

# Topic Paper 6



## Flooding



# LDF Topic Paper - FLOODING

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## INTRODUCTION

Flooding is a natural process, yet it is a central concern within the planning system because development can either be at risk of flooding, or generate or intensify that risk. Furthermore the physical and social infrastructure we all rely on can be threatened by flooding events.

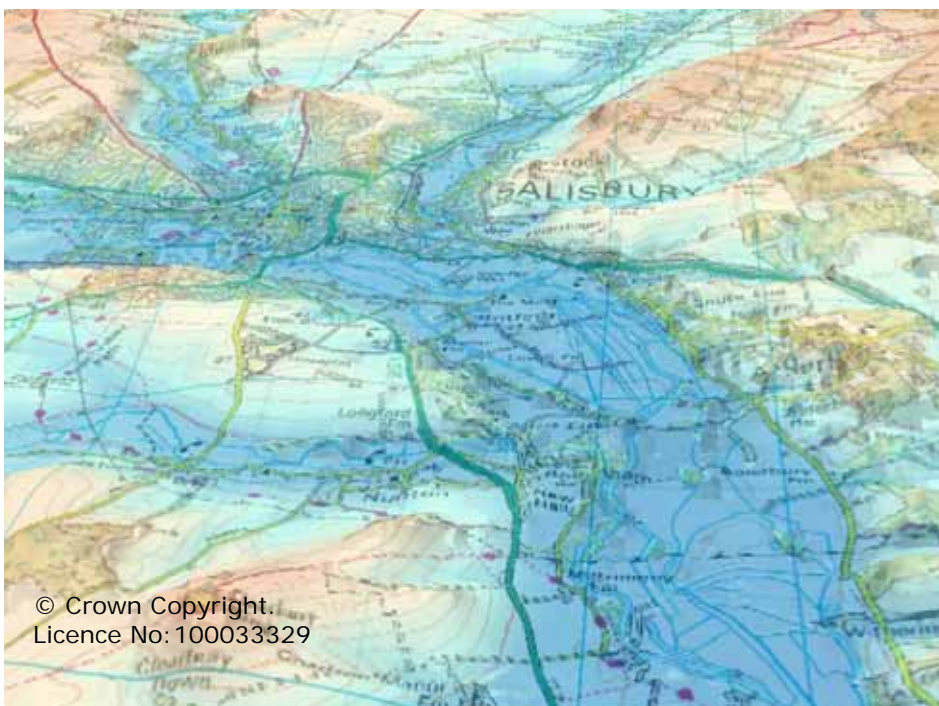
The evidence is that over the coming decades, climate change will result in more extreme weather events, with wetter winters. This creates an increase both in the chance of flooding taking place, and in the potential severity of those events.

## THE LOCAL CONTEXT

The stunning setting of much of the district owes a great deal to the river systems, and many of the largest settlements and corridors of movement are within valleys. However, whilst local geology and well-preserved flood plains act absorb and as a “brake” on water levels, there is no scope for complacency.

Equally, other forms of flooding than fluvial (such surface and groundwater) may also pose threats, which local topography and site characteristics can intensify.

