

1 Introduction

1.1 Background

- 1.1.1 JBA Consulting has been commissioned by Swale Borough Council to prepare an update to their Level 1 Strategic Flood Risk Assessment (SFRA).
- 1.1.2 As part of the reporting, it was agreed that a Sequential Test Dataset Guidance Document for the Local Plan and individual planning applications would be prepared.
- 1.1.3 The need to address this matter arises from changes to the National Planning Policy Framework (NPPF) in July 2021 and revisions to the accompanying Planning Practice Guidance (PPG) in August 2022. The NPPF has subsequently been updated again in 2024 and the PPG in 2025.
- 1.1.4 The SFRA provides the flood risk evidence to support the application of the Sequential Test. This includes flood risk mapping which can be found in Appendices C-E of the SFRA and on Swale Borough Council's **interactive mapping** portal. A high-level screening of proposed development sites for inclusion in the Local Plan against flood risk information can be found in Appendix K of the SFRA.
- 1.1.5 The Swale Borough Council **Advice Note: undertaking Sequential and Exception Tests for Planning Applications** defines the geographical scope of the Sequential Test for different parts of the borough and should be read alongside this document.

1.2 Purpose of document

- 1.2.1 The purpose of this document is to inform the datasets required for the preparation and assessment of Sequential Tests across the borough, for both the Local Plan and for individual planning applications. This document does not address the data requirements for the Exception Test.

2 Policy requirements

2.1 National Planning Policy Framework

- 2.1.1 The need to apply the Sequential Test is set out within the National Planning Policy Framework (NPPF) which was last updated in December 2024 and the Planning Practice Guidance - Flood Risk and Coastal Change (PPG) which was last updated in September 2025.
- 2.1.2 Paragraph 172 of the NPPF states that *"All plans should apply a sequential, risk-based approach to the location of development – taking into account **all sources of flood risk** and the **current and future impacts of climate change** – so as to avoid, where possible, flood risk to people and property"*
- 2.1.3 Paragraph 174 states that *"the aim of the sequential test is to steer new development to areas with the lowest risk of **flooding from any source**.[...] The strategic flood risk assessment will provide the basis for applying this test."*
- 2.1.4 Finally, Paragraph 175 of the NPPF states that *"the sequential test should be used in areas known to be at risk now or in the future from any form of flooding, except in situations 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)"*
- 2.1.5 Therefore, in summary the NPPF sets out the requirement for considering all sources of flood risk, now and in the future when applying the Sequential Test. It also identifies certain circumstances where the Sequential Test would not be required where vulnerable elements are shown (through a site-specific Flood Risk Assessment) to be outside of areas at risk of flooding from any source.

2.2 Planning Practice Guidance

- 2.2.1 Paragraph 017 of the Planning Practice Guidance (PPG) states that *"Where the Strategic Flood Risk Assessment, or other available flood risk maps or information, indicates that part or parts of a neighbourhood plan area may be at risk of flooding, the qualifying body should have regard to the National Planning Policy Framework's policies on flood risk. Where they 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"*.
- 2.2.2 Paragraph 023 of the PPG states that *"The approach is designed to ensure that areas at little or no risk of flooding from **any source** are developed in preference to areas at higher risk. This means avoiding, so far as possible, development in **current and future medium and high flood risk areas** considering **all sources of***

flooding including areas at risk of surface water flooding. [...] Other forms of flooding need to be treated consistently with river and tidal flooding in mapping probability and assessing vulnerability, so that the sequential approach can be applied across all areas of flood risk."

