



HILLINGDON
LONDON

Local Flood Risk Management Strategy

FOREWORD

Our climate is changing, and we are already experiencing more and more critical rainfall events. With these events comes an increased probability of flooding. Floods bring huge levels of immediate disruption and pose severe risk to people and property. A flood is not just a short term problem though, for those who have experienced flooding the harmful consequences remain long after water levels return to normal.

The London Borough of Hillingdon has already declared a climate emergency with bold ambitions to reduce its own carbon emissions by 2030. However, many impacts of climate change are now inescapable with more extreme weather events becoming increasingly the norm.

As the Lead Local Flood Authority, the Council is committed to being at the forefront of the action to protect our residents and businesses. This Local Flood Risk Management Strategy is a requirement of the Flood and Water Management Act 2010 and sets out our approach to managing flood risk. We have already taken measures to reduce flood risk across the borough and these are set out in the Strategy, but we also commit to further actions and objectives to respond more aggressively to the increasing risk of flooding.

The Strategy also provides opportunities though. Creative approaches to flood risk management can bring additional benefits in managing drought as well as enhancing opportunities for nature. We intend to pursue the kinds of flood risk management projects that provide more than just flood risk management.

The Strategy shows our intentions; but we can't work alone. We need to work with our residents and communities alongside key partners such as the Environment Agency and Thames Water to realise the objectives of the Strategy. Consequently, it is important for this Strategy to reflect the aspirations of those we need to work with.

We are therefore keen for the consultation on this strategy to reach all parts of the borough, to generate interest and to give the opportunity for our communities to help shape our approach to flood risk management.

Councillor Lavery
Cabinet Member for Residents' Services

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ACRONYMS AND ABBREVIATIONS

Abbreviation	Definition
BNG	Biodiversity Net Gain
CDA	Critical Drainage Area
DEFRA	Department for Environment, Food and Rural Affairs
EA	Environment Agency
FAS	Flood Alleviation Scheme
FCERM	Flood and Coastal Erosion Risk Management
FRMP	Flood Risk Management Plan
FWMA	Flood and Water Management Act 2010
GI	Green infrastructure
GiA	Grant in Aid
Hillingdon	The geographical area of the London Borough of Hillingdon
Hillingdon Council	The Local Authority governing the London Borough of Hillingdon
HRA	Habitats Regulations Assessment
LFRMS	Local Flood Risk Management Strategy
LLFA	Lead Local Flood Authority
LPA	Local Planning Authority
MAFP	Multi-Agency Flood Plan
NFM	Natural Flood Management
PFR	Property Flood Resilience
RFCC	Regional Flood and Coastal Committee
RMA	Risk Management Authority
RoFSW	Risk of Flooding from Surface Water
SEA	Strategic Environmental Assessment
SFRA	Strategic Flood Risk Assessment
SuDS	Sustainable Drainage Systems
SWMP	Surface Water Management Plan
TfL	Transport for London
TWUL	Thames Water Utilities Limited
UGF	Urban Greening Factor

1 A LOCAL FLOOD RISK MANAGEMENT STRATEGY

1.1 Local Flood Risk Management Strategy

A Local Flood Risk Management Strategy (LFRMS) is a requirement of the Flood and Water Management Act 2010 (the Act). It sets out information on 'local flood risks' relating to surface water runoff, groundwater and ordinary watercourses. It then requires the responsible authority to set out how it will set about reducing the flood risk associated with these sources of flooding.

The Council's LFRMS goes beyond just these local risks and sets out a collaborative approach with other responsible authorities to ensure that the approach to flood and water management within Hillingdon is captured in one strategy.

Why do we need an LFRMS?

The Act established the roles and responsibilities for different flood risk management authorities which includes the Council as the Lead Local Flood Authority for the borough.

This is an important leadership role in organising and progressing proactive management of flood risk. In order to achieve this, Section 9 of the Act establishes the requirement to produce a LFRMS. The Strategy needs to be kept up to date to reflect changes to legislation and to ensure consistency with other national and regional plans. The table below sets out what needs to be included within a LFRMS.

1	the risk management authorities in the authority's area
2	the flood and coastal erosion risk management functions that may be exercised by those authorities in relation to the area
3	the objectives for managing local flood risk (including any objectives included in the authority's flood risk management plan prepared in accordance with the Flood Risk Regulations 2009)
4	the measures proposed to achieve those objectives
5	how and when the measures are expected to be implemented
6	the costs and benefits of those measures, and how they are to be paid for
7	the assessment of local flood risk for the purpose of the strategy
8	how and when the strategy is to be reviewed
9	how the strategy contributes to the achievement of wider environmental objectives

Additional assessments

The LFRMS is a local strategy which means it must also be assessed through both a Strategic Environmental Assessment (SEA) and Habitats Regulations Assessment (HRA).

The LFRMS has been screened in accordance with the SEA requirements to determine if it will have a likely significant environmental effect. Completion of an SEA is a requirement of plans and strategies under the [Environmental Assessment of Plans and Programmes Regulations \(2004\)](#) (which implements the [European SEA Directive \(2001\)](#)). The SEA screening report can be found in Appendix A.

An HRA determines if delivery of the LFRMS will have any negative effects on protected European habitat sites. Undertaking an HRA is a requirement for plans and strategies under the [Conservation of Habitats and Species Regulations \(2017\)](#). The HRA screening report can be found in Appendix C.

Presentation of the Strategy

This LFRMS will be a 'living document'. Although presented as a single document within this consultation, the component sections will form individual parts that will be hosted on the Council's webpages. This allows for the various sections to be kept more readily up to date without a full and resource intensive review of the whole strategy. It also allows the Council to add or amend the strategy over time so that it is entirely consistent with parent legislation and policies as well as being able to reflect aspirations of our communities. The online presentation will be set around the following themes which reflect the objectives in the LFRMS.



It is considered that this approach will enable the Council to be more responsive to the changing nature of flood risk that will better serve our communities.

1.2 Strategic objectives

The strategy is required to be set around a series of objectives. The proposed objectives are outlined below linked to the themes set out in the previous section.

Theme	Objective
The Local Flood Risk Management Strategy	Understanding the Local Flood Risk Management Strategy
Sources of Flooding	Improve knowledge of flood risks in the London Borough of Hillingdon
Working with Others	Improve the collaboration of Risk Management Authorities, and understanding of roles and responsibilities, to manage flood risk effectively
Opportunities and Projects	Identify and implement opportunities for flood risk management
New Development and Planning	Ensure that development within the London Borough of Hillingdon accounts for and mitigates flood risk
Local Communities and Flooding	Engage with communities to develop the awareness of flood risk in local areas and improve their resilience

1.3 Action Plan

The objectives set out the strategic intentions of the Council but they require more specific actions to facilitate delivery. Consequently, an Action Plan has been prepared which sets out how the Council will turn strategic aspirations into outcomes that better manage flood risk. The Action Plan will be reviewed on an annual basis to ensure it is kept up to date and reflective of a changing climate.

The actions for each objective are included at the end of the relevant chapter; the full Action Plan can be found in Appendix A..

1.4 Climate Change

As a result of climate change, the UK can expect to see more frequent climate extremes which are likely to include more frequent and more intense rainfall events, particularly in winter. These events will increase the risks of flooding making it increasingly important that Hillingdon adapts to, and mitigates, future flood risk.

The Council adopted its [Strategic Climate Action Plan](#) in 2021 which sets out how Hillingdon will respond to the issue of climate change at a local level. The plan acknowledges the important interaction between development planning and flood risk. Hillingdon commits to ensuring no new development is built in high and medium flood risk areas and that decisions about Council land and property consider the requirement of making space for water. [Hillingdon Local Plan](#) policies EM1 and EM6 similarly seek to ensure that climate change adaptation is addressed at every stage of the development process through managing the impact on flood risk.

The Local Flood Risk Management Strategy sits alongside the Strategic Climate Action Plan in delivering measures which will protect Hillingdon from current flood risk but also against future risk. The delivery of the LFRMS plays an important role in adapting and mitigating this risk and seeks to deliver flood risk management in alignment with Hillingdon's climate change targets. The LFRMS achieves this by incorporating consideration of climate change and the environmental benefits to be found in flood risk management into the actions that will deliver the LFRMS.

Nonetheless, the requirement to produce a Climate Adaptation and Mitigation Action Plan will overlap significantly with the LFRMS.

1.5 Monitoring

The Hillingdon LFRMS will be kept under review to ensure it reflects any major changes to relevant legislation. By breaking the LFRMS into component parts we are able to amend or add to the various sections without recourse to a holistic review. This places the Council in a better position to be more responsive to changing circumstances and allows communities and residents the opportunity to take a more proactive role in shaping how the Council responds to flood risk.