## TOPOGRAPHIC MAP OF SALISBURY (FROM THE SOUTH), HIGHLIGHTING RIVERS AND ELEVATION



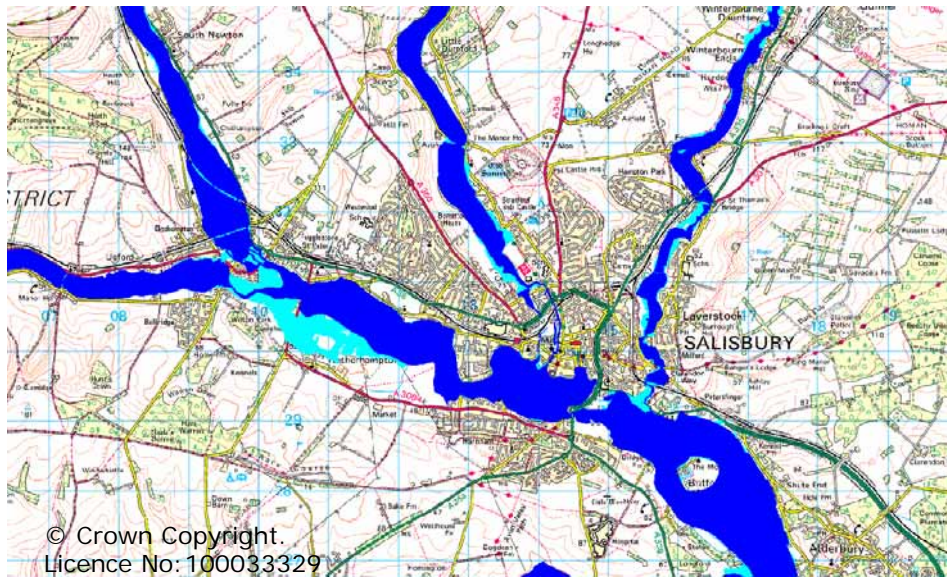
## KEY NATIONAL GUIDANCE

The Environment Agency, the public body with overall responsibility for managing flood risk, defines the following zones:

- Zone 1 - a low risk of flooding
- Zone 2 - a medium risk of flooding

- Zone 3 (a) - has a greater than 1 in 100 annual risk of flooding  
(b) - the functional flood plain

**ENVIRONMENT AGENCY FLOOD ZONES IN SALISBURY AND WILTON AREA**



Flood Zone 3



Flood Zone 2



PPS25, which is the government’s national policy approach to planning and flood risk, was issued in December 2006 and this must underpin the approach taken in Salisbury’s LDF. It requires Local Planning Authorities to take a proactive approach to understanding, avoiding, and reducing flood risk through the development process. PPS25 provides a formal set of requirements of what uses are normally acceptable in each flood zone type, and the circumstances in which exceptions might be made:

- “Essential Infrastructure” – e.g. some infrastructure, utilities and transport types
- “Water compatible” – e.g. flood control, pumping facilities, wharves, docks, water leisure
- “Highly vulnerable” – e.g. emergency infrastructure, basements, caravan parks
- “More vulnerable” – e.g. hospitals, dwellings, care homes, landfill sites
- “Less vulnerable” – e.g. shops, restaurants, agricultural, water treatment

**TYPES OF DEVELOPMENT APPROPRIATE, BY FLOOD ZONE**

Flood Risk Vulnerability classification (see Table D2)		Essential Infrastructure	Water compatible	Highly Vulnerable	More Vulnerable	Less Vulnerable
Flood Zones (see Table D.1)	Zone 1	✓	✓	✓	✓	✓
	Zone 2	✓	✓	Exception Test required	✓	✓
	Zone 3a	Exception Test required	✓	X	Exception Test required	✓
	Zone 3b 'Functional Floodplain'	Exception Test required	✓	X	X	X

✓ Development is appropriate

X Development should not be permitted

## WHAT LOCAL AUTHORITIES MUST DO

It is anticipated that flood risk events will increase in frequency and severity over the decades to come. National and regional policies require proactive action by planning authorities, which must show that the flood risk to and from development will be acceptably low. Chiefly it requires that policies within the Local Development Framework achieve the following:

- Take flood risk into account at all stages in the planning process;
- Avoid inappropriate development in areas at risk of flooding;
- Direct development away from areas at highest risk;
- Accommodate increases in flood risk resulting from climate change.

