



➤ Technical Advice Note 15 Development, flooding and coastal erosion

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Mae'r ddogfen yma hefyd ar gael yn Gymraeg.

This document is also available in Welsh.

> 1 Introduction



- 1.1 This Technical Advice Note (TAN) should be read in conjunction with Planning Policy Wales (PPW) and the Welsh National Marine Plan, and should be taken into account by planning authorities in Wales in the preparation of Development Plans. It 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 policies set out in PPW in relation to flooding and coastal erosion. It provides a framework within which the flood risks arising from rivers, the sea and surface water, and the risk of coastal erosion can be assessed. It also provides advice on the consequences of the risks and adapting to and living with flood risk.

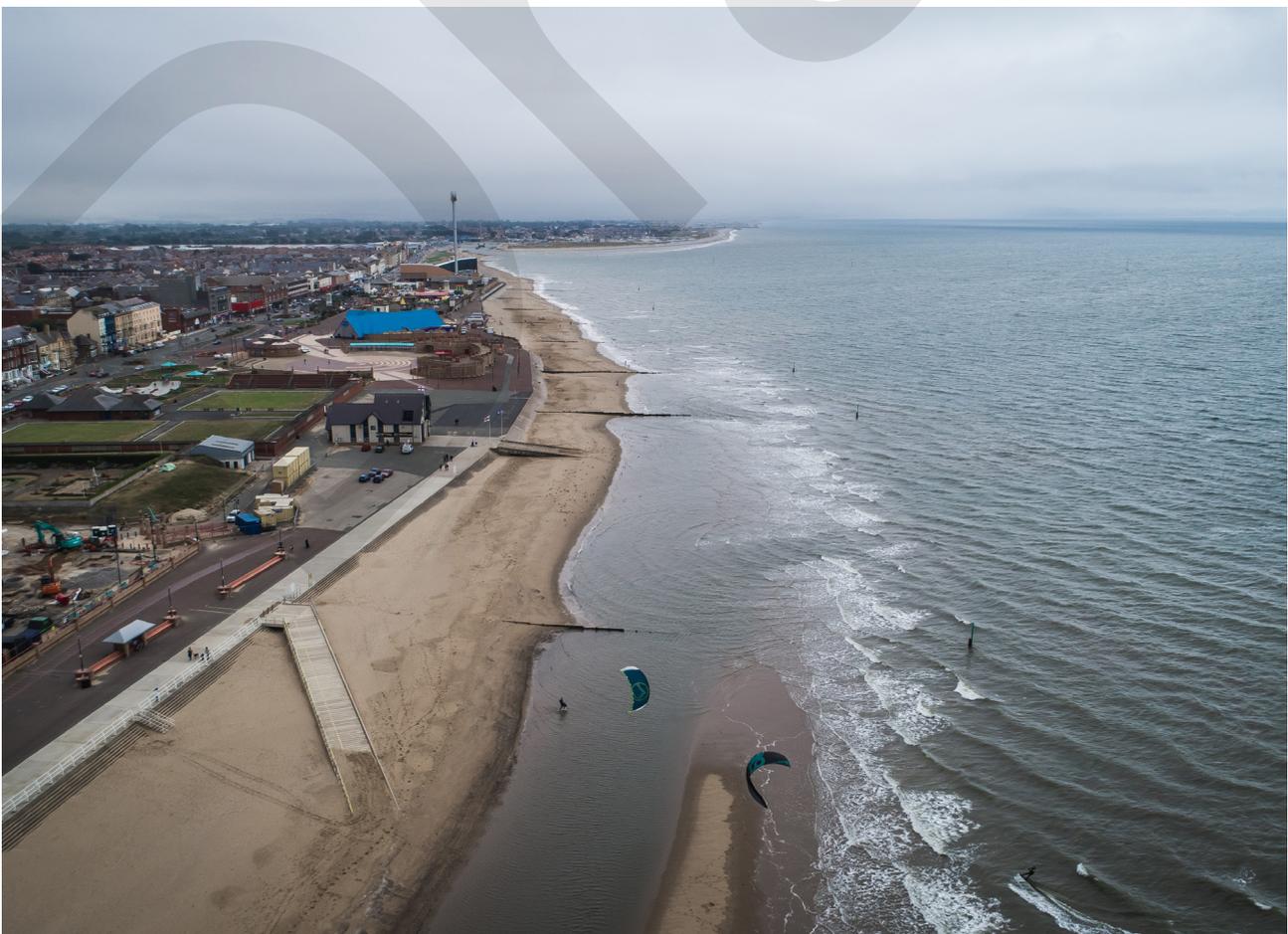
This document replaces Technical Advice Note 14, published in 1998 and Technical Advice Note 15, published in 2004. Development Plans and planning decisions should no longer refer to those documents.

> 2 Flooding, coastal erosion and placemaking

2.1 Planning Policy Wales (PPW) 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 flooding 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 to fulfil the requirements set out in PPW.



> 3 Background



- 3.1 The consequences of flooding can be very serious. It can happen at any time of the year, and often without significant warning. The frequency and severity of floods is increasing and is expected to further increase as a result of climate change. Flooding can place lives at risk, cause considerable personal trauma, result in extensive and expensive damage to property, impose pressures on emergency services and severely disrupt communications, business and commerce.
- 3.2 Wales' topography and industrial history has generally led to development and transport infrastructure being concentrated on valley floors, lowland areas and in the coastal fringes. A large proportion of the population is located in coastal urban centres, including Cardiff, Swansea and Newport and the coastal settlements of the north.
- 3.3 Across the country, some 162,000 properties face a 1 in 100 chance or greater of flooding in any given year from the sea, rivers and surface water.¹
- 3.4 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 400 homes at risk.²
- 3.4 The approach set out in this TAN ensures flooding and coastal erosion are accorded appropriate consideration in plan making and Development Management.

1 Source: Flood Risk Assessment Wales 2019

2 Source: National Strategy for Flood and Coastal Erosion Risk Management in Wales (2020)

Climate Change

- 3.5 The Climate Change Committee provides independent advice to the Welsh Government on setting and meeting carbon budgets and preparing for climate change. It has stated that it expects the climate in Wales to become warmer 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.
- 3.6 The Well-being of Future Generations (Wales) Act 2015 and climate change are inextricably connected. This Act places a duty on public bodies to carry out sustainable development and to maximise their contribution to the achievement of the well-being goals. Public bodies are required to think about the long-term impact of their decisions, to work better with people, communities and each other, and to take action to prevent and mitigate persistent problems such as the impacts of climate change.
- 3.8 The affordability of insurance, 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.
- 3.10 In areas at risk of coastal erosion the availability of home insurance covering the risk of erosion is extremely limited. It is therefore inappropriate to allow any more new homes to be constructed in such areas.

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 homes built after 2009. Planning authorities should therefore recognise that new homes built in flood risk areas may be subject to prohibitive insurance premiums reflective of the risk they face, or be uninsurable. If a home is uninsurable it will adversely affect the chances of securing a mortgage.

> 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,³ 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.

- 4.2 The advice in this document will ensure flood risk and coastal erosion are afforded appropriate consideration in the planning system. Figure 1 is a summary of the requirements that apply to different types of new development in different areas. Sections 5 to 14 of this document provide further detail in support of the summaries.

