

STRATEGIC FLOOD RISK ASSESSMENT – LEVEL 1 REPORT



PREPARED FOR EPSOM & EWELL BOROUGH COUNCIL

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EXECUTIVE SUMMARY

This Level 1 Strategic Flood Risk Assessment (SFRA) serves to fulfil the National Planning Policy Framework's (NPPF) planning and flood risk requirements. This SFRA supersedes the previous [2018 SFRA](#). Updating this SFRA ensures that Epsom and Ewell Borough Council (EEBC) is compliant with the latest policy requirements and uses the latest data to improve assessment of flood risk.

Epsom and Ewell is subject to fluvial flooding from the Hogsmill River and River Rye, which is a tributary of the River Mole. The Hogsmill River flows through the north-western areas of the borough between East/West Ewell and Stoneleigh and exerts the largest flood risk on the area. This is illustrated predominantly in areas north of Epsom Town Centre.

This SFRA provides a strategic overview for all flood risk sources throughout Epsom and Ewell, both at present and in the future. This document and its associated maps serve to address local requirements, manage development requirements, and manage flood risk. It provides a robust evidence base for the preparation of updated Local Plan policies on all aspects of flood risk management and forms the basis for the sequential testing of strategic site allocations for inclusion in the new Local Plan. A Local Plan prepared in the absence of a SFRA would not be deemed sound by the Planning Inspectorate at the Examination in Public. The local requirements that this SFRA addresses include the impacts of climate change, localised flood risk issues, and specific policies and interpretations of the Flood Zones.

This document consists of the eight sections listed below:

- **Section 1 (Introduction):** SFRA purpose and objectives.
- **Section 2 (Planning and Policy Framework):** Relevant national, regional, and local policies that relate to flood risk and associated requirements.
- **Section 3 (Data Sources and Mapping):** Data sources used to produce the associated maps that form part of the SFRA.
- **Section 4 (Applying Climate Change to Risk Assessment):** Detail on how the updated guidance can be applied, and the process for adapting to the impacts of climate change.
- **Section 5 (Assessment of Flood Risk):** Flood risk from all sources across Epsom and Ewell, including implications of climate change where this information is available.
- **Section 6 (Flood Risk Assessment Guidance):** Guidance for applicants undertaking Flood Risk Assessments (FRAs) for proposed development sites. Explanation of the Sequential Test and Exception Test requirements.
- **Section 7 (Recommendation):** Recommended site-specific and strategic policies.
- **Section 8 (Review and Next Steps):** Summary of the proposed update schedule for the SFRA's mapping and technical content, and information on the potential need for a Level 2 SFRA.

A combination of climate change and future population growth in conjunction with development requirements may increase flood risk from various sources on a local, national, and global scale. The cumulative increased risk from various flood sources may present a greater overall flood risk to

people, properties, and infrastructure across Epsom and Ewell. Additionally, an increased demand for housing for example may result in a greater number of developments being proposed within higher risk flood zones, increasing their flood risk. Likewise, if uncontrolled, the risk of surface water flooding is likely to increase following a reduction in permeable ground cover due to further urban development.

Local policy that targets the impact of future growth on flood risk is therefore necessary to facilitate development needs while meeting flood risk mitigation requirements. This SFRA aids EEBC in improving its borough-wide strategic flood risk management approach, which will be balanced with the challenges associated with the need for increased development.

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GLOSSARY

Term	Definition
Annual Exceedance Probability	The percentage probability of a flood event of a certain magnitude to occur within any given year. <i>NB: Also see Return Period.</i>
Aquifer	Underground layers of saturated rock through which water can readily move. Natural springs and wells can transmit water from the aquifer to the surface.
Catchment	An area which drains to a specific watercourse (or a given point in a watercourse), waterbody, or other body of water.
Critical Drainage Area	As referenced in Epsom and Ewell Borough Council's Surface Water Management Plan (2011). Specific geographic areas that are usually hydrological catchments where multiple and cumulative flood risk sources could trigger flooding in one or more Local Flood Risk Zones. This potential flooding could impact people, property, and local infrastructure. Note: EEBC CDAs differ from those set by the Environment Agency.
Design Flood	The maximum flood flow that could be passed without an engineered structure being damaged or its stability being seriously threatened. Design floods are adopted to protect a structure against failure by overtopping during flood events.
Development	Defined within Part 3, Section 55 of the Town and Country Planning Act (1990) including at least one of the following: <ul style="list-style-type: none"> • Building operations (including construction, structural alterations, rebuilding, and demolition). • Material changes of use of land and buildings. • Subdivision of a building used as a dwelling for the use as two or more separate dwellings. • Groundworks or certain other engineering options. • Mining operations. Other operations usually undertaken by a person carrying on a business as a builder.
Dry Island	Areas situated within Flood Zone 1 that are surrounded by areas at higher risk of flooding, such as those situated within Flood Zone 2 and 3.
Exception Test	Defined within the Flood Risk and Coastal Change Planning Practice Guidance , this is a method that must be carried out for certain development sites based upon their flood zone and vulnerability classification if the Sequential Test shows that it is not possible for an alternative site to be used. The Exception Test is designed to demonstrate and ensure satisfactory flood risk management while enabling necessary development on higher-risk sites in cases where there is no availability of suitable sites at a lower flood risk.
Flood Risk	The combination of the probability and potential consequences of flooding from individual or multiple sources, including from rivers and the sea, surface

Term	Definition
	water runoff, rising groundwater, overwhelmed sewers and drainage systems, and the overtopping of reservoirs, canals, and lakes.
Flood Risk Assessment	A report that analyses the risk of flooding from all sources to a proposed development on a site and its surrounding area, both at present and in the future. It should demonstrate how flood risk will be managed both currently and in the future throughout a development's lifespan. Details of appropriate flood resilience and/or resistance measures should also be provided, where appropriate, according to Government Standing Advice .
Flood Storage Compensation	Reducing nearby ground levels to provide more volume to replace floodplain storage that is lost due to development.
Flood Zone	A geographic area that has a defined flood risk and an accompanying designated annual flooding probability. This is primarily from river (fluvial) or sea (tidal) flooding. Flood Zones are modelled using Environment Agency data while Local Planning Authorities, the National Planning Policy Framework, and Flood Risk and Coastal Change Planning Practice Guidance set the Flood Zone definitions.
Flood Zone 1	Defined in the Flood Risk and Coastal Change Planning Practice Guidance as land with a 'Low Probability' of experiencing flooding from fluvial or tidal sources. <ul style="list-style-type: none"> Annual flooding probability (fluvial or tidal sources) of less than 1 in 1,000 years (<0.1% Annual Exceedance Probability).
Flood Zone 2	Defined in the Flood Risk and Coastal Change Planning Practice Guidance as land with a 'Medium Probability' of experiencing flooding from fluvial or tidal sources. <ul style="list-style-type: none"> Annual flooding probability (fluvial sources) of between 1 in 100 years to 1 in 1,000 years (1% to 0.1% Annual Exceedance Probability). Annual flooding probability (tidal sources) of between 1 in 200 years to 1 in 1,000 years (0.5% to 0.1% Annual Exceedance Probability).
Flood Zone 3a	Defined in the Flood Risk and Coastal Change Planning Practice Guidance as land with a 'High Probability' of experiencing flooding from fluvial or tidal sources. <ul style="list-style-type: none"> Annual flooding probability (fluvial sources) of greater than 1 in 100 years (>1% Annual Exceedance Probability). Annual flooding probability (tidal sources) of greater than 1 in 200 years (>0.5% Annual Exceedance Probability).
Flood Zone 3b	'The Functional Floodplain' where land is deemed to be at the greatest risk of flooding from rivers or seas, and where water must flow or be stored during times of flood. This includes land that has an annual probability of flooding from rivers or seas of 1 in 30 years or greater ($\geq 3.3\%$ AEP), and land that is designed to flood (such as a flood attenuation scheme). A defended extent has been used for the River Mole and an undefended extent for the Hogsmill River as the defended 1 in 30-year extent was not available for the Hogsmill River at the time of writing this report. Should this become available at a later date then it is recommended that these are updated in line with the PPG .

Term	Definition
Floodplain	An area of land which experiences flooding (with water either being stored within this area or flowing over it) when the capacity of flood management infrastructure is exceeded.
Functional Floodplain	As defined in the ' <i>Flood Zone 3b</i> ' definition of this table.
Greenfield Runoff Rate	The rainfall runoff rate of a site in its undeveloped, naturally permeable state.
Main River	A statutory type of watercourse designated by the Environment Agency . These watercourses are generally (but are not limited to) larger rivers and streams. The Environment Agency has powers to carry out maintenance and operational works main rivers, including flood defence works.
Major Development	Defined in Part 1 Section 2 of the Town & Country Planning (Development Management) , including the following: <ul style="list-style-type: none"> • Residential developments situated on a site area of at least 0.5 hectares, or developments which propose 10 or more dwellings. • Non-residential developments situated on a site area of at least 1 hectare, or developments with a new floorspace of at least 1,000m². • Developments that use land for the winning and working of minerals or for mineral-working deposits. • A waste development.
Minor Development	Defined in the Flood Risk and Coastal Change Planning Practice Guidance as one of the following: <ul style="list-style-type: none"> • minor non-residential extensions (industrial/commercial/leisure etc): extensions with a floorspace not in excess of 250 square metres. • alterations: development that does not increase the size of buildings, e.g. alterations to external appearance. • householder development: for example, sheds, garages, games rooms etc. within the curtilage of the existing dwelling, in addition to physical extensions to the existing dwelling itself. This definition excludes any proposed development that would create a separate dwelling within the curtilage of the existing dwelling (e.g. subdivision of houses into flats) or any other development with a purpose not incidental to the enjoyment of the dwelling.
Ordinary Watercourse	A watercourse which is not designated as a main river by the Environment Agency. This includes rivers, streams, culverts, ditches, drains, sluices, dikes, some sewers (aside from public sewers that fall within the meaning of the Water Industry Act 1991), and passages through which water flows.
Residual Risk	Defined in the Flood Risk and Coastal Change Planning Practice Guidance as the risks that remain after application of the sequential test and taking flood risk mitigation actions.

Term	Definition
Return Period	The estimated average time between events of equal magnitude i.e. a 1 in x year event. <i>NB: Also see Annual Exceedance Probability.</i>
Risk Management Authorities	Defined within the Flood and Water Management Act (2010) , including Lead Local Flood Authorities, the Environment Agency, Highway Authorities, and Water and Sewerage Companies.
Sequential Test	Defined within the Flood Risk and Coastal Change Planning Practice Guidance , this is a sequential approach that aims to steer development towards areas with the lowest risk of flooding. This test is designed to avoid development in areas which are classified as being at a medium and high risk of flooding from all sources where possible, both at present and in future. This is the most effective way of addressing flood risk, placing minimal reliance on flood defences and property-level resilience features within developments.
Standard of Protection	The return period of a flood event against which a specific defence should be effective.
Strategic Flood Risk Assessment	A study undertaken by one or more Local Planning Authorities to assess a given area's current and future flood risk from all sources. The study considers the impacts of climate change alongside the impacts of land use changes and development in the area on flood risk.
Sustainable Drainage Systems (SuDS) Strategy	The strategy should demonstrate site drainage measures aimed at minimising surface water runoff onto adjacent land uses. The strategy should analyse the behaviour of water within the site, establish runoff rates, demonstrate flow pathways, and show flood depths that may occur under various rainfall events. The strategy should investigate a proposed development's potential impacts to the site upon which it is situated and demonstrate the inclusion of measures that ensure the site's compliance with the requirements of local and national policies. Where appropriate, it should include the results of on-site investigations to establish the suitability of the site for infiltration measures.
Sustainable Drainage Systems	Techniques and measures that are designed to manage surface water runoff by mimicking natural processes to control flow rates, improve water drainage, improve water quality and encourage groundwater recharge.
White Paper	Government-produced policy documents that provide an in-depth analysis of a certain topic and set out proposals for future legislation.

ACRONYMS AND ABBREVIATIONS

Abbreviation	Definition
AEP	Annual Exceedance Probability
AStGWF	Areas Susceptible to Groundwater Flooding
BNG	Biodiversity Net Gain
CCRA	Climate Change Risk Assessment
CDA	Critical Drainage Area
CFMP	Catchment Flood Management Plan
DEFRA	Department for Environment, Food and Rural Affairs
DLUHC	Department for Levelling Up, Housing and Communities
EA	Environment Agency
EEBC	Epsom and Ewell Borough Council
FGK	European Union
FCERM	Flood and Coastal Erosion Risk Management
FRA	Flood Risk Assessment
FRMP	Flood Risk Management Plan
FRR	Flood Risk Regulations (2009)
FWMA	Flood and Water Management Act (2010)
GSF	Green Space Factor
LFRMS	Local Flood Risk Management Strategy
LLFA	Lead Local Flood Authority
LPA	Local Planning Authority
LSDAP	London Sustainable Drainage Action Plan
NFM	Natural Flood Management
NPPF	National Planning Policy Framework
PFRA	Preliminary Flood Risk Assessment
PPG	Planning Practice Guidance
RFRA	Regional Flood Risk Appraisal
RMA	Risk Management Authority
RoFSW	Risk of Flooding from Surface Water
SAB	SuDS Approving Body
SCC	Surrey Country Council
SFRA	Strategic Flood Risk Assessment
SPD	Supplementary Planning Document
STS	Sustainable Transport Strategy
SuDS	Sustainable Drainage Systems
SWMP	Surface Water Management Plan
TfL	Transport for London
TRBD	Thames River Basin District
TWUL	Thames Water Utilities Limited
UKCP	United Kingdom Climate Projections

1 INTRODUCTION

1.1 Borough background

The Epsom and Ewell borough is one of eleven local boroughs and districts within the county of Surrey in Southeast England. In the 2021 Census there was a recorded population of 80,900 which has increased by 7.8% since the 2011 census. The borough is among the top 30% most densely populated Local Authorities in England according to the 2021 census.

The borough covers an area of 3,407 hectares and has a mixture of urban and open spaces. Most of these open spaces are classified as Metropolitan Green Belt as the borough is situated on the urban fringe of Greater London. The borough's topography is of a higher elevation in the southeast over the Epsom Downs, and slopes to low-lying levels in the northwest. The northern half of the borough is more urbanised which includes the notable communities of Epsom Town Centre and the village of Ewell. There are three main types of bedrock geology within the borough. The two dominate bedrock geology types, which are split diagonally across the borough are clay, silt, sand and gravel to the northwest and chalk to the southeast.

The predominant main river through the borough is the Hogsmill River, with its source originating within Ewell village. From its source the river flows northwest towards the borough boundary and its confluence with the Bonesgate Stream before flowing into the River Thames at Kingston-upon-Thames. Ordinary watercourses within the borough are mostly tributaries and streams of the Hogsmill River, these are the Horton Stream, Green Lanes Stream and Ewell Court Stream. The borough also includes a small upstream section of the Beverley Brook (a tributary of the River Thames) and the River Rye (a tributary of the River Mole).

1.2 Objectives of the SFRA

The purpose of the Strategic Flood Risk Assessment (SFRA) is to fulfil the requirements of the National Planning Policy Framework's (NPPF) for planning and flood risk. This Level 1 (L1) SFRA report provides a strategic overview for all flood risk sources throughout the Epsom and Ewell borough. Local requirements will be addressed supported by a series of associated maps, including the below:

- Impacts of climate change, which incorporate recently published guidance and provide associated fluvial flood mapping.
- Specific policies and interpretations of the Flood Zones.

This L1 SFRA fundamentally provides the evidence base and planning policy guidance for Epsom and Ewell Borough Council's (EEBC's) Local Plan update and forms the basis for the sequential testing of potential site allocations. This will support EEBC in improving their borough-wide strategic flood risk management approach, which will be balanced with challenges which are posed to Epsom and Ewell associated with the need for increased development.

1.3 Previous SFRA (2018)

EEBC's previous SFRA (2018) assessed the areas at risk of flooding from various sources, including fluvial, surface water, groundwater, and sewer flooding using the most up-to-date data and knowledge at the time of its publication. The report also included detailed methodology on data collection, detail on sustainable flood risk management and policy recommendations.

In addition to addressing planning requirements the 2018 SFRA also considered flood risk through character areas due to development pressure rather than on particular development sites. The delineation of Flood Zones 1, 2 and 3a was based on the Environment Agency's (EA) Flood Map for planning (Rivers and Sea), whereas Flood Zone 3b was derived separately. The 2018 SFRA also established dry island locations which are areas located within Flood Zone 1 but would be surrounded by floodwater during a flood event. It was recommended that development proposals in dry island areas should provide a flood evacuation plan. The peak river flow and peak rainfall intensity information for the previous SFRA was taken from the 2016 update to the [EA's climate change allowances guidance](#). The 2011 Surface Water Management Plan (SWMP) was referenced, which divided the borough into Epsom and Ewell Critical Drainage Areas (CDAs), specific to this Plan. The CDAs can be viewed in the *Epsom and Ewell Critical Drainage Areas* map (Appendix 2 – Mapping – Figure 13). The modelled flood extents from the SWMP were used to delineate the EEBC CDAs, as they were believed to be more accurate than the EA Risk of Flooding from Surface Water (RoFSW) extents. It should be noted that the EEBC CDAs are not the same as the EA designated CDAs.

The previous SFRA made several recommendations for how EEBC should apply the SFRA to inform planning policy and decision making. In addition, recommendations addressed how partnership working should be utilised to steer development away from areas at risk of flooding and identify suitable opportunities for flood risk reduction and resilience measures. Recommendations were made for the Local Planning Authority (LPA), which were categorised accordingly, for example, EEBC CDAs and planning applications. Further recommendations made for minimising flood risk and impacts, and a summary table outlining the recommendations were made in the SFRA regarding spatial planning and development management was produced.

2 POLICY SUMMARY

2.1 Overview

This section serves to outline the various requirements, policies, and strategic documents that are relevant to flood risk across the borough. This SFRA is guided by policy framework at national, regional, and local levels, each of which are summarised below. Where possible, hyperlinks to the referenced source material have been provided.