The means by which this should be achieved include:

1. **APPRAISING AND UNDERSTANDING FLOOD RISK**, through carrying out Flood Risk Assessments or FRAs<sup>1</sup>. At a strategic level this is being carried out across the district through a survey commissioned by this authority in partnership with others in the Avon catchment. On a local level it will be incumbent upon developers or landowners to demonstrate that flooding of all types has been taken into account in their proposals.
2. **MANAGING RISK**, by locating development where it avoids flood risk to people and property wherever possible. Development in areas of flood risk can only occur when there are no reasonably available sites in areas of lower flood risk, and where the benefits of the development outweigh the risks from flooding.
3. **REDUCING RISK**, for instance by protecting land that is required for defences, by adopting preventative measures such as SUDS. There will potentially be a major role for developer contributions through Section 106 agreements to be sought in mitigating flood risks.
4. **WORKING IN PARTNERSHIP**, particularly with the Environment Agency, using available expertise and supporting flood management and other water-related policies and plans. There is a particular link with other major projects here, for instance the River Avon Catchment Flood Management Plan and objectives to support and improve riverine biodiversity.

## LOCAL EVIDENCE BASE

Salisbury District Council in its LDF has commissioned Strategic Flood Risk Assessment (SFRA), with Halcrow the successful bidder from a tender process. This report will inform the process of determining the location of new development. Findings of the SFRA are expected to in Autumn 2007.

## KEY QUESTIONS

- What factors should the Council take into account in planning for flood risk?
- Do you agree with the evidence-led approach advocated in PPS25?

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## **1. ISSUES FACING SALISBURY DISTRICT**

Around 5 million people in 2 million properties in England and Wales are at risk from flooding<sup>2</sup>. The extent of flood risk, and the severity of its consequences, have gained a higher profile in recent years following large flooding events such as those at Easter 1998 and in October 2000, and currently around £2.2 billion is spent per year as a result of flooding and flood management.<sup>3</sup>

Although floods occur naturally, the role of human activity is significant and the location, type and intensity of development can put it at risk of flooding, or equally, generate or intensify a flood risk. It is important to recognise that flooding is not merely of concern to private properties and individuals, but also more generally to society as a whole including business and economic development, and key services such as health, education, and transport. Being partly a natural process, related closely to protected sites and features, notably SSSIs and SACs, flooding has an important relationship with biodiversity and natural conservation.

Over and above the existing flood risks, over future decades there is expected to be a significantly increased risk as a result of shifts in the climate, namely with wetter winters and a greater frequency of extreme weather events delivering high quantities of precipitation. It has been estimated that the risk of fluvial and coastal flooding will, at the very least, double by the 2080s<sup>4</sup>

The planning sector has been an important area where government policy has evolved and tightened in response to such events. PPS25, following on from PPG25, was issued in December 2006 to set out the broad principles for reducing flood risk in new development, and this provides the main source of guidance for this topic area under Salisbury's LDF. There are a number of different types of flooding, including: fluvial or coastal flooding, where levels breach their ordinary limits; groundwater flooding, which

occurs when the water table reaches the surface; and surface water flooding, where surges of water (for instance from sharp downfalls) exceed drainage capacity. All types of flooding are an important concern to Local Planning Authorities.

Householders are responsible for protecting their own property from flooding. However, PPS25 requires Local Planning Authorities to take a proactive, evidence-based and planned approach to understanding, avoiding, and reducing flood risk through the development process, taking into account all of these possible types of flooding.

The stunning natural setting of much of the district derives in large part from its distinctive river valleys, several of which converge at or near the city of Salisbury. The pattern of development is quite distinctive with a great many of the settlements, including most of the larger ones, situated within these valleys.

However, the largely chalk geology of the district results in rainfall being stored in aquifers, which typically fill during the winter and steadily release into chalk streams throughout the year, and this acts to minimise peaks and troughs in flow. Equally, the functional floodplains themselves are largely undeveloped, and in the main are able perform their natural role in absorbing and releasing excessive waters over a period of time.

As a result of such factors, the South West regional Flood Risk Assessment (RFRA) does not identify this area as being a main flooding concern in the regional context. However, it acknowledges that once levels are raised they could be sustained and last many weeks<sup>5</sup>. There is therefore a real risk of consequent damage to life and property.

