

# Chichester District Council Level 1 SFRA – Methodology in support of Performing the Sequential Test

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## **Purpose**

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# 1 Introduction

## 1.1 Background

Following an initial meeting convened with Chichester District Council (CDC) and JBA Consulting it was agreed that a technical note would be prepared to outline the methodology to support the performance of the Sequential Test. Details within this note were discussed with West Sussex County Council in their role as Lead Local Flood Authority (LLFA).

The need to address this matter arises from changes to the National Planning Policy Framework (NPPF) in July 2021 and the Planning Practice Guidance (PPG) in August 2022.

The scope and extent of changes to the PPG in August 2022 also require that additional analysis and mapping is prepared so the content of the SFRA addresses the new matters introduced in the updated guidance.

This document addresses the use of flood risk information in the performance of the Sequential Test but does not include the consideration of wider planning issues, as set out in the Sustainability Appraisal.

## 1.2 Summary of changes

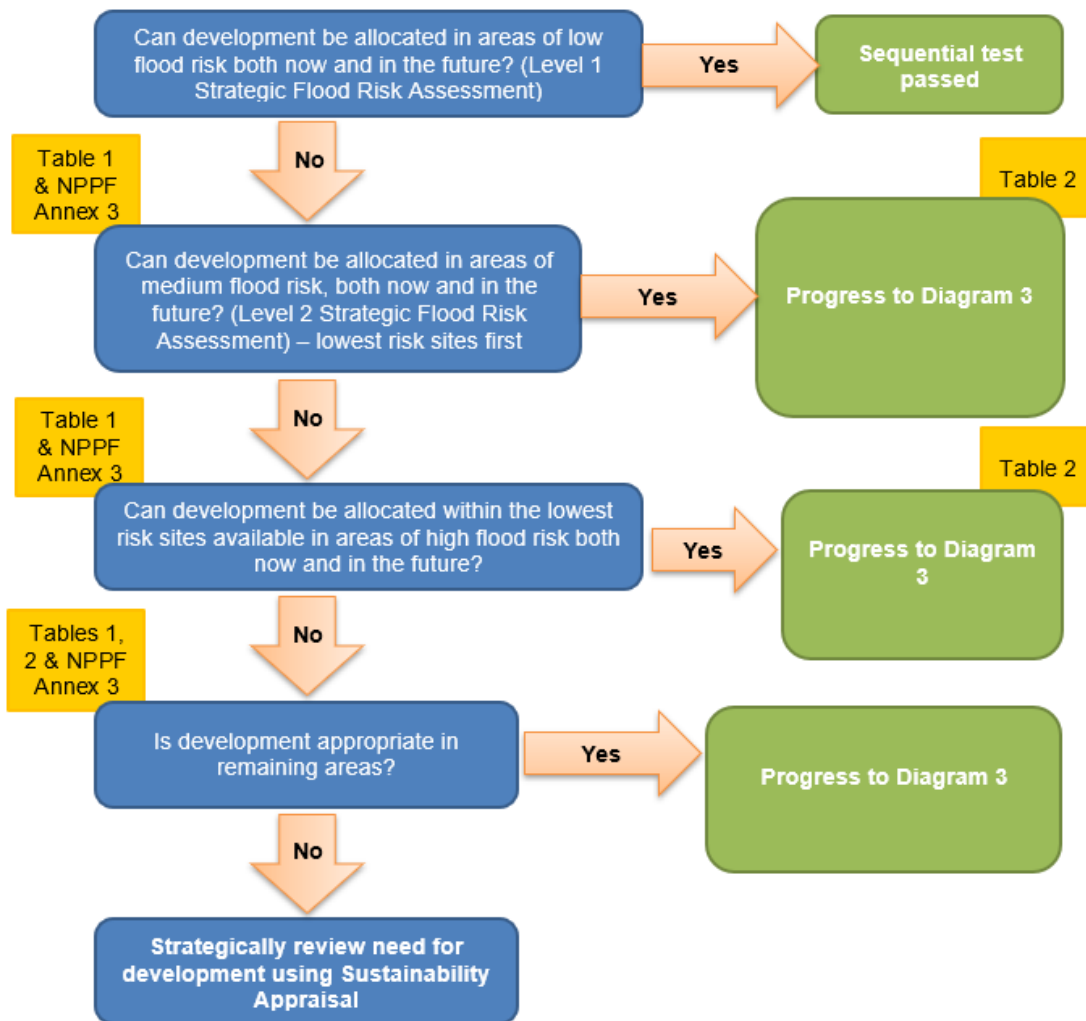
Paragraph 162 of the NPPF has been changed such that the Sequential Test must now *"steer new development to areas with the lowest risk of flooding from any source. Development should not be allocated or permitted if there are reasonably available sites appropriate for the proposed development in areas with a lower risk of flooding. The strategic flood risk assessment will provide the basis for applying this test. The sequential approach (as described in Para 161) should be used in areas known to be at risk now or in the future from any form of flooding."*

