

Planning Policy Wales

Technical Advice Note 15
Development, flooding and coastal erosion

October 2019
Consultation version

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1. Introduction

- 1.1 This Technical Advice Note (TAN) should be read in conjunction with Planning Policy Wales (PPW). PPW and TAN 15 should be taken into account by planning authorities in Wales in the preparation of Development Plans. They may also be material to decisions on planning applications and will be taken into account by the Welsh Ministers and Planning Inspectors in the determination of applications and appeals that come before them.
- 1.2 This TAN provides technical guidance which supplements the policy set out in PPW in relation to development and flood risk, and development and coastal erosion. It provides a framework within which the risks arising from river, coastal and surface water flooding and coastal erosion can be assessed, as well as advice on the consequences of the risks and adapting to and living with flood risk.

This Consultation does not replace extant guidance contained in the current Technical Advice Note 14, published in 1998 and Technical Advice Note 15, published in 2004. Development Plans and planning decisions should continue to refer to those documents, until such a time as an updated TAN 15 is published by the Welsh Government and TAN 14 is cancelled

2. Flooding, coastal erosion and placemaking

- 2.1 Planning Policy Wales establishes the delivery of sustainable places as the overall ambition of the planning system. To achieve this aim, placemaking must be embraced both in Development Plan making and in Development Management decisions. PPW identifies five key principles of placemaking, to help shape how planning is undertaken:
- Maximising environmental protection and limiting environmental impact
 - Facilitating accessible and healthy environments
 - Making best use of resources
 - Growing our economy in a sustainable manner
 - Creating and sustaining communities
- 2.2 Full consideration of flood and coastal erosion can help to achieve the principles and ultimately contribute to creating and developing sustainable places. This TAN provides advice to enable planning authorities and developers fulfil the requirements set out in PPW.

3. Background

- 3.1 Flooding as a natural phenomenon is very difficult to predict, and although floods occur relatively infrequently in Wales the consequences can be very significant. Flooding can place lives at risk, cause considerable personal trauma, result in extensive damage to property, often amounting to millions of pounds, impose pressures on emergency services and severely disrupt communications, business and commerce.
- 3.2 The topography of Wales has generally resulted in transport infrastructure and development being concentrated on valley floors, lowland areas and in the coastal fringes. A large proportion of the Welsh population is located within urban centres along the coastal plain, including Cardiff, Swansea and Newport and the coastal settlements of North Wales. Some 117,000 properties are at high risk and a further 45,000 at medium risk of flooding from the sea, rivers and surface water¹.
- 3.3 Coastal areas face a complex combination of threats, including flooding, erosion and land instability. The Welsh coastline, which extends over 2,700km, is a particularly varied area, combining urban settlements and ports with sweeping beaches and rugged cliffs. There is approximately 415km of constructed coastal flood defences around Wales, while coastal erosion is occurring along around 346km of the Welsh coastline, with over 2,100 homes at risk.
- 3.4 The approach set out in this TAN ensures flooding and coastal erosion are accorded appropriate consideration in plan making and development management.

Climate Change

- 3.5 Climate change is one of the key challenges facing Wales now and in the future. The Well-being of Future Generations Act 2015 places a duty on public bodies to carry out sustainable development and to maximise their contribution to the achievement of the well-being goals. Climate change is linked to all the well-being goals, which recognise the case for action on climate change is clear and fundamental to our prosperity and the resilience of our communities. Public bodies are required to think more about the long-term, work better with people and communities and each other and look to prevent problems.
- 3.6 The UK Committee on Climate Change provides independent advice to government on building a low-carbon economy and preparing for climate change. It has stated that it expects the climate in Wales to become warmer

¹ Source: [Flood Risk Assessment Wales 2019](#)

and wetter, with significant increases in the sea level around the coast and the frequency and intensity of storm events. This will increase the risk of flooding and it is also reasonable to expect the incidence and seriousness of flood events to increase. This TAN outlines ways in which the planning system can support communities and people to avoid being affected by flooding, and to develop more resilience where it cannot be avoided.

Insurance

- 3.7 The cost of insuring new properties at risk of flooding is likely to be considerably higher than for properties not at risk. Properties built before 2009 can benefit from *Flood:Re*, a scheme which caps the cost of insuring homes at risk of flooding, but this is not available to new homes. Planning authorities should therefore recognise that new homes built in high risk areas may be subject to prohibitive insurance premiums reflective of the risk they face, or be uninsurable. In turn, this can affect the chances of securing a mortgage.
- 3.8 The affordability of flood cover, and the associated costs of dealing with flooding consequences, reinforces the overall principle of avoiding development in areas where the consequences of flooding will be unacceptable.
- 3.9 Planning authorities or developers considering development in areas at risk of flooding are advised to seek the views of insurers at an early stage. Insurers themselves may wish to be engaged in the preparation of Strategic Flood Consequences Assessments or make representations on Development Plans.

4. Principles of the TAN

- 4.1 The TAN reflects the core principles of the National Strategy for Flood and Coastal Erosion Risk Management in Wales, to adopt a risk-based approach in respect of new development in areas at risk of flooding and coastal erosion.

When considering the risk associated with flooding and coastal erosion, the term 'risk' encompasses two things:

1 - The likelihood of an event happening, and

2 - The impact that will result if flooding or coastal erosion occurs.

Flood risk

- 4.2 The National Strategy recognises the varying degrees of flood risk, now and in the future. The overarching aim when considering new development and the risks of flooding, in order of preference, is to:

- Direct new development to areas at minimal risk of flooding;
- Enable resilient development in areas of lesser flood risk, using land served by flood defence infrastructure as a preference;
- Only permit water compatible development, essential transport and utilities infrastructure, and less vulnerable developments which can be justified in areas of higher risk.

- 4.3 This approach is based on:

- A Wales Flood Map showing flood zones which should be used to trigger justification and acceptability tests;
- Defining development types by their vulnerability in flood events;
- Advice on permissible uses in relation to the location of development and the consequences of flooding;
- Discretion for planning authorities to incorporate local flood risk considerations into planning policies and decisions.

- 4.4 The approach applies to both Development Planning and Development Management processes.

- 4.5 The Welsh Government will monitor the effectiveness of TAN 15 through a Notification Direction and Sustainable Development Indicators.

- 4.6 The **Notification Direction** ensures the Welsh Government is made aware of all planning applications for highly vulnerable development in areas of higher risk, which the planning authority is minded to approve. Welsh

Ministers will then have the option of calling-in the application to determine themselves.

- 4.7 The **Sustainable Development Indicators** are part of an annual survey of planning decisions by local planning authorities. It includes the number of planning permissions granted in areas of medium and high risk.

Coastal erosion

- 4.8 Development should be avoided where there is a risk of being impacted by coastal erosion over the lifetime of the development. Planning policies for coastal areas should reflect and complement the National Development Framework, the National Strategy for Flood and Coastal Erosion Risk Management, Shoreline Management Plans, Areas Statements and other relevant strategies.

Roles and responsibilities

- 4.9 A number of bodies and organisations have important roles to play in ensuring the objectives of PPW and this TAN are achieved. Key roles in relation to different aspects of the planning process are highlighted throughout this document.
- 4.10 In Wales' plan-led system the setting of appropriate and effective strategies, policies and site allocations in Development Plans is essential. The planning authorities who are responsible for preparing these plans should draw on the expertise and knowledge of relevant departments within local authorities. There is also a role for Natural Resources Wales as the principal technical adviser to the Welsh Government and local authorities on issues relating to the environment and natural resources.
- 4.11 Most decisions on planning applications are taken locally by the local planning authority, while the Welsh Ministers are responsible for appeals and called-in applications. Decision makers are responsible for determining whether a proposal is justified and the consequences of flooding are acceptable. Risk Management Authorities², including Natural Resources Wales, the Lead Local Flood Authority and water and sewage undertakers, will provide advice which should be taken into consideration by the decision maker.
- 4.12 Applicants and prospective developers must provide accurate factual information to allow the decision maker to assess proposals against the requirements of PPW and this TAN. It is important these responsibilities are all undertaken in a timely manner, to ensure decisions are taken within statutory timeframes.