Delivery of the LFRMS will be evaluated by the LLFA through monitoring delivery of the actions in the Action Plan. Each action will be reviewed against internal targets for the timing of delivery and stage of progress. This will enable the LLFA to track and report on progress of delivery of the LFRMS.

It should be noted that the Action Plan will be reviewed once full details of the SuDS Approving Body (SAB) have been released. Further information on the SAB can be found in Section 5.2.1.

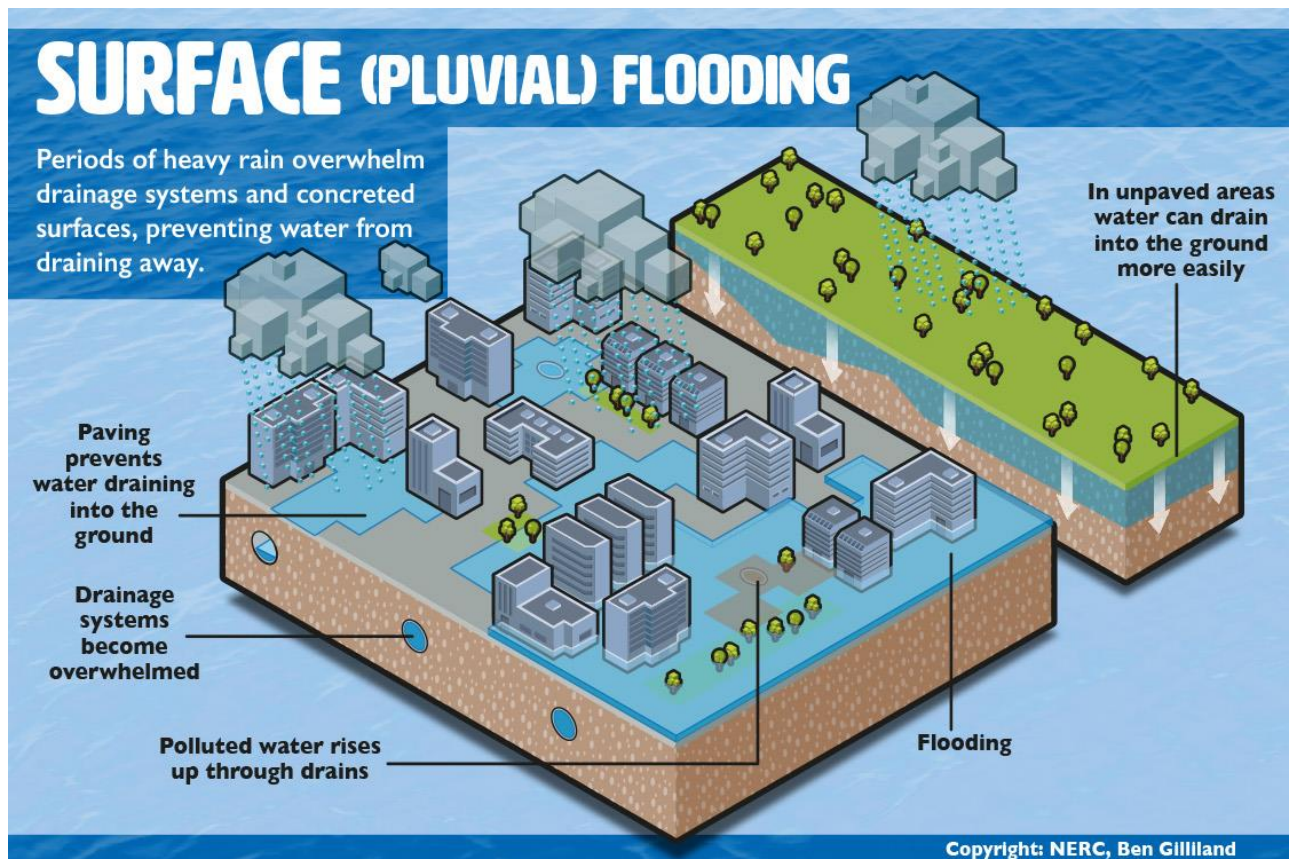
2 SOURCES OF FLOODING

2.1 Flood risks in Hillingdon

Flooding is generally a result of rainfall although other causes do exist such as groundwater flooding can occur from natural springs reaching the surface. However, whilst the route cause of flooding may be obvious how it reaches people and property is far more complicated. These are collectively known as the sources of flooding with different bodies leading on their management.

2.1.1 Surface water

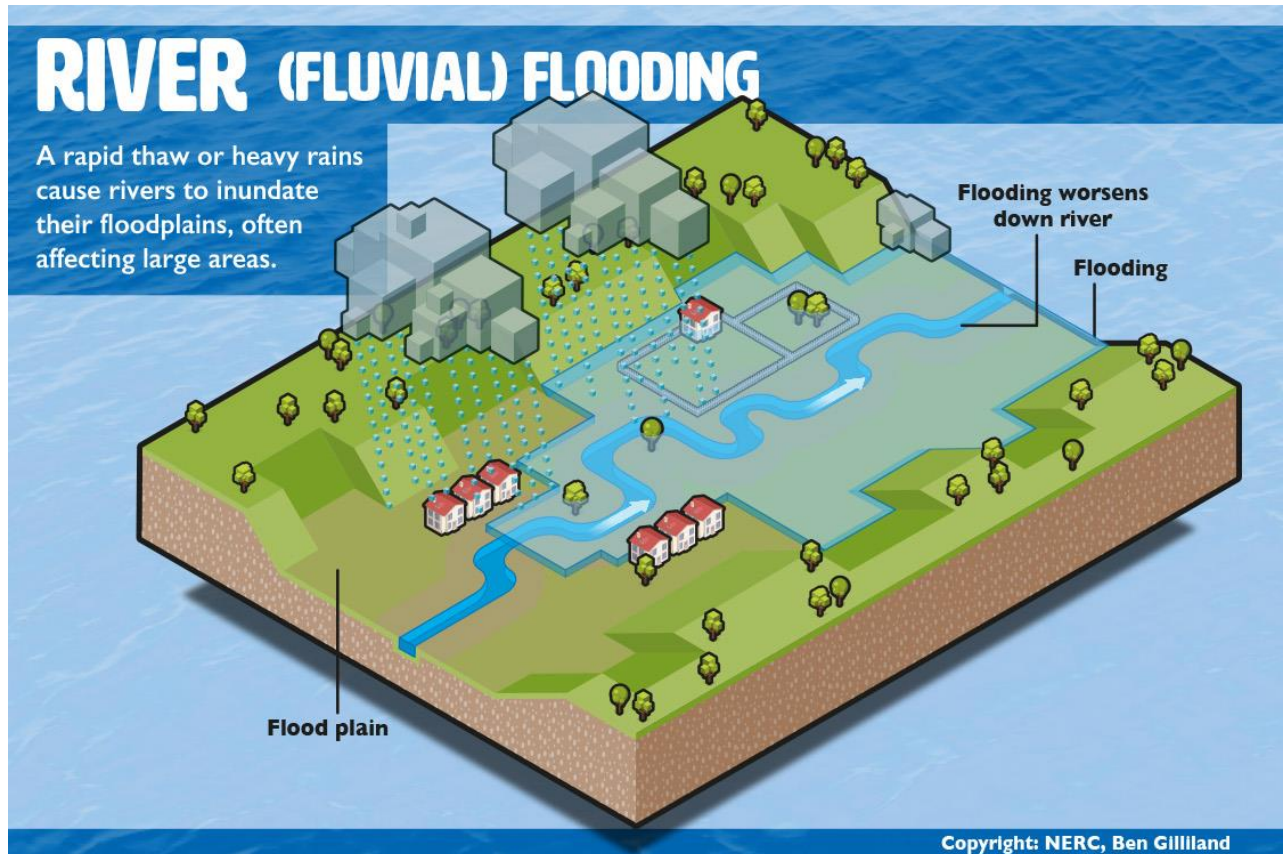
Flooding from surface water, also known as pluvial flooding, occurs when the volume of rainwater exceeds the capacity of drainage systems and is unable to drain quickly enough into the ground through infiltration. This type of flooding typically occurs during periods of intense rainfall and is a particular issue in urban areas due to the high coverage of impermeable surfaces.



2.1.2 Rivers

Flooding from rivers, also known as fluvial flooding, happens when the volume of flow in a river exceeds its capacity and the excess flows outside the banks. In Hillingdon the **main**

rivers, as designated and managed by the Environment Agency (EA), are the River Colne, the River Crane and the River Pinn. A map of main rivers can be seen [here](#). Rivers other than these are categorised as **ordinary watercourses** and are managed by the LLFA. In Hillingdon, the ordinary watercourses are the Duke of Northumberland River, Grand Union Canal, Ickenham Stream, Hayes Park Stream and the Longford River (artificial waterway).