Prior to the changes to the NPPF the requirement was set out as follows and only required consideration of river and sea flood risk when applying the Sequential Test:

Previous Policy Wording	New Policy Wording (July 2021)
The aim of the Sequential Test is to steer new development to areas with the lowest risk of flooding (the Planning Practice Guidance advised that the exercise should be performed using the flood zones, as describe river and sea flood risk)	The aim of the Sequential Test is to steer new development to areas with the lowest risk of flooding <b>from any source</b>

The August 2022 PPG application of the Sequential Test diagram (Figure 1-1) shows that flood risk should preferably be considered in terms of low, medium and high-risk areas, both now and in the future.

**Figure 1-1: Diagram 2 in PPG**



In addition, the August 2022 version of the PPG now also notes that where Neighbourhood Plans are considering proposing development they will need to show that this would be consistent with the local planning authority’s application of the Sequential Test and if necessary, the Exception Test for the plan. If not, these tests will need to be re-visited on a local authority-wide basis.

### 1.3 Considerations for implementation

Formal confirmation was sought from the LLFA that the proposed approach outlined in this document to address surface water and groundwater flood risk and the Sequential Test will be supported at examination.

Further consultation was held with the Environment Agency to confirm that they agree in principle with the proposed approach.

It is important that the LLFA, EA and potentially neighbouring councils support the approach so it can be evidenced in the plan documents submitted for Examination.

The Level 2 SFRA includes more detailed consideration of surface water drainage and groundwater than has been required prior to the PPG updates.

## 2 Summary of implications of NPPF Policy changes

The Sequential Test, based on the sequential approach was originally conceived to direct proposed new development to locations that did not rely on Flood Risk Management features to make them safe, as this is inherently more sustainable and avoids placing a burden on future generations to address flood risk issues that will potentially be exacerbated by climate change effects. The test was previously performed using a set of "Zone" maps that showed the extent of river and sea flooding for circumstances where no defences were present for events with high, medium and low probability. This provided a logical conceptual basis for the placement of proposed new development that would not require investment in flood risk management (and so not place a burden on future generations).

The test process recognised that in some circumstances it would not be possible to locate development in locations outside of medium and high risk Flood Zones, as there are no reasonable alternatives. An obvious circumstance being proposed town centre development in locations of high flood risk, as it is not possible to redevelop town centre sites unless they remain in the town centre. In circumstances where the Sequential Test has been performed but is not satisfied the policy requires that the Exception Test is performed. The Exception Test is a two-part process that requires preparation of evidence to demonstrate that development proposals at risk of flooding deliver wider sustainability benefits and that it is evidenced it can be made safe for the intended lifespan (thus it is a requirement to demonstrate that proposed development will be safe under climate change conditions).

The updated NPPF (July 2021) requires that application of the Sequential Test to any source of flooding. The general implications of this are summarised as follows:

- The Sequential Test must be based on mapping that enables decision making according to a prioritisation based on a risk-based sequence (for river and sea flooding national mapping is available that describes low, medium and high risk flood zones for River and Sea flooding based on the assumption that no flood risk management features are present).
- The other sources of flood risk that can be included in the Sequential Test are surface water, ground water, sewer flooding and reservoir flooding (or other water impounding features such as canals).
- It follows that proposed new development placed in locations at high or medium risk from flooding from other sources now and in the future should be accompanied by evidence that the Exception Test can be satisfied (in a Level 2 SFRA).

A basic requirement for the Sequential Test to be performed is that appropriate, competent mapping can be prepared to enable logical comparison of the flood risk from different sources at alternative locations, both now and in the future, as this is a fundamental to establishing a logical "risk sequence". The following summary describes the implications of including different source of flooding both now and in the future in the Sequential Test, highlights matters to be considered and identifies a proposed approach.

## 2.1.1 River and sea risk – now and in the future

### Implications

Source of Flooding	Available Mapping	Implications of making use of mapping in the Sequential Test
Rivers and sea	Flood Map for Planning and detailed models	<ul style="list-style-type: none"> <li>The Sequential Test can be carried out using the Flood Map for Planning for present day low (Flood Zone 1), medium (Flood Zone 2) and high risk (Flood Zone 3) as previously was the case.</li> <li>Where detailed models are available, Future Flood Zones 2 (0.1% AEP event), 3a (1% AEP event) and 3b (now the 3.3% AEP) will be assessed with climate change allowances. It should be noted that there may be instability issues running the 0.1% AEP event with climate change allowances.</li> <li>The fluvial models may experience instabilities during 0.1% AEP plus climate change runs which may mean that results cannot be prepared.</li> <li>Generalised modelling (JFlow) is used to delineate Flood Zones where there is no detailed mapping.</li> </ul>