² Risk Management Authorities are set out in the National Strategy for Flood and Coastal Erosion Management.

5. Wales Flood Map

5.1 The Wales Flood Map is the starting point for consideration of flood risk in the planning system. It is maintained by Natural Resources Wales, and updated every six months. The map uses flood zones to indicate the degree to which land is at risk of flooding from rivers, the sea and surface water. This TAN outlines the actions that should be taken when considering development in the different flood zones. Figure 1 sets out the definition of each zone.

Figure 1 - Definition of Wales Flood Map flood risk areas

Zone	Fluvial / river flooding	Tidal / coastal flooding
1 – very low risk	Less than 1 in 1000 (0.1%) chance of flooding in a given year	Less than 1 in 1000 (0.1%) chance of flooding in a given year
2 – low risk	Less than 1 in 100 (1%) but greater than 1 in 1000 (0.1%) chance of flooding in a given year, including climate change.	Less than 1 in 200 (0.5%) but greater than 1 in 1000 (0.1%) chance of flooding in a given year, including climate change
3 – medium and high risk	A greater than 1 in 100 (1%) chance of flooding in a given year, including climate change	A greater than 1 in 200 (0.5%) chance of flooding in a given year, including climate change

5.2 The Wales Flood Map also provides information on flood risk from **surface water and ordinary watercourses**. These are considerations for planning authorities and must be integrated into plan-making processes, decision-making and inform mitigation measures (refer to section 8).

Using the Wales Flood Map

5.3 The Wales Flood Map is available to anyone planning and undertaking development or construction projects (including those not requiring planning permission). The Map helps decision-makers identify relevant planning policies and guidance allowing them to reach decisions about whether development is appropriate.

5.4 The Map reflects flood risk now and in the future under the central **climate change** estimate. These estimates have been applied to Zone 3, Zone 2 and the surface water flow models. Detailed flood consequences assessments will be required to consider a range of climate change scenarios, including upper end estimates.

5.5 Areas benefitting from **flood defences** are shown on the Wales Flood Map. Flood defences reduce the risk of flooding but do not eliminate it. The

consequences of flooding can be severe in the event of defences being overtopped or breached. Flood defences primarily reduce risk in areas within Zone 3, where risk is highest. Some flood defences have a high standard of protection, which means areas in Zone 2 may also benefit from reduced risk.

- 5.6 The existence of flood defences does not mean development should be allowed without further consideration of flood risks. It will be important to demonstrate that any new development in areas benefitting from flood defences incorporate resilience so that they remain dry and safe as per the tolerable conditions set out in section 11.
- 5.7 The Wales Flood Map allows users to view areas at potential risk of inundation from **reservoirs**. All reservoirs are maintained to exceptionally high standards in Wales therefore the location of homes and businesses in reservoir inundation areas should not raise alarm. This information is presented to ensure open and constructive dialogue between planning authorities and reservoir operators or owners should Development Plans have implications for the risk categorisation of the reservoir. Further details are outlined in section 7.

For advice and information about the current risk of flooding to existing properties, the Flood Risk Assessment for Wales (FRAW) provides a comprehensive picture of the nature and scale of risks and hazards.

Key Roles and Responsibilities:

Maintenance of Wales Flood Map and managing the map challenge process - Natural Resources Wales

Publication of Wales Flood Map – Natural Resources Wales (and Welsh Government via the national geo-portal l1e.gov.wales)

Maintenance and updating of information on flood defence infrastructure – Natural Resources Wales, using data from the National Asset Database

6. Nature of development or land use

- 6.1 A flood event can have different consequences for different types of development, which influences where it is acceptable to locate development. For example, flooding in residential areas can result in a traumatic impact on people's lives. It is not appropriate to expect occupants to live with this type of risk. Other land uses, however, may be able to manage infrequent or low-level flooding in an acceptable way – flooding of this nature may be disruptive but unlikely to be dangerous. Figure 2 categorises development types according to their vulnerability in the event of flooding.

Figure 2 – Development vulnerability categories

Development category	Types
Highly vulnerable development	<p>All residential premises (including hotels, Gypsy and Traveller Sites and caravan parks and camping sites), schools and childcare establishments, hospitals and GP surgeries, especially vulnerable industrial development (e.g. power generating parts of power stations, transformers, chemical plants, incinerators), and waste disposal sites.</p> <p>Emergency services, including: ambulance stations, fire stations, police stations, command centres, emergency depots and buildings used to provide emergency shelter in time of flood.</p>
Less vulnerable development	<p>General industrial, employment, commercial and retail development, transport and utilities infrastructure, car parks, mineral extraction sites and associated processing facilities, excluding waste disposal sites, public buildings including libraries, community centres and leisure centres (excluding those identified as emergency shelters), places of worship, cemeteries, renewable energy generation facilities, equipped play areas.</p>
Water compatible development	<p>Boatyards, marinas, essential works required at mooring basins, development associated with canals, flood control infrastructure and open spaces (excluding equipped play areas).</p>

- 6.2 Highly vulnerable development is development where the ability of occupants to decide on whether they wish to accept the risks to life and property associated with flooding, or be able to manage the consequences of such a risk, is limited. It also includes those industrial uses where there would be an attendant risk to the public and the water environment should the site be inundated. Emergency Services and Local Authority command centres need to be operational and accessible at all times and are therefore also considered highly vulnerable³.
- 6.3 Less vulnerable development is development where the ability of occupants to decide if risks and consequences are acceptable is greater than that in the highly vulnerable category.
- 6.4 Water compatible developments include developments which are required to be in a fluvial, tidal or coastal location by virtue of their nature, and developments which are resilient to the effects of occasional flooding. They are not subject to the first part of the justification test in section 10 but built development will be subject to the acceptability of consequences test as outlined in section 11.
- 6.5 The list above is not exhaustive therefore decision makers should apply professional judgement when considering development categories not explicitly listed. For small developments, such as single dwellings, it will usually be appropriate to treat the whole site as one. For example, the garden of a residential dwelling should remain flood-free and the whole area of development should be considered highly vulnerable. Where a mix of uses is accommodated within a single building, its vulnerability will be defined by the most vulnerable use.
- 6.6 For larger developments and those comprising multiple buildings, a single vulnerability category may not be appropriate, as it may be appropriate to regard some parts of a site as highly vulnerable and other parts less vulnerable or water compatible. This can provide some flexibility when considering how best to use sites that are partially within flood zones. Locating SuDS features and open spaces in flood zones and using the land for appropriate flood alleviation, for example, can help make best use of a site. Making water an integral feature within a development can enhance the design and function of places.

