



ENVIRONMENT AND LAND USE

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REFERENCE

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WINTER READINESS: FLOODING



1. INTRODUCTION

A key impact of climate change is increased flood events, due to changing weather patterns, including more frequent and intense storms, rising sea levels, and increased wave size. By the 2050s it is estimated that winter rainfall could increase by 59 per cent, and peak river flows could be up by 27 per cent.

According to the Environment Agency, around 5.2 million homes and business in England are at risk of flooding, and this is likely to rise, not least because planning permission is being granted for homes to be built on land at risk of flooding. According to the October 2020 National Strategy for Flood and Coastal Erosion Risk Management in Wales, a further 245,000 properties are at risk across Wales.

Flood defences are critical. The UK government has estimated that the economic losses from flooding between November 2019 and March 2020 were about £333 million. Without flood defences, the impact would have been an extra £2.1 billion. Between 2021 and 2027 the government will spend a record £5.2 billion on flood defences in England as part of the Flood and Coastal Erosion Investment Plan, which is expected to avoid £32 billion of wider economic damages. On average, Wales has made an annual investment of £59.3 million on Flood and Coastal Erosion Risk Management over the last decade.

Despite this investment, many people will unfortunately experience the devastating effects of flooding. This Guidance Note aims to help members to prepare for flood events. It covers the different types of flooding, the roles and responsibilities of Risk Management Authorities, and what you can do as a landowner to prepare for flooding, with the aim of reducing the negative impacts and minimising risks. When dealing with a flood, always remember that personal safety and the safety of others is the most important aspect to prioritise.

2. FLOODING

Sources of Flooding

There are several different types of flooding, depending on the source of the excess water:

- **Surface water flooding**, also known as a flash flood, is caused by heavy rainfall which cannot drain away fast enough. It is more likely to occur in areas with a high proportion of hard surfaces, as the only exit route for the rainwater is the drainage network rather than gradual infiltration into the ground.
- **River flooding**, also known as a fluvial flood, is when the water level in a river, lake or stream exceeds the maximum which can be contained and overflows onto the surrounding land, which is known as the floodplain. This happens when there is too much water flowing downstream. Often, floodplains may be valuable agricultural land.
- **Coastal flooding** refers to flooding caused by the sea and typically affects low-lying coastal land. This may be a result of high tides or surges due to coastal storms.
- **Groundwater flooding** can happen when the water table rises up to above ground level. This is most likely to occur after periods of heavy or prolonged rainfall.
- **Sewer flooding** happens when the sewer system is overwhelmed by heavy rainfall, or the system becomes blocked. The resulting floodwater is particularly dangerous to health as it contains raw sewage.
- **Reservoir flooding** happens if a reservoir dam fails, resulting in a large volume of water being released in a very short time frame.

Flood Land

Land is broadly categorized into 'zones' which refer to the probability of river and sea flooding, ignoring the presence of flood defenses. This is mainly of relevance to planning and development. The zones do not currently take into account the possible impacts of climate change. In Wales, from 2023, the zones will take into account climate change impacts.

- Zone 1 has a low probability of flooding (less than 1 in 1,000 annual probabilities of river or sea flooding).
- Zone 2 has a medium probability of flooding (between a 1 in 100 and 1 in 1,000 annual probability of river flooding, or between a 1 in 200 and 1 in 1,000 annual probability of sea flooding).
- Zone 3a land has a high probability of flooding (1 in 100 or greater annual probability of river flooding, or 1 in 200 or greater annual probability of sea flooding). In Wales this is known as zone 3.
- Zone 3b land in England is the functional floodplain. This zone comprises land where water has to flow or be stored in times of flood. A functional floodplain is land which would naturally flood with an annual probability of 1 in 20 or greater, or land that is designed to flood in an extreme flood.