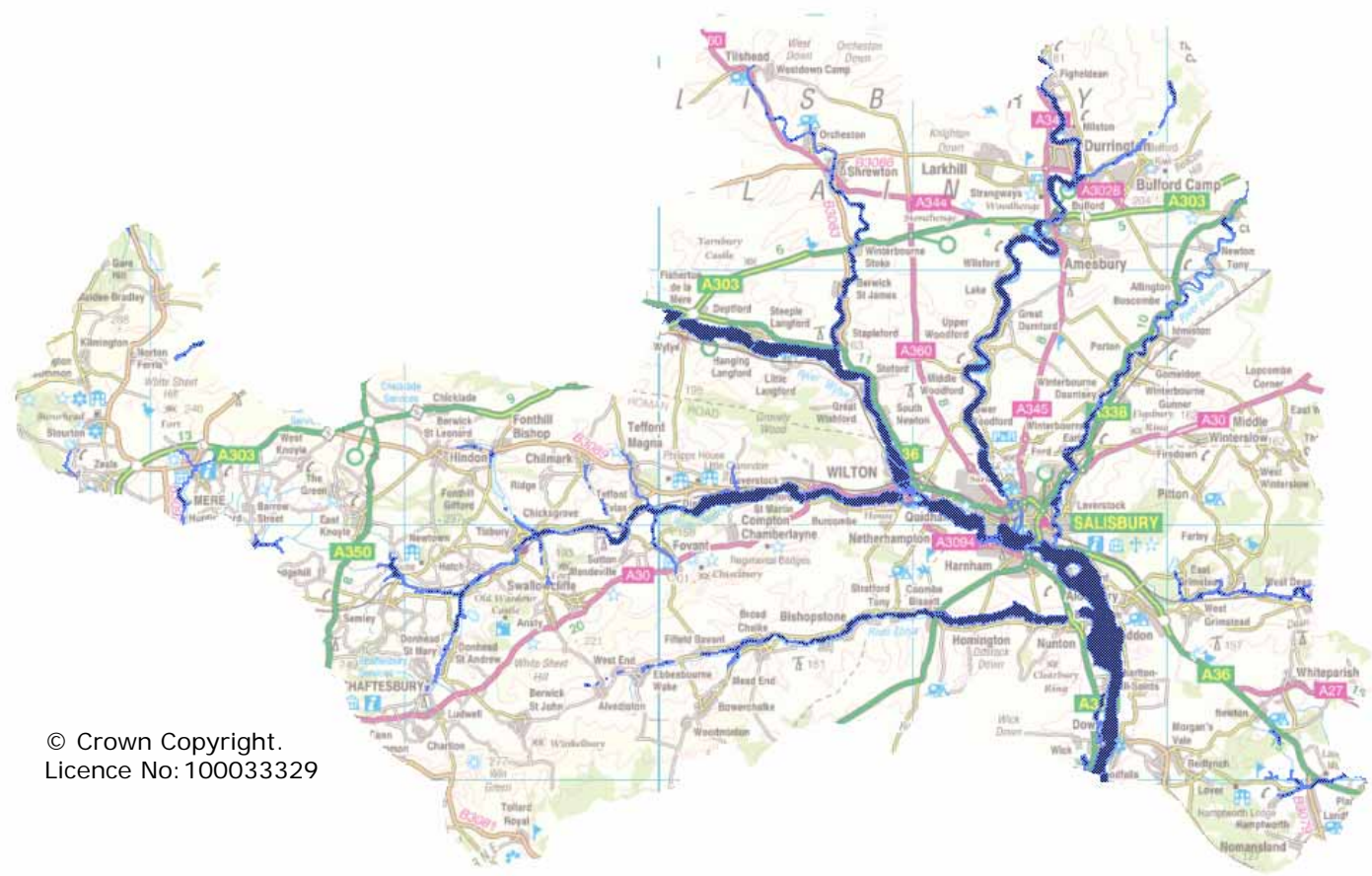
As illustrated below, most of the district is within the catchment area of the Avon (“Hampshire Avon”), with small parts in neighbouring catchments.

