Local Plan. Please see Appendix 4 of our Site Selection (incorporating Sequential Flood Risk and Exception Test) Topic Paper for the reason why this site is not taken forward.	Do **not** progress to Level 2 SFRA.
VH590	Land at South Abingdon, Drayton road, Abingdon	Residential	87.9900	77.9400	88.6	3.0900	3.5	1.1400	1.3	5.8200	6.6	80.4	91.4	2.3200	2.6	0.9600	1.1	4.2900	4.9	0.070	0.1	0.000	0.0	0.000	0.0	2.3200	2.6	0.000	0.0	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.	More vulnerable	Strategic Recommendation A	Recommend for withdrawal if built development cannot avoid Flood Zone 3b. Groundwater risk should be investigated further at FRA stage.	Development not permitted in Flood Zone 3b or future functional floodplain. Check whether site boundary can be redrawn or whether it may be possible to incorporate functional floodplain into site layout and design as open greenspace. This may be possible for sites where percentage area of functional floodplain is lower. Site should be withdrawn if these criteria cannot be met. A Level 2 SFRA may be required to inform this process.	This site is not proposed to be taken forward as an allocation in the Joint Local Plan. Please see Appendix 4 of our Site Selection (incorporating Sequential Flood Risk and Exception Test) Topic Paper for the reason why this site is not taken forward.	Do **not** progress to Level 2 SFRA.
VH606	Land north of Crab Hill, Grove, Wantage	Residential	191.9800	189.9100	98.9	0.7400	0.4	0.3400	0.2	0.9900	0.5	184.1	95.9	4.6700	2.4	1.1100	0.6	2.1400	1.1	0.250	0.1	0.000	0.0	0.230	0.1	4.6700	2.4	0.000	0.0	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.	More vulnerable	Strategic Recommendation A	Recommend for withdrawal if built development cannot avoid Flood Zone 3b. Groundwater risk should be investigated further at FRA stage.	Development not permitted in Flood Zone 3b or future functional floodplain. Check whether site boundary can be redrawn or whether it may be possible to incorporate functional floodplain into site layout and design as open greenspace. This may be possible for sites where percentage area of functional floodplain is lower. Site should be withdrawn if these criteria cannot be met. A Level 2 SFRA may be required to inform this process.	This site is not proposed to be taken forward as an allocation in the Joint Local Plan. Please see Appendix 4 of our Site Selection (incorporating Sequential Flood Risk and Exception Test) Topic Paper for the reason why this site is not taken forward.	Do **not** progress to Level 2 SFRA.
VH611	Land to the North of Grove and to the East and West of the A338 Wider Opportunity, n/a, Grove, n/a	Residential	333.0800	295.5300	88.7	9.8800	3.0	3.5600	1.1	24.1100	7.2	303.3	91.1	12.6500	3.8	5.2000	1.6	11.9600	3.6	2.650	0.8	0.000	0.0	6.750	2.0	12.6500	3.8	0.000	0.0	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.	More vulnerable	Strategic Recommendation A	Recommend for withdrawal if built development cannot avoid Flood Zone 3b. Groundwater risk should be investigated further at FRA stage.	Development not permitted in Flood Zone 3b or future functional floodplain. Check whether site boundary can be redrawn or whether it may be possible to incorporate functional floodplain into site layout and design as open greenspace. This may be possible for sites where percentage area of functional floodplain is lower. Site should be withdrawn if these criteria cannot be met. A Level 2 SFRA may be required to inform this process.	This site is not proposed to be taken forward as an allocation in the Joint Local Plan. Please see Appendix 4 of our Site Selection (incorporating Sequential Flood Risk and Exception Test) Topic Paper for the reason why this site is not taken forward.	Do **not** progress to Level 2 SFRA.
VH627	Land north east of Watchfield, Majors Road, Watchfield	Residential	51.5700	51.4300	99.7	0.1400	0.3	0.0000	0.0	0.0000	0.0	48.1	93.3	1.2600	2.4	0.4600	0.9	1.7400	3.4	0.000	0.0	0.000	0.0	0.040	0.1	1.2600	2.4	0.000	0.0	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.	More vulnerable	Strategic Recommendation B	Level 2 SFRA required due to medium risk from fluvial sources. Groundwater risk should be investigated further at FRA stage.	Carry out Level 2 SFRA to understand fluvial flood risk.	This site is not proposed to be taken forward as an allocation in the Joint Local Plan. Please see Appendix 4 of our Site Selection (incorporating Sequential Flood Risk and Exception Test) Topic Paper for the reason why this site is not taken forward.	Do **not** progress to Level 2 SFRA.
VH656	Shrivenham Park Golf Club, Pennyhooks Lane, Shrivenham, SN6 8EX	Residential	28.7200	26.5500	92.4	0.2300	0.8	0.1300	0.5	1.8100	6.3	28.4	99.0	0.1200	0.4	0.0700	0.2	0.0900	0.3	0.120	0.4	0.000	0.0	0.060	0.2	0.1200	0.4	0.000	0.0	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.	More vulnerable	Strategic Recommendation A	Recommend for withdrawal if built development cannot avoid Flood Zone 3b. Groundwater risk should be investigated further at FRA stage.	Development not permitted in Flood Zone 3b or future functional floodplain. Check whether site boundary can be redrawn or whether it may be possible to incorporate functional floodplain into site layout and design as open greenspace. This may be possible for sites where percentage area of functional floodplain is lower. Site should be withdrawn if these criteria cannot be met. A Level 2 SFRA may be required to inform this process.	This site is not proposed to be taken forward as an allocation in the Joint Local Plan. Please see Appendix 4 of our Site Selection (incorporating Sequential Flood Risk and Exception Test) Topic Paper for the reason why this site is not taken forward.	Do **not** progress to Level 2 SFRA.
VH657	Land West of Wantage, North East of East Challow, Wantage/East Challow	Residential	78.7400	77.2900	98.2	0.6000	0.8	0.2800	0.4	0.5700	0.7	73.6	93.4	2.8500	3.6	0.8500	1.1	1.4800	1.9	0.150	0.2	0.000	0.0	0.310	0.4	2.8500	3.6	0.000	0.0	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.	More vulnerable	Strategic Recommendation A	Recommend for withdrawal if built development cannot avoid Flood Zone 3b. Groundwater risk should be investigated further at FRA stage.	Development not permitted in Flood Zone 3b or future functional floodplain. Check whether site boundary can be redrawn or whether it may be possible to incorporate functional floodplain into site layout and design as open greenspace. This may be possible for sites where percentage area of functional floodplain is lower. Site should be withdrawn if these criteria cannot be met. A Level 2 SFRA may be required to inform this process.	This site is not proposed to be taken forward as an allocation in the Joint Local Plan. Please see Appendix 4 of our Site Selection (incorporating Sequential Flood Risk and Exception Test) Topic Paper for the reason why this site is not taken forward.	Do **not** progress to Level 2 SFRA.
VH685	Abbey Shopping Centre and the Charter	Employment	2.5100	1.6200	64.5	0.8900	35.5	0.0000	0.0	0.0000	0.0	1.8	72.1	0.4400	17.5	0.1500	6.0	0.1100	4.4	0.000	0.0	0.000	0.0	0.000	0.0	0.4400	17.5	0.000	0.0	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.	Less vulnerable	Strategic Recommendation B	Level 2 SFRA required due to medium risk from fluvial sources. Groundwater risk should be investigated further at FRA stage.	Carry out Level 2 SFRA to understand fluvial flood risk.	This site is not proposed to be taken forward as an allocation in the Joint Local Plan. Please see Appendix 4 of our Site Selection (incorporating Sequential Flood Risk and Exception Test) Topic Paper for the reason why this site is not taken forward.	Do **not** progress to Level 2 SFRA.
VH694	Barton Mill in Audlett Drive, Abingdon	Employment	1.5300	1.4500	94.8	0.0500	3.3	0.0200	1.3	0.0100	0.7	1.4	90.8	0.0300	2.0	0.0200	1.3	0.0900	5.9	0.030	2.0	0.000	0.0	0.120	7.8	0.0300	2.0	0.000	0.0	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.	Less vulnerable	Strategic Recommendation A	Recommend for withdrawal if built development cannot avoid Flood Zone 3b. Groundwater risk should be investigated further at FRA stage.	Development not permitted in Flood Zone 3b or future functional floodplain. Check whether site boundary can be redrawn or whether it may be possible to incorporate functional floodplain into site layout and design as open greenspace. This may be possible for sites where percentage area of functional floodplain is lower. Site should be withdrawn if these criteria cannot be met. A Level 2 SFRA may be required to inform this process.	This site is not proposed to be taken forward as an allocation in the Joint Local Plan. Please see Appendix 4 of our Site Selection (incorporating Sequential Flood Risk and Exception Test) Topic Paper for the reason why this site is not taken forward.	Do **not** progress to Level 2 SFRA.
VH703	Shrivenham Hundred Business Park	Employment	5.3400	5.3400	100.0	0.0000	0.0	0.0000	0.0	0.0000	0.0	4.7	87.5	0.3800	7.1	0.1400	2.6	0.1500	2.8	0.000	0.0	0.000	0.0	0.000	0.0	0.3800	7.1	0.000	0.0	There is a risk of groundwater flooding to surface and subsurface assets. There is the possibility of groundwater emerging at the surface locally.	Less vulnerable	Strategic Recommendation B	Level 2 SFRA required due to high and/or medium risk from surface water sources. Groundwater risk should be investigated further at FRA stage.	Withdraw from allocation or carry out Level 2 SFRA to further inform on surface water flood risk. Note: RoFSW depth, hazard, velocity data not currently available from the EA. Guidance from the EA will therefore be required as to how any Level 2 SFRA would consider surface water flood risk.	This site is not proposed to be taken forward as an allocation in the Joint Local Plan. Please see Appendix 4 of our Site Selection (incorporating Sequential Flood Risk and Exception Test) Topic Paper for the reason why this site is not taken forward.	Do **not** progress to Level 2 SFRA.
VH708	Abingdon Science Park at Barton Lane	Employment	13.1800	11.0900	84.1	1.6600	12.6	0.1800	1.4	0.2500	1.9	11.2	84.9	1.0000	7.6	0.6100	4.6	0.3800	2.9	0.350	2.7	0.000	0.0	3.980	30.2	1.0000	7.6	0.060	0.5	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.	Less vulnerable	Strategic Recommendation A	Recommend for withdrawal if built development cannot avoid Flood Zone 3b. Groundwater and reservoir risk should be investigated further at FRA stage.	Development not permitted in Flood Zone 3b or future functional floodplain. Check whether site boundary can be redrawn or whether it may be possible to incorporate functional floodplain into site layout and design as open greenspace. This may be possible for sites where percentage area of functional floodplain is lower. Site should be withdrawn if these criteria cannot be met. A Level 2 SFRA may be required to inform this process.	This site is not proposed to be taken forward as an allocation in the Joint Local Plan. Please see Appendix 4 of our Site Selection (incorporating Sequential Flood Risk and Exception Test) Topic Paper for the reason why this site is not taken forward.	Do **not** progress to Level 2 SFRA.
VH715	Drayton Road Industrial Estate	Employment	1.2100	0.0100	0.8	0.9000	74.4	0.3000	24.8	0.0000	0.0	0.6	52.9	0.3800	31.4	0.1600	13.2	0.0300	2.5	0.270	22.3	0.000	0.0	0.000	0.0	0.3800	31.4	0.000	0.0	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.	Less vulnerable	Strategic Recommendation B	Level 2 SFRA required due to future functional floodplain. Groundwater risk should be investigated further at FRA stage.	Withdraw from allocation if built development cannot avoid future functional floodplain or carry out Level 2 SFRA.	This site is not proposed to be taken forward as an allocation in the Joint Local Plan. Please see Appendix 4 of our Site Selection (incorporating Sequential Flood Risk and Exception Test) Topic Paper for the reason why this site is not taken forward.	Do **not** progress to Level 2 SFRA.
VH729	Land west of Grove Business Park	Employment	7.4300	7.2200	97.2	0.0300	0.4	0.1000	1.3	0.0800	1.1	7.0	93.8	0.2600	3.5	0.0900	1.2	0.1100	1.5	0.090	1.2	0.000	0.0	0.020	0.3	0.2600	3.5	0.000	0.0	There is a risk of groundwater flooding to surface and subsurface assets. There is the possibility of groundwater emerging at the surface locally.	Less vulnerable	Strategic Recommendation A	Recommend for withdrawal if built development cannot avoid Flood Zone 3b. Groundwater risk should be investigated further at FRA stage.	Development not permitted in Flood Zone 3b or future functional floodplain. Check whether site boundary can be redrawn or whether it may be possible to incorporate functional floodplain into site layout and design as open greenspace. This may be possible for sites where percentage area of functional floodplain is lower. Site should be withdrawn if these criteria cannot be met. A Level 2 SFRA may be required to inform this process.	This site is not proposed to be taken forward as an allocation in the Joint Local Plan. Please see Appendix 4 of our Site Selection (incorporating Sequential Flood Risk and Exception Test) Topic Paper for the reason why this site is not taken forward.	Do **not** progress to Level 2 SFRA.

