

Local Flood Risk Management Strategy

‘What we are doing about flooding’

Haringey is responsible for taking the lead in managing flood risk from surface water, groundwater and some of the smaller watercourses. In 2010 the [Flood and Water Management Act](#) came into effect and this required the council to take on the role of Lead Local Flood Authority for the Haringey area. These web pages have been put together to help you find the information that you need on any aspect associated with drainage and flooding.

This document has been prepared in a way that will enable you to go quickly to the information you need. Just click on a link from the Summary subject. Once you get to that page you will see further links that you can use to go to the particular information that you are after.

Summary

The Haringey Local Flood Risk Management Strategy has been put together by the Council to provide information to residents and others on aspects such as:

- [The scale of any flooding problems](#)
- [What we as the Council are doing about it](#)
- [What residents can do to help](#)
- [General aspects such as riparian owner responsibilities](#)

The Flooding Plan will be what is known as a 'living document' because as we develop our understanding of all the various issues that have an impact on flooding it is very likely that we will need to make changes to the Plan.

The [Haringey Flooding Plan](#) is being prepared in accordance with the National Flood and Coastal Erosion Risk Management Strategy for England. For more comprehensive information about this strategy click on the link: [Guiding Principles on the National Strategy](#)

For the entire document please click this link:

[What is the National Flood and Coastal Erosion Risk Management Strategy?](#)

Please click on links below for more detailed information on the different parts of the Plan for Flooding.

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[Glossary – *link to Glossary document*](#)

Introduction to the Plan

It is widely recognised that the combined effects of climate change and continuing urban development will give rise to increased flood risk. In London alone there are 38,000 properties that are deemed at risk of flooding.

There are a number of particular examples of severe flooding that have occurred in recent years, most notably the summer 2007 floods, which had a major impact on many communities around the UK. These floods affected around 55,000 homes and gave rise to estimated costs of £3 billion. There were a number of deaths caused by the flooding and in some instances house owners were not able to go back to their homes for over a year.

Due to the severity of the summer 2007 flooding and the disruption that it caused, the Government commissioned [The Pitt Review](#) which gave rise to recommendations on the way that all related flooding issues should be managed. The most important recommendation was that County Councils, large metropolitan boroughs (like Haringey) and what are called [Unitary Authorities](#) should take on overall responsibility for the management of flood risk.

The Government accepted the recommendations of the Pitt Review and, to support the change in legislation that was required, they took through Parliament the [Flood and Water Management Act](#) which became law in 2010. Under the Act, Haringey were designated as the Lead Local Flood Authority.

A key part of the work associated with our responsibility in this is to bring together all the organisations that have a role in flood risk e.g. water companies, the [Environment Agency \(EA\)](#), highways authorities, etc. to see what we can all do together to reduce the risk of flooding.

An important element of our work will be to put in place a plan to cover the different, but related issues that have a bearing on flood risk. This part of the Haringey Drainage and Flooding web pages has been put together to provide you with information about the [Haringey Flooding Plan](#).

The practical things that need to be included in the Haringey Flooding Plan have been set out by the Government in their document: ['Framework to assist the development of the Local Strategy for Flood Risk Management – living document'](#)

Understanding why flooding occurs and putting in place measures that reduce flood risk can be very complex. The Flooding Plan needs to take into account all the factors which can have a positive or negative effect on flooding.

Some of these factors are:

- We need to have good information on when and where flooding has occurred in the past and how serious it has been.
- We need to be able to predict where flooding is likely to occur in the future (we will use computer modelling techniques to help with this).
- We need to develop ways of informing residents if they have an increased flood risk where they live and to advise them as to what they can do to reduce the impact of flooding.
- We need to develop ways of slowing down the increase in flooding risk and, where possible, to reduce it.

[Link back to different parts of the Plan for Flooding](#)

Organisations with responsibility for flooding

[Haringey](#)

Haringey has responsibility for:

- Coordinating all aspects of [surface water management](#)
- Putting in place plans for addressing flood risk
- Maintaining the smaller ordinary watercourses that run through council land
- Inspecting all [ordinary watercourses](#) (small streams and ditches) to ensure that they are clear of obstructions
- Requiring [riparian owners](#) to carry out works to maintain watercourses
- Approving or rejecting applications for the construction of features such as bridges adjacent to or over ordinary watercourses
- Identifying and protecting, where appropriate, privately owned structures that have a role in flood defence
- Maintaining drainage systems associated with [local roads](#)
- Receiving, and approving or rejecting, applications relating to drainage aspects on new developments
- Receiving information and maintaining records of flooding incidents
- Maintaining a register of the different elements of the surface water system including such features as ponds, [swales](#) and tanks
- Undertaking works to manage flood risk



[Environment Agency](#)

The Environment Agency has responsibility for:

- [Main rivers](#); major streams and rivers
- The role of enforcement authority in relation to reservoirs



[Thames Water](#)

In respect to flooding related issues Thames Water has responsibility for the provision of new facilities and maintenance of existing public [foul sewers](#) and [surface water sewers](#) including all associated pumping stations and other structures.



[Transport for London](#)

Transport for London has responsibility for drainage systems associated with major roads.



[Canal & River Trust](#)

The Canal & River Trust is a charity entrusted with the care of 2000 miles of waterways in England and Wales. They have maps of what's going on [in your area](#) and the [London Waterway Strategy](#)



Riparian Land Owners

If you own land or property next to a river, stream or ditch you are designated as a riparian land owner

Some of your responsibilities include:

- Maintaining river beds and banks
- Allowing the flow of water to pass without obstruction
- Controlling invasive alien species such as Japanese knotweed

[Guide to riparian owners responsibilities: Living on the edge](#)

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What we want to do to manage local flood risk and how we will go about it

There are a number of initiatives that Haringey will need to take forward to manage local flood risk. Each objective is listed here along with the action(s) needed to achieve the objective.

	Objectives	Actions to Achieve the Objective
1.	Identify, define and prioritise Critical Drainage Areas , including further definition of existing local flood risk zones, and mapping new areas of potential flood risk.	Previous work undertaken in the Haringey Surface Water Management Plan will be reviewed and the factors that will affect the identification of the scheme(s) to be taken forward looked at more comprehensively. The scheme(s) offering the greatest cost benefit will then be developed in more detail, and funding possibilities identified prior to making a formal funding application.
2.	To improve the understanding of flood risk within Haringey and ensure everyone understands their roles and responsibilities in reducing the risks.	<ul style="list-style-type: none"> • Clear identification of roles and responsibilities of key organisations • Development of clear guidance for the public • Develop a better understanding of flooding through investigations and recording of flooding • Ensure that where there are risks that cannot be reduced in the short-term that emergency plans are in place
3.	To confirm all the elements such as tanks, ponds etc. that have a role in surface water management and make the information available to the public and drainage professionals.	The collection of information from different sources and preparation of an Asset Register . <i>(This is a particular requirement of the Flood and Water Management Act.)</i>
4.	To ensure the long term integrity of privately owned structures that have a role in flood protection.	Designation of structures that have a key role in flood risk protection. <i>(Designation is a process identified in the Flood and Water Management Act that enables Haringey to have control over important structures.)</i>
5.	To enable Statutory Organisations and the public to work together to reduce flood risks by using all available resources and funds to achieve the greatest benefit.	The convening of regular meetings (at a frequency to be determined) of the key flooding organisations so that any plans that might have an impact on flood risk reduction can be considered jointly.

	Objectives	Actions to Achieve the Objective
6.	To avoid an increase in flood risk as a result of development by preventing additional rainwater entering existing drainage systems wherever possible.	<p>The drainage department became a statutory consultee to the LPA as of April 2016. This requires Haringey under the Flood and Water Management Act to technically assess drainage details associated with development to ensure that they are sustainable and do not worsen flood risk. The main elements of this process will be:</p> <ul style="list-style-type: none"> • Pre-application discussions with Developers and receiving formal drainage applications • Receiving comments from other organisations on the application • Providing recommendations to the LPA • Inspection of as-constructed drainage works
7.	To take a sustainable and holistic approach to flood management, seeking to deliver wider economic, environmental and social benefits, climate change mitigation and improvements under the Water Framework Directive .	<ul style="list-style-type: none"> • Promote effective water cycle management • Consider the joint use of green space for recreation and flood management • Develop guidance documents to set out requirements for new development • Develop guidance on sustainable drainage for house owners • Discuss any scheme proposals with all relevant parties • Ensure that any proposals satisfy Water Framework Directive requirements
8.	To encourage the maintenance of privately owned flood defences and ordinary watercourses and minimise any impediment to flow.	<ul style="list-style-type: none"> • Establish consenting procedures to control building of structures that may affect water flow • Advertise consenting procedures both within and outside the Haringey • Develop guidance for riparian owners on their responsibilities • Provide support to private owners of flood defences • Record all appropriate structures/assets on watercourses so that ownership/responsibility can be identified in the event of flooding
9.	To develop a process to ensure that critical sections of watercourse are kept clean and maintained on a regular basis to avoid flooding.	The map of Ordinary Watercourse within the Haringey area is to be annotated with information on those watercourses where there is the greatest risk of flooding. Following this the maintenance programme for ordinary watercourses is to be reviewed and where necessary adjusted to reflect where the risk is highest.
10.	To share information on flood management best practice.	<ul style="list-style-type: none"> • Mechanisms for sharing information to be investigated and/or created. • Best practice examples to be collected

	Objectives	Actions to Achieve the Objective
11.	To ensure that proposals and policies are properly integrated with any other flooding related plans.	The current versions of documentation such as the Preliminary Flood Risk Assessment , Haringey's Surface Water Management Plan and the Strategic Flood Risk Assessment will need to be reviewed and any subsequent versions and any new documentation considered in the development of policies.

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When will we do things?

Introduction

The changes/new requirements in respect to surface water management which have been brought in nationally and the consequent extra responsibilities for the Council will present us with real challenges. We have a defined amount of funding from the Government and will need to be careful to ensure that our activities are contained within this funding. However, a key aspect of the current arrangement is the Government's requirement for the Council to look for funding from organisations/individuals that would gain some advantage from flood risk reduction activities. We will need to be vigilant to ensure that any opportunities that arise for generating funding from any source are exploited to the full. Identifying a funding opportunity, say the development of a site in an area where flooding has been occurring, may enable us to bring forward the construction of certain schemes.

Key objectives

The primary requirement in identifying the timing of schemes to be implemented is to get the best possible understanding of the flood risk affecting our Borough. To this end, we have prioritised enhanced modelling exercises (computer model representations) of what are called the [Critical Drainage Areas](#). To date, seven of the worst affected Critical Drainage Areas have been modelled; the remaining will be completed as funding permits.

Following this data gathering exercise, our second priority is communicating flood risk to the local communities affected. We have commenced a pilot Community Engagement Exercise in Critical Drainage Area Gp4_055 (Hornsey) and will roll-out best practice from this exercise to the other Critical Drainage Areas in the Borough in order of their priority. The priority is based on number of properties assessed as being at risk of flooding. The engagement exercise will agree a priority list of flood alleviation measures for the Critical Drainage Area and help local businesses and residents understand what they can do to reduce the risks they face. The exercise will also promote the benefits of [Sustainable Urban Drainage Systems](#) for the whole Critical Drainage Area, not just those at risk of flooding. Further information regarding this can be found here: [Link to Flooding from Surface Water and Critical Drainage Areas in Haringey](#)

Haringey does not have sufficient financial resources to fund [flood defence](#) schemes in their entirety. Therefore, having agreed a priority list of measures for an area with the local community, we will seek funding from a number of potential partners. See [How will we involve members of the public in the plan?](#) for more details on how you can help with reducing flood risk.