- 2.2.3 Paragraph 024 of the PPG states *"Where it is not possible to locate development in low-risk areas, the Sequential Test should go on to compare reasonably available sites within medium risk areas; and then, only where there are no reasonably available sites in low and medium risk areas, within high-risk areas. [...] Initially, the presence of existing flood risk management infrastructure should be ignored, as the long-term funding, maintenance and renewal of this infrastructure is uncertain."*
- 2.2.4 Paragraph 027 states that *"In applying paragraph 175 a proportionate approach should be taken. Where a site-specific flood risk assessment demonstrates clearly that the proposed layout, design, and mitigation measures would ensure that occupiers and users would remain safe from current and future surface water flood risk for the lifetime of the development (therefore addressing the risks identified e.g. by Environment Agency flood risk mapping), without increasing flood risk elsewhere, then the sequential test need not be applied."*
- 2.2.5 Therefore, in summary the PPG requires all sources of flooding to be considered within the Sequential Test, now and in the future. In cases where a site-specific Flood Risk Assessment shows a development at risk of surface water flooding can be made safe for its lifetime without increasing flood risk elsewhere then the surface water flood risk would not need to be considered within the Sequential Test. Therefore, reference within this document to application of the Sequential Test for surface water flooding is predominantly concerned with the application of this as part of the Local Plan where site-specific Flood Risk Assessments have not been prepared.
- 2.2.6 The PPG also makes clear that sources of flood risk other than river and tidal (also known as sea) flooding need to be treated consistently with tidal and river (fluvial) flooding, in terms of mapping probability and vulnerability.
- 2.2.7 In addition, the PPG also notes that where Neighbourhood Plans are considering proposing development, they should address how this would be consistent with the local planning authority's application of the Sequential Test and if necessary, the Exception Test. If not, these tests will need to be re-visited on a local authority-wide basis.

2.3 Requirements for the Sequential Test

- 2.3.1 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 fundamental to establishing a logical "risk sequence".

2.3.2 Section 3 describes the implications of including different sources of flooding both now and in the future in the Sequential Test. It also highlights matters to be considered and identifies a preferred approach. Appendix A provides a summary of the datasets to use to apply the Sequential Test for each source of flood risk.

2.4 The Exception Test

2.4.1 In circumstances where the Sequential Test has been performed and it is not possible for development to be located in areas with a lower risk of flooding, the Exception Test may be required. 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 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).

2.4.2 Table 2 of the PPG sets out the requirements for the Exception Test but does not reflect the need to avoid flood risk from sources other than rivers and the sea. There is no guidance on how to consider other sources of flood risk. The Exception Test should only be applied, following the application of the Sequential Test, in the following instances:

- 'Essential infrastructure' in Flood Zone 3a or 3b
- 'Highly vulnerable' development in Flood Zone 2 (this is NOT permitted in Flood Zone 3a or 3b)
- 'More vulnerable' development in Flood Zone 3a (this is NOT permitted in Flood Zone 3b)

2.4.3 While the Exception Test is not explicitly required for sites at risk from other sources of flooding, the Local Planning Authority should follow a similar principle where sites are proposed that are at risk from other sources of flooding, carefully weighing up the wider benefits of development against the risk, ensuring that site users can be kept safe through the lifetime of the development and ensuring residual risk can be safely managed.

3 Review of data sources for use in the Sequential Test

3.1.1 This section describes the implications of including different sources of flooding both now and in the future in the Sequential Test. It also highlights matters to be considered and identifies a preferred approach for each source of flooding.

3.2 River and sea risk - now and in the future

Source of Flooding	Available Mapping	Implications of making use of mapping in the Sequential Test
Rivers	Flood Map for Planning Available from: - Appendix C.1 of the SFRA - Swale Borough Council's interactive mapping portal Flood map for planning Detailed river models Available from: - Appendix C.2 and D.2 of the SFRA - Swale Borough Council's interactive mapping portal - On request from the Environment Agency	<u>Overview</u> The Flood Map for Planning provides Flood Zones which are a composite dataset including national and local modelled data, and information from past floods. Three detailed fluvial models are available from the Environment Agency in Swale, the Scrapsgate Drain, Warden Bay and Iwade Stream. These have been included in the Flood Map for Planning, but the undefended tidal extents of the North Kent Coast are largely greater than the fluvial extents. At the time of preparing the Site Screening Spreadsheet (Appendix K), the Flood Map for Planning had not been updated with the Scrapsgate Drain and Warden Bay fluvial models. As such, the site screening was run with Flood Zones available at the time and the detailed fluvial models. The Flood Map for Planning has since been updated to include the fluvial models, and the Flood Zones should be used in the Sequential Test for individual planning applications. <u>Present day</u> The Flood Map for Planning for present day low (Flood Zone 1), medium (Flood Zone 2) and high risk (Flood Zone 3) extents should be used. The following undefended flood extents should be used to define high, medium and low risk: High risk – Flood Zone 3 (Greater than 1% AEP (1 in 100-year))