Flood risk – rivers and the sea

- 4.3 The National Strategy recognises the varying degrees of flood risk, now and in the future. The overarching aim when considering new development is to prevent exposure to risk, by making locational choices in the following order of preference:
- Direct new development to areas at minimal risk of flooding – areas in **Zone 1**;
 - Enable resilient development in areas served by formal flood risk management defences that reduce the risk and consequences of flooding over the lifetime of development – areas in the **TAN 15 Defended Zones**;

- Allow resilient development in undefended areas of relatively low risk – areas in **Zone 2**;
- Only permit water compatible development, essential infrastructure, and less vulnerable developments by exception in areas of higher risk – areas in **Zone 3**.

- 4.4 This approach is based on:

- A Flood Map for Planning showing flood zones which 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;
- Planning authorities incorporating local flood risk considerations into their planning policies and decisions.

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

Flood risk – surface water and ordinary watercourses

- 4.6 The risk-based approach recognises that surface water and ordinary watercourse flood risk cannot always be managed and mitigated, particularly as these are increasing sources of risk as a result of climate change. The Flood Map for Planning provides information on these risks to enable planning authorities to develop locally-appropriate approaches for areas at risk, or in close proximity to risk. Zone 3 indicates areas at highest risk, followed by Zone 2.

³ The National Strategy is published at: gov.wales/national-strategy-flood-and-coastal-erosion-risk-management-wales

Locally-appropriate approaches can be incorporated into the Development Plan using local policies, and in the decision making process for planning applications.

Coastal erosion

- 4.7 Development should be avoided where there is a risk of being impacted by coastal erosion over the lifetime of the development. Local planning policies for coastal areas should reflect and complement Planning Policy Wales (PPW), Future Wales – the National Plan 2040, the Welsh National Marine Plan, the National Strategy for Flood and Coastal Erosion Risk Management, Shoreline Management Plans, Area Statements and other relevant strategies.

Roles and responsibilities

- 4.8 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.
- 4.9 In Wales' plan-led system the setting of appropriate and effective strategies, policies and site allocations in Development Plans is essential. The planning authorities responsible for preparing these plans should draw on the expertise and knowledge of relevant departments within local authorities. There is also an important 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. Planning authorities should also engage with key stakeholders, including the emergency services.

- 4.10 Most decisions on planning applications are taken locally, while the Welsh Ministers are responsible for appeals, called-in applications and Developments of National Significance. Decision makers are responsible for determining whether a proposal is justified and the consequences of flooding are acceptable. Where flooding or coastal erosion are considerations, Risk Management Authorities⁴ will need to be consulted, in order to provide advice which should be taken into consideration by the decision maker.

- 4.11 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. This information will need to be submitted with a planning application, in order to ensure decisions are taken within statutory timeframes.

Monitoring

- 4.12 The Welsh Government will monitor the effectiveness of PPW and TAN 15 through a Notification Direction and Sustainable Development Indicators.
- 4.13 The **Notification Direction** ensures the Welsh Government is made aware of planning applications for new highly vulnerable development in Zone 3 – Rivers and Sea, which the planning authority is minded to approve. Welsh Ministers will have the option of calling-in the application to determine themselves.
- 4.14 The **Sustainable Development Indicators** are part of an annual survey of services delivered by planning authorities. It includes the number of planning permissions granted in areas at risk of flooding.

⁴ Risk Management Authorities are set out in the National Strategy for Flood and Coastal Erosion Risk Management in Wales. There are 28 in total, including Local Authorities (as Lead Local Flood Authorities, Local Highway Authorities and Coastal Erosion Authorities), Natural Resources Wales, Welsh Government (as trunk road highway authority) and Water Companies.

Figure 1 – Summary of national policy requirements for new developments

Flood Map for Planning Zone	Development Type	Development Advice	Planning Requirements	Acceptability Criteria
1	All	No constraints relating to flooding from rivers or the sea, other than to avoid increasing risk elsewhere.	Justification test not applicable. Flood resistant and resilient design in locally-defined areas of current or future flood risk. Refer to surface water requirements set out in section 8 and in the Development Plan.	<ul style="list-style-type: none"> No increase in flooding elsewhere.
TAN 15 Defended Zones	All	Plan allocations and applications for development can 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 section 8 and in the 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. Flood emergency plans and procedures. Flood resistant and resilient design. No increase in flooding elsewhere.
Rivers and Sea – Flood Zone 2	All	Plan allocations and applications for development can 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 section 8 and in the 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. Flood emergency plans and procedures. Flood resistant and resilient design. No increase in flooding elsewhere.

Flood Map for Planning Zone	Development Type	Development Advice	Planning Requirements	Acceptability Criteria
Rivers and Sea – Flood Zone 3	Highly vulnerable development	The flooding consequences associated with highly vulnerable development are not considered to be acceptable. Plan allocations must not be made for such development and planning applications not proposed. Flood Consequences Assessments (FCAs) should not be prepared as there is no requirement for Natural Resources Wales to provide advice.		
	Less vulnerable development. Water Compatible Development (limited to those built elements of development that may be occupied by people).	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 section 8 and in the 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. • Flood emergency plans and procedures. • Flood resistant and resilient design. • No increase in flooding elsewhere.
Surface Water and Small Watercourses – Flood Zone 2 and Flood Zone 3.	All	Local policies to indicate areas where development would not be appropriate. Development to be set back from areas at risk.	Requirements set out in section 8, including Flood Consequences Assessment. Justification test not applicable.	<ul style="list-style-type: none"> • Acceptable consequences for type of use. • No increase in flooding elsewhere. • Flood risk management and mitigation measures must not increase flooding elsewhere.

> 5 Flood Map for Planning

5.1 The Flood Map for Planning and the Flood Risk Assessment Wales (FRAW) map together make up the Wales Flood Map.⁵ The Flood Map for Planning is the starting point for consideration of flood risk in the planning system. The map uses flood zones to indicate the degree to which land is at risk of flooding from rivers, the sea, surface

water and small watercourses. This TAN outlines the actions that should be taken when considering development in the different flood zones. Figure 2 sets out the definition of the main zones. Zones 2, 3 and the TAN 15 Defended Zones are collectively referred to as ‘flood risk areas’ throughout this document.

Figure 2 – Definition of Flood Map for Planning flood zones

Zone	Flooding from rivers	Flooding from the sea	Flooding from surface water and small watercourses
1	Less than 1 in 1000 (0.1%) (plus climate change) chance of flooding in a given year.		
2	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.	Less than 1 in 100 (1%) but greater than 1 in 1000 (0.1%) chance of flooding in a given year, including climate change.
3	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.	A greater than 1 in 100 (1%) chance of flooding in a given year, including climate change.
TAN 15 Defended Zones	Areas where flood risk management infrastructure provides a minimum standard of protection against flooding from rivers of 1:100 (plus climate change and freeboard ⁶).	Areas where flood risk management infrastructure provides a minimum standard of protection against flooding from the sea of 1:200 (plus climate change and freeboard).	Not applicable.

⁵ The Wales Flood Map, including the Flood Map for Planning, can be viewed here: flood-map-for-planning.naturalresources.wales. The Flood Map for Planning and the FRAW map contain some duplicate datasets but are targeted at different users e.g. the FRAW displays present day risk, whereas the Flood Map for Planning indicates predicted future risk over the lifetime of development.

⁶ Freeboard refers to the uncertainty allowance applied within the design and implementation of flood risk management schemes, such as flood walls and earth embankments.

5.2 The map shows areas at risk of flooding from **surface water and small watercourses**, split into 'Flood Zone 2' and 'Flood Zone 3'. These are considerations for planning authorities and must be integrated into plan-making processes and decision-making. For some developments it will be possible and appropriate to include management and mitigation measures (refer to section 8). The Flood Map for Planning also shows Recorded Flood Events covering some areas outside the main flood zones that are known to have flooded in the past.⁷ These recorded events should inform locally specific planning policies.