Property Level Protection (PLP)

Prior to the implementation of any flood alleviation scheme, there are a number of steps you can take to protect your home, please [seek advice from professionals](#) if applicable:

- Sandbags
- Doors and windows: buy automatic flood-proof doors and windows, or purpose-built flood boards that can be fitted when flooding is expected.
- Check your exterior walls – apply waterproof sealant

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- Air bricks – buy flood proof air bricks or covers for them
 - Drains and pipes – do they have non-return valves?
 - Temporary flood barriers
 - Landscape your garden to divert floodwaters

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Ensuring value for money in Haringey flood risk reduction

In all its greatest activities, the Government would of course want to ensure that money is spent where it will provide benefits. This is no less true in respect to flooding. Where money is invested in works to reduce flooding, we will need to ensure that it is affordable and realistic. The priorities that Haringey sets in relation to the work that we will carry out will be based on decisions on the local benefit that would be generated by spending the money. In other words our decisions on where to spend money will have to be proportionate to the problem that it will resolve and be based on the level of risk of flooding.

The information below first looks at Proportionate, Risk-based approaches and explains how we can get maximum benefit for the cost we spend. Following that you can click a link to a table of the costs and benefits of resolving the flooding in each [Critical Drainage Area](#) in Haringey

Proportionate, Risk-based Approaches

The following information has been extracted from the [National Strategy for Flood and Coastal Erosion Risk](#), and explains how we can get the maximum benefit from available funding.

It is not technically, economically or environmentally feasible to prevent flooding altogether. A risk-based management approach targets resources to those areas where they have greatest effect. Risk management measures consider both the probability over time of a flood happening and the consequences that might arise if it did, for example by assessing the average annual damages that arise from floods. To do this the sources of flooding, the pathways that floodwater takes, the low areas where floodwater builds up and the consequences of risk need to be understood and addressed as appropriate so we can manage all of the factors that combine to create risk. Further detail on this approach is available in the [Guidelines for environmental risk assessment and management \(2011\)](#).

Such an approach involves using a tiered assessment i.e. starting at a high, screening level and in stages becoming more detailed to address the risks identified. It seeks to make risk management more straightforward, removing unnecessary barriers while ensuring that legal and Government policy requirements are met. All aspects of risk management should be carried out in a proportionate way that reflects the size and complexity of the risk and society's ability to manage it. Investment in managing risk, and who pays for it, should reflect the benefits that result.

[Click here for more comprehensive information on the costs & benefits of resolving the flooding in the Critical Drainage Areas in Haringey](#)

Critical Drainage Areas in Haringey

The [Haringey Surface Water Management Plan](#) identified potential costs and benefits associated with the resolution of flooding in the [Critical Drainage Areas](#) (CDA). Please see the table link below, which shows these costs and benefits.

Table showing the Benefits and Costs of Critical Drainage Area Measures

CDA ID	Scheme Location	Scheme Category	Infrastructure						Households				Commercial / Industrial		Capital Cost Band
			Essential		Highly Vulnerable		More Vulnerable		Non-Deprived (All)		Deprived (All)		All		
			Eliminated (%)	Mitigated (%)	Eliminated (%)	Mitigated (%)	Eliminated (%)	Mitigated (%)	Eliminated (%)	Mitigated (%)	Eliminated (%)	Mitigated (%)	Eliminated (%)	Mitigated (%)	
Group4_010	Green Lanes, Wood Green	Other or combination of above	60	40	0	20	0	20	5	20	0	5	0	10	1m - 10m
Group4_055	Area North of Hornsey High Street, Hornsey	Other or combination of above	0	40	0	0	0	5	0	5	0	0	0	5	1m - 10m
Group4_056	Rathcoole Gardens, Hornsey Vale	Other or combination of above	0	0	0	0	0	0	0	5	0	0	0	30	1m - 10m
Group4_057	Culvert Road, South Tottenham	Other or combination of above	0	50	0	0	0	0	0	5	0	0	0	5	1m - 10m
Group4_061	Tottenham High Road and Suburbs, Tottenham Hsle	Other or combination of above	0	40	0	0	0	70	0	0	0	20	0	20	1m - 10m
Group4_062	Milton Park and Causton Road, Crouch End	Other or combination of above	0	0	0	0	0	0	0	5	0	0	0	5	1m - 10m
Group4_063	The Roundway (A10) and Warkworth Road, Tottenham	Other or combination of above	0	35	0	0	0	0	0	0	10	30	0	0	1m - 10m
Group4_073	Alexandra Palace Railway Station and mainline railway, Wood Green	Other or combination of above	0	100	0	0	0	0	0	5	0	0	0	10	26k – 50k
Group4_075	Ellenborough Road, Noel Park	Other or combination of above	0	0	0	50	0	0	0	0	10	40	10	30	501k - 1m

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How will flood alleviation schemes be paid for?

There are a number of potential sources of funding for flooding related schemes.

[Click here for information on Central Government funding](#)

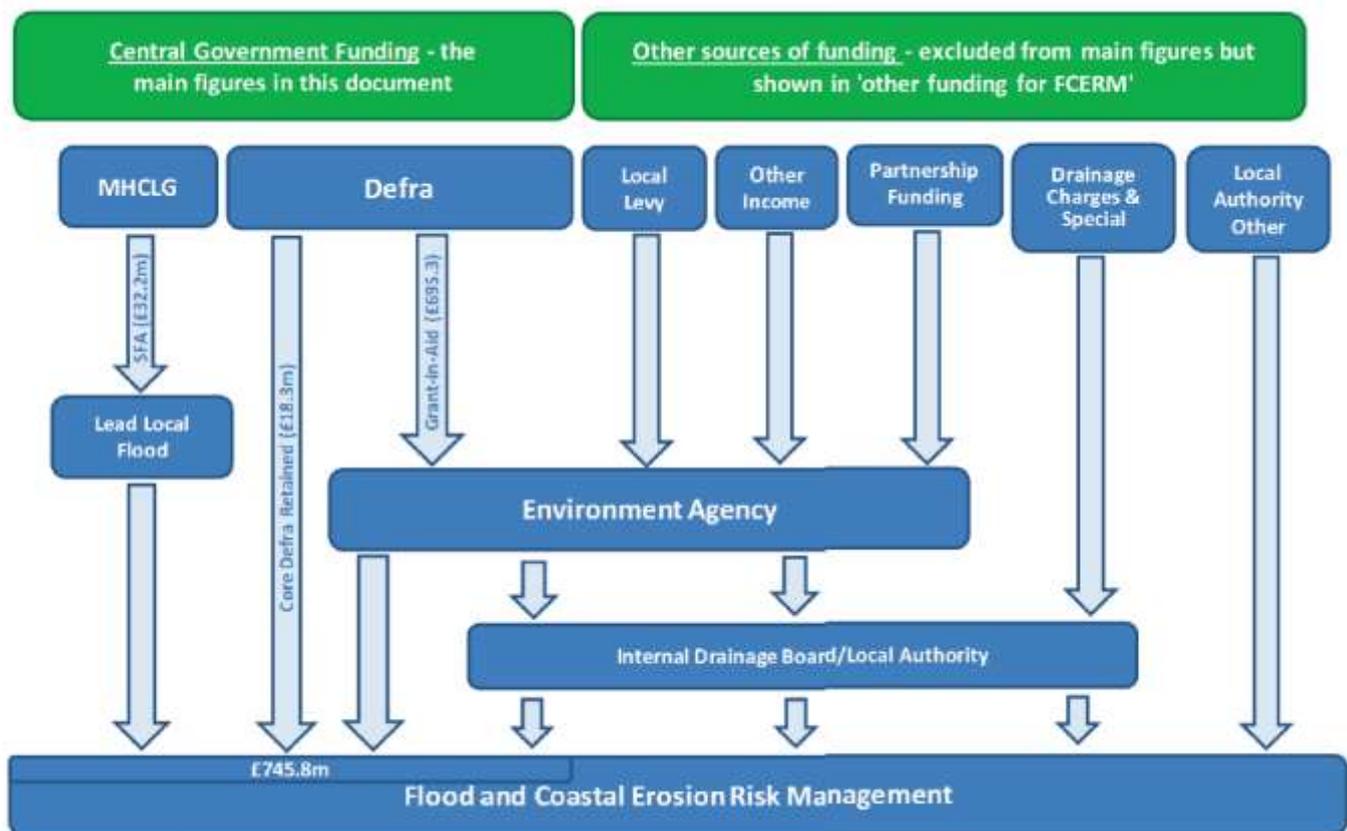
[Click here for information on other sources of funding](#)

Including:

[Funding from Developer Contributions](#)

[Local Funding](#)

Figure showing (2018/19) **FCERM** budget allocations



Central Government Funding

Central Government Funding Central Government funding is the funding for **FCERM** which has originated from Central Government, mainly **Defra**. Defra gives the majority of its floods funding to the **EA** as Grant-in-Aid, which is the mechanism for financing a Non-Departmental Public Body such as EA. The EA spends this funding directly on FCERM, but also passes some on as grants to Local Authorities or **Internal Drainage Boards** – local public authorities established in areas of

special drainage need which manage water levels within their respective drainage districts. Defra also transfers some of its FCERM funding to [Lead Local Flood Authorities](#) (LLFAs) via the [Department for Communities and Local Government](#) (DCLG). The [Flood and Water Management Act](#) 2010 defined LLFAs for an area as the unitary authority or the county council, with the role of managing the risk of all local causes of floods. The funding enables LLFAs to carry out the new duties that were introduced by the Act, for example the duty to develop and apply a local flood risk strategy. In 2013 Defra transferred budget cover for a proportion of this funding to DCLG. Since 2013 LLFAs have therefore received part of this funding from Defra and part of this funding from DCLG. The Defra component is paid via DCLG Local Services Support Grant (LSSG), which is one of the mechanisms for Central Government to give funding to local authorities. The DCLG component is provided to LLFAs through the overall Settlement Funding Assessment (SFA) for Local Authorities. Finally, Defra retains a small proportion of its funding for FCERM for ad-hoc programmes, such as the Community Pathfinder projects, a two-year scheme which ran from 2013-15, covering property-level protection; flood resilience groups; and volunteer flood wardens. The element retained of the central government funding is referred to the above FCERM budget allocations as Core Defra Retained.

Other Sources of Funding

As well as the Central Government funding for [FCERM](#), there are a number of other funding sources for FCERM. This includes a levy on local authorities (local levy) raised by the EA's Regional Flood and Coastal Committees (RFCCs). These committees bring together members appointed by [LLFAs](#) and independent members with relevant experience, to ensure there are coherent plans for managing flood and coastal erosion risks across catchments and shorelines; encourage efficient, targeted and risk-based investment in FCERM; and provide a link between the EA, LLFAs, and other relevant bodies to build understanding of flood and coastal erosion risks. Another source of funding is that raised through the Partnership Funding scheme, which allows Central Government to contribute to a range of schemes rather than meeting the full costs of a limited number of schemes. Local communities raise funding towards a scheme and either channel this through EA or use it directly on FCERM projects, with Central Government also contributing. 3 As well as receiving funding from the Environment Agency, [Internal Drainage Boards](#) raise funds from Drainage Charges and Special Levies. The Environment Agency also raises Other Income from outside of Central Government. This includes Internal Drainage Board Precepts; General Drainage Charges; and Sales of Assets. Finally, Local Authorities (district authorities in County Council areas and unitary authorities) retain powers to carry out flood risk management works on ordinary watercourses under the [Land Drainage Act 1991](#) and as amended by the [Flood and Water Management Act](#). They can use their general funding provided by [DCLG](#) through the Settlement Funding Assessment to do so. This is different to the element of the Settlement Funding Assessment which is provided to LLFAs specifically to meet their roles and responsibilities required under the Flood and Water Management Act 2010.