		• Medium risk – Flood Zone 2 (Between 1% AEP (1 in 100-year) and 0.1% AEP (1 in 1,000-year)) • Low risk – Flood Zone 1 (Less than 0.1% AEP (1 in 1,000-year)) <u>Climate change</u> The Environment Agency's Rivers and Sea undefended flood risk extents - climate change dataset should be used. This dataset uses the undefended flood extents with the Central Allowance for the 2080s (2070-2121) epoch to define high, medium and low risk: • High risk – Greater than 1% AEP (1 in 100-year) • Medium risk – Between 1% AEP (1 in 100-year) and 0.1% AEP (1 in 1,000-year) • Low risk – Less than 0.1% AEP (1 in 1,000-year)
Sea	Flood Map for Planning Available from: • Appendix C.1 of the SFRA • Swale Borough Council's interactive mapping portal • Flood map for planning North Kent Coast detailed model Available from: • Appendix C.3 and D.3 of the SFRA • Swale Borough Council's interactive mapping portal	<u>Overview</u> At the time of preparing the Site Screening Spreadsheet (Appendix K), the Flood Map for Planning had not been updated with the latest modelling for the North Kent Coast. As such, the site screening was run with the Flood Zones available at the time and the updated North Kent Coast flood mapping. The Flood Map for Planning has since been updated with the North Kent Coast model and the Flood Zones should be used in the Sequential Test for individual planning applications. <u>Present day data</u> The following undefended flood extents should be used to define high, medium and low risk: • High risk – Flood Zone 3 (Greater than 0.5% AEP (1 in 200-year)) • Medium risk – Flood Zone 2 (Between 0.5 % AEP (1 in 200-year) and 0.1% AEP (1 in 1,000-year)) • Low risk – Flood Zone 1 (Less than 0.1% AEP (1 in 1,000-year))

	On request from the Environment Agency	<u>Climate change data</u> For climate change, the following undefended North Kent Coast model flood extents with the Upper End allowance should be used to define high, medium and low risk: High risk – Greater than 0.5% AEP (1 in 200-year) Medium risk – Between 0.5 % AEP (1 in 200-year) and 0.1% AEP (1 in 1,000-year) Low risk – Less than 0.1% AEP (1 in 1,000-year) The Upper End allowance should be considered which is in line with the climate change data used within the Flood Map for Planning. Use the development lifetime guidance within the PPG to work out the appropriate epoch to be considered.
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Recommendations for using river and sea flood risk in the Sequential Test

Rivers

- 3.2.1 The Environment Agency Flood Map for Planning should be used.
- 3.2.2 Use the following undefended fluvial extents to define high, medium and low risk:
- High risk** – Flood Zone 3 (Greater than 1% AEP (1 in 100-year))
 - Medium risk** – Flood Zone 2 (Between 1% AEP (1 in 100-year) and 0.1% AEP (1 in 1,000-year))
 - Low risk** – Flood Zone 1 (Less than 0.1% AEP (1 in 1,000-year))
- 3.2.3 The Environment Agency 'Rivers and Sea Undefended Flood Risk Extents - Climate Change' dataset should be used to assess the risk of future flooding from rivers. The Central Allowance for the 2080s (2070-2121) epoch is included in this dataset.

Sea

- 3.2.4 The Environment Agency Flood Map for Planning should be used to assess the present day risk.
- 3.2.5 Use the following undefended coastal extents to define high, medium and low risk:
- High risk** – Flood Zone 3 (Greater than 0.5% AEP (1 in 200-year))
 - Medium risk** – Flood Zone 2 (Between 0.5% AEP (1 in 200-year) and 0.1% AEP (1 in 1,000-year))
 - Low risk** – Flood Zone 1 (Less than 0.1% AEP (1 in 1,000-year))

- 3.2.6 For future coastal flood risk, the North Kent Coast model should be assessed with the Upper End allowance. The development lifetime guidance in the PPG should be used to work out the appropriate epoch to be considered.