5.3 The Flood Map for Planning also allows users to view areas at potential risk of inundation from **reservoirs**. Reservoirs are maintained to very high standards in Wales and 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.

Using the Flood Map for Planning

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

5.5 The Flood Map for Planning displays predicted future flood risk under the central climate change estimate. Detailed Flood Consequences Assessments will be required to consider a range of climate change scenarios, including upper end estimates, making reference to the Welsh Government guidance on climate change allowances for planning purposes.

5.6 Areas benefitting from robust, formal flood defences maintained by Risk Management Authorities are shown on the Flood Map for Planning as TAN 15 Defended Zones.

5.7 The existence of robust flood defences does not mean development should be allowed without further consideration of flood risks. Flood defences reduce the risk of flooding but do not eliminate it. The consequences of flooding can be particularly severe in the event of defences being overtopped or breached. TAN 15 Defended Zones are served by defences that provide protection from at least one of the main sources of flooding – sea or river, or both in some instances. Some areas within the TAN 15 Defended Zones may be vulnerable to other sources of flood risk therefore it will be important to assess all sources of risks. It will also be important to demonstrate that any new development in the TAN 15 Defended Zones incorporates resistance measures so that it remains flood-free and safe as per the tolerable conditions set out in section 11.

5.8 Areas where defences provide levels of protection below the definition provided in Figure 2 are not in the TAN 15 Defended Zones. The standard of protection offered by such defences is not sufficient to justify further development in those areas. In the event that investment in these defences results in them providing the necessary standard of protection, the Flood Map for Planning will be updated. Where defences are not managed by Risk Management Authorities there is insufficient certainty that they will

⁷ The information available for Recorded Flood Events is not exhaustive, as the extent of flood events have not always been fully captured accurately.

be maintained. Similarly, infrastructure features that provide some protection but are not formal flood defences, such as rail embankments, cannot be assumed to remain in place. These types of defences therefore do not create Defended Zones for planning purposes.

Updates to the Flood Map for Planning

- 5.9 Natural Resources Wales is responsible for managing and updating the Flood Map for Planning. As a component of the Wales Flood Map it will be updated every 6 months to reflect modelled changes to the flood extents. As result of these updates, the flood zones may extend or contract, and some areas may be redefined.
- 5.10 New or extended TAN 15 Defended Zones will be created if and when Natural Resources Wales is satisfied that qualifying defences provide a standard of protection that meets or exceeds the definition provided in Figure 2. Risk Management Authorities should provide this information to Natural Resources Wales using the National Asset Database.⁸
- 5.11 Third parties can seek to change the Flood Map for Planning using the Natural Resources Wales flood map challenge process. Successful challenges will result in the map being updated at the next available opportunity.
- 5.12 As a further means of maintaining the map's accuracy, Natural Resources Wales will review the existing TAN 15 Defended Zones on the Flood Map for Planning periodically, approximately every two-to-three years. If the standard of protection provided by defences is found to have dropped below the threshold, it will be necessary to remove the Defended Zone and reclassify the affected areas as Flood Zone 2 or 3.

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

Key roles and responsibilities

- Maintenance of Flood Map for Planning and managing the flood map challenge process – Natural Resources Wales.
- Publication of Flood Map for Planning – Natural Resources Wales (including via the national geo-portal DataMapWales).
- Providing updated surface water and small watercourse risk information for inclusion in the Flood Map for Planning by Natural Resources Wales – Lead Local Flood Authorities.
- Updating information on flood defence infrastructure – Natural Resources Wales, using data from the National Asset Database.
- Providing information on new, improved and maintained flood defences using the National Asset Database – all Risk Management Authorities.

⁸ Paragraph 119 of the National Strategy for Flood and Coastal Erosion Risk Management in Wales provides details on 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 lives. 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 3 categorises development types according to their vulnerability in the event of flooding.

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 vulnerable.⁹



⁹ 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 – 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).</p> <p>Schools and childcare establishments, colleges and universities.</p> <p>Hospitals and GP surgeries.</p> <p>Especially vulnerable industrial development (e.g. power generating and distribution elements 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.</p> <p>Buildings used to provide emergency shelter in time of flood.</p>
Less vulnerable development	<p>General industrial, employment, commercial and retail development.</p> <p>Transport and utilities infrastructure.</p> <p>Car parks.</p> <p>Mineral extraction sites and associated processing facilities (excluding waste disposal sites).</p> <p>Public buildings including libraries, community centres and leisure centres (excluding those identified as emergency shelters).</p> <p>Places of worship.</p> <p>Cemeteries.</p> <p>Equipped play areas.</p> <p>Renewable energy generation facilities (excluding hydro generation).</p>
Water compatible development	<p>Boatyards, marinas and essential works required at mooring basins.</p> <p>Development associated with canals.</p> <p>Flood defences and management infrastructure.</p> <p>Open spaces (excluding equipped play areas).</p> <p>Hydro renewable energy generation.</p>

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 justification test in section 10 but any built elements of the development that may

be occupied by people will be subject to the acceptability of consequences test as outlined in section 11, and should be assessed against the criteria for less vulnerable development. This includes office spaces in boatyards, and changing rooms associated with open spaces, for example.

6.5 The list in Figure 3 is not exhaustive therefore decision makers should apply professional judgement when considering development categories not explicitly listed.

6.6 Decision makers may also need to consider whether a proposed development includes land uses from more than one vulnerability category. For larger developments, mixed use schemes and those comprising multiple buildings, a single vulnerability category may not be appropriate. It may be appropriate to regard some parts of a development 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 in Zone 1 and partially in flood risk areas. Locating some types of sustainable drainage systems (SuDS) features and open spaces in flood risk areas 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.

6.7 All small developments, including single dwellings, should be considered under a single vulnerability category. For example, it is important that gardens, access paths and driveways of a residential dwelling should remain flood-free, therefore the whole area of development should be considered highly vulnerable.

6.8 Where a mix of uses is accommodated within a single building, its vulnerability will be defined by the most vulnerable use. This includes buildings where ground floors have a commercial use and upper floors are in residential use.

Key roles and responsibilities

Deciding on the vulnerability of land uses – planning authorities.



> 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.

Strategic Flood Consequences Assessment

7.2 A Strategic Flood Consequences Assessment (SFCA) must 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. The SFCA should inform development aspirations and identify ways of improving flood risk for existing communities. 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 will be more effective and efficient. This approach also provides more options and flexibility for responding appropriately and sustainably to the findings 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 rivers and the sea, coastal erosion, groundwater, ordinary watercourse 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 Wales, Flood Risk Management Plans, Shoreline Management Plans and Area Statements.

7.5 SFCAs will highlight at an early stage those areas where development will be in conflict with national planning policy and guidance. SFCAs may also identify a need to include locally-specific approaches in Development Plans. These may be in relation to the Recorded Flood Events information on the Flood Map for Planning, local records of surface water or ordinary watercourse 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 restricting some types of development, actions that reduce risks to existing communities, 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 Development Plans must be based on a sound understanding of the emergency services' ability to respond to flooding, therefore the views of key stakeholders such as Emergency Planning teams and the emergency services should be sought at this stage. 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 slow and store water as part of natural flood and water management schemes, given that appropriate land management can help to reduce flood risk. Identifying areas where water can be slowed or stored, either permanently or temporarily during heavy rainfall events is particularly important in the face of climate risks facing Wales. Options such as managed coastal realignment and floodplain restoration can contribute to the sustainable management of natural resources, mitigate future flood risk and protect and enhance natural 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. The ambition of Shoreline Management Plan policies should be clearly reflected. Section 9 provides further detail on planning for development in coastal locations.