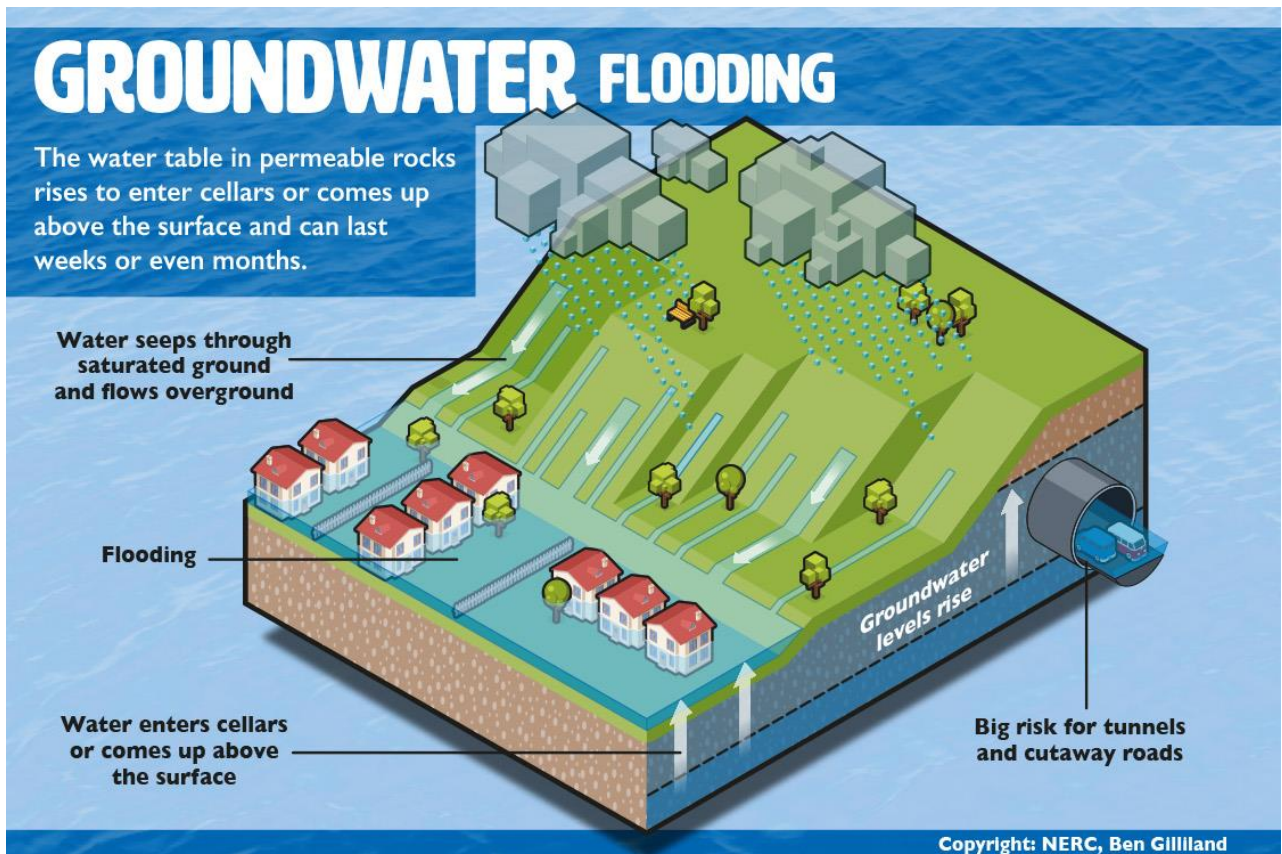
The EA categorises areas as being in Flood Zone 1, Flood Zone 2, or Flood Zone 3. The definitions are outlined in **Error! Reference source not found.** Flood Zone 3 is then divided into Flood Zone 3a and Flood Zone 3b by the Local Planning Authority, in discussion with the EA and the LLFA. The [West London SFRA](#) outlines the methodology used to do this for the boroughs that it covers, including Hillingdon¹.

¹ The Planning Practice Guidance (PPG) was updated in 2022 which changed Flood Zone 3b from land with greater than 5% chance of flooding to land with greater than 3.3% chance of flooding. For planning applications in Hillingdon the definition of Flood Zone 3b in the West London SFRA will apply. It should be noted that this definition is subject to change when the SFRA is updated.

Flood Zone	Criteria
1	Land with less than 0.1% chance of flooding each year.
2	Land with between 0.1% and 1% chance of flooding each year.
3a	Land with greater than 1% chance of flooding each year.
3b	Functional Floodplain. This is outlined in the West London SFRA as land with a 5% or greater chance of flooding each year and land within dedicated flood storage areas. The West London SFRA has further details on the methodology used.

2.1.3 Groundwater

Flooding from groundwater happens when the water table, beneath the ground, rises to the surface of the ground. Groundwater levels are generally highest in early spring and lowest in early autumn. Groundwater flooding is not necessarily directly linked to a specific rainfall event and flood events are usually longer lasting than other causes as they are dependent on the water table reducing which is affected by the permeability of the ground.



2.1.4 Sewers

Flooding from sewers happens when the volume of rainwater exceeds the capacity of the sewer network. This can happen because the rainfall event exceeds the capacity that the

sewer network was designed to cope with or as a result of a failure, such as a blockage, somewhere in the system. Either of these issues can result in sewers backing up, surcharging, and causing overland flow. The sewer network in Hillingdon is primarily separate surface water and foul water systems, managed by Thames Water Utilities Limited (TWUL).



source: <https://www.bbc.co.uk/news/uk-england-oxfordshire-55951338>

2.1.5 Artificial sources

Flooding from artificial sources occurs because of a failure of built infrastructure. Reservoirs and canals are potential sources of artificial flooding. Charville Lane FSA (Flood Storage Area), Spout Lane Lagoon, and Ruislip Lido are reservoirs that could cause flooding to areas of land within Hillingdon as a result of failures in infrastructure. The Grand Union Canal also runs through Hillingdon which is another potential source of artificial flooding. The areas within Hillingdon susceptible to these sources of artificial flooding can be seen here and in the EA's [map of flood risk from reservoirs](#). Further information is available on the [Reservoir Flood Map Search Facility](#) from the Department for Environment, Food & Rural Affairs (DEFRA) Data Services Platform.

2.2 Recent flooding history

Hillingdon experienced heavy rainfall over winter 2013-2014 which led to a number of flooding incidents across various locations. There was not one single cause with flooding identified from rivers, including the River Colne, surface water and groundwater. In some instances, the floodwaters were persistent and remained for a long period of time due to the difficulty of areas draining back to the river once waters had receded.

In July 2014 and again in June 2016, large volumes of rainfall falling in a short period of time caused primarily surface water flooding. In both instances there was internal flooding of properties, flooding of roads and key infrastructure, including Underground stations.

Through the course of 2020 and 2021, communities in Ruislip and Eastcote, surrounding Bessingby Park, were impacted by flooding on several occasions. A flood investigation was carried out, following FWMA [Section 19 guidelines](#), which concluded that the primary cause of flooding was sewer flooding from surface and foul water sewers in Bessingby Park.

As a LLFA the Council is required to undertake and publish an investigation into flood events where it is 'necessary or appropriate' to do so (Regulation 19 of the Act). It is important to understand that not every incident of flooding will be investigated. In general terms, it will be the larger scale events that will warrant investigations of the magnitude set out in the Act.

Further information on previous flooding in Hillingdon and details of flood investigations undertaken can be found [here](#). Guidance on when investigations will be carried out will be developed further through this LFRMS.

2.3 Theme Actions: Sources of Flooding

Objective	Improve knowledge of flood risks in the London Borough of Hillingdon
Action A1	Maintain an upto date record of flood risk data ensuring this is available for others to use.
Action A2	Develop and maintain a method for sharing and recording flood reports with internal departments and external partners
Action A3	Work with external partners to ensure their records of flooding events, including investigations, are available to the Council
Action A4	Review the threshold criteria for flood investigations and continue to carry out flood risk investigations when flooding reaches the Section 19 threshold.
Action A5	Use updates to modelling, new information from feasibility studies, and reports of flooding to ensure flood risk information is kept relevant
Action A6	Continue to use and develop innovative methods for capturing data on flood risk within the borough.

3 ROLES AND RESPONSIBILITIES

3.1 Flood risks in Hillingdon

When flooding occurs, it is important to understand the source as that will dictate which of the relevant authorities needs to take a lead on finding a solution. The debate about the source of flooding can often be highly technical and sometimes disputed.

For example, extensive rain can overload drainage systems resulting in discharges to rivers being uncontrolled; the source of flooding can therefore be seen as either river flooding, i.e. the responsibility of the Environment Agency; or surface water flooding, i.e. the responsibility of the Lead Local Flood Authority. However, if it is surface water flooding, there is a possibility it is because of blocked and/or at capacity drainage networks, which is the responsibility of Thames Water (in Hillingdon). A resident who suffers flooding is largely uninterested in the ensuing debate as the damage and disruption has already been caused. Nonetheless, it is an important debate to ensure that solutions to resolve flooding can be achieved.