3. MANAGING FLOOD RISK

Roles and Responsibilities

There is no single body responsible for managing flood risk in the UK, and within both England and Wales there are a number of entities who are listed as Risk Management Authorities under the Flood and Water Management Act 2010, with responsibility for different aspects of flood risk management. The following section provides an overview of the roles and responsibilities of the key bodies involved in flood risk management in England and Wales.

England

The Department for Environment, Food and Rural Affairs (Defra) is the policy lead for flood and coastal erosion risk management in England and provides funding for flood risk management through grants to the Environment Agency, local authorities and Internal Drainage Boards.

The Environment Agency (EA) has a strategic overview of flooding and is responsible for managing flood risk from the sea and main rivers in England. This includes works in estuaries to secure adequate outfalls for main rivers. They are responsible for maintaining and updating the Flood Risk Management Plans (FRMPs) which set out how organisations, stakeholders and communities will work together to manage flood risk over six year periods. There are seven FRMPs which cover river basin districts which are located fully in England, two for river basins which cross the English-Welsh border, and one which crosses the English-Scottish border.

Internal Drainage Boards (IDBs) are local public bodies which manage water levels in a defined area called an Internal Drainage District (IDD). They are key in managing flood risk in the areas in which they operate and are funded by drainage rates paid by land occupiers, and special levies from local authorities. There are over 100 IDBs in England, covering over 1 million hectares, and 60% of all the Grade I agricultural land in England. IDBs carry out work to manage the risk of flood from ordinary watercourses. An ordinary watercourse is any watercourse which has not been designated as a main river on the EA's main river map, and can include streams, ditches, drains, and dykes among others. IDBs can also carry out work to manage flood risk in main rivers and the sea, subject to agreement with the EA.

In England, **Lead Local Flood Authorities (LLFA)** are county councils or unitary authorities. They are responsible for managing local flood risk, which is likely to be caused by surface water, ground water and, where there is no IDB or district council, ordinary (smaller) watercourses. LLFAs have to maintain a register of assets which have a significant effect on flooding in their area. LLFAs must also investigate significant flooding incidents and publish the results.

District councils manage flood risk from ordinary watercourses where there is no IDB. If there is no district council, this role is fulfilled by the LLFA. District councils also operate and maintain existing sea defenses and carry out other work to manage flood risk from the sea (with the consent of the Environment Agency).

Other risk management authorities include **highway authorities**, who are responsible for providing and managing highway drainage, and **water and sewerage companies** who are responsible for managing the risks of flooding from surface water and foul or combined sewer systems.

Wales

The **Flood and Coastal Erosion Committee (FCEC)** advise the Senedd on policy for flood and coastal erosion risk management in Wales. The Welsh government is also responsible for trunk road drainage.

Natural Resources Wales (NRW) has a strategic overview of flooding and is responsible for managing flood risk from the sea and main rivers in Wales. They can also undertake certain work on ordinary watercourses. As well as working with the EA on the FRMPs for river basins which are partly situated in Wales (the Dee and Severn FRMPs), they are developing a national FRMP to cover all of Wales.

In Wales, the **Lead Local Flood Authorities (LLFA)** are each of the 22 Local Authorities. They each have their own Local Flood Strategy and are responsible for managing flood risk from surface water, groundwater and ordinary watercourses. They also manage drainage of local highways.

As with IDBs in England, there are also collective community bodies which are responsible for local water management in Wales. These are known as **Internal Drainage Districts (IDD)** and are administered by NRW. There are 14 IDDs in Wales, covering agricultural and semi-urban low-lying land. Each drainage district has a local Advisory Group consisting of representatives of those land occupiers and local authorities who fund the water level management work within the drainage district.

As with England, **highway authorities** are responsible for providing and managing highway drainage and **water and sewerage companies** are responsible for managing the risks of flooding from surface water and foul or combined sewer systems in Wales.

4. FLOOD DEFENCES

Flood defences are measures which prevent or control the negative effects of flood waters. Flood defences may be temporary or permanent.