3.3 Surface water flood risk now and in the future

Source of Flooding	Available Mapping	Implications of making use of mapping in the Sequential Test
Surface Water	- Environment Agency's surface water dataset within the Flood Map for Planning, also known as the Risk of Flooding from Surface Water (RoFSW) - Appendix E of the SFRA - Swale Borough Council's interactive mapping portal Flood map for planning - GOV.UK	Overview The mapping is based on a generalised modelling methodology. The data 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. Unlike the Flood Zone maps for river flooding, the surface water mapping makes an allowance for the assumed performance of local drainage systems. 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 flooding. The flood risk is normally more likely to be relatively short lived and much more localised than would be the case for river flooding (most likely being caused by local high intensity short duration rainfall events). In some cases, the surface water flood risk could affect a relatively small proportion of a proposed allocation site. In practical terms, this may not prevent the principle of development from being supported. This would need to be considered on a case-by-case basis taking into account the area and placement of built development (NPPF paragraph 175). Where a site-specific flood risk assessment demonstrates clearly that the proposed layout, design, and mitigation measures would ensure that occupiers and users would remain safe from current and future surface water flood risk for the lifetime of the development, without increasing flood risk elsewhere, then the sequential test need not be applied (PPG paragraph 027).

Source of Flooding	Available Mapping	Implications of making use of mapping in the Sequential Test
		<u>Present day data</u> Generally suitable for showing surface water flow routes at different probability flood events. The following extents should be considered: • High risk - 3.3% AEP (1 in 30-year) • Medium risk – between 1% AEP (1 in 100-year) and 3.3% AEP (1 in 30-year) • Low risk – between 0.1 AEP% (1 in 1,000-year) and 1% AEP (1 in 100-year) The uncertainty associated with the predicted outlines for the respective probabilities is high. <u>Climate change data</u> Suitable climate change outputs were not available at the time of preparing the Level 1 SFRA for the Risk of Flooding from Surface Water dataset. As such the, 0.1% AEP (1 in 1,000-year) has been used as a proxy. Updated surface water climate change outputs were released by the Environment Agency on 28th May 2026, coinciding with completion of this Level 1 SFRA. A comparison was carried out between the present day 0.1% AEP (1 in 1000-year) extent and 1% AEP (1 in 100 year) plus climate change extent. The present day 0.1% AEP (1 in 1000-year) extent was found to generally be larger than the 1% AEP (1 in 100-year) plus climate change extent. As a result, a precautionary approach has been adopted in representing surface water with climate change within this Level 1 SFRA by using the present day 0.1% AEP (1 in 1,000-year) extent. The latest surface water climate change outputs should be used within any Flood Risk Assessment and will be used in the Level 2 SFRA following guidance within the Environment Agency Flood risk assessments: climate change allowances guidance page.

Recommendations for surface water flooding

3.3.1 Use the following surface flood extents to define high, medium and low risk:

- **High risk** - 3.3% AEP (1 in 30-year)
- **Medium risk** – between 1% AEP (1 in 100-year) and 3.3% AEP (1 in 30-year)
- **Low risk** – between 0.1 AEP% (1 in 1,000-year) and 1% AEP (1 in 100-year)

3.3.2 Suitable climate change outputs were not available at the time of preparing this Level 1 SFRA for the Risk of Flooding from Surface Water dataset. As such the, 0.1% AEP (1 in 1,000-year) has been used as a proxy.

3.3.3 Updated surface water climate change outputs were released by the Environment Agency on 28th May 2026, coinciding with completion of this Level 1 SFRA. A precautionary approach has been adopted in representing surface water with climate change within this Level 1 SFRA by using the present day 0.1% AEP (1 in 1,000-year) extent.

3.3.4 The latest surface water climate change outlines should be used within any Flood Risk Assessment and will be used in the Level 2 SFRA.

3.3.5 The use of these surface water events should be done with caution due to the highlighted uncertainties in the surface water modelling and mapping.

3.3.6 Surface Water mapping does not strictly describe the same conceptual risk zone as defined for river and sea flooding (even though it is associated with the same probability) as the mapping is based on different assumptions and is filtered to remove shallow depths of water. However, it does create a product that can accommodate sequential testing, as it would facilitate strategic decisions that directed development to land in lower risk areas.

3.3.7 The proposed approach is relatively simple and enables an appropriate level of sequential selection to be made. It 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 it is strongly aligned with the Sequential Test defined in para 175 of the NPPF. For these reasons this approach is recommended.