## SALISBURY DISTRICT AND RIVER CATCHMENT AREAS



The relatively steep topography of much the district constrains the chief flood risk areas to narrow bands around the river valleys, so that the overwhelming majority of land area is within low flood risk areas. However no part of the district, as illustrated below, is a great distance from the river valley systems and consequently the potential impact of human activity and development has a considerable potential to augment flood risk or otherwise impact upon the water environment. Furthermore, other forms of flooding may affect areas not necessarily at risk from fluvial flooding.

#### EXTENT OF FLOOD PLAINS WITHIN SALISBURY DISTRICT



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## **2. THE NATIONAL AND REGIONAL POLICY FRAMEWORK**

### **PPS1: Sustainable Development**

This sets out in broad generic terms the government's approach for the planning system as a whole:

- (i) sustainable development be pursued in an integrated manner, in line with the principles for sustainable development, promoting environmental, economic and social objectives together.
- (ii) Contributing to global sustainability: addressing causes and impacts of climate change.
- (iii) Adopting a spatial planning approach for sustainable development
- (iv) Promoting high quality inclusive design for the whole lifetime of developments.
- (v) Clear, comprehensive and inclusive access policies considering people's diverse needs.
- (vi) Community involvement within the planning system.

In terms of flooding the key concerns are under (i) and (ii), so that development is not at risk of flooding or increase the risk of flooding either based on current or future models of flood risk areas.

### **PPS 25: Planning and Flood Risk**

PPS25 provides a strong basis for judgement of flood risk and the requirements incumbent upon Local Planning Authorities. Chiefly it requires that policies within the Local Development Framework achieve the following:

- Take flood risk into account at all stages in the planning process;
- Avoid inappropriate development in areas at risk of flooding;
- Direct development away from areas at highest risk;
- Accommodate increases in flood risk resulting from climate change.

This should be achieved through a four-pronged approach:

1. **APPRAISING AND UNDERSTANDING FLOOD RISK**, through carrying out Flood Risk Assessments or FRAs<sup>6</sup>
2. **MANAGING RISK**, by locating development where it avoids flood risk to people and property wherever possible, and where risks are managed climate change. Development in areas of flood risk can only occur when there are no reasonably available sites in areas of lower flood risk, and where the benefits of the development outweigh the risks from flooding;
3. **REDUCING RISK**, for instance by protecting land that is required for defences, by adopting preventative measures such as SUDS
4. **WORKING IN PARTNERSHIP**, particularly with the Environment Agency, using available expertise and supporting flood management and other water-related policies and plans.

The emerging RSS for the South West Region effectively echoes and reiterates the approach outlined above in PPS25, acknowledging and emphasising those particular regional concerns on the topic. The key drivers contained within the RSS in terms of flood risk are under the following emergent policies:

- *Policy F1* prioritises a number of measures to take account of climate change and increased risk of coastal and river flooding:
  - Defend existing properties and, where possible, locate new development in places with little or no risk of flooding;
  - Protect flood plains and land liable to tidal or coastal flooding from development;
  - Follow a sequential approach to development in flood risk areas; Use development to reduce the risk of flooding through location, layout and design;
  - Relocate existing development from areas of the coast at risk, which cannot be realistically defended; and
  - Identify areas of opportunity for managed realignment to reduce the risk of flooding and create new wildlife areas
  
- *Policy SD2*: Under a suite of policies directed at achieving sustainable development, this policy seeks to reduce the South West region's contribution to climate change, which includes avoiding the need for development in flood risk areas, and incorporating measures in design and construction to reduce the effects of flooding.
  