### Recommendations for river flood risk in the Sequential Test

- For present day river flood risk - Flood Zones 1, 2, 3a and 3b should be used.
- For future river flood risk - Where detailed models are available, the following climate change runs should be assessed as part of the sequential test:
  - Future low risk (future Flood Zone 1)** – not at medium or high risk or in the functional floodplain.
  - Future medium risk (future Flood Zone 2)**
    - 0.1% AEP Central allowance (25%) for all development except essential infrastructure.
    - 0.1% AEP Higher Central allowance (36%) for essential infrastructure.
    - 0.1% AEP Upper End allowance (64%) should be used for urban extensions, new settlements or nationally significant infrastructure projects.
  - Future high risk (future Flood Zone 3a)**
    - 1% AEP Central allowance (25%) for all development except essential infrastructure.
    - 1% AEP Higher Central allowance (36%) for essential infrastructure.
    - 1% AEP Upper End allowance (64%) should be used for urban extensions, new settlements or nationally significant infrastructure projects.
  - Future functional floodplain – high risk (future Flood Zone 3b)**
    - 3.3% AEP Central allowance (25%) for all development except essential infrastructure.
    - 3.3% AEP Higher Central allowance (36%) for essential infrastructure.
    - 3.3% AEP Upper End allowance (64%) should be used for urban extensions, new settlements or nationally significant infrastructure projects.

- Where generalised modelling (JFlow) has been used to delineate Flood Zones, Flood Zone 2 is used as a proxy for future Flood Zone 3a. Flood Zone 3a is used as a proxy for Flood Zone 3b.

### **Recommendations for sea flood risk in the Sequential Test**

- For present day sea flood risk - Flood Zones 1, 2 and 3a and 3b should be used.
- For future river flood risk - Given the vulnerability of the coastal part of the plan area in relation to tidal flooding and erosion, it is considered appropriate to use the Upper End Sea level rise allowance when applying the sequential and exception tests so that a precautionary approach is taken. The following climate change runs should be assessed as part of the sequential test.
  - **Future low risk (future Flood Zone 1)** – not at medium or high risk or in the functional floodplain.
  - **Future medium risk (future Flood Zone 2)**
    - 0.1% AEP 2096 Upper End Allowance for non-residential
    - 0.1% AEP 2121 Upper End Allowance for residential
    - 0.1% AEP 2100 H++ allowance for an urban extension, new settlement or **nationally significant infrastructure project.**
  - **Future high risk (future Flood Zone 3a)**
    - 0.5% AEP 2096 Upper End Allowance for non-residential
    - 0.5% AEP 2121 Upper End Allowance for residential
    - 0.5% AEP 2100 H++ allowance for an urban extension, new settlement or nationally significant infrastructure project.
  - **Future functional floodplain – high risk (future Flood Zone 3b)**
    - 3.3% AEP 2096 Upper End Allowance for non-residential
    - 3.3% AEP 2121 Upper End Allowance for residential
    - 3.3% AEP 2100 H++ allowance for an urban extension, new settlement or nationally significant infrastructure project.

The Environment Agency have been consulted and confirmed that they recommend that future Flood Zones 2, 3a and 3b are assessed as part of the Sequential Test.

If a site is located within a river or sea 0.1% AEP + climate change flood extent, the site is considered at flood risk as part of the Sequential Test.

## 2.1.2 Surface water flood risk now and in the future

### Implications

Source of Flooding	Available Mapping	Implications of making use of mapping in the Sequential Test
Surface Water	Risk of Flooding from Surface Water (RoFSW)	<ul style="list-style-type: none"> <li>• Mapping based on a generalised modelling methodology.</li> <li>• Generally suitable for showing surface water flow routes at different probability flood events (1 in 30, 1 in 100 and 1 in 1000), although the uncertainty associated with the predicted outlines for the respective probabilities is high. JBA Consulting also hold the required 3.3% and 1% AEP plus climate change allowances.</li> <li>• Doesn't always include allowance for drainage features such as culverts and can over or underestimate flooding where there are linear features such as embankments.</li> <li>• Unlike the Zone maps for river and sea flooding the surface water mapping makes an allowance for the assumed performance of a local drainage system.</li> <li>• Normal profile of extent and shape of surface water flooding is a "dendritic" pattern that follows low lying topography and is not an extensive blanket, as is most often the case for river and sea flooding.</li> <li>• The flood risk is normally more likely to be relatively short lived and much more localised than would be the case for river and sea flooding (most likely being caused by local high intensity short duration rainfall events).</li> <li>• It is likely that in many circumstances surface water flood risk zones based on the surface water mapping could affect a relatively small proportion of a proposed allocation site, but in practical terms this might not in itself be a factor that demonstrated that the principle of development could not be supported.</li> </ul>

### Recommendations for using zone maps for surface water flooding

- *Use the 1 in 1000 surface water flood extent mapping to define a simple zoning scheme that identifies a high risk and low risk zone:*

Surface Water mapping does not strictly describe the same conceptual risk zone as is defined for river and sea flooding (even though it is notionally associated with the same probability) as the mapping is based on different assumptions. However, it does create a product that can accommodate sequential testing, as it can facilitate strategic decisions that directed development to land in a "low risk surface water flood zone". Using such mapping it is not anticipated that the Sequential Test for surface water would normally require the consideration of alternative sites at lower risk, as the widespread and dendritic nature of surface water flood risk is conceptually very different to river and sea flood risk, but in some circumstances for relatively small sites that are potentially substantially affected it is possible that alternatives should be considered (as these could potentially not satisfy the flood risk requirements when assessed under the Exception Test).