Site selection process

- 7.10 Sites should be selected to support the overarching ambitions of the Development Plan. Planning authorities should prioritise development in Zone 1. Sites may also be allocated for any types of development on brownfield land in the TAN 15 Defended Zones.

7.11 In Zone 2 (Rivers and Sea), development may be allocated on brownfield land. It should be development that implements in full or in part a strategy to regenerate or revitalise existing settlements or to achieve key economic or environmental objectives. Brownfield land in Zone 2 may also be allocated for developments that address national security or energy security needs, mitigate the impacts of climate change or that are necessary to protect and promote public health.

7.12 In Zone 3 (Rivers and Sea), allocations for residential and other highly vulnerable development must 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 only be made in exceptional circumstances. Exceptional circumstances could include addressing national security or energy security needs, reasons of public health or to mitigate the impacts of climate change.

7.13 When proposing an allocation in a flood risk area the planning authority should undertake sufficient background evidence gathering to be confident the development can meet the requirements of section 11. The planning authority should request this information when sites are put forward by landowners or developers, and it will need to undertake or commission an assessment of the risk and consequences of flooding for those sites it puts forward itself in order to be sure they can be effectively and acceptably managed. This information may emerge through the SFCA or through a bespoke assessment, and will provide the basis for a more detailed Flood Consequences Assessment by the developer at a later stage. The planning authority should engage with statutory consultees and Risk Management Authorities to support it with this work.

7.14 If the consequences of development allocated in a flood risk area are considered acceptable in accordance with section 11, the resulting allocation should include annotation of flooding as a constraint for the individual site either in the Development Plan or on the proposals map. Any flood-related requirements for the development of that site should be specified in the Development Plan. This will include making it clear that in taking forward the allocation a developer will need to undertake detailed technical assessments prior to submitting a planning application.

7.15 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. Lifetimes for other types of development will vary, but 75 years is considered a reasonable rule of thumb. Planning authorities should apply this principle in a precautionary manner in relation to all types of development.

7.16 Any allocations for development in coastal locations must be made in accordance with advice in section 9. The planning authority should be satisfied the development meets the requirements of section 10 and section 11.

Urban regeneration and renewal

7.17 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. Many of these have been recognised as National or Regional Growth Areas in Future Wales – the National Plan 2040. Communities in such areas should be supported to remain viable and vibrant, and resilient to flooding. On the Flood Map for Planning, some parts of the Growth Areas are in the TAN 15 Defended Zones but many face risks from rivers and the sea and are currently in Zone 2 or Zone 3. Prospects for development are therefore restricted, unless and until investment in improved flood defence and management infrastructure for the benefit of the existing communities is delivered and shown to meet the criteria of the TAN 15 Defended Zones.

7.18 Policy 8 of Future Wales – the National Plan 2040 demonstrates the Welsh Government's support for the sustainable management of flood risk in national and regional growth areas. Enabling areas in Zones 2 or 3 (Rivers and Sea) to become Defended Zones through the use of new nature-based solutions or improvements to existing flood defences is supported. This will provide important protection to existing development, and enable redevelopment and renewal to take place in a sustainable and responsible way.

Drainage

7.19 Sustainable drainage systems (SuDS) are required on the majority of new developments, and 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. Information held by the local authority that may assist developers in subsequent planning application submissions should be published in or alongside its Development Plan, potentially as supplementary planning guidance.

Reservoirs

7.20 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.

7.21 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 Flood Map for Planning 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 (SFCAs) – Corporate Joint Committees and planning authorities.

Advice on preparing SFCAs – Natural Resources Wales and Lead Local Flood Authorities.

Specialist input – Risk Management Authorities, Emergency Planning departments, SuDS Approving Body (SAB), local resilience forums, emergency services, insurance industry, Coastal Groups.

> 8 Surface water and ordinary watercourse flood risk

- 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 drainage systems and ordinary watercourses,¹⁰ such as streams, reens and brooks quickly becoming inundated, leading to localised flooding. As the climate changes, this type of flooding will become more commonplace and more severe.
- 8.2 The Flood Map for Planning includes two surface water and small watercourse flood risk zones. Zone 3 contains areas at highest risk, with Zone 2 areas facing a lower risk. Areas considered at minimal risk of flooding from these sources are in Zone 1. The full definitions for these zones are set out in Figure 2.
- 8.3 It is important that risks of flooding from surface water and ordinary watercourses are given full consideration by the planning system. These risks should be considered in the preparation of Strategic Flood Consequences Assessments (SFCAs) for Development Plans (see Section 7) and in undertaking detailed Flood Consequences Assessments for planning applications (see Section 12). Planning authorities should consider on the basis of the SFCA whether specific local planning policies are required to manage these risks for existing communities and in respect of new development.
- 8.4 Understanding the nature of the flood risk will be an important consideration when deciding if a local policy is appropriate. Where flooding from surface water or ordinary watercourses occurs quickly, with little warning or to significant depths it would be appropriate to restrict new development. In areas where the risk is more predictable and flood depths are shallow, it may be concluded that risks can be managed in an acceptable way for existing and new development. If it is concluded that risks from surface water or ordinary watercourses can be managed or mitigated, these measures must not increase the flood risk elsewhere.
- 8.5 Managing and mitigating surface water and ordinary watercourse flood risks should not include building over ordinary watercourses. Ordinary watercourses have an important drainage function and offer significant benefits to amenity and biodiversity. Structures such as bridges may be 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 from the outset where appropriate.

¹⁰ The terms 'ordinary watercourses' and 'small watercourses' are both used in this document, with specific intents.

'Ordinary watercourses' is the term used in the National Strategy for Flood and Coastal Erosion Risk Management and refers to watercourses that are smaller than 'main rivers'. The term 'small watercourses' is specific to the names of flood zones in the Flood Map for Planning. The Map differentiates between rivers and other watercourses on the basis of catchment size (above and below 3km²), not on the status or definition of the watercourse. Most, but not all, small watercourses are also ordinary watercourses (and vice-versa).

- 8.6 During flood events, excess water will naturally flow downhill and will be diverted by fixed obstacles such as buildings. During shallow floods, small changes in surface levels such as pavements will affect the flow of water and it can pool even in very minor depressions in the landscape. When a site is developed in areas at risk, or near a risk, it will potentially change the expected flow of water during a flood. It is important that planning authorities are provided with a clear assessment of how a development will affect surface water and ordinary watercourse flood risks.
- 8.7 A Flood Consequences Assessment will be required for any new development proposal located fully or partly in Flood Zones 2 and 3 – Surface Water and Small Watercourses. An assessment should also be undertaken for development on sites outside of these zones but which has the potential to affect the course of surface water and/or excess water from ordinary watercourses. Planning authorities may provide specific local advice on this issue in Development Plans. Planning authorities should ensure any development adjacent to Flood Zones 2 and 3 for Surface Water and Small Watercourses are appropriately set back to allow for extreme flood events.
- 8.8 Surface water and ordinary watercourse flood risk management are the responsibility of Lead Local Flood Authorities (LLFAs). The LLFA has an important role in advising on surface water and ordinary watercourse flood risks for its area and the planning authority must seek the LLFA's views on how to incorporate the findings of its Strategic Flood Consequences Assessment on these risks into its Development Plan policies. It should also seek the LLFA's views on planning applications where surface water and ordinary watercourse flood risk is potentially a reason for refusal or where the risk is proposed to be managed or mitigated.