3.4 Groundwater flood risk

Source of Flooding	Available Mapping	Implications of making use of mapping in the Sequential Test
Groundwater	JBA Groundwater Flood Map Appendix F of the SFRA Kent County Council historic flood events. BGS Groundwater flood susceptibility maps	<u>Overview</u> The underlying challenge 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 might be higher, but it would not be easy to defend sequential decisions based on the available mapping. 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 surface flooding due to groundwater. 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; • low risk of groundwater flooding. BGS mapping describes the risk of groundwater emergence but does not show the likelihood or risk of groundwater flooding occurring, i.e. it is a hazard and consequence base product and does not enable the application of a risk-based approach. The BGS superficial geology layer provides an indication of whether an area is susceptible to alluvial groundwater flooding as it gives an indication of the porosity of near surface deposits that are potentially connected to watercourses or the sea. However, it does not take into account the local topography. Historic flood data is available from Kent County Council. However, this does not always list the

Source of Flooding	Available Mapping	Implications of making use of mapping in the Sequential Test
		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. There is no climate change mapping available for groundwater and in view of the uncertainty in the present-day data it is unlikely that such mapping will be available in the near future.

Recommendations for using zone maps for groundwater flooding

- 3.4.1 It is recommended that the groundwater flood risk is not considered in the Sequential Test on the basis that the BGS maps, JBA groundwater flood map and Kent County Council's historic events dataset 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 across the study area it could potentially result in inappropriate allocations if used without understanding the limitations of the data. This is in line with paragraph 23 of the PPG which states that *"other forms of flooding need to be treated consistently with river and tidal flooding in mapping probability and assessing vulnerability"*.
- 3.4.2 At the Level 2 SFRA stage or for a site-specific Flood Risk Assessment, more detailed assessment should be performed of the proposed development sites where the potential for groundwater flooding is high or medium. High risk is categorised as groundwater levels are either at or very near (within 0.025m of) the ground surface during a 1% AEP (1 in 100 year) flood event. Medium is categorised as groundwater levels are between 0.025m and 0.5m below the ground surface during a 1% AEP (1 in 100-year) flood event.
- 3.4.3 This will address the potential effects of climate change on groundwater flood risk to the extent permissible by the available data. During the production of site-specific Flood Risk Assessments developers should undertake assessments of groundwater flood risk for a site.

3.5 Sewer flood risk

Source of Flooding	Available Mapping	Implications of making use of mapping in the Sequential Test
Sewer flooding risk	Southern Water DG5 records (A water-company held register of properties which have experienced sewer flooding due to hydraulic overload) available from Southern Water . Drainage and Wastewater Management Plan (DWMP)	Overview Only available at postcode level and thus mapping does not define spatial extent or location of sewer flooding. Mapping does not enable execution of risk-based sequence.

Recommendations for using zone maps for sewer flooding

- 3.5.1 It is recommended that the sewer flood risk is not considered in the Sequential Test on the basis that the available information is not of appropriate resolution or format and so does not support spatial comparison of risk. This is in line with paragraph 23 of the PPG which states that *“other forms of flooding need to be treated consistently with river and tidal flooding in mapping probability and assessing vulnerability”*.
- 3.5.2 Water companies were required to publish Drainage Water Management Plans for river basin catchments across England as part of the Environment Act. The plans describe the basis for long term investment proposals by Water Companies that span for more than 25 years and set out the commitment needed to make wastewater systems safe and secure. The plans contain substantive volumes of mapping, information and data that has not previously been made available by water companies.
- 3.5.3 Southern Water published their DWMP in May 2023. As part of the DWMPs a risk-based catchment screening (RBCS) has been completed, where existing, readily available data is used to identify where there is a current and/or potential risk or vulnerability in the sewer catchment to future changes, such as new residential development or changes in climate. This feeds into a baseline risk and vulnerability assessment (BRAVA) enabling comparison across locations based on different levels of risk.
- 3.5.4 The data resolution provided in Southern Water's DWMP is catchment scale and applicable to the entire study area. Consequently, it is not possible to take a risk-based approach using this data and it is not considered to be comparable to the river and sea flooding information. 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 (if required) and as appropriate inform the Sequential Test process. Where possible the DG5 and DWMP information should be used to inform the scope of site specific FRAs.