In 2007 there was extensive flooding in the UK leading to a comprehensive review, 'The Pitt Review'. One of the findings in the report stated:

Many of the people affected by the events of summer 2007 did not know who to turn to and their problems were passed from one organisation to another.

The Pitt Review ultimately led to the Flood and Water Management Act 2010 and the defining of Lead Local Flood Authorities to take a greater leadership role in organising the risk management authorities into a common purpose. Considerable progress has been made on the collaborative working between each of the authorities, but more can be done.

The Review believes that the role of local authorities should be enhanced so that they take on responsibility for leading the coordination of flood risk management in their areas. Local authorities already have a substantial role because of their responsibilities for ordinary watercourses, drainage, highways and planning. Their place-shaping role and local democratic accountability will help to ensure that the right local action is taken.

Pitt Review: Lessons from 2007 Floods



Who's responsible for managing flood risk?

Property owner

The property owner is responsible for private drainage and surface water up to the boundary of the property. They may also want to consider property flood resilience (PFR) measures to protect their property from flood damage.

Watercourse (riparian) ownership

You own a watercourse if it runs adjacent to, through, or under your property. This includes both main rivers, and ordinary watercourses such as streams, culverts and ditches. You are responsible for maintaining the natural flow of water and reporting incidents such as blockages and flooding.

Main river and coastal flooding

The Environment Agency (EA) is responsible for managing the risk of main river and coastal flooding. Main rivers are those which are designated as such on the EA's Main River Map. To report incidents and flood risk issues, call the Incident hotline on 0800 80 70 60. To sign up for flood warnings, call Floodline on 0345 988 1188.

Groundwater flooding

The Lead Local Flood Authority (LLFA) are responsible for managing the risk of groundwater flooding. This can occur when periods of prolonged rainfall cause the water table to rise and emerge in basements or above ground.

Public sewers and utility pipes

Water companies (e.g. United Utilities) are responsible for managing the risk of flooding from public sewers and utility pipes. This includes shared sewer pipes where they meet between properties before joining the public sewer.

Highway gullies and drains

Highway roads, footpaths, drains and gullies are the responsibility of the local highway authority which will be either the County Council or the Unitary Authority.

Major roads and motorway drainage

Responsibility of Highways England.

Surface water flooding

The Lead Local Flood Authority (LLFA) are responsible for managing the risk of surface water flooding. This can occur when the capacity of drainage systems on land or roads is exceeded by heavy rainfall.



This resource has been produced by Newground who work in partnership with the Environment Agency

Lead Local Flood Authority (LLFA)

The Lead Local Flood Authority is either the County Council or the District Council (provided it is a Unitary Authority). They are responsible for managing flood risk from ordinary watercourses, surface water and groundwater, and for investigating all flooding incidents where deemed necessary.

Last reviewed: March 2021

For more information visit:
www.thefloodhub.co.uk



3.2 Hillingdon Council – The Lead Local Flood Authority

Hillingdon Council plays a key role in managing local flood risk within Hillingdon, with responsibilities shared across different internal departments, for example the Hillingdon Highways Team are responsible for highway drainage on public roads not managed by TfL.

Importantly Hillingdon Council, as the Lead Local Flood Authority (LLFA), have the following responsibilities, outlined under the [Flood and Water Management Act \(2010\) \(FWMA\)](#):

- Prepare and maintain a Local Flood Risk Management Strategy (LFRMS).
- Perform works to manage local flood risk, within the authority area, such as flood alleviation schemes (FASs).
- Maintain an asset register, which records features in Hillingdon with a significant effect on flooding.
- Undertake flood investigations when a flooding event occurs which meets the flood investigation criteria.
- Maintain the flow of ordinary watercourses, which includes regulating developments and structures which could affect an ordinary watercourse.
- Provide advice as a statutory consultee on surface water drainage proposals of major developments for Hillingdon's Local Planning Authority (LPA).

The LLFA also has responsibilities under the Flood Risk Regulations (2009) (FRR):

- Determining whether there is a significant flood risk in its authority area, identifying where the risk is located (flood risk areas) and detailing this within a Preliminary Flood Risk Assessment (PFRA).
- Preparing in relation to each relevant flood risk area a flood hazard map, and a flood risk map.
- Prepare a flood risk management plan in relation to each relevant flood risk area.
- Co-operate with any other relevant authority which is exercising its function under the FRR.

3.2.1 Catchment Plan

[The Catchment Plan](#) is a recent project by Hillingdon Council to help the implementation of flood mitigation measures across Hillingdon. It was produced in response to significant flooding that occurred in Hillingdon in 2016, with a combination of sources of flooding across disparate locations making it clear that no single flood defence would protect against all risks.

It was identified that a holistic approach was required. Funding from the Environment Agency (EA) was secured and the Catchment Plan was created. It provides an evidence base of locations where action is required to manage flood risk, a review of how these areas are prioritised, and potential opportunities for work.

3.2.2 Partnership working

Hillingdon Council, as part of its flood risk management work, is involved in a number of partnerships. Different partnerships serve different purposes but contribute to the overall collaboration and efficient information sharing required for effective flood risk management.

The **Northwest London Strategic Partnership** is formed of six London Boroughs (Barnet, Brent, Ealing, Harrow, Hillingdon and Hounslow) along with the EA and Thames Water Utilities Limited (TWUL). The Partnership meets quarterly to discuss flood risk matters, including project opportunities and updates, funding opportunities, and changes to legislation. An elected council member also represents the partnership on the Thames Regional Flood and Coastal Committee (RFCC).

RFCCs were established by the EA under the FWMA to bring together independent members and those appointed by Local Authorities for three purposes:

- To ensure coherent plans are in place for identifying, communicating, and managing flood risk across catchments.
- To encourage efficient, targeted, and risk-based in flood risk management that represents value for money and benefits local communities.
- To provide a link between the EA, LLFAs, and other relevant RMAs to share and widen the knowledge base.

Hillingdon is within the Thames region and is represented on the **Thames RFCC**. Main committee and sub-committee meetings are held quarterly where partners can discuss and update on flood schemes. Importantly, the Thames RFCC also decides on the EA funding allocations for projects (including local levies).

More information on the Thames RFCC can be found [here](#).

The **Crane Valley Partnership (CVP)** is an association of charities, community groups, councils, businesses and government agencies working in the River Crane catchment area. Hillingdon Council is a landowner within the Crane Valley catchment and so is involved in the Core Strategic Group, supporting the broader Project Delivery group working on various projects within the catchment. The CVP works on restoration of the River Crane, conserving surrounding habitats and improving public access for the benefit of nearby communities.

The **London Drainage Engineers Group (LoDEG)** is an organisation representing the interests of those within London Councils with highway drainage and flood risk responsibilities. Meetings are held quarterly and attended by LLFAs, the Environment Agency, Thames Water Utilities Limited, TfL and Thames Flood Advisors among others. The meetings provide an opportunity for sharing flood risk management practice and enable collaboration and potential resolution of issues between relevant RMAs.

3.3 Environment Agency

The Environment Agency (EA) is the national flood risk authority for the UK. Main rivers, as designated by the EA, are a statutory type of watercourse and are under the regulatory control of the EA. The EA has permissive powers to carry out maintenance on main rivers and is responsible for ensuring that the riparian owner carries out their duties on a main river. The EA also has strategic overview of all sources of flooding and coastal erosion as defined under the FWMA. The map of the EA's designated main rivers can be viewed [here](#).

Further general EA responsibilities on flood risk management are:

- Delivering flood risk warnings.
- Producing maps for flood risk and providing data.
- Providing consent for, and enforcement of, works near or within main rivers.
- Producing guidance on Flood Risk Management Plans (FRMPs).
- Supporting other RMAs in delivering projects by providing resources and allocating government funding.

3.4 Thames Water

Thames Water Utilities Limited (TWUL) is the sewerage provider for Hillingdon. TWUL has responsibility for the management of flood risk in relation to the drainage network. This includes managing any potential failures of their infrastructure that may cause flooding and ensuring sufficient maintenance of public sewers is carried out to reduce the risk of flooding from sewers. TWUL are also a supplier of clean water in Hillingdon, along with Affinity Water. Clean water supply has the potential to be a source of flood risk from burst water mains, but this is outside the scope of the LFRMS.

Leaks can be reported to the appropriate water supplier. The Water UK website can be used to [find the water supplier at specific locations](#).