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South Oxfordshire and Vale of White Horse Level 1 SFRA Addendum

Appendix C - Joint Local Plan Sites Assessment Summary

Final

Prepared for
South Oxfordshire District Council
Vale of White Horse District Council

Date
September 2025

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Accessibility

JBA aims to align with governmental guidelines on accessible documents and WGAG 2.2 AA standards, so that most people can read this document without having to employ special adaptation measures. This document is also optimised for use with assistive technology, such as screen reading software.

Contents

List of Tables

1 Joint Local Plan Sites Assessment

This document provides a strategic assessment of the suitability, relative to flood risk, of the sites to be considered for allocation in South Oxfordshire and Vale of White Horse District Councils' (the Councils) Joint Local Plan (JLP), summarising the outcomes of the screening assessment presented in Appendix B.

The information and guidance provided in this Appendix (also supported by the web-based SFRA mapping on the Councils' websites) can be used by the Local Planning Authorities (LPAs) to inform the application of the sequential test in the allocation of sites in the JLP, and the development management process.

The LPAs must use the spreadsheet in Appendix B to record their decisions on how to take each site forward for allocation or whether to withdraw a site from consideration, based on the evidence and strategic recommendations provided. Recording decisions in the Sites Assessment Spreadsheet demonstrates that a sequential, sustainable approach to development and flood risk has been adopted.

South Oxfordshire and Vale of White Horse District Councils provided a GIS layer containing JLP potential development site allocations. The total number of sites assessed is 64 In order to inform the sequential test to the allocation of development through the Joint Local Plan, this assessment entails a high-level GIS screening exercise overlaying the potential development sites against Flood Zones 1, 2, 3a and 3b (the functional floodplain), calculating the area of each site at risk. Flood Zones 1, 2 and 3 are sourced from the Environment Agency's (EA's) latest version of the Flood Map for Planning, downloaded in July 2025 for this Level 1 SFRA addendum. Flood Zone 3 is split into Flood Zone 3a and Flood Zone 3b (functional floodplain) as part of this Level 1 SFRA addendum, as required by the National Planning Policy Framework (NPPF), 2024. The impacts of climate change have also been included in the sites screening process using the delineated functional floodplain plus climate change outline and the Flood Map for Planning Flood Zones 2 and 3 plus climate change extents. See Section 1.3 for details. All flood zones are displayed on the Councils' interactive web-mapping portals.

Surface water risk to assessed sites is analysed by way of the EA's latest version of the national scale Risk of Flooding from Surface Water (RoFSW) dataset, downloaded in July 2025, developed as part of the NaFRA2 project. The EA states that this dataset is generally not suitable for property level assessment, instead it provides an estimate of flood risk to an area of land. The modelling method used does not provide information relating to when floodwater may be deep enough to start causing damage or disruption to homes, roads or other infrastructure.

The impact of climate change on surface water flood risk has not been considered within this assessment. The updated EA RoFSW climate change extents represent the 2050s central allowance. EA SFRA guidance states *'Check your long term flood risk includes a climate change scenario for surface water flooding (note the time horizon and climate*

change scenario for surface water fall short of what's needed for planning so additional assessment will be needed)'. At the Level 1 SFRA stage, the 1000-year present day surface water flood event could be considered as a proxy for the 100-year plus climate change surface water flood event. It is recommended that if the Risk of Flooding from Surface Water map was updated to make the recommended climate change allowances available, that this site screening assessment is updated to reflect that.

It is important to consider that each individual site will require further investigation, following this assessment, as local circumstances may dictate the outcome of the strategic recommendation. Such local circumstances are discussed in Section 1.1. The outcomes of the site assessments are presented in the Sites Assessment Spreadsheet in Appendix B.

1.1 Sequential testing and flood risk data

It is important to ensure that future development is not placed at unnecessary risk from any flood source. However, it is recommended that the Groundwater Emergence Map and the Reservoir Flood Map datasets referred to in this Level 1 SFRA Addendum are not considered in the sequential test on the basis that these datasets do not provide the confidence or certainty required to undertake the sequential test. As the available mapping does not provide competent evidence on the relative risk of flooding, it could potentially result in inappropriate allocations if used without understanding the limitations of the data. Therefore, groundwater and reservoir flood risk should be considered on a site-by-site basis in development planning and investigated further either at the Level 2 SFRA stage or the site-specific FRA stage.

1.2 Screening of potential sites

This section of the report draws together the results included in Appendix B. The LPAs should use the spreadsheet to assist them in carrying out the sequential test. If sites cannot be directed to areas of low flood risk, or where wider strategic objectives require development in areas identified through this Level 1 SFRA addendum to be at medium or high risk from flooding now or in the future, then the LPAs should consider the Flood Risk Vulnerability Classifications and flood zones. The LPAs must consider whether a more detailed Level 2 SFRA (including for application of the exception test where applicable) will be required before finalising sites for allocation in the Joint Local Plan. Strategic recommendations are based on Tables 1 and 2 of the Flood Risk and Coastal Change Planning Practice Guidance[1] (FRCC-PPG) (Paragraphs 077 - 079), and Annex 3 of the NPPF[2].

The decision-making process on site suitability should be transparent and information from this Level 1 SFRA addendum should be used to justify decisions to allocate land in areas shown to be at high or medium risk of flooding now or in the future.

1 Flood Risk and Coastal Change Planning Practice Guidance | GOV.UK | August 2022
2 National Planning Policy Framework | GOV.UK | February 2025

The Appendix B Sites Assessment Spreadsheet provides a breakdown of each site and the area (in hectares) and percentage coverage of each fluvial and surface water flood zone. Fluvial Flood Zones 3b, 3a, 2 and 1 are considered in isolation. Any area of a site within the higher risk Flood Zone 3b that is also within Flood Zone 3a is excluded from Flood Zone 3a and any area within Flood Zone 3a is excluded from Flood Zone 2. The same approach has been considered for surface water risk. This allows for the sequential assessment of risk at each site by addressing those sites at higher risk first. The effects of climate change on fluvial flood risk have been assessed additionally to existing risk using the latest Flood Map for Planning climate change estimates. Section 1.3 provides further detail on how this has been assessed

Table 1-1 shows the proposed use of the sites and the number of sites at risk from present day fluvial flooding,

Table 1-2 shows the number of sites at risk from future fluvial flooding and Table 1-3 shows the number of sites within each surface water flood zone.

Table 1-1: Number of sites at risk from present day fluvial flooding

Proposed use	Number of sites within each flood zone			
	Flood Zone 1*	**Flood Zone 2**	**Flood Zone 3a**	**Flood Zone 3b**
Residential	20	19	16	17
Employment	8	1	5	1
Educational & Leisure	1	0	0	0
Mixed Use	4	0	3	1
TOTAL	**33**	**20**	**24**	**19**
*Sites with 100% area within Flood Zone 1 Note: sites may be in more than one flood zone. In reality, a site in Flood Zone 3a will also be within Flood Zone 2.				

Table 1-2: Number of sites at risk from future fluvial flooding

Proposed use	Number of sites within each flood zone		
	Flood Zone 2 + climate change†	**Flood Zone 3a + climate change†**	**Functional floodplain + climate change†**
Residential	18	1	15
Employment	5	0	5
Educational & Leisure	0	0	0
Mixed Use	4	0	2
TOTAL	**27**	**1**	**22**
†Sites with additional risk from climate change			

Table 1-3: Number of sites at risk from surface water flooding

Proposed use	Number of sites within each surface water risk category			
	Very low risk zone* (less than 1 in 1000)	**Low risk zone (1 in 1000)**	**Medium risk zone (1 in 100)**	**High risk zone (1 in 30)**
Residential	1	38	38	37
Employment	0	15	14	15
Educational & Leisure	0	1	1	1
Mixed Use	0	9	9	9
TOTAL	**1**	**63**	**62**	**62**
*Sites with 100% area within the very low risk zone Note: sites may be in more than one surface water risk category. In reality, a site in the high risk category will also be in the medium and low risk categories.				

The strategic recommendations are intended to assist the LPAs in carrying out the sequential test and to highlight those sites at greatest flood risk. Table 1-4 shows the number of sites each strategic recommendation applies to:

- Strategic Recommendation A - recommend for withdrawal if built development cannot avoid Flood Zone 3b;
- Strategic Recommendation B - Level 2 SFRA required due to high and/or medium risk. Exception Test required if site is at high and/or medium fluvial risk and categorised as more vulnerable or essential infrastructure; and
- Strategic Recommendation C - progress to developer-led FRA.