2.2 National Policy

2.2.1 Town and Country Planning Act (1990)

The [Town and Country Planning Act \(1990\)](#) regulates land development in England and Wales, providing a statutory definition of ‘development’ and a legal framework for the town and country planning system. The Act deals with matters including:

- The roles and responsibilities of LPAs.
- Control over development, including development orders, planning permission, and appeals.
- Enforcement of planning law, including stop notices.

The [Planning and Compulsory Purchase Act \(2004\)](#) amended and repealed parts of the existing Town and Country Planning Act 1990. The Act replaced local plans and structure plans with Local Development Frameworks.

2.2.2 Flood Risk Regulations (2009)

The [Flood Risk Regulations \(FRR\) 2009](#) translate the European Union’s (EU) Floods Directive into law for England and Wales. A series of requirements to facilitate consistency in flood risk management across Europe are set out within the EU Floods Directive.

The FRR outline the duties for the Environment Agency (EA) and Lead Local Flood Authorities (LLFAs), requiring Risk Management Authorities (RMAs) to produce flood risk maps showing flooding extents and hazards, Preliminary Flood Risk Assessments (PFRAs), and Flood Risk Management Plans (FRMPs). These requirements are completed on a six-year cycle of planning and enable England and Wales to meet their legal obligations under the EU Floods Directive 2007.

[Surrey County Council’s \(SCC\) PFRA](#) was published in 2011 with an [addendum](#) issued in 2017. Further information on the PFRA can be found in Section 2.4.3. The EA published their most recent FRMP for the Thames River Basin District (TRBD) in December 2022, succeeding the previous plan that was published in March 2016. The document covers a six-year cycle period spanning from 2021 to 2027. Further information on the FRMP can be found in *Section 2.3.2*.

2.2.3 Flood and Water Management Act (2010)

The [Flood and Water Management Act \(FWMA\) 2010](#) provides an effective means of managing flood risk across England and Wales. The FWMA defines the roles and responsibilities for RMAs, which are the bodies that manage flood risk from various flood sources. The FWMA defines the EA, LLFAs, District Councils (where there is no unitary authority), Internal Drainage Boards, Water and

Sewerage Companies, and Highway Authorities as RMAs. SCC is appointed the LLFA for Epsom and Ewell under the FWMA and has the following responsibilities:

- Managing flood risk from local sources (surface water, groundwater, and ordinary watercourses).
- Regulating works on ordinary watercourses.
- Developing, maintaining, and applying a Local Flood Risk Management Strategy (LFRMS).
- Investigating and recording key local flood incidents.
- Designating structures or features that significantly impact flood risk.
- Maintaining a flood risk asset register.
- Sharing information about flood risk.

Schedule 3 of the FWMA relates to sustainable drainage in new developments and has yet to be enacted in England. It supplies a framework for approving and adopting drainage systems, a SuDS Approving Body (SAB), and national standards for designing, constructing, operating, and maintaining SuDS for the development lifetime. It also makes the right to connect to public sewers conditional upon the drainage system being approved before construction work can start. A Government Review Paper published in January 2023 recommended SuDS to become mandatory in new developments, with the implementation of Schedule 3 to the FWMA initially expected during 2024 in England. At finalisation of this SFRA (July 2024), this had not been confirmed. The review recommends that the SAB should sit within the unitary authority or the county council, and that LLFAs would be a good candidate for acting as the SAB.

Upon Schedule 3's implementation, Surrey County Council and its LLFA must therefore ensure that its requirements are incorporated within new developments. A SAB may only approve a development following consultation with relevant organisations or authorities. This SFRA should be updated in the future upon the release of further information which confirms the role of the SAB.

2.2.4 National Flood and Coastal Erosion Risk Management Strategy (2020)

The [National Flood and Coastal Erosion Risk Management \(FCERM\) Strategy](#) was published in July 2020, with the strategy being most recently updated in June 2022. Climate change and the associated increased risk of flooding and coastal change is identified as a significant challenge within the National FCERM Strategy. The Strategy sets out the practical measures to be implemented by RMAs, partners, and communities, which will contribute to longer-term delivery objectives and the Government's vision of "a nation ready for, and resilient to, flooding and coastal change – today, tomorrow and to the year 2100". The Strategy has three core ambitions concerning future risk and investment needs:

- Climate resilient places: increasing nation-wide resilience to flooding and coastal change through bolstered partnership working.
- Today's growth and infrastructure resilient in tomorrow's climate: taking the correct planning decisions and investment to ensure resilient infrastructure, environmental improvements, and sustainable growth.

- A nation ready to respond and adapt to flooding and coastal change: ensuring local people understand their risk to coastal change and flooding, their responsibilities, and how to take action.

Alongside the final Strategy, the EA has developed an [FCERM Roadmap to 2026](#), (to coincide with the next scheduled review), which was published in 2022. This roadmap was developed between the EA and partners including National Highways and the National Flood Forum to set out various practical actions to be undertaken up until 2026, with completion of these actions helping ensure progress towards implementing the Strategy's 2100 vision.

2.2.5 UK Environment Act (2021)

The [UK Environment Act](#) was adopted in November 2021, and serves as the UK's new framework of environmental protection following its departure from the EU. The Act allows for the enshrinement of previous environmental protection into law, whilst offering new powers to set new binding targets for priority areas. These priority areas are water, air quality, biodiversity, waste, and resource efficiency. Through detailing the legal framework for reforming the waste and recycling services of Local Authorities, the Act establishes a new relationship between local and central Government on environmental improvement.

The Act places duties on the Government regarding environmental governance, with actions including the requirement to set at least one long-term target for each of the aforementioned priority areas, to put in place processes for setting and amending long-term targets, and to have an Environmental Improvement Plan that outlines the steps necessary to improve the natural environment over a period of at least 15 years.

The Environment Act 2021 introduced the mandatory Biodiversity Net Gain (BNG) requirement for new housing and commercial development in England, which was implemented in November 2023. BNG is a requirement for developers to contribute to nature recovery through ensuring wildlife habitats are in a better state than prior to development. The inclusion of SuDS or Natural Flood Management (NFM) in developments as per the local and national policies and guidance outlined in this SFRA can be used towards incorporating BNG through their greening of urban infrastructure and encouragement of wildlife. Further information, including a list of developments that may be exempt can be found [here](#).

2.2.6 UK Climate Change Adaptation Policy (2021)

The UK [Climate Change Adaptation Policy](#) paper was published in June 2021, and was later updated in August 2022. This policy details how preparing for climate change through undertaking climate adaptation will help reduce the negative impacts and take advantage of new opportunities across the UK. The Third National Adaptation Programme (NAP3) was published in July 2023 and sets out the actions that the Government and others will take to adapt to the impacts of climate change from 2023 to 2028. This sets out a strategic five-year plan to boost resilience and protect people, homes, businesses and our cultural heritage against climate change risks such as flooding (from all sources, as outlined further in this SFRA), drought, and heatwaves.

The UK Climate Change Risk Assessment (see Section 2.2.7) details the opportunities and risks for the UK as a result of climate change, providing the evidence base to inform National Adaptation Programmes. This Climate Adaptation Policy outlines how to understand, prepare for, and adapt to the risks associated with climate change, and also details the collaborative working with a range of

Government departments and other partners to prepare the UK for climate change.

Surrey County Council launched their Climate Change and Resilience Strategy known as "Surrey Adapt" in February 2024 to address the impacts of climate change in Surrey, including heatwaves, wildfires, droughts, floods and storms. Further information can be found at [Surrey's climate change adaptation and resilience strategy](#).

2.2.7 UK Climate Change Risk Assessment (2022)

The 2022 [UK Climate Change Risk Assessment](#) (CCRA) is the third five-yearly review of the risks of climate change on the UK, succeeding the previous 2017-2022 version. The Climate Change Committee prepares the CCRA, which must align with requirements of the [Climate Change Act 2008](#).

The CCRA considers 61 nationwide climate opportunities and risks and lists eight risk areas as priorities for action in the next two years. These include:

- risks to the viability and diversity of terrestrial and freshwater habitats and species from multiple hazards;
- risks to soil health from increased flooding and drought; and
- multiple risks to the UK from climate change impacts overseas.

The UK Government's approach to the eight priority risk areas is detailed further within Annex 1 of the CCRA.

2.2.8 Flood Risk and Coastal Change Planning Practice Guidance (2022)

The 'Flood Risk and Coastal Change' section of the Planning Practice Guidance (PPG) is a living document that was first published in March 2014 and operates alongside the NPPF. The most recent update was published in August 2022, significantly refreshing the guidance, and bringing it in line with the latest policy position on flood risk introduced in the 2021 NPPF update.

The PPG informs how to consider and address flooding and coastal change-related risks within the planning process. This includes discussing how LPAs can apply the sequential approach to locating developments, understanding flood risk issues, using SuDS to manage surface water flood risk, and improving property flood resistance and resilience. The 'Flood Risk and Coastal Change' section of the PPG also provides the most recent guidance for how to prepare a SFRA.

The key updates to the 2022 PPG include:

- The explicit inclusion of a climate change allowance within 'design flood' and the consideration of surface water flood risk.
- The Functional Floodplain starting point with regards to Flood Zone 3b is now the 3.3% Annual Exceedance Probability (AEP) event (previously 5% AEP).
- The non-residential development lifetime starting point is set at 75 years.
- The encouragement of an integrated approach to flood risk management. This involves a catchment-based approach, improved connectivity with other strategies, and the inclusion of measures which deliver multiple benefits.

The 2022 PPG also provides updated information on Sequential Testing, clarifying:

- When Sequential Tests should be applied, and when it is appropriate to move on to the Exception Test.
- Definitions of key terms such as ‘reasonably available’.
- Roles and responsibilities, including an emphasis on LPAs to select an area of search and consider if the Sequential Test is passed.
- Approaches to improve efficiency and certainty.

Updated information on the Exception Test is also provided within the 2022 PPG, specifically including:

- Definitions of relevant key terms (such as ‘wider sustainability benefits to the community’).
- A new section on how developments can demonstrate an overall reduction in flood risk.
- Demonstration of flood zone incompatibility, rather than showing whether ‘development is appropriate’.

Other updates to the PPG include:

- Guidance on compensatory floodplain storage (regarding the requirement for level-for-level storage) and mitigating cumulative impacts on flood risk.
- Stating that FRAs are required to detail any increase in flood risk elsewhere.
- Clarification that stilts and voids should not be relied upon to provide compensatory storage.
- Guidance on how to safeguard land required for future FCERM infrastructure.
- Clearer definitions of what SuDS are, improved recognition of their wider benefits, and the encouragement for consideration of SuDS earlier in the design process.
- Inclusion of a new section regarding reductions in the causes and impacts of flooding, including links to the EA’s NFM tools and support for river restoration measures.

2.2.9 National Planning Policy Framework (2023)

The NPPF, most recently revised in [December 2023](#) superseded previous versions of the NPPF from March 2012, July 2018, February 2019, June 2019, July 2021, and September 2023.

The NPPF outlines the Government’s planning policies across England and how these should be applied. The NPPF provides a framework within which plans for housing and other developments can be produced by Local Planning Authorities (LPAs), and also provides guidance for prospective applicants for submitting planning applications. The planning system serves to contribute towards achieving sustainable development. The NPPF replaced individual Planning Policy Statements into one main document.

Revisions to the NPPF have been undertaken to update and improve the plan-making process. There were key changes to the 2021 revision to the NPPF that are relevant to this SFRA which include:

- Ensuring that plans consider all sources of flood risk.

- Encouraging the use of improvements in green infrastructure and NFM within developments to reduce the causes and impacts of flooding.
- Incorporating appropriate flood resistant and resilient measures within developments to ensure they can quickly return to use after flood events without the need for significant refurbishment.
- Inclusion of the Flood Risk Vulnerability Classification within Annex 3.

Chapter 14 of the NPPF encompasses the requirement to meet the “challenge of climate change, flooding and coastal change”, with paragraphs 165-175 relating specifically to “Planning and flood risk”. Paragraph 166 emphasises the importance of SFRA and their roles in planning and flood risk, stating the following:

“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.”

Paragraphs 167-174 of the NPPF summarise the Sequential and Exception Tests as a tool to encourage new development proposals to be located within areas that are at the lowest flood risk. This SFRA provides the basis for applying the Sequential and Exception Tests, with guidance for their application provided within Section 6.

The White Paper titled [Fixing our broken housing market](#) was published by the UK Government in February 2017, and includes excerpts taken from the NPPF. This paper introduces reforms to planning and the housing market, with a focus on “Planning for the right homes in the right places”. Within the current NPPF, in addition to the cumulative requirements in paragraph 166, some key changes linked to planning and flood risk taken from this White Paper include:

Local Plans should consider the current and future impacts of climate change. Where climate change may increase flood risk and the long-term sustainability of some existing development, opportunities should be sought to relocate the development. Local Plans should consider the current and future impacts of climate change. Where climate change may increase flood risk and the long-term sustainability of some existing development, opportunities should be sought to relocate the development.

Paragraph 167

Major developments should incorporate Sustainable Drainage Systems (SuDS) as part of their drainage scheme proposals unless sufficient justification can be provided that it would be inappropriate. The proposed SuDS within these major developments should consider advice provided by Lead Local Flood Authorities (LLFAs), have appropriate minimum operational standards and maintenance arrangements, and provide multifunctional benefits where possible.

Paragraph 175

2.3 Regional Policy

2.3.1 Thames Catchment Flood Management Plan (2009)

The EA published the [Thames Catchment Flood Management Plan \(CFMP\)](#) in December 2009. It serves to provide an overview of the present and future scale and extent of flooding within the River Thames catchment area. The Thames CFMP also outlines the preferred plan and strategic policies to manage flood risks sustainably over the next 50 to 100 years, considering climate change. Within the Thames CFMP Map, EEBC lies within sub-area 5 and 9, which are named “urbanised places with some flood defences” and “London catchments” respectively. Policy option 4 is the preferred policy for sub-area 9 while policy option 6 is preferred for sub-area 5. It is to be noted that these options do not form policy in themselves. The Policy options are stated below:

Policy option 4: “Areas of low, moderate or high flood risk where we are already managing the flood risk effectively but where we may need to take further actions to keep pace with climate change.”

Policy option 6- “Areas of low to moderate flood risk where we will take action with others to store water or manage run-off in locations that provide overall flood risk reduction or environmental benefits”

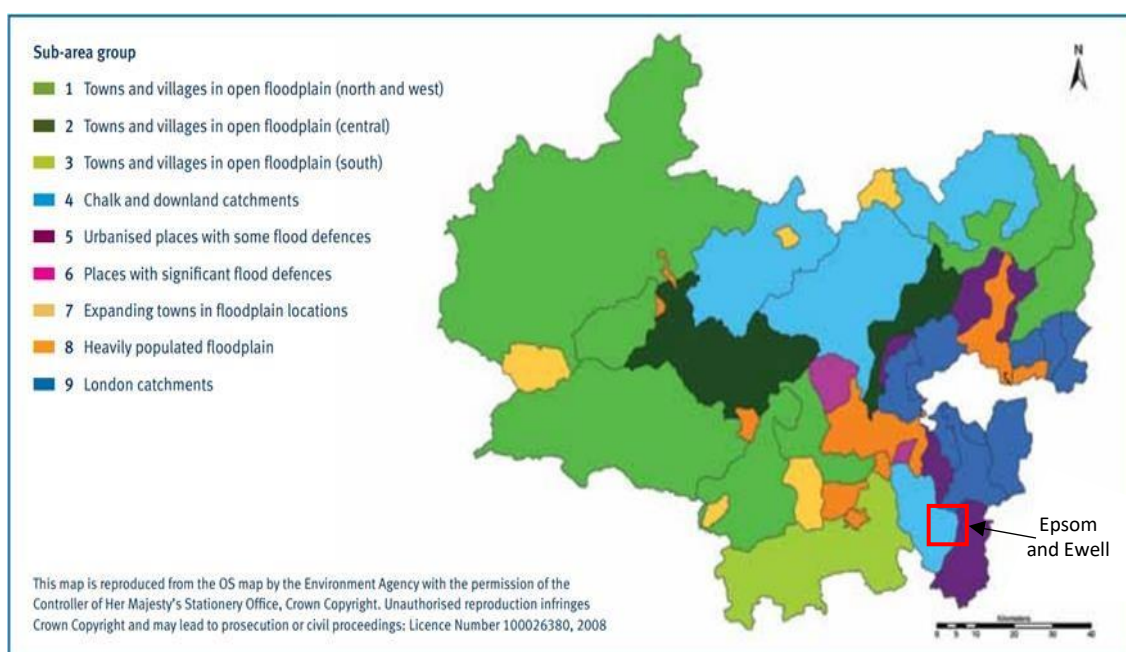


Figure 2-1 Thames CFMP Sub-Area Grouping (Thames CFMP Map)

According to the Thames CFMP, 500 – 1,000 properties in EEBC may be at risk from a 1% AEP fluvial flood. The plan identifies that the most sustainable approach to management of future flood risk in sub-areas 5 and 9 is to encourage adaptation of places at risk, retaining open spaces in the flood plain and adaptation of the urban environment. There are opportunities to reduce flood risk through the appropriate design and layout of redevelopment, which will increase the resistance and resilience of properties to flood water and thus reduce the consequences of flooding.

2.3.2 Thames River Basin District Flood Risk Management Plan (2022)

The most recent version of the [Thames River Basin District \(TRBD\) Flood Risk Management Plan \(FRMP\)](#) was published in December 2022, succeeding the previous FRMP that was published in

March 2016 in line with the six-yearly basis for updating strategic documents. The production of the TRBD FRMP is in accordance with the EU Floods Directive's requirements for RMAs to produce FRMPs. In the UK, the Directive's requirements are legislated through the FRR 2009 (see Section 2.2.2). This Plan outlines how RMAs will plan for and manage the risk of flooding to all communities within the TRBD during the current cycle, which runs from 2021 to 2027.

