



Flood Risk Overview

Sources of Flood Risk



The City Council of Winchester covers the northern boundary of the PUSH sub-region. Only part of the Winchester City administrative area is within the PUSH sub-region, covering a total area of approximately 63 km² and not including the city itself. Winchester has no coastal frontage and this part of Winchester has 88 km of designated main river, including large parts of the Wallington River, upper reaches of the Rivers Hamble and Meon and a small length of the River Itchen. At present, approximately 6% of the land area in this part of Winchester is designated as within Flood Zones 2 and 3 (see SFRA Map: *Flood Mapping Dataset*).

The SFRA has shown that the primary source of flood risk to this part of Winchester is from rivers. Parts of a number of settlements such as Bishops Waltham, Wickham, Southwick and Denmead are located in or adjacent to fluvial Flood Zones 2 and 3.

Historically, there have been some instances of groundwater flooding in this part of Winchester, mainly along the northern boundary of the PUSH sub-region, where the south downs chalk ends and the various rivers and streams meet less permeable bedrock. These incidents were, in general, less severe than those experienced north of the PUSH sub-region. This part of Winchester has also been susceptible to flooding from other sources including surface water and flooding caused by infrastructure failure.

Key physical characteristics that may constrain development

Approximately 13% of this part of Winchester is currently covered by existing development. A number of environmentally designated areas represent a significant constraint on development in this part of Winchester, covering approximately 17% of its area. As such there may be only limited land upon which development can be permitted following consideration of other planning constraints.

The topography of this part of Winchester ranges from sea level on the tidal River Hamble to approximately 120 metres above ordnance datum (mAOD) on the approach to Portsdown Hill in the south-east.

Geologically, this part of Winchester is underlain by a detailed mix of low, moderate, and highly permeable bedrock formations. Low permeability superficial deposits overlie much of the bedrock in the river valleys, reducing the permeability of those areas not covered by artificial surfaces in terms of surface water runoff generation. This can potentially make the installation of Sustainable Drainage Systems (SUDS) difficult in attempting to reduce the flood risk to 'downstream' sites when promoting new development. The variety in geological composition of this part of Winchester suggests that when selecting sites for new development at a strategic level, geological implications for surface water drainage may play an important role in site selection.



Vulnerability to Climate Change

It is anticipated that climate change will result in an increase in fluvial flood flows. In Winchester, this is likely to put additional pressure in those settlements listed above that are located in or adjacent to areas at risk of flooding.

Existing defence assets and likely future investment

There are currently no flood risk management defence assets within this part of Winchester. Predicted increases in fluvial flows following climate change may mean that future investment is required to protect existing and future development in developed areas such as Bishops Waltham, Wickham, Southwick and Denmead.

Sequential and Exception Test

National Planning Policy Framework (NPPF) and The Planning Practice Guidance sets out the Government's objectives for achieving sustainable development through the avoidance and management of flood risk. The NPPF aims to ensure that flood risk is taken into account at all stages of the planning process to avoid inappropriate development in areas of flood risk. To achieve this aim, the Planning Practice Guidance provides a decision making tool to ensure that sites with a low probability of flooding are developed in preference to areas at higher risk. The Sequential Test is the decision process which Local Authorities must demonstrate when developing their Local Development Frameworks and Local Development Documents. This SFRA has developed a suite of mapping outputs to assist Local Authorities in applying the Sequential Test.

When applying the Sequential Test, The Flood Mapping Dataset of the SFRA will provide all the necessary information required upon which to base decisions regarding the location of future development in relation to flood risk. Within The Flood Mapping Dataset, the key map required for applying the Sequential Test is the Environment Agency's Flood Map for Planning, shown as Flood Zone 2 and Flood Zone 3 in conjunction with the Historic Flood Map.

The Flood Mapping Dataset also contains 4 other Mapsets which provide useful information to support Local Authorities when applying the Sequential Test, these include:

- *Hazard Map* – undefended Flood Hazard
- *Flooding from Other Sources* – including Surface Water, Groundwater, Sources of Overland Flow
- *Flood Warning Areas*
- *Climate Change* - Outlines for years 2025, 2055, 2085 and 2115

In the original SFRA published in 2007 these guidance documents included specific advice on how to apply the PPS25 Sequential and Exception Tests. This advice has since been updated and incorporated into other guidance notes. For the purpose of efficacy and ensuring this text remains contemporary, it will not be reproduced here and instead signposted from the key guidance below:

- [The National Planning Policy Framework](#)
- [Planning Practice Guidance: Flood Risk and Coastal Change](#)
- [Flood risk assessment for planning applications](#)



- [Flood risk assessment: standing advice](#)

It is requested that if in applying any of this guidance that links are found to be broken or require updating that contact is made with the SFRA helpdesk through contact details on the mapping webpage.