Table 1-4: Number of sites per strategic recommendation

Proposed use	Number of sites assigned to each strategic recommendation		
	A	**B**	**C**
Residential	17	21	1
Employment	5	10	0
Educational & Leisure	0	1	0
Mixed use	3	6	0
TOTAL	**25**	**38**	**1**

It is important to note that each individual site will require further investigation before being allocated for development, as local circumstances may dictate the outcome of the strategic recommendation. Such local circumstances may include the following:

- Flood depths, velocities, hazards will differ locally to each at risk site therefore modelled depth, hazard and velocity data should be assessed for the relevant flood event through a Level 2 SFRA;
- Availability of the Flood Map for Planning climate change modelling. No additional climate change modelling has been carried out as part of this Level 1 SFRA;
- The RoFSW map is national scale and is not considered suitable for robustly identifying risk at the property level. For sites identified to be at medium or high risk from surface water based on the RoFSW, more detailed surface water modelling may reveal higher or lower risk to the site. The LLFA should be consulted when considering development at such sites;
- Current surface water drainage infrastructure and SuDS suitability are likely to differ at each site considered to be at risk from surface water flooding. Further investigation would therefore be required for any site at surface water flood risk. The LLFA should require that all planning applications must be accompanied by an appropriate drainage strategy, independent of the requirement for a site-specific FRA;

- If sites have planning permission but construction has not started, the SFRA will only be able to influence the design of the development e.g. finished floor levels;
- It may be possible at some sites to develop around the flood risk. Planners are best placed to make this judgement i.e. will the site still be deliverable if part of it needs to be retained to make space for floodwater? Yields may be impacted;
- Surrounding existing infrastructure may influence the scope for layout redesign/changing of site boundaries to remove areas at risk;
- Some sites not currently at flood risk may be at residual risk through the failure of defences during a flood event or through blockage/failure of drainage assets such as culverts. Assessment may be required through a Level 2 SFRA;
- Safe and dry access and escape routes must exist at all times during a flood event for emergency response and evacuation. Emergency planners should be consulted and appropriate emergency plans put in place at the planning application stage;
- Current land use. A number of sites included in the assessment are likely to be brownfield, thus the existing development structure and footprint could be taken into account as further development may not lead to increased flood risk; and
- Existing planning permissions may exist on some sites where the EA may have already passed comment and/or agreed to appropriate remedial works concerning flood risk. Previous flood risk investigations/FRAs may already have been carried out at some sites. The LPA should be consulted.

1.2.1 Strategic Recommendation A - recommend for withdrawal if built development cannot avoid Flood Zone 3b

This strategic recommendation does not take into account local circumstances, only that part of the site area falls within a flood zone.

Strategic Recommendation A applies to any site where the following criteria is true:

- Any proportion of the site area is within the functional floodplain. The FRCC-PPG flood risk vulnerability classification states that only water compatible uses and essential infrastructure should be permitted in the functional floodplain, though any essential infrastructure must pass the exception test and water compatible uses must be designed and constructed to remain operational and safe for users in times of flood; must result in no net loss of floodplain storage; and must not impede water flows and not increase flood risk elsewhere. Development should not be permitted for sites within the highly, more, or less vulnerable categories that fall within the functional floodplain.

If the LPA can state built development must avoid Flood Zone 3b and the developer can ensure and evidence this then areas of the site could still be allocated / developed. This should be written into local plan policy.

It is important to state that it may still be possible to deliver a site that has been recommended for withdrawal from allocation upon more detailed investigation through a Level 2 SFRA and subsequent updates of the Flood Zone 3b outline through more detailed modelling, if applicable.

Depending on local circumstances, if it is not possible to remove the developable area from Flood Zone 3b to a lower risk zone then the sequential test would be failed, and development should not be allocated or permitted.

25 of the 64 potential development sites have been recommended for withdrawal if built development cannot avoid the functional floodplain.

Any area within Flood Zone 3b must be left as open green space. For smaller sites, this approach may be challenging to achieve compared to larger sites or strategic sites where there may be enough space to limit the impact through effective flood storage or blue green infrastructure. If this is not possible, the site should be withdrawn.

1.2.2 Strategic Recommendation B - Level 2 SFRA required due to high and/or medium risk. Exception test may be required.

This strategic recommendation does not take into account local circumstances, only that part of the site area falls within a flood zone.

Strategic Recommendation B applies to any site where the following criteria is true:

- Any part of a site is within Flood Zone 3a (high risk)
- Any part of a site is within Flood Zone 2 (medium risk)
- Any part of a site is within the high or medium risk surface water flood zones
- Any part of a site is within the medium risk plus climate change extent (using the low risk surface water extent as a conservative proxy)
- Any part of a site is within the EA Flood Map for Planning Climate Change Extents
- Any part of the site is within the future functional floodplain extent.

NOTE: the exception test only applies to sites at fluvial flood risk, depending on the vulnerability of the site use (see Table 2 of the FRCC-PPG). Less vulnerable uses of land do not require the exception test but may still require a Level 2 SFRA to show whether they can be safe for the lifetime of development.

According to diagrams 1, 2 and 3 and Table 2 of the FRCC-PPG, any site at high or medium flood risk now and/or in the future should be assessed in more detail through a Level 2 SFRA. Strategic Recommendation B applies to sites where a Level 2 SFRA is required, unless the LPA can state in local plan policy that built development must avoid the risk area.

Sites included within Strategic Recommendation B may be subject to application of the exception test through a Level 2 SFRA i.e. more vulnerable sites in Flood Zone 3a. However, the sequential test should have been passed first, using this Level 1 SFRA, before the exception test is applied. The LPA should always attempt to avoid risk areas where possible.

Strategic Recommendation B applies to 38 of the 64 potential development sites assessed. 30 of these sites require a Level 2 SFRA to further inform on surface water flood risk. However, RoFSW depth, hazard, and velocity data are not currently available from the EA. Guidance from the EA will therefore be required as to how any Level 2 SFRA would consider surface water flood risk.

1.2.3 Strategic Recommendation C - allocate and progress to developer-led FRA

This strategic recommendation does not take into account local circumstances, only that part of the site area falls within a flood zone.

Strategic Recommendation C applies to any site where the following criteria is true:

- 100% within Flood Zone 1 (low risk) and not shown to be at risk from surface water flooding, but is greater than 1 hectare in area
- 100% within Flood Zone 1 (low risk) and not shown to be at additional risk from climate change, but is greater than 1 hectare in area
- 100% within Flood Zone 1 (low risk) and shown to be at risk from other sources, i.e. groundwater emergence or reservoir flooding

Strategic Recommendation C applies to one of the 64 potential development sites assessed.

1.3 Assessment of climate change

The Site Assessment Spreadsheet highlights the potential additional risk to sites, where applicable, as a result of climate change. To represent the increased flood risk resulting from climate change, a future functional floodplain, as delineated in this Level 1 SFRA update, and the EA Flood Map for Planning Climate Change Extents have been used.

The Spreadsheet highlights the **additional** risk from climate change, i.e. areas at risk in the future that are not at risk in the present day. This was screened against the potential development sites to identify sites at risk from climate change. The Risk of Flooding from Fluvial Climate Change columns indicate the area of each site that intersects with each flood extent.

The fluvial climate change scenarios assessed were:

- 1 in 30 year + central climate change allowance (Flood Map for Planning – 3.3% AEP defended (Climate Change))
- 1 in 100 year + central climate change allowance (Flood Map for Planning - Climate Change Extents)
- 1 in 1000 year + central climate change allowance (Flood Map for Planning - Climate Change Extents)

For representation of the **additional** risk from surface water climate change in this Level 1 SFRA, the low risk RoFSW extent is considered as a precautionary proxy for the medium risk plus climate change extent.

1.4 Assessment of groundwater emergence risk

The Site Assessment Spreadsheet contains comments on potential groundwater emergence risks within each site, informed by the JBA Groundwater Map. This flags the highest risk category present within the site, not the category that covers the most area.

This is to help to understand where there may be groundwater issues within the site that may require further investigation.

The JBA Groundwater Map does potentially enable a risk-based approach to be taken as it depicts different levels of risk. However, this is based on the risk of emergence of groundwater and not the risk of flooding due to groundwater. It should be noted that the location of highest risk of emergence might not be coincident with the location at highest risk of flooding.

Therefore, it is recommended that the groundwater flood risk is not considered in the sequential test on the basis that the JBA groundwater flood map does not provide the confidence or certainty required to undertake the sequential test. As the available mapping does not provide competent evidence on the relative risk of flooding, it could potentially result in inappropriate allocations if used without understanding the limitations of the data.

1.5 Assessment of reservoir risk

The EA's Reservoir Flood Map (RFM) (2021) shows where water may go in the unlikely event of a reservoir or dam failure. 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.

The RFM dry day extents have been considered within the Site Assessment Spreadsheet. This is a flag as to whether the site is at potential residual risk from a reservoir breach. The mapping does not describe a risk-based scenario as it does not provide the probability of a dam failure but is intended to describe a 'worst credible case' in the unlikely scenario of a dam failure. Therefore, it is recommended that the RFM is not included in the sequential test as the available data is inappropriate to be used alongside risk mapping from other sources.

A more detailed assessment in a Level 2 SFRA would identify locations where proposed development could result in a change to the risk designation of a reservoir. If proposed sites are located in a zone at reservoir risk, it will be necessary to understand the extent to which the flooding could be made worse and to report on the implications with respect to allocating the land for development. On that basis such an approach is recommended. If proposed development is located in a high hazard zone in the vicinity of an existing dam structure the implications should be considered in a Level 2 SFRA or site-specific Flood Risk Assessment and where appropriate an assessment made of whether alternative sites should be considered in accordance with the sequential test.

1.6 Summary of site assessment outcomes

There are several consequential development considerations which could come out of the site assessment sequential testing process. Each outcome is discussed below. The LPA should refer to Section 1.1 and Appendix B for details on the site assessments carried out for this Level 1 SFRA.

1.6.1 Rejection of site

A site which fails to pass the sequential test and/or the exception test should be rejected and not allocated for development.

Rejection would also apply to any built development within the functional floodplain (unless water compatible or essential infrastructure informed by a FRA). However, if the developer can avoid built development within the functional floodplain, part of the site could still be delivered.

In terms of surface water flood risk, if risk is considered significant (i.e. large, sporadic areas at medium or high risk now or in the future) or where the size of the site does not allow for onsite storage or application of appropriate SuDS then such sites could be rejected. The LLFA will be best placed to advise on site-specific surface water flood risk and whether sites can be taken forward or not.

1.6.2 Exception test required

Applies to those sites that, according to diagrams 1, 2 and 3, and Table 2 of the FRCC-PPG, would require the exception test. Only less vulnerable land uses would not require application of the exception test in Flood Zone 3a. More vulnerable uses are only permitted if both parts of the exception test are passed. Passing the exception test at the plan making stage does not negate the requirement for a FRA at the planning application stage. A Level 2 SFRA will inform the application of the exception test and the likelihood of passing part b of the test.

1.6.3 Consideration of site layout and design

Site layout and design are important to consider early on in the site planning stage where flood risk exists. The site would have to be large enough to enable alteration of the developable area to remove development from risk, or to leave space for onsite storage of floodwater. Careful layout and design at the site planning stage may apply to such sites where it is considered feasible based on the level of risk. Surface water risk and opportunities for SuDS should also be assessed during the planning stage. Blue green corridors can be used as multifunctional spaces providing mitigation for flood risk management, ecology, biodiversity net gain (BNG), and amenity and social benefits.

Any development within 8 metres of a flood defence structure or culvert on a non-tidal main river is likely to be a regulated flood risk activity under Schedule 25 of the Environment Permitting (England and Wales) Regulations 2016. Any site design, where Flood Zone 3a is included within the site boundary, should allow water to flow naturally or be stored in times of flood. Similarly, any change or alteration to an ordinary watercourse within a site would need consent from the LLFA under the Land Drainage Act 1991[3].

3 Land Drainage Act | GOV.UK | 1991

1.6.4 Site-specific Flood Risk Assessment

A site-specific FRA should assess whether a potential development site is likely to be affected by current or future flooding from any source. This should include referencing this Level 1 SFRA to help to establish sources of flooding. Further analysis should be performed to improve the understanding of flood risk including agreement with the LPA and the EA on areas of functional floodplain that may not have been robustly defined within this SFRA due to the absence of appropriate information from the EA. The LLFA should be consulted on risk from surface water and from ordinary watercourses.