3.6 Reservoir flood risk

Source of Flooding	Available Mapping	Implications of making use of mapping in the Sequential Test
Reservoir flooding risk	Environment Agency's Reservoirs Map	<u>Overview</u> The mapping shows “when river levels are normal” and “when there is also flooding from rivers” reservoir inundation extents. The “when there is also flooding from rivers” being a reservoir breach at the same time as a 0.1% AEP 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. Neither set of mapping describes a risk-based scenario as it does not provide the probability of a dam failure but are intended to describe a “worst credible case”. More detailed information on flood velocities and depths are not publicly available. The flood extents are publicly available. 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 (the “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, but should be a consideration that should be appropriately managed when planning new development. The mapping does not provide climate change information on future flood risk and provision of such mapping is unlikely based on the existing methodology.

Recommendations for using zone maps for reservoir flooding

- 3.6.1 It is recommended that the available reservoir flood mapping is not included in the Sequential Test as the available data is inappropriate to be used alongside risk mapping from other sources when performing the Sequential Test as it is not conceptually similar to the risks pertaining to river and sea flooding as it shows the worst credible case and not the risk of flooding and so does not support a logical spatial comparison of risk that can be substantiated by appropriate evidence. This is in line with paragraph 23 of the PPG which states that *“other forms of flooding need to be treated consistently with river and tidal flooding in mapping probability and assessing vulnerability”*.
- 3.6.2 A more detailed assessment of those sites identified to be at risk of inundation should be included in the Level 2 SFRA (if required).
- 3.6.3 The more detailed assessment in the Level 2 SFRA will 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.

4 What happens next

4.1.1 In the case of the Local Plan, where required (typically where the extent of river, tidal or surface water risk exceeds 20% of the site area), a Level 2 SFRA will involve more detailed consideration of surface water drainage, reservoir flooding and groundwater than was the case prior to the NPPF and PPG updates. The implications of this have not been assessed in this document.

4.1.2 For all development, a site-specific Flood Risk Assessment will be required, where the proposed development is;

- in Flood Zones 2 or 3 as defined in the Flood Map for Planning
- within Flood Zone 3b – shown in Appendix C.3 of the SFRA
- within Flood Zone 1 with a site area of 1 hectare or more
- within 'Flood Zones plus Climate Change', showing it is at increased risk of flooding from rivers or sea in future as shown in the Flood Map for Planning
- within Flood Zone 1 and the Flood Map for Planning shows it is at risk of flooding from surface water
- within Flood Zone 1 where the SFRA shows it will be at increased risk of flooding during its lifetime

The site-specific Flood Risk Assessment will need to consider all sources of flood risk, now and in the future and show that the development can remain safe for its lifetime without increasing flood risk elsewhere. Where applicable the Flood Risk Assessment will need to demonstrate that the Sequential Test and Exception Test has been passed.

4.1.3 In some circumstances the proposed approach will require more detailed consideration of surface water drainage requirements in the Level 2 SFRA/site-specific Flood Risk Assessments. At this stage it might be necessary and appropriate to engage more closely with Southern Water (responsible for sewerage) in circumstances where there is long term reliance on the performance of existing drainage systems affected by lack of capacity as a consequence of climate change effects (increased rainfall intensities and depths).

5 Conclusions

- 5.1.1 This technical note has been prepared to formalise the flood risk arrangements used by Swale Borough Council, applicants and consultants in performing and assessing the Sequential Test. Updates to the August 2022 PPG recommends that the Sequential Test now assesses all sources of flooding for low to high-risk areas both now and in the future.
- 5.1.2 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 A.
- 5.1.3 For river flood risk it is recommended that Flood Zone 2 and 3 are assessed for the present day.
- 5.1.4 For future river flood risk, consider the Environment Agency's Rivers and Sea undefended flood risk extents - climate change dataset.
- 5.1.5 For present day coastal risk it is recommended that Flood Zone 2 and 3 are assessed.
- 5.1.6 For future coastal risk, the North Kent Coast model outputs should be assessed. The development lifetime guidance in the PPG should be used to work out the appropriate epoch to be considered.
- 5.1.7 For surface water, it is recommended that the Environment Agency's surface water dataset within the Flood Map for Planning, also known as the Risk of Flooding from Surface Water (RoFSW) is used. At the time of preparing this SFRA, suitable climate change outputs were not available. As such, the present day 0.1% AEP (1 in 1000-year) surface water flood extent mapping was used as a proxy. The Flood Map for Planning was updated with climate change outputs on 28th May 2026 and should be used in Flood Risk Assessments and the Level 2 SFRA.
- 5.1.8 Appendix A outlines the return periods used to determine high, medium and low flood risk for rivers, sea and surface water
- 5.1.9 For reservoir flood risk, it is recommended that the available Environment Agency's reservoir map 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 of those sites identified to be at risk of inundation should be included in the Level 2 SFRA (if required).
- 5.1.10 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 should be performed in a Level 2 SFRA (for allocated sites) and site-