Sustainable drainage

- 8.9 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.
- 8.10 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. The responsibility within the local authority for ensuring SuDS are integrated into new developments sits with the SuDS Approving Body (SAB). The approval of SuDS for a new development by the SAB is independent of the planning process. New developments of more than one dwelling or where the area covered by construction work equals or exceeds 100m² require approval from the SAB before construction can commence. 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.

8.11 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 SuDS¹¹ 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.

Drainage Statement

8.12 As the SuDS approval process is independent of the planning process, there is a risk of proposals complying with one regulatory system but not the other. A situation where a scheme receives planning permission but is refused SAB approval should be avoided wherever possible. To avoid this scenario, it is important to consider planning and SAB requirements in combination and to provide the information to decision makers in parallel. This can be best achieved by applying for both types of consents simultaneously, ensuring the planning application documentation provides full details of the proposed SuDS.

8.13 Simultaneous applications are advised as the best approach but it is not always feasible. Where planning permission is sought prior to SAB approval, the applicant will be expected to provide a Drainage Statement as part of the planning application. The Drainage Statement should outline how it is proposed to integrate SuDS into the scheme, to provide the planning authority with confidence the scheme incorporates SuDS appropriately and is subsequently likely to obtain SAB approval. The statement should not generate additional cost or effort to applicants because the information it contains will be required for the subsequent SAB process.

8.14 Figure 4 sets out what information should be included as part of a Drainage Statement submitted to the planning authority.

11 National SuDS standards are published at: gov.wales/national-standards-sustainable-drainage-systems-suds

Figure 4 – Requirements for a Drainage Statement

<p>1. Details of the site location and existing drainage arrangements.</p>	<p>The Drainage Statement should include a description of existing drainage arrangements for the site and any adjacent land that drains onto the site, along with details of both the existing and proposed permeable area (in m²).</p>
<p>2. Details of how surface water is to be managed and discharged, ensuring compliance with the existing SuDS standards.</p>	<p>The Drainage Statement should include a description on whether infiltration for the proposed development is feasible. An indication of which of the below discharge methods would be used should also be provided in accordance with the SuDS National Standards. These are ranked in order of priority and the reasons for not using any higher priority methods should be explained:</p> <ol style="list-style-type: none"> 1. Surface water runoff is collected for use 2. Surface water runoff is infiltrated to ground 3. Surface water runoff is discharged to a surface water body i.e. watercourse 4. Surface water runoff is discharged to a surface water sewer, highway drain, or another drainage system 5. Surface water runoff is discharged to a combined sewer. <p>The Drainage Statement should include details on the consulting and obtaining of relevant permissions for the discharge location along with a sketch plan/map identifying its location as part of the proposal.</p>
<p>3. Information for the proposed SuDS elements of the surface water drainage system and an indication of the intended future maintenance regime.</p>	<p>The Drainage Statement should provide a description of the sustainable drainage features and details on how they will be accommodated within the overall proposal. Further details could be provided as part of a supplementary sketch plan.</p> <p>Details on the intended future maintenance regime should specify whether there will be a requirement for adoption of the surface drainage system, or elements of it, by the SAB.¹²</p>

¹² Surface water drainage systems serving multiple properties will be subject to adoption by the SAB.

- 8.15 The planning authority should share the Drainage Statement with the SAB, allowing time for the SAB to provide feedback before the planning application is determined. The planning authority and SAB may decide that drainage arrangements outlined in the Drainage Statement are sound, fundamentally flawed or require minor amendments. Inadequate Drainage Statements and flawed drainage arrangements are reasons for a planning authority to refuse the planning application. If the planning authority and SAB are satisfied with the Drainage Statement the applicant can approach the SAB approval process with confidence.
- 8.16 If the Drainage Statement and the proposed arrangements are broadly acceptable but minor amendments are suggested, feedback to the applicant should be provided through a note which can be used to inform the subsequent application for SAB approval. Minor amendments in this context are any changes to drainage arrangements that do not necessitate changes to the planning application.

Key roles and responsibilities

Publication of maps showing flood risk from surface water and ordinary watercourses – Natural Resources Wales.

Assessment of flood risk deriving from surface water and ordinary watercourses – Lead Local Flood Authority (LLFA) (forming part of the local authority).

Assessment of sustainable drainage systems (SuDS) for new developments – SuDS Approving Body (SAB) (a function of the Lead Local Flood Authority).

Obtaining SAB approval – developers of any scheme of more than one dwelling or where the area covered by construction work equals or exceeds 100m².

Preparation of Drainage Statement – applicants seeking planning permission before seeking SAB approval.

Consideration of Drainage Statement – planning authority and SAB.

> 9 Coastal risks – erosion and flooding

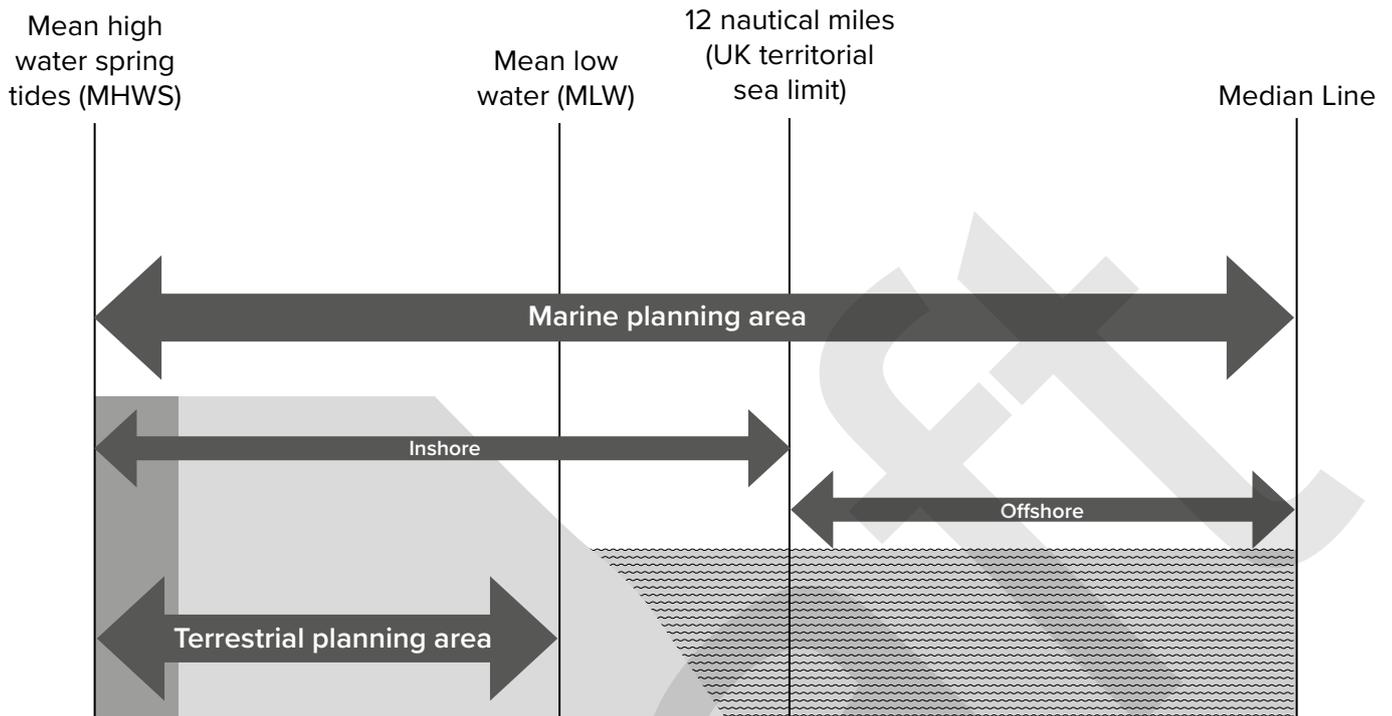


9.1 Coastal areas have unique characteristics which can provide opportunities and present challenges when proposing or considering new development. Opportunities to develop are limited by risks including flooding, erosion and land instability. Climate change has the potential to intensify these risks across all our coastal areas. 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.