According to the FRCC-PPG (Para 020), a site-specific FRA is:

"…carried out by (or on behalf of) a developer to assess the flood risk to and from a development site and should accompany a planning application where prescribed in footnote 55 of the National Planning Policy Framework. The assessment should demonstrate to the decision-maker how flood risk will be managed now and over the development's lifetime, taking climate change into account, and with regard to the vulnerability of its users (see NPPF Annex 3 – Flood Risk Vulnerability)".

Property flood resistance and resilience measures should be considered where floor levels cannot be raised. Compensatory storage must be found where the risk is fluvial. If this cannot be achieved, it is for the applicant to identify alternative mitigation measures.

Any site identified to be at residual risk must have suitable site access and escape routes available during times of flood together with a full emergency plan that should accompany the FRA at the application stage. The provisions of suitable flood warning systems should also be investigated.

In addition, a site is likely to be allocated without the need to assess flood risk where the proposed use is for open space. Assuming the site is not to include any development or land raising / regrading works and is to be left open in its original state then the allocation is likely to be acceptable from a flood risk point of view. However, for sites where there is potential for flood storage, options should be explored as part of a site-specific FRA.

For further detail regarding the requirements of a site-specific FRA, refer to Section 7.2 of the main report and EA guidance[4][5]. Detailed mitigation must be agreed through site-specific FRAs or through Level 2 SFRAs where it would be necessary to demonstrate site allocations would be safe for their lifetime.

4 Preparing a flood risk assessment: standing advice | Environment Agency | April 2025
5 Flood risk assessment: Flood Zones 1, 2, 3 and 3b | Environment Agency | April 2025

When is a site-specific FRA required?

According to the NPPF footnote 63, a site-specific FRA should be prepared when the applicant site is:

- Situated in Flood Zone 2 or 3; for all proposals for new development (including minor development and change of use);
- 1 hectare or greater in size and located in Flood Zone 1;
- Located in Flood Zone 1 on land which has been identified by the EA as having critical drainage problems (i.e. within an ACDP);
- Located in Flood Zone 1 and identified in the SFRA as being at increased fluvial or surface water flood risk in future; or
- Located in Flood Zone 1 but subject to a change of use to a higher vulnerability classification, or may be subject to other sources of flooding, such as those identified in this Level 1 SFRA.

The LPA may also consider further options for stipulating FRA requirements, such as for:

- Development at residual risk from flood defence breach, reservoir or canal failure, culvert blockage; or
- Development situated over a culverted watercourse or where development will require controlling the flow of any watercourse, drain or ditch, or the development could potentially change structures known to influence flood flow.

These further options should be considered using the preparation and development of the new Local Plan.

Paragraph 021 of the FRCC-PPG contains information regarding the level of detail required in FRAs and indicates that it should always be proportionate to the degree of flood risk whilst making use of existing information, including the Level 1 SFRA. Paragraph 080 of the FRCC-PPG contains an easy to follow FRA checklist for developers.

Together with the information in the FRCC-PPG, there is further detail and support provided by the EA for LPAs and developers online via:

Advice for LPAs

Advice for developers

The EA have also produced guidance for Flood Risk Assessments for planning applications[6].

1.6.5 Sites passing the sequential and exception tests

Development sites may be allocated or granted planning permission if they are supported by a suitable site-specific FRA, where required, and approved by the LPA. This is

6 Flood risk assessments: applying for planning permission | GOV.UK | April 2025

contingent upon the successful completion of the sequential test and the exception test, if required. While it is beneficial to consult with the LLFA, EA, water companies, and relevant stakeholders, agreement from all parties is not a prerequisite for allocation or planning permission.

In terms of opportunities for reducing flood risk overall as a requirement of the exception test, the FRCC-PPG states:

"Developers should refer to the Strategic Flood Risk Assessments and site-specific Flood Risk Assessments to identify opportunities to reduce flood risk overall and to demonstrate that the measures go beyond just managing the flood risk resulting from the development. Reductions could be achieved, for example by:

- *Incorporating green infrastructure within the layout and form of development to make additional space for the flow and storage of flood water;*
- *Providing Sustainable Drainage Systems, that manage flood risk beyond the proposed site and above the usual standard, such as by removing surface water from existing combined sewers;*
- *Providing or making contributions to flood risk management infrastructure that will provide additional benefits to existing communities and/or by safeguarding the land that would be needed to deliver it." (Paragraph 37).*

1.6.6 Surface water flood risk to assessed sites

For sites at surface water flood risk, the following should be considered:

- More detailed surface water modelling may reveal increased risk or less risk to a site compared to what is shown by the national RoFSW. The LLFA should be consulted when considering development feasibility at such sites;
- An outline drainage strategy to ascertain natural flow paths and topographic depressions, particularly for larger sites which may influence risk to development sites elsewhere;
- A detailed site-specific FRA incorporating surface water flood risk management;
- A full drainage strategy encompassing detailed surface water modelling of proposed site layouts, attenuation areas, diversion of flow routes, SuDS;
- Ensuring future maintenance of surface water and SuDS assets through s106 agreements;
- The size of development and the possibility of increased surface water flood risk caused by development on current greenfield land (where applicable) and cumulative impacts of this within specific areas;
- Management and re-use of surface water onsite, assuming the site is large enough to facilitate this and achieve effective mitigation. Effective surface water management should ensure risks on and off site are controlled;
- Larger sites should leave surface water flood-prone areas as open greenspace, incorporating social and environmental benefits;

- SuDS must be used where possible for all developments of more than one property. Appropriate SuDS may offer opportunities to control runoff to greenfield rates or better. Restrictions on surface water runoff from new development should be incorporated into the development planning stage. For brownfield sites, where current infrastructure may be staying in place, runoff should attempt to mimic that of greenfield rates, unless it can be demonstrated that this is unachievable or hydraulically impractical. Developers should refer to the national 'non-statutory technical standards for sustainable drainage systems' and other guidance documents cited in the main report. Note that SuDS should not be sited in locations of fluvial flood risk unless they are designed to mitigate for both sources of risk;
- Runoff up to and including the 1 in 100-year event (1% AEP) should be managed onsite where possible, including where accounting for climate change;
- Measures of source control should be required for all development sites;
- Developers should be required to set part of their site aside for surface water management, to contribute to flood risk management in the wider area and supplement blue green infrastructure networks;
- Developers should be required to maximise permeable surfaces;
- Flow routes on new development where the sewerage system surcharges as a consequence of exceedance of the 3.3% AEP design event should be retained;
- It may be beneficial to carry out a local Surface Water Management Plan (SWMP) or wider drainage strategy for targeted locations with any known critical drainage problems. Investigation into the capacity of existing sewer systems would be required in order to identify critical parts of the system i.e. pinch points. Drainage model outputs could be obtained from the water company to confirm the critical parts of the drainage network and subsequent recommendations could then be made for future development i.e. strategic SuDS sites, parts of the drainage system where any new connections should be avoided, and parts of the system that may have any additional capacity and recommended runoff rates. A Water Cycle Study would help to inform this.

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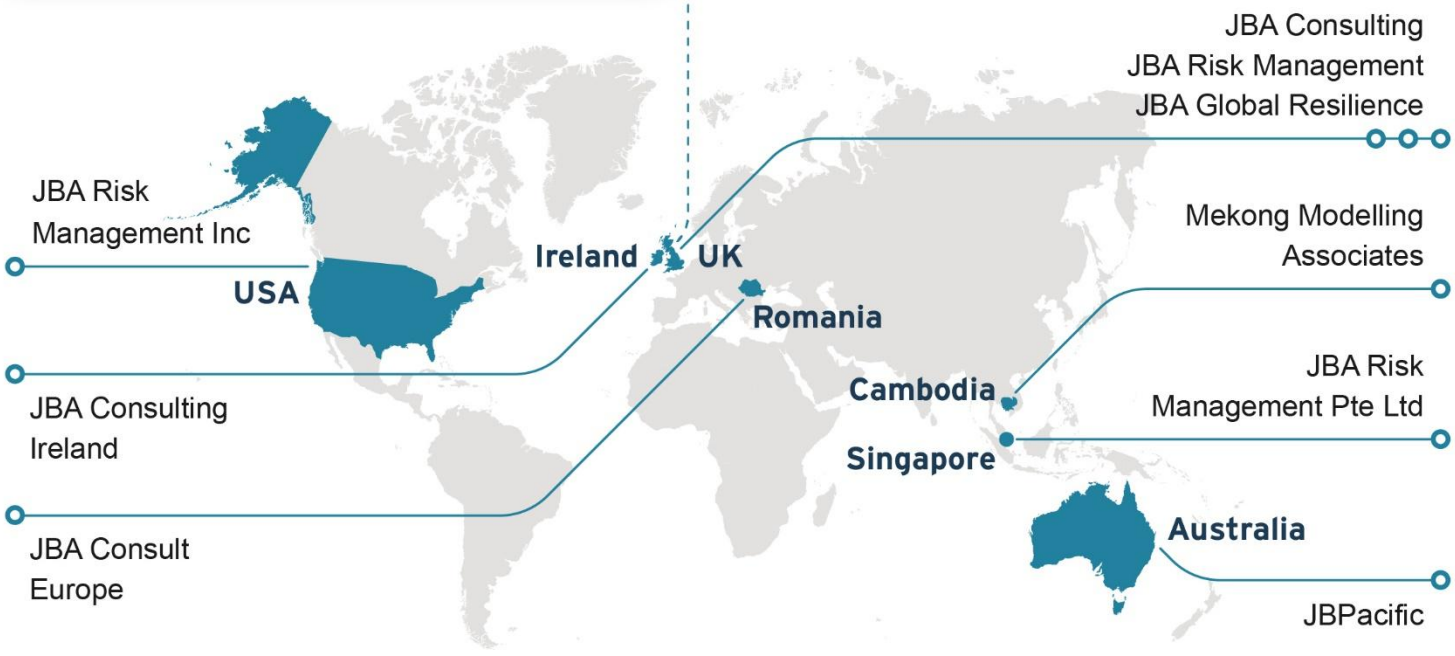

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South Oxfordshire and Vale of White Horse Level 1 SFRA Addendum

Appendix D - Catchment-level assessment of the cumulative impacts of development on flood risk

Final

Prepared for
South Oxfordshire District Council
Vale of White Horse District Council

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Contents

List of Figures

List of Tables

1 Introduction

Cumulative impacts are defined as the effects of past, current and future activities on the environment. It should be demonstrated that flood risk downstream will not be made worse by the combination of effects from development allocations. The below assessment is a catchment-based approach, which indicates potential cumulative impacts of development on flood risk in the South Oxfordshire and Vale of White Horse study area. These cumulative impacts may be negative, such as development leading to an increase in the existing level of flood risk within a catchment. They may also be positive, such as effective surface water management within a development site helping to alleviate existing flooding issues within a catchment.

The cumulative impact of development should be considered at both the Local Plan making stage and the planning application and development design stages. Paragraph 171 of the National Planning Policy Framework (NPPF, 2024) states:

'Strategic policies should be informed by a strategic flood risk assessment and should manage flood risk from all sources. They should consider cumulative impacts in, or affecting, local areas susceptible to flooding, and take account of advice from the Environment Agency and other relevant flood risk management authorities, such as lead local flood authorities and internal drainage boards.'