Funding from Developer Contributions (Section 106)

Section 106 of the [Town and Country Planning Act 1990](#) allows a local planning authority to enter an agreement with a landowner or developer in association with the granting of planning permission. A Section 106 agreement is used to address issues that are necessary to make a development acceptable, such as supporting the provision of services and infrastructure.

One of the recommendations of [Making Space for Water](#) was that local planning authorities should make more use of Section 106 agreements to ensure that there is a strong planning policy to

manage flood risk. This means that any flood risk which is caused, or increased by, new development should be resolved and funded by the developer.

Community Infrastructure Levy

The Community Infrastructure Levy (CIL) is a planning charge, introduced by the Planning Act 2008 as a tool for local authorities in England and Wales to help deliver infrastructure to support the development of their area. It came into force on 6 April 2010 through the Community Infrastructure Levy Regulations 2010. Development may be liable for a charge under the CIL if your local planning authority has chosen to set a charge in its area.

Most new development which creates net additional floor space of 100 square metres or more, or creates a new dwelling, is potentially liable for the levy.

Some developments may be eligible for relief or exemption from the CIL. Please note that strict requirements apply with regard to the timing of the exemption process and you should refer to the guidance highlighted below for details. In most cases a Commencement Notice (form 6) must also be served prior to the commencement of development, in order for the exemption to apply.

Detailed CIL guidance is available from the Ministry for Housing, Communities and Local Government on the Gov.uk website.

Local Funding: Fundraising & Volunteering

A key Government aspiration is that organisations/individuals gaining an advantage from the undertaking of a flood risk reduction scheme should be making a financial contribution to the carrying out of that scheme. See link below for some information on potential sources and examples of local funding.

In addition to contributions from developers, another important funding mechanism could be from the local communities and businesses that benefit from the proposed [flood defence](#) schemes. Fundraising may appear to be a daunting task but the best place to start is with who stands to benefit from the project.

Communities volunteering together to clear blockages in watercourses can also aid in the reduction of flood risk.

The case studies show examples of how local fundraising and volunteering can reduce flood risk.

Case Study: East Hanney (Thames Region)

East Hanney (Thames region): Volunteers cleared weeds from a local brook, increasing the brook's capacity, and also constructed a flood defence bank and footpath. The Environment Agency provided soil, the hire of two mini-excavators and two dump trucks. The local authority paid for coir rolls used to help stabilise the new bank.

Case Study: Rural Defence Project

This case study is a fictitious example taken from Defra's consultation document on 'Future funding for flood and coastal erosion risk management'.

A small market town is at a 1 in 20 annual risk of being flooded, and a £2million scheme has been prepared by the LLFA that would protect 75 homes to a 1 in 200 year standard, achieving £10 million in long term benefits. The comparatively low cost benefit ratio means that the project has in the past been deferred and remains low priority.

Under payment for outcomes, the scheme has the potential to attract approximately £900,000 of the necessary funds through Flood Defence Grant in Aid (rather than the full £2 million). In addition, the scheme will be supported by the Regional Flood and Coastal Committee whose members vote to provide a further £500,000. With a reduced and clear funding goal to aim for, the LLFA and local community groups work hard to raise the remaining £600,000 required to allow the scheme to go ahead. For the £600,000 local investment, £10million in long term benefits is realised.

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Where are the main areas of flooding?

Work undertaken previously in the [Haringey Surface Water Management Plan](#) and elsewhere has identified certain key areas in the borough that are thought to be at particular risk of flooding.

Some of the main sources of flooding are:

- [Flooding from surface water \(rainwater ponding in low areas\)](#)
- [Flooding from main rivers and ordinary watercourses \(watercourses overtopping their banks\)](#)
- [Flooding from groundwater \(water levels in the ground rise above the ground surface\)](#)

Flooding from Surface Water (where rainfall collects)

Surface water flooding, also known as pluvial flooding or flash flooding, occurs when high intensity rainfall generates runoff which flows over the surface of the ground and ponds in low lying areas. It is usually associated with high intensity or prolonged rainfall and can be exacerbated when the ground is saturated or when the drainage network has insufficient capacity to cope with the additional flow. The key areas of surface water flooding identified in the [Haringey Surface Water Management Plan](#) are listed below. Please click through each link to see the [Critical Drainage Area](#) (CDA) identified and the surface water flooding predicted in that location. Haringey will involve residents in looking at all aspects of flood risk in each CDA.

The purpose of a Community Action Plan is set out in the [Environment Agency](#)'s document "[Flooding – Minimising the Risk](#)". As part of the Community Action plan an engagement activity will be undertaken, where we come and speak to residents to gain their ideas and raise awareness of water quality issues, misconnections (wrongly connected pipe networks), biodiversity and ecology. If you are interested in being involved in the development of the Community Action Plan for a CDA, please email frontline@haringey.gov.uk

Area reference number <i>(See critical drainage areas in Haringey plan below)</i>	Critical Drainage Area
Group 4 010	Green Lanes, Wood Green
Group 4 055	Area north of Hornsey High Street, Hornsey
Group 4 056	Rathcoole Gardens, Hornsey
Group 4 057	Seven Sisters Road, South Tottenham
Group 4 061	Tottenham High Road and suburbs, Tottenham Hale
Group 4 062	Milton Park and Causton Road, Crouch End
Group 4 063	The Roundway (A10) and Warkworth Road, Tottenham
Group 4 073	Alexandra Palace Railway Station and mainline railway, Wood Green
Group 4 075	Lordship Lane and Ellenborough Road, Noel Park

[Click here for the general location of the Critical Drainage Areas in the Haringey](#)

The critical areas of surface water flooding were determined by using computer techniques; to simulate a given amount of rainfall falling on the ground and using a [Digital Terrain Model](#) (DTM) to see where the rainfall run-off would collect.

It is important to understand that high level computer models can only be used to give a general indication of areas that may be susceptible to flooding but they do guide us in the direction of where we need to be focusing our attention.

Rainwater flows by gravity downstream filling hollows in the profile of the ground and the locations where a lot of water is ponding can be the places where there is a flooding problem. The sorts of places where [surface water](#) flooding is likely to be a problem are:

- Areas such as underpasses, subways and lowered roads beneath railway lines
- Stretches of railway track in cuttings are susceptible to surface water flooding and, if flooded, will impact on services;
- Surface water flooding locations along the upstream side of a rail embankment;
- Areas of low ground throughout the borough which result in small areas of sometimes deep surface water ponding;
- Areas of low ground where sewer flooding is occurring;
- Areas of low ground adjacent to rivers and streams, into which water that cannot be contained by the watercourse will flow.

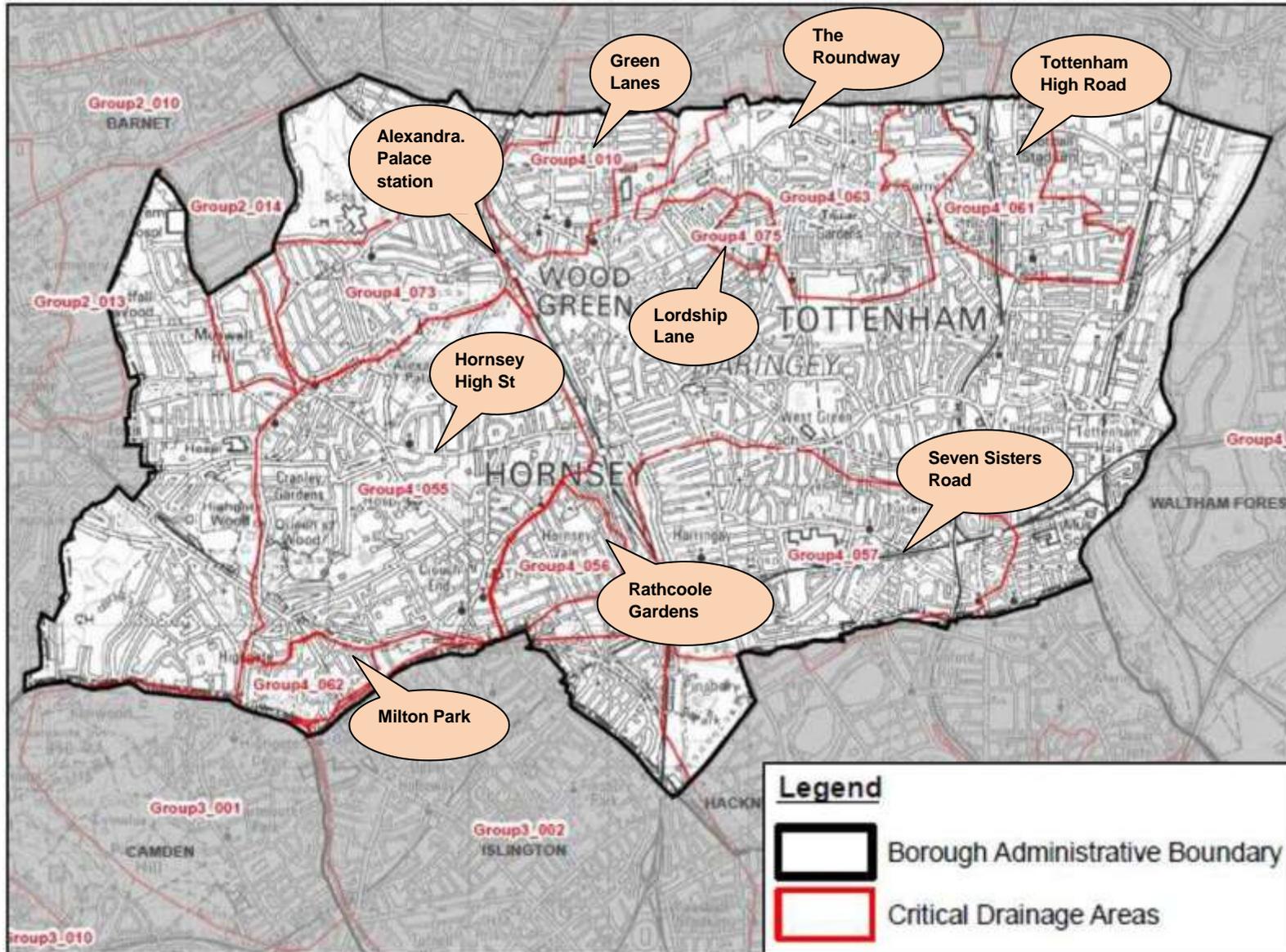
Using the information on where the rainwater will pond, and then knowing where residential/business properties, hospitals, fire stations, etc. are located, it is possible to identify the areas where the ponding will give rise to the most disruption and danger to life. These are the areas that require particular attention when we are looking to see what has to be done to reduce flooding.

