

# Flood Planning and Mitigation Guidance

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Flooding can occur from a range of different and combined sources, such as:

- River flood and flooding from smaller watercourses such as streams and brooks which can be made worse by bridges, culverts and blockages that restrict the flow and raise water levels.
- Tidal flooding caused by high tides coinciding with storm surges which can overtop coastal walls and defences and also affect areas further inland where the tidal influence extends up river.
- Surface water flooding due to heavy rainfall from water runoff pooling and when drains and sewers are unable cope resulting in surcharging back through the inlet. This can be made worse when drainage is insufficient, poorly maintained, blocked or overloaded.
- Groundwater flooding causing the water table to rise above the ground level after a prolonged period of rainfall. Rising groundwater levels can be a particular issue to buildings with basements.
- Infrastructure failure such as reservoirs and canals plus burst water mains, blocked sewers or failed pumping stations.

Hazards from these different sources of flooding can vary in terms of speed of inundation, depth and duration of flooding and can often occur in combination. The frequency and severity of flooding from natural sources is expected to increase as a result of climate change.

# Introduction

Floods can have a devastating effect on companies, not only from the immediate physical impact of flood water, but also potentially long term interruption to the business.

Flooding is often a natural occurrence that cannot always be entirely prevented. However appropriate preparation and action in advance of a flood may help to reduce the immediate impact, physical damage and interruption to the business.

To help mitigate the effects of a flood, this guide provides some advice in the action to be taken before, during and after a flood incident.

## Flood Risk Assessment

**To establish the most effective way of protecting the business and consequences from flooding, in the first instance, the flood risk to the site, buildings, plant, equipment, stock and all other contents needs to be fully assessed.**

Areas for consideration within the risk assessment process include:

- Distance from all flowing and static watercourses - sea, rivers, streams, culverts, ditches, ponds, lakes, reservoirs, canals, overflow facilities etc.
- Whether there are planned changes to the existing flowing or static watercourses (damming, re-routing, change in overflow facilities etc.)
- Condition of existing flood defences and equipment and whether there are planned repairs/upgrades/downgrades
- Any current or future flood defences (on-site or external)
- Site topography (sloping {including direction of the slope}, flat, on a summit etc.) and the surrounding lands in relation to the site
- Whether there is any planned building works on site or on third party land that would affect the site and surrounding lands
- Yard storage arrangements of third party sites
- Surrounding vegetation and potential involvement in a flood
- Incorporating flood prevention/mitigation techniques within the design of any new buildings, plant, equipment, future additions or projects
- The presence or otherwise of existing or planned floodplains
- Condition of existing site, nearby third party and public surface and underground drainage/waste water facilities, bund/dyke arrangements, and any planned changes to them
- Suitability of maintenance programmes for storm water guttering, downspouts, culverts, bridges and site roof, floor and yard drainage systems
- Condition of existing flood removal and clean-up equipment
- Surrounding water table levels
- Whether any processes or storage arrangements within the business would affect the flood risk
- Fire fighting water run-off effects
- Historical flood data/previous incidents

# Assistance with Assessing and Mitigating the Flood Risk

To help in the assessment process, there are a number of agencies, associations and organisations that can provide useful advice on flood risk assessments and surveys, the risk of flooding, flood warnings, flood protections, defences/flood alleviation schemes etc. Examples of these include:

- The Environment Agency (EA) – [www.gov.uk/government/organisations/environment-agency](http://www.gov.uk/government/organisations/environment-agency) or by contacting the Floodline on 0345 988 1188
- Scottish Environment Protection Agency (SEPA) – [www.sepa.org.uk](http://www.sepa.org.uk) or by contacting the Floodline on 0345 988 1188
- The Office of Public Works (Ireland) – [www.opw.ie/en/flood-risk-management](http://www.opw.ie/en/flood-risk-management)
- Natural Resources Wales – [www.naturalresources.wales](http://www.naturalresources.wales) or by contacting the Floodline on 0345 988 1188
- The Rivers Agency for Northern Ireland – [www.infrastructure-ni.gov.uk/topics/rivers-and-flooding](http://www.infrastructure-ni.gov.uk/topics/rivers-and-flooding)
- National Flood Forum – [www.nationalfloodforum.org.uk](http://www.nationalfloodforum.org.uk)
- The Flood Protection Association – [www.floodprotectionassoc.co.uk](http://www.floodprotectionassoc.co.uk)
- Met Office for weather warnings – [www.metoffice.gov.uk/www.met.ie](http://www.metoffice.gov.uk/www.met.ie)
- Local Water Authorities – [www.water.org.uk](http://www.water.org.uk)
- The local council/authorities, drainage/ sewerage contractors – refer to [www.ofwat.gov.uk](http://www.ofwat.gov.uk) for a list of water and sewerage companies
- The Association of Drainage Authorities – [www.ada.org.uk](http://www.ada.org.uk)
- Local libraries, historical newspaper articles, old photographs, architects, property surveyors, builders etc.
- The Association of British Insurers (ABI) – [www.abi.org.uk](http://www.abi.org.uk)
- British Standards Institute Kitemark approved flood protection products – [www.bsigroup.com/en-GB/our-services/product-certification/industry-sector-schemes/construction/flood-protection-and-waterproofing-materials](http://www.bsigroup.com/en-GB/our-services/product-certification/industry-sector-schemes/construction/flood-protection-and-waterproofing-materials)
- The Construction Industry Research and Information Association (CIRIA) – [www.ciria.org.uk/flooding](http://www.ciria.org.uk/flooding)
- Royal Institute of Chartered Surveyors – [www.rics.org](http://www.rics.org)
- Chartered Institute of Water and Environmental Management – [www.ciwem.org](http://www.ciwem.org)
- British Hydrological Society – [www.hydrology.org.uk](http://www.hydrology.org.uk)
- Public Health England – [www.gov.uk/government/collections/flooding-health-guidance-and-advice](http://www.gov.uk/government/collections/flooding-health-guidance-and-advice)

# Flood Planning

A plan should be formulated to assist with damage mitigation and reduced business interruption. This should be a formal, concise and user friendly document that fully details how your business will respond and take action in a pre-flood/flood threat, actual flood and post flood situation.