3.5 Category One Responders

Category One responders have responsibilities under the [Civil Contingencies Act \(2004\)](#) when a major flooding incident is declared. They are directly involved in the management and delivery of the response. Category One responders in Hillingdon include:

- Hillingdon Council
- Emergency Services
- Environment Agency

Depending on the circumstances of the incident, other organisations may be involved in the response to the incident. Hillingdon Council is required to produce a Multi-Agency Flood Plan (MAFP), owned and maintained by the Emergency Planning Team. The MAFP outlines the delivery of the emergency response and co-ordinates the actions of responding agencies.

3.6 Highways

The responsibility for the drainage on highways depends on their ownership and management, which is outlined in **Error! Reference source not found.** Transport for London (TfL) manages a network of major roads in the capital, referred to as red routes, which carry up to 30% of the traffic. Public roads not managed by TfL or National Highways are adopted by Hillingdon. Drainage on private roads is the responsibility of the landowner.

Highway drainage and asset management	Risk Management Authority		
	Transport for London	National Highways	Hillingdon Council
Red routes	✓		
Motorways		✓	
Other public roads			✓

Transport for London (TfL) manages the public transport network for London. As part of this role, TfL manages highway drainage on roads that are part of its network, known as ‘red routes’. A map of red routes can be found on the [TfL website](#).

In Hillingdon the roads that TfL are responsible for are the A4, A30, A40, A312, A437, and West End Road (A4180).

3.7 Landowners

Landowners are responsible for the drainage on, and from, their land and property and should implement measures to prevent them from flooding. Any measures that are put in place should not increase the flood risk to surrounding land and property.

Private landowners with land or property next to a river, stream or ditch have responsibilities as ‘riparian landowners’. Water must be able to flow without obstruction, pollution or diversion that may affect the rights of others. Private landowners have a duty to keep any structures, such as culverts or trash screens, free of debris. If private landowners have flood defences on their land, communication with the relevant RMA about maintenance is important as they may play a significant role in flood protection.

National Highways is the government company charged with operating, maintaining, and improving England's motorways and major A roads. The M4 runs through Hillingdon, part of the strategic road network that National Highways manages, which makes it a landowner and responsible for drainage and managing flood risk on this road.

Heathrow Airport is in the south of Hillingdon and covers 1,227 hectares. This makes Heathrow Airport Holdings Limited, which owns and runs the airport, a major landowner within Hillingdon and responsible for drainage and flood risk management of a significant area of Hillingdon.

3.8 Theme Actions: Roles and Responsibilities

Objective	Improve the collaboration of Risk Management Authorities, and understanding of roles and responsibilities, to manage flood risk effectively
Action B1	Host quarterly meetings of a flood group for internal council departments to share relevant updates for flood risk, discuss projects and potential opportunities for collaboration.
Action B2	Host quarterly meetings with external bodies, Thames Water and Environment Agency to discuss ongoing work, changing flood risk, investigations, and opportunities for collaborative working
Action B3	Provide support to communities through flood action groups (FLAGs) to ensure flood risk at a local level is understood and preparedness is in place
Action B4	To work with the Council's emergency response unit to ensure that access to forecasting and warning is up to date and fit for purpose
Action B5	To work with Thames Water and the Environment Agency to secure a list of Hillingdon specific actions to be hosted on the Council website alongside the LFRMS

4 OPPORTUNITIES AND PROJECTS

4.1 Managing flood risk sustainably

With future changes to the climate, there will be a greater risk of flooding as a result of more frequent and more intense periods of rainfall. Combined with this is a range of problems that are already present. For example, large scale loss of gardens and an increase in hardstanding results in a reduction of space for water to be stored in a time of flood. The drainage network, as throughout London, is ageing and lacks the capacity to cope with the increase level of rain events.

Carefully located and planned flood risk projects can provide considerable flood attenuation benefits. In addition, there are opportunities to reconsider where flood water can be stored in a time of flood, for example through the use of open space land. Identifying opportunities and projects are essential to facilitating a positive response to the growing risk of flooding.

Flood risk management in Hillingdon should aim to:

- Reduce risk in areas at greatest risk of flooding to ensure investment is used effectively
- Use sustainable drainage systems (SuDS) and natural flood management (NFM) where possible
- Share knowledge on flood risk and what work is being undertaken with the public, as to how they can be involved and protect themselves, property and business
- Work with partners to provide a collective response to flood risk management

Flood alleviation schemes should have multiple benefits: social and economic benefits of preventing property and businesses from flooding is generally accepted, but clever approaches can secure significant environmental benefits too.

Sustainable drainage systems (SuDS) are a method of water management that can be deployed to reduce flood risk. The purpose of a SuD is to manage runoff as close to its source as possible to mimic natural drainage. This promotes infiltration and the attenuation of water to reduce the subsequent load on sewer systems.

[The SusDrain website](#) provides further information and explanations of the different types of SuDS, along with diagrams and images.

Further information on SuDS, including their benefits, can be found on the [Local Government website](#).

Natural flood management (NFM) is the use of natural processes to manage the risks from flooding; both NFM and SuDS seek to reduce flood risk by achieving drainage rates closer to the natural state, but NFM takes a wider approach with fewer engineering interventions

than SuDS and is more commonly associated with managing fluvial flooding than surface water flood risk. Getting away from hard engineering, towards more natural methods of flood risk management, also allows for more interventions in a catchment.

4.2 Funding

The Department for Environment, Food and Rural Affairs (DEFRA) is a major source of funding for LLFAs to carry out projects through its Flood and Coastal Erosion Risk Management (FCERM) Grant in Aid (GiA) fund. The LLFA can also apply for Local Levy funding. This is managed by the Thames RFCC and raised through a levy on Local Authorities, and is supported by the EA.

Funding can be one of the primary barriers to the development and delivery of flood management projects which means that funding from third parties, or partnership funding, can be an important additional source. This could be from community groups, charity organisations or from land or property owners involved in a scheme, or partners such as Thames Water Utilities Limited.

4.3 What has been done

Hillingdon Council has undertaken a variety of projects, working with an array of partners, to alleviate flood risk.

Park Wood Natural Flood Management Project

When?	2018-2021
Where?	Park Wood, Ruislip (HA4 7XT)
What?	This project was one of four community scale NFM pilots using funding from Department for Environment, Food and Rural Affairs (DEFRA). It was delivered in partnership by Thames21, Hillingdon Council and the local community.

The steering group was formed partly of community members, including from Ruislip Woods Management Advisory Group and the North Ruislip Flood Action Group. The works involved installing 50 leaky dams in the wood, which is a designated Site of Special Scientific Interest (SSSI) and a National Nature Reserve. Leaky dams mimic the natural obstruction caused by trees or branches falling into rivers. They hold back small amounts of water and work best in a series, which helps to slow the flow during periods of high-water levels. They also aid sedimentation which improves water quality for fish and invertebrates.



Leaky dams installed in Park Wood, October 2023 (Source: Hillingdon LLFA)

Elephant Park and Court Park Flood Alleviation Scheme

When?	September 2022
Where?	Elephant Park (UB10 9AT) and Court Park (UB10 9JX)
What?	The Elephant Park and Court Park Flood Alleviation Scheme was undertaken to reduce the risk of flooding from surface water in the Hillingdon East Critical Drainage Area. The aim was to reduce flood risk and maximise benefits to ecology in the parks.

In Elephant Park, a meandering open drainage channel (or swale) was constructed, approximately 200m long. Approximately 1000m³ of earth was excavated during construction, which was repurposed on site, reducing carbon emissions of the scheme. Mounds of earth created by the work were seeded with wildflowers and a community planting day was organised by Hillingdon Council Greenspaces. In Court Park a swale, two embankments (or bunds), and two ponds were constructed. The features are designed to provide additional capacity for



surface water to reduce pressure on the sewage network.

Planting day in Elephant Park, September 2022 (Source: Hillingdon LLFA)

Eastcote Raingardens

When?	Summer 2019
Where?	Eastcote Town Centre
What?	Raingardens were designed and implemented as part of the London Strategic SuDS Pilot. Residents and businesses in Eastcote Town Centre

have suffered from frequent surface water flooding in the past and the aim of this scheme was to improve flood resilience by providing storage whilst also improving amenity in a public space. The raingardens were planted with shrubs, perennials, bulbs, and ornamental grasses.

Bessingby Park Attenuation Basins

When?	2022
Where?	Bessingby Park (HA4 9BU)
What?	Communities in Ruislip and Eastcote have been affected by flooding on several occasions. To alleviate this issue two attenuation basins were constructed to provide additional capacity for surface water during flood events. This reduces the pressure on the sewage network and reduces the risk of surface water flooding and the surcharging of the sewage network. As part of the work, wildflowers were seeded at the edges of the basins.

4.4 What is being done

In addition to work already completed by Hillingdon Council, there are a number of projects currently being undertaken.