- *Development Policy F*: The master-planning approach set out under this policy includes the requirement for new development to avoid areas susceptible to flooding.
  
- *Development Policy G*: Similarly the methodology for sustainable construction set out requires the use of sustainable drainage systems to minimise flood risk associated with new development.

### **Foresight future flooding report** <sup>7</sup>

This government-sponsored report assesses three possible broad approaches in terms of the response to future flood management:

1. Accept increasing levels of risk of flooding.
2. Seek to maintain risks at current levels.
3. Seek to reduce the risks of flooding

The report points out the clear implication of the first option, which is an undesirable rise in flood damage with inherent social and economic ill-effects. It notes that the second approach is reasonable on face value however that this would not conform with apparent societal pressures and expectations. Conversely it suggests that the major investment in flood management required under the third option would be outweighed by the resultant economic benefits.

### **Original Research – Strategic Flood Risk Assessment (SFRA)**

The principal piece of research to support policies in relation to Flooding is a Strategic Flood Risk Assessment (SFRA). In practice it is difficult for a LPA to take a risk-based sequential approach to development and flood risk unless it has undertaken an SFRA first (and hence knows the relative degrees of risk associated with different areas). The SFRA should be a robust evaluation of the extent and nature of flood risk and its implications for land use planning. SFRA's typically look at a local planning authority scale, although in this instance, recognizing the local catchment geography, the study is being commissioned jointly with other authorities within the Avon and

Stour basins. In line with guidance, this is taking place in consultation with the Environment Agency and other major stakeholders. The study will enable the partner authorities to:

- Undertake the sequential test
- Prepare policies for the management of flood risk within LDDs
- Identify the level of detail required for individual Flood Risk Assessments (FRA);
- Assess the response required for emergency planning purposes.

It will provide information and advice on:

- Potential and historic causes of flooding
- flood risk management infrastructure, standards and return periods
- Areas within the SFRA area that are at risk of flooding for all flood zones
- Variations in the actual flood risk in a given area, including the effect of defences, topography and climate change
- The potential use of Sustainable Drainage Systems (SuDS) taking into account ground conditions and other matters.
- The spatial extent and characteristics of extreme flood events
- Increases to risk due to increased run-off from any future developments.
- Potential effect of flood defence failure.
- Extent and cost of works required to raise flood defence standards
- Sustainability of land uses in medium and high probability flood zones.
- Details of the measures that could be used to make development within higher flood probability zones permissible.
- Future land management practices including the potential to influence and alleviate flooding elsewhere
- Use of SuDS and potential increase to flood risk resulting from new development.

### **3. LINKING IT TOGETHER – WHAT DO OTHER LOCAL STRATEGIES SAY?**

#### **Hampshire Avon Catchment Flood Management Plan (Consultation Scoping Report, June 2006)<sup>8</sup>**

The aims of the Management Plan are:

- to reduce flood risk and minimise the resulting harmful impacts on people, and on the natural, historic and built environment;
- to maximise opportunities to work with natural processes, delivering multiple flood risk management benefits and contributing to sustainable development;
- to promote sustainable flood risk management;
- to support environmental legislation and targets, Government flood reduction targets, the Environment Agency's vision, the implementation of EU directives, and other key targets of the organisations involved in the catchment planning process;
- to provide information to spatial planners to help shape future development in the Hampshire Avon catchment, so that it does not compromise the natural function of the river and floodplain; and
- to support the implementation of the Water Framework Directive (WFD).

The document also highlights the fact that flooding is a natural ongoing process and that the issue is not merely of isolated individual flooding events. Given this, it advocates an approach that goes beyond merely making provision for flood defences, recognising that flooding cannot simply be prevented. The co-ordinated action it discusses includes potentially allowing for increases in flood risk in certain areas to mitigate it occurring in other locations that may be more sensitive.