There are 18 national objectives within the current FRMP cycle, all of which apply to the TRBD area and outline the primary areas in which RMAs should aim to make improvements. These objectives are outlined within the FRMP national overview and fall within one of one of three categories that are consistent with the National FCERM Strategy ambitions of:

- Climate resilient places.
- Today's growth and infrastructure resilient in tomorrow's climate.
- A nation ready to respond and adapt to flooding and coastal change.

Eight measures apply to managing flood risk specifically within the TRBD, whilst there are 504 measures that apply to managing flood risk in the nationally identified Flood Risk Areas within the TRBD. Further details of these measures can be found within the 'Second cycle objectives and measures' chapter of the TRBD FRMP.

The 2022 TRBD FRMP states that 21.6% of the measures published in the first cycle FRMP (2015-2016) have been completed, whilst 55.8% of the measures are ongoing. It also reports that 22.5% of the measures proposed in the first cycle FRMP have not been implemented due to various reasons including absence of funding or unviability. Overall, the measures included in the first cycle FRMP have improved the social, environmental, and economic well-being of the TRBD, and have thus successfully achieved the objectives outlined across most of the objective categories. Some ongoing measures created within the first cycle have been incorporated into the second cycle.

2.4 Local Policy

2.4.1 Epsom and Ewell Local Plan (2007)

EEBC's Local Plan was adopted in July 2007 and sets out the planning strategy and policies for the borough over the period 2007-2022. This Local Plan includes the [2007 Core Strategy](#), the [2011 Epsom Town Centre Area Action Plan](#), and the [2015 Development Management Policies document](#) and conforms to requirements set out in the NPPF. The document deals with matters including climate change, the protection of greenspace, and development.

The Local Plan sets out eight main issues that provide the focus of and objectives for the Local Plan, which include addressing a range of housing needs for a diverse and ageing population; managing the need for development with green belt constraints; providing high environmental quality and provision of community facilities. The two overarching themes adopted by the Local Strategic Partnership are: creating opportunities for all and supporting a society that recognises the needs of future generations.

As per Paragraph 167 of the revised NPPF, Local Plans should consider the current and future impacts of climate change. EEBC's Local Plan has therefore incorporated climate change into its policies, with Core Strategy policy 6 and Development Management policy 19 being key examples of this.

2.4.2 Epsom and Ewell Surface Water Management Plan (2011)

EEBC's Surface Water Management Plan (SWMP) was published in July 2011. The SWMP was undertaken to assess the surface water flood risk for the borough. There are four components which include a summary report and action plan, preliminary risk assessment, modelling report and options report. These components follow the DEFRA guidance stages available at the time of the publication of the SWMP.

Four key flooding issues were identified which include:

- A history of surface water and groundwater flooding, relatively few depressions but significant natural drainage paths were identified, some of which could extend long distances across the borough.
- Many of the natural drainage paths have been obstructed or diverted by development.
- Cross-border communication and co-operation is noted as important to manage surface water flooding due to potential flow routes crossing political boundaries.
- Maintenance schedules should address the issue of numerous reported flooding reports citing to have resulted from poorly maintained drainage systems, or systems with insufficient capacity.

A detailed two-dimensional hydraulic model was developed to support the SWMP Action Plan. The model allows better understanding of the locations and mechanisms of flooding and informs identification and development of management options. The model assigned drainage areas an indicative susceptibility to flooding (high, medium, low) from surface water, high groundwater and sewer capacity exceedance. Each drainage area then underwent an options appraisal which assessed measures of intervention and included indicative cost-benefit ratios. General management and location specific options were created with associated priority actions for implementation, which also led to the delineation of the EEBC CDAs.

2.4.3 Surrey Preliminary Flood Risk Assessment (2011)

SCC published their [Preliminary Flood Risk Assessment \(PFRA\)](#) in June 2011. SCC, defined as a Lead Local Flood Authority (LLFA) under the Flood Risk Regulations (2009), is a large two-tier authority with eleven District and Borough Councils which includes EEBC. The PFRA process is aimed at providing a county-wide high-level overview of flood risk from local flood sources, including surface water, groundwater, ordinary watercourses and canals.

The EA used a national methodology, established by DEFRA, to identify ten Indicative Flood Risk Areas (IFRA) across England. The London IFRA is the only one which affects Surrey's administrative area. The London IFRA extends into the north of Surrey and covers parts of Tandridge, Reigate and Banstead, Elmbridge, Epsom and Ewell and Mole Valley.

The PFRA explores flood risk data and records of historic flooding from local and national sources and involved the collaboration with a range of stakeholders, including the eleven District and Borough Councils, the EA, Water Companies, Emergency Services and other Risk Management Authorities. Analysis within the PFRA indicates there is considerable risk of flooding from surface water across Surrey, particularly in the North, where the London IFRA extends. The PFRA subsequently proposed two minor extensions of the London IFRA to include Banstead and Leatherhead due to records of substantial flooding. The risk of surface water and groundwater flooding was further highlighted in a [2017 update](#) undertaken by SCC.

2.4.4 Surrey Local Flood Risk Management Strategy (2017)

SCC published their [Local Flood Risk Management Strategy \(LFRMS\)](#) in 2017, and is presently in the process of updating the LFRMS to be consistent with the National FCERM Strategy (2020). The LFRMS was produced to inform individuals, communities, and businesses of the steps SCC, as the LLFA, and its partners are taking to manage the impact of flooding in Surrey. There are eight objectives each with their own set of measures. The objectives cover themes of information sharing, improving maintenance regimes, collaboration between Risk Management Authorities, promoting landowner responsibilities, resilience, planning, investment, and processes of undertaking flood investigations. Some of these also identify areas which EEBC, SCC, and the EA recognise as a priority for flood risk management activity.

2.4.5 Epsom and Ewell Climate Change Action Plan (2020)

On the 23rd July 2019 EEBC committed to tackling climate change and addressing Council carbon emissions. To aid this EEBC has developed a [climate change action plan](#) with the target of becoming carbon neutral by 2035. A cross-party Members Climate Change Working Group, and an Officer Action Group, have been set up to support and oversee delivery of the action plan. The action plan is a living document and has multiple themes each with their own set of objectives and specific outcomes. Year 4 (2023+) notes the themes of transport improvements & switch to lower polluting vehicles, improvements to environment and tackling & minimising waste. Annual reporting is conducted on the action plan to demonstrate EEBCs progress so far.

3 APPLYING CLIMATE CHANGE SCENARIOS

3.1 Climate Change guidance

3.1.1 Updates

In 2016, the EA published their [Flood Risk Assessments: Climate Change Allowances](#) guidance, which informs how climate change allowances should be applied for SFRAs and site-specific FRAs.

The EA have been revising their Climate Change Allowances on an ongoing basis since 2019 to incorporate UKCP18 data, with the most recent update at the time of writing (July 2024) being made in May 2022. Recent updates have involved updates to peak rainfall allowances for the 1% and 3.3% AEP events, and to include two epochs (periods of time) rather than three. These updates to peak rainfall allowances are provided by Management Catchments (sub-catchments of River Basin Districts) rather than at a national scale and have involved changes to the application of peak rainfall allowances, using the central allowance for developments with lifetimes up to 2100 and the upper end allowance for developments with lifetimes from 2100-2125. The borough is situated within the London Management Catchment with the edge of the borough also falling within the Mole Management Catchment. It is suggested that these peak rainfall revisions should also be incorporated into future Local Plan policies and documents.

[UKCP18](#) builds on the success of the UKCP09, delivering an upgrade to the range of climate projection tools available for use across the UK. UKCP18 includes:

- Updated assessments of how the UK's climate may change over the 21st century.
- Updates to the probabilistic projections over land.
- High-resolution spatially-coherent future climate projections at a 60km scale globally and for at a 12km scale for the UK.
- Downscaling of the 12km climate model to a 2.2km scale, enabling high-impact events such as localised heavy rainfall to be simulated realistically.
- Updated marine projections of storm surge and sea-level rise.

Applicants should check the UKCP guidance to ensure that any FRAs use the latest information. In September 2019, the [UK Climate Projections: Headline Findings](#) were published, providing details on the key UKCP18 conclusions.

3.1.2 Applying the updated climate change guidance

It is essential that applicants understand the below information to correctly apply the latest climate change guidance:

- As per the ['Flood Risk and Coastal Change'](#) PPG, "Residential development can be assumed to have a lifetime of at least 100 years, unless there is specific justification for considering a different period. For example, the time in which flood risk or coastal change is anticipated to affect it, or where a development is controlled by a time-limited planning condition. The lifetime of a non-residential development depends on the characteristics of that development but a period of at least 75 years is likely to form a starting point for

assessment.” This should be highlighted by applicants in the FRA, with justification provided as to why they have adopted a given lifetime for the proposed development.

- The proposed development’s vulnerability classification as per [Annex 3](#) of the NPPF.
- The relevant epoch period for **peak rainfall intensity** as per the information within ‘[Flood risk assessments: climate change allowances](#)’ and the [peak rainfall allowances map](#). The Epsom and Ewell falls within the London Management Catchment and the Mole Management Catchment, where the peak rainfall allowances are provided in Table 3-1 (note these are the same for both catchments). The 2050s epoch should be used for development with a lifetime up to 2060 and the 2070s epoch for development with a lifetime between 2061 and 2125. These allowances will differ according to which rainfall intensity scenario (either 3.3% AEP or 1% AEP) is being considered, as per Table 3-1.
- All FRAs requiring **peak river flow** allowances should use the percentages for their development area as per the information within ‘[Flood risk assessments: climate change allowances and the peak river flow map](#)’. Epsom and Ewell falls within the London Management Catchment and Mole Management Catchment, where the peak river flow allowances are provided in Table 3-2 and Table 3-3, respectively. Appropriate climate change allowances must be applied, and applicants must consider the flood risk vulnerability classification of their proposed development and the flood zone in which it falls, as per [Table 2](#) of the ‘Flood Risk and Coastal Change’ PPG.

Table 3-1 Peak rainfall allowances for the London and Mole Management Catchments epoch 2050 and 2070 for a 3.3% and 1.1% annual exceedance event at time of writing.

Return Period	Epoch	Central allowance	Upper end allowance
3.3% annual exceedance rainfall event	2050s	20%	35%
	2070s	20%	35%
1% annual exceedance rainfall event	2050s	20%	40%
	2070s	25%	40%

Table 3-2 Peak river flow allowances from the London Management Catchment for epoch 2020s, 2050s, and 2080s at time of writing.

Epoch	Central	Higher	Upper
2020s	10%	14%	26%
2050s	7%	14%	30%
2080s	17%	27%	54%

Table 3-3 Peak river flow allowances from the Mole Management Catchment for epoch 2020s, 2050s, and 2080s at time of writing.

Epoch	Central	Higher	Upper
2020s	11%	16%	27%
2050s	6%	12%	26%
2080s	12%	20%	40%

3.2 Adapting to Climate Change

The PPG contains a section on Climate Change, which highlights the fact that addressing climate change is a key land use planning principle which the NPPF expects to underpin plan-making and decision-taking. The PPG provides guidance on determining and implementing suitable measures in the planning process to address the potential risks of climate change, and therefore has provided examples for how applicants can adapt to a changing climate:

- Consideration of future climate risks when allocating development sites to ensure that risks are understood over the development's lifetime.
- Consideration of the impact of and promoting design responses to flood risk and coastal change over the development's lifetime.
- Consideration of the availability of water and water infrastructure for the development's lifetime and design responses to protect water quality and promote water efficiency.
- Promotion of adaptation approaches in design policies for developments and the public realm.

The guidance additionally suggests that particular attention should be paid to integrating adaptation and mitigation approaches, which can be achieved by providing multi-functional green infrastructure. This could include the integration of SuDS and nature-based solutions, which have multiple benefits including managing flooding, helping species adapt to climate change, and reducing urban heat islands. By integrating these approaches, this will contribute towards supporting sustainable development and ensuring that every opportunity to integrate green infrastructure is maximised.

4 ASSESSMENT OF FLOOD RISK

4.1 RMA responsibilities

As part of the FWMA responsibilities outlined in Section 2.2.3, RMAs must contribute towards achieving sustainable development and collaborate on matters relating to flood risk management. EEBC is not an RMA, as SCC is the LLFA covering Epsom and Ewell as explained in *Table 4-1*. All RMAs are required to co-operate, share information, and act in a manner consistent with the National FCERM Strategy. This may be achieved through assisting with development planning, preparing relevant flood risk documents, or providing consent for flood risk related activities. *Table 4-1: Risk Management Authorities and Responsibilities* outlines each RMA's responsibilities for flood risk management.

Table 4-1: Risk Management Authorities and Responsibilities

Risk Management Authority	Responsibility (within an SFRA context)
Department for Environment, Food and Rural Affairs (DEFRA)	Responsible for overall national FCERM policy in England, alongside providing flood risk management funding.
Environment Agency (EA)	Supervises and works collaboratively to manage flood risk and coastal erosion from main rivers, the sea and reservoirs. The EA's various responsibilities include: <ul style="list-style-type: none"> • Providing LPAs with flood risk advice regarding development proposals in Flood Zones 2 and 3. • Carrying out works to manage fluvial and coastal flood risk. • Issuing and operating flood warning systems. • Issuing consent to enable works on or near main rivers, and works affecting watercourses, flood and sea defences and other structures protected by its byelaw. • Providing advice on development proposals (see Section 5).
Lead Local Flood Authorities (LLFAs)	The LLFA covering Epsom and Ewell is SCC. LLFAs are responsible for managing flood risk from surface water, ordinary watercourses, and groundwater sources ('local flood risk sources'). LLFA responsibilities include: <ul style="list-style-type: none"> • Development, application, maintenance, and monitoring of LFRMSs. This includes involvement in SFRA preparation. • Preparing and maintaining a PFRA, flood risk maps, flood hazard maps, and flood risk management plans. • Designating features and structures that may affect the risk of local flooding or coastal erosion. • Investigating and reporting of flood incidents that reach a certain threshold. • Creating guidelines and policies to ensure effective flood risk management work. • Providing advice on major development proposals with surface water drainage implications (see Section 5 for further details).

	<ul style="list-style-type: none"> • Enforcement and regulation of works on ordinary watercourses.
Highway Authorities	<p>SCC is the Highway Authority for Epsom and Ewell. The Highway Authority and National Highways hold responsibilities for providing and managing highway drainage. There are no National Highway networks within Epsom and Ewell.</p> <p>SCC, as the Highway Authority and the LLFA must work with the EA when:</p> <ul style="list-style-type: none"> • Managing highway flooding. • Working on highway drainage. • Working in roadside ditches. • Carrying out works on part of a watercourse. <p>Drainage responsibilities on private roads sit with the private owner for the highway.</p> <p><i>NB: Network Rail also has responsibilities for managing surface water drainage and flooding from their railway infrastructure.</i></p>
Water and Sewerage Companies	<p>The primary responsibility of Water and Sewerage Companies is for the provision of clean water and/or sewerage facilities. Their secondary responsibility is to manage flooding from their clean water and sewerage systems (including sewer flooding, burst pipes or water mains, and floods caused by system failures). Thames Water Utilities Limited (TWUL) and Sutton and East Surrey Water (SES Water) are the relevant Water and Sewerage Companies in Epsom and Ewell, however TWUL is the sole wastewater ‘provider’. Both have powers under the Water Industry Act 1991 regarding the connection of proposed developments to their networks.</p>

4.2 Types of flood risk

There are many sources of flood risk that can affect an area and must therefore be assessed and managed appropriately. This section defines these types of flood risk, provides an assessment of flood risk within Epsom and Ewell for each of these sources, and highlights the ways in which climate change could impact each source.

4.2.1 Fluvial flood risk

Definition:

Fluvial flooding, also known as river flooding, occurs when a main river exceeds its capacity following prolonged or heavy periods of precipitation. Fluvial flooding can have severe environmental, economic, and social impacts on the affected areas. Floodplains and open spaces adjacent to rivers can mitigate the impacts of fluvial flooding, helping to convey and manage the increased flows.

Fluvial Flood Zones:

The supporting mapping in Appendix 2 – Mapping shows the risk of flooding from fluvial sources and should be referred to for additional information to accompany this text and assessment of flood risk. This flood risk is categorised in accordance with the EA’s Flood Zone classifications that describe the probability of fluvial flooding. The PPG defines Flood Zones 1, 2, and 3a. Flood Zone 3b has been defined by the LPA using the PPG as guidance, where the recommended model extents have been available. These Flood Zones are defined as follows:

Flood Zone 1	Land that has an annual probability of flooding from rivers or seas of less than 1 in 1,000 years (<0.1% AEP).
Flood Zone 2	Land that has an annual probability of flooding from rivers of between 1 in 100 and 1 in 1,000 years (0.1-1.0% AEP), or land that has an annual probability of flooding from seas of between 1 in 200 and 1 in 1,000 years (0.1-0.5% AEP).
Flood Zone 3a (High Probability)	Land that has an annual probability of river flooding of 1 in 100 years or greater ($\geq 1\%$ AEP), or land that has an annual probability of sea flooding of 1 in 200 years or greater ($\geq 0.5\%$ AEP).
Flood Zone 3b (The Functional Floodplain)	Land that is deemed to be at the greatest risk of flooding from rivers or seas, and where water must flow or be stored during times of flood. This includes land that has an annual probability of flooding from rivers or seas of 1 in 30 years or greater ($\geq 3.3\%$ AEP), and land that is designed to flood (such as a flood attenuation scheme). A defended extent has been used for the River Mole and an undefended extent for the Hogsmill River as the defended 1 in 30-year extent was not available for the Hogsmill River at the time of writing this report. Should this become available at a later date then it is recommended that these are updated in line with the PPG guidance.

The Flood Zone 3b (functional floodplain) definition is adopted to ensure that future development is steered away from areas which are the most 'at risk' from fluvial flooding.