Key roles and responsibilities

Deciding on the vulnerability of land uses – planning authorities

³ It may be necessary to treat Coastguard stations, which by necessity must be located near the coast, differently. Maintaining safe access and egress at all times will be critical

Figure 3 - Summary of National Policy Requirements

Wales Flood Map Zone	Development Type	Development Advice	Planning Requirements	Acceptability Criteria
1	All	No constraints relating to river or coastal flooding, other than to avoid increasing risk elsewhere.	Justification test not applicable Refer to surface water requirements set out in Development Plan	<ul style="list-style-type: none"> ◆ No increase in flooding elsewhere ◆ Flood resistant and resilient design in locally-defined areas of current or future flood risk
2	All	Plan allocations and applications for development can only proceed subject to justification in accordance with section 10 and acceptability of consequences in accordance with section 11.	Application of justification test (section 10), and acceptability of consequences test (section 11) Refer to surface water requirements set out in Development Plan	<ul style="list-style-type: none"> ◆ Acceptable consequences for type of use ◆ Agreement for construction and maintenance costs secured ◆ Occupiers aware of flood risk ◆ Escape/evacuation routes present ◆ Effective flood warning provided ◆ Flood emergency plans and procedures ◆ Flood resistant and resilient design ◆ No increase in flooding elsewhere ◆ Desirable if effective flood warning and evacuation routes/procedure provided depending on nature of proposal
3	Highly vulnerable development	The flooding consequences associated with highly vulnerable development are not considered to be acceptable. Plan allocations should not be made for such development and planning applications not proposed. FCAs should not be prepared as there is no requirement for Natural Resources Wales to respond.		
	Less vulnerable development Water Compatible Development	Plan allocations or applications for less vulnerable development can only proceed subject to justification in accordance with section 10 and acceptability of consequences in accordance with section 11.	Application of justification test (section 10), and acceptability of consequences test section 11) Refer to surface water requirements set out in Development Plan	<ul style="list-style-type: none"> ◆ Acceptable consequences for type of use ◆ Agreement for construction and maintenance costs secured ◆ Occupiers aware of flood risk ◆ Escape/evacuation routes present ◆ Effective flood warning provided ◆ Flood emergency plans and procedures ◆ Flood resistant and resilient design ◆ No increase in flooding elsewhere

7. Flooding and the plan-led system

- 7.1 Development Plans set the context for rational and consistent decision making and provide certainty for developers and the public about the type of development that will be permitted at a particular location. Development Plans must be prepared on the basis of evidence.

Strategic Flood Consequences Assessment

- 7.2 A Strategic Flood Consequences Assessment (SFCA) should be undertaken to provide the evidence to inform policies and site selection processes for all Strategic and Local Development Plans. It should help the planning authority(ies) to consider flood risk issues in a way that is compatible with placemaking. SFCAs should evolve and develop over the plan-making process when more information is available and more decisions regarding the content of the Development Plan are taken.
- 7.3 The sources and causes of flooding are not restricted to local authority boundaries therefore a SFCA which covers a river catchment area may be more effective and efficient. This approach also provides more options and flexibility for responding appropriately and sustainably to the implications of the SFCA.
- 7.4 SFCAs will provide planning authorities with information on current and future flood risk, using best available information about climate change and projected changes to the nature of flood risk. They should include consideration of all sources of flooding, including risks associated with fluvial, tidal, groundwater and surface water flooding. It is important that SFCAs include and consider evidence from a range of sources, including maps and models, the Flood Risk Assessment for Wales, Flood Risk Management Plans, Shoreline Management Plans and Area Statements.
- 7.5 SFCAs will highlight at an early stage areas where development will be in conflict with national planning policy and guidance. SFCAs may also highlight a need to include locally-specific approaches in Development Plans. These may be in relation to local records of surface water flooding incidents or coastal erosion, or areas where there is an expectation that risks may increase with climate change. Planning authorities could consider area or proposal-specific actions, such as a need for further assessment or the integration of design features in development. Any local approaches should be set out clearly in the Development Plan.
- 7.6 The views of key stakeholders such as Emergency Planning teams and the Emergency Services should be sought at this stage. Development Plans must be based on a sound understanding of the Emergency Services' ability to respond to flooding. Where Emergency planners and services have strong views on the provision and location of access and egress arrangements, the

Development Plan should communicate these requirements to prospective developers. Early involvement should also minimise the need for the emergency services to comment on planning applications.

- 7.7 SFCAs should include consideration of opportunities to develop natural flood and water management schemes, as appropriate land management can help to reduce flood risk. These types of interventions are particularly important in the face of the climate risks facing Wales. The option of managed coastal realignment and floodplain restoration may be a means to reduce future flood risk and protecting and enhancing natural resources and heritage. This will apply particularly in areas where existing development cannot be sustained in the face of increasing flood risk, or in sparsely developed areas where this offers a more cost effective and sustainable solution than building new defences. Proposals should be clearly outlined in the Development Plan.

Development Plan policies

- 7.8 Policies on flood risk should not repeat national policy, but rather they should focus on locally specific requirements as informed by the Strategic Flood Consequences Assessment.
- 7.9 Similarly, policies on coastal development should be specific to the characteristics of the coastline in the plan area. Policies can identify types of development that may be acceptable as well as types that will not be supported in coastal areas. Shoreline Management Plan policies should be reflected.

Site selection process

- 7.10 Planning authorities should prioritise development in zone 1, where the risk of flooding is low. Development may be allocated in Zone 2 if there is justification for its location in the flood zone. It should be brownfield land, part of a programme to regenerate an urban area, or directly support regional employment objectives. In any allocation the flood consequences must be acceptable in accordance with section 11.
- 7.11 In Zone 3, allocations for residential and other highly vulnerable development should not be made as the risks and consequences of flooding are not considered acceptable for these types of development. Allocations for less vulnerable development, including essential transport and utilities infrastructure, should be made only be in exceptional circumstances. The development must be vital to the achievement of regional or national employment objectives, or the provision of key transport or utilities infrastructure.
- 7.12 When proposing an allocation in a flood zone the planning authority should undertake sufficient background evidence gathering to be confident the development can meet the requirements of section 11. The planning authority will need to undertake or commission a broad level assessment of the risk and

consequences of flooding occurring on that site in order to satisfy itself these could be effectively and acceptably managed. The planning authority should engage with Risk Management Authorities to support it with this work.

- 7.13 If the consequences of development allocated in a flood zone are considered acceptable in accordance with section 11, the resulting allocation should include annotation of flooding as a constraint for the individual site on the proposals map. Any policy requirements which relate to the development of that site should be specified within the relevant Development Plan. This will include making it clear that in taking forward the allocation a developer will need to undertake detailed technical assessments.
- 7.14 The planning authority should be satisfied that any development it allocates will be resilient to flooding for the duration of its lifetime. Using the most up-to-date national climate change projections, planning authorities should ensure new dwellings will be safe places to live now and in the future. Generally, it is appropriate to think of new dwellings as having a lifetime of 100 years. Planning authorities should apply this principle in a precautionary manner in relation to all types of development.
- 7.15 Where a coastal location is allocated for development, to support regeneration initiatives or strengthen tourism facilities for example, the planning authority should be satisfied the development meets the requirements of Section 10 and Section 11.

Major Regeneration

- 7.16 Wales's geography and industrial history means there are some large urban communities located in areas at risk of flooding, which under today's planning policies would be unlikely to have been allowed. Communities in such areas should be supported to remain viable and vibrant. Ongoing maintenance and investment in flood defence infrastructure will be required to keep the population safe from flooding. Decisions to regenerate areas of this type will have significant consequences, including on public finances.
- 7.17 Decisions to enable large scale regeneration of populated areas at risk of flooding should be taken jointly at the national and regional level, through the National Development Framework and the relevant Strategic Development Plan.

Drainage

- 7.18 Sustainable Drainage Systems (SuDS) are required on the majority of new developments, but are encouraged in all circumstances as the most effective way of managing surface water in a sustainable way. Development Plans should promote the control of surface water as near to its source as possible for

all developments. Along with other flooding considerations, drainage should be factored into the site selection process at the earliest opportunity, as the management of water will influence key issues such as layout and density of development. Planning authorities should consider seeking a comprehensive drainage strategy for all proposed large developments, including those located in Zone 1

Reservoirs

7.19 Reservoirs in Wales are categorised according to the risk they pose to the public and environment in the unlikely event of a breach. The amount of development in the inundation catchment is an important factor in determining a reservoir's risk category.

7.20 Land use planning can inadvertently lead to a reclassification of risk if new development is located within the inundation area of a reservoir. This brings additional maintenance and insurance implications for owners and operators of reservoirs. The reservoir inundation maps on the Wales Flood Map should be consulted when preparing Development Plans. Any potential implications for reservoir owners or operators, such as allocating development in inundation areas, should be raised by the planning authorities openly and constructively.