To understand the impact of future development on flood risk in South Oxfordshire and Vale of White Horse, modelled and historic flood risk data has been compared with potential changes in developed area within each river catchment defined within the Water Framework Directive (WFD). This identifies the catchments where development may have the greatest impact on flood risk, and therefore where further assessment would be required within a site-specific Flood Risk Assessment (FRA).

Where catchments have been identified as sensitive to the cumulative impact of development, the assessment concludes by identifying planning considerations to manage the risk.

2 Method

2.1 Cumulative impact assessment

2.1.1 Cumulative impact of development: assessing existing and future development scenarios

To ensure that the strategic policies of the Joint Local Plan consider the impact of any future development on areas susceptible to flooding, the potential development pressures during the Local Plan period need to be considered.

The impact of development is assessed by establishing a growth scenario of development already committed prior to the Joint Local Plan, as well as the potential future development pressures during the Local Plan period.

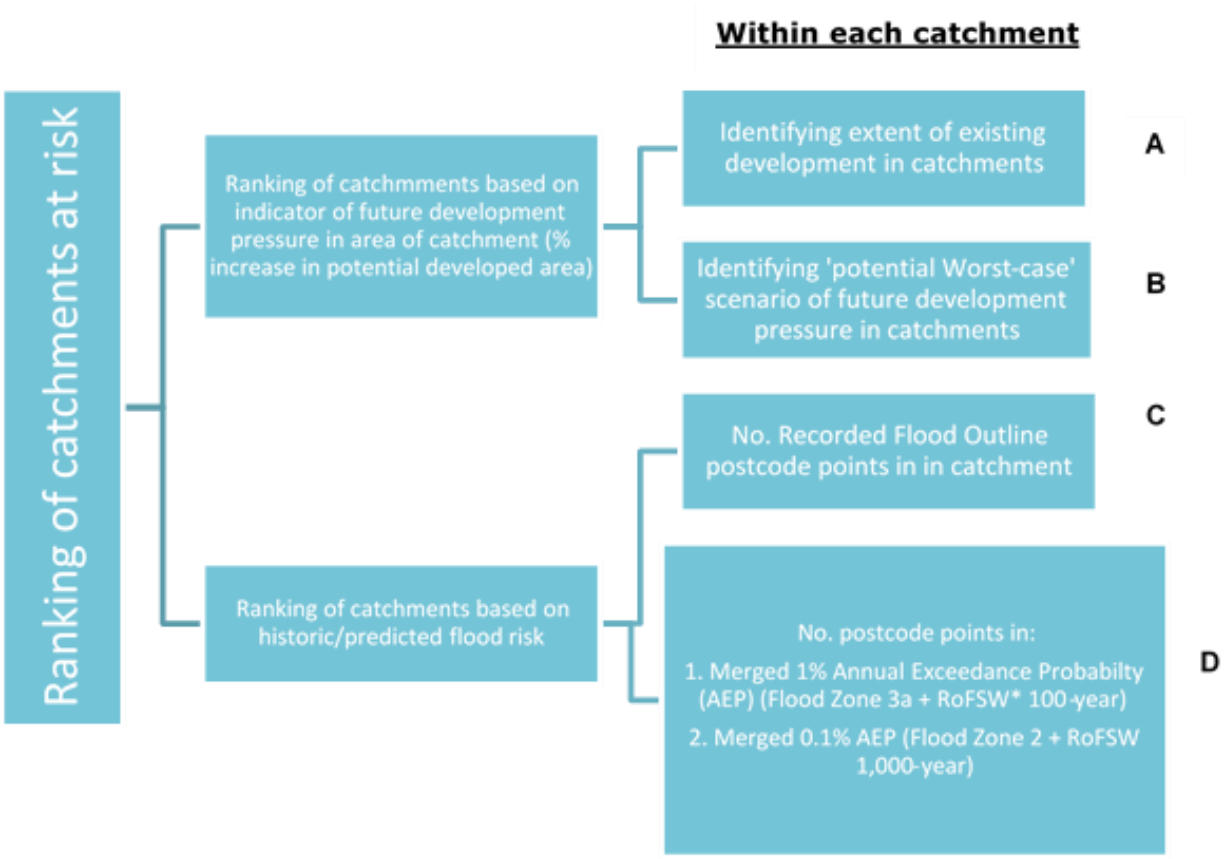
It should be noted that the inclusion of potential future development pressures makes the scoring method sensitive to future change, should any larger sites be removed, or additional sites come forward. However, it provides the best possible indication of development pressure across South Oxfordshire and Vale of White Horse at the time of assessment.

The assessment is undertaken on a river catchment scale, using catchments defined by the Water Framework Directive (WFD). Several of the WFD catchments assessed within the cumulative impact assessment cross administrative boundaries into neighbouring authority areas. To account for this in the study, all neighbouring councils were contacted to provide information of future development within their administrative area. The councils are:

- Oxford City Council
- Cherwell District Council
- Buckinghamshire Council
- Wokingham Borough Council
- Reading Borough Council
- West Berkshire Council
- Wiltshire Council
- Swindon Borough Council
- Cotswold District Council
- West Oxfordshire District Council

The site data received from these councils was combined with that of South Oxfordshire and Vale of White Horse to understand the risk to each WFD catchment, based upon potential future development.

The approach to understanding the catchments most influenced by the cumulative impact of development is conceptualised in Figure 2-1.



**Risk of Flooding from Surface Water (RoFSW)*

Figure 2-1: Overview of the method used in the cumulative impact assessment

A. Existing development scenario

To understand the level of existing development within the study area, the Code Point postcode density points covering the South Oxfordshire and Vale of White Horse area were used. This data set contains points plotted at the average coordinates representative of all individual addresses within a particular postcode. This also covered the neighbouring authority areas.

B. Indicator of Development pressure

To understand which catchments within the study area are likely to experience the greatest pressure from future development, all known commitments, emerging Local Plan site allocations and neighbourhood plan site allocations within South Oxfordshire and Vale of White Horse and the neighbouring authorities were analysed.

The data allows calculation of the overall area (in hectares) of known commitments, Local Plan site allocations and neighbourhood plan site allocations within each catchment, illustrating the relative pressures on the catchments. This data is used to identify catchments likely to be under the greatest pressure for development. The percentage total proposed area of development within each catchment is calculated and ranked, with the catchment with the highest proportion of growth ranked as '1'.

Wiltshire provided 33 site allocations that could potentially impact South Oxfordshire and Vale of White Horse; however, these sites were not located within a WFD catchment covering South Oxfordshire and Vale of White Horse. Therefore, these sites were not included in the analysis.

Future development data was not received from Buckinghamshire Council, Wokingham Borough Council, Reading Borough Council, Swindon Borough Council, Cotswold District Council or West Oxfordshire District Council. Therefore, it has not been possible to consider future development from these neighbouring authorities within the assessment.

Table 2-1: Summary of datasets used to define river catchments

Dataset	Coverage	Source of data	Use of data
Catchment boundaries	South Oxfordshire and Vale of White Horse	Water Framework Directive (WFD) catchments	Existing development / flood risk

Table 2-2: Summary of datasets used to estimate future development pressure

Dataset	Coverage	Source of data	Use of data
JLP sites, commitments and made neighbourhood plan allocations received for consideration	South Oxfordshire and Vale of White Horse	South Oxfordshire District Council, Vale of White Horse District Council	Indicator of relative development pressure
Neighbouring authority Local Plan allocations, neighbourhood plan allocations and committed developments	Catchments overlapping with the South Oxfordshire and Vale of White Horse study area	West Berkshire Council, Oxford City Council, Cherwell District Council, Wiltshire Council	Indicator of relative development pressure

Table 2-3: Summary of datasets used to rank catchments by flood risk

Dataset	Coverage	Source of data	Use of data
Merged 1 in 100-year flood extent (Flood Zone 3a and 1 in 100-year RoFSW extent)	Catchments covering the South Oxfordshire and Vale of White Horse study area	Environment Agency (EA)	Potential fluvial and surface water flood risk

Dataset	Coverage	Source of data	Use of data
Merged 1 in 1000-year flood extent (Flood Zone 2 and 1 in 1000-year RoFSW extent)	Catchments covering the South Oxfordshire and Vale of White Horse study area	Environment Agency (EA)	Potential future fluvial and surface water flood risk
Recorded Flood Outline	Catchments covering the South Oxfordshire and Vale of White Horse study area	Environment Agency (EA)	Historic fluvial flooding
OS Code Point Open postcode points - plotted at the average coordinates representative of all individual addresses within a particular postcode	Catchments covering the South Oxfordshire and Vale of White Horse study area	Ordnance Survey (Open source)	Proxy for number of properties at risk

2.1.2 Cumulative impact of flood risk: assessment of flood risk

A composite flood risk score is derived for each catchment, by taking an average ranking of both recorded fluvial risk (historic incidents) and modelled (predicted) fluvial and surface water flood risk.

To understand the relative flood risk within the catchments, a ranking system is adopted, with the worst-case flood risk numbered '1'.

2.1.2.1 Historic flood risk

Data used in assessment:

- EA Recorded Flood Outline (number of property postcode points affected) - flood extents mapped following flood events (largely relates to fluvial flooding). This is intersected with postcode points, to approximate the number of properties affected.

2.1.2.2 Sensitivity to increases in flood flows

Data used in assessment:

- Present day risk: Merged fluvial and surface water 1 in 100-year (1% AEP) flood extent - Flood Zone 3a and RoFSW 100-year (number of postcode points at risk within catchment).

- Future risk: Merged fluvial and surface water 1 in 1,000-year (0.1% AEP) flood extent - Flood Zone 2 and RoFSW 1000-year (number of postcode points at risk within catchment).
- Postcode point data is used to identify properties within the South Oxfordshire and Vale of White Horse study area.
- The postcode data is separately intersected with the Present day (1 in 1,000-year) and Future (1 in 100-year) risk merged fluvial and surface water flood extents, to approximate the increase in the number of properties at risk of flooding. The flood extents are merged to prevent double counting of properties at risk where fluvial and surface water flood risks overlap.
- The difference between the Present and Future risk is then calculated and given as a percentage of the total number of OS Code Point Open points in the catchment. This gives an indication of which catchments are most sensitive to increases in surface water runoff from upstream. For example, if there were 100 postcode points in a catchment, 15 within the 1 in 1,000-year merged flood extent and 5 within the 1 in 100-year merged flood extent, 10% of properties in that catchment are considered sensitive to increased flood risk.
- The assessment is an indicator of where local topography makes an area more sensitive to increases in flood risk. This may be due to any number of reasons, including climate change, new development etc. It is not an absolute figure or prediction of the impact that new development will have on flood risk.
- It should be noted that the Flood Zones represent flood risk from watercourses designated by the Environment Agency as Main Rivers, with a catchment area greater than 3km^2. There is no national dataset of flood risk mapping from smaller, ordinary watercourses. However, as the RoFSW mapping identifies the lowest points in the topography which includes the river floodplains, it can be used as a proxy to represent fluvial flood risk from ordinary watercourses. This approach has been used within the cumulative impacts assessment.

2.1.3 Assessment assumptions and limitations

Table 2-4 sets out the assumptions and limitations of the cumulative impacts assessment.