The dataset used as the basis of the fluvial flood risk extents is the EA's modelled mapping for the different annual probabilities, itself based upon local fluvial flood risk modelling for certain main rivers and their tributaries. The defined Flood Zone 3a and part of Flood Zone 3b (Hogsmill River) are based on an undefended flood scenario, and therefore do not consider the reduction in flood risk in certain areas that benefit from formalised flood defence assets such as flood gates, walls, and embankments. Section 6.5 provides details on managing the residual risk of these flood defences.

Assessment:

The **Hogsmill River** is an EA-designated main river that rises from springs in Ewell and flows through the centre and north-western areas of Epsom and Ewell Borough before entering the Royal Borough of Kingston upon Thames and eventually reaching the River Thames. The Hogsmill River poses a fluvial flood risk to the properties and infrastructure situated within its hydrological catchment, particularly those situated within Flood Zones 3a and 3b (fluvial). It does pose a flood risk to a larger area and thus a greater number of properties and infrastructure situated within its vicinity.

The **River Rye** is an ordinary watercourse which runs along the south-western edge of Epsom and Ewell before flowing into the **River Mole**. It is designated as a main river at the border of the borough and although it does not enter the borough, some of the fluvial extents affect areas within Epsom and Ewell, for which the risk has been considered. Similarly, the **Beverley Brook** is an EA-designated main river, of which only a small upstream section enters Epsom and Ewell. The fluvial

extents were assessed, however, do not affect any areas within Epsom and Ewell, there are only some areas of Flood Zone 2 which surround the Beverley Brook and do enter the borough.

The *Flood Defences and Reduction in Risk from Rivers and Sea* mapping, presented in Appendix 2 – Mapping, highlights the areas that benefit from a reduction in fluvial flood risk due to defences. Within Epsom and Ewell, there are areas of natural high ground which surround the Hogsmill River, and therefore, some areas benefit from a reduction in flood risk even though these are not classified as a formal flood defence.

If a proposed site is shown to be protected by flood defences based on the *Flood Defences and Reduction in Risk from Rivers and Sea* mapping, the ‘actual’ and ‘residual’ flood risks should be considered within FRAs for development proposals. The residual risk includes risk from flood risk management infrastructure (i.e. breach of a raised flood defence), and risk to a development once any site-specific flood mitigation measures are taken into account (i.e. the depth of internal flooding predicted after any raising of land or floor levels). FRAs must define the standard of protection of the local defences and address the residual risk that is associated with the specific defence asset. Development proposal requirements are defined within Section 5.

FRAs for development in close proximity to main rivers should include consideration that the proposed development will:

- Retain the effectiveness, stability and integrity of flood defences, riverbanks, and other formal and informal flood defence infrastructure.
- Ensure the proposal does not prevent essential maintenance and upgrading from being carried out in the future.

Impacts of climate change:

The EA’s current climate change projections for peak rainfall intensity and peak river flow in the UK indicate that an increased number of people, properties, and infrastructure will be at risk of fluvial flooding as a result of climate change impacts. Based on these projections, an increase in the severity and frequency of fluvial flooding is also expected, increasing the requirement for appropriate flood defence and mitigation measures for the Hogsmill River. The *Main River Flood Extents* mapping (Appendix 2 – Mapping – Figure 2) show the fluvial flood extents for various climate change scenarios under a 1 in 100-year (1% AEP) flood event for Epsom and Ewell’s main rivers.

The fluvial flood extent for a 1 in 100-year (1% Annual Exceedance Probability (AEP)) event with a 25% climate change allowance extends beyond areas classified as Flood Zone 3b (fluvial) for the Hogsmill River, particularly in Ewell West and north of Epsom Town Centre. This extent increases further with the 35% and 70% climate change scenarios, with more properties included within the fluvial flood extent for the 1 in 100-year (1% AEP) event with a 70% climate change allowance in comparison to those situated within the current Flood Zone 3b (fluvial). Further detail can be viewed in the *Main River Flood Extents* (Appendix 2 – Mapping – Figure 2) map.

4.2.2 Tidal flood risk

Definition:

Tidal flooding involves the inundation of low-lying areas when water flows from the sea towards land during storm surge events and/or extreme high tides. This also includes flooding from tidal rivers, which have flows and levels that are influenced by tides.

Assessment:

There is no tidal flood risk within Epsom and Ewell.

4.2.3 Surface Water and Ordinary Watercourse flood risk

Definition:

Surface water flooding, also known as pluvial flooding, occurs following high-intensity rainfall that triggers ponding or overland flow before water enters a watercourse or underground drainage network. Ordinary watercourse flooding occurs under similar circumstances, although this is associated with non-main river watercourses or ditches.

A rainfall event's duration and intensity often exacerbates the impacts of surface water flooding due to the resultant impacts on soil, drainage systems, and drainage channels that limit their ability to drain water at a sufficient rate. Ordinary watercourses can exceed their capacity during extreme weather conditions, resulting in water flowing onto land.

This SFRA covers the risk of ordinary watercourse flooding within the 'surface water' terminology, aligning with the EA's inclusion of ordinary watercourse flood risks within their RoFSW mapping which was created in 2013. This dataset is expected to be updated by the end of 2024 by the EA, as a result of improvements using their new National Flood Risk Assessment (NaFRA2).

Assessment:

The extent of surface water flood risk varies across Epsom and Ewell. There are several large areas of green space across the borough (particularly in southern areas) which mitigate surface water runoff due to the impacts of soil percolation and vegetation reducing peak runoff rates. Nevertheless, other areas of the borough are heavily urbanised and densely populated, with a high coverage of impermeable surfaces resulting in poor infiltration rates and thus increased overland flow. This overland flow is subsequently directed towards topographical low points and increase peak runoff rates during a rainfall event, meaning that there will be a risk of surface water flooding to the people and infrastructure situated along these overland flow pathways.

Appendix 2 – Mapping depicts the areas across Epsom and Ewell at risk of experiencing surface water flooding as per the EA's RoFSW dataset. The *Surface Water Flood Extent* map (Appendix 2 – Mapping – Figure 6) shows the flood extent of rainfall scenarios with a 3.3% AEP (1 in 30 year), 1% AEP (1 in 100 year), and 0.1% AEP (1 in 1,000 year) chance of occurring in any given year. The depth of these same rainfall scenarios is shown in the *Surface Water Flood Depth* maps (Appendix 2 – Mapping– Figures 7, 8, and 9). Areas which are at a notably higher risk of surface water flooding include parts of Epsom Town Centre, Ewell Town Centre, Stoneleigh, and Worcester Park.

Section 5.5.2 includes information related to surface water flood risk requirements and FRA guidance.

Impacts of climate change:

The EA's UK climate change projections indicate that wetter winters and more intense rainfall are expected. These impacts are likely to increase surface water runoff and result in more localised flooding, thus placing an increased number of people, properties, and infrastructure at risk of experiencing surface water flooding. These predicted increases in surface water runoff due to climate change will also increase the pressure on sewers and the drainage network, thus increasing the probability of sewer-related flooding, as discussed in Section 4.2.5.

There are currently no EA models specific to surface water which incorporate climate change scenarios, but this is expected to be addressed in the latter half of 2024 as part of the EA's updated National Flood Risk Assessment work. However, the 1 in 1,000-year (0.1% AEP) return period event RoFSW depth and extent data could be used as a proxy for estimations of flood extent and depth for a 1 in 100-year (1% AEP) return period event with a climate change scenario incorporated. The Appendix 2 – Mapping (Figures 6, 8 and 9) mapping shows the extent and depth mapping for the 1 in 100-year (1% AEP) and 1 in 1,000-year (0.1% AEP) return period events.

4.2.4 Groundwater flood risk

Definition:

Groundwater flooding occurs when a rising water table triggers emergence of water through the ground. This can occur for prolonged periods of weeks or months, and often occurs after extensive and protracted heavy rainfall. A greater volume of water infiltrates through the ground during these periods of extensive heavy rainfall, resulting in an underlying aquifer rising above its regular depth. Aquifer vulnerability and ground composition significantly influence the potential groundwater flooding rate. Groundwater flood risk is increased at springs and low-lying areas where the water table is likely to be situated closer to the surface, and in areas where the underlying soil and bedrock are vulnerable to saturation.

Assessment:

The *Bedrock Geology* and *Superficial Geology* maps (Appendix 2 – Mapping– Figures 11 and 12) show Epsom and Ewell's geology which consists mostly of chalk or clay, silt, sand and gravel (alluvium) geology. The borough's north-western areas consist of clay, silt, sand and gravel, whilst chalk geology is pervasive across the south-eastern areas of the borough. A layer of sand, silt, and clay bedrock is present across the intersection of these two bedrock types.

Chalk has high permeability and facilitates the flow of groundwater within the bedrock layer. Alluvium has mixed permeability, clay is porous but less permeable, whereas gravel and sand are both porous and permeable which also facilitates the flow of groundwater.

The superficial geology for a central area of the borough (including parts of Epsom Town Centre) is comprised of sand and gravel from River Terrace Deposits formed during the Quaternary period. Superficial geology data are unavailable for the remainder of the borough.

The EA's Area Susceptibility to Groundwater Flooding (ASStGWF) mapping uses a series of 1km² grid squares across Epsom and Ewell to classify the percentage of the grid square area that is susceptible to groundwater flooding. As shown in the *Area Susceptibility to Groundwater Flooding and Source Protection Zones* map (Appendix 2 – Mapping– Figure 10), much of Epsom and Ewell is classified as

being situated within an area where <25% of the land is susceptible to groundwater flooding. The centre of the borough and some areas to the east however are classified as being situated in an area which is $\geq 25\%$ <50% susceptible to groundwater flooding or above. Some areas of Epsom and Ewell have not been classified within this Area Susceptibility to Groundwater Flooding dataset.

Impacts of climate change:

The frequency and severity of groundwater-related flood events could increase in line with the EA's UKCP18 projections that suggest increases in rainfall intensity and frequency of extreme rainfall events. Conversely, variability in rainfall intensity and duration could decrease groundwater storage and increase the severity and frequency of groundwater drought periods.

4.2.5 Sewer flood risk

Definition:

Sewer flooding can occur as a result of:

- Drainage system failure (such as a collapse or blockage).
- High water levels blocking or submerging sewer outfall points, resulting in the system backing up and triggering flooding.
- Increases in water volume and flow entering a sewer system, resulting in an exceedance of the system's hydraulic capacity and subsequent surcharging.

These issues can result in flooding due to the overflowing of water from gullies and manholes.

Assessment:

Thames Water Utilities Limited (TWUL) own and operate the sewer system in Epsom and Ewell, which is primarily comprised of separate surface water and foul sewer systems. These separate systems are typical for modern sewer systems, with surface water sewers in modern systems generally being designed to accommodate up to 1 in 30-year (3.3% AEP) rainfall events. However, variations in the age of sewer system segments across the borough impact their capacity to manage rainfall events, with the lower capacity of older segments meaning that they may not be designed to accommodate rainfall events that occur as frequently as 1 in 30 years (3.3% AEP).

Under the [Water Industry Act 1991](#), TWUL are responsible for managing all public sewers, which are defined as the drainage network (including associated manholes) that serves more than one property. The Highway Authority are typically responsible for gullies or drains and the interconnecting pipe network which drain the public highway, whilst private landowners are generally responsible for those which drain from their private land into sewers. The interconnection between these different assets means that several factors may cause flooding. All relevant parties should therefore be involved in subsequent investigations and undertaking work to resolve the root cause where this is necessary, alongside ongoing maintenance to reduce the likelihood of sewer flooding occurring in the first place.

All new development proposals must consider the existing sewer network, as new developments that are added into the catchment area apply additional capacity stress to sewers and increase the risk of them becoming overloaded. Development-related increases in sewer flood risk are therefore a risk throughout the borough.

Impacts of climate change:

Sewer flood risk is linked closely to the projected changes to rainfall patterns and increase in rainfall intensity as per the EA's UK climate change projections, alongside subsequent potential changes to surface water flood risk. This is due to the increases in water volume and flow attempting entry into the drainage system related to the projected increases in rainfall intensity, resulting in an increased probability of the drainage system being overloaded. This overload can result in surcharging of surface water, triggering localised above-ground flooding and increasing the frequency of combined sewer overflow discharges of untreated wastewater into the riverine environment, resulting in widespread damage.

4.2.6 Artificial sources of flood risk

Definition:

Artificial flooding can occur when human intervention or infrastructure failure impacts artificial sources including reservoirs, ponds, canals, and other artificial structures. Despite the low probability of a structural breach, the failure of an artificial structure can result in many properties being put at risk of flooding and a consequent high potential extent of damage.

Assessment:

There is one reservoir located in Epsom and Ewell, the Epsom Common Great Pond, which is in the west of the borough and was constructed during Saxon times and remains today. The *Reservoir Flood Extents* map (Appendix 2 – Mapping– Figure 4) shows reservoir flood risk using the EA's reservoir flood maps. The 'dry day' scenarios predict the flooding that would occur if the reservoir failed during normal river levels. Conversely, the 'wet day' scenario dataset shows the extent of flooding from reservoirs if reservoir failure occurred while river levels were already high. The data show that in a 'dry day' scenario some of the western areas of the borough could be impacted by reservoir flooding should the Epsom Common Great Pond Reservoir Dam fail and release the water that it holds. In this scenario, reservoir floodwaters would flow northwards from the reservoir towards the affected areas and towards the Bonesgate Stream (located within the Royal Borough of Kingston upon Thames). In a 'wet day' scenario, these areas and some areas in the north of the borough along the Hogsmill River could also be impacted by flooding from the Epsom Common Great Pond Reservoir, which has been deduced using the extent of the layer which is confined to the borough boundary. The extent of the flooding runs from the reservoir into the Bonesgate Stream, and eventually into the Hogsmill River.

Under the terms of the [Reservoir Act 1975](#), Epsom and Ewell are responsible for maintaining the Great Pond Dam. This ensures its continued use and reduces the risk of failure. For a development which is considered in an area of reservoir flood risk, Epsom and Ewell should be contacted so that the flood risk can be understood in more detail and to determine whether the development could affect the reservoir's risk designation.

The reservoir flood risk mapping could be used for emergency planning purposes. Section 5.6 details further information on emergency planning and other FRA requirements.

Impacts of climate change:

The complex nature of reservoirs and other large artificial infrastructure mean that there could be complex and varied impacts of climate change on these structures. The predicted changes in rainfall intensity and frequency as per the UK's climate change projections could cause extreme fluctuations in water levels, which could impact reservoir yields.

4.2.7 Residual flood risk

Fluvial Defence Breach / Failure:

The *Flood Defences and Reduction in Risk from Rivers and Sea* mapping shown in the Appendix 2 – Mapping (Figure 5) mapping demonstrates a level of protection against flooding from fluvial sources. However, the risk of structural failure of any flood defence asset could result in these features being breached and overtopped due to wind and wave actions which are residual flood risks. Although there is only a small probability of these residual flood risks, there is a significant potential damage extent and potential risk to life if they were to occur.

As part of a Flood Risk Assessment (FRA), residual flood risk should be considered for proposed developments that are situated within all fluvial flood zones of the Hogsmill River and River Rye. Section 5 presents further information on development requirements.

Flood Warnings and Alerts:

When flooding is possible, the EA issues Flood Alerts to specific areas. When flooding is expected, Flood Warnings are issued by the EA to specific areas. These Flood Alerts and Flood Warnings allow the EA, residents, and business to take preparatory measures to mitigate against potential impacts of fluvial flooding. When there is a potential for risk to life, the EA issue Severe Flood Warnings. Residents can sign up for Flood Warnings through [this link](#).

The EA-designated *Flood Alert and Flood Warning Areas* map (Appendix 2 – Mapping– Figure 3) shows higher-risk land situated adjacent to or near the Hogsmill River being situated within the Flood Warning Areas. The EA Flood Alert area covers land situated adjacent to or near the Hogsmill River, River Rye, and Beverley Brook, with some smaller areas along the eastern edge of the borough. Flood Warning Areas are the geographical areas that represent distinct communities in which flooding to properties from rivers, or the sea is expected to occur. Flood Alert Areas are geographical areas where flooding of low-lying roads and land from rivers or the sea is possible.

4.3 Historic flooding

Historic flooding information exists for several flood sources across Epsom and Ewell. Local records of flood incidents (received from SCC) have been included in the analysis of this SFRA, which include groundwater flood incidents (from 2000, 2002, and 2014), surface water flooding incidents from 2007 (external and internal flooding), and current and historic wetspots (the term is used to record the location of a reported, recurring flood incident). In addition to local data, EA data has also been provided, including the 'Historic Flood Map' dataset, which shows the maximum extent of all individual recorded flood outlines in Epsom and Ewell, with records of historic fluvial flooding incidents to property and infrastructure having been recorded along some areas surrounding the Beverley Brook and Hogsmill River. TWUL have also provided historic information on the number of reported property and non-property flood incidents. This TWUL dataset is provided on a four-digit postcode sector level, demonstrating the areas within the borough that historic data shows are particularly vulnerable to

sewer flooding. Given that there are no postcodes that have more than 20 reported flooding incidents, this indicates that Epsom and Ewell is less vulnerable to sewer flooding.

As part of the planning process, applicants are advised to review these historic flooding datasets alongside the LFRMS, PFRA, and SWMP for additional information. Applicants should contact Epsom and Ewell or TWUL if they hold any outstanding queries regarding these flood records. Section 5 of this SFRA should be referred to for additional FRA guidance.

4.3.1 Flood Investigations

2015 – Borough-wide:

In the winter of 2013/14, flooding took place in Epsom and Ewell. There were approximately 10 incidents of internal flooding, which were located in Epsom and a residential street in Stoneleigh. The flooding incidents were found to be due the exceptional rainfall which fell, causing both surface water and fluvial flooding. Nine recommendations were made based off the investigation, including raising awareness of flood risk and undertaking further studies to further understand levels of risk.