The plan should be readily available and accessible to all key staff having responsibilities and appropriate training for its implementation.

The plan should be reviewed/re-assessed on a regular basis (minimum quarterly throughout the year) to reduce the potential for any changes to invalidate it, with alterations/updates etc., made as appropriate. In addition, the plan should also be reviewed/updated after a flood to take account of any lessons learnt from the incident.

The plan should be regularly tested (minimum annually).

To help with the implementation of the plan, detailed checklists for pre-flood/flood threat and post flood conditions should be incorporated as an aide memoire, indicating the order in which processes, plant, equipment and utilities etc. are to be shut down/isolated as appropriate and the site/premises etc. made secure.

Within the pre-flood/flood threat checklist, the length of time required to complete the tasks should be determined in advance, so that the appropriate action can be taken at the right time.

A copy of the plan and any checklists should be forwarded to Chubb for review/record purposes before formal implementation into company policies/procedures.

Some areas/items to consider for inclusion in the plan should include:

- A list of all useful and applicable contacts (web addresses and telephone numbers as appropriate), e.g. local environment agency 'Floodlines' where available, including the flood warning schemes, and updates on any proposed changes in flood defences which would improve/downgrade the flood protection for the site, private and public utility providers, emergency services, local authorities, public health authorities, customers, suppliers and available alternatives, applicable contractors for flood protection product installation and clean-up/repair/replacement operations, local Chubb office, insurance brokers
- Instructions to contact the local Chubb office, insurance brokers in the event of receiving any of the flood warning codes
- Instructions for alerting the emergency services as appropriate
- Strategies for protecting the site, buildings, plant, equipment, stock and all other contents, including vehicles and mobile plant etc.
- Provision of suitable and sufficient flood protection measures and products (resistant measures {reduces the amount of water that gets into the building} and resilient repairs {reduces damage when water gets into the building}, as appropriate) e.g. sand, sand bags, grease, anti-rusting compounds, plastic sheeting, tarpaulins, boards, 'skirting systems', covers, non-return valves to prevent sewage back-up, etc. as appropriate, together with appropriate tools and equipment needed to install and where available the use of BSI approved permanent or temporary flood protection products
- Plans/maps which highlight the location of all flood protection products and instructions/training in their storage and use as appropriate
- Plans/maps which highlight any business critical private and public utilities, plant, equipment, stock, data, buildings, areas and contents
- Plans/maps which highlight the location of hazardous, flammable, combustible and volatile materials, gases or liquids
- Plans/maps which highlight the location of processes or storage facilities that would be susceptible to flood water ingress/contamination/damage, and if affected could result in an extended interruption in business

- Plans/maps which highlight the location of isolation/ shut-down points for plant, equipment, processes (including flammable liquids, combustible liquids, gas and air lines etc.), private and public utilities (gas, water and electric), buildings, areas etc.
- Instructions for emergency isolation and shutdown procedures for all plant, equipment, processes (including flammable, combustible liquids, gas and air lines etc.), private and public utilities (gas, water and electric), buildings, areas, in the event of flood warnings being received
- Instructions for the relocation of business critical plant, equipment, stock, data, vehicles, mobile plant, all other contents and hazardous, flammable, combustible and volatile materials to safer areas on and off-site as appropriate
- Procedures and strategies for securing, compounding and fencing yard contents, stock, plant, cylinders, equipment etc. and relocating any mobile plant and vehicles to safer areas that would not be affected by the flood as appropriate
- Strategies for reducing the business interruption potential and assisting in the recovery process, contingency planning process
- Provision of appropriate and sufficient equipment for clean-up/repair after a flood, e.g. torches, mops, buckets, hoses, shovels, pumping equipment, emergency electrical power and lighting as appropriate

## Contact us

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Chubb European Group  
100 Leadenhall Street  
London EC3A 3BP  
T 020 7173 7000  
F 020 7173 7800  
[www.chubb.com/uk](http://www.chubb.com/uk)

## About Chubb

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Chubb is the world's largest publicly traded property and casualty insurer. With operations in 54 countries, Chubb provides commercial and personal property and casualty insurance, personal accident and supplemental health insurance, reinsurance and life insurance to a diverse group of clients. As an underwriting company, we assess, assume and manage risk with insight and discipline. We service and pay our claims fairly and promptly. We combine the precision of craftsmanship with decades of experience to conceive, craft and deliver the very best insurance coverage and service to individuals and families, and businesses of all sizes.

Chubb is also defined by its extensive product and service offerings, broad distribution capabilities, exceptional financial strength and local operations globally. The company serves multinational corporations, mid-size and small businesses with property and casualty insurance and risk engineering services; affluent and high net worth individuals with substantial assets to protect; individuals purchasing life, personal accident, supplemental health, homeowners, automobile and specialty personal insurance coverage; companies and affinity groups providing or offering accident and health insurance programs and life insurance to their employees or members; and insurers managing exposures with reinsurance coverage.

Chubb's core operating insurance companies maintain financial strength ratings of AA from Standard & Poor's and A++ from A.M. Best. Chubb Limited, the parent company of Chubb, is listed on the New York Stock Exchange (NYSE: CB) and is a component of the S&P 500 index.

Chubb maintains executive offices in Zurich, New York, London and other locations, and employs approximately 31,000 people worldwide.

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