Table 2-4: Assumptions and limitations of the assessment

Assessment aspect	Assumption made	Details of limitation in method	Justification
Development pressure	Assumption of housing density and impermeable areas	Where potential development densities were not known for the sites, it is assumed that 70% of the site area would contribute surface water runoff to the	With housing densities and proportions of undeveloped areas not known, the approach aims to provide a realistic indication of site

Assessment aspect	Assumption made	Details of limitation in method	Justification
		wider catchment. This takes into account a 30% allowance for landscaping and requirements for SuDS within sites, which lessens the impacts of new development.	development in the growth scenario.
Development pressure	Potential development site areas not provided for all neighbouring authorities	Potential development sites were not made available to feed into the assessment for Buckinghamshire, Wokingham, Reading, Swindon, Cotswold and West Oxfordshire. Wiltshire provided 33 sites with the potential to impact South Oxfordshire and Vale of White Horse however this did not fall within a WFD catchment shared with the study area.	Potential development pressure was not taken into account for the WFD catchments shared between South Oxfordshire and Vale of White Horse and the aforementioned neighbouring authorities. Cumulative impacts were assessed through flood risk only.
Development pressure	Current site use assumed to be greenfield (undeveloped)	The current use of the sites (e.g. greenfield/brownfield) is often undefined. Brownfield sites are likely to have a less significant impact on flood risk as they have previously been developed. Therefore, in absence of this information, a 'worst case' assessment is produced, which	The assessment considers the 'worst case' development scenario, that all sites were greenfield (undeveloped) prior to growth. With the former land uses for each site not known, the approach overestimates the potential impact,

Assessment aspect	Assumption made	Details of limitation in method	Justification
		assumes that all sites are greenfield (undeveloped) and may overestimate the risk within each catchment.	but this is a precautionary approach.
Flood risk	Overlap between fluvial and surface water flood extents	The Risk of Flooding from Surface Water mapping identifies the lowest points in the landscape, and therefore low-lying river floodplains are also classified as being at surface water risk. This can lead to 'double counting' of flood risk.	To prevent double counting, the Flood Zone and Risk of Flooding from Surface Water datasets are merged, to create a composite flood risk layer, with any overlapping areas dissolved.
Flood risk	Use of OS Code Point Open postcode point data to represent properties affected by historic/predicted flood risk	As postcode points represent the average location of all properties within a postcode area, there may be properties at the edges of a catchment or the study area which are counted within the neighbouring area, or not picked up at all. The dataset is based on full postcodes.	The postcode points are an available open source dataset. Postcode area sizes are also relative to the density of properties in a location, providing better data coverage in areas where a greater number of properties were likely to be affected.

2.1.4 Ranking the results

The results are ranked for each of the above assessments from 1 to 49. For example, the catchment with the highest percentage of code points within the recorded flood outline dataset would be ranked at number 1. 51 catchments were considered within this assessment; however, some share the same overall combined score. As a result, the

lowest rank assigned was 49. The individual flood risk, historic flooding and development ranks are added to give an overall ranking for each catchment, as indicated in **Error! Reference source not found.**. The catchment with the lowest combined rank is the most sensitive to the cumulative impact of development.

Table 2-5: CIA Results

Catchment Name	Growth rank	Historic Flood Risk rank	Predicted Flood Risk rank	Total Combined rank	Overall rank
Childrey Brook and Norbrook at Common Barn	1	1	1	3	1
Ock and tributaries (Land Brook confluence to Thames)	11	5	4	20	2
Thames (Evenlode to Thame)	9	10	5	24	3
Ginge Brook and Mill Brook	10	4	14	28	4
Cherwell (Ray to Thames) and Woodeaton Brook	5	25	2	32	5
Sulham Brook	29	2	7	38	6
Thames Wallingford to Caversham	28	8	8	44	7
Northfield Brook (Source to Thames) at Sandford	3	30	12	45	8
Mill Brook and Bradfords Brook system, Wallingford	15	28	3	46	9
Moor Ditch and Ladygrove Ditch	4	29	16	49	10
Thames (Reading to Cookham)	32	9	9	50	11
Thames (Leach to Evenlode)	37	3	11	51	12
Oxon Ray (upstream A41 to Cherwell) including Otmoor	17	19	21	57	13
Sandford Brook (source to Ock)	19	21	17	57	13
Letcombe Brook	13	20	26	59	15

Catchment Name	Growth rank	Historic Flood Risk rank	Predicted Flood Risk rank	Total Combined rank	Overall rank
Chalgrove Brook	21	24	15	60	16
Coln (from Coln Rogers) and Thames (Coln to Leach)	41	6	13	60	16
Radcot Cut	41	7	18	66	18
Berrick Stream and Lady Brook	18	30	20	68	19
Tuckmill Brook and tributaries	14	26	29	69	20
Bayswater Brook	12	27	31	70	21
Lambourn (Source to Newbury)	36	15	19	70	21
Filchhampstead Brook at Farmoor	38	30	6	74	23
Thame (Scotsgrove Brook to Thames)	22	23	30	75	24
Haseley Brook	7	30	39	76	25
Cholsey Brook and tributaries	26	13	37	76	25
Childrey and Woodhill Brooks	2	30	45	77	27
Thame (Aylesbury to Scotsgrove Brook)	41	14	22	77	27
Cuttle Brook	20	30	28	78	29
Cole (Bower Bridge to Thames) including Coleshill	41	11	27	79	30
Chinor Brook and Sydenham Brook	16	30	34	80	31
Baldon Brook (South of Oxford)	25	30	25	80	31
Wye (Source to High Wycombe fire station)	41	30	10	81	33
Cole (Acorn Bridge to Bower Bridge)	6	30	46	82	34
Frilford and Marcham Brook	24	12	46	82	34
Cow Common Brook and Portobello Ditch	8	30	46	84	36

Catchment Name	Growth rank	Historic Flood Risk rank	Predicted Flood Risk rank	Total Combined rank	Overall rank
Kingsey Cuttle Brook and tributaries at Thame	30	30	24	84	36
Stutfield Brook (source to Ock)	31	30	23	84	36
Ock (to Cherbury Brook)	27	18	40	85	39
Pang	35	16	36	87	40
Waterloo Ditch (East of Coleshill)	23	30	38	91	41
Hamble Brook	41	17	33	91	41
Holton Brook and tributaries	33	22	41	96	43
Worminghall Brook and tributaries	41	30	32	103	44
Wadley Stream (Source to Thames at Duxford)	40	30	35	105	45
Scotsgrove Brook (upstream Kingsey Cuttle Brook)	34	30	43	107	46
Winterbourne	39	30	41	110	47
Ewelme Stream (Source to Thames)	41	30	44	115	48
Latchford Brook at Tetsworth	41	30	46	117	49
Lenta Brook, East of Swindon	41	30	46	117	49
Lewknor Brook	41	30	46	117	49

A Red Amber Green (RAG) rating is then applied to the catchments, with red being high sensitivity, amber being medium sensitivity, and green being low sensitivity. It should be noted that this assessment provides a relative assessment of sensitivity to increases in flood risk and development between catchments within the study area.

Specific recommendations are provided for each resulting risk category. Catchment-specific planning considerations are identified for the catchments where cumulative development is likely to have the greatest impact on flood risk to communities. The overall analysis provides context for further appropriate consideration of catchment-scale flood risk issues.

In addition to assessment at a Strategic Flood Risk Assessment (SFRA) level, it is recommended that site-specific Flood Risk Assessments (FRAs) are required to include consideration of the cumulative effects of the proposed development. It should be demonstrated that flood risk downstream will not be made worse by the combination of effects from more than one development allocation.

A map of the RAG rating for each catchment is shown in Figure 2-2 and a summary of the final results is shown in Table 2-6, Table 2-7 and Table 2-8. Specific recommendations are provided for each resulting risk category.

The catchments rated as high sensitivity to the cumulative impacts of development are:

- Childrey Brook and Norbrook at Common Barn
- Ock and tributaries (Land Brook confluence to Thames)
- Thames (Evenlode to Thame)
- Ginge Brook and Mill Brook
- Cherwell (Ray to Thames) and Woodeaton Brook
- Sulham Brook
- Thames Wallingford to Caversham
- Northfield Brook (Source to Thames) at Sandford
- Mill Brook and Bradfords Brook system, Wallingford

The catchments rated as medium sensitivity to the cumulative impacts of development are:

- Moor Ditch and Ladygrove Ditch
- Thames (Reading to Cookham)
- Thames (Leach to Evenlode)
- Oxon Ray (upstream A41 to Cherwell) including Otmoor
- Sandford Brook (source to Ock)
- Letcombe Brook
- Chalgrove Brook
- Coln (from Coln Rogers) and Thames (Coln to Leach)
- Radcot Cut
- Berrick Stream and Lady Brook
- Tuckmill Brook and tributaries

The catchments rated as low sensitivity to the cumulative impacts of development are:

- Bayswater Brook
- Lambourn (Source to Newbury)
- Filchhampstead Brook at Farmoor
- Thame (Scotsgrove Brook to Thames)
- Haseley Brook
- Cholsey Brook and tributaries
- Childrey and Woodhill Brooks
- Thame (Aylesbury to Scotsgrove Brook)
- Cuttle Brook

- Cole (Bower Bridge to Thames) including Coleshill
- Chinor Brook and Sydenham Brook
- Baldon Brook (South of Oxford)
- Wye (Source to High Wycombe fire station)
- Cole (Acorn Bridge to Bower Bridge)
- Frilford and Marcham Brook
- Cow Common Brook and Portobello Ditch
- Kingsey Cuttle Brook and tributaries at Thame
- Stutfield Brook (source to Ock)
- Ock (to Cherbury Brook)
- Pang
- Waterloo Ditch (East of Coleshill)
- Hamble Brook
- Holton Brook and tributaries
- Worminghall Brook and tributaries
- Wadley Stream (Source to Thames at Duxford)
- Scotsgrove Brook (upstream Kingsey Cuttle Brook)
- Winterbourne
- Ewelme Stream (Source to Thames)
- Latchford Brook at Tetsworth
- Lenta Brook, East of Swindon
- Lewknor Brook

No known development was proposed in the following catchments. These catchments have been included in the cumulative impact assessment. However, they only represent sensitivity to flood risk and not growth:

- Cole (Bower Bridge to Thames) including Coleshill
- Coln (from Coln Rogers) and Thames (Coln to Leach)
- Ewelme Stream (Source to Thames)
- Hamble Brook
- Latchford Brook at Tetsworth
- Lenta Brook, East of Swindon
- Lewknor Brook
- Radcot Cut
- Thame (Aylesbury to Scotsgrove Brook)
- Worminghall Brook and tributaries
- Wye (Source to High Wycombe fire station)