Temporary flood defences are systems which are used for a limited period and then removed. These may be set up in response to a flood warning and to add strength to permanent measures where these are anticipated to be insufficient or poorly maintained. Examples of temporary flood defences are plastic barriers, sandbags and pumps. Pumps are often necessary as part of a temporary defence because temporary flood defences typically have high failure rates and involve leakage. To reduce the chance of failure it is key to plan their usage and set up carefully, and in advance of a flood event. It is beneficial to consider what temporary measures you may require on your site and order them well in advance of any flood warning.

Permanent flood defences are systems which prevent against flooding permanently. They require monitoring and maintenance to ensure they are working correctly and may need to be upgraded to cope with worsening floods. Permanent flood defences consist of infrastructure such as dams, diversion canals, river defences (such as bunds, reservoirs and weirs) and coastal defences (such as seawalls, retaining walls and gabions). They can also include movable gates and barriers which control water flow.

Engineering solutions can be combined with **Natural Flood Risk Management** measures. Natural flood risk management is where you reduce flooding downstream by harnessing natural processes to slow the flow. Natural flood management can be done at a catchment level and has benefits for biodiversity, water quality and carbon storage. Such measures can include water storage options such as wetlands and retention ponds, restoring river bends and adding leaky dams to slow the flow, and building soil health to retain water. Tree planting can also be a valuable defence against flooding. The Forestry Commission suggest that Woodland in the right place reduces flood peaks by up to 65 per cent. Saltmarshes can help defend against flooding from the sea. These intertidal habitats act as natural buffer zones which reduce wave height and energy. They can be cheaper than constructing and maintaining sea defences. Restoration projects usually involve creating a

gap in the current sea walls, in order to reflow previously reclaimed land so saltmarshes are reconnected to the tidal flow.

If a landowner is interested in exploring Natural Flood Management measures, they should approach their LLFA or IDB / IDD. Some measures may require no, or low consultation, while others may require consent or planning permission. To learn more about Natural Flood Management options, see [this practical guide for farmers in lowland areas](#), which has been produced by the Yorkshire Dales National Park with support of Natural England and the EA.

Private Flood Defences

Many flood defences are on private lands, however, there is no public record of who owns and maintains private flood defences. These may include flood walls, embankments or enclosed water courses such as outfall pipes and culverts which may run under properties. If you have flood defences on your land, a first step to building flood resilience on your holding, and also to communities nearby or downstream, is to ensure that these are in good condition through regular inspection and maintenance. It is worth checking to ensure you are aware if any pipes or culverts run under your property.

Maintaining Flood Defences

Due to the different bodies involved in flood risk management, if a landowner wants to undertake work on – or near to – a waterbody, they are likely to require consent. If you are a riparian landowner (own land next to a watercourse) you may be responsible for a flood defence but will need to check with the appropriate Risk Management Authority first (see Section 3).

For example, if a landowner is planning to create a culvert, dam or weir on an ordinary watercourse you may need consent from the LLFA. If you are planning to work on or near a main river, or carry out work which may affect a flood or sea defence or other protected structure in England, you will need consent from the EA, usually in the form of an Environmental Permit (specifically a Flood Risk Activity permit) or an impoundment licence (expected to become a type of environmental permit from 2023). Similar consent will be required from NRW for equivalent works in Wales. This is set out in the table below for clarity.

| Watercourse / flood defence location | Consenting body: England | Consenting body: Wales |
|--------------------------------------|---|---|
| Ordinary watercourse | IDB, district council, or LLFA depending on area | IDD or LLFA (Local Authority) depending on area |
| Main river or sea | EA | NRW |
| Public sewer system* | Local water company (e.g. trade effluent consent) | |

*For more information on *private* sewage systems see CLA Guidance Note GN03-20.

5. MONITORING FLOOD RISK

There are various online resources available to keep track of flood risk. These allow you to track river and tidal gauge measurements, weather forecasts, and sign up to flood alerts. A selection of resources are highlighted below.

National

The Met Office shows a **weekly forecast of weather warnings**, including advice on what to do and what to expect.