The application of the test would logically be accompanied by a commitment to be made in the Plan Policy that all proposed development on sites identified for allocation would be placed in the "low risk surface water flood zone". In circumstances where it is not possible



to place all proposed development in the “low risk surface water flood zone” or circumstances arose where encroachment on land affected by surface water flood risk could not be avoided then it would be necessary to provide supplementary evidence that the Exception Test could be satisfied. For the purpose of the Plan this supplementary exercise will be set out in the Level 2 SFRA. The proposed approach is relatively simple, is not totally aligned with the river and sea zones (but this is appropriate as the mapping is not based on the same parameters), but from a practical perspective is strongly aligned with the sequential approach defined in para 161 of the NPPF. For these reasons it is recommended. (See example map showing indicative zone in Appendix A)

### 2.1.3 Groundwater flood risk

#### *Implications*

Source of Flooding	Available Mapping	Implications of making use of mapping in the Sequential Test
Groundwater	<p>BGS Groundwater flood susceptibility maps</p> <p>Also: JBA groundwater Flood Map</p> <p>WSCC historic flood events</p>	<ul style="list-style-type: none"> <li>BGS mapping does not show the likelihood or risk of groundwater flooding occurring, i.e. it is a hazard and consequence based product and does not enable application of risk based approach.</li> <li>JBA groundwater map does potentially enable a risk-based approach to be taken as it depicts different levels of risk. The analyses performed to prepare the mapping are all for a 1 in 100-year event and so provide a risk of groundwater emergence to the surface as they are based on predicted difference between groundwater level and the ground surface. Five zones are defined to describe the risk of groundwater being: at or very near ground surface; between 0.025m and 0.5m below the ground surface; between 0.5m and 5m below the ground surface; at least 5m below the ground surface; and negligible risk of groundwater flooding. However, the mapping does not depict the risk of flooding of the land from groundwater and it should be noted that the location of highest risk of emergence might not be coincident with the location at highest risk of flooding.</li> <li>The GeoSmart Groundwater Flood Risk Map held by West Sussex County Council. This dataset Risk is presented at 5m resolution with &gt;1% annual probability of groundwater flooding within four classes, high risk, moderate risk, low risk and negligible risk. The application of this data to spatially identify locations at higher or lower risk of flooding of the land is uncertain.</li> <li>The underlying challenge with these datasets is that the data is very uncertain and could not be used with confidence unless supported by more detailed local studies. The mapping provides an indication of where risk of elevated groundwater levels might be higher, but it would not be easy to defend sequential decisions based on the available mapping as it does not provide competent spatial evidence on the comparative risk of flooding of the land from groundwater flows.</li> <li>Historic flood data is available from West Sussex County Council, however this does not always list the source of flooding. In addition, it is often difficult to determine the source of historical flood events and groundwater and surface water flooding can often be confused.</li> </ul>

**Recommendations for using zone maps for groundwater flooding**

The JBA groundwater flood map and WSCC’s historical known events dataset potentially do not provide the confidence or certainty required to undertake the Sequential Test. The available mapping does not provide competent evidence on the relative risk of flooding across the study area and thus could potentially result in inappropriate allocations if used without understanding the limitations of the data. On this basis, to reflect the historic evidence of substantive flooding associated with groundwater flows in the study area it is recommended that all sites are considered to be potentially susceptible to groundwater flooding. So that groundwater flood risk is appropriately addressed in the sequential selection of land to be included in the plan further detailed analysis of the groundwater flood risk at each allocated site will take place at the Level 2 SFRA stage to support the Exception Test and if appropriate identify locations where alternative sites at lower groundwater flood risk should be considered. This more detailed assessment will consider local conditions on a site-by-site basis for selected sites using borehole, geological and LIDAR data.