Key roles and responsibilities

Preparation of Strategic Flood Consequences Assessments – Strategic Planning Panels and Local Planning Authorities

Advice on preparing SFCAs – Natural Resources Wales

Specialist input – Risk Management Bodies, Emergency Planning departments, SuDS Approving Body (SAB), Emergency Services, Insurance industry

8. Surface water and ordinary watercourse flooding

- 8.1 Flooding is not confined to flood plains, as heavy rain falling on waterlogged ground or impermeable surfaces can cause localised flooding almost anywhere. Heavy rain can also result in ordinary watercourses, such as streams, reens and brooks quickly becoming inundated, leading to localised flooding.
- 8.2 Surface water and ordinary watercourse flood risks are included on the Wales Flood Map and should be consulted during the preparation of the Strategic Flood Consequences Assessment. The Wales Flood Map shows areas at high, medium and low risk, taking climate change into account. Surface water and ordinary watercourse flooding are the responsibility of Lead Local Flood Authorities (LLFA), and the planning authority should seek the LLFA's views on how to incorporate these considerations into local planning policies. In most circumstances it will be appropriate for planning authorities to seek an assessment of the consequences of flooding for development proposals in high and medium risk areas, primarily to ensure any development does not increase the flood risk elsewhere.
- 8.3 Built development tends to increase the surface area of impermeable ground, thus reducing percolation and increasing rapid surface run-off. This has the effect of reducing the time it takes for precipitation to enter the watercourse and consequently increasing the peak discharge. Run-off from developments can, if not properly controlled, result in flooding at other locations and significantly alter the frequency and extent of floods further down the catchment.
- 8.4 Ordinary watercourses have an important role in flood alleviation while offering significant benefits to amenity and biodiversity. Development should avoid significantly building over ordinary watercourses. Structures such as bridges are necessary but watercourses should not be channelled into culverts beneath new homes. They should be considered a natural asset to the development site and integrated with Sustainable drainage systems (SuDS) features where appropriate.
- 8.5 SuDS perform an important role in managing run-off from a site and must be implemented in most new developments. They can have multiple placemaking and sustainable development benefits if they are considered and integrated at an early stage. New developments of more than one dwelling or where the area covered by construction work equals or exceeds 100 square metres require approval before construction can commence from the SuDS Approving Body (SAB). Adoption and management arrangements, including a funding mechanism for maintenance of SuDS infrastructure and all drainage elements must be agreed by the SAB as part of this approval. This will ensure that SuDS infrastructure is properly maintained and functions effectively for its design life.

8.6 SuDS manage rainfall in a similar way to natural processes, making use of the landscape and vegetation to control the flow and volume of surface water. They offer a variety of engineering solutions that can be employed to manage surface water run-off, recognising there are differences in soil structure, water table levels and infiltration rates across Wales. The Statutory National Standards for SuDS⁴ outline various approved methods of managing surface water; developers will need to design and construct SuDS in accordance with the Standards in order to secure SAB approval.

Key roles and responsibilities

Publication of maps showing flood risk from surface water and streams – Natural Resources Wales

Assessment of local flood risk deriving from surface water and ordinary watercourses – Lead Local Flood Authority

⁴ <https://gov.wales/docs/desh/publications/181015-suds-statutory-standards-en.pdf>

9. Coastal Risks - Erosion and Flooding

- 9.1 Coastal areas have unique characteristics which can provide opportunities and also present challenges when proposing or considering new development. Opportunities to develop are limited by physical circumstances, including risk of flooding, erosion and land instability.
- 9.2 Given the sensitivity of coastal locations to environmental changes caused by natural processes and human intervention, the planning system recognises the coast as a special and finite place. It must therefore be managed proactively and sustainably. On this basis, and in accordance with PPW, only development which justifies a coastal location should be allocated in Development Plans and permitted through the development management process.
- 9.3 Planning authorities should be mindful that development on the terrestrial part of the coastal environment has the potential to generate both on-shore and off-shore coastal impacts. Planning authorities should collaborate with relevant marine authorities to ensure the effects of land use planning are beneficial to, and do not damage, the overall coastal environment.

Development Planning

- 9.4 Development Plans should be used by planning authorities to indicate which parts of the coast can be developed, should be maintained in their current form or should be left to nature. The approach to planning the coast should be informed by an assessment of the role and integrity of coastal defences and a detailed understanding of the risks from flooding and coastal erosion in the plan area. Planning authorities may accommodate this work within the Strategic Flood Consequences Assessment.
- 9.5 The National Coastal Erosion Risk Map, Shoreline Management Plans (SMPs) and Area Statements provide comprehensive evidence to inform the planning strategy for coastal areas. The long-term policy frameworks for the management of coastal risks and defences set out in SMPs will often require cross-boundary cooperation to achieve the best outcomes. Such issues will be best addressed through strategic planning at regional level or formal collaborative working between local planning authorities.
- 9.6 The Development Plan should clearly define coastal areas considered suitable for development and also those areas subject to significant constraints. Sites should not be allocated where there is a risk of flooding or land instability from coastal erosion over the lifetime of the development. Where the planning authority does allocate land they should ensure they have adequate information and have considered all relevant technical advice. Any development should enhance the particular sense of place of that coastal area.

- 9.7 Where sites are proposed by developers within coastal areas during Development Plan preparation, the onus rests on the developer to provide sufficient and appropriate information to demonstrate that proposed sites can be safely developed without significant adverse effects.
- 9.8 Planning policies can assist planning authorities to show areas of the coast which need to be managed in specific ways. Policies are likely to be necessary to control or restrict development on unstable coastal land, in low-lying coastal areas and on land close to eroding cliffs or other eroding coastlines.
- 9.9 Supplementary planning guidance (SPG) could provide further detailed guidance on coastal risk where a planning authority has a particular strategy for part of its coastal area, such as a regeneration initiative. SPG could be used in these cases to identify how a regeneration project should be designed to achieve placemaking outcomes set out in PPW and the relevant Development Plan.

Development Management

- 9.10 In making decisions on development proposals within coastal areas, planning authorities should fully consider whether there are risks to the development arising from coastal erosion or flooding. It will be for the applicant to demonstrate evidence that the proposed site can be developed without risk of flooding from coastal erosion over the lifetime of the development before planning permission is granted.

Coastal defences

- 9.11 Planning authorities must ensure co-ordination between land use planning and strategies for flood and coastal defence. Construction of sea defences often leads to increased pressure for development, but such defences only reduce the risk, and do not eliminate it.
- 9.12 Consideration of these issues will allow planning authorities to reflect variations in physical conditions along their stretches of coastline instead of adopting a blanket approach when planning for development and considering coastal risk from flooding. It will also enable them to consider the cumulative effects of development proposals on coastal risk. Wider collaboration by planning authorities on a regional basis can further help to ensure consistent decision making about development on the coast and aid in the appropriate management of coastal defence strategies.

Key roles and responsibilities

Preparation of Shoreline Management Plans (SMPs) – Coastal Groups

Creation and management of the Wales Flood Map, including coastal flood risk – Natural Resources Wales

Creation and management of the National Coastal Erosion Risk Map – Natural Resources Wales

Provision of information on coastal defences – Natural Resources Wales (National Asset Database)

10. Justifying the location of development

10.1 Development in Zone 1 is acceptable in principle in relation to flood risk. Where development is proposed in a flood risk area (zones 2 and 3), the planning authority will need to be satisfied that its location is justified. It is important that areas at medium or high risk (zone 3) are used only as a last resort, and not at all for new highly vulnerable development. Greater flexibility is permitted in areas with low levels of risk (zone 2), especially where there is protection from flood defences.

10.2 Some flexibility is necessary to enable the risks of flooding to be addressed while recognising the negative economic and social consequences if policy were to preclude investment and development in existing urban places, and the benefits of reusing previously developed land.

Zone 1

All types of development are acceptable in principle. Planning authorities may develop locally specific planning policies for localised areas at risk of flooding.