Gauge Map is an interactive tool that allows users to view **information for local river monitoring stations**.

River Levels also provides a full listing of all **river level monitoring stations** across England, Scotland and Wales, as well as **flood alerts and flood risk forecasts** from the Flood Forecasting Centre.

National Tidal and Sea Level Facility (NTSLF) provides an interactive map of **tide gauge measurements**. NTSF is the UK centre of excellence for sea level monitoring, coastal flood forecasting and the analysis of sea level extremes.

England

Check for flooding in England at <https://check-for-flooding.service.gov.uk/>. This is a new service launched in 2021 and is the key resource to be checking regularly. You can sign up for flood warnings to your email and phone at <https://www.gov.uk/sign-up-for-flood-warnings>.

The **long-term flood risk** for an area can be checked on the UK Government website. This will not tell you the current risk of flooding, or the risk for a specific property. Instead, it can be used to understand whether the area is at risk more generally. The long-term flood risk is broken down into risk of flooding from rivers and the sea, surface water, reservoirs and some ground water, and for each flooding type, areas are ranked either very low, low, medium or high.

You can also check the **short-term flood risk** on the UK government website. This service shows flood risk in the next five days, including current flood warnings and alerts, and river, sea, groundwater and rainfall levels.

Wales

Check for flooding in Wales by viewing the live flood map at <https://flood-warning.naturalresources.wales/>. If you have land in Wales, it is recommended that you sign up to flood warnings from NRW [here](#).

You can check **Welsh river levels, rainfall and sea data** on the NRW website and also the **short-term flood risk** for Wales, which shows the 5 day flood risk outlook. Areas are ranked either very low, low, medium or high. All flooding resources from NRW can be accessed [here](#).

Flood Warnings

There are three levels of flood warning used in both England and Wales. The table below shows the warning symbol and interpretation.

| Flood Alert: Prepare | Flood Warning: Act | Severe Warning: Survive |
|---|---|---|
|  |  |  |
| <p>This means flooding is possible. Be prepared.</p> | <p>This means flooding is expected. Immediate action required.</p> | <p>This means severe flooding. Danger to life.</p> |

6. PLANNING FOR A FLOOD

There are several steps to take in advance of a flood to adapt and mitigate flood risk. Several of the steps below can be completed before any alerts or warnings are issued.

Insurance

It is important to have insurance in the event that a flood causes damages to your property. Review the contents of your policy and make sure it provides adequate cover for flooding and is not due to expire. Taking photos of your property to record its current condition (before any damage occurs) is useful evidence to have on hand for any future claims. If you haven't changed your insurance recently, it may be worth speaking to the CLA insurance team (E: insurance@cla.org.uk; T: 01234 230 315).

Precautionary Steps

If you know certain parts of your holding are more likely to flood, ensure equipment and livestock are not stored there if possible, or move them when a flood alert is issued. Similarly, moving valuable items in your home to higher shelves will reduce the risk of them getting damaged should water enter your property. You can also buy various flood protection devices for doors or raise thresholds. [The Blue Pages](#) is a directory of property flood products and services.

Keeping a stockpile of temporary flood defences can help to mitigate a flood event. It may be more difficult to get hold of the required equipment if you wait until a flood warning is issued, therefore, it is beneficial to have these on site in advance. Examples include sandbags, plastic sheets, and plywood. Such equipment can be used to divert the flow, prevent water going under doors into buildings, and artificially build up river banks.

Where appropriate, Rural Sustainable Drainage Systems (Suds) can be installed to divert high surface water flows away from sensitive areas, for example, swales, retention ponds, and infiltration trenches. See the [EA's guidance booklet on RSuDS](#) for more information. Such projects may take time to implement and can build long-term resilience. However, they are not suitable in response to a flood warning.