In terms of land use policies the document reiterates “the need to support a naturally functioning flood plain as a key method of reducing flood risk to people and property”. It acknowledges that *“difficult decisions must be made during policy selection to decide where further action should be taken to reduce or sustain flood risk, where current management activities need to be changed or reduced, or where little or no action should be taken”*.

### **River Avon SAC conservation plan**

This explains the potential for effective flood and other river management measures to impact beneficially upon biodiversity objectives.

### **Wiltshire Biodiversity Action Plan**

A considerable range of species depend upon the habitats related to the chalk stream drainage pattern found in the district, and consequently measures to manage flood risk must be conceived and implemented with full regard to biodiversity conservation objectives.

## **4. PRIORITIES AT COMMUNITY LEVEL.**

### **2005-2009 Community Strategy**

In 2002 the Alliance agreed its vision: *“A safe and caring place, where it is easy to get about and where value for money services contribute to a high quality of life and environment with equality of opportunity for all”*. The creation of sustainable settlements not at risk from damage to life and property through inundation clearly conforms with this objective, although the specific priorities for focusing Alliance joint working do not directly relate to the topic of flooding.

### **Local Community Plans (Parish, Ward and Market Town Plans)**

Community planning at this level has not typically dealt with the topic of flooding however the quality of the environment is a recurrent theme for local settlements, and as outlined above there is clearly a complementary relationship between flood management and prevention measures and environmental objectives.

## **5. LEARNING FROM EXPERIENCE**

### **a) How do our existing policies perform ?**

Existing planning policies appear to have been effective in a reactive way to refusing permission to those applications in flood risk zones. During the financial year 2005-6, the Environment Agency objected to 16 applications, and of these 5 were approved; 4 were refused; 5 were withdrawn: and 2 remain undetermined.

The current policies within the Adopted Local Plan which deal with flooding and the water environment are as follows:

G3 Development will not be permitted which would increase the requirement for water unless adequate resources already exist, or will be provided in time to serve the development, and without detriment to existing abstractions, water environment, both quality and quantity, fisheries, amenity or to nature conservation.

G4 Development will not be permitted if:

- (i) it would be at risk itself from flooding;
- (ii) it would increase the risk of flooding:
  - a. by reducing the capacity of, or increasing flows within, a flood plain; or

- b. through the discharge of additional surface water; or
- c. by harming flood defences.

G5 Development requiring water services will only be permitted where adequate water supplies, drainage, sewerage and sewage treatment facilities are available or where suitable arrangements are made for their provision. In sewered areas new development will be expected to connect to main drainage. New sewers will be expected to be constructed to a standard adoptable by the appropriate water company.

G6 Where locations or ground conditions are unsuitable for soakaway disposal, source control techniques also known as Sustainable Drainage Systems (SuDS) should be employed

G7 Development which would result in the regular occupation of premises will not be permitted within the Development Restraint Areas shown on the proposals map.

G8 In Groundwater Source Protection Areas, the Local Planning Authority will seek to ensure that development respects the need to protect water resources.

Chief amongst these is policy G4, which is broadly in line with the criteria of PPS25 in terms of the location of development however does not provide a great deal of detail (e.g., types of development, criteria for exceptions). These however are set out in detail in the annexes to PPS25 as follows:

**Zone 1 (low probability)**

“In this zone, developers and local authorities should seek opportunities to reduce the overall level of flood risk in the area and beyond through the layout and form of the development, and the appropriate application of sustainable drainage techniques.”

**Zone 2 (medium probability)**

“In this zone, developers and local authorities should seek opportunities to reduce the overall level of flood risk in the area through the layout and form of the development, and the appropriate application of sustainable drainage techniques.”

**Zone 3a (high probability)**

In this zone, developers and local authorities should seek opportunities to:

- i. reduce the overall level of flood risk in the area through the layout and form of the development and the appropriate application of sustainable drainage techniques;
- ii. relocate existing development to land in zones with a lower probability of flooding; and
- iii. create space for flooding to occur by restoring functional floodplain and flood flow pathways and by identifying, allocating and safeguarding open space for flood storage.