Zone 2

Development will be justified in Zone 2 if it complies either with clauses 1, 3 and 4, or with clauses 2, 3 and 4:

1. It is located in an area benefitting from flood defence infrastructure; **OR**
2. It will assist, or be part of, a local authority initiative or strategy to sustain an existing settlement and is identified in an adopted Development Plan as a result of consideration through the SFCA;
AND,
3. It conforms with the placemaking policies of PPW and meets the definition of previously developed land; **AND,**
4. The potential consequences of a flooding event for the particular type of development have been considered, and found to be acceptable in accordance with the criteria contained in section 11.

Zone 3

Less vulnerable development, including essential transport and utilities infrastructure will **only** be justified if it can be demonstrated that:

- a) The scheme is allocated (or part of an allocation) or identified in an adopted Development Plan, as a result of consideration through the SFCA, with evidence to justify why it is necessary to locate the development in zone 3;
AND
- b) The potential consequences of a flooding event for the particular type of development have been considered, and found to be acceptable in terms of the criteria contained in section 11.

Highly vulnerable developments are not allowed in zone 3.

11. Assessing flooding consequences

- 11.1 If the planning authority is satisfied that a development proposed in a flood zone has met the tests outlined in section 10, the justification will be in the knowledge that those developments may experience flooding and will need to be planned accordingly. A full understanding of the potential risks and consequences will be required to inform the planning authority in its decision making and to demonstrate that the criteria set out in section 10 have been satisfied. Before the planning authority determines an application, a flood consequences assessment must be undertaken, which is appropriate to the size and scale of the proposed development.
- 11.2 The high public and private costs of flooding require a precautionary approach to development within flood risk areas, which acknowledges the uncertainty of current forecasts. It is important that these uncertainties are taken fully into account within the assessment to ensure that informed decisions can be made.

Acceptability criteria for flooding consequences

- 11.3 Whether a development should proceed or not will depend upon whether the consequences of flooding can be safely managed, including its effects on flood risk elsewhere. It is not appropriate to permit new development in areas subject to significant flood depths or velocities or where safe access or egress cannot be achieved.
- 11.4 The assessment should establish if suitable avoidance and mitigation measures can be incorporated, in a manner compatible with the placemaking aims of PPW, within the site design to ensure that development is safe and there is:
- minimal risk to life;
 - minimal disruption to people living and working in the area,
 - minimal potential damage to property;
 - minimal impact of the proposed development on flood risk generally; and,
 - minimal disruption to the sustainable management of natural resources.
- 11.5 To inform their planning decision, the planning authority will need to arrive at a judgement on the acceptability of the flooding consequences and they should only permit development where the developer has demonstrated that the risks and consequences of flooding are manageable and meet the criteria set out in figures 4, 5 and 6 below.

Frequency Thresholds: Designing development to be flood free

- 11.6 All development must be designed to be flood free during the 1% fluvial/river flood (i.e. a flood with a 1 in 100 chance of occurring in any year) and the 0.5% tidal/coastal flood (i.e. a flood with a 1 in 200 chance of occurring in any year),

plus an allowance for climate change over the lifetime of development. Local Authority and Emergency Services command centres and hubs for the Emergency Services should be designed to be flood free during any 0.1% event (i.e. a flood with a 1 in 1000 chance of occurring in any year). Where appropriate, an assessment against a breach and blockage scenario should be undertaken against these parameters.

11.7 Detailed guidance on climate change allowances for planning purposes is published separately by the Welsh Government.

11.8 The following table summarises the frequency threshold that must be met for different types of development and is described in terms of annual probability of occurrence.

Figure 4 - Flood events in which development must be flood-free

Vulnerability Categories		Flood event type	
		Fluvial	Tidal
Highly vulnerable development	Emergency services (command centres and hubs)	0.1%+CC (1 in 1,000)	0.1%+CC (1 in 1,000)
	All other types	1% +CC (1 in 100)	0.5%+CC (1 in 200)
Less vulnerable development		1% +CC (1 in 100)	0.5% +CC (1 in 200)

Tolerable Conditions: Managing consequences in an extreme flood event

11.9 The flood free thresholds outlined above relate to very serious but not the most extreme flood events (with the exception of thresholds for emergency services). During extreme flood events there is recognition that it may not be possible to keep all development flood-free. In these circumstances it is imperative that flooding does not endanger life therefore it must be demonstrated that conditions within the development before, during and after an extreme event will be tolerable.

11.10 Figure 5 below indicates the maximum tolerable flood depth and velocity conditions for highly vulnerable and less vulnerable development when assessed against the 0.1% extreme flood event, including an allowance for climate change.

11.11 Mitigation and flood resilience measures are not sufficient justification to permit a development if the tolerable conditions are exceeded during an extreme flood event. High velocities and/or depths of floodwater pose a

potential risk to life, may cause structural damage to buildings and could impact on human health and wellbeing.

Figure 5 – Tolerable conditions in an extreme flood event

Types of development	Maximum depth of flooding (mm)	Maximum velocity of flood waters (metres/sec)
Highly vulnerable development: Residential dwellings, schools etc. (Zone 2 only)	600	0.15
Infrastructure associated with highly vulnerable development e.g. car parks, access, paths and roads. Less Vulnerable Development	600	0.3

11.12 The above figures are tolerances below which development may be acceptable. Each site, however, must be considered individually, and a judgement taken in the context of the circumstances, which could prevail at that site. Emergency services developments are not shown because they must be flood-free in a 0.1% event, as set out in Figure 4. For emergency services developments other than command centres or hubs, the conditions for Highly Vulnerable Development should be applied

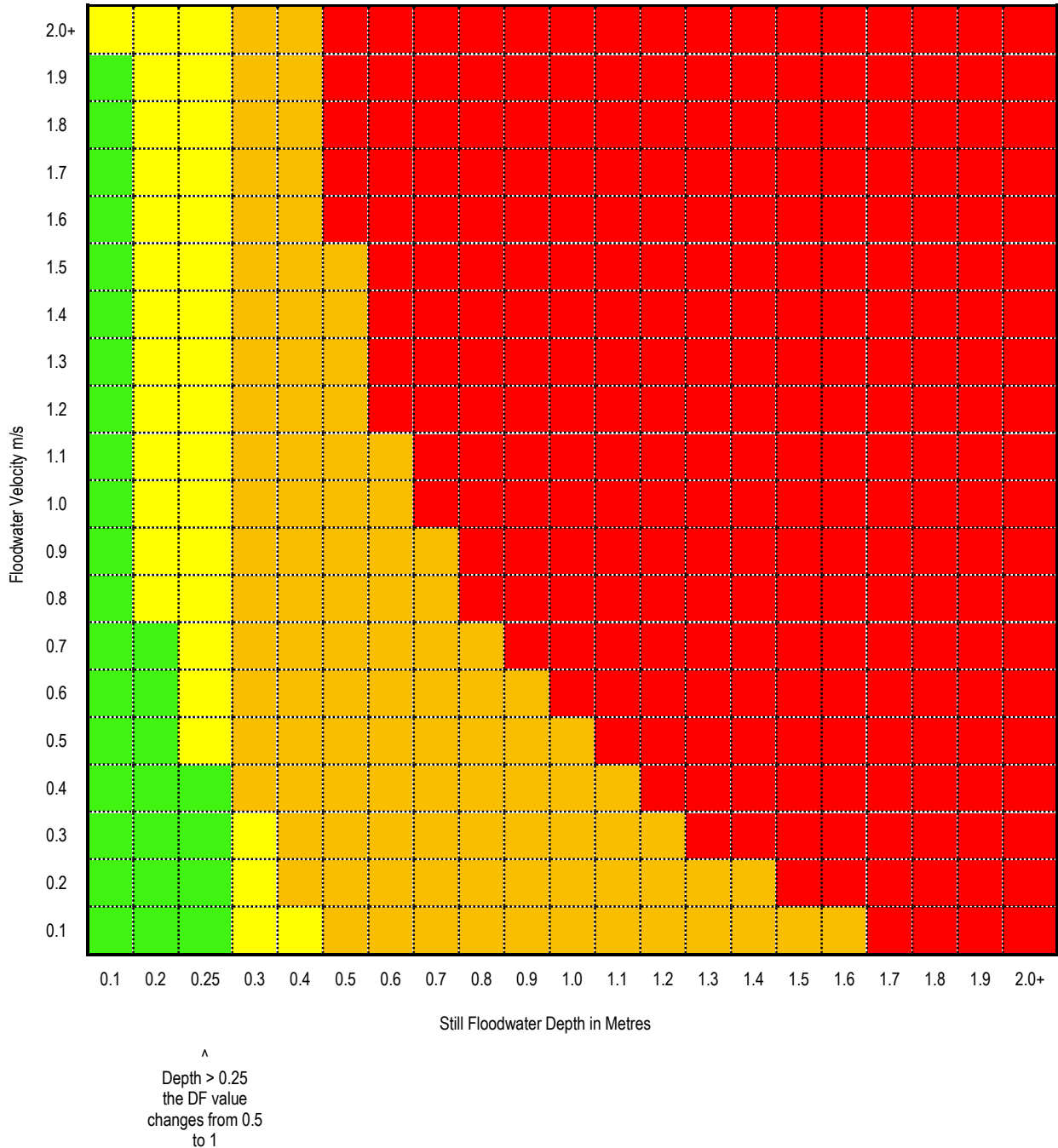
11.13 When deciding if the consequences of an extreme flood event can be acceptably managed, planning authorities should refer to relevant policies and actions identified in their Development Plan and by Risk Management Authorities in a local contingency plan. This is of particular relevance to emergency access and evacuation requirements.