[Click this link for more information on the limitations in the calculation of flooding](#)

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Critical Drainage Areas in Haringey



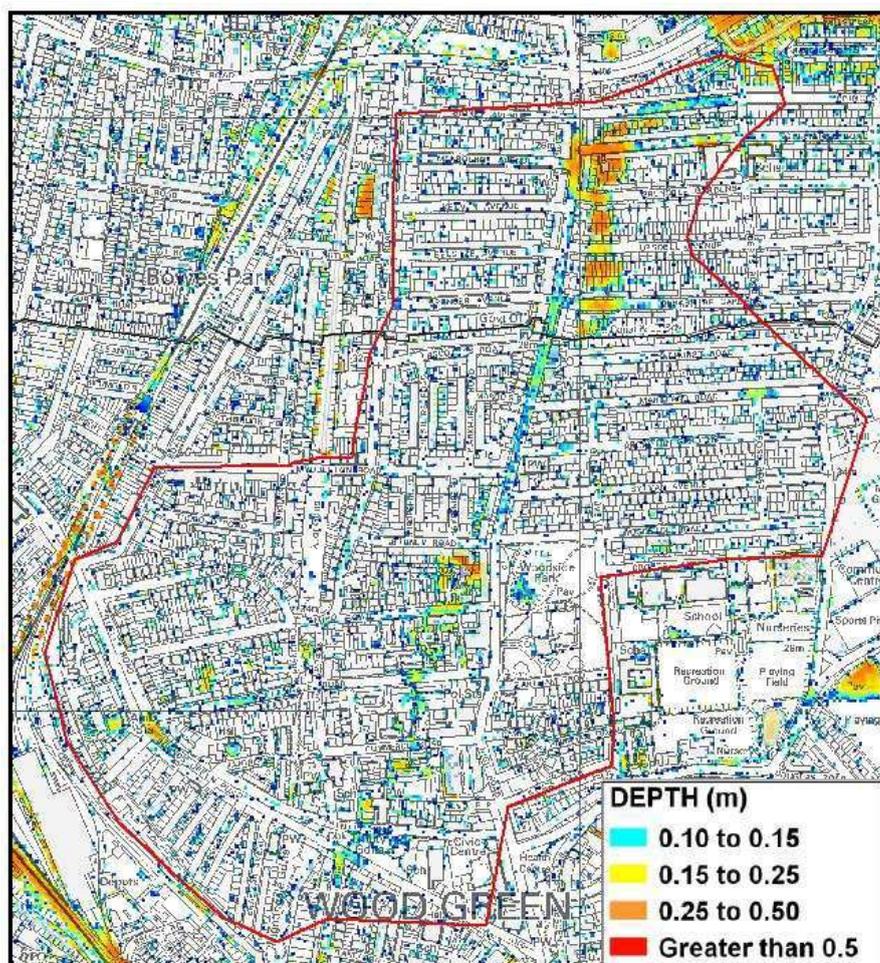
Flooding from Surface Water: Green Lanes, Wood Green

Location: Green Lanes (A105) and neighbouring roads, Wood Green

Reference: Group 4 010

Description: [Surface water](#) is observed to flow down Green Lanes and adjacent roads, cutting through properties towards Pymmes Brook, with the water ponding in low points. There are two identified [Local Flood Risk Zones](#) within the new housing estate located off Truro Road, and the flow path running parallel to Green Lanes from Princes Avenue through to Berkshire Gardens. This [Critical Drainage Area](#) is located within the London Boroughs of Enfield and Haringey and falls within the North Circular Area Action Plan as well as the Wood Green growth area.

Validation: There is strong correlation between the modelling results and the London Borough of Enfield's historic flooding records in Tottenham Road. In addition, 9 flooding incidents have been recorded in the two areas of concern by the London Fire Brigade. The model results also correlate well with the [Environment Agency Surface Water Maps](#).



*Green Lanes, Wood Green – Critical Drainage Area
1 in 100 year Return Period Event
Maximum Depth Results*

[Back to: Where are the main areas of flooding?](#)

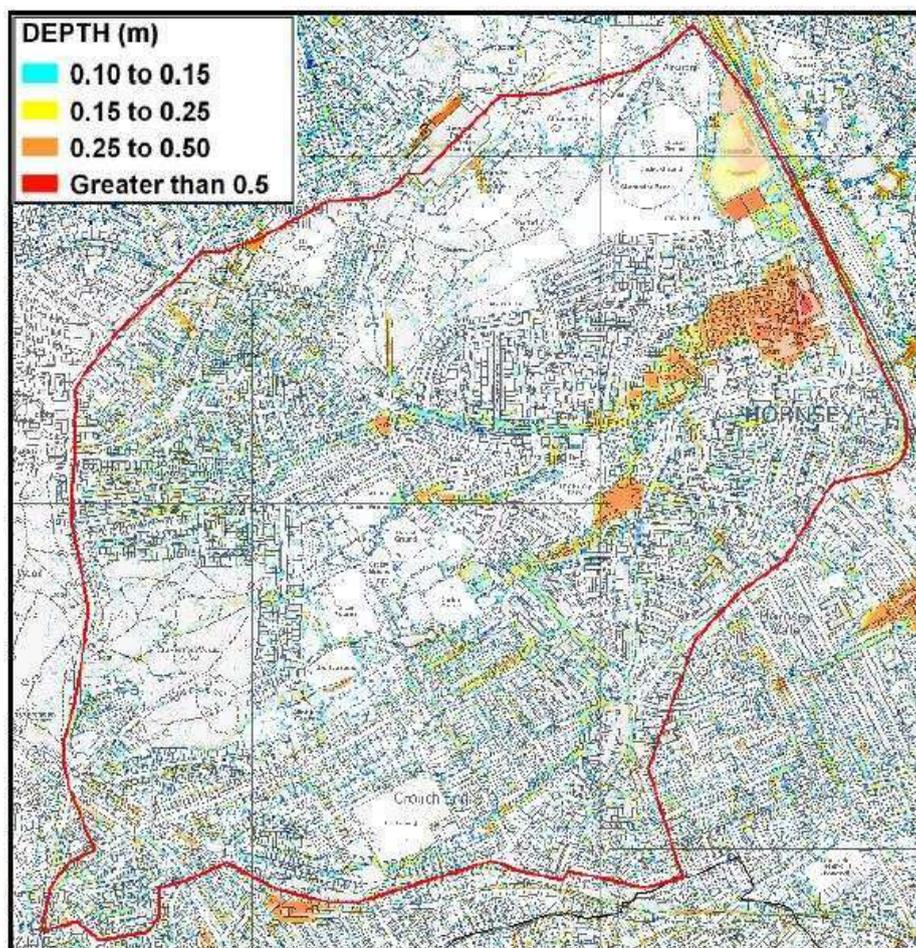
Flooding from Surface Water: North of Hornsey High Street

Location: North of Hornsey High Street and west of the mainline railway.

Reference: Group 4 055

Description: Overland flow follows the path of the Moselle Brook catchment where the natural outfall has been culverted beneath the railway line and the New River. This embankment poses as an obstacle to overland flow. This area is a 'pinch point' for a large upstream surface water catchment. A significant Flood Hazard rating is observed within the Local Flood Risk Zones around Cross Lane.

Validation: There is generally good correlation between the modelled results and the Environment Agency Surface Water Maps. There are numerous London Fire Brigade records of flooding incidents spread throughout the [Critical Drainage Area](#) with nine incidents located within the Local Flood Risk Zones around Cross Lane.



*North of Hornsey High Street – Critical Drainage Area
1 in 100 year Return Period Event
Maximum Depth Results*

[Back to: Where are the main areas of flooding?](#)

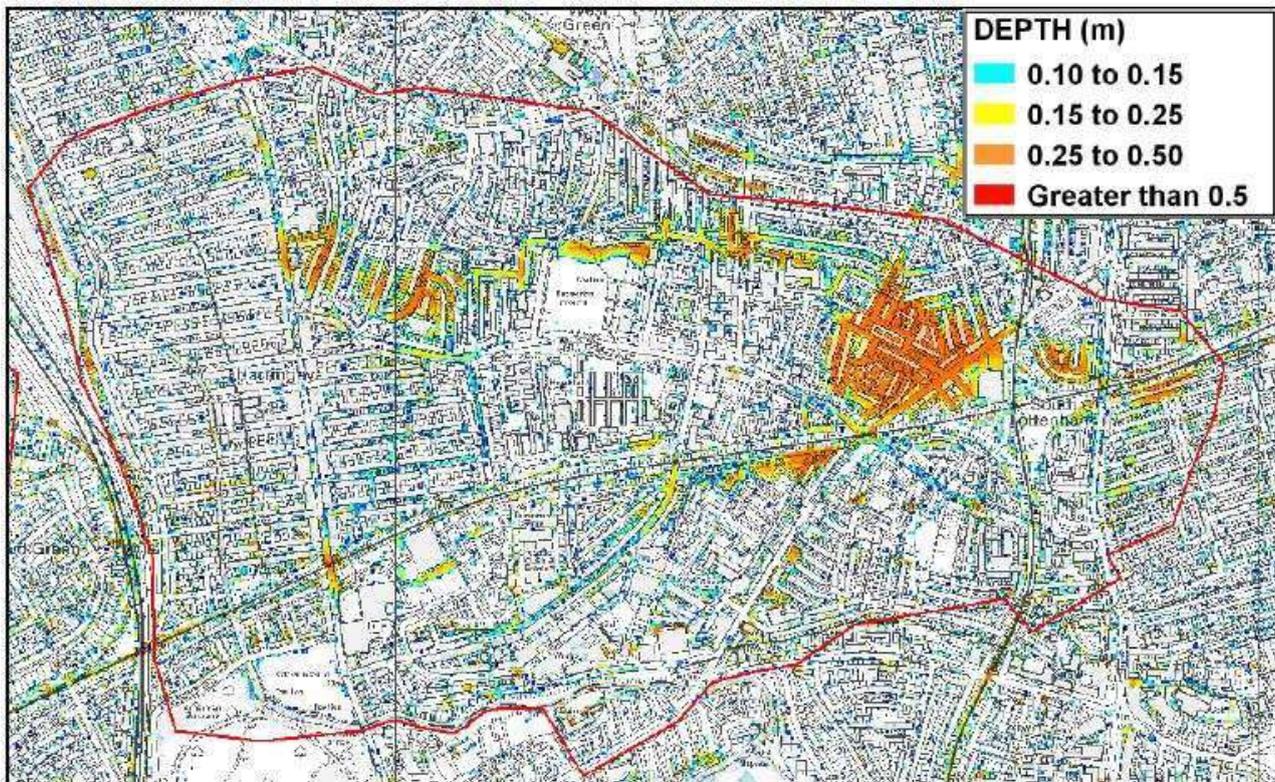
Flooding from Surface Water: Seven Sisters Road, South Tottenham

Location: Seven Sisters Road, South Tottenham

Reference: Group 4 057

Description: [Surface water](#) follows the natural valley in this [Critical Drainage Area](#). There is no clear outfall in this location due to the presence of railway embankments. Surface water is observed to pond in low-lying areas such as those around Culvert Road and Seven Sisters Road.

Validation: Anecdotal evidence from consultation with Haringey Borough Council confirms that flooding has occurred at the lowest area on Culvert Road as represented by the modelling results.