Planning Policy

Paragraph 100 of the National Planning Policy Framework (NPPF) seeks to direct development away from areas at highest risk of flooding. Local Plans should be supported by SFRA and develop policies to manage flood risk from all sources.

Local Plans should apply a sequential, risk based approach to the location of development. Development should not be permitted if there are reasonably available sites appropriate for the proposed development in areas with a lower probability of flooding.

If, following application of the sequential test, it is not possible (consistent with wider sustainability objectives) for the development to be located in zones with lower probability of flooding, the exception test can be applied if appropriate. The exception test should demonstrate that there are wider benefits to the community which outweigh flood risk. It should also demonstrate, through a site specific flood risk assessment, that the development will be safe for its lifetime.

Chapter 10 of the NPPF provides full guidance on climate change, flooding and coastal change.



SFRA Mapping Outputs

The table below summarises the most relevant mapping outputs and their purpose, for each of the key users of the PUSH SFRA.

Key Users	Relevant SFRA Mapping Dataset	Purpose
Planning Policy	Flood Mapping: NPPF Sequential Test and Relevant Supporting Information	Flood Mapping Dataset provides all the necessary information to help planners apply the Sequential Test and Exception Test when allocating new sites for development. Flood Mapping Dataset also allows planners to identify sites with the lowest probability of flooding and lowest flood hazard / danger and how the extent of flooding is likely to change in the future due to climate change.
	Development Control	Flood Mapping: NPPF Sequential Test and Relevant Supporting Information
Risk Management	Flood Mapping: NPPF Sequential Test and Relevant Supporting Information	Flood Mapping Dataset helps Development Control personnel to: o Prepare specifications for site specific FRAs. o Review site specific FRAs for new development sites and check for compliance with the NPPF.
	Infrastructure: Appropriate Defence Standards and Levels of Investment	Flood Mapping Dataset helps Flood Risk Managers to identify variations in flood hazards / dangers to existing development. The data also provides mapping to show how the extent of flooding is likely to increase over time due to climate change. Infrastructure Dataset helps Flood Risk Managers to: o Identify shortfalls in existing defences in providing appropriate standards of defence, now and in the future. o Identify indicative levels of investment required to provide the appropriate standards, now and in the future.
Emergency Planning	Flood Mapping: NPPF Sequential Test and Relevant Supporting Information	Flood Mapping Dataset helps Flood Risk Managers to identify variations in flood hazards / dangers to existing development. The data also provides mapping to show how the extent of flooding is likely to increase over time due to climate change.
	Infrastructure: Appropriate Defence Standards and Levels of Investment	Infrastructure Dataset helps Flood Risk Managers to: o Identify shortfalls in existing defences in providing appropriate standards of defence, now and in the future. o Identify indicative levels of investment required to provide the appropriate standards, now and in the future.
Emergency Planning	Flood Mapping: NPPF Sequential Test and Relevant Supporting Information	Flood Mapping Dataset can provide emergency planners with information on the variation of flood probability and hazard across the sub region. Such information can aid in the development of emergency plans and evacuation routes during flood events.
	Infrastructure: Appropriate Defence Standards and Levels of Investment	Infrastructure Dataset can help Emergency Planners to: o Identify indicative standards of defence, now and in the future.



Recommendations for Site Specific Flood Risk Assessments

Whilst the information presented in this SFRA will inform Local Authorities and facilitate their strategic allocation of sites for future development, it should not preclude the need for developers to undertake site specific flood risk assessments (FRAs). A SFRA, by its very nature, is a high level assessment of flood risk at the local authority level. It does not provide sufficiently detailed information to satisfy all of the requirements of a site specific FRA as outlined in the National Planning Policy Framework.

To improve the efficiency of disseminating general guidance, the Environment Agency has produced a suite of standing advice and guidance on producing Flood Risk Assessments.