11.14 Flooding causes danger when either the water is deep or it is moving quickly. It is particularly dangerous when both occur at the same time. The flood hazard matrix at Figure 6 below provides an indicative tool to help planning authorities assess how hazardous a flood event may be to different people. The matrix can be used to assess the levels of danger, by plotting the expected water depths and velocities at different stages of the flood event.

11.15 The planning authority should consider all potential and likely users of any proposed development when assessing whether the development can be considered to provide a safe environment during an extreme flood event. The matrix shows that flood events involving deep and fast-moving water are dangerous to all, including the emergency services. It would not be

appropriate to develop in areas with this degree of danger under any circumstance.

Figure 6: Flood hazard matrix



Colour code	Hazard to people classification
	Very low hazard
	Danger for some – includes children, older people and people with disabilities
	Danger for most – includes the general public
	Danger for all – includes the emergency services

12. Flood consequences assessments

- 12.1 If the planning authority is content that a development proposed in a flood zone meets the tests outlined in section 10, a full assessment of the flooding consequences will be required.
- 12.2 The prime objective of a flood consequences assessment is to develop a full appreciation of:
- The risk and consequences of flooding on the development;
 - The risk and consequences (i.e. the overall impacts) of the development on flood risk elsewhere within the catchment
- 12.3 The assessment must allow for a range of potential flooding scenarios up to and including that flood having a probability of 0.1% in any year. An allowance for climate change must be made in line with current Welsh Government guidance.
- 12.4 Figure 7 sets out the components and data that should be included in a flood consequences assessment.
- 12.5 The assessment will help the planning authority determine whether the risk and consequences of flooding are acceptable and can be appropriately managed over the lifetime of development. The assessment can also be used to establish whether appropriate avoidance or mitigation measures could be incorporated within the design of the development to ensure that over its lifetime, development minimises risk to life, damage to property and disruption to people living and working on the site or elsewhere in the floodplain.
- 12.6 Planning authorities must recognise the presence of protection measures does not eliminate risk completely and that certain developments are more vulnerable than others. Land protected by defences can be extremely vulnerable in the event of overtopping or breach because of the speed of flooding in such circumstances. In addition, flood water can carry a significant amount of debris, which has the potential to cause blockage at structures. Where appropriate, the flood consequence assessment should demonstrate that in the event of overtopping, breach or blockage the consequences of flooding can be managed to an acceptable level.

Figure 7: Technical Requirements of a Flood Consequences Assessment

<p>1. A location plan identifying all possible sources of flooding including overtopping and/or breach of existing defences and any in-channel structures that may be prone to blockage.</p>	<p><i>The plan should be presented at an appropriate scale and should include geographical features, street names and identify all watercourses or other bodies of water in the vicinity. This should include drainage outfalls and, if necessary, cross-refer to their operational arrangements in the body of the report.</i></p>
<p>2. A plan of the site showing existing and proposed levels related to Ordnance Datum.</p>	<p><i>Proposed development levels may well be only indicative at this stage, however the FCA should establish development levels to manage flood risks and consequences.</i></p>
<p>3. A plan identifying any flood alleviation measures already in place.</p>	<p><i>If a development site benefits from existing flood alleviation measures, the FCA should assesses the impact and consequences of any breach/overtopping event. Consideration should also be given to the standard of protection provided by such measures over the whole lifetime of development.</i></p>
<p>4. An assessment of all sources of potential flooding including, but not confined to rivers, tidal, coastal, groundwater, surface flow or any combination of these.</p>	<p><i>The FCA should include estimates of extreme flood flows from the threshold to the probable maximum flood, including an allowance for climate change.</i></p>
<p>5. Existing and proposed cross-sections of the site showing proposed development and site levels relative to the source of flooding, and to anticipated water levels and associated probabilities.</p>	

6. An assessment of peak flood depth and velocities at which various parts of the site might flood, the likely duration of flood events and impacts of flooding.	<i>The FCA must demonstrate that the development can meet the flood free thresholds for the 1% fluvial /0.5% tidal event (including an allowance for climate change) as required for the type of development.</i>
7. Information regarding the extent and depth of past flood events and future predictions.	<i>The FCA must assess future flood risk using current Welsh Government guidance on climate change allowances for planning purposes.</i>
8. A plan of the area to show overland flow routes and appropriate access/evacuation routes from the proposed development site that are operational under all conditions.	<i>Levels relative to Ordnance Datum and anticipated flood depths/velocity in the 0.1% flood event plus climate change should be provided.</i>
9. A plan and description of any structures which may influence local hydraulics, including bridges, pipes/ducts crossing the watercourse, culverts, screens, embankments or walls, overgrown or collapsing channels.	<i>This must include an assessment of the likelihood of such structures to choke with debris and the flooding consequences on the development and elsewhere.</i>
10. An assessment of the implications of any drains or sewers, existing or proposed, on the site during flood events.	<i>The methodology for assessment must be clearly stated.</i>
11. An assessment of the flood storage volume that would be lost and/or displaced from the site.	<i>The FCA should assess various flood return periods up to and including the 0.1% extreme flood event plus climate change over the lifetime of development. Any flood storage lost should be compensated for on a 'like for like' and 'level for level' basis. The likely impact of any displaced water elsewhere should also be assessed.</i>

<p>12. An assessment of the run-off likely to be generated from the development.</p>	<p><i>The FCA should provide details on how run-off will be managed to ensure there is no risk of surface water flooding to the development or elsewhere.</i></p>
<p>13. Details of flood avoidance, mitigation and resilience measures to be implemented.</p>	
<p>14. Details to demonstrate that the development will not cause or exacerbate the nature and frequency of flood risk elsewhere.</p>	
<p>15. An assessment of the risks after the construction of any necessary mitigation measures.</p>	<p><i>Consideration should be given to the performance of any such measures in extreme events greater than those for which they are designed and information should be provided on the consideration given to minimising risks to life, property and natural heritage.</i></p>
<p>16. A clear and comprehensive summary of the assessment describing the outcomes and recommendations.</p>	