9.2 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. Policies SOC 8 and SOC 9 of the Welsh National Marine Plan¹³ in particular are important considerations in coastal environments. The diagram in Figure 5 illustrates how the terrestrial and marine planning systems overlap in coastal areas.

13 The Welsh National Marine Plan is published at: gov.wales/welsh-national-marine-plan-document

Figure 5 – The Coastal Zone¹⁴



Development Planning

9.3 Development Plans should 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 the National Development Plans (Future Wales and the Welsh National Marine Plan) and by evidence. The National Coastal Erosion Risk Map, Shoreline Management Plans (SMPs) and Area Statements provide comprehensive evidence to inform the planning strategy for coastal areas. Strategic Flood Consequences Assessments should include an assessment of the role and integrity of coastal defences and provide detailed understanding of the risks from flooding and coastal erosion in the plan area.

9.4 The long-term policy frameworks for the management of coastal risks and defences set out in SMPs should be reflected in Development Plans. Development Plans should not contain proposals that are in conflict with SMPs. The SMPs are regional documents and effective implementation will often require cross-boundary cooperation to achieve the best outcomes. Such issues will be best addressed through strategic planning at the regional level or formal collaborative working between planning authorities. Planning authorities should recognise the potential for cumulative effects from development proposals on the coast. Collaboration by planning authorities on a regional basis can help to ensure consistent decision making and support the delivery of coastal defence strategies and is strongly encouraged.

14 The Normal Tidal Limit (NTL) is set out on Ordnance Survey (OS) Maps and may be a consideration for some parties. There may be overlap on the type of consents needed (land use planning permission and marine licence) and issues in tidal rivers may cause problems for the land and sea.

- 9.5 Planning policies can assist planning authorities to show areas of the coast which need to be managed in specific ways, including coastal adaptation schemes. 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.
- 9.6 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 for development where there is a risk of flooding or land instability from coastal erosion over the lifetime of the development. Where a planning authority does allocate coastal land for development 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 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 Planning Policy Wales and the relevant Development Plan.

Development Management

- 9.9 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 provide evidence with the application that the proposed site can be developed without risk of flooding or coastal erosion over the lifetime of the development. Planning authorities need to be satisfied of the robustness of the evidence before planning permission is granted. The Flood Map for Planning incorporates areas shown on the National Coastal Erosion Risk Map to be at risk of erosion. Development should not be permitted in these areas.

Coastal defences

- 9.10 Upgraded or strengthened coastal defences may be required in coastal areas where a ‘hold the line’ approach is advised in the SMP and reflected in the Development Plan. Construction of sea defences often leads to increased pressure for development, but planning authorities should be mindful that defences only reduce the risk of floods or erosion, and do not eliminate it.





9.11 When coastal defences are upgraded or strengthened, they may result in new TAN 15 Defended Zones, if they offer sufficient standard of protection (see section 5). In these areas the principles of appropriate development and specific allocations to support the regeneration and renewal of existing communities should be set out in the Development Plan. Developments reliant on the defences must not commence prior to the completion of construction work and the new Defended Zones being in place. All proposals would need to meet the tests set out in sections 10 and 11. Planning authorities should work with the relevant Risk Management Authorities to ensure land use planning priorities and strategies for flood and coastal defence are coordinated and aligned.

Key roles and responsibilities

Preparation of Area Statements – Natural Resources Wales; with assistance from local authorities.

Preparation of Shoreline Management Plans (SMPs) – Coastal Groups; approved by Welsh Government; used as key evidence for coastal policies and decisions by planning authorities.

Preparation and adoption of the Welsh National Marine Plan – the Welsh Government.

Creation and management of the Flood Map for Planning, including coastal flood and erosion 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).

Stakeholders with important contributions to make to Development Plans – Coastal Groups, Wales Coastal Group Forum.

> 10 Justifying the location of development

10.1 Development in Zone 1 is acceptable in principle in relation to flood risk, providing it does not cause any increase in flood risk elsewhere. Where development is proposed in a flood risk area facing risk from rivers and the sea, the planning authority will need to be satisfied that its location is justified. It is important that areas in Zone 3 are used only as a last resort, and not at all for new highly vulnerable development. More flexibility is permitted in Zone 2 and the TAN 15 Defended Zones, where formal defence infrastructure provides a good standard of protection against flooding.

10.2 The advice in this section is specific to flooding considerations from rivers and the sea. Other planning considerations will apply in every circumstance, including the need to comply with national and local planning policies.

Zone 1

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

TAN 15 Defended Zones

Development will be justified in the TAN 15 Defended Zones if:

1. Its location meets the definition of previously developed land; **AND**
2. 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 2 (Rivers and Sea)

Development will be justified in Zone 2 if:

1. It will assist, or be part of, a strategy supported by the Development Plan to regenerate an existing settlement or achieve key economic or environmental objectives; **AND**
2. Its location meets the definition of previously developed land; **AND**
3. 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 (Rivers and Sea)

Less vulnerable development will **only** be justified if:

1. There are exceptional circumstances that require its location in Zone 3, such as the interests of national security, energy security, public health or to mitigate the impacts of climate change; **AND**
2. Its location meets the definition of previously developed land; **AND**
3. 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.

New highly vulnerable developments must not be permitted in Zone 3.

10.3 Water compatible development is acceptable, from a flooding perspective, in all flood zones.

> 11 Acceptability of flood consequences



11.1 If the planning authority is satisfied that a development proposed in a flood risk area 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 nature and scale of the proposed development. The assessment must provide the decision maker with sufficient information to consider flooding implications and to balance them against other considerations.

11.2 The high public and private costs of flooding require a careful 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 (other than water compatible development) in areas subject to significant flood depths or velocities or where safe access or egress cannot be achieved.
- 11.4 The Flood Consequences Assessment should establish if suitable avoidance and mitigation measures can be incorporated, in a manner compatible with the placemaking aims of Planning Policy Wales, 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 6 and 7 below. Figure 8 provides an additional aid for decision making.

Frequency thresholds: designing development to be flood free

- 11.6 All development must be designed to be flood free during the 1% river flood (i.e. a flood with a 1 in 100 chance of occurring in any year) and the 0.5% flood from the sea (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), including an allowance for climate change. Where appropriate, an assessment against a breach and blockage scenario should be undertaken against return periods up to and including the 1 in 1000 year flood event, including an allowance for climate change (see paragraph 12.6).
- 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 6 – Flood events in which development must be flood-free

Vulnerability Categories		Flood event type	
		Rivers	Sea
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 Water compatible development (limited to those built elements of development that may be occupied by people)		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 during an extreme event will be tolerable.

11.10 Figure 7 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 7 – 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	600	0.15
Less vulnerable development Infrastructure associated with highly vulnerable development e.g. car parks, access, paths and roads Water compatible development (limited to those built elements of development that may be occupied by people)	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 6. For emergency services developments other than command centres or hubs, the conditions for highly vulnerable development should be applied.