specific Flood Risk Assessment (for windfall sites) to inform the Sequential Approach to development and mitigation measures.

- 5.1.11 If the Local Planning Authority considers that the Sequential Test is performed, and it is not possible for development to be located in areas with a lower risk of flooding, then consideration must be given to the Exception Test, where applicable, and, for potential Local Plan allocations, more detailed assessment included in the Level 2 SFRA.

A Summary of datasets to be used in the Sequential Test

	High risk	Medium risk	Low risk	Justification of approach	
				Risk now	Future risk
River and sea – Flood Map for Planning (See Error! Reference source not found. for locations where detailed models are available)	Flood Zone 3 - Greater than 1%/0.5% AEP (1 in 100-year/1 in 200 year)	Flood Zone 2 - Between 1%/0.5% AEP (1 in 100-year / 1 in 200 year) and 0.1% AEP (1 in 1,000-year)	Flood Zone 1 - Less than 0.1% AEP (1 in 1,000-year)	EA's Flood Zones 1, 2 and 3 use a risk-based approach unless the site is located within an area where detailed modelling is available.	Use the Environment Agency's Rivers and Sea undefended flood risk extents - climate change dataset for the 1% AEP (1 in 100-year) and 0.1% AEP fluvial events (1 in 1000-year). Assuming the lifespan of development is 100 years, currently, for fluvial the Central Allowance should be used for the 2080s (2070-2121) epoch. For the flood risk from the sea, use the North Kent Coast undefended 0.5% AEP (1 in 200-year) and 0.1% AEP (1 in 1,000-year) extents with the Upper End climate change allowances. The development lifetime guidance in the PPG should be used to work out the appropriate epoch to be considered.
Surface Water	Greater than 3.3% AEP (1 in 30-year)	Between 3.3% AEP (1 in 30-year) and 1% AEP (1 in 100-year)	Less than 1% AEP (1 in 100-year)	Environment Agency's Risk of Flooding from Surface Water mapping, 3.3% (1 in 30-year) and 1% AEPs (1 in 100-year). Different assumptions are used to derive surface water risk than is the case for fluvial and tidal flood zones. Care should be taken using the RoFSW dataset as in some areas it potentially does not provide the confidence or certainty required (for example where there is a risk of linear features impacting on flood extents).	No suitable climate change modelling was available at the time of preparing the Level 1 SFRA. The 0.1% AEP (1 in 1,000-year) has been used as a proxy for climate change Climate change datasets for surface water were released by the Environment Agency on 28 th May 2026 and should be used in the Level 2 SFRA and FRAs.
Groundwater	Screening to be undertaken to assess the potential susceptibility of all sites to groundwater flooding. Additional information required via a Level 2 SFRA or site-specific Flood Risk Assessment where susceptibility is considered to be high.			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 sites where groundwater flood risk identified to be high should be identified and assessed in a Level 2 SFRA or site-specific Flood Risk Assessment. The implications for sequential selection of alternative locations should be considered at that stage.	There is no future groundwater flood risk dataset readily available.
Sewer	The readily available datasets for sewer flood risk do not competently define areas of high or low risk of flooding and so do not support an assessment of comparative risk alongside other sources.			Datasets that can be made publicly available, 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. The risk can be addressed in site level FRAs.	There is no future sewer flood risk dataset readily available.
Reservoir	Screening to be undertaken to identify sites where development is proposed in a high hazard zone. Additional information required via a Level 2 SFRA or site-specific Flood Risk Assessment where susceptibility is considered to be high.			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 development is proposed in a high hazard zone will be identified and assessed in a Level 2 SFRA or site-specific Flood Risk Assessment. The implications for sequential selection of alternative locations should be considered at that stage.	There is no future reservoir flood risk dataset readily available.