**Zone 3b (the functional floodplain)**

In this zone, developers and local authorities should seek opportunities to:

- i. reduce the overall level of flood risk in the area through the layout and form of the development and the appropriate application of sustainable drainage techniques; and
- ii. relocate existing development to land with a lower probability of flooding.

Effectively, it can be judged that existing policy adequately covers this topic, subject to our own SFRA’s recommendations on how specifically to achieve the overall aims of PPS25.

**b) What are others doing to tackle similar problems ?**

Given the relatively narrow range of options that are open to Local Planning Authorities through PPS25, most are simply in the process of tackling the issues it raises within the framework it sets out, taking into account local catchment/geological characteristics in light of Strategic Flood Risk Assessments they have commissioned.

**6. KEY ISSUES AND SPATIAL PATTERNS**

Spatially the issues for the most concerning forms of potential flooding relate to the catchment geography described above along the principal fluvial corridors. However, other forms of surface and groundwater flooding can pose major issues elsewhere dependent on local factors and more information will emerge on these through the SFRA and other local Flood Risk Assessments.

## **7. OPTIONS**

There is a relatively narrow range of options for the overall approach that the Council can take in respect of flood risk, at the Core Strategy level. PPS25 sets out the main parameters for policy and implementation (e.g. the sequential and exception tests). How land is allocated will be informed by the SFRA study, which is under way. The only acceptable option for the overall approach towards planning for flood risk is the below, proactive, evidence-based policy. A “do-nothing” approach or perpetuating existing Local Plan policies would not be acceptable.

<b>No.</b>	<b>Nature of the Option</b>	<b>Key Drivers</b>	<b>Positive Impacts</b>	<b>Negative Impacts</b>	<b>Viability of proceeding with the option ?</b>	<b>How will success be measured</b>	<b>Where is the option best pursued ?</b>
<b>OVERALL APPROACH</b>							
1	PROACTIVE – develop local evidence base, local evidence to shape policy and site selection process	PPS25 and other government guidance; Environment Agency	Flood risks minimized and mitigated against.	Potential constraints and	High	National Core output indicators, in addition to any locally developed indicators	Core Strategy, Area Action Plans, Site-Specific Allocations

## **8. INITIAL CONSULTATION**

Discussion with the Environment Agency in respect of Flood Risk Assessments has been ongoing as part of the SFRA commissioning process. Input has been sought on this Topic Paper from the Environment Agency at a draft stage.

## **FOOTNOTES AND REFERENCES**

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<sup>1</sup> These take place at various levels: Regional (RFRAs, for the Regional Spatial Strategy); Strategic (SFRAs, on a district or catchment basis); and local (for specific developments/applications)

<sup>2</sup> [http://www.environment-agency.gov.uk/subjects/flood/?lang=\\_e](http://www.environment-agency.gov.uk/subjects/flood/?lang=_e)

<sup>3</sup> Future Flooding report, [http://www.foresight.gov.uk/Previous\\_Projects/Flood\\_and\\_Coastal\\_Defence/](http://www.foresight.gov.uk/Previous_Projects/Flood_and_Coastal_Defence/)

<sup>4</sup> [http://www.environment-agency.gov.uk/subjects/flood/1217883/1218166/1218172/?version=1&lang=\\_e](http://www.environment-agency.gov.uk/subjects/flood/1217883/1218166/1218172/?version=1&lang=_e)

<sup>5</sup> South West Regional Flood Risk Assessment, page 11

<sup>6</sup> These take place at various levels: Regional (RFRAs, for the Regional Spatial Strategy); Strategic (SFRAs, on a district or catchment basis); and local (for specific developments/applications)

<sup>7</sup> (under the Office of Science and Technology and the Chief Scientific Adviser to the Government) – see <http://www.foresight.gov.uk/>

<sup>8</sup> Environment Agency





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