*Seven Sisters Road, South Tottenham – Critical Drainage Area
1 in 100 year Return Period Event
Maximum Depth Results*

[Back to: Where are the main areas of flooding?](#)

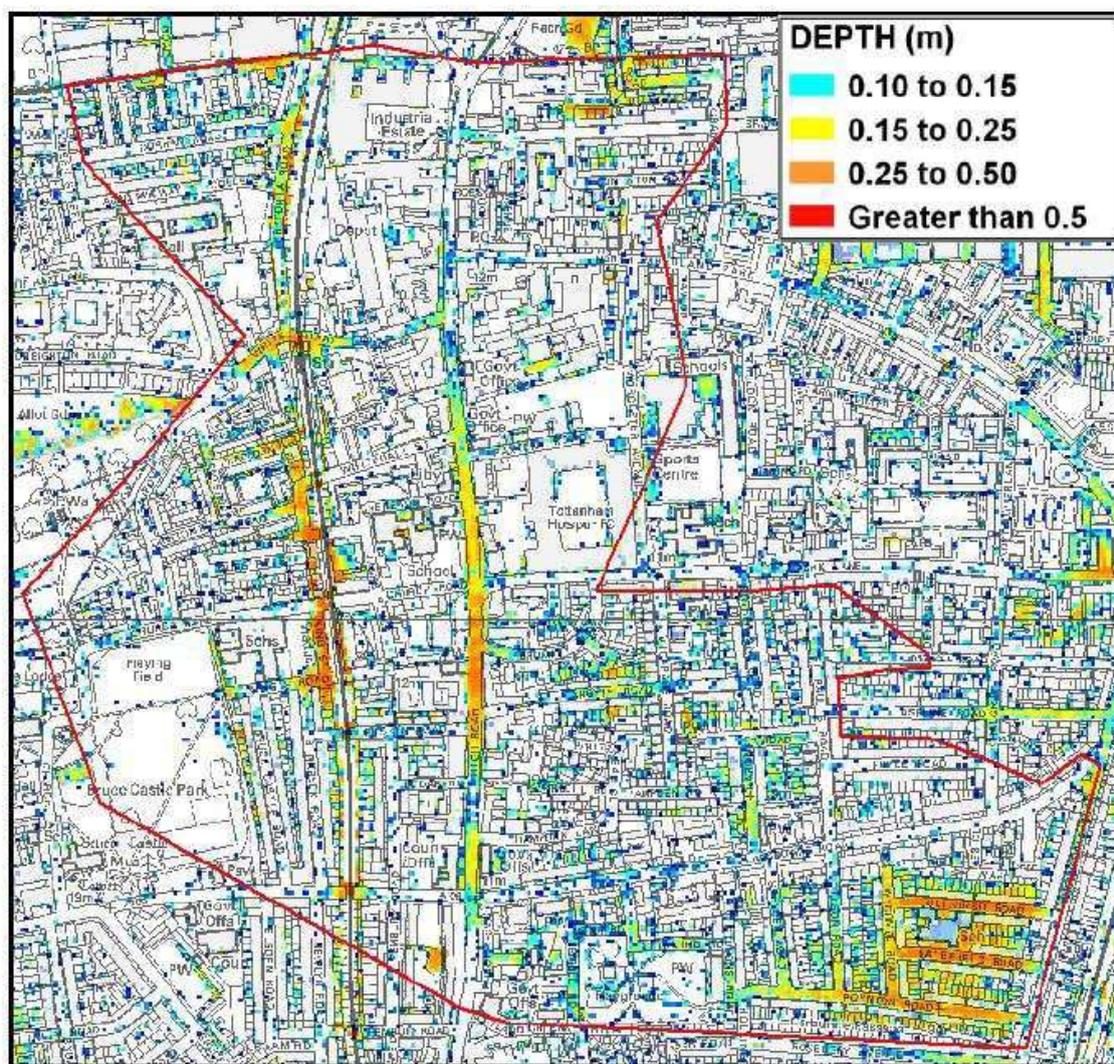
Flooding from Surface Water: Tottenham High Road

Location: Tottenham High Road and area surrounding Halefield Road, Tottenham.

Reference: Group 4 061

Description: [Surface water](#) is observed to pond around Halefield Road as a result of overland flow from the west. Ponding water is also observed at the low point along Tottenham High Road. The largest depths of water occur along the roads with some residential properties and their back gardens flooded.

Validation: There is a good correlation between the modelling results and the Environment Agency Surface Water Maps for both 30 year and 200 year event. There are no other supporting flood records in the area.



*Tottenham High Road – Critical Drainage Area
1 in 100 year Return Period Event
Maximum Depth Results*

[Back to: Where are the main areas of flooding?](#)

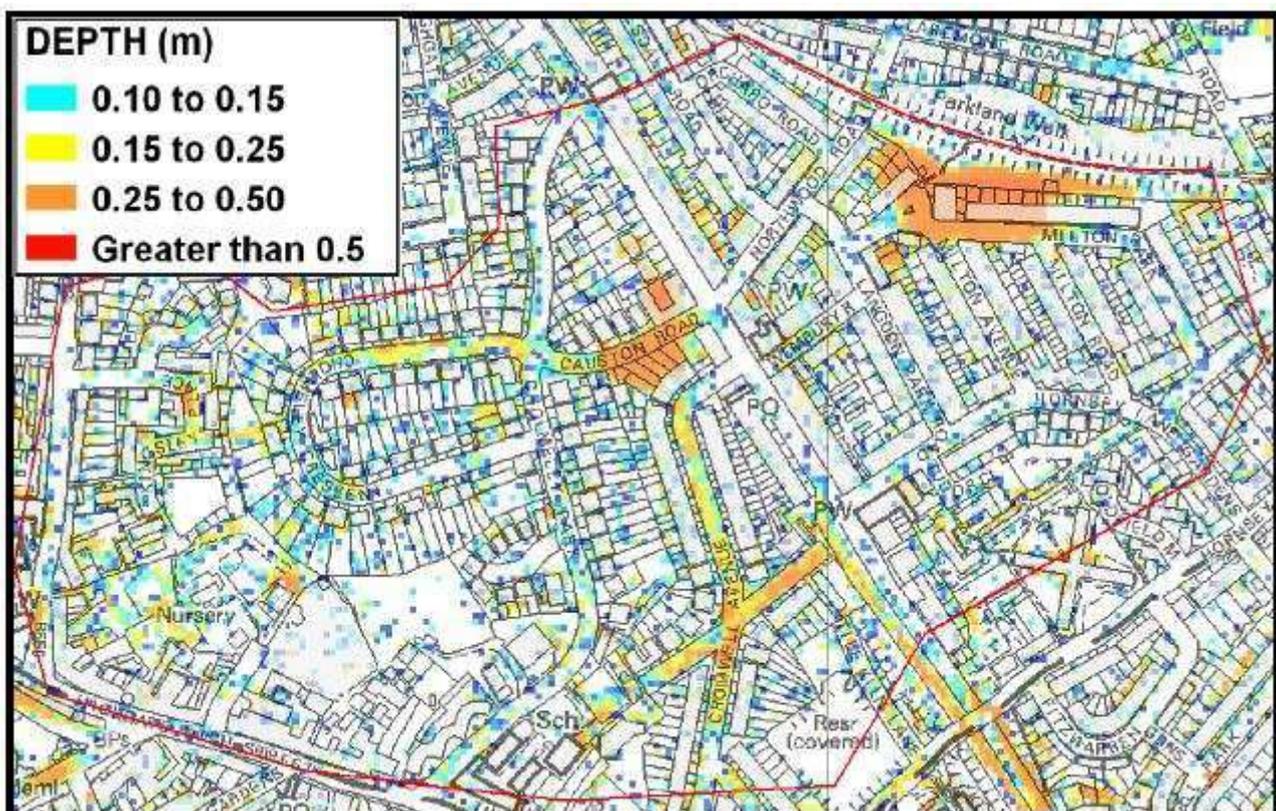
Flooding from Surface Water: Milton Park and Causton Road, Crouch End

Location: Milton Park, Crouch End

Reference: Group 4 062

Description: [Surface water](#) is observed to pond behind the Parkland Walk embankment resulting in flooding of Milton Park road and surrounding properties. A number of these properties contain basements. There is a significant health and safety risk to these residents.

Validation: There is a good correlation between the modelled results and the Environment Agency Surface Water Map for the 200 year event. The Drain London modelled results show a larger flood extent for the 30 year event. There are no other supporting flood records in the area.



*Milton Park and Causton Road, Crouch End – Critical Drainage Area
1 in 100 year Return Period Event
Maximum Depth Results*

[Back to: Where are the main areas of flooding?](#)

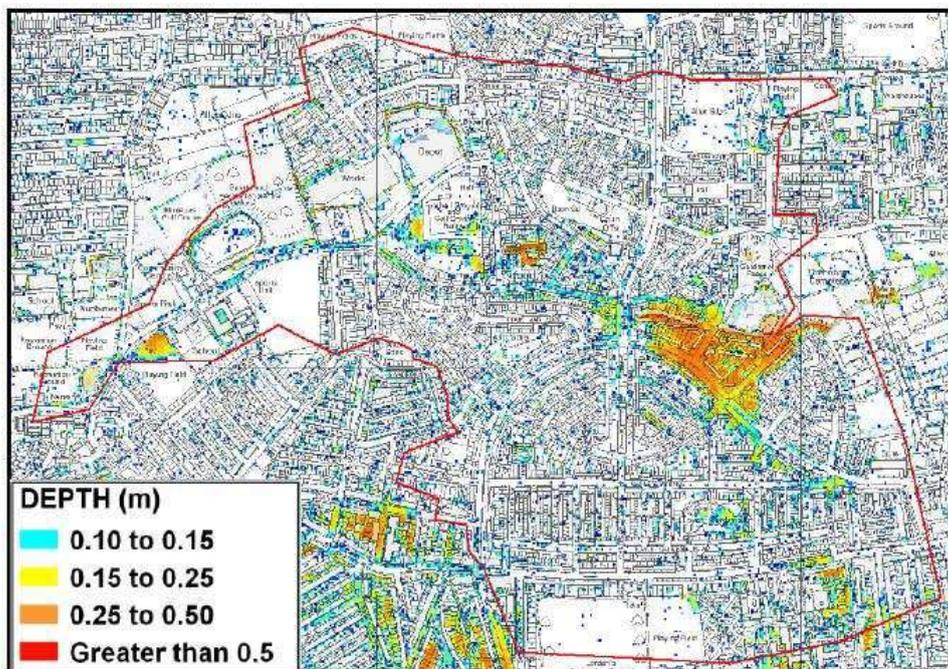
Flooding from Surface Water: The Roundway (A10) and Warkworth Road, Tottenham

Location: The Roundway (A10) and Warkworth Road, Tottenham

Reference: Group 4 063

Description: [Surface water](#) is observed to flow along Rivolet Road and Jellicoe Road before entering the Moselle Brook. This location is at the head waters of the Moselle Brook, and this is one of the few locations where the watercourse is not culverted. Flooding has the potential to combine fluvial and surface water. Residential properties around Warkworth Road and the A10 are shown to be at risk.

Validation: There is a good correlation with the modelling results and the Environment Agency Surface Water Maps. There are three London Fire Brigade records of flooding within the Critical Drainage Area. Previous flooding of the sheltered housing in Larksbury Close affected in the region of 30-50 properties.