4.4.1 Joel Street Ditch Flood Alleviation Scheme

Flood modelling and options evaluation have been undertaken for the Joel Street Ditch catchment with the aim of identifying opportunities for SuDS to address recent surface and fluvial flooding from the Joel Street Ditch. The results of this modelling are now being explored by Hillingdon Council to identify the best course of action.

4.4.2 Green Blue You (Frogs Ditch Catchment) Project

Hillingdon Council is working in partnership with [Groundwork London](#) on the Green Blue You project, which is a GLA-funded and due to be completed in March 2024. The project aims to reduce flood risk, alleviate pollution of watercourses and improve habitats both in and around water. The project is focused on six blocks of the Croyde Avenue Estate and works with residents to create a greener and more biodiverse estate and has provided volunteering and learning opportunities. The neighbourhood will benefit from new sustainable drainage, new informal play features and improved green spaces. Designs for the works have now been finalised with construction planned in early 2024.

4.4.3 Cannon Brook and Mad Bess Brook

Hillingdon Council has taken a catchment-based approach to the management of flood risk surrounding Cannon Brook and Mad Bess Brook in Ruislip to look at flood risk management in a wider context. Monitoring stations have been installed at Ruislip Lido and Breakspear

Road (Mad Bess Brook) with additional monitoring of Cannon Brook proposed upstream. Council officers have worked closely with Thames 21 to increase flood attenuation, enhance water quality and improve access to the river. In 2021, restoration work was carried out with the use of HS2 funding along a 400-metre stretch of Cannon Brook, near Ruislip Common. The focus of this work was nature-based solutions and included reprofiling of the channel banks, construction of backwater features for flood storage and additional habitat improvements.

Further information on the project can be found on the [Thames21 website](#).

[Property Flood Resilience \(PFR\)](#) has also been implemented on various properties impacted by flooding. Further studies into flood risk are underway in this catchment to provide further information and support proposed future work.

4.4.4 Spider Park

The Rewilding Spider Park project has involved a number of stages providing multiple and various benefits. 8000 tree whips have been planted, areas of grass are left uncut and managed as hay meadow, pond restoration has taken place and a new swale created, all as part of biodiversity enhancement completed in March 2023. A feasibility study looking at flood management opportunities in the park was completed in September 2023. This has informed the next stages of the project which would involve the progression of river restoration works on the Yeading Brook.

4.4.5 Brook Drive SuDS

An investigation and assessment of the opportunities for flood risk measures on Brook Drive were carried out in 2020. Following this, Hillingdon Council submitted a successful bid for funding from the Thames Water Surface Water Management Programme. Workshops were held with the community to establish priorities for the project. A concept design has been produced for the first phase of the project, which is to implement raingardens on Kings College Road, upstream of Brook Drive. The raingardens would store surface water and reduce the volume of water entering the sewer system. Construction of this project is planned for 2024.

4.5 Theme Actions: Opportunities and Projects

Objective	Ensure that development within the London Borough of Hillingdon accounts for and mitigates flood risk with the aspiration to see a net reduction.
Action C1	In collaboration with other internal council departments and Risk Management Authorities, maintain a list of funding opportunities. Use this to identify and secure appropriate funding for flood risk management schemes within the borough.

Action C2	Maintain mapping showing where flood risk management projects are being undertaken, opportunities have been identified, and include priority areas based on flooding.
Action C3	Support other internal council departments in their delivery of flood management schemes.
Action C4	Use flood incident information along with identified priority areas to inform the location and delivery of targeted schemes. Secure additional funding for delivery of flood alleviation schemes.
Action C5	Ensure that flood risk opportunities and projects are reflected in the Council's Climate Change Adaptation plans

5 NEW DEVELOPMENT AND PLANNING

5.1 Planning policy

Planning policy has an important role to play in flood risk management in terms of ensuring development is not at risk of flooding, that it does not increase flood risk elsewhere and also contributes to managing flood risk.

5.1.1 Strategic Flood Risk Assessment

The [Flood Risk and Coastal Change Planning Practice Guidance \(PPG\)](#) requires Local Planning Authorities (LPAs) to apply a risk-based approach to understand and manage flood risk from all sources. As part of this, LPAs are required to produce Strategic Flood Risk Assessments (SFRAs). The purpose of an SFRA is to assess the current and future risk to an area from flooding from all sources, taking account of climate change and the impact of land use and development changes. The SFRA provides the evidence base for planning decisions related flood risk.

5.2 Development and SuDS

Planning applications (where appropriate) are required to demonstrate the use of SuDS in accordance with a number of policies:

- [National Planning Policy Framework \(Paragraphs 159-169\)](#)
- [Flood Risk and Coastal Change Planning Practice Guidance](#)
- [London Plan Policies SI 12 and 13](#)
- [Non-statutory Technical Standards for Sustainable Drainage Systems](#)
- [Hillingdon Local Plan Policies EM 1, EM 6, DMEI 9 and DMEI 10](#)

The Lead Local Flood Authority (LLFA) has a statutory duty to review the proposed drainage elements of major planning applications under the [Flood and Water Management Act \(2010\) \(FWMA\)](#). Major planning applications are defined as:

- Developments of 10 or more dwellings
- A site area of 0.5 ha or greater
- Buildings with a floor space of 1,000m² or greater

The LLFA will provide comments on the proposed surface water drainage strategy of the development along with proposed measures for the management of flood risk to the site. The Environment Agency will also be consulted with respect to any development within 8m of a main river or in Flood Zone 3 (a or b).

The LLFA, as part of the planning application process, will review:

- If the drainage hierarchy set out in the [London Plan \(2021\)](#) is being adhered to and that the most sustainable drainage features possible have been proposed.

- If the proposed runoff rates are equal to or lower than greenfield runoff rates, or as close as reasonably practical with sufficient justification.
- If sufficient calculations supporting greenfield, existing and proposed runoff rates for 1 in 1 year (100% chance of occurrence each year), 1 in 30 year (3.3% chance of occurrence each year) and 1 in 100 year (1% chance of occurrence each year) rainfall events are provided, with an [appropriate climate change allowance](#).
- If the proposed attenuation storage volume meets or exceeds the required attenuation storage volume for the site.
- If maintenance tasks of proposed SuDS (including actions and frequencies) and a maintenance provider have been stated.

All of this information, along with sufficient supporting evidence, should be submitted in a formal planning application made to the local planning authority.

The applicant is also required to complete and submit the [Hillingdon Sustainable Drainage Proforma](#) and, dependent on the size of the development and Flood Zone it is in, a flood risk assessment. More information on the requirements for flood risk assessments can be found [here](#).

5.2.1 Schedule 3 and SuDS Approval Body

In January 2023 the government announced the implementation of Schedule 3 of the [FWMA](#), expected to come into effect in England during 2024. Schedule 3 will require the implementation of SuDS and approval from the SuDS approving body (SAB) for all new developments over 100m². SAB approval will be required separately and additionally to planning permission.

The SAB will have a similar role to the local planning authority, but solely for the drainage arrangements of a new development. Drainage will therefore be a consideration for both the local planning authority and the SAB. There is limited guidance at present as to the exact implications for the SAB but it will invariably be a significant change in how SuDS are considered within new development.

The LFRMs will be updated in due course once there is clarity over the SAB role.

5.2.2 Biodiversity Net Gain

Biodiversity Net Gain (BNG) is an approach for developing land whilst contributing to the recovery of nature. BNG refers to ensuring the natural environment is in better condition than prior to the development by creating or enhancing habitats in association with development. BNG can be achieved on-site, off-site or through a combination of both. Under the [Environment Act 2021](#), all planning permissions granted in England, with some exemptions, will have to deliver at least 10% BNG from January 2024. BNG will be measured by DEFRA's metric and further information on this can be found on [the government website](#). [Hillingdon Local Plan](#) Policy EM7 sets out how Hillingdon's biodiversity will be preserved and enhanced.

Further information on BNG can be found on the [Local Government Association website](#).

The National Planning Policy Framework requires Local Planning Authorities to consider green infrastructure (GI) in local plans and in new development. GI refers to a network of multi-functional green space, which deliver environmental and amenity benefits for communities. It can refer to a wide range of features, for example parks, playing fields, street trees and green roofs. The [Green Infrastructure Standards](#) have been developed by Natural England to help LPAs and developers meet the requirement to consider GI. The **Urban Greening Factor** is a tool to improve the provision of GI and increase the level of greening in urban environments. It is applied to major developments and sets a target score for the proportion of GI within a development site.