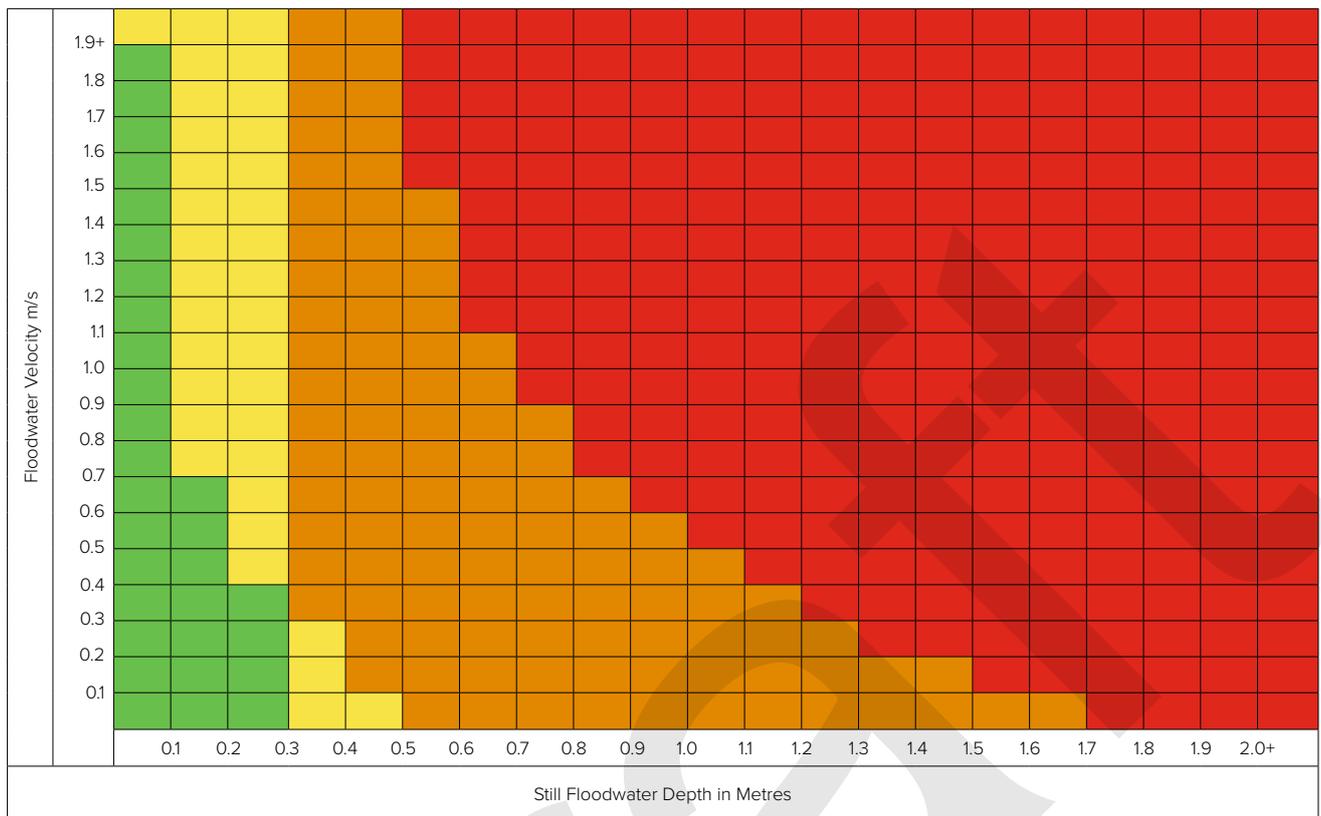
11.13 When deciding if the consequences of an extreme flood event can be acceptably managed, planning authorities should refer to relevant policies and actions identified in their Development Plan and by Risk Management Authorities in local contingency plans. This is of particular relevance to emergency 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 8 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 during 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 8 – Flood hazard matrix



Colour code	Hazard to people classification
Green	Very low hazard
Yellow	Danger for some – includes children, older people and people with disabilities
Orange	Danger for most – includes the general public
Red	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 risk area meets the tests outlined in section 10, or if a proposal is affected by surface water and ordinary watercourse risk as outlined in section 8, a full assessment of the flooding consequences will be required as part of the planning application.
- 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; and
 - The risk and consequences (i.e. the overall impacts) of the development on flood risk elsewhere.
- 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, published alongside this TAN.
- 12.4 Figure 9 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, and does not increase flood risk elsewhere.
- 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 Consequences Assessment should demonstrate that in the event of overtopping, breach or blockage the consequences of flooding can be managed to an acceptable level. This will be needed for sites that benefit from the type of defences that can be breached or blocked, including flood embankments, sea walls and culverts.

Figure 9 – Technical requirements of a Flood Consequences Assessment (FCA)

<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>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.</p>
<p>2. A plan of the site showing existing and proposed levels related to Ordnance Datum.</p>	<p>Proposed development levels may well be only indicative at this stage, however the FCA should establish development levels to manage flood risks and consequences.</p>
<p>3. A plan identifying any flood alleviation measures already in place.</p>	<p>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.</p>
<p>4. An assessment of all sources of potential flooding including, but not confined to rivers, the sea, wave action, groundwater, surface flow or any combination of these.</p>	<p>The FCA should include estimates of extreme flood flows from the threshold to the 0.1% flood (1 in 1000 year), including an allowance for climate change.</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>	
<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.</p>	<p>The FCA must demonstrate that the development can meet the flood free thresholds set out in Figure 6 and the tolerable conditions set out in Figure 7 (including an allowance for climate change) as required for the type of development.</p>
<p>7. Information regarding the extent and depth of past flood events and future predictions.</p>	<p>The FCA must assess Recorded Flood Events and future flood risk using current Welsh Government guidance on climate change allowances for planning purposes.</p>
<p>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.</p>	<p>Levels relative to Ordnance Datum and anticipated flood depths/velocity in the 0.1% flood event plus climate change should be provided.</p>
<p>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.</p>	<p>This must include an assessment of the likelihood of such structures to choke with debris and the flooding consequences on the development and elsewhere.</p>

<p>10. An assessment of the implications of any drains or sewers, existing or proposed, on the site during flood events.</p>	<p>The methodology for assessment must be clearly stated.</p>
<p>11. An assessment of the flood storage volume that would be lost and/or displaced from the site.</p>	<p>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 on a 'like for like' and 'level for level' basis where feasible (see paragraphs 13.8-13.9). The likely impact of any displaced water elsewhere should also be assessed.</p>
<p>12. An assessment of the run-off likely to be generated from the development.</p>	<p>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.</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>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.</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 risk of flooding from rivers and the sea 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 risk 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, in accordance with paragraph 14.17.

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.

Key roles and responsibilities

Preparation of Flood Consequences Assessment – Applicants and prospective developers.

Consideration of Flood Consequences Assessment and determination of planning application – planning authority.

Advice on Flood Consequences Assessment (rivers and sea) – Natural Resources Wales.

Advice on Flood Consequences Assessment (surface water, small watercourses, groundwater and coastal erosion) – Lead Local Flood Authorities.

Specialist advice to the planning authority on Flood Consequences Assessment – sewerage undertakers, Emergency Planning departments and emergency services.