- 12.7 Natural Resources Wales can advise the planning authority on the consequences of fluvial and tidal flooding to the proposed development and elsewhere based on the evidence presented in the flood consequences assessment. The planning authority should also seek advice from the relevant Lead Local Flood Authority on the consequences from surface water flooding and other local sources of flooding including ordinary watercourses. This should enable the planning authority to arrive at a judgement on the acceptability of the flooding consequences. Where development is allowed, developers must put plans or measures in place to manage those consequences. Such measures must be capable of being implemented at the appropriate stage as part of the development and, where necessary, long term maintenance must be provided for.
- 12.8 The effect of flooding on water or sewerage infrastructure could have catastrophic effects on public health and the environment by resulting in the contamination of potable water, or the mixing of sewerage with flood water. Flood water could enter the public sewerage systems with little control and the combination of sewerage and flood water would affect properties and the environment. The consequences assessment should consider access and egress, for example, if a statutory undertaker is not able to access its apparatus during a flood then this will prolong the time before remediation could occur. It may be necessary to consult with the relevant sewerage undertaker for advice.
- 12.9 Development proposals on or adjacent to land that may be affected by contamination can have implications for water quality during times of flood. Where such sites are inundated there is an attendant risk that certain contaminants may be mobilised and could pose a threat to surface waters or leach into ground waters. In addition, where the development involves, for example, the storage/use of oils, fuels or chemicals, an industrial process or the storage or handling of waste materials, there is a risk to the water environment should the site be inundated. These factors should be taken into account in reaching a decision by forming part of the flood consequences assessment.

13. Resilient Design

- 13.1 Improving the resilience of communities at risk of flooding now and under potential climate change scenarios is a priority for planning authorities. Design considerations will be a key factor when determining whether development is acceptable in Zones 2 and 3. The most effective solutions will combine both site-level and property-level resilience measures. Strategic and detailed Flood Consequences Assessments should provide advice on which measures offer the best and most appropriate protection from flooding.
- 13.2 Planning and building standards have a complementary role in flood management and the use of flood mitigation and damage resistant measures will be required as part of ensuring the consequences of flooding are acceptable. Any new development in Zones 2 and 3 where the tests of section 10 and 11 have been met should have resilience to flood built-in at site and property level.
- 13.3 At the property-level, the aim should be to minimise the amount of water that can enter a property and limit the damage caused if water does enter. Simple design features, such as raising floor levels, while ensuring that inclusive access is maintained, or keeping electrical circuits above levels likely to be affected by flooding, can enable buildings to resist and cope with flooding better.
- 13.4 Higher density, mixed use developments can offer greater potential for resilient design. Ground floors areas can accommodate less vulnerable elements of the development, such as commercial uses. The use of appropriate materials will also improve the resilience of a development, for example by avoiding the use of carpets in ground floor areas.
- 13.5 Site-level resilience measures should have the twin aim of reducing the amount of flood water that can enter the site and effectively managing any water that does reach the site so it does not impact on households. The latter element is known as 'designing for exceedance'. It can involve using green infrastructure, highways and pavements to channel and redirect water, and using open spaces or car parks to temporarily store excess water. The integration of SuDS into developments should be seen as an opportunity to achieve multiple positive outcomes, by combining crucial drainage and flood defence assets with green infrastructure and high quality public realm.

Advice on incorporating resilience into development through design is available from the Construction Industry Research and Information Association (CIRIA). Including a Code of Practice and Guidance for Property Flood Resilience.

New or improved flood defence infrastructure

- 13.6 The use of nature based solutions is a key priority to deliver more natural means of providing protection from flooding⁵. There will however be circumstances where Risk Management Authorities are justified in proposing new or improved engineered flood defences to better protect existing communities from flooding and the effects of flooding.
- 13.7 Flood defence infrastructure will normally have the effect of diverting water away from a development, which can lead to increasing the risk of flooding elsewhere. Full and careful consideration of the benefits and detrimental impacts, both on and off site, must be undertaken when new or improved flood defence infrastructure is proposed. Planning authorities should be satisfied the benefits to the protected area clearly outweigh any negative effects elsewhere.
- 13.8 The provision of compensatory floodplain is an effective way of avoiding detrimental impacts elsewhere, but is not always a feasible option. Increasing the risk or severity of flooding elsewhere may be acceptable where the impact is on undeveloped or unoccupied land. If the affected land is existing functional floodplain the benefit of strengthening flood protection to residential properties will normally outweigh the negative impact of more intense flooding on the floodplain. Where flood defence infrastructure would lead to an increase in risk to residential properties already at risk of flooding (zone 2 or zone 3) the flood consequences assessment will inform the planning authority's decision. Planning authorities should carefully consider whether the increased risk under different flood scenarios is reasonable and tolerable, using the guidance set out in section 11. If detriment to third party land is to be accepted all affected landowners must be informed to allow them to challenge the decision or negotiate compensation.
- 13.9 New or improved flood defence infrastructure should not cause residential properties located elsewhere currently at little or no risk (zone 1) to be put at risk of flooding (zone 2 or zone 3).
- 13.10 Investment in new or improved flood defences should seek to achieve wider social, economic and environmental benefits, such as carbon storage, recreation, biodiversity improvements and social wellbeing. These will enable Risk Management Authorities to demonstrate delivery against their Well-being goals, and duties under the Environment Wales Act 2016. Investments in flood defence infrastructure may deliver greater overall value when combined with other investment, for example in active travel infrastructure, public realm improvements or regeneration schemes.

⁵ National Strategy for Flood and Coastal Erosion Risk management - <https://gov.wales/national-strategy-flood-and-coastal-erosion-risk-management>

14. Specific considerations for planning applications

- 14.1 The susceptibility of land to flooding will be a material consideration in deciding a planning application. For proposals located in Zones 2 and 3 developers will need to demonstrate, to the satisfaction of the planning authority, that the development can be justified at that location and the consequences associated with flooding are acceptable.
- 14.2 Where a site falls into two or more flood zones it will be a matter for the planning authority to judge how to apply section 10, while an assessment in accordance with section 11 will be required. Advice from Natural Resources Wales should be taken into account when deciding whether the consequences of flooding are acceptable, in terms of the risks to people and property.
- 14.3 For those developments which may in principle be acceptable in Zones 2 and 3, a flood consequences assessment should be submitted with the planning application. Where insufficient information is provided in the assessment to enable Natural Resources Wales to advise on the consequences of flooding, the planning authority should use its powers to request further information. Where requested information is not forthcoming this may constitute a reason for refusal. These assessments should be carried out by a suitably qualified competent person and inform the process of detailed design and the selection of mitigation measures, where appropriate. Details of the technical requirements of flood consequences assessments can be found in section 12.

Pre- application discussions

- 14.4 Applicants should use pre-application services provided by planning authorities when preparing proposals for development, to ensure the planning application provides all information necessary for decision makers and consultees to consider the application. Pre-application engagement should establish the scope of the flood consequences assessment and the , ensuring it is commensurate with the nature and scale of the proposed development, and establish whether any existing and relevant flood modelling work already exists. Multi-lateral engagement between the applicant, the local planning authority, SuDS Approving Body and Natural Resources Wales is encouraged as best practice.

Consultation

- 14.5 When a planning authority receives a planning application to develop in Zone 2 or Zone 3 they should undertake appropriate internal consultation in

relation to their own flood defence responsibilities as the Lead Local Flood Authority, as well as consulting Natural Resources Wales⁶.

- 14.6 Natural Resources Wales should provide detailed advice to the planning authority on the findings and conclusions of the flood consequences assessment, including the impact on flooding elsewhere and the impact of flood alleviation works on the environment and other property. Where the planning authority is minded to go against the advice of Natural Resources Wales, it should inform them prior to granting consent allowing sufficient time for further representations to be made, to ensure consequences can be managed acceptably. Planning consent should not be granted without first giving Natural Resources Wales reasonable time to respond to the proposal.