5.3 Theme Actions: New Development and Planning

Objective	Identify and implement opportunities for flood risk management
Action D1	Produce and maintain guidance for the Planning department on flood risk management, requirements for drainage strategies and all council policy associated with flood risk.
Action D2	Develop and maintain up to date guidance on the SuDS Approving Body for relevant internal council departments. Ensure the relevant departments have awareness and understanding of the implications of implementation of Schedule 3.
Action D3	Ensure plans and planning decisions are informed by up to date flood risk information and developments are designed and located to minimise the risk of flooding.
Action D4	Ensure developments with an impact on flood risk assets are appropriately assessed with long term maintenance and management appropriately secured.
Action D5	Require developments to demonstrate that sustainable drainage systems have been implemented, where possible, for managing runoff.
Action D6	Ensure all guidance and standing advice on flood risk and planning is kept up to date and accessible.
Action D7	Undertake annual training for Local Planning Authority on development and flood risk

6 LOCAL COMMUNITIES AND FLOODING?

6.1 How to reduce local flood risk

Managing flood risk is not the sole responsibility of the statutory authorities. Large scale interventions, projects or improvements to infrastructure can only be carried out by the statutory authorities but local action forms a vital part in the collective goal of managing flood risk effectively.

What residents do within their own properties can combine to make a significant difference. For example, in recent years, the large scale replacement of gardens with impermeable surfacing has resulted in an increased risk of flooding. Impermeable paving does not slow the rate at which water runs off to the drainage network resulting in more water reaching outlets far quicker.

It is important for residents to consider their use of external areas of property. Impermeable surfaces, such as driveways and paved gardens or astroturf, can increase the amount of runoff as water is unable to infiltrate into the ground, as with natural drainage. This can increase the flood risk to property as there is increased pressure on the drainage network. Property owners should consider swapping out areas of impermeable cover for those which will allow water to infiltrate. Options for storing rainwater, such as water butts, could also be considered.

Along with actions for reducing overall runoff, there are measures that can be put in place specifically to protect properties from flooding. These are often termed **Property Flood Resilience (PFR) measures**. Examples include non-return valves on pipes and fitting anti-flood airbricks. The [National Flood Forum](#) website sets out methods for protecting property along with the typical costs involved. [The Blue Pages](#) website provides further information on property-level protection measures along with the standards and accreditation available for such measures. The LLFA strongly recommends residents check the PFR certifications before employing any flood protection devices.

It is not possible to completely remove the risk of flooding, but it is possible to mitigate the risk through certain considerations and mitigation measures.

6.2 How to report flooding

Reporting of flooding incidents is important so that a record can be kept and appropriate action(s) are taken. Reporting flooding also makes it easier to establish locations where there may be a recurrent issue and helps with the prioritisation of solutions. Different types of flooding are the responsibility of different authorities. *Section 2.1* provides further information on this. The Council has committed to providing a more efficient way of reporting flooding

How to report a flood	
For surface water flooding, groundwater and ordinary watercourses	<p>Hillingdon LLFA</p> <p>01895 556000 / 01895 250111 (after 5pm)</p> <p>Flood reporting tool</p>
For sewer flooding and blocked sewers	<p>Thames Water</p> <p>0800 316 9800</p> <p>TWUL online reporting tool</p>
For flooding of main rivers or from the sea	<p>Environment Agency</p> <p>0800 80 70 60 (24/7)</p>
For blocked drains or gullies on highways managed by Hillingdon Council	<p>Hillingdon Highways</p> <p>Blocked gully reporting tool</p>
For blocked drains or gullies on highways managed by Transport for London	<p>Transport for London</p> <p>Street care reporting tool</p>
For blocked private drains or flooding from private drains	<p>Landowner / property owner</p>

6.3 Actions before, during, and after a flood

Improved community and individual knowledge of their risk of flooding improves awareness and enables preparedness. Residents and property owners can check the long-term risk of their area [here](#). In the event of a possible flood, residents can check the immediate risk to their property [here](#).

The EA can also be contacted for this information at **0345 988 1188** or by textphone **0345 602 6340**. The advice given by the EA on what actions should be taken before, during and after a flood are summarised below.

Before

- Prepare an emergency plan and share with anyone living in your property.
- Have an emergency kit ready to take with you.
- Find out how to turn off your gas, electricity and water supplies.
- Ensure insurance is in place
- Take detailed photos of valuables and property before flooding occurs for insurance purposes.

During

- Turn off gas, electric and water supplies.
- Avoid entering flood water, particularly if fast flowing or deep water.
- Do not drive through flood waters.
- Move valuables and furniture, if possible, out of reach of floodwaters. Vehicles should also be moved to higher places.
- Report the flooding incident to the appropriate authority so that any necessary action can be taken during the event.

After

- Don't return to flooded property until it has been declared safe to do so.
- Don't turn on utilities until these have also been checked.
- Take photos of damage and anything to be disposed of and contact the insurance provider.
- Report the flooding incident to the appropriate authority.

Would you know what to do in a flood?



**FLOOD
ALERT**

PREPARE

- Prepare a bag that includes medicines and insurance documents
- Visit www.gov.uk/check-flooding



**FLOOD
WARNING**

ACT

- Turn off gas, water and electricity
- Move things upstairs or to safety
- Move family, pets and car to safety



**SEVERE
FLOOD
WARNING**

SURVIVE

- Call 999 if in immediate danger
- Follow advice from emergency services
- Keep yourself and your family safe

Visit check-for-flooding.service.gov.uk/plan-ahead-for-flooding

#PrepareActSurvive

6.4 Community groups

Communities have an important role to play in local flood risk management. Local knowledge and understanding of flood risk and past flooding events is an important resource for Hillingdon Council and can make flood risk management decisions and flood alleviation schemes more informed and effective.

Working as a group enables communities to work in partnership with agencies and authorities that manage flood risk to address any concerns and tackle the issues affecting their local area.

One example of this can be Flood Action Groups, made up of a core of local people acting as representatives for their wider community. Flood Action Groups are community-led and can be set up by any group of volunteers who wish to work together to raise and manage issues around flood risk. The [National Flood Forum website](#) has further information and guidance for [how to set up and Flood Action Group](#).

6.5 Theme Actions: Local Communities and Flooding

Objective	Engage with communities to develop the awareness of flood risk in local areas and improve their resilience
Action E1	Maintain a register of community groups that may be relevant to flood risk management, with relevant flood risk information, relevant schemes and level of engagement. Provide information and support for community groups undertaking actions related to flood risk management
Action E2	Undertake an engagement campaign alongside the annual review of the LFRMS to raise awareness of flood risk management and the roles that communities and residents can play
Action E3	Attend appropriate community meetings along with other Risk Management Authorities to maintain regular contact with communities and support actions to address issues raised
Action E4	Improve awareness and adoption of property level resilience measures for residents
Action E5	Ensure lines of communication from Risk Management Authorities to residents during flooding events are clear and efficient
Action E6	Keep information on flood alleviation schemes up to date and accurate for residents. Use appropriate communication and engagement channels to inform residents about project completion and successes

APPENDIX A – ACTION PLAN

Action Plan in an excel spreadsheet format.

APPENDIX B – STRATEGIC ENVIRONMENTAL ASSESSMENT

Strategic Environmental Assessment – Screening Assessment

APPENDIX C – HABITATS REGULATIONS ASSESSMENT

Habitats Regulations Assessment – Screening Assessment

APPENDIX D – LEGISLATION

The Local Flood Risk Management Strategy (LFRMS) sits within a wider legislative context at an international, national, regional and local level. The framework of legislation and policy provides organisations operating at different levels (international to local) with the applicable aims and targets for flood risk management.

International	
EU Water Framework Directive (2000)	The EU Water Framework Directive (WFD), published in 2000, makes it a requirement for Member States of the EU to improve and maintain the state of all waters, including surface waters and groundwater. All waters are to achieve a “good” ecological status by 2015 or, at the latest, by 2027. The WFD request that water management plans are developed using a river basin approach. The WFD was adopted into UK law in 2003 and will become part of new UK law following the UK’s departure from the European Union.
EU Floods Directive (2007)	The EU Floods Directive dictates how Member States should approach the flood risk management of all types of floods. A three-stage process was to be followed. For the initial cycle, by 2011 Member States had to produce Preliminary Flood Risk Assessments (PFRAs) to identify areas where water courses and coast lines are potentially at risk of flooding. By 2015, mapping of flood risk areas showing the extent, assets and number or inhabitants at risk were created. By 2015, Flood Risk Management Plans (FRMPs) for areas at high risk of flooding were produced, including measures to reduce flood risk. Updated FRMPs were produced for 2021-2027. The EU Flood Directive was implemented in UK law through the Flood Risk Regulations (FRR) (2009) and will be a continuing law following the UK’s departure from the EU. The cycle restarted in 2016 and Hillingdon’s LLFA have been involved in updates since.
IPCC Climate Change Report (2021)	The Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment Report aims to assess the physical science basis of climate change. The headlines from the 2021 report include predictions of +1.5°C temperature change in the next two decades and that climate change is presently affecting every populated region of the globe.
National	
Civil Contingencies Act (2004)	The Civil Contingencies Act is a legislative framework for civil protection in the UK that establishes the roles and responsibilities on organisations that play a role in preparing for and responding to emergencies. Under the Act, Local Authorities and the EA are