> 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 flood risk areas. 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 regulations 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 and the TAN 15 Defended Zones must 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 using resistance measures, and limit the damage caused if water does enter using resilience measures. 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. 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.
- 13.4 Higher density and mixed use developments can offer greater potential for resilient design. For instance, ground floor areas may be able to accommodate less vulnerable elements of the development, such as commercial uses, provided that highly vulnerable uses on upper floors have satisfactory access and egress arrangements in the event of flooding, and providing the whole building meets the relevant tests in sections 10 and 11.
- 13.5 Site-level resistance and 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 and other occupiers/users. 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 sustainable drainage systems (SuDS) into developments is 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 resistance and 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.¹⁵*

15 The CIRIA Code of practice for property flood resilience C790 is available from www.ciria.org/Resources/Free_publications/CoP_for_PFR_resource.aspx

New or improved flood defence infrastructure

- 13.6 The Welsh Government and Risk Management Authorities invest significant amounts of public money to upgrade and provide new flood defence infrastructure every year. This investment seeks to provide existing homes, communities and businesses with better protection from flooding. New flood defence infrastructure is only intended to protect existing places and communities that are already at risk of flooding. Constructing new defence infrastructure to enable new development is not acceptable as it removes valuable flood storage areas and places more households and businesses at risk of flooding. New development may, in principle, be located in areas where existing flood defence infrastructure has been strengthened to the extent that it becomes a TAN 15 Defended Zone (see Figure 2).
- 13.7 The use of natural flood management schemes is a key priority to deliver more natural means of providing protection from flooding.¹⁶ 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.
- 13.8 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 (sometimes beyond the boundaries of a local authority), must be undertaken when new or improved flood defence infrastructure is proposed. Planning authorities must be satisfied the benefits to the protected area clearly outweigh any negative effects elsewhere.
- 13.9 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 properties already in flood risk areas, 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. This will enable them to provide their views and, separate to the planning process, enable them to potentially negotiate compensation.
- 13.10 New or improved flood defence infrastructure should not cause properties located elsewhere currently at little or no risk (Zone 1) to be put at risk of flooding (Zone 2 or Zone 3).
- 13.11 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.

16 Further information on these schemes can be found in the National Strategy for Flood and Coastal Erosion Risk Management in Wales.

> 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 and the TAN 15 Defended Zones, 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 For those developments which may in principle be acceptable in Zones 2 and 3 and the TAN 15 Defended Zones, a Flood Consequences Assessment must be submitted with the planning application. Where insufficient information is provided in the assessment to enable Natural Resources Wales and/or the Lead Local Flood Authority to advise on the consequences of flooding, the planning authority should use its powers to request further information. Where requested information is not forthcoming in a reasonable timescale, or provides insufficient detail, this should 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

- 14.3 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, ensuring it is commensurate with the nature, scale and design of the proposed development, and establish whether any existing and relevant flood modelling work already exists. Multi-lateral engagement between the applicant, the planning authority, SuDS Approving Body (SAB) and Natural Resources Wales is encouraged as best practice.

Consultation

- 14.4 When a planning authority receives a planning application to develop in Zone 2, Zone 3 or the TAN 15 Defended Zones 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 Wales.¹⁷
- 14.5 Natural Resources Wales should provide detailed advice to the planning authority on the findings and conclusions of the Flood Consequences Assessment in relation to flooding from rivers and the sea, including the impact on flooding elsewhere and the impact of flood alleviation works on the environment and other property. The Lead Local Flood Authority should provide advice to the planning authority on the findings and conclusions of the Flood Consequences Assessment in relation to surface water risks, flooding from ordinary watercourses and coastal erosion. Where the planning authority is minded to go against the advice of Natural Resources Wales or the Lead Local Flood Authority, it should inform them prior to granting consent allowing sufficient time for further representations to be made.

¹⁷ As stated in sections 7 and 10, the flooding consequences associated with new highly vulnerable development in Zone 3 (Rivers and Sea) are not acceptable and there is no requirement for Natural Resources Wales to provide advice on this type of proposal.

Planning consent must not be granted in an area of flood risk without first giving Natural Resources Wales or the Lead Local Flood Authority reasonable time to respond to the proposal.

Further guidance for specific circumstances

Sites in two or more flood zones

- 14.6 Where a site falls into two or more flood zones the planning authority must make an assessment of the proposal, taking into account each of its proposed land uses, against each of the flood zones to which it applies, in accordance with the criteria at section 10. An assessment of flooding consequences for the proposal in accordance with sections 11 and 12 will also be required. Advice from Natural Resources Wales and the Lead Local Flood Authority should be taken into account when deciding whether the consequences of flooding are acceptable, in terms of the risks to people and property. If the proposal in part or in its entirety does not comply with the tests in sections 10 and 11, the planning application should be refused.

Applications for individual householders

- 14.7 Applications for minor extensions or alterations in flood risk areas 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
 - could have a cumulative impact on flood storage capacity or flood flows.
- 14.8 There will be no requirement to justify the location of householder development but if such minor works are likely to have an adverse effect the full consequences of the development will need to be appraised. The planning authority should inform the developer or applicant in such circumstances to provide a Flood Consequences Assessment.

- 14.9 Where a Strategic Flood Consequences Assessment 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.

Change of use and conversions

- 14.10 The redevelopment of existing buildings in flood risk areas can present decision makers with difficult decisions. 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. Change of use or conversion proposals that would introduce (or intensify) highly vulnerable development into Zone 3 (Rivers and Sea) must be considered carefully, and the risk of flooding to potential occupants and the property thoroughly assessed.
- 14.11 In assessing change of use and conversion proposals in any location outside Zone 1, 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. If the proposed change of use or conversion is not resilient and there is an unacceptable risk from flooding to people, the planning application must be refused.

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 (including any changes of use, extensions to seasonal occupancy and extensions to existing sites) must not be permitted in Zone 3 (Rivers and Sea). They should only be considered in Zone 2 (Rivers and Sea) if the development satisfies the tests in section 10 and section 11.

- 14.14 Where planning authorities are minded to grant permission for caravan/camping sites or other temporary holiday accommodation in Zone 2 (Rivers and Sea) or the TAN 15 Defended Zones, a planning condition should secure the provision and ongoing maintenance of suitable warning notices to inform people entering the site. The condition should also secure the preparation of effective warning and evacuation plans. The condition should require the submission and approval of the location of the notices on the site and specify that they should be kept up-to-date with the latest warning and evacuation procedures. The condition

must be drafted to meet the six tests set out in Welsh Government Circular 016/2014: The Use of Planning Conditions for Development Management.¹⁸ 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 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 & 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

18 Circular 016/2014 is published at: gov.wales/use-planning-conditions-development-management-wgc-0162014

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 subject to appropriate mitigation measures or improvements to existing flood defence infrastructure to manage the risk of flooding. 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 contribute financially via the Community Infrastructure Levy or enter into an agreement under Section 106 of the Town and Country Planning Act 1990 to ensure the infrastructure improvements can be provided. Planning authorities should ensure the developer carries out any necessary works and future maintenance commitments are met. It will normally be appropriate to vest the resulting infrastructure, 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 infrastructure 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 infrastructure improvements, 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 infrastructure improvements can be provided and will determine what contribution is required from the developer. Unless a planning authority is satisfied 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 granted. 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 seaward of 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. EIA may be required by the Marine Works (Environmental Impact Assessment) Regulations 2007 before a licence can be issued. Co-ordination of EIA for planning permission and marine licencing should therefore be considered early in the planning and design of coastal defence projects.

14.23 For flood defence/relief works, 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 an environmental statement for development which requires 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 for a development and whether the scope of an environmental statement should include flood risk. Further advice on EIA is contained in section 6.2 of the Development Management Manual and WO Circular 11/99.