**2.1.4 Sewer flood risk**

**Implications**

Source of Flooding	Available Mapping	Implications of making use of mapping in the Sequential Test
Sewer flooding risk	Water Company DG5 records  Southern Water Drainage Water Management Plan (DWMP)	<ul style="list-style-type: none"> <li>DG5 records are only available at postcode level and thus mapping does not define spatial extent or location of sewer flooding. Therefore, the mapping does not enable execution of risk-based sequence.</li> <li>DWMP information provides strategic mapping but this is not of appropriate resolution or format for the purpose of comparative assessment. Further details can be found in Appendix N of the Level 1 SFRA.</li> </ul>

**Recommendations for using zone maps for sewer flooding**

It is recommended that the sewer flood risk is not considered in the Sequential Test alongside river, sea and surface water flooding on the basis that the available information is not of appropriate resolution or format. This will be clearly stated in the Level 1 SFRA and where possible the DG5 and DWMP information will be used to inform the scope of site specific FRAs. If specific spatial information becomes available on sewer flood risk that provides competent data on the spatial relative risk of flooding this will be evaluated in the Level 2 SFRA and as appropriate inform the Sequential test process.

## 2.1.5 Reservoir flood risk

### *Implications*

Source of Flooding	Available Mapping	Implications of making use of mapping in the Sequential Test
Reservoir flooding risk	Reservoir Flood Mapping (RFM)	<ul style="list-style-type: none"> <li>• The latest available mapping now shows “wet day” and “dry day” reservoir inundation extents. The “wet day” being a reservoir breach at the same time as a 1 in 1000 river flood (as this is a likely time when a reservoir might fail) and the dry day shows the failure just from the water retained by the dam.</li> <li>• Neither set of mapping describes a risk-based scenario as they do not indicate the relative risk of land to the probability of dam failure but are intended to describe a “worst credible case”.</li> <li>• More detailed information on flood velocities and depths has been prepared as part of the modelling and mapping study, but this is not publicly available and can only be viewed by those with appropriate security classifications. The flood extents are publicly available.</li> <li>• A dataset exists which shows where the impact of reservoir flooding no longer affects the fluvial flood extent. This is known as a Wet Day Termination Extent. This dataset can be used to provide two zones:             <ol style="list-style-type: none"> <li>1. Where reservoir flooding is predicted to make fluvial flooding worse.</li> <li>2. Where reservoir flooding is not predicted to make fluvial flooding worse.</li> </ol> </li> <li>• The mapping could be used to direct proposed new development away from locations that could potentially be affected by reservoir flood risk. However, it would not be conceptually similar to the risks pertaining to river and sea flooding and further assessment would be required to understand the magnitude of the potential hazard.</li> <li>• A consideration with respect to the reservoir maps is that placing new development in locations potentially affected by reservoir inundation could potentially change the “risk category” of the reservoir and this could result in the reservoir owner “undertaker” having to invest in substantive remedial works to demonstrate that the reservoir had the appropriate level of safety. This is not strictly related to the Sequential Test with respect to high or low risk of flooding, but should be a consideration that should be appropriately managed when planning new development.</li> </ul>

### ***Recommendations for using zone maps for reservoir flooding***

It is recommended that reservoir flooding is included in the Sequential Test and a more detailed assessment included in the Level 2 SFRA. However, it will be made clear in the SFRA that the available information is not conceptually similar to the risks pertaining to river and sea flooding.

The RFM Wet Day Termination Extent will be used to define two zones:

1. Where reservoir flooding is predicted to make fluvial flooding worse.
2. Where reservoir flooding is not predicted to make fluvial flooding worse.

The more detailed assessment in the Level 2 SFRA will also 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 will be considered in the Level 2 SFRA and where appropriate an assessment made of whether alternative sites should be considered in accordance with the Sequential Test.

### 3 Sequential approach at a site level

In cases where the proportion of the site at flood risk is small, a sequential approach at the site level would be appropriate and enable development to be located in locations at low risk of flooding (by avoiding high risk areas that might exist at a particular site). This involves incorporating the less vulnerable aspects of the development (according to the Environment Agency's flood risk vulnerability classification) in the areas at risk of flooding. The more vulnerable aspects would be incorporated within areas at lower risk.

Chichester District Council has confirmed that for the purposes of the Sequential Test, if less than 20% of the site is at risk of flooding from a certain source, this would be categorized as 'most preferable'. This is because vulnerable development (such as housing) can be supported within the remaining 80%. It should be noted that in most circumstances the flooding from different sources is likely to affect the same "low lying" location within a proposed site, and thus it is normally logical not to base the preference as being affected by the number of different sources of flooding that could affect a site. Also, it is not strictly appropriate to seek to suggest that flood risks from different sources can be simply combined to derive a combined risk or ranking, as the logic and likelihood of such conclusions cannot easily be evidenced by the supporting data.

The assumptions used in the proposed approach are based on the [Chichester Open Space Study 2014-2036](#), which states that 2.6 ha of open space should be provided per 1000 people as part of new development. Based on 2.4 persons per dwelling, that would involve 417 dwellings. At 33 dph (dwellings per hectare) that would involve 12.6 ha of land. 2.6 ha would amount to 21% of the site coverage, which has been rounded to 20%. It is noted that the proposed development layouts would need to reflect the locations of the site affected by flood risk.