	<p>Category 1 responders. Some of the Local Authority’s duties include putting in place emergency plans, sharing and co-operating with other local responders to enhance efficiency.</p>
<p>The Pitt Review (2007)</p>	<p>Following the extreme flooding that took place in the summer of 2007 a comprehensive review led by Sir Michael Pitt, known as the Pitt Review, was commissioned by the UK Government. The Pitt Review provided 92 recommendations to improve flood risk management in England, notably that County Councils, large metropolitan boroughs, and Unitary Authorities should take the lead on the management of flood risk. The Pitt Review recommendations were accepted by the Government and initiated the creation of the FWMA.</p>
<p>Flood Risk Regulations (2009)</p>	<p>The FRR implements the EU Floods Directive in England. Flood risk management, as set out by the framework, requires the production of PFRAs, the identification of flood risk areas, mapping of such areas and FRMPs.</p>
<p>Flood and Water Management Act (2010)</p>	<p>The FWMA aims to provide better, more sustainable management of flood risk and coastal erosion along with improving the sustainability of water resources. The FWMA defines structures and responsibilities for managing flood risk, notably with the introduction of LLFAs which impart the role of managing local flood risk to County Councils, large metropolitan boroughs, and Unitary Authorities. The EA is appointed to hold the strategic overview role of all sources of flooding, in addition to managing the flood risk from main rivers and the sea. The FWMA also places a statutory duty on the EA to develop a NFCERMS for England, which all LFRMSs must align with.</p>
<p>Flood and Coastal Erosion Risk Management Policy (2020)</p>	<p>The FCERM Policy Statement reflects the government’s long-term ambition to increase the resilience to flood and coastal erosion risk nationwide.</p>
<p>National Flood and Coastal Erosion Risk Management Strategy (2020)</p> <p>Flood and Coastal Erosion Risk Management Strategy Roadmap to 2026</p>	<p>The NFCERMS sets out a framework for RMAs involved in managing flood risk in order to increase the nation’s flood resilience. The publication of the NFCERMS was followed by an initial 1-year action plan showing actions needed. In 2022 a roadmap was published containing longer-term, practical actions to 2026.</p>
<p>National Planning Policy Framework (2021, revised)</p>	<p>The National Planning Policy Framework (NPPF) sets out the planning policies to provide sustainable development and is published by the Department for Levelling Up, Housing and Communities (DLUHC). The NPPF provides guidance on developing Local Plans in line with national planning policies. These policies</p>

	include avoiding and managing risks from flooding, in line with the role of LPAs to prepare local plans and to decide on planning application permissions. The NPPF is supported by Planning Practice Guidance (PPG), including the Flood Risk and Coastal Change PPG , which is revised as necessary.
Environment Act (2021)	The Environment Act is the UK’s new framework of environmental protection since departing from the EU. It is intended to provide legal regulations on nature protection, water quality, clean air and other environmental protections. The Environment Act provides the Government with powers to set new binding targets, including for air quality, water, biodiversity, and waste reduction, and also establishes a new environmental watchdog – the Office for Environmental Protection.
Flood risk management plans (part a) 2021-2027	The flood risk management plans (FRMPs) (2021-2027) were published by the Environment Agency (EA) and split into two parts. Part A is the national overview and provides the context of FRMPs in strategic flood risk management planning, information on flood risk management at a national level and national measures lead by the (EA) and Lead Local Flood Authorities (LLFAs).
Environmental Improvement Plan (2023)	The Environmental Improvement Plan (EIP) is the first revision of the 25 Year Environment Plan (25YEP) . The 25YEP was published by the UK government in 2018 and set out 10 goals to help the natural world: (1) clean air, (2) clean and plentiful water, (3) thriving plants and wildlife, (4) reducing the risks of harm from environmental hazards, (5) using resources from nature more sustainably and efficiently, (6) enhancing beauty, heritage and engagement with the natural environment, (7) mitigating and adapting to climate change, (8) minimising waste, (9) managing exposure to chemicals and (10) enhancing biosecurity. The EIP reinforces the 25YEP and sets out the plan to deliver the framework and vision previously set out.
Regional	
Mayor of London’s Climate Change Adaptation Strategy (2011)	This Mayor of London’s Climate Change Adaption Strategy sets out the framework for improving the quality of life in London and for protecting the natural environment. It provides an action plan for making London more sustainable by using three ‘pillars’: retrofitting London, greening London and cleaner air for London. The strategy presents the understanding of main climate change effects on London as well as analysing the effects on cross-sector issues including health, economy, and infrastructure. The strategy also provides a ‘roadmap to resilience’ outlining actions, with lead and partner organisations. Since then, the Greater London

	Authority (GLA) have also produced a London Environment Strategy (2018) .
London Regional Flood Risk Appraisal (2018)	The London Regional Flood Risk Appraisal (RFRA) provides an overview of all sources of flooding in London and addresses both its probability and consequences. The evidence of the London RFRA subsequently informs the London Plan and should inform local-level flood risk assessments and local plans.
London Sustainable Drainage Action Plan (2021)	The London Sustainable Drainage Action Plan addresses a specific need to promote the awareness, and the retrofitting, of sustainable drainage systems right across London. It contains a series of actions to make London’s drainage system work in a more natural way with the main focus on the retrofitting of sustainable drainage to existing buildings, land and infrastructure. Sector-specific sustainable drainage (SuDS) guidance has been developed as part of the London Sustainable Drainage Action Plan.
The London Plan (2021)	The London Plan is a general Strategic Development Strategy for London. Producing a Strategic Development Strategy is a requirement of the London Mayor established under GLA legislation. The London Plan establishes an integrated economic, environmental, transport and social framework for the development of London for the next 20-25 years.
Thames River Basin District Flood Risk Management Plan (2021-2027)	The Thames River Basin District Flood Risk Management Plan (FRMP) is Part B of the FRMPs published by the Environment Agency in 2022. It provides information on flood risk for the Thames river basin district and a summary of the aims and actions required to manage the risk.
Thames river basin district River Basin Management Plan (2022)	The aim of river basin management plans is to enhance nature and the natural water assets. The Thames river basin district River Basin Management Plan (RBMP) describes the framework used to protect and improve the quality of waters in the Thames river basin and is used by RMAs for making water management decisions within the Thames river basin. It also includes the local environmental objectives that RMAs use to make planning decisions and an assessment of the current condition of each water body, including the reasons why, if not, it is not in good condition.
Thames Estuary 2100 (2023)	The Thames Estuary 2100 (TE2100) Plan was first published in 2012. It was developed by the EA and provides strategic direction for managing flood risk in the Thames Estuary to the end of the century. The TE2100 plan is an adaptive strategy and is reviewed on an interim basis every five years and on a full basis every ten years. The new and updated version of the plan was published in

	2023. The plan considers different long-term options for managing tidal flood risk depending on changes in factors which determine the level of flood risk, including sea level rise.
Local	
Surface Water Management Plan (2014)	A SWMP is a plan produced by LLFAs that presents the surface water flood risk for an area and forms a strategy on how to manage this with local partners. A SWMP considers flooding from sewers, drains, groundwater, and surface runoff from land, small watercourses and ditches that occur as a result of heavy and / or prolonged rainfall. The SWMP also includes a long-term action plan to manage surface water flood risk which will influence land-use planning, emergency planning and future developments. SWMPs also aim to identify SuDS opportunities to manage surface water flood risk which contributes towards the WFD requirements.
Strategic Flood Risk Assessment (2015)	A SFRA is required by the NPPF and provides a strategic overview of all forms of flood risk within a designated area. A SFRA assesses the risk from all sources of flooding, the cumulative effect that development or changing land use could have, and the effect of climate change on the risk of flooding. A SFRA should also identify opportunities to reduce the causes and effects of flooding, including potential areas of land for flood risk management infrastructure. The SFRA provides guidance for the Local Plan, individual planning applications, future flood management, emergency planning and how to adapt to climate change.
Local Plan (Part 1 (2012) and Part 2 (2020))	Hillingdon Council’s Local Plan sets out policy and guidance to manage growth and guide development within Hillingdon. It is split into two parts. The Local Plan Part 1 sets out the overall level and broad locations of growth up to 2026. Part 1 was adopted in 2012. The Local Plan Part 2 comprises Development Management Policies, Site Allocations and Designations and the Policies Map. Part 2 was adopted in 2020 and delivers the detail of the strategic policies set out in the Local Plan Part 1. It addresses needs and opportunities in relation to housing, the economy, community facilities and infrastructure, as well as conserving and enhancing the natural and historic environment, mitigating, and adapting to climate change and achieving well designed places.