2021 – Worcester Park:

On the 25th July 2021 a heavy rainfall event was experienced across Surrey and resulted in both external and internal flooding in the Worcester Park area of Epsom and Ewell. A total of 106 (combined external and internal) incidents were reported. It was concluded that the SCC and TWUL drainage systems were overwhelmed by the amount of water, and that water levels in the Beverley Brook were above the height of the TWUL drainage system's outlet, causing water to back up within the pipe network and surcharge at the gullies and manholes. This therefore prevented surface water runoff from draining. Fourteen recommendations were made for residents and the relevant RMAs to be assessed for their feasibility and financial viability, and to be considered as part of an adaptation to the catchment.

5 FLOOD RISK ASSESSMENT GUIDANCE

5.1 Overview

Applicants and LPAs must consider flood risk to and from proposed developments within all planning proposals. To assess this, applicants should undertake a site-specific FRA (required for developments in Flood Zones 2, 3a, and 3b, and some developments within Flood Zone 1) and/or SuDS Strategy which should demonstrate that the proposed development will suitably manage different flood risk sources throughout the entirety of the development's lifetime. Table 5-1 provides further guidance on the circumstances where a site-specific FRA is required. The timescale for the lifetime of the proposed development should be identified and justified by applicants in consultation with Epsom and Ewell Council. The assumed starting points for assessing development lifetime are outlined in the 'Flood Risk and Coastal Change' section of the [PPG \(Paragraph 6\)](#).

Applicants must demonstrate that the development will not increase flood risk elsewhere or be at risk of flooding itself, and that developments are appropriately resilient to potential climate change impacts. The site-specific information supplied for any development application should be proportionate to the identified flood risks and appropriate to the development's nature, scale, and location. Complying with the [NPPF](#) and Epsom and Ewell Council's [Local Plan](#) is mandatory.

Applicants must prioritise SuDS when proposing measures to reduce local flood risk and should propose measures that manage runoff as close to the source as possible and contribute to the four pillars of SuDS (amenity, biodiversity, water quality and water quantity). These key principles must be applied at the site level for development proposals and site allocations, and at the strategic level for borough-wide planning.

The designation of land that is likely to be needed for flood risk management and structures will reduce downstream flood risk should they be implemented, which would unlock land downstream for development and maximise the potential for flood storage and conveyance within these developments. Using the planning process to increase flood water storage potential and ensure that SuDS are incorporated within developments feeds into the National FCERM Strategy's discussion of opportunities to boost resilience (see *Section 2.2.6*).

This section provides guidance on site-specific FRAs for applicants (*Section 5.4*), and guidance for the LPA on both Development Management (*Section 5.5*) and Planning Policy (*Section 5.7*).

5.2 Sequential and Exception Tests

5.2.1 Plan Making

The [NPPF](#) requires that a sequential, risk-based approach to the location of development is applied to avoid the risk of flooding to people and property where possible. The approach must consider all flood risk sources and the current and future impacts of climate change. Applicants may be required to undertake the Sequential and Exception Tests as part of their site-specific FRA to demonstrate that they have made suitable efforts to steer development towards areas on their site with the lowest flood risk.

The Sequential Test requires that proposed development sites are situated within areas of the lowest flood risk. Alternative sites situated within areas that may potentially be at risk of flooding can only be considered for development if applicants can demonstrate that the wider search area does not contain

any other suitable sites at a lower risk level. The 'wider search area' is defined as the entire borough extent for this SFRA, although locally defined search area exceptions managed and governed by the LPA exist depending on the type and location of the proposed development. *Section 6.5* discusses information on search area exceptions in further detail.

The NPPF recognises that it may not always be possible for developments to be situated within areas that have a lower flood risk, such as in cases where developments may be proposed within established communities that require continued development to grow. The NPPF provides the Exception Test for these types of proposals, which is a means of demonstrating and ensuring that there will be satisfactory management of flood risk to people and property whilst permitting necessary development in situations where there are no suitable sites at a lower flood risk available. For the Exception Test to be passed, applicants must demonstrate that the development passes the two below conditions, in line with paragraph 170 of the NPPF:

- The development would provide wider sustainability benefits to the community that outweigh the flood risk; and
- The development will be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall.

LPA Development Management officers should note that wider sustainability benefits that could be considered to outweigh flood risk include, but are not limited to:

- An overall flood risk reduction to the wider community through the financial contribution to or provision of flood risk management infrastructure.
- The re-use of suitable brownfield land as part of a local regeneration scheme.
- The provision of multifunctional SuDS that integrate with other green infrastructure.

If a site passes the Exception Test, the applicant should prioritise development in areas of the site which are at a lower flood risk. If a site lacks suitable space for development within a low flood risk zone, less vulnerable use classes should be situated in zones of higher flood risk whilst more vulnerable use classes should be situated in zones of lower flood risk. Additionally, sites with higher flood risk could take measures such as prioritising low vulnerability uses within ground floor development, with higher vulnerability uses on the first floor and above.

5.2.2 Applying the Sequential and Exception Test

Table 5-1 and *Section 5.5* provide further guidance on applying the Sequential and Exception Test for developers and applicants. LPA Development Management and Planning Policy guidance on the Sequential and Exception Tests can be found in *Sections 5.5 and 5.7*.

Figure 5-1 Sequential Test Methodology and *Figure 5-2* show the approaches that should be taken to Sequential and Exception Tests as discussed within this report, as per the guidance in [Diagram 2](#) and [Diagram 3](#) of the [PPG](#).

Figure 5-1 Sequential Test Methodology and *Figure 5-2* refer to Low, Medium and High flood risk which include all types of flooding for example a site will be high flood risk if it is located in Flood Zone 3 (fluvial) or the 1 in 30 year (3.3% AEP) extent (surface water flooding). However high flood risk is not limited to this and could be triggered by groundwater, sewer or artificial source flooding.

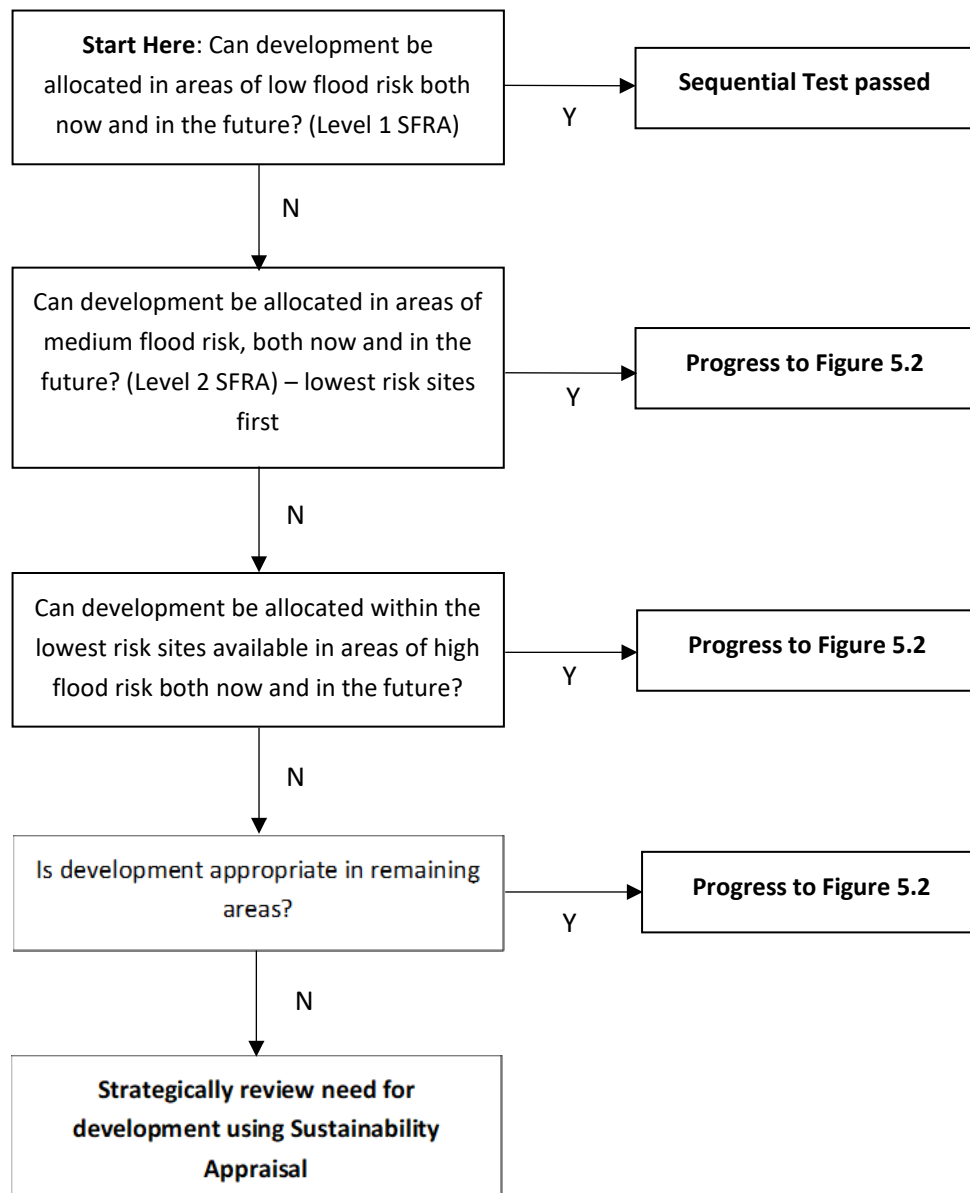


Figure 5-1 Sequential Test Methodology

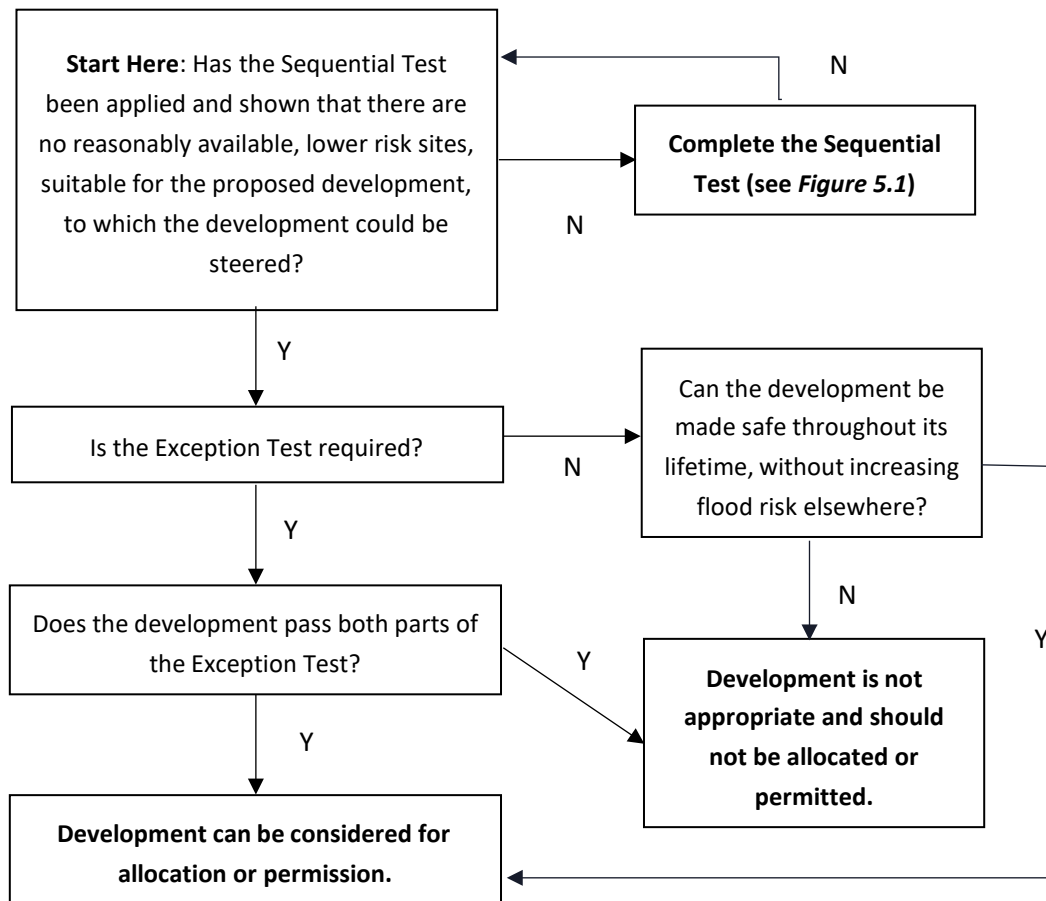


Figure 5-2 Exception Test Methodology

5.3 Planning application and development requirements

According to [Section 57 of the Town and Country Planning Act 1990](#), planning permission is required for all work falling under the statutory definition of 'development' defined in [Section 55 of the Town and Country Planning Act 1990](#), unless it meets permitted development criteria. [Planning application definitions \(PPG paragraph 51\)](#) for development types are as below:

Major Developments:

- For residential developments, a site with 10+ dwellings or an area over 0.5 hectares if the number of dwellings is not known.
- For non-residential developments, a site area over 1 hectare or a total building floorspace of at least 1,000m².
- A site involving mining or processing mineral materials
- Waste or sewage collection or processing facilities

Non-major Developments: any development falling below the above thresholds but excluding minor development. For example, a planning application for 8 dwellings, an office building creating 750m² of floor space, or a development with a site area of 0.4 hectares.

Minor Developments (in relation to flood risk):

- Minor non-residential extensions (industrial/commercial/leisure etc): extensions with a floorspace not in excess of 250m².
- Alterations: development that does not increase the size of buildings, e.g. alterations to external appearance.
- Householder development: for example, sheds, garages, games rooms etc. within the curtilage of the existing dwelling, in addition to physical extensions to the existing dwelling itself. This definition excludes any proposed development that would create a separate dwelling within the curtilage of the existing dwelling (e.g. subdivision of houses into flats) or any other development with a purpose not incidental to the enjoyment of the dwelling.

The EA's [Standing Advice](#) and the [PPG Site-specific FRA Checklist](#) provide general planning application guidance. Table 5-1 outlines the local requirements that must be addressed as part of the SuDS Strategy and flood risk submission documents. The guidance is applicable for Major, Minor, and Changes Under Prior Approval Notifications developments. Where applicable, development type-specific guidance is highlighted. Table 5-2 provides the requirements for the assessment and management of flood risk from other sources where applicable. It is important to note that the requirements for Flood Zone 3a and Flood Zone 3b in in Table 5-1 and Table 5-2 are only applicable to Flood Zone 3a and Flood Zone 3b (fluvial).

The information presented in Table 5-1 and Table 5-2 are a combination of best-practice and legislative and requirements from various sources including the [PPG](#), the [NPPF](#), and the [Local Plan](#).

Table 5-1 Planning Application and Development Requirements for All Developments (Flood Zones 1, 2, 3a, and 3b).

Requirement Area	Flood Zone 3b (fluvial)	Flood Zone 3a (fluvial)	Flood Zone 2	Flood Zone 1
Land Uses and Development Restrictions (Information is sourced from the Flood Risk and Coastal Change PPG)	<p>PPG Table 2 (Flood Risk Vulnerability and Flood Zone 'Incompatibility') highlights that planning permission may only be granted to 'Essential Infrastructure' and 'Water Compatible' developments. As the functional floodplain, land in Flood Zone 3b will be protected by not permitting any development on undeveloped sites unless it is for 'Essential Infrastructure' or 'Water Compatible' development.</p> <p>Redevelopment of existing developed sites will only be supported if there is no intensification of the land use, and a net flood risk reduction is proposed; any restoration of the functional floodplain will be supported (see 'Flood Compensation Storage' section of this table).</p> <p>Proposals for the change of use or conversion to a use with a higher vulnerability classification will not be permitted.</p> <p>'Essential Infrastructure' that has passed the Exception Test, and 'Water Compatible' uses, should be designed and constructed to ensure that:</p> <ul style="list-style-type: none"> • The proposed infrastructure will remain operational and safe in times of flood. • There will not be a net loss of floodplain storage. • Water flows are not impeded. • Flood risk elsewhere is not increased. 	<p>PPG Table 2 (Flood Risk Vulnerability and Flood Zone 'Incompatibility') highlights that land use is restricted to 'Less Vulnerable', and 'Water Compatible' development. 'Essential Infrastructure' and 'More Vulnerable' development is permitted where the development has passed the Exception Test.</p> <p>'Highly Vulnerable' developments are not a permitted development type in Flood Zone 3a.</p> <p>Proposals should also demonstrate that essential infrastructure in Flood Zone 3a should be designed and constructed to remain operational and safe during flood events.</p>	<p>The Exception Test is required for 'Highly Vulnerable' development. There are no land use restrictions for all other development types.</p>	<p>There are no land use restrictions in this Flood Zone.</p>
Sequential and Exception Tests (Information is sourced from the Flood Risk and Coastal Change PPG and the NPPE – Refer to Section 5.2 and Section 5.5.1 for specific guidance on the application of these at the site-specific scale)	<p>The Sequential and Exception Tests do not need to be applied to developments in the following cases:</p> <ul style="list-style-type: none"> • Is a 'minor development in relation to flood risk', including: <ul style="list-style-type: none"> ○ non-residential (industrial, commercial, leisure etc.) extensions with a footprint measuring below 250 m². ○ development that does not increase the building size (e.g. external appearance alterations). ○ householder development within the existing dwelling's curtilage (e.g. sheds, garages, games rooms), and physical extensions to the existing dwelling itself. • Is a change of use development – excluding caravans, camping, chalet sites, mobile homes, and park home sites. <p>The Sequential and Exception Tests must be applied for all major developments and non-major developments, as detailed below. These developments are defined in <i>Section 6.3</i>.</p>			
	<p>Developments categorised as 'Essential Infrastructure' can only be considered after the Sequential and Exception Tests have been applied and passed. Application of the Sequential and Exception Tests do</p>	<p>The Sequential Test is required for all developments except for those categorised as 'Highly Vulnerable', which are not a permitted development type (see</p>	<p>The Sequential Test is required for all development types.</p> <p>Developments categorised as 'Highly Vulnerable' are required to apply and pass the Exception Test</p>	<p>The Sequential Test does not need to be applied for development proposals in Flood Zone 1, unless the SFRA or other information indicates there may be</p>