- The following assumptions have been used in defining the sequential preferability of sites affected by flood risk from different sources:
- If up to 20% of the site is affected by flood risk from a source (or coincident multiple sources), this would be categorised as 'preferable'.
- If 20% to 50% of the site is at risk from a source of flooding (or coincident multiple sources), this would be categorised as 'less preferable'.
- If more than 50% of the site is at risk from a certain source of flooding (or coincident multiple sources) this would be categorised as 'least preferable'.
- As some sites will be at risk of flooding from multiple sources, the site would be given an overall preferability based on the greatest risk from an individual source. However, if there are multiple sources of risk over different areas of the site this will be taken into consideration within the overall preferability category and the percentage of the site selected to reflect the overall flood risk from all sources, as appropriate.
- A site not affected by any source of flood risk would be most preferable, but as up to 20% flooding can be accommodated within a development site it is not practically necessary to introduce a further category.

## 4 Conclusions

This technical note has been prepared to formalise the arrangements to perform the Sequential Test for Chichester District Council and provides an arrangement that reflects updates to the NPPF in July 2021 and the PPG in August 2022. It is required that the Sequential Test assesses all sources of flooding for low, medium and high-risk areas both now and in the future.

Prior to the July 2021 changes to the NPPF, only consideration of river and sea flood risk was required when applying the Sequential Test.

A review of readily available information has been undertaken to assess suitable data sources which could be considered for other sources of flood risk not previously included in the Sequential Test. A summary of the datasets to be used in the Sequential Test can be found in Appendix B.

It is recommended that Flood Zone 2, 3 and 3b are assessed both for the present day and future.

It is recommended that the Environment Agency's 1 in 1000-year Risk of Flooding from Surface Water flood extent mapping is used to define a simple zoning scheme that identifies a high risk and low risk zone. It should be noted that the Risk of Flooding from Surface Water includes an allowance for drainage (a flood risk management feature), so this is not strictly the same conceptual risk zone as defined for river and sea flooding (even though it is associated with the same probability). However, it does create a product that can accommodate sequential testing, as it would facilitate strategic decisions that direct development to land in a "low risk surface water flood zone".

If less than 20% of the site is at risk from a certain source, this will be categorised as 'preferable'. If 20% to 50% of the site is at risk from a certain source, it would be categorised as 'less preferable'. If greater than 50% of the site is at risk the site would be categorised as 'least preferable'. Clearly a site not affected by any flood risk would be most preferable, but as up to 20% flooding can be accommodated within a development site it is not practically necessary to introduce a further category. In addition to a comparison of relative risk the site selection process also considers other factors such as safe access and egress.

Potential high-risk zones will be assessed and identified with respect to reservoir flood risk and if allocated sites are located in such zones then the implications will be addressed in the Level 2 SFRA.

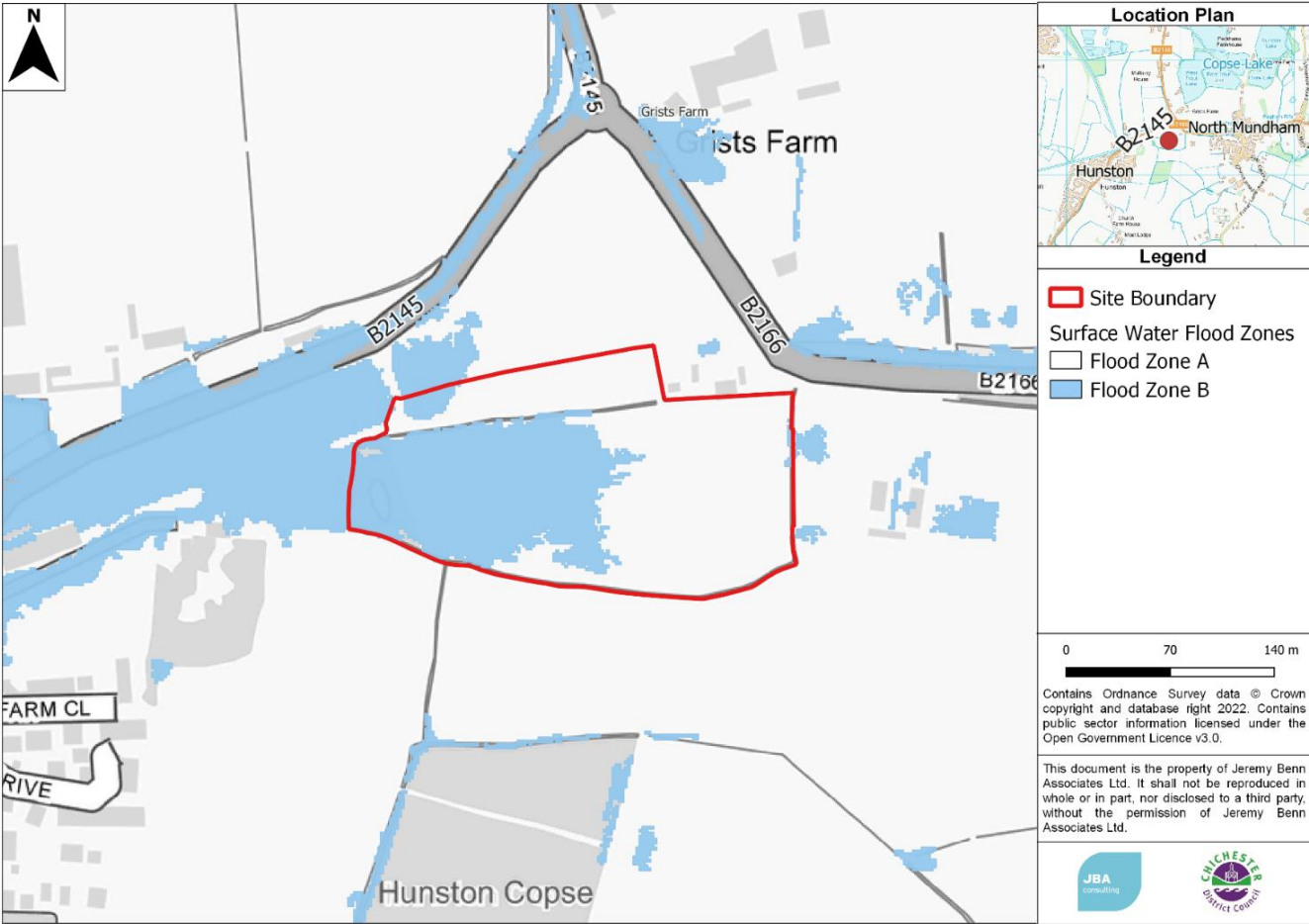
The readily available datasets for groundwater and sewer flood risk do not competently define areas of high or low risk of flooding and so more detailed assessment is performed in the Level 2 SFRA to inform the Sequential Test.