*The Roundway (A10) and Warkworth Road, Tottenham – Critical Drainage Area
1 in 100 year Return Period Event
Maximum Depth Results*

[Back to: Where are the main areas of flooding?](#)

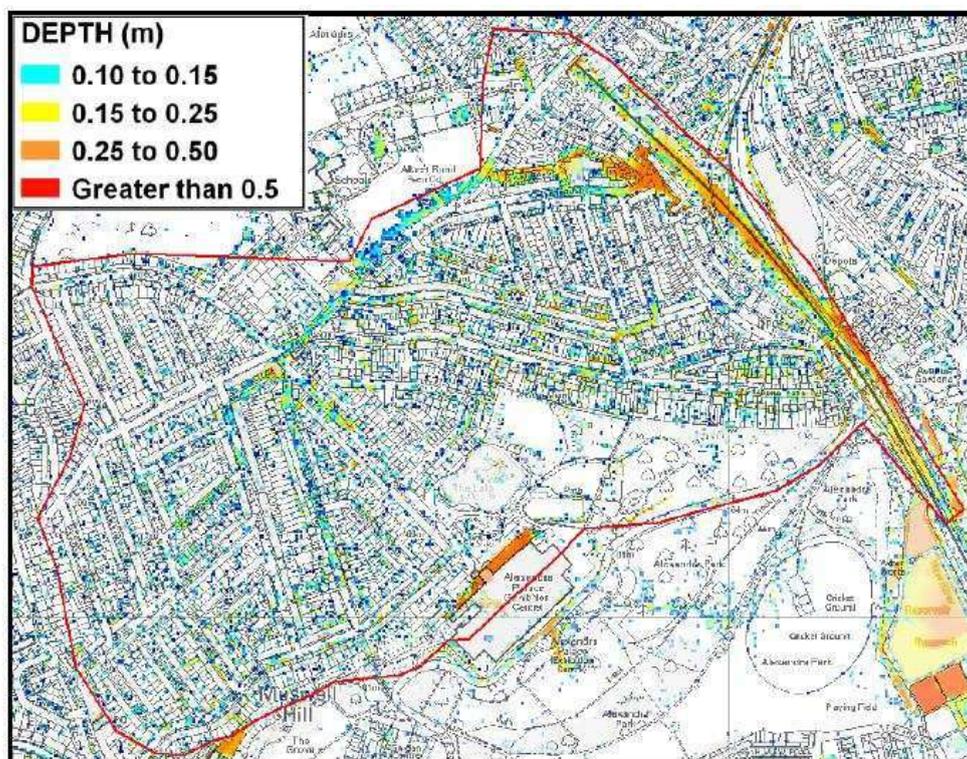
Flooding from Surface Water: Alexandra Palace Railway Station, Wood Green

Location: Alexandra Palace Railway Station and mainline railway track, Wood Green

Reference: Group 4 073

Description: The railway line is in a cutting at this location, with the track sloping continuously from north to south. Overland flows from the catchment to the west as well as the sewer network are likely to contribute to flooding in the railway corridor.

Validation: There is a good correlation between the modelled results and the Environment Agency Surface Water Maps. One record of a previous incident was provided by Network Rail of flooding on the mainline railway near Alexandra Palace Station.



*Alexandra Palace Railway Station, Wood Green – Critical Drainage Area
1 in 100 year Return Period Event
Maximum Depth Results*

[Back to: Where are the main areas of flooding?](#)

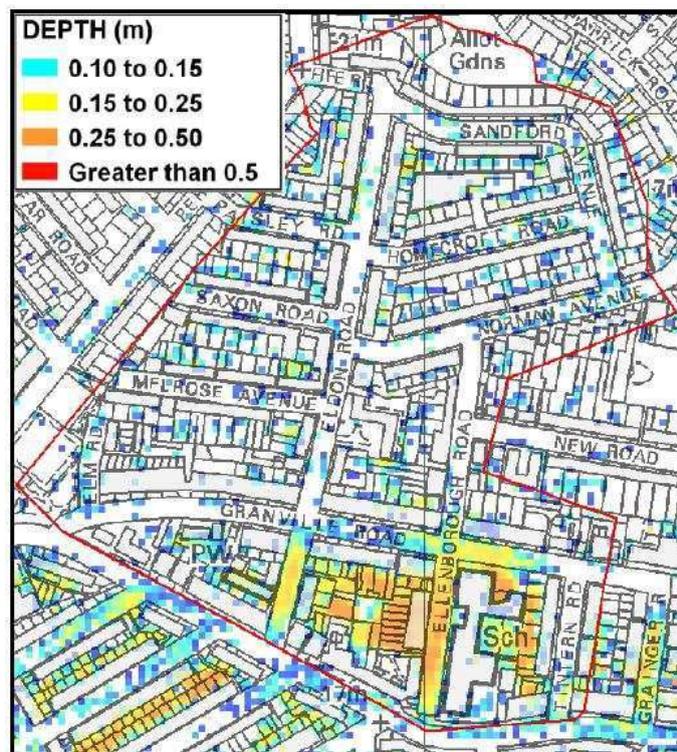
Flooding from Surface Water: Lordship Lane and Ellenborough Road, Noel Park

Location: Lordship Lane and Ellenborough Road, Noel Park

Reference: Group 4 075

Description: The flooding occurs at the localised low point in topography. Lordship Lane and Granville Road to the south and north respectively are 0.25-0.3m higher than Ellenborough Road. The culverted Moselle Brook runs beneath Lordship Lane on the southern edge of the Critical Drainage Area.

Validation: There is good correlation between the model results and the Environment Agency Surface Water Maps. There are no supporting flood records in this area.



*Lordship Lane and Ellenborough Road, Noel Park – Critical Drainage Area
1 in 100 year Return Period Event
Maximum Depth Results*

[Back to: Where are the main areas of flooding?](#)

Limitations in the calculation of flooding

Generally speaking it would be expected that the flooding locations generated by computer model analysis will tie-in with records of actual flooding. There may however be locations identified by computer model simulations where there have been no records of flooding or conversely areas known to flood that are not shown as flooded.

There are a number of factors that could give rise to this:

- Flooding from other sources, such as from rivers, that the computerised (hydraulic) model is not taking account of.
- Blockages or defects in the sewer network are restricting the flow (and the hydraulic model has not included these)
- The catchment draining into the sewer and drainage systems is more extensive or different in character to that assumed in the model.
- The size and connections between pipes within the sewer network are different to those which have been assumed.
- Information about the rainfall intensity and duration which caused the flooding is incomplete. This can often be the case with extreme summer storms where rainfall may be very localised and miss rain gauges.
- Insufficient or blocked gullies or other outlets which prevent surface water getting into the sewer system

[Back to: Where are the main areas of flooding?](#)

Flooding from Main Rivers and Ordinary Watercourses

It is important to explain the difference in the terms Main River and Ordinary Watercourse:

Main rivers are usually larger streams and rivers, but some of them are smaller watercourses of local significance. In England Defra decides which watercourses are the main rivers, and the Welsh Government does this in Wales. Main rivers can include any structure that controls or regulates the flow of water in, into or out of the channel. The Environment Agency's powers to carry out [flood defence](#) works apply to main rivers only.

An ordinary watercourse is every river, stream, ditch, drain, cut, dyke, sluice, sewer (other than a public sewer) and passage through which water flows, but which does not form part of a main river. The local authority or [Internal Drainage Board](#) has powers on ordinary watercourses similar to the [Environment Agency's](#) powers on main rivers

The main source of information on flooding from rivers and the larger watercourses is the Environment Agency. Flooding from rivers and the larger watercourses is essentially caused when there is so much water being conveyed that the watercourse/river bank is overtopped causing flooding, generally in the areas where the overtopping is taking place.

The Environment Agency publishes information on the likelihood of flooding relating to main rivers. Please see link below:

[Click here to go to the Environment Agency Flood Maps](#)

Using the post code or place name of a particular location where information is required, the system can produce maps to indicate whether there is a likelihood of flooding or not.

[Back to: Where are the main areas of flooding?](#)

Flooding from Groundwater

Groundwater flooding occurs when water levels in the ground rise above the ground surface. Flooding of this type tends to occur after long periods of sustained heavy rainfall and can last for weeks or even months. The areas at most risk are often low-lying areas where the water table is more likely to be at a shallow depth and flooding can be experienced through water rising up from the underlying [aquifer](#) or from water flowing from springs.

Groundwater flooding is more difficult to predict and the most accurate indication of whether flooding is likely in the future will be information on historic flooding locations.

For information on locations in the borough where groundwater flooding has been experienced please see the table below:

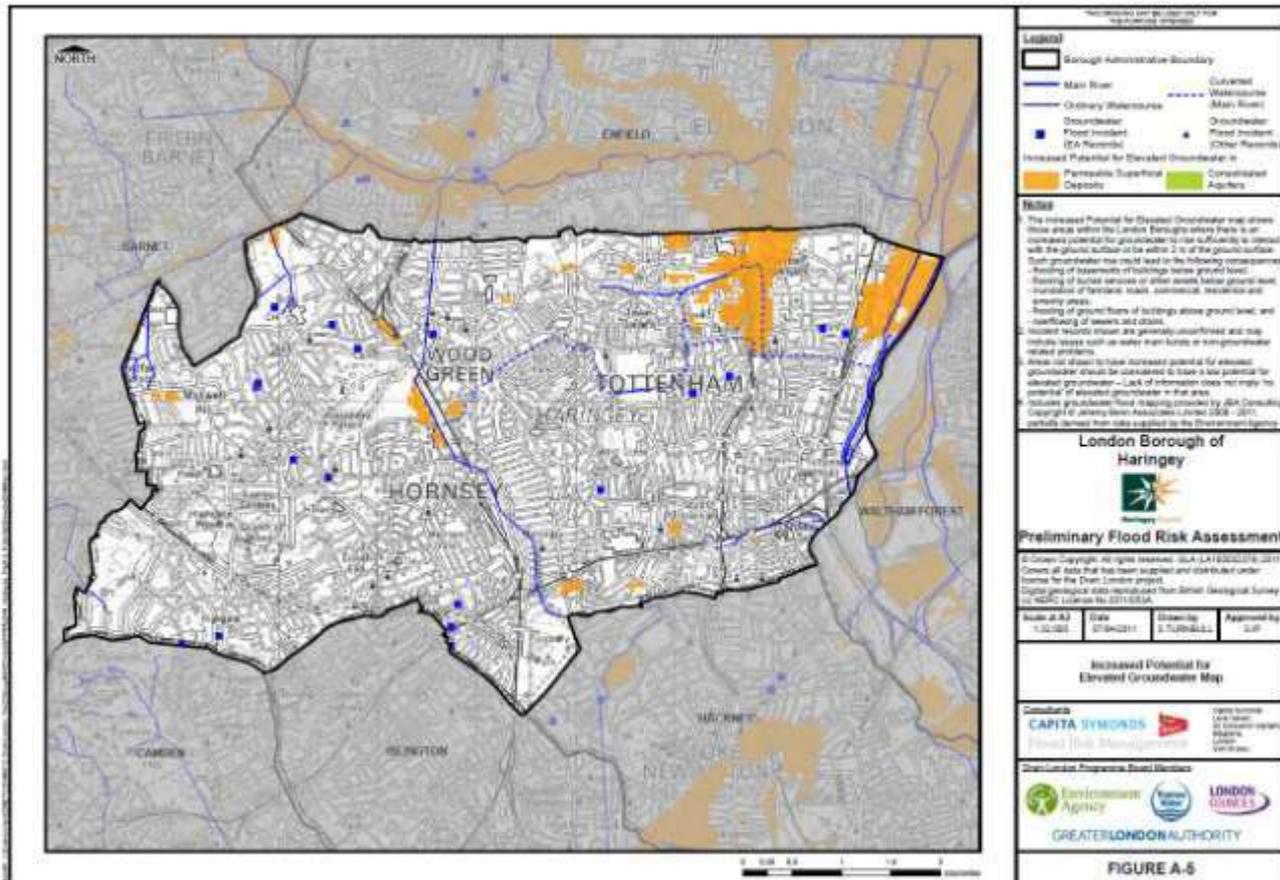
Date	Location	Recorded Impacts
14/08/2002	Ferme Park Road (Stroud Green)	Standing Water
03/10/2002	Southwood Lane (Highgate),	Damp
09/12/2002	Shelbourne Road (Tottenham),	Standing Water
19/12/2002	Farrer Mews (Muswell Hill),	Standing Water
14/11/2003	The Avenue (Tottenham)	Seepage
18/02/2004	Rookfield Avenue (Muswell Hill)	Seepage
27/02/2004	Mouth Pleasant Crescent (Stroud Green),	Standing Water
13/04/2004	Muswell Hill Golf Course,	Standing Water
20/04/2004	Terront Road (West Green),	Standing Water
05/07/2004	Harcout Road (Wood Green)	Standing Water
04/04/2005	Lansdowne Road (Tottenham),	Wet
21/06/2005	Coniston Road (Muswell Hill)	Standing Water
17/11/2005	Mouth Pleasant Villas (Stroud)	Standing Water
25/06/2007	The Avenue (Tottenham)	Standing Water
26/09/2007	Park Avenue (Wood Green)	Standing Water
22/11/2007	Coniston Road (Muswell Hill)	Standing Water
18/07/2008	Alexandra Avenue (Wood Green)	Standing Water
17/03/2009	Hampstead Lane (Highgate)	Standing Water

Groundwater flooding was considered in the [Preliminary Flood Risk Assessment](#). Please see the link below for a map of Haringey showing areas considered to be at greater risk of groundwater flooding (shown in orange).