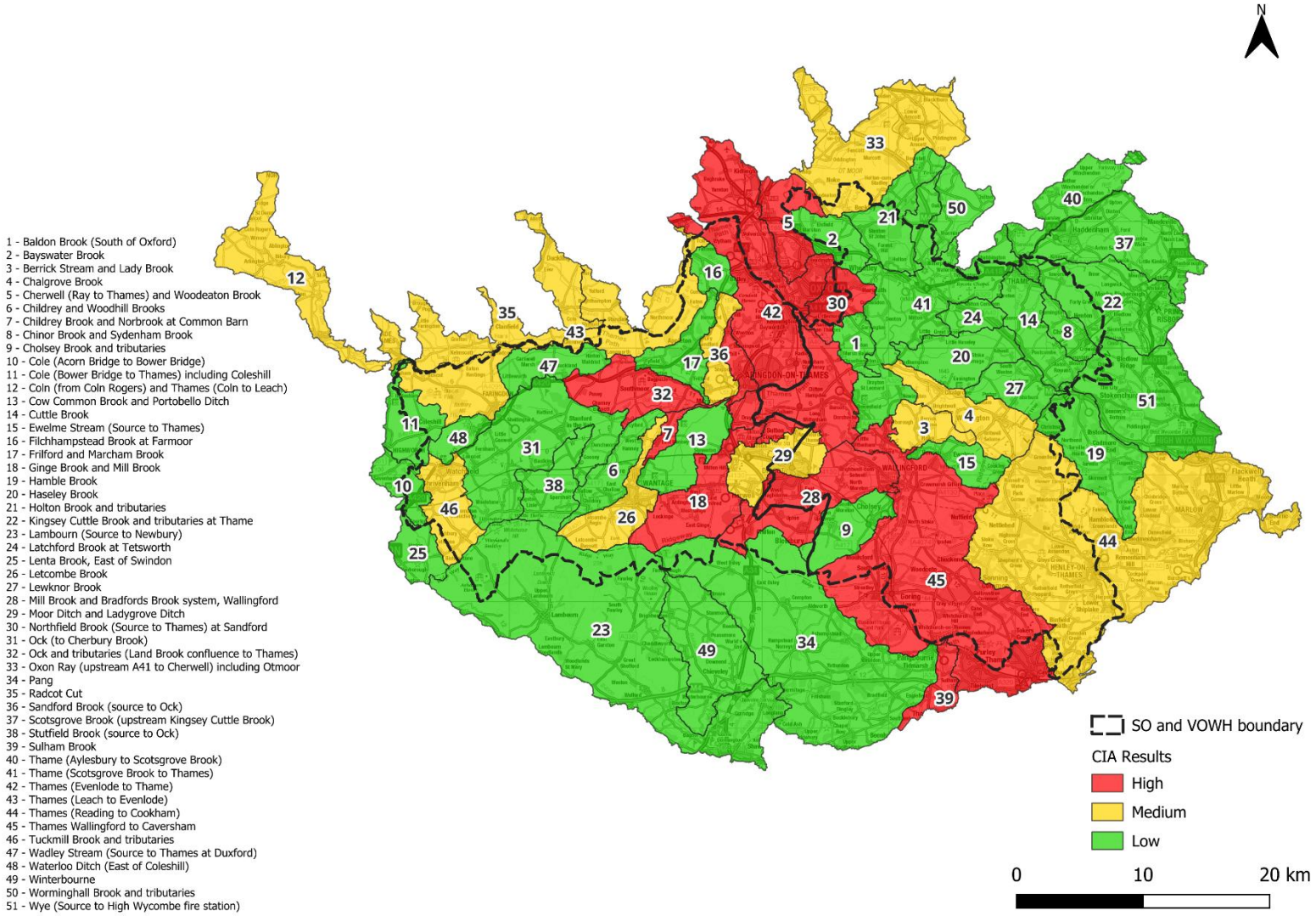


Figure 2-2: Sensitivity of catchments within and around the South Oxfordshire and Vale of White Horse study area to cumulative impacts

Table 2-6: Results of cumulative impacts assessment (High Overall Rank)

Map label	Catchment Name	Drainage direction	Growth RAG score	% area of growth	Postcode points in historic flood outlines	% increase in properties at risk: 1 in 100 to 1 in 1,000-year flood extent	Flood Risk RAG score	Overall RAG score	Overall rank
7	Childrey Brook and Norbrook at Common Barn	Remains within study area	High	19.5%	7	14.3%	High	High	1
32	Ock and tributaries (Land Brook confluence to Thames)	Remains within study area	Medium	6.0%	41	11.9%	High	High	2
42	Thames (Evenlode to Thame)	Into Vale of White Horse from the north	High	7.8%	225	11.9%	High	High	3
18	Ginge Brook and Mill Brook	Remains within study area	Medium	6.2%	18	9.1%	High	High	4
5	Cherwell (Ray to Thames) and Woodeaton Brook	Into South Oxfordshire from the north	High	15.7%	6	12.4%	Medium	High	5

Map label	Catchment Name	Drainage direction	Growth RAG score	% area of growth	Postcode points in historic flood outlines	% increase in properties at risk: 1 in 100 to 1 in 1,000-year flood extent	Flood Risk RAG score	Overall RAG score	Overall rank
39	Sulham Brook	Out of South Oxfordshire to the south	Low	0.5%	11	11.7%	High	High	6
45	Thames Wallingford to Caversham	Out of South Oxfordshire to the south	Low	0.5%	221	11.3%	High	High	7
30	Northfield Brook (Source to Thames) at Sandford	Into South Oxfordshire from the north	High	17.9%	0	9.3%	Low	High	8
28	Mill Brook and Bradfords Brook system, Wallingford	Into Vale of White Horse from the south	Medium	4.2%	2	12.3%	Medium	High	9

Table 2-7: Results of cumulative impacts assessment (Medium Overall Rank)

Map label	Catchment Name	Drainage direction	Growth RAG score	% area of growth	Postcode points in historic flood outlines	% increase in properties at risk: 1 in 100 to 1 in 1,000-year flood extent	Flood Risk RAG score	Overall RAG score	Overall rank
29	Moor Ditch and Ladygrove Ditch	Remains within study area	High	16.0%	1	7.5%	Low	Medium	10
44	Thames (Reading to Cookham)	Out of South Oxfordshire to the east	Low	0.2%	171	10.4%	High	Medium	11
43	Thames (Leach to Evenlode)	Into Vale of White Horse from the north	Low	0.1%	29	9.5%	High	Medium	12
33	Oxon Ray (upstream A41 to Cherwell) including Otmoor	Into South Oxfordshire from the north	Medium	3.3%	4	6.6%	Low	Medium	13
36	Sandford Brook (source to Ock)	Remains within study area	Medium	2.8%	1	7.1%	Medium	Medium	13

Map label	Catchment Name	Drainage direction	Growth RAG score	% area of growth	Postcode points in historic flood outlines	% increase in properties at risk: 1 in 100 to 1 in 1,000-year flood extent	Flood Risk RAG score	Overall RAG score	Overall rank
26	Letcombe Brook	Remains within study area	Medium	4.9%	7	6.0%	Low	Medium	15
4	Chalgrove Brook	Remains within study area	Medium	2.5%	2	7.5%	Medium	Medium	16
12	Coln (from Coln Rogers) and Thames (Coln to Leach)	Into Vale of White Horse from the north west	Low	0.0%	19	9.3%	High	Medium	16
35	Radcot Cut	Into Vale of White Horse from the north	Low	0.0%	9	7.0%	Medium	Medium	18
3	Berrick Stream and Lady Brook	Remains within study area	Medium	3.0%	0	6.7%	Low	Medium	19
46	Tuckmill Brook and tributaries	Into Vale of White	Medium	4.9%	1	5.4%	Low	Medium	20

Map label	Catchment Name	Drainage direction	Growth RAG score	% area of growth	Postcode points in historic flood outlines	% increase in properties at risk: 1 in 100 to 1 in 1,000-year flood extent	Flood Risk RAG score	Overall RAG score	Overall rank
		Horse from the south							

Table 2-8: Results of cumulative impacts assessment (Low Overall Rank)

Map label	Catchment Name	Drainage direction	Growth RAG score	% area of growth	Postcode points in historic flood outlines	% increase in properties at risk: 1 in 100 to 1 in 1,000-year flood extent	Flood Risk RAG score	Overall RAG score	Overall rank
2	Bayswater Brook	Into South Oxfordshire from the west	Medium	5.7%	1	4.8%	Low	Low	21
23	Lambourn (Source to Newbury)	Out of Vale of White Horse to the south	Low	0.1%	17	6.7%	Medium	Low	21
16	Filchhampstead Brook at Farmoor	Remains within study area	Low	0.0%	0	11.8%	Medium	Low	23
41	Thame (Scotsgrove Brook to Thames)	Into South Oxfordshire from the north	Medium	1.8%	7	5.1%	Low	Low	24
9	Cholsey Brook and tributaries	Remains within study area	Low	0.9%	3	4.1%	Low	Low	25

Map label	Catchment Name	Drainage direction	Growth RAG score	% area of growth	Postcode points in historic flood outlines	% increase in properties at risk: 1 in 100 to 1 in 1,000-year flood extent	Flood Risk RAG score	Overall RAG score	Overall rank
20	Haseley Brook	Remains within study area	High	8.8%	0	3.5%	Low	Low	25
6	Childrey and Woodhill Brooks	Remains within study area	High	19.5%	0	1.1%	Low	Low	27
40	Thame (Aylesbury to Scotsgrove Brook)	Into South Oxfordshire from the north east	Low	0.0%	4	6.6%	Medium	Low	27
14	Cuttle Brook	Remains within study area	Medium	2.8%	0	5.6%	Low	Low	29
11	Cole (Bower Bridge to Thames) including Coleshill	Into Vale of White Horse from the west	Low	0.0%	3	5.8%	Medium	Low	30
1	Baldon Brook (South of	Remains within	Medium	1.4%	0	6.1%	Low	Low	31

Map label	Catchment Name	Drainage direction	Growth RAG score	% area of growth	Postcode points in historic flood outlines	% increase in properties at risk: 1 in 100 to 1 in 1,000-year flood extent	Flood Risk RAG score	Overall RAG score	Overall rank
	Oxford)	study area							
8	Chinor Brook and Sydenham Brook	Remains within study area	Medium	3.6%	0	4.3%	Low	Low	31
51	Wye (Source to High Wycombe fire station)	Out of South Oxfordshire to the south east	Low	0.0%	0	10.1%	Low	Low	33
10	Cole (Acorn Bridge to Bower Bridge)	Into Vale of White Horse from the west	High	10.5%	0	0.0%	Low	Low	34
17	Frilford and Marcham Brook	Remains within study area	Medium	1.5%	3	0.0%	Low	Low	34
13	Cow Common Brook and Portobello Ditch	Remains within study area	High	8.1%	0	0.0%	Low	Low	36

Map label	Catchment Name	Drainage direction	Growth RAG score	% area of growth	Postcode points in historic flood outlines	% increase in properties at risk: 1 in 100 to 1 in 1,000-year flood extent	Flood Risk RAG score	Overall RAG score	Overall rank
22	Kingsey Cuttle Brook and tributaries at Thame	Into South Oxfordshire from the east	Low	0.5%	0	6.2%	Low	Low	36
38	Stutfield Brook (source to Ock)	Remains within study area	Low	0.3%	0	6.5%	Low	Low	36
31	Ock (to Cherbury Brook)	Remains within study area	Low	0.6%	4	3.5%	Low	Low	39
34	Pang	Out of Vale of White Horse to the south	Low	0.1%	13	4.1%	Low	Low	40
19	Hamble Brook	Out of South Oxfordshire to the south east	Low	0.0%	3	4.4%	Low	Low	41

Map label	Catchment Name	Drainage direction	Growth RAG score	% area of growth	Postcode points in historic flood outlines	% increase in properties at risk: 1 in 100 to 1 in 1,000-year flood extent	Flood Risk RAG score	Overall RAG score	Overall rank
48	Waterloo Ditch (East of Coleshill)	Remains within study area	Medium	1.6%	0	3.9%	Low	Low	41
21	Holton Brook and tributaries	Into South Oxfordshire from the north	Low	0.1%	1	3.4%	Low	Low	43
50	Worminghall Brook and tributaries	Into South Oxfordshire from the north	Low	0.0%	0	4.7%	Low	Low	44
47	Wadley Stream (Source to Thames at Duxford)	Remains within study area	Low	0.0%	0	4.2%	Low	Low	45
37	Scotsgrove Brook (upstream Kingsey Cuttle Brook)	Into South Oxfordshire from the north east	Low	0.1%	0	3.0%	Low	Low	46
49	Winterbourne	Remains	Low	0.0%	0	3.4%	Low	Low	47

Map label	Catchment Name	Drainage direction	Growth RAG score	% area of growth	Postcode points in historic flood outlines	% increase in properties at risk: 1 in 100 to 1 in 1,000-year flood extent	Flood Risk RAG score	Overall RAG score	Overall rank
		within study area							
15	Ewelme Stream (Source to Thames)	Remains within study area	Low	0.0%	0	1.4%	Low	Low	48
24	Latchford Brook at Tetsworth	Remains within study area	Low	0.0%	0	0.0%	Low	Low	49
25	Lenta Brook, East of Swindon	Into Vale of White Horse from the south	Low	0.0%	0	0.0%	Low	Low	49
27	Lewknor Brook	Remains within study area	Low	0.0%	0	0.0%	Low	Low	49

2.1.5 Planning considerations

Catchment-specific planning considerations have been identified for the catchments where cumulative development is likely to have the greatest impact on flood risk to communities. Planning considerations have also been identified which are relevant to all development.