If the LPA considers that the Sequential Test is not satisfied then consideration must be given to the Exception Test and more detailed assessment included in the Level 2 SFRA.

Consultation will be sought from the LLFA and the Environment Agency for their comments on the methodology and approval of the approach will be obtained before the inclusion in the SFRA.

**Appendices**

**A Surface Water Zone Map**





## B Summary of the Sequential Test for the SFRA

Source of Flooding	High risk	Medium risk	Low risk	Justification of approach		
				Risk now	Future risk	Preferability
River	Greater than 1 in 100 year (FZ3)	Between 1 in 100 and 1 in 1,000 year (FZ2)	Less than 1 in 1,000 year	Flood Zones 1, 2 and 3a and 3b use a risk-based approach	<p><b>Low Risk</b></p> <ul style="list-style-type: none"> <li>- not at medium or high risk or in the functional floodplain.</li> </ul> <p><b>Medium risk</b></p> <ul style="list-style-type: none"> <li>- 0.1% AEP Central allowance (25%) for <b>all development except essential infrastructure.</b></li> <li>- 0.1% AEP Higher Central allowance (36%) for <b>essential infrastructure.</b></li> <li>- 0.1% AEP Upper End allowance (64%) should be used for <b>urban extensions, new settlements or nationally significant infrastructure projects.</b></li> </ul> <p><b>High risk</b></p> <ul style="list-style-type: none"> <li>- 1% AEP Central allowance (25%) for <b>all development except essential infrastructure.</b></li> <li>- 1% AEP Higher Central allowance (36%) for <b>essential infrastructure.</b></li> <li>- 1% AEP Upper End allowance (64%) should be used for <b>urban extensions, new settlements or nationally significant infrastructure projects.</b></li> </ul> <p><b>Future functional floodplain – high risk</b></p> <ul style="list-style-type: none"> <li>- 3.3% AEP Central allowance (25%) for <b>all development except essential infrastructure.</b></li> <li>- 3.3% AEP Higher Central allowance (36%) for <b>essential infrastructure.</b></li> <li>- 3.3% AEP Upper End allowance (64%) should be used for <b>urban extensions, new settlements or nationally significant infrastructure projects.</b></li> </ul>	<p>If less than 20% of the site is at risk from a certain source, this will be categorised as 'preferable'.</p> <p>If 20% to 50% of the site is at risk from a certain source, it would be categorised as 'less preferable'.</p> <p>If greater than 50% of the site is at risk the site would be categorised as 'least preferable'.</p> <p>In addition to a comparison of relative risk the site selection process also considers other factors such as safe access and egress.</p>