Emergency Flood Response Plan

Prepare an Emergency Flood Response Plan and ensure this is communicated to others who might need to act during (or to prepare for) a flood. Collaborating with neighbours on response plans can help to build resilience and reduce losses. The exact contents of an Emergency Flood Response Plan may vary depending on your site and the nature of your land or business activity, but it is recommended that the following items are included:

- Details of your insurance such as policy, contact and claim numbers.
- Other useful contact numbers such as local council, utility providers, and emergency contacts.
- Information on how to shut off your electricity, gas and water supplies.
- Location of chemicals and fuels which may cause a pollution incident, and where to move them to in order to prevent such an incident occurring.
- Details of any flood mitigation materials / temporary flood defences, including where they are stored and how to use them effectively.
 - It may also be useful to include the location of any permanent flood defences, and how these can be reinforced with temporary measures.
- Identify suitable locations, such as higher ground or neighbours land (with permission), where equipment and livestock may be able to be moved.
- Other protective actions to take to prepare the area. Such as:
 - Securing loose objects if there are high winds as these could blow away and cause damage e.g., ladders, outdoor furniture.
 - Move vehicles into a garage where available, or park them clear of buildings, trees, walls and fences, or ideally, out of the flood risk area.
 - Close and securely fasten all doors and windows, including shutters if available, and those on any garages or barns.
 - Close and secure loft trapdoors with bolts, particularly if roof pitch is less than 30°.
- Where to go in the event of an evacuation, including where your emergency flood kit is stored or what to pack into one.
 - Examples of items which may be included in an emergency flood kit include torch, medications, waterproof and warm clothing, food.
- Health and safety information such as who the registered first aiders are (if applicable), where to find first aid supplies, and the location of the closest hospitals or emergency care facilities.

7. AFTER A FLOOD

After a flood you should contact your insurance provider as soon as possible if you may need to make a claim. It may be necessary to review and update your Emergency Flood Response Plan with any lessons learnt and replenish any temporary flood defences.

If you need immediate help, there may have been a local community flood response group set up, or Flood Action Group, where supplies and assistance may be being offered. For example, in a townhall or local community space. There are also charities which may be able to provide assistance such as [The National Flood Forum](#) or [Forage Aid](#), which is specifically for farmers helping farmers to manage flood events.

After major flood events, Defra may issue emergency funding, such as the Property Flood Resilience (PFR) grant scheme, which was set up in response to the November 2019 flooding and Storms Ciara and Dennis in February 2020. This grant offered up to £5,000 to people whose homes or businesses were affected by these events, to help fund property flood resilience measures which make the property less likely to flood in the future or reduce the impact if flooding does occur. The Farming Recovery Fund (FRF) is another Defra funded scheme. This scheme is

to help farmers who have agricultural land affected by flooding. When open, this fund supports the cost of repair and reinstatement to return the land and/or infrastructure to the condition it was in before the natural disaster. Works eligible for funding previously included repairing stone walls, fences, gates and gateways, and restoring land by removing debris, re-cultivating and reseeded with grass or cover crop. If you are affected by flooding it is important to check if applications to the PFR or FRF funds are open, or if other relevant government funding has been made available, and to take photographic evidence to support any funding application.

The effects of a flood may make a landowner unable to fulfil their obligations under the Basic Payment Scheme (BPS) or another funding scheme, for example, by temporarily taking land out of production. In such instances the landowner may still be eligible for payments under a Force Majeure or Exceptional Circumstances provision. Under BPS, Force Majeure is defined as 'abnormal and unforeseeable circumstances, outside the control of the operator concerned, the consequences of which, in spite of the exercise of all due care, could not have been avoided except at the cost of excessive sacrifice on your part'. This can include 'a severe natural disaster gravely affecting the holding'. In such instances, those affected should contact the relevant funding administrator to provide details of the Force Majeure/Exceptional Circumstances request and photographic evidence in writing (by letter or email).

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Alice is the CLA lead on climate change and water. Climate change is becoming part of all policy areas and all business decisions, and it is a key role to ensure that the needs of CLA members are considered in the fast-moving policy area.

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