In addition to assessment at a SFRA level, it is recommended that site-specific FRAs are required to include consideration of the cumulative effects of the proposed development. It should be demonstrated that flood risk downstream will not be made worse by the combination of effects from more than one development allocation.

1. Considerations for all developments in South Oxfordshire and Vale of White Horse

- Developments should seek betterment of existing flood risks both within the site and in surrounding areas. As a minimum, developments must meet national and local standards for Flood Risk Assessments and Surface Water Drainage Strategies. By looking at flood risks beyond the site boundary, developers should be encouraged to implement sustainable solutions which manage flood risk.
- Major developments[1] should be accompanied by an overall Surface Water Drainage Strategy. This should cover:
    - How the cumulative impacts of potential peak rates and volumes of surface water runoff from development sites would impact on the peak flows, duration of flooding and timing of flood peaks on receiving watercourses. This should be used to develop and implement appropriate drainage sub-catchments for the management of surface water, as well as specific runoff rate and volume requirements for each phase of the development.
    - The risk of flooding from all sources, including for rainfall events greater than the design standard of the surface water drainage system should be taken into account. This is to ensure there is no flood risk to new properties and that exceedance flows in extreme events are safely routed around those properties.
    - The consideration of how SuDS, natural flood management techniques, green infrastructure and green-blue corridors can be designed into the development master plan to facilitate drainage flood risk management. As well as managing the quantity of water, they should also ensure the wider benefits of biodiversity, amenity, water quality and recreation are realised.
    - Based on the above, a drainage phasing plan aligned with the SuDS train method should be developed. Firstly, it should consider how water can be infiltrated / stored at a plot level, then conveyed through the site. It should also identify any regional storage needs at a settlement level.

1 As defined in the NPPF Annex 2 Glossary as 'for housing, development where 10 or more homes will be provided, or the site has an area of 0.5 hectares or more. For non-residential development it means additional floorspace of 1,000m^2 or more, or a site of 1 hectare or more, or as otherwise provided in the Town and Country Planning (Development Management Procedure) (England) Order 2015'.

    - The provision of drainage shall be based on the drainage phasing plan, to ensure adequate drainage is provided implemented throughout the lifetime of the development. This includes provision of adequate drainage during the construction phase, to manage the risk of flooding, erosion and pollution during construction.
    - South Oxfordshire District Council and Vale of White Horse District Council (as LPAs); Oxfordshire County Council (as LLFA) and the Environment Agency should be consulted during the development of the Surface Water Drainage Strategy.
- In upland and rural areas of the catchments, Natural Flood Management (NFM) techniques, such as woodland planting and earth bunds, can be used to slow down and store flood waters upstream of settlements.
- SuDS should be integrated into the site design, to manage the existing surface water flow paths on the site and to help mitigate the flood risks to downstream communities.
- Successive minor developments have the potential to significantly impact on existing surface water and flood risk issues, particularly as the LLFA is not currently consulted on these applications. Therefore, minor developments should seek to achieve a reduction of existing runoff rates, through the use of SuDS.
- Any development within the fluvial floodplain (i.e. Flood Zones 3b, 3a and 2) should provide suitable flood compensation storage, in consultation with the Environment Agency, to avoid a net loss in floodplain storage. Level for level compensation is the preferred method of compensation storage.
- The LLFA and other Risk Management Authorities (RMAs) should use the information in the SFRA to inform a long-term pipeline of flood alleviation studies and schemes to determine where further developer contributions on / off site would be beneficial.

2. Planning considerations for medium sensitivity catchments

All new developments (other than minor householder developments) in these catchments should:

- Incorporate SuDS and provide details of adoption, ongoing maintenance, and management, in line with the 'National standards for sustainable drainage systems (SuDS)'[2] and the Oxfordshire SuDS Guidance[3], applicable for major developments. Preference will be given to above ground, vegetated SuDS, which contribute to the conservation and enhancement of biodiversity and green infrastructure in the study area.
- Developments in these areas should be incentivised to provide wider betterment by being requested to demonstrate in site specific Flood Risk Assessments and Surface Water Drainage Strategies what measures can be put in place to

2 National standards for sustainable drainage systems (SuDS)
3 Oxfordshire SuDS Guidance

contribute to a reduction in flood risk downstream. This may either be through provision of additional storage on site e.g. through oversized SuDS, natural flood management techniques, green infrastructure and green-blue corridors and/or by providing a Partnership Funding contribution towards a wider community scheme.

- Both greenfield and brownfield developments are to aim to achieve greenfield runoff rates and volumes in their post-development state.
- Surface Water Management Plans should be developed as required, not solely applicable to major developments.

3. Planning considerations for higher sensitivity catchments

All new development (other than householder developments) in these catchments:

- National and local flood risk planning policy must be stringently applied within these areas, with flood risk from all sources given the appropriate priority, particularly when applying the Sequential and Exception Tests.
- Both greenfield and brownfield developments to achieve 20% betterment over pre-development greenfield runoff peak flows[4] and volumes[5] in their post-development state, to counter cumulative impacts of development within the catchment.
- A Surface Water Drainage Strategy should be required for all developments in these catchments, regardless of development size. This would mean that a site-specific Flood Risk Assessment would be required for all developments, regardless of their size.
- The Environment Agency may designate higher sensitivity catchments as Areas with Critical Drainage Problems (ACDPs) as required. If an area with critical drainage is identified, the LPAs (supported by the LLFA) should draft a policy within their Joint Local Plan to manage flood risk from local sources in these catchments with critical drainage problems.
- For larger sites and strategic developments (such as new settlements and urban extensions):
    - The LLFA, Environment Agency and LPA should be consulted at pre-application stage.
    - The FRA should examine the cumulative impacts of proposed peak surface water runoff rates and volumes from across the site on the peak flows, duration of flooding and timing of flood peaks in receiving watercourses. This should include the impact of other developments within the WFD catchment, if appropriate, as advised by the LPAs/LLFA.
    - A Surface Water Drainage Masterplan should be developed and implement appropriate drainage sub-catchments for the management of surface water, with specific runoff rate and volume requirements set for each sub-catchment, in line with the SuDS management train.

4 For the 1 in 1 year rainfall event and the 1 in 100 year rainfall event

5 For the 1 in 100 year, 6 hour rainfall event

- Particular attention should be given to limiting runoff volumes to greenfield volume, with long-term storage to be provided where required. The timing of runoff released from the development site will need to be assessed against peak flow timings on the receiving watercourse, to ensure that discharges do not have a detrimental impact on downstream flood risk.
    - The timing of flows released from the development site will need to be assessed in the context of peak flows on the receiving watercourse.
    - Every opportunity should be taken to infiltrate and/or store water at a plot level.
    - Longer-term measures for managing flood risk should be considered, including river restoration and contributions to pipeline flood alleviation schemes.
- Where development sites receive runoff from, or drain towards, neighbouring authorities, the LPAs should work closely with neighbouring LPAs and the LLFA to develop complementary approaches to cumulative flood risk and sustainable drainage.

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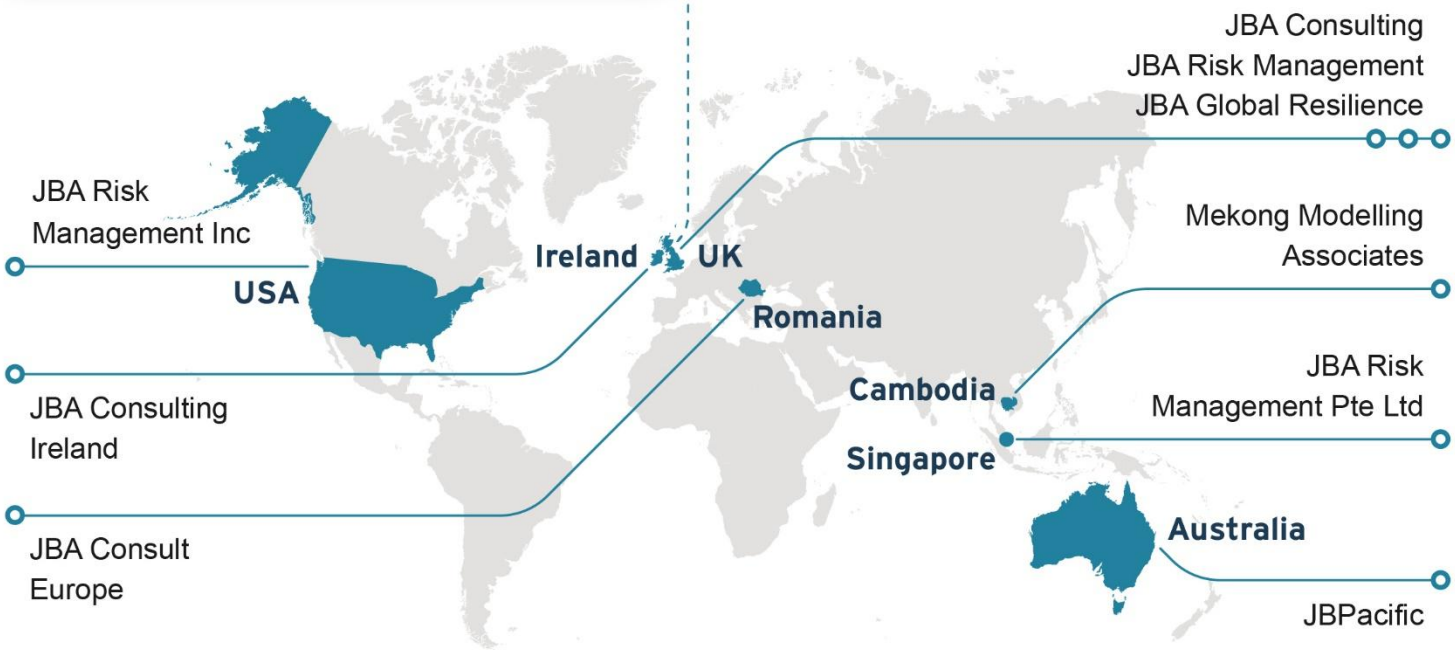

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