Requirement Area	Flood Zone 3b (fluvial)	Flood Zone 3a (fluvial)	Flood Zone 2	Flood Zone 1
	not apply to developments categorised as ‘Highly Vulnerable’, ‘More Vulnerable’, and ‘Less Vulnerable’, as these are not permitted within Flood Zone 3b (see ‘Land Uses and Development Restrictions’ section of this table).	‘Land Uses and Development Restrictions’ section of this table). ‘Essential Infrastructure’ and ‘More Vulnerable’ developments are required to apply and pass the Exception Test in order to be considered, once they have passed the Sequential Test.	to be considered, once they have passed the Sequential Test.	either current or future flood issues from other sources (see Table 5-2).
Site-specific FRA (Information is sourced from the Flood and Coastal Change PPG, the NPPF and Policy CS 6 of Local Plan)	A site-specific FRA is required for all development proposals situated in Flood Zone 3b, which must demonstrate compliance with standing advice for all relevant vulnerable development, and Government guidance on flood resilient construction.	All developments in Flood Zone 3a require a site-specific FRA, which must demonstrate compliance with standing advice for all relevant vulnerable development, and Government guidance on flood resilient construction.	All development proposals in Flood Zone 2 require a site-specific FRA, which must demonstrate compliance with standing advice for all relevant vulnerable development, and Government guidance on flood resilient construction.	A site-specific FRA is not required for development proposals located within Flood Zone 1, unless: <ul style="list-style-type: none"> • There is a total site area measuring above 1 hectare. • The site is situated within an area with critical drainage problems as notified by the EA (there are none of these areas located within Epsom and Ewell). • There is evidence of non-fluvial flood risk sources (e.g. surface water, groundwater, and sewers). • There is a change of use to a more vulnerable class.
	An assessment of flood risk from all sources should be undertaken, including the potential climate change impacts that may occur over the development’s lifetime. The EA’s climate change allowances that were most recently updated in May 2022 (at the time of writing this report in July 2024) must be used when assessing peak river flows, sea level rises and peak rainfall intensities.			
SuDS Strategy (Refer to Section 5.5.3 for further guidance)	A SuDS Strategy is required for all major developments . Minor developments and change of use developments that impact a site’s existing drainage regime also are required to provide a SuDS Strategy as part of the proposal. All developments should aim to achieve betterment on the existing drainage situation in accordance with the drainage hierarchy to minimise surface water runoff.			
Basements (National Flood Risk Policy Requirement)	Basements should not be permitted in Flood Zone 3b.	The NPPF categorises basement dwellings as ‘Highly Vulnerable’ infrastructure and should not be permitted within Flood Zone 3a as per the ‘ <i>Land Uses and Developments</i> ’ section of the Flood Risk and Coastal Change PPG. Other new basement developments are therefore restricted to ‘Less Vulnerable’ / ‘Water Compatible’ uses only. These include restricting basements solely to non-residential uses. All basement rooms must have internal access and egress to a higher floor that is situated above the design flood level (1 in 100-year [1% AEP] plus an appropriate climate change allowance) which can be utilised as part of emergency evacuation procedures.	As ‘Highly Vulnerable’ infrastructure, residential basement dwellings proposed in Flood Zone 2 must apply and pass the Exception Test in order to be permitted. Non-residential basements do not fall under the ‘Highly Vulnerable’ infrastructure classification and are therefore permitted within Flood Zone 2 without a requirement for the Exception Test to be passed. All basement rooms must have internal access and egress to a higher floor that is situated above the design flood level (1 in 100-year [1% AEP] plus an appropriate climate change allowance) which can be utilised as part of emergency evacuation	A site-specific FRA is required for new and existing basement dwelling proposals where there is evidence of flood risk from surface water, groundwater and/or sewer flooding sources in the area (See <i>Table 5-2</i>). Flood mitigation measures for these sites must demonstrate that the development will not be impacted by flooding (from all sources) and that the development will not have any adverse impacts on local hydrogeology. Evidence needs to be submitted to confirm the local water table level as part of any assessment.

Requirement Area	Flood Zone 3b (fluvial)	Flood Zone 3a (fluvial)	Flood Zone 2	Flood Zone 1
		All basements, including vents and lightwells that could allow water inundation, must have access thresholds raised 300mm above the design flood level (1 in 100-year [1% AEP] plus an appropriate climate change allowance). Evidence needs to be submitted to confirm the local water table level as part of any assessment.	procedures. All basements, including vents and lightwells that could allow water inundation, must have access thresholds raised 300mm above the design flood level (1 in 100year [1% AEP] plus an appropriate climate change allowance). Evidence needs to be submitted to confirm the local water table level as part of any assessment.	
	<p>A Basement Impact Assessment is required for all basement developments where stipulated by the LPA. It should provide, but is not limited to, the following information:</p> <ul style="list-style-type: none"> • A detailed geotechnical site investigation. • Site plans outlining the subsurface structure. • Engineering information detailing the potential impacts of the proposed development. • Demonstration that the level of risk posed to neighbouring properties and the wider environment is low. • Detailed borehole information on-site or from nearby to the development site. At least two data recordings should take place within at least a 12-month period to demonstrate any potential seasonal variations. The subterranean measurements should identify the geological conditions on or close to the development site, the infiltration potential, and the height of any local groundwater. • Mitigation if the identified potential impacts of the proposed subsurface development are not acceptable. Flood risk must not be worsened as a result of the proposed development. Examples of flood risk mitigation include, but are not limited to, underground corridors with a high permeability or controlled subsurface structure drainage systems. <p>The Basement Impact Assessment must be carried out by a relevant chartered professional who can carry out the required assessment(s).</p>			
Finished Floor Level (National Flood Risk Policy Requirement)	<p>The required finished floor levels for developments are based upon their Flood Risk Vulnerability Classification.</p> <p>Finished ground floor levels must be set at 300mm above the 1 in 100-year (1% AEP) event (with a suitable climate change allowance) for any new 'Essential Infrastructure', 'Highly Vulnerable', 'More Vulnerable' and 'Less Vulnerable' development, and for any change of use developments that increase the vulnerability classification.</p> <p>The EA's 2022 climate change allowances (and subsequent updates) must be used to incorporate the appropriate climate change allowances.</p>			
Flood Compensation Storage (National Flood Risk Policy Requirement)	<p>Permissible developments that decrease fluvial or surface water floodplain volume should address flood storage compensation through the following step-approach. This is required within Flood Zones 3a and 3b, and the fluvial flood risk extent for the 1 in 100 year (1% AEP) plus climate change allowance (which covers parts of Flood Zone 2). Step 1 must be followed unless it can be sufficiently evidenced that this is not reasonably practical. Step 2 must be followed if Step 1 is not reasonably practical. This process repeats until Step 4, which is the minimum requirement and is only appropriate if sufficient justification and evidence has been provided.</p> <ol style="list-style-type: none"> 1. The development must be situated within the areas of lowest risk on the site, mitigating the need for flood storage compensation. 2. A sequential approach should be applied, with as much of the development as possible being situated within the areas of lowest risk on site. For parts of the development that are not in an area of low risk, supplementary direct volume-for-volume and level-for-level flood storage compensation must be provided. 3. The development must provide direct volume-for-volume and level-for-level flood storage compensation for the entire proposed development. 4. As much of the development as possible must provide direct volume-for-volume and level-for-level flood storage compensation. The development can supplement floodplain compensation with voids as a last resort measure, discussed in the subsequent row of this table. <p>The EA's 2022 climate change allowances (including subsequent updates) must also be incorporated to assess and calculate floodplain storage compensation. <i>Section 5.4.5</i> outlines flood storage compensation in further detail.</p>			N/A
Voids	Voids will only be considered if an applicant has followed the flood storage compensation stepped approach outlined in the above row of this table and provided sufficient justification within an FRA. Introducing voids may		N/A	N/A

Requirement Area	Flood Zone 3b (fluvial)	Flood Zone 3a (fluvial)	Flood Zone 2	Flood Zone 1
(National Flood Risk Policy Requirement)	<p>be a suitable alternative only if permissible development decreases a fluvial floodplain's volume and flood compensation storage cannot be provided.</p> <p>Voids should not usually be relied upon for floodplain compensation and are to be used as a last resort for flood storage mitigation. Voids may be suitable where achieving all the direct compensation required is not possible, or where small-scale developments can find difficulty in achieving full compensation. There is usually enough space for the below provision of voids when setting finished floor levels at 300mm above the design flood level (1 in 100-year [1% AEP] plus a suitable climate change allowance).</p> <p><u>If considering voids, the below mitigation specification must be followed:</u></p> <ol style="list-style-type: none"> 1. The void openings should open from existing ground levels, and the proposed void's underside should be set to a minimum of the 1 in 100-year (1% AEP) event (plus a suitable climate change allowance) flood level. 2. Void openings should be provided along all external walls, and a minimum of 1m of open void length per 5m length of wall should be provided. 3. 10mm diameter vertical bars set at 100mm centres can be incorporated into the void openings where security issues arise. <p>Voids should only be used if the LPA are satisfied that they can be maintained for the lifetime of the development. To ensure they remain open for the development's lifetime a legal agreement or planning condition and maintenance plan will typically be required for the use of under-floor voids. Different design criteria may be acceptable for small-scale development. On undeveloped sites, it is not acceptable for the use of under-floor voids to be relied on solely to address the loss of floodplain storage capacity.</p>			
Impedance of Flood Flows (National Flood Risk Policy Requirement)	Features that may obstruct flows from all sources of flood risk including embankments, raised land, walls, and fencing, should be minimised or removed to ensure that flood risk is not increased on-site or off-site. This could be achieved by providing openings to allow water to flow through structures (such as through permeable fencing), or through relocating these obstructions.			
Emergency Planning	All Major Developments must incorporate measures that effectively manage residual and actual flood risk.			
(Information is sourced from the Flood Risk and Coastal Change PPG)	'Essential Infrastructure' and 'Water Compatible' use development as defined in the Flood Risk and Coastal Change PPG must remain operational and safe in times of flood. As these structures may assist in flooding evacuations, Emergency Plans must reflect this.	'Essential Infrastructure' use development as defined in the Flood Risk and Coastal Change PPG must remain operational and safe in times of flood. As these structures may assist in flooding evacuations, Emergency Plans must reflect this.	N/A	N/A
Residual Risk (Information is sourced from the Flood Risk and Coastal Change PPG)	The Exception Test requires demonstration that proposed developments will be safe for their lifetime, are that they can satisfactorily overcome any residual risks. Residual risk should be mitigated through flood resilient and flood resistant designs, alongside emergency planning measures (including the provision of safe access and escape routes and flood warnings) to ensure that suitable measures are in place to offer protection.			
Main River Buffer Zone (National Flood Risk Policy Requirement)	<p>Developments should be set back from main rivers (including their associated riverbanks, culverts, and existing flood defence infrastructure) by eight metres. Building on top of existing main river culverts will not be permitted. Where culverts are present on site, the restoration of culverted watercourses to open channels should be actively pursued.</p> <p>A Flood Risk Activity Permit may be required in addition to planning permissions for developments sites situated within specified distances of main rivers. Flood risk activity permits may be required for non-tidal main rivers if development sites are situated within eight metres of a main river, riverbank, flood defence structure or culvert. The EA holds additional details on obtaining Flood Risk Activity Permits.</p>			

Requirement Area	Flood Zone 3b (fluvial)	Flood Zone 3a (fluvial)	Flood Zone 2	Flood Zone 1
Ordinary Watercourse	Under the Flood and Water Management Act 2010 , Surrey County Council (as the Lead Local Flood Authority, or LLFA) is the consenting authority for proposed structures and obstructions within a watercourse, which require consent under section 23 of the Land Drainage Act 1991 . These structures and obstructions may include dams, weirs, culverts (pipes) or any other structure which affects the flow of water within the channel. The consent Surrey County Council issues covers works (including temporary works) that affect water flow within the channel of an ordinary watercourse. This could be a new pipe (culvert), bridge, dam, pond or other structure in the watercourse or a change to the alignment or the banks of the watercourse. The SCC website provides further information on this			

Table 5-2 Planning Application Development Requirements for Individual Sites (groundwater, sewer and artificial sources)

Flood Risk Source	Planning Application and Development Requirements
Groundwater Flooding	<p>For all major and minor development proposals where there is a risk of groundwater flooding (where the development site intersects with an area with $\geq 25\%$ susceptibility to groundwater flooding), the applicant is required to address this issue by carrying out a screening study (as a minimum) to establish whether any subterranean flood risk issues exist that may necessitate further investigation. The screening study should either advise of the potential impact level and the associated mitigation actions proposed if the risk level is high or confirm that no further work is needed if the potential impacts risk level posed by the proposed development is low.</p> <p>The study and any other associated assessments should be prepared by a chartered professional or specialist. These include geologists, hydrogeologists, and geotechnical specialists.</p> <p>Screening Assessments for developments that include a basement are required to include the following as a minimum:</p> <ul style="list-style-type: none"> • Description of the proposed basement development. • The proposed construction methods. • Site characteristics, including topography and geology (superficial deposits, bedrock, and aquifer confirmation). • Site borehole information with water levels. If historical borehole data is used, the borehole location must have been conducted within the last 20 years and be situated within 100m of the site to capture the current local conditions most accurately. As throughflow and groundwater flow may be subjected to seasonal influences, singular borehole measurements may not provide accurate information on how subterranean conditions may vary throughout the year. It is therefore necessary to monitor subterranean water levels over a period of time in areas that may be more susceptible to groundwater and throughflow. • Details of potential impacts (including on water quality, hydrology, soils, and land use), with descriptions of the scale and nature of impacts, and the impacted area's extent. • Details of mitigation measures (where appropriate). <p>The <i>Groundwater Flood Risk Map (Appendix A3.1)</i> provides further information on the $\geq 25\%$ groundwater susceptibility.</p>
Sewer Flooding	<p>For all major and minor development proposals, the applicant must consult with TWUL to confirm whether flooding has occurred on the site historically where the development site intersects with an area that has one or more records of sewer flooding. Where historic flooding has occurred, the applicant must demonstrate how they will effectively manage this risk for the lifetime of the development. Where the site is not at risk of sewer flooding, the applicant must provide proof that TWUL has agreed in principle to any proposed new sewer connections.</p>
Artificial Sources Flooding – Reservoirs	<p>For all major and minor development proposals where the application site intersects the area defined to be at risk of flooding from reservoirs, the applicant must:</p> <ul style="list-style-type: none"> • Identify the reservoirs that are the risk sources using the <i>Risk of Flooding from Reservoirs Map (Appendix A3.5)</i>. • Include information describing how the proposed risk management measures address the implications of sites which are encircled by flood water but are not necessarily at direct risk. • Propose risk measurement measures that are proportionate and appropriate.
Artificial Sources Flooding – Other	<p>For all major and minor development proposals, the applicant must identify where other sources of artificial flood risk (including ponds or small lakes) exist within or immediately adjacent to the development site. The applicant must also propose appropriate risk management measures.</p>
Surface Water Flooding	<p>For all major development proposals, the applicant is required to produce a SuDS Proforma or Flood Risk Assessment which addresses:</p> <ul style="list-style-type: none"> • Whether the applicant has followed the drainage hierarchy in the drainage strategy – calculations should also be provided for runoff rates and attenuation volumes. Calculations provided should demonstrate there will be no surface water flooding on site up to and including a 1 in 100-year event + 40% climate change consideration. • Maintenance strategy for all drainage features as well as an appointed maintenance manager. • Aligns with the DEFRA document Sustainable Drainage Systems: Non-statutory technical standards for sustainable drainage systems (2015)

5.4 Planning applicants

This section sets out specific guidance on the key flood risk management requirements for planning applications, providing information to ensure that development proposals are compliant.

5.4.1 Application of the Sequential and Exception Tests

It is essential to implement a sequential, risk-based approach in determining site suitability for development in relation to flood risk. This SFRA document provides the basis for applying the Sequential Test (and in some instances, the Exception Test) at a site-specific level for proposed development sites that require the application of these tests.

Proposed development sites that are situated within multiple flood risk zones are classed under the highest risk Flood Zone that is present on site. For example, a site that falls partially within Flood Zone 1 and partially within Flood Zone 2 is formally classified as a site in Flood Zone 2. The Flood Zone in which each proposed site falls under helps to inform the approach required for the site and the information needed for the planning application. The Sequential Test must be applied to steer development on the entire proposed site to the areas with the lowest risk of flooding. Where the Exception Test is required, the application is based on the highest Flood Zone in which the site is situated and will need to be passed for these planning applications.

Sequential Test

The Sequential Test ensures that new development is steered towards areas with the lowest probability of flooding through following a sequential approach. A site-specific Sequential Test is necessary for sites that require this test but have not undergone Sequential Testing as part of the site allocations identified in Epsom and Ewell Council's Local Plan. The search area and definition of reasonably available alternative sites must be established in line with the below guidance, in consultation with the LPA. Any scope should be shared with the LPA for review and agreement ahead of undertaking the Test. The scope is not limited to, but should include the below points.

- **Search area:** The default area should be the entire borough, but can be reduced where agreed with the LPA and justified by the relevant objectives of the Local Plan or the development's functional requirements. Examples of these include:
 - Local Plan objectives: The regeneration of a specific area may be targeted based on the objectives detailed in the Local Plan.
 - Functional requirements: Infrastructure or industrial developments that may service an area beyond Epsom and Ewell's borders. Developments which only service part of the borough, for example a school or GP practice which service a specific catchment area.
- **Reasonably available sites:** These typically include sites that are suitable (in which applicants can accommodate a proposed development's requirements), developable, and deliverable. As per [Paragraph 28 of the Flood Risk and Coastal Change PPG](#), sites do not need to be owned by the applicant to be considered 'reasonably available'. These sites could be selected from various sources, including the following:
 - A list of sites that has been prepared as part of the evidence base or background documents produced to inform the Local Plan.