Further guidance for specific circumstances

Applications for Individual Householders

- 14.7 Applications for minor extensions or alterations should not raise significant issues unless they:

- are likely to have a direct and adverse effect on a watercourse or its flood defences,
- would impede access to flood defence and management facilities, or
- where the cumulative impact of such developments could have a significant effect on flood storage capacity or flood flows.

- 14.8 In such cases there will be no requirement to justify the location of development but if such minor works are likely to have an adverse effect then the full consequences of a development will need to be appreciated and FCA undertaken.

- 14.9 Where an SFCA has indicated that multiple extensions or alterations in an area would be likely to have an adverse cumulative effect on flood risk, planning authorities should consider making an Article 4 Direction under the Town and Country Planning (General Permitted Development) Order 1995, as amended. Householder developments would then require an application for planning permission to be submitted, giving planning authorities an opportunity to give full consideration to the proposal and any effect on flood risk.

⁶ As stated in sections 7 and 10, the flooding consequences associated with new highly vulnerable development in zone 3 are not acceptable and there is no requirement for Natural Resources Wales to respond to consultations on this type of proposal.

Change of use and conversions

- 14.10 The redevelopment of existing buildings in flood risk areas can present decision makers with exceptionally difficult decisions. While new highly vulnerable development cannot be justified in Zone 3, there may be circumstances where the planning authority may be sympathetic to changes of use or conversion proposals which bring clear benefits to the area and the building.
- 14.11 Proposed developments should be held to a higher standard than may have historically been the case and should be resilient in the event of flooding. Decision makers should apply the section 11 test to satisfy themselves that the consequences of flooding have been considered and are acceptable. A flood consequences assessment commensurate with the scale and nature of the proposal will be required to enable the planning authority to reach its decision.

Many changes of use are permitted under the Town and Country Planning (Use Classes) Order 1987, as amended, including some which could result in a change from a low vulnerability use to a high vulnerability use. Where they become aware of such a change of use, planning authorities could provide developers with an advisory note alerting them to the residual flood risk and encouraging the use of flood resistant and resilient measures.

Public open space, recreation and agriculture

- 14.12 The use of land at risk of flooding for agriculture, recreation and as public open space is likely to be acceptable in most cases. However, ancillary buildings or structures required for these uses, which in some circumstances are subject to prior approval, may not be acceptable. As with all other uses, the application of section 11 will be relevant where flooding is a risk to ensure the consequences of flooding are considered acceptable and are capable of being effectively managed.

Caravan and Camping Sites

- 14.13 Caravan, camping and other temporary occupancy sites give rise to special problems in relation to flooding. They have often been located on coastal or riverside sites which are susceptible to flooding. The instability of caravans places their occupants, and others, at special risk and it may be difficult to operate an effective flood warning system. Such development should not be permitted in Zone 3, while changes of use of land to residential mobile homes should not be proposed or allowed. They should only be considered in Zone 2 if the development satisfies the tests in section 10 and section 11.
- 14.14 Where permission is granted for caravan/camping sites or other temporary holiday accommodation in any area with a risk of flooding, a planning

condition should require the provision of suitable warning notices to inform people entering the site and the preparation of effective warning and evacuation plans. Enforcement action should be taken if such signs become out of date, to ensure that effective warning notices are always present. Caravanning and camping organisations should liaise with the local planning authority and Natural Resources Wales about any flooding constraints which might apply and the arrangements for notifying users of the warning systems and evacuation procedures.

Canals and other artificial water bodies

14.15 Canals, as inland waterways, operate differently to rivers and other watercourses as defined under the Land Drainage Act 1991. While some will fall within river or coastal flood risk areas, canals generally have a limited number of feeders, which are often controlled so that they can be diverted away from the canal at times of flood. Sluices are controlled to discharge excess water from the canal during periods of high inflow to ensure that water levels do not exceed the freeboard and overtop to flood adjacent land. Canals also have some ability to store water before it is discharged, attenuating flood peaks and reducing the potential for flooding. In some cases, canals cross river catchment boundaries, and water could be accepted in one catchment and discharged in another. The Canal and River Trust and other canal owners should be consulted on proposals in the vicinity of canals, feeders and streams which are fed from canal overflow structures, such as weirs and sluices.

14.16 The implications for development in the vicinity of canals and other artificial water bodies are twofold. Firstly, since the concept of a flood plain is not applicable, waterside development or redevelopment of previously developed land may not face the same flood-risk constraints as development alongside a river. Canals may therefore retain their potential to act as catalysts for urban and rural regeneration. Secondly, authorities considering development in the vicinity of canals should not overlook their own capacity to cause localised flooding, for example where overflow channels fail to operate or where canal embankments fail or are breached. Dams and reservoirs pose a similar potential for possibly large-scale flooding. A precautionary approach should be adopted at vulnerable locations and the precautionary methodology applied in consultation with the canal operator or dam/reservoir owner.

Developer Contributions

14.17 In some circumstances, development may be permitted which requires the provision of flood defence and mitigation. Developers will normally be expected to bear the costs of necessary mitigation, construction and long term maintenance. Planning authorities should, where necessary, require developers to enter into an agreement under Section 106 of the Town and Country Planning Act 1990 to ensure the defences can be provided, the

developer carries out any necessary works and future maintenance commitments are met. It will normally be appropriate to vest the resulting defences, constructed to the operating authority's satisfaction, in the operating authority, with a dedicated commuted sum to cover maintenance for 30 years. After that time, it would be reasonable to regard the defences as a public asset which should be maintained from the public purse.

- 14.18 Where such works would provide a wider benefit, the funding provided by the developer may be proportional to the benefits they incur. In such cases, a reasonable allocation might be for the developer to fund the provision of the defences, which are then vested in and maintained by the operating authority. A "Grampian" type condition may be used where it can be guaranteed that the whole scheme would be funded and constructed prior to development proceeding.
- 14.19 Advice on the use of conditions in planning permissions and planning obligations is set out in Welsh Government Circular 016/2014 and Welsh Office Circular 13/97 respectively.
- 14.20 The planning authority, having taken advice from Risk Management Authorities, will need to be satisfied that the defences can be provided and will determine what contribution is required from the developer. Unless a planning authority is satisfied that the developer will be subject to an effective obligation to provide the necessary contribution, the application should be refused.

Environmental Impact Assessment (EIA)

- 14.21 Planning permission is required for new coast protection works and to improve existing works. Coast protection works (other than the maintenance or reconstruction of existing works) fall within schedule 2 of the Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations 2017 and EIA may well be required before planning permission can be determined. Where coast protection works are likely to have a significant effect on a site covered under the Conservation of Habitats and Species Regulations 2017 (and is a "relevant plan or project" for those purposes), an "appropriate assessment" will be required.
- 14.22 If the works are below mean high water spring tide level, a licence is required from Natural Resources Wales under the provisions of the Marine and Coastal Access Act 2009. In considering whether to issue a licence regard will be given to the need to protect the marine environment, amongst other things.
- 14.23 For flood defence/relief works, local planning authorities will need to determine whether EIA is required under the Town and Country Planning

(Environmental Impact Assessment) (Wales) Regulations 2017. The preservation, wherever possible, of natural flood defence structures, for example sand dunes, should always be an option for consideration and integrated with the delivery of other benefits in the context of Integrated Coastal Zone Management (ICZM).

14.24 In addition, land drainage improvements permitted under the Town and Country Planning (General Permitted Development) Order 1995, as amended, may require EIA under the Environmental Impact Assessment (Land Drainage Improvement Works) Regulations 1999. Developers should contact the planning authority as early as possible to determine whether EIA is needed and, if so, what it should cover.

14.25 Flood risk may be an element to be considered as part of developments for which an environment statement is required, and if so, will form part of the EIA. This is likely to occur where the impact of development on flood risk will affect designated conservation sites or compromise river and shoreline management options or biodiversity action plans. These circumstances are not exhaustive and developers should contact the planning authority to determine whether EIA is required. Further advice on EIA is contained in section 6.2 of the Development Management Manual and WO Circular 11/99.