- Flood Risk Assessment: Guidance for completing flood risk assessment to accompany a planning application
 - [When you need an assessment](#)
 - [When you don't need an assessment](#)
 - [When to follow standing advice](#)
 - [How to do an assessment](#)
 - [Get information to complete an assessment](#)

- Flood Risk Assessment: Guidance for planning authorities on review of flood risk assessments submitted as part of planning applications
 - [Check if you need to consult](#)
 - [Flood zone 1](#)
 - [Flood zone 2](#)
 - [Flood zone 3](#)
 - [What you need to check in an assessment](#)
 - [Extra flood resistance and resilience measures](#)

The following sections provide additional specific guidance for assessing flood risk at the site specific level within the PUSH area covering Winchester City Council and indicate how the outputs from the SFRA can inform such assessments.

Fluvial Flooding

In Winchester, there are a number of small towns and villages at risk of fluvial flooding from the Rivers Wallington, Meon and Hamble. The *Flood Mapping Dataset* shows the fluvial Flood Zones, which indicate that locations such as Denmead, Southwick, Worlds End, Hiple, Wickham and Bishops Waltham are at risk of fluvial flooding.

Within this part of Winchester, there is more fluvial flood risk data available than in other parts of the PUSH sub-region. The two principal rivers within this part of Winchester, the Meon and Wallington are two of the most significant in the sub-region, with a number of flood risk areas and historic records of flooding. Hydraulic modelling of the River Wallington has been finalised as part of

Guidance Document: Winchester City Council (Partial)

the Environment Agency's ongoing Strategic Flood Risk Mapping programme. Therefore, it has been possible, in this SFRA, to designate Flood Zone 3b (defined by NPPF as the 'functional floodplain') for the River Wallington by using a modelled 1 in 25 year flood outline. This is in accordance with the Planning Practice Guidance. The River Meon does not have a modelled flood outline to define Flood Zone 3b, but the Environment Agency have provided a detailed historic flood outline which they have recommended is used to define Flood Zone 3b for this SFRA.

Neither modelled nor historic flood outline information is available for the other river within Winchester, the Hamble. Based on Environment Agency advice and the Planning Practice Guidance, fluvial Flood Zone 3 has been assumed to be functional floodplain. This is a precautionary approach and should be tested by site specific FRAs, where required.

Unlike the tidal Flood Zones, flood levels associated with the fluvial Flood Zones have not been identified as part of this SFRA. The variations in previous modelling approaches for the rivers within the PUSH sub-region, coupled with the spatial variation on flood levels along the river valleys, meant that it was not possible to provide a consistent approach to identifying fluvial flood levels without re-modelling a number of rivers. Such detailed assessments were outside the scope of this SFRA.

Developers undertaking a FRA for a site within the fluvial Flood Zones should obtain the most up to date flood risk data from the Environment Agency. If no further information is available then a site specific FRA may need to include a numerical assessment to refine the understanding of fluvial flood risk, and agree the form of this assessment with the Environment Agency.

Undefended flood hazard information, has also been developed for the fluvial Flood Zones 2 and 3. This information can provide developers with an indication of the varying degree of flood hazard within the Flood Zones which can facilitate the design and layout of development sites to avoid areas of high hazard. As with the tidal flood hazard data, this dataset was derived during the evolution of the 2007 work package and has not been updated as part of the 2015 update. For this reason in areas where there have been flood mapping updates since 2007, there may be discrepancies in the data presented. Where this occurs it is recommended that further advice is sought from the SFRA Helpdesk team or local Environment Agency office.

It is recommended that FRAs for sites located within the flood hazard zones to undertake a more detailed quantitative assessment of flood hazard based on an improved understanding of defences and flow routes.

Surface Water/Overland Flow Flooding

The dataset *Flood Mapping: Flooding from Other Sources* show both maps for potential surface water flooding and the variation in the potential source of overland flow across the PUSH sub-region. The areas shown in red and orange relate to areas of very high and high potential for generating overland flow. Notably, the urban areas are indicated as red or orange due to the high runoff potential from urban land uses.

On the whole, Winchester has a significant variation in the potential for generating overland flow, however existing areas of development couples with locations of greater slope, do show a high

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potential. FRAs for sites that are found to be within or in the vicinity of these areas, especially if the local topography places the site at a lower elevation than the surrounding land and hence downstream of the source, should consider the impacts and management of flooding due to overland flow. Since the regional topography of the PUSH region generally slopes towards sea level, at source (site) control of surface water is essential in Winchester to avoid adversely increasing the risk of flooding downstream within Fareham and Eastleigh. FRAs for sites within Winchester should, wherever possible, develop source control drainage systems.