- Sites that are listed under a Local Authority's brownfield land register, which provides information on the previously developed sites that are appropriate for residential development and includes sites with and without planning permission.

Exception Test

Application of the Exception Test should be taken if it is concluded following the application of the Sequential Test that it is not possible for the proposed development to be situated within an area of lower flood probability. The Exception Test is designed to help ensure that flood risk to people and property will be managed across the proposed development's lifetime. The PPG outlines two considerations that must be achieved in order to pass the Exception Test, with satisfactory demonstration of both considerations to the LPA being necessary for the development to be allocated or permitted. The considerations are:

- The development provides wider sustainability benefits to the community that outweigh flood risk (informed by a SFRA where one has been prepared); and
- The development will be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall.

Evidence demonstrating the wider sustainability benefits that the development would bring at the specific site must be provided for the development proposal to satisfy the Exception Test. This may include demonstrating the re-use of sustainable brownfield land as part of a local regeneration scheme, or the provision of multifunctional SuDS which integrate with other green infrastructure. This would enable NPPF policy requirements for SuDS, such as seeking to achieve greenfield runoff rates and volumes, to be significantly exceeded. The planning and design of the development must demonstrate that flood risk elsewhere will not be increased due to the development, and that the site will remain operational and safe during a flood event. This may involve:

- Designing buildings to avoid flooding, including through raising floor levels.
- Implementing resilient and/or resistant features to reduce a flood's impact. Resilient features are designed to ensure that a property's internal elements can be recovered quickly and at a low cost, and include the installation of electrical equipment above flood levels. Flood resistant features are designed to ensure that water up to a given height does not enter a property, and include the installation of flood doors and barriers.
- Utilising SuDS as a priority, especially where they can manage flood risk above the usual standard and beyond the proposed site through removing surface water from existing combined sewers.
- Mitigating the potential impacts of flooding through design and application of a sequential approach within the development site, including ensuring that more vulnerable development is situated within the parts of a site that are at a lower flood risk, and incorporating flood resilient and resistant construction.
- Increasing space for the flow and storage of flood water, through incorporating green infrastructure within the development's layout and form. This should achieve other benefits such as urban cooling, minimising water pollution, and improving biodiversity.

- Developing emergency evacuation procedures, which should be considered within the proposed development's design and layout alongside the flood warnings and/or flood alerts shown in the *Appendix A1.2* mapping.
- Providing or making contributions to flood risk management infrastructure that will increase benefits to existing communities and/or by safeguarding the land required to deliver it.
- Leaving space within developments for flood risk management infrastructure to be maintained and enhanced.
- Providing adequate flood risk management infrastructure that will be maintained during the development's lifetime.
- Not increasing the built footprint size, or only doing so through undertaking the appropriate flood compensation methods as detailed in *Table 5-1*.

For a proposal to develop a Local Plan site allocation within a flood risk area, the specific Exception Test guidance should be used which is set out in the SFRA Level 2 Report (expected in 2024) and *Figure 5-2* Exception Test Methodology

The PPG [Table 2](#) sets out some circumstances in which the Exception Test must be applied following the Sequential Test.

Application Exceptions

Paragraph 174 of the 2023 [NPPF](#) highlights the planning application exceptions to Sequential and Exception Tests. Minor developments and change of use development proposals that fall under one of the following criteria should not be subject to the Sequential and Exception Tests:

- Householder developments within the existing dwelling's curtilage.
- Small non-residential extensions (with a footprint below 250m²).
- Change of use developments (except for changes of use to a caravan, camping or chalet site, or to a mobile home or park home site).

Development proposals that fall under one of these criteria should still meet the requirements for site-specific FRAs as set out in this SFRA, the [NPPF](#) and the accompanying [PPG](#).

5.4.2 Site-specific Flood Risk Assessments

Site-specific FRAs should be appropriate to the development's scale, nature, and location, and should also be proportionate to the degree of flood risk, making the best use of available information. The EA's guidance on [FRAs for Planning Applications](#) and the 'Site-specific FRA' section in *Table 5-1* outlines additional information regarding site-specific FRAs.

As part of flood risk management and emergency planning measures where a probability of flooding from any flood risk source is present, the site-specific FRA requires potential flood depths to be addressed. Certain mitigation measures must then be incorporated depending on the circumstances to demonstrate that the potential impacts of flood depth will be adequately addressed. The most appropriate mitigation measure depends on various factors including the source of flood risk, the potential impacts of the flood risk, and the [development's flood risk vulnerability classification](#). Examples of mitigation measures include floodplain compensation,

raising thresholds above the predicted flood level, directing exceedance flow paths away from buildings and infrastructure, and incorporation of SuDS. Property resilience measures can also be included, further information on these is provided in *Section 6.3*.

Applicants are required to submit an FRA for major, minor, and change of use developments that are proposed within the Flood Zone 2 and 3 extents. An FRA is also required where developments are proposed within the Flood Zone 1 extent and have a site area of >1ha, have a site area of <1ha where the change of use is towards a more vulnerable class, or have critical drainage problems. It is recommended that the EEBC CDAs are used for this decision-making process. This is referenced within [NPPF footnote 59 of paragraph 173](#).

The [PPG checklist for site-specific FRAs](#) provides additional guidance on the preparation and development of a site-specific FRA, whilst *Table 5-1* details the emergency planning requirements.

5.4.3 SuDS Strategies

It may be necessary to present information demonstrating the means by which surface water runoff generated by the development site will be managed as part of (or separate to) site-specific FRAs. Since not all developments require an FRA, it may be advisable to produce a separate SuDS Strategy that can demonstrate how surface water could affect a site of interest and the surrounding areas post-development. The SuDS Strategy should include details of the SuDS features (including dimensions, cover and invert levels) which are proposed to be incorporated within the development to improve the existing runoff conditions, along with their long-term management and maintenance details.

All major developments require a SuDS Strategy. A SuDS Strategy is also required for minor developments, and developments that are categorised as ‘change of use’ which modify the existing surface water drainage regime (e.g. a development which has no change in footprint but may increase the runoff rate post-development). The SuDS Strategy must:

- Demonstrate how water is expected to behave on a site based on various factors including topography, underlying geology, and the drainage system.
- Determine the site’s infiltration potential, runoff rates, and flow pathways, both prior to and post-development.
- Consider an appropriate climate change allowance.
- Demonstrate that the proposed development will not increase flood risk to the surrounding sites.
- Include a [SuDS Proforma](#).

It is key that the SuDS Strategy firstly should aim to meet greenfield runoff rates and volumes. Where this is demonstrated as not possible, the proposed development should still provide significant betterment of surface water runoff rates, with evidenced justification as to why greenfield rates and volumes cannot be achieved. This is in order to manage the cumulative impacts of development that can increase flood risk from various sources due to an increased pressure on drainage infrastructure and a reduction in surface permeability.

Further details on the SuDS requirements and SuDS implementation to address the impact of future growth are contained in *Table 5-1* and *Section 5.5.4* respectively.

5.4.4 Sustainable Drainage Systems (SuDS)

To align with Policy CS 6 of EEBC's [Local Plan](#) (and emerging Local Plan) and the [Non-Statutory Technical Standards for Sustainable Drainage Systems](#), all proposed developments should incorporate a range of effective SuDS measures as part of the development layout and design. The LLFA is required to provide consultation responses on the surface water drainage provisions associated with major development. [SCC's Sustainable Drainage System Design Guidance](#) sets out the requirements that the LLFA has for drainage strategies and surface water management provisions associated with applications for development.

Various management and attenuation SuDS features should be employed to manage surface water run-off as close to the source as possible. The implementation of SuDS in proposed developments is key due to their provision for the conveyance of flood water, with certain SuDS features such as swales serving to control and manage overland flow paths across a site during rainfall events. The inclusion of SuDS within developments also means that developers can contribute to BNG through the greening of urban infrastructure and encouragement of wildlife that are associated with SuDS.

SuDS should ensure that proposed surface water runoff rates are no greater than greenfield runoff rates for development on greenfield sites, while proposed surface water runoff rates for brownfield sites are as close as reasonably practicable to greenfield rates. The CIRIA guidance documents such as [The SuDS Manual](#) and [Guidance on the Construction of SuDS](#) provide important information to assist with SuDS implementation.

Applications must outline the SuDS measures that the proposed development will include, and provide details regarding their connections with any piped drainage system if infiltration is not feasible.

Where information is available regarding a site's underlying geology, it may be possible to indicate where infiltration-based SuDS may or may not be potentially suitable for use, and where uncertainties exist. The applicant must provide site-specific borehole data or infiltration testing to justify use of non-infiltration-based surface water management techniques within their SuDS Strategy in development locations where the inclusion of infiltration SuDS is deemed to be potentially suitable or uncertain.

Following the expected implementation of Schedule 3 of the FWMA, the anticipated forthcoming SAB will be responsible for granting approval for new developments. These developments will only be approved by the SAB if they adhere to the mandatory requirement for implementing SuDS features, which should be designed and constructed in accordance with national standards. Further information on the SAB and Schedule 3 of the FWMA is discussed in *Section 2.2.3*.

Not all developments that require a planning application have the potential to impact flood risk locally or affect a site's existing drainage regime. This may include developments that do not introduce new building structures, do not increase the built footprint of a site, and/or do not alter associated landscaping. Where this is applicable, developments must still align Epsom and Ewell Council's [Local Plan](#), which require developments to demonstrate that the site's proposed surface water discharge rate is equal to greenfield rates (or a significant betterment of the existing rate where this is not feasible).

Although it may not be possible to improve on-site water management in some cases, efforts should be made to improve the site's drainage systems as the current regime may have wider flood

risk implications for the area. *Table 5-1* provides additional details on SuDS; SCC's LLFA team should be contacted in the case that further information is required.

5.4.5 Flood storage compensation and mitigation

The presence of buildings and structures, or the raising of ground levels can reduce the ability of a floodplain to store floodwater during flood events. As floodwater is consequently forced elsewhere, local flood risk can increase. Therefore, any part of a development that could reduce floodplain storage should provide a direct replacement of volume. Flood storage compensation should be provided on a 'level-for-level' and 'volume-for-volume' basis whereby an equal volume of floodplain must be created to that taken up by the development, and this volume must apply at all levels between the lowest point and the design flood level (1 in 100-year [1% AEP] plus a suitable climate change allowance).

The preferred mitigation method is level-for-level flood plain compensation as voids or stilts situated below buildings tend to become blocked over time by silt and debris or domestic effects, resulting in a gradual loss of the proposed mitigation. If agreed with the LPA, other mitigation measures may be considered if level-for-level floodplain compensation is unfeasible. In these cases, an FRA must demonstrate consideration of level-for-level compensation, justify why it was unfeasible, and explain how any associated risks from the chosen mitigation method can be minimised (See *Table 5-1*).

Voids must be floodable if proposed as an alternative form of mitigation in worst-case scenarios, with the level of the void's underside being above the 1 in 100-year (1% AEP) flood level (with a suitable climate change allowance). The LPA must also be satisfied that that an adequate maintenance plan is in place to ensure the voids remain open for the development's lifetime and that they can enforce a condition to maintain the voids as designed.

Applicants should alter their development proposals to ensure that the built footprint does not increase in size if the LPA are unsatisfied that alternative mitigation measures are appropriate.

5.5 Local Planning Authority – Development Management

This sub-section provides Development Management-specific guidance to ensure effective evaluation and assessment of the key requirements for individual planning applications. As development should be considered at a strategic level, it is important to identify how individual development proposals fit within a given area's wider flood risk management strategy. The below guidance accompanies the information presented in *Table 5-1* and *Table 5-2*.

5.5.1 Application of the Sequential and Exception Tests

In order to ascertain a site's suitability for development with regards to flood risk, it is essential for a sequential, risk-based approach to be taken. *Section 5.4.1* sets out the information for applicants on the application of the Sequential and Exception Tests. LPAs must provide evidence to demonstrate application of the Sequential Test (and the Exception Test in some cases) has been applied for any proposed development site that requires them. The LPA must then consider the extent to which the considerations of the Sequential and Exception Tests have been satisfied. This SFRA document, and the accompanying maps produced provide the basis for a site-specific level application of these tests.

5.5.2 Site-specific Flood Risk Assessments

Site-specific FRAs should demonstrate how flood risk will be managed at present and in the future over the lifetime of the proposed development. The FRA must consider the [development's flood risk vulnerability classification](#) and the impacts of climate change. Planning applications should include an FRA in the following circumstances:

- All development proposals that are situated within Flood Zones 2 and 3, including change of use and minor developments (Minor developments include extensions that exceed the Permitted Development parameters as defined by [Planning Portal Guidance](#)), and property sub-division as this is 'development' defined by [Section 55 of the Town and Country Planning Act 1990](#).)
- Proposals for development areas in Flood Zone 1 that measure at least 1 hectare.
- New proposals, or a change of use in development type to a more vulnerable class, where the proposed development could be affected by sources of flooding other than rivers and the sea.
- New proposals, or a change of use development type to a more vulnerable class where the proposed development could impact the site's existing drainage regime and/or be affected by sources of flooding other than rivers and the sea.

Development Management should refer applicants to this SFRA, and the accompanying mapping presented in *Appendix A*, highlighting the key areas which could impact their proposals. Under the [Town and Country Planning \(Development Management Procedure\) \(England\) Order 2015](#), LPAs have a statutory duty to consult with the EA for development proposals situated in areas at risk of fluvial flooding before planning permission is granted. The PPG's [site-specific FRA checklist](#) can aid in the site-specific FRA review process. Additionally, the EA's [Standing Advice](#) provides additional guidance for fluvial flood risk and when the EA should be consulted.

5.5.3 SuDS Strategies

Applicants may need to produce a SuDS Strategy to demonstrate the means by which surface water runoff generated by the development site will be managed, and to describe how surface water could impact a site of interest and its surrounding areas. A SuDS Strategy is required for all major developments that are not categorised as 'change of use', alongside all minor and 'change of use' developments which modify existing surface water drainage.

All major development proposals that have been identified as requiring a SuDS Strategy need to provide a completed Epsom and Ewell's [SuDS Proforma](#), which requires applicants to demonstrate:

- **Site Details** – Details of the existing site and total site area.
- **Impermeable Area** – Details of the impermeable area of the site (to be shown on a plan) as well as drainage method.
- **Proposed Discharge Arrangements** – Details regarding the site's infiltration feasibility, and the proposed surface water discharge method.
- **Peak Discharge Rates** - Details of the greenfield, and proposed discharge rates for 1 in 1 (100% AEP), 1 in 30 (3.3% AEP), and 1 in 100-year (1% AEP) (plus a climate change allowance) return periods.

- **Additional volumes for storage** – Details existing and proposed storage volumes for 1 in 1 (100% AEP), 1 in 30 (3.3% AEP), and 1 in 100-year (1% AEP) (plus a climate change allowance) return periods.
- **Calculate attenuation storage** – Details of the volume of water to attenuate on site if discharging at existing rates.
- **How is storm water stored on site and storage requirements?** – Details of where the additional surface water from the site will be stored so that it does not return to a watercourse or as at the very least a low rate.
- **Additional information** – Details of which SuDS have been implemented, whether the site will flood up to a 1 in 100-year (1% AEP) (plus a climate change allowance) event, how are rates restricted, ownership and maintenance.
- **Management and Maintenance of SuDS** – Details of the management and maintenance plan for the SuDS

DEFRA published the [Non-Statutory Technical Standards for Sustainable Drainage Systems](#) in March 2015. The document's Standards, which an application should refer to, include:

- Flood risk outside the development
- Peak flow control
- Volume control
- Flood risk within the development
- Structural integrity
- Designing for maintenance considerations
- Construction

These standards should be used when assessing the SuDS Strategy and its accompanying SuDS Proforma submitted with planning applications. Alongside the expected future implementation of the SAB (as discussed in *Section 2.2.3*, it is anticipated that new national standards will be released to build upon these Non-Statutory Technical Standards.

5.5.4 Sustainable Drainage Systems (SuDS)

All developments should incorporate a range of SuDS measures as part of their development, in line with Policy CS 6 of EEBC's [Local Plan](#) and the [Non-Statutory Technical Standards for Sustainable Drainage Systems](#). Further detailed information on SuDS is provided in *Section 5.5.43*.

Following the expected implementation of Schedule 3 of the FWMA in England, the anticipated forthcoming SAB will be responsible for granting approval for new developments. These developments will only be approved by the SAB if they adhere to the mandatory requirement for implementing SuDS features, which should be designed and constructed in accordance with national standards. Further information on the SAB and Schedule 3 of the FWMA is discussed in *Section 2.2.3*.

As of April 2015, LLFAs have been statutory consultees on major planning applications. The associated [Written Ministerial Statement HCWS161](#) highlights the importance of incorporating

SuDS into development proposals. LPAs are therefore required to consult LLFAs for technical advice and expertise regarding surface water management before a decision on major planning applications can be reached, under the [Town and Country Planning \(Development Management Procedure\) \(England\) Order 2015](#).

Issues relevant to the decision-making progress that are analysed by LLFAs and LPAs for planning applications are referred to as ‘material planning considerations’. SuDS are a material planning consideration for all major applications as stated in the aforementioned Written Ministerial Statement HCWS161, and evidence of SuDS implementation to ensure safe and sustainable on-site management of surface is required for decisions on all planning applications. The [Determining a Planning Application](#) page provides further guidance on material planning considerations, planning applications, and the associated decision-making process.

5.5.5 National flood risk standing advice

The [National Flood Risk Standing Advice](#) outlines details of when LPAs should apply standing advice on planning applications and site-specific FRAs, and when the EA and LLFAs must be consulted. This guidance applies to planning applications which are categorised as full, outline, reserved matters, change of use, prior approval for flood risk under certain permitted development rights, permission in principle, and technical details consent.