[Back to: Where are the main areas of flooding?](#)

[See map below for an illustration of sites with increased potential of elevated groundwater](#)

Increased Potential for Elevated Groundwater



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[Link back to different parts of the Plan for Flooding](#)

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How do we assess how serious the flooding is?

In this section:

- [Assessing the risks to people from flooding](#)
- [What are the risks to people from flooding?](#)
- [A Definition of Flood Risk](#)
- [How do we measure the risk of flooding? – An Important Issue](#)

Assessing the risks to people from flooding

An important consideration is how we take account of the risks to people associated with flooding. The main factors in this are:

- The flood water depth
- The flood water velocity (Even relatively shallow fast flowing water can cause people to be knocked off their feet and give rise to the risk of serious injury or in some cases death)
- The [vulnerability](#) of the area where the flooding is taking place (For instance a caravan site would be considered as particularly vulnerable)
- The speed of onset of a flood (The lack of warning of a flood could mean that vulnerable people such as the elderly or disabled are not able to be removed from areas where the flooding will occur giving rise to a risk to their health)
- The vulnerability of the people located in the flood area. (Able bodied people may be able to leave areas that are experiencing an increasing flood risk whereas elderly or disabled people could not)

The computer based methods used to indicate where flooding is likely can also provide information on things such as the depth of flood water and velocity. From other computer based systems we can also identify aspects such as critical buildings which may be at risk of flooding, for instance a hospital or electricity sub-station. All these factors can point us to particular locations that we need to be focusing on.

What are the risks to people from flooding?

People are at risk of suffering death or serious injury when flooding occurs. People are unable to stand in deep or fast flowing floodwater. Once they are unable to stand, there is a high risk of death or serious injury. Debris in the floodwater can also increase this risk.

Adults are unable to stand in still floodwater with a depth of about 1.5m or greater, although this is obviously affected by the height of the person. The depth of flowing floodwater where people are unable to stand is much less. For example, some people will be at risk when the water depth is only 0.5m if the velocity is 1m/s (about 2 mph). If the velocity increases to 2m/s (about 4mph), some people will be unable to stand in a depth of water of only 0.3m. Most people will be unable to stand when the velocity is 2m/s and the depth is 0.6m.

The chances of people being unable to stand in floodwater is increased if the ground is uneven or there are holes in the ground beneath the water surface, for example service access covers that have been displaced. There is therefore a high risk that people will be unable to stand in floodwater, and be exposed to a risk of death or serious harm. The chance of people being exposed to floodwater depends on where they are, for example outdoors on foot, outdoors in a vehicle, or in a building. If they are in a multi-storey building when the flood occurs, they can avoid being exposed to floodwater by staying above the flood level. If they are in the open or in a single-storey building, for example a bungalow, supermarket or single-story school, they will be exposed to floodwater. They will be at even greater risk if they are in a tent or

caravan, as these are likely to be damaged or washed away in a flood, or below ground, for example in a basement.

People are more exposed to a flood in some types of buildings than others. Buildings in flood risk areas where people are exposed to floodwater should be provided with a safe escape route. The degree to which people are exposed to risk from floodwater also depends on whether flood warnings are received and acted upon. Whilst many areas are covered by flood warning schemes, there are many people who do not receive warnings. There are many reasons for this, for example people passing through the area in cars are unlikely to receive a warning aimed at the local population. Whilst flood warning can reduce the risk of people being exposed to a flood, many people will either not receive the warning or not respond in an appropriate way.

The speed with which a flood occurs has a major impact on whether or not people will be exposed to floodwater and therefore the risk of death or serious injury. Where the flood onset is gradual and the rate of rise is slow, people have time to take action and, if necessary, leave the flood risk area. Where flooding occurs very rapidly, people have very little time to respond. Examples of rapid flooding that result in high risks to people are when a [flood defence](#) overtops or fails, and when a 'flash flood' occurs in an urban area following very heavy rainfall.

The ability of people to respond to a flood depends on their physical condition. Those who are old and those who are disabled or have a long-term illness find it more difficult to deal with a flood situation, and are therefore more prone to death or serious injury. *The above text is taken from a [Defra/Environment Agency document entitled Flood Risks to People Phase 2](#)*

A Definition of Flood Risk

The following information on the definition of risk was taken from the [Haringey Strategic Flood Risk Assessment](#) is formally defined in the [Flood and Water Management Act](#) as follows:

"Where land not normally covered by water becomes covered by water and can be the result of water emanating from a number of sources".

Flood risk can be described as the combination of the statistical probability of a flood occurring and the scale of its potential consequences, whether inland or on the coast, and includes consideration of locating development outside of the river and tidal flood risk areas.

Thus it is possible to define flood risk as:

$$\text{Flood Risk} = (\text{Probability of a flood}) \times (\text{scale of the consequences})$$

On that basis it is useful to express the definition as follows:

- Increasing the probability or chance of a flood being experienced increases the flood risk. In situations where the probability of a flood being experienced increases gradually over time, for example due to the effects of climate change, then the magnitude of the flood risk will increase.
- Increasing severity of the consequences can increase the flood risk.
- [Flood Hazard](#) Magnitude: If the direct hazard posed by the depth of flooding, velocity of flow, the speed of onset, rate of rise in flood water or duration of inundation is increased (for example due to the effects of climate change), then the consequences of flooding, and therefore risk, is increased.

New development can potentially increase the Flood Hazard if it causes an increase in surface runoff flows.

- **Receptor** presence: The consequences of a flood will be increased if there are more receptors affected (a receptor is anything affected by flooding). Additionally, if there is new development that increases the probability of flooding or increased density of infrastructure then consequences will also be increased.
- Receptor **vulnerability**: If the vulnerability of the people, property or infrastructure is increased then the consequences are increased. For example, old or young people are more vulnerable if they are caught up in a flood event.

The method for calculating Flood Risks to People combines all the above factors together with the number of people in a particular area to estimate the number of people at risk of death or serious injury because of flooding.



Illustration showing the Definition of Risk

How do we measure the risk of flooding? – An Important Issue

It is not possible to eradicate flooding. No matter how good the drainage system or flood protection is, there will always be a storm which is so severe that the system will not be able to cope with it. What we have to do is think about the severity of flooding and how often it occurs and focus on what we can do to help with that.

In a number of places in our Flooding Plan there is reference to risk associated with flooding and we have to, unfortunately, think about statistics to help with understanding this.

The probability or likelihood of flooding can be described as the chance that a location will flood in any one year. For example a particular location may have a 1.3% chance of flooding each year but this could also be described as a 1 in 75 chance of flooding in any one year or betting odds of 75 to 1 against a location being flooded. This can seem a bit confusing in that it doesn't mean that because the location is flooded in one year that it will definitely not flood for another 74 years.

The measure of the level of risk just provides a view on whether something should be done or not. For instance if there is a 1 in 2 chance of flooding on average you could expect flooding to occur every two years while if the flooding is described as a 1 in 1000 year probability you could expect on average not to have flooding more than once in 1000 years. It is impractical and unrealistic to take action against something that may only happen every 1000 years, but if something is happening every other year then you would expect that something would have to be done. Someone having to put up with flooding in their house so regularly would not be regarded as acceptable.

[Back to: How do we assess how serious the flooding is?](#)

[Link back to different parts of the Plan for Flooding](#)

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How and when will we update our plans?

The way that flood risk is managed in England will be subject to considerable change over the next few years associated with things such as:

- Changes to Town Planning processes
- The requirements in relation to the sustainability of installed drainage systems
- Changes to the arrangements for the provision of flood insurance
- Changes in how things are paid for
- Changes in the approach to the design of flood prevention schemes taking account of more generalised issues such as water quality, water conservation etc.
- The programme of work associated with the [Flood Risk Regulations](#)
- The commencement of Haringey's role as a statutory consultee to [the Local Planning Authority](#) in respect to drainage issues associated with new development. *(This particularly will have far reaching impacts on how flood risk is managed locally. See the [Developer Information Page](#) for details of the current system for dealing with drainage applications. This system will be reviewed as and when deemed appropriate)*

These significant changes in the field of surface water management will require us to regularly review our Flooding Plan.

The [Flood Risk Regulations](#) required us to produce flood risk management plans in 2015, but this was not carried out because of the lack of detailed CDA models which are now available. Therefore this plan will be produced in 2019.

After that, the decision on the timing of the next review would be taken in the light of progress with the plan objectives and any further changes in the industry.

[Link back to different parts of the Plan for Flooding](#)

[Link back to the top](#)

Helping the environment while looking at flood risk

In this section:

- [How we can make improvements to the environment as we look at flood risk?](#)
- [General issues associated with the environment](#)
- [A Shift in Thinking](#)
- [Water cycle management opportunities](#)
- [Improving our human environment](#)
- [Improving the natural environment](#)
- [Reducing carbon use](#)

How we can make improvements to the environment as we look at flood risk?