The data shows that new development located on the majority of the Greenfield Land in Winchester is likely to have a low or moderate impact on the surface water runoff regime. There is, however, a large area to the north of Winchester where permeable geology indicates that development would have a high impact on surface water runoff regimes. This is also likely to be the case in locations around Southwick, Horton Heath and Shedfield. Site specific FRAs should therefore carefully consider the impact of development on the local surface water runoff regime and should investigate SUDS options to manage surface water where achievable.

Groundwater Flooding

Within the PUSH region the key areas at risk of groundwater flooding are where highly permeable geology meets lower permeability geology as shown by *Flood Mapping: Flooding from Other Sources: Groundwater*, which has been verified by inspection of the historical incident records. This geological transition occurs in two key bands across this part of Winchester. Firstly, at the northern part of the region, where the permeable geology meets the moderately permeable geology and secondly in the centre where small outcrops of highly permeable geology occur surrounded by moderate and less permeable geology.

Historically, groundwater flooding incidents, in the vicinity of the upper band of geological transition, have occurred in the upper catchment of the River Wallington in Denmead and east of Newtown, Bishops Waltham in the upper reaches of the River Hamble and Colden Common in the upper reaches of the River Itchen. Historical incidents associated with the second geological transition, in the vicinity of the small highly permeable outcrops, have occurred in Shedfield and Shirrel Heath. The River Meon, due to its highly permeable upstream geology is also very sensitive to groundwater conditions and there has been previous groundwater flooding observed along the river valley, near the border with Fareham.

Flooding from Infrastructure

Unlike the other Local Authorities within the PUSH region, Winchester has historically only recorded a small number of flooding incidents caused by problems relating to the drainage infrastructure as shown by Dataset *Flood Mapping: Flooding from Other Sources*. The majority of these incidents have occurred in the vicinity of the urban areas of Denmead, Wickham, Bishops Waltham and Colden Common. When undertaking a site specific FRA for a large development site, consultation with Southern Water should always be undertaken to investigate whether the proposed development will have an adverse impact on the local drainage system.



Sustainable Urban Drainage Systems (SUDS)

Conventional surface water drainage systems have traditionally used underground pipe networks to efficiently convey water away from sites. In the past this has led to problems of downstream flooding, reductions in groundwater recharge and waste pollution incidents associated with surface water overwhelming combined sewers. Both 'Making Space for Water' and the 'Water Framework Directive' have highlighted the need for an improved understanding and better management of how our urban environments are drained. The SUDS management train approach is the principle that a range of SUDS which feed into each other can often offer benefits to the delivery of a successful surface water system/strategy.

NPPF states that Local Authorities should prepare and implement planning strategies that help to deliver sustainable development, by using opportunities offered by new development to reduce the causes and impacts of surface water flooding. By implementing policies to encourage developers to incorporate SUDS wherever possible, Local Authorities can help to mitigate the impacts that development has on surface water runoff rates and volumes.

Emergency Planning

As well as informing the development control process, the outputs of the SFRA can also be used by the Local Authority to inform their Emergency Planning Policies. The Flood Mapping Datasets are particularly useful when considering the feasibility and sustainability of key access routes within their administrative boundaries. The benefit of producing such outputs on a sub-regional scale mean that the Local Authority can also consider access to beyond their administrative boundary where key access routes (e.g. M27) cross a number of Local Authorities.

Additional Guidance

- [Flood risk assessment for planning applications](#); Environment Agency
- [Flood risk assessment: standing advice](#); Environment Agency
- [National Planning Policy Framework](#); DCLG
- [National Planning Policy Framework Quick Guide](#); Environment Agency
- [Planning Practice Guidance – Online web-based resource](#); DCLG
- [Flood and coastal risk guidance: climate change allowances](#); Environment Agency
- [Development and Flood Risk: Guidance for the Construction Industry](#) CIRIA (2004)
- [Flood Risk Assessment Guidance for New Development: FD2320/TR2](#) Environment Agency / DEFRA
- [Susdrain online resource: The community for sustainable drainage](#) CIRIA
- [Winchester CC emergency planning flooding – online resource](#)
- [Winchester CC Local Plan SFRA evidence - online resource](#)
- [Test and Itchen Catchment Flood Management Plan](#), Environment Agency
- [Local Flood Risk Management Strategy](#), Hampshire County Council