					<p><b>Note</b></p> <p>Where generalised modelling (JFlow) has been used to delineate Flood Zones, Flood Zone 2 is used as a proxy for future Flood Zone 3a. Flood Zone 3a is used as a proxy for Flood Zone 3b.</p> <p>The site will be considered to be at risk of flooding if located within the 0.1% AEP +climate change extent.</p>	
Sea	Greater than 1 in 200 year (FZ3)	Between 1 in 200 and 1 in 1,000 year (FZ2)	Less than 1 in 1,000 year	Flood Zones 1, 2 and 3 use a risk-based approach	<p><b>Low risk</b></p> <ul style="list-style-type: none"> <li>- not at medium or high risk or in the functional floodplain.</li> </ul> <p><b>Medium risk</b></p> <ul style="list-style-type: none"> <li>- 0.1% AEP 2096 Upper End Allowance for <b>non-residential</b></li> <li>- 0.1% AEP 2121 Upper End Allowance for <b>residential</b></li> <li>- 0.1% AEP 2100 H++ allowance for an <b>urban extension, new settlement or nationally significant infrastructure project.</b></li> </ul> <p><b>High risk</b></p> <ul style="list-style-type: none"> <li>- 0.5% AEP 2096 Upper End Allowance for <b>non-residential</b></li> <li>- 0.5% AEP 2121 Upper End Allowance for <b>residential</b></li> <li>- 0.5% AEP 2100 H++ allowance for an <b>urban extension, new settlement or nationally significant infrastructure project.</b></li> </ul> <p><b>Functional floodplain – high risk</b></p> <ul style="list-style-type: none"> <li>- 3.3% AEP 2096 Upper End Allowance for non-residential</li> <li>- 3.3% AEP 2121 Upper End Allowance for residential</li> <li>- 3.3% AEP 2100 H++ allowance for an urban extension, new settlement or nationally significant infrastructure project.</li> </ul>	<p>If less than 20% of the site is at risk from a certain source, this will be categorised as 'preferable'.</p> <p>If 20% to 50% of the site is at risk from a certain source, it would be categorised as 'less preferable'.</p> <p>If greater than 50% of the site is at risk the site would be categorised as 'least preferable'.</p> <p>In addition to a comparison of relative risk the site selection process also considers other factors such as safe access and egress.</p>

					<p><b>Note</b></p> <p>The site will be considered to be at risk of flooding if located within the 0.1% AEP +climate change extent.</p>	
<p><b>Surface Water</b></p>	<p>Greater than 1 in 1000 year</p>		<p>Less than 1 in 1,000 year</p>	<p>Different assumptions are used to derive surface water risk than is the case for fluvial and tidal flood zones. The RoFSW dataset potentially does not provide the confidence or certainty required to define areas of high medium and low flood risk that are comparable with the risk zones for river and sea flooding. Therefore, a precautionary approach should be taken so development is located in areas of low flood risk. This approach will require that sites where proposed development is located in a high risk surface water zone are assessed in more detail in the Level 2 SFRA.</p>	<p>The use of the 0.1% AEP surface water Zone implicitly includes an allowance for climate change when considering high risk areas</p>	<p>If less than 20% of the site is at risk from a certain source, this will be categorised as 'preferable'.</p> <p>If 20% to 50% of the site is at risk from a certain source, it would be categorised as 'less preferable'.</p> <p>If greater than 50% of the site is at risk the site would be categorised as 'least preferable'.</p> <p>In addition to a comparison of relative risk the site selection process also considers other factors such as safe access and egress.</p>
<p><b>Groundwater</b></p>	<p>All sites assumed to be potentially susceptible to groundwater flooding.</p>			<p>Datasets potentially do not have the confidence or certainty required to provide mapping that enables a comparative assessment to be made of the risk of flooding of land from groundwater. Therefore, a precautionary approach should be taken and all potential allocation sites will be assessed for groundwater flood risk in the Level 2 SFRA and the implications for sequential selection of alternative locations considered at this stage.</p>	<p>(Not available)</p>	<p>N/A</p>

<b>Sewer</b>	All sites assumed to be at high risk of sewer flooding. Additional information required via the Level 2 SFRA	Datasets potentially do not have the confidence or certainty required to provide mapping that enables a comparative assessment to be made of the risk of flooding of land from sewers. Therefore, a precautionary approach should be taken and all potential allocation sites will be assessed for sewer flood risk via the Level 2 SFRA where data is available and the implications for sequential selection of alternative locations considered at this stage.	(Not available)	N/A
<b>Reservoir</b>	Sites where reservoir flooding is predicted to make fluvial flooding worse for development in high hazard zone to be assessed in Level 2 SFRA.	Datasets potentially do not have the confidence or certainty required to provide mapping that enables a comparative assessment to be made of the risk of flooding of land from reservoirs. In addition, the reservoir flood map identifies the consequence of a reservoir breach rather than risk, so applying high, medium and low 'risk' is not possible using this dataset. Therefore, a precautionary approach should be taken and sites where reservoir flooding is predicted to make fluvial flooding worse for development or where development is proposed in a high hazard zone will be assessed in Level 2 SFRA and the implications for sequential selection of alternative locations considered at that stage.	(Not available)	N/A

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