LPAs should ensure that applicants have followed the [standing advice for vulnerable developments](#) for developments (including change of use) that have a vulnerability classification of:

- ‘Water Compatible’ (including essential accommodation situated within a development defined as water compatible).
- ‘More Vulnerable’ (if the development is not a caravan site, a camping site, a waste facility site, or a landfill).
- ‘Less Vulnerable’ (if the development is not a water or sewage treatment plant, a waste treatment site, or a mineral processing site).

This guidance states that the relevant vulnerable developments should follow the standing advice for floor levels, extra flood resistance and resilience measures, access and escape, and surface water management. Finished floor levels should be 300mm above whichever is higher in relation to the site’s average ground level: the adjacent road level to the building or the estimated river (or sea) flood level. Floor levels that cannot meet the minimum requirement must be raised as much as possible, should incorporate additional flood resilience and resistance measures, and should move vulnerable uses to upper floors.

Flood resilience plans should follow the [CIRIA Property Flood Resilience Code of Practice](#), and the [standards for the installation and retrofit of resistance measures](#) should be followed. Emergency escape plans must follow the [Flood Risk Emergency Plans for New Development guidance](#), and should demonstrate that single storey buildings, ground floors, and basement rooms have sufficient access to safe refuges that are connected to an area away from flood risk and are situated above the estimated flood levels. The standing advice for vulnerable developments also highlights the requirements to incorporate SuDS for all developments involving surface water drainage in flood risk areas and major developments involving surface water drainage.

For developments that are classified as ‘minor extensions’, LPAs should ensure that applicants have followed the [standing advice for minor extensions](#).

LPAs should ensure that the standing advice has been followed and should consult the LLFA for major developments on surface water drainage matters. LPAs should consult the EA if a proposed development is not categorised as minor and is situated within Flood Zone 1 but within 20 metres of a main river, or are identified by the EA as having critical drainage problems. LPAs should also contact applicants to confirm whether they require a separate permit or consent, which may be needed if the development is situated within 20 metres of a main river (or flood defence or flow control structure) and/or if it directly affects a watercourse that is not a main river. The LPA should direct the applicant to the appropriate [guidance](#) regarding this additional permit or consent.

Further details of standing advice for LPAs can be accessed on the associated [guidance webpage](#).

5.6 Emergency Planning

EEBC is designated as a Category 1 Responder under the [Civil Contingencies Act 2004](#) and are therefore required to assess risks and provide an appropriate emergency response, including responding to major flooding events. Under the Act, Epsom and Ewell Council’s statutory duties are:

- Assessing the local risks in Epsom and Ewell that require planning.
- Developing and maintaining emergency plans and business continuity plans to ensure that a person or body is able to continue to function so far as necessary or desirable should an emergency occur or be likely to occur, for the purpose of:
 - Preventing the emergency
 - Controlling, reducing, or mitigating its effects
 - Taking other associated actions.
- Responding to emergency incidents within Epsom and Ewell.
- Advising the public prior to, during, and after the occurrence of emergencies.
- Sharing information and working collaboratively with other agencies to ensure effective planning coordination and emergency management.
- Providing business continuity advice, and support to voluntary organisations and local businesses.

Section 4 of this SFRA and the accompanying mapping in Appendix 2 – Mapping should be used to aid EEBC’s Emergency Planning Unit in informing response requirements to align with the Civil Contingencies Act 2004. Emergency Planning can use this information to tailor needs to be area-specific and risk-specific.

5.7 Assessment of Local Plan policies

EEBC’s current Local Plan (2007) was created with a view of incorporating the requirements set out in national and sub-regional policy and was published prior to the original NPPF (March 2012). However, the Local Plan falls short of these requirements in some aspects due to updates to the NPPF (in July 2018, February 2019, July 2021, September 2023 and December 2023).

NPPF footnote 59: a site-specific FRA should be provided for proposals situated within Flood Zone 1 which involve land that will be at an increased flood risk in future or land that may be subject to other flood sources where its development would introduce a more vulnerable use.

Recently EEBC completed the consultation on a [Regulation 18 Draft Local Plan](#) from 1st February to 19th March 2023. During the consultation period the LPA hosted six public consultation events and promoted the consultation through a wide range of communications channels, to engage residents as widely as possible. Following the close of the consultation an [Extraordinary Council Meeting](#) March 2023 where Local Plan Process was paused. In June 2023 a Local Plan Update Report was considered by the [Licensing and Planning Policy Committee](#) (LPPC) to provide an update on the work undertaken following the decision on the 22 March by Council. In October 2023 the plan was un-paused.

EEBC are currently progressing their Local Plan towards Pre-Submission (Regulation 19 stage), it is important that the policies relating to flood risk are informed by the recommendations of this SFRA (See *Section 6.6*) and national policy and guidance.

6 RECOMMENDATIONS

6.1 Overview

Climate change is the primary factor that may increase the risk of flooding across the UK due to its impact on various flood risk sources. Other key drivers of increased flood risk include increased development requirements, infrastructure maintenance, and future population growth. Existing policy and the below recommendations mitigate these key drivers of potentially increased flood risk.

For example, an increased demand for housing or other development uses may result in a greater number of developments being proposed within higher risk Flood Zones, increasing their flood risk and having potential knock-on impacts to surrounding areas. Likewise, a reduction in surface permeability due to urban development could also increase the flood risk to Epsom and Ewell from surface water, sewer, and fluvial sources. This is because increased surface impermeability raises the volume of surface water runoff and the speed at which this runoff is delivered into surface water sewers, combined sewers, and water bodies. An increased population will also place greater pressure upon the existing drainage infrastructure, thus raising the risk of sewer flooding. The accumulative increased risk from various flood sources may therefore present a greater overall flood risk to people, properties, and infrastructure across Epsom and Ewell.

Local policies within Epsom and Ewell's [Local Plan](#) that target the impact of future growth on flood risk are therefore necessary to facilitate housing development needs while meeting flood risk mitigation requirements. A sequential, risk-based approach to the location of development should be applied as per the NPPF and the accompanying PPG in order to avoid potentially subjecting people and property to flood risk whilst considering the impacts of climate change. Furthermore, Policy CS 6 (Sustainability in New Developments) of EEBC's Local Plan (2007) identifies the increasing need to ensure that new developments incorporate climate change impacts into their location, design, and layout to ensure that they are fully adapted and resilient. EEBC's site-specific policy recommendations detailed in *Section 6.6* are underpinned by Local Plan policy in conjunction with the evidence base presented in this SFRA.

6.2 The impact of future growth on flood risk

The impacts of increasing development throughout the country on flood risk are recognised by the PPG and the NPPF, which require all developments to demonstrate that they will remain safe throughout their lifetime without increasing flood risk elsewhere. As per the [PPG](#), residential developments have a minimum lifetime of 100 years unless specific justification is provided otherwise. Conversely, non-residential developments are likely to have a lifetime of at least 75 years, but this can be influenced by the development characteristics. The impacts of an increasing number of properties on flood risk means that developments are also required to demonstrate that they can also reduce overall flood risk wherever possible. It is therefore essential to ensure that the impacts of future growth on flood risk is mitigated as much as possible to achieve these objectives and those stated within the policies and guidance outlined in *Section 2*.

Funding contributions should be used to ensure that sufficient opportunities for the development and progression of strategic flood risk infrastructure schemes can be realised in order to address the cumulative impacts on flood risk due to future growth. These funding contributions can include planning obligation funding under [Section 106 of the Town and Country Planning Act 1990](#), which enables developers and LPAs to enter into an agreement to make proposed development sites acceptable in planning terms. Additionally, funding agreements for the Community Infrastructure Levy under [Part 11 of the Planning Act 2008](#) facilitate LPAs to provide contributions towards the costs of implementing infrastructure improvements that may be required for the area's development.

This SFRA should be used to help determine appropriate development across the borough through implementation of the processes, recommendations and use of the associated mapping.

6.3 Property resilience measures

The NPPF requires policies to support appropriate measures that ensure the future resilience of communities and infrastructure against the impacts of climate change to guarantee effective planning for climate change. This includes guaranteeing that developments are to be flood resilient and resistant. The [PPG](#) defines property flood resilience as “*an approach to building design which aims to reduce flood damage and speed recovery and reoccupation following a flood*”, while flood resistance measures aim to stop water entering a building up to a safe structural limit.

To assist applicants, CIRIA have developed and published the [Code of Practice for Property Flood Resilience](#) (2021). This Code of Practice outlines the six standards that specify what should be achieved for property flood resilience. It provides advice for how property flood resilience measures can be incorporated into new-build and retrofit developments to improve their resilience against various flood risk sources, and includes specific [guidance for Local Authority planners](#). Where required, details of flood resistance and resilience plans must be included within the FRA and/or SuDS Strategy submitted as part of planning applications. *Section 5.3* of this SFRA outlines the EA-approved guidance on flood resistant and resilient measures for Epsom and Ewell, including information on finished floor levels.

EEBC's current [Local Plan](#) (2007) emphasises the importance of ensuring a sufficient flood resilient design of buildings, with Local Plan Policy CS 6 ‘*Sustainability in New developments*’ requiring all proposed developments to ensure that flood resistance or resilience measures are used to safely mitigate residual flood risks.

The EA's Flood Risk Standing Advice information for [minor extensions](#) and [vulnerable developments](#) should be taken into account if a proposed development is categorised as such, as they provide additional guidance on appropriate property resilience and resistance measures. This advice is discussed in greater detail in *Section 5.5.5* of this SFRA.

6.4 Emergency plans

Cohesive emergency planning at site-specific and strategic level is essential to minimise the potential impact of an increased flood risk resulting from climate change and urban development.

Development must not impede on the Emergency Services or the response of EEBC's Emergency Planning Unit to any flood events. A borough-wide emergency plan can provide policy context on the management of emergencies, including flood risk. This plan can help define the emergency response structure, provide guidance on deployment and co-ordination within the borough, and can also

provide further policy context for local Flood Warning and Evacuation Plans. Applicants must ensure that appropriate flood evacuation and response procedures that align to the wider strategic plan are set out and actioned where required in order to aid EEBC's management of the 'actual' and 'residual' risks associated with extreme flood events on strategic and site-specific levels.

EEBC's [Emergency Planning webpages](#) and [the Borough Emergency Plan](#) (2023) detail the emergency situations that EEBC are prepared to deal with and their statutory duties during emergencies. Fluvial flooding is one of the listed risks to Epsom and Ewell that is included in the Borough Emergency Plan (classified as very high risk) and in EEBC's [Flood and Adverse Weather webpage](#) details how flood risk in the borough is being reduced, describes the process of reporting flooding, and outlines EEBC's responsibilities for coordinating flood risk management. EEBC are designated as a Category 1 responder and are subsequently responsible for taking various actions during a flood risk emergency. These include, but are not exclusive to:

- Providing emergency assistance through liaising with essential service providers and opening evacuation and rest centres.
- Managing the local transport and traffic networks, including organising road closures and diversions.
- Coordinating the recovery process and restoration to normality through collaborative work with community groups and businesses.

6.5 Managing residual risk

Residual risks are those which remain after the effects of the mitigating actions have been considered and must be quantified to ensure the continuous safe management of these remaining risks. However, the residual risks from a mitigation measure implemented today may change significantly over time as a result of climate change-induced alterations to rainfall intensity, duration, and frequency.

EEBC's Local Plan Policy CS 6 also address the importance of developments managing residual risks through development particularly in the face of climate change. Climate change projections indicate an increased severity and impact of flooding, which may raise access issues for Emergency Services during a flood event. Developments should therefore ensure that their designs consider the impacts of climate change to guarantee safe and full access and egress to Emergency Services during extreme events. Flood Risk and Coastal Change guidance (2022), states that all forms of flooding and their impact on the natural and built environment are material planning considerations. With the impact of climate change being likely to increase the incidence of flooding and extreme weather events, it is important the plan takes full account of the issue.

6.6 Recommended policies

The two following sub-sections will include policy recommendations for planning development and flood risk management, applying the findings from this SFRA as an evidence base.

6.6.1 Strategic policies

- 1) EEBC should use their Local Plan to ensure that developments that are situated within a defined Sub-Catchment (as per Epsom and Ewell's SWMP (2011)) provide increased surface water drainage requirements as laid out in Policy DM19 of the [Development Management Policies Document \(2015\)](#). This could include providing greater storage for attenuation through using

SuDS (either as a retrofit measure or for new developments situated within these Sub-Catchments) to restrict off-site runoff rates to greenfield conditions as a maximum.

- 2) EEBC should identify strategic locations that could serve as water storage areas to aid flood risk management, both at present and in the future. SCC's LLFA should work collaboratively with the EA to identify potential locations through flood alleviation schemes. Future Local Plans should incorporate safeguarding of these locations to facilitate links between flood risk management and other environmental priorities.
- 3) EEBC should ensure that all permissible basement developments that are situated within an area of fluvial, surface water, and groundwater flood risk are fitted with resilience measures in line with the thresholds detailed in *Table 5-1*.
- 4) EEBC should integrate emerging policy priorities on green and blue infrastructure as part of the borough's wider green space networks into future Local Plans with a strategic approach to flood risk management.
- 5) EEBC should include the aspects of national and regional policy (as discussed in Section 5.5.5) that are not presently incorporated into its current Local Plan into future revisions.

6.6.2 Site specific policies

- 1) Where possible, EEBC should ensure that predicted flood mapping from all sources is actively considered in order to safeguard land within development sites for potential flood mitigation use. This can be undertaken during the planning process or as part of wider FRAs, such as a Level 2 SFRA.
- 2) EEBC should ensure that developments maximise the use of existing green and open spaces (including those around main rivers and ordinary watercourses) as flood storage areas for water to flow over and be stored within during a flood event.

7 REVIEW AND NEXT STEPS

7.1 Review and updates

7.1.1 Technical Content

The SFRA has been developed using the legislation, policy, and information that is available at the time of writing (July 2024). The SFRA is intended to be used to assist various parties in considering flood risk when making planning decisions regarding the design and location of proposed developments and flood risk management. It is key that the SFRA data is up to date to ensure that decisions are taken using the best and most current information that is available. Events that may trigger a review and update include, but are not limited to:

- Changes to the NPPF and the associated Flood Risk and Coastal Change PPG, upon which the basis of the SFRA is formed.
- Updates to any overarching legislation which may alter EEBC's responsibilities, including the implementation of SCC's expected SAB role under FWMA Schedule 3.
- Significant updates to the available flood risk information that is used to develop the SFRA, as applicants and the LPA must be provided with the most accurate, up-to-date information that is available.
- Improved understanding of local flood risk knowledge (which may occur following the reporting of flood incidents in previously unaffected locations), as site-specific FRAs must be informed by the most up-to-date information and planning decisions must be made on the best data that is available.
- Following EEBC and/or SCC conducting any significant flood risk investigation work.
- After a major flooding event within Epsom and Ewell.

7.1.2 Mapping

The SFRA should reflect an ever-changing and improving flood risk knowledge. Consequently, the SFRA could enhance knowledge by highlighting risk areas which were not previously known, or by enabling areas that were previously considered to be at risk for potential future development.

The mapping (*Appendix 2 – Mapping*) that has been created to support this SFRA provides a means of ensuring the most up-to-date information is available. These maps are current at the time of writing this SFRA (July 2024) and must be updated in the future when revised data is published by the various data sources including TWUL, the EA, and EEBC. This includes following the future update of EA mapping through the National Flood Risk Assessment 2, which is expected to be published in 2025. The Flood Zone 3a and 3b layers (fluvial) must also be updated under the following circumstances:

- The EA publish updated main river flood extents following their periodic review and updates of main river flood models and their associated predicted flood extents.

7.2 Level 2 SFRA

The Council should undertake a Level 2 SFRA for sites it is considering allocating in the Local Plan which are susceptible to flood risk. A Level 2 SFRA provides a detailed assessment of all potential flood risk sources that require a site-specific assessment.

The Level 2 SFRA will add to the strategic flood risk information presented in the Level 1 SFRA. A Level 2 SFRA may be required if it is not possible to allocate all development outside of flood risk areas, and it may also be required if applicants are expected to submit a high number of applications for sites that are not identified in the Local Plan.

As discussed in this Level 1 SFRA, not all developments can be situated outside of predicted flood risk areas. It is therefore recommended that a Level 2 SFRA is produced for EEBC's Site Allocations to achieve the following outcomes:

- Identification of the potential development sites that require a site-specific assessment.
- Completion of a detailed site-specific assessment that considers all potential flood risk sources.
- Provision of the information that is required to apply the Exception Test, if needed.
- Identification of site-specific requirements including policy, FRA requirements, and mitigation measures.
- Provision of a set of recommendations for each site that is assessed.

As per NPPF requirements, the Level 2 SFRA will consider all flood risk sources, both at present and in the future with climate change considerations. The NPPF describes how the planning system should be used to minimise vulnerability to flooding and provide climate change resilience. The PPG and NPPF describe the process by which FRAs should demonstrate intended flood risk management over a development's lifetime, whilst considering climate change impacts. Site-specific FRAs should use the latest guidance to confirm climate change impacts. The Level 2 SFRA will provide details on aspects such as flood extent, depth, velocity, and hazard ratings. Once complete, the Level 2 SFRA information will support proposals in submitting the information that is necessary to meet the requirements.

APPENDICES

Appendix 1 – Data Sources

Appendix 2 – Mapping

- Figure 1: Fluvial Flood Zones 2, 3a and 3b
- Figure 2: Main River Flood Extents
- Figure 3: Flood Alert and Flood Warning Areas
- Figure 4: Reservoir Flood Extents
- Figure 5: Flood Defences, Flood Storage Areas and Reduction in Risk from Rivers and Sea
- Figure 6: Surface Water Flood Extent
- Figure 7: Surface Water Flood Depth (1 in 30 year)
- Figure 8: Surface Water Flood Depth (1 in 100 year)
- Figure 9: Surface Water Flood Depth (1 in 1000 year)
- Figure 10: Areas Susceptible to Groundwater Flooding, Source Protection Zones
- Figure 11: Bedrock Geology
- Figure 12: Superficial Geology
- Figure 13: Epsom and Ewell Critical Drainage Areas