The primary purpose of the [Haringey Flooding Plan](#) is to set out how we can reduce flood risk but if this is done with sensitivity, good design and planning it is possible also to derive significant benefit in respect to sustainability, biodiversity and environmental/social improvement. [Climate Change](#) is becoming an ever more important consideration in almost everything we do at the Council. In particular the following statements will have an important bearing on how we approach flooding and water shortages:

The changes are likely to be significant and recent UK Climate Projections 2009 predict that by 2080 the East of England will experience:

- *3.6°C increase in average summer temperature*
- *20% increase in winter rainfall leading to increased winter flooding*
- *20% decrease in summer rainfall leading to summertime droughts and impacts on crop yields*

The climate change allowances were updated (February 2016) for the anticipated changes in peak river flow by river basin district, peak rainfall intensity, sea level rise and offshore wind speed and extreme wave height. They are based on climate change projections and different scenarios of carbon dioxide emissions to the atmosphere. This new policy supersedes the old guidance on climate change; although all planning applications already submitted for examination or have a valid planning application already submitted to the local planning authority prior to this date should adhere to the previous guidance allowances. The changes to climate change allowances include, but are not limited to, the following:

- *Peak river flow allowances by river basin district have changed from a set value to a “range of allowances”, which is based on percentiles. The ranges of the River Thames for each epoch and allowance category are shown in Table below; and*
- *A similar transition has been made for peak rainfall intensity; the conversion from a set value to a range of allowances has been established for each epoch.*

Allowance Category	Total potential change anticipated for ‘2020s’ (2015 to 2039)	Total potential change anticipated for ‘2050s’ (2040 to 2069)	Total potential change anticipated for ‘2080s’ (2070 to 2115)
Upper End	25%	35%	70%
Higher Central	15%	25%	35%
Central	10%	15%	25%

At a local level, the future implications of these climate projections could include:

- *Increased flooding*
- *Water shortages*
- *Higher incidence of damage to transportation, utilities and communications infrastructure caused by an increase in the number of extreme weather events (e.g. heat, high winds and flooding)*

These factors require us to think about all the related water issues as one entity. As demonstrated above, it is believed that we will experience an increase in winter rainfall which will cause flooding and reduced summer rainfall that will lead to drought. Bearing this in mind, we should be finding ways to save, in one way or another, the excessive amounts of water that we will have to deal with in winter so that we can offset the likelihood of drought in the summer?

Using [Sustainable urban Drainage Systems](#), called SuDS, for new development sites particularly and also existing places where flooding is a problem can reduce the impact of flooding and give rise to real opportunities for improving the human and natural environments.

See the link below to an animated film which explains the benefits of SuDS:

[Video on the Benefits of SuDS](#)

Finding ways to do this are more challenging in an urban environment than they would be in a rural one but already significant progress is being made nationally and in fact locally here in Haringey. The Haringey Green Streets initiative is an excellent example of how flooding issues can be dealt with in a way that addresses the issues referred to above, please click [here](#) for more information about this project.

Nationally and internationally there are some really exciting projects inspired by the [Blue-Green Dream](#).

General issues associated with the environment

Effective [surface water](#) management will give rise to improved [water cycle](#) management generally and also derive benefits for the human and natural environments. In addition to this there are opportunities for deriving benefits in terms of carbon use reduction.

The environmental benefits that can be achieved in relation specifically to flood risk reduction need to be considered in the wider context of sustainability in Haringey.

The benefit which can be achieved for the human and natural environments through water sensitive design will need to be a continuing thread in the [Haringey Flooding Plan](#). In fact an innovative approach to surface water design can often reverse the 'not in my back yard' mentality to proposed drainage infrastructure activity, creating elements such as ponds and rain gardens that people actually want to have in the places where they live and work.

Surface water management has been historically regarded as something that has to be sorted out at the end of the development approval and design process; almost as an afterthought. There will need to be emphasis in everything we do on the considerable positive benefits that can be achieved through early consideration of surface water issues.

A Shift in Thinking

The shift in thinking, which will be required if the industry is to make real headway in flood risk reduction, will only occur when key professionals such as planners and developers start to appreciate that the early involvement of drainage specialists can offer real benefit in furthering the aspects that they perceive, from their own perspective, to be important.

Water resource planning, urban scene enhancement, biodiversity, carbon use reduction are all important areas where drainage engineers are able to provide considerable assistance to people from other disciplines.

Important Note for Developers

The creative use of water can give rise to an increase in property value maximising income from new development.

Particular areas that the [Haringey Flooding Plan](#) will need to focus on in the context of environment will be water cycle management, human environment enhancement opportunities, natural environment enhancement opportunities and opportunities for reducing carbon use.

[Back to: Helping the environment while looking at flood risk](#)

Water cycle management opportunities

The following information is an extract from the Water Cycle Study Guidance, Environment Agency (2009) on planning for water:

There is a finite capacity within the environment, and it cannot simply provide more and more water. Equally, there is a limit to the amount of waste water that can be safely returned to our rivers and the sea without having a detrimental impact on the environment. Furthermore, we know that extreme rainfall can overwhelm drains and overtop [flood defences](#). [Climate change](#) is bringing fresh challenges as patterns of rainfall are predicted to change, with more intense rainfall events. We must also make sure that water infrastructure contributes to the shift to a low carbon economy that is essential if greenhouse gas emissions are to be reduced. Planning for water has to take into account these natural constraints, and factors such as the timing and location imposed by the development itself.

The South East of England is already suffering a shortage of water for human consumption and this situation will be exacerbated by climate change and the planned increase in development. The object of water cycle management is to manage water surplus and shortage effectively.

The following information is extracted from the Water Resources Strategy for England and Wales, Environment Agency (2009):

Climate change will bring about changes in rainfall with warmer drier summers and wetter warmer winters. Rainfall may occur in heavier downpours which could lead to more flooding and droughts. It is predicted that the amount of water in rivers and groundwater reserves will decrease which could lead to shortfalls in water supply. Reducing water use places less demand on decreasing resources and reduces carbon emissions as water supply and treatment processes use energy.

In the context of flood risk reduction this argues for a complete change in the way that we deal with both new development and endeavour to deliver flood risk reduction and these new practices are being employed increasingly.

Source control is the primary means of supporting improved overall water management through better surface water management. Source control can take a number of forms but the basic philosophy is to emulate the natural pre-urbanisation situation where water is held close to where it falls rather than being rushed over impermeable surfaces and into sewers from where it can be disposed-of rather than used. This can be achieved in a number of ways:

Ground infiltration - where ground conditions permit the passing of rainwater into the ground has a number of benefits:

- *Reduced loading on receiving surface water sewers*
- *Possibility for recharging underground water [aquifers](#). (The use of underground sources of water to feed into water supply is becoming more important. Ground infiltration can provide a means of topping-up these supplies of water so that they can be used at times of water shortage. Aquifer recharge is also beneficial in respect to maintaining healthy flows in watercourses that are fed primarily from underground sources and in so doing contributing to the maintenance/enhancement of biodiversity)*

(Note: Ground infiltration is generally not possible in areas where there is a high water table.)

- *Roof gardens and living walls*

- *Water features such as ponds and rills*
- *Rain gardens*
- *Underground storage of storm flows*
- [Swales](#) (*open ditches or indentations in landscaped areas to provide attenuation of flow*)

Summary

The benefit of source control to water cycle management can be summarised as:

- Reduction in peak flow to sewers and watercourses
- Reduction in flood ponding volumes (pluvial flooding reduction)
- Retention of water in the catchment for recreational use, biodiversity enhancement, potential water supply improvement, etc.

[Back to: Helping the environment while looking at flood risk](#)

Improving our human environment

Human beings generally like living near to water. Built-up areas that use water effectively are generally regarded as being of greater interest as places for people to live and work. This is evidenced by the focus of development adjacent to the sea, rivers, canals, docks, and lakes.

Good surface water management design can often improve the human and natural environment. Where a large volume of storage is required for surface water it might be possible to incorporate facilities within the surface water design which have recreational value for humans. There are a number of situations where good design has created a facility that is seen to be locally/regionally important. Aspects such as soft engineered areas for wildlife and facilities for model boating, sailing and also for fishing are all elements that can be incorporated to provide an additional benefit from the purely water retention function .

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Improving the natural environment

Water pollution can have a devastating effect on natural environment. If the quality of the water say in a ditch or a pond is poor this will have a significant effect on the numbers of insects and the type of plant life that can thrive. Through good surface water management we can help to support the preservation of existing natural areas that rely on a supply of clean water and in certain circumstances we can create new water-based environments.

A surface water design for a new development may require large volumes of water to be stored to reduce flood risk. This could offer the opportunity to create something like a pond or lake. Being creative in design may mean that we can satisfy surface water management requirements while also delivering a benefit for the environment and water quality generally.

There are a number of examples where what are described as water meadows have been used to store flow from new development to protect watercourses. Sudden and large flows of water in watercourses can have a devastating effect on plants and animals that live within them and allowing rainwater to flow into the water meadow first reduces significantly this risk. These meadows provide the required storage almost

unnoticeably and as natural areas are very valuable for flora and fauna that rely both on a water and drier environments.

An additional benefit of creating water meadows is that environmental charities, e.g. Wildlife Trusts, may be happy to take on responsibility for some element of the ongoing costs of maintenance, thus reducing the overall cost of surface water management.

In flooding management, the practice of Making Space for Water and working with the natural environment has been in common use for many years and demonstrate that working with nature is not only effective but often the cheapest option for local flood management.

An approach to flooding alleviation that considers natural environment enhancement can also be important in achieving the [Water Framework Directive](#) targets which are:

- Ensure no deterioration of surface water and groundwater and the protection of all water bodies;
- Achieve Good ecological status by 2015 for surface water and groundwater;
- Reduction of pollution and hazardous substances in surface water and groundwater;
- Reverse any upwards trends of pollutants in groundwater; and achieve standards and objectives set for protected areas

Case Study: River Quaggy, Sutcliffe Park, southeast London

A series of flood alleviation works along the culverted River Quaggy within Sutcliffe Park reinstated the channel along its previous meandering alignment. The old [culvert](#) was retained to accommodate excess water. The previously underused park was converted into a substantial flood storage area which also incorporates a diverse range of park and wetland habitats. As well as reducing flood risk to 600 properties and 4000 people, the project is seen as an excellent example of a multifunctional solution to flood risk that works with natural processes. The works were completed in 2004 and Sutcliffe Park is now recognised by conservation groups such as the National Trust.

[Back to: Helping the environment while looking at flood risk](#)

Reducing carbon use

A sustainable approach to water can also provide some opportunities for carbon use reduction. This section looks at the potential of carbon use reduction.

An essential element in the move to more sustainable communities will be to reduce their carbon footprint. Sensitive flood management can assist in this as a consequence of:

- Reduced carbon requirement of soft engineered flood risk reduction measures when compared to conventional solutions using reinforced concrete, metal etc.

-
- Minimising of the pumping requirement for surface water and the consequent reduction in the need to use energy. (*Keeping water above ground for as long as possible using source control features integrated with natural surface flow paths can minimise the requirement to pump surface water to a 'disposal' point, minimising the likelihood that pumping will be required in the system*)
 - Water storage areas and wetlands used in flood management also act as areas of carbon capture.

A key component of mitigating [climate change](#) is to tackle energy use. By reducing energy use and increasing energy efficiency we can save finite resources, reduce carbon emissions, save money and make buildings and operations more sustainable.

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How will we involve members of the public in the plan?

If you live in a [Critical Drainage Area](#), we will be assisting your local community to develop a Community Action Plan. The purpose of a Community Action Plan is set out in the Environment Agency's document [Flooding – Minimising the Risk](#). It involves organising meetings where we come and speak to residents about flooding and other related topics which might include raising awareness of water quality issues, considering misconnections (i.e. [surface water](#) drains connected to [foul sewers](#)) and looking at aspects that have an impact on, biodiversity and ecology. If you are interested in being involved in the development of the Community Action Plan for a Critical Drainage Area, please [email us](#).

If you do not live in a Critical Drainage Area, but would like assistance with a local flood issue or flood risk, please contact us to discuss your concerns. You can [email us](#) or use our [Report a Problem](#) page.

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How can Haringey residents help reduce flood risk?

There are a number of ways in which Haringey residents can help with reducing flood risk. These can be divided into short term and long term measures.

Short Term

The short term measures include:

- Reporting flooding when you see it
- Reporting things like shopping trolleys in ditches as well as general rubbish and debris on screens and in the watercourses and where they pass into underground pipes.

[Click here to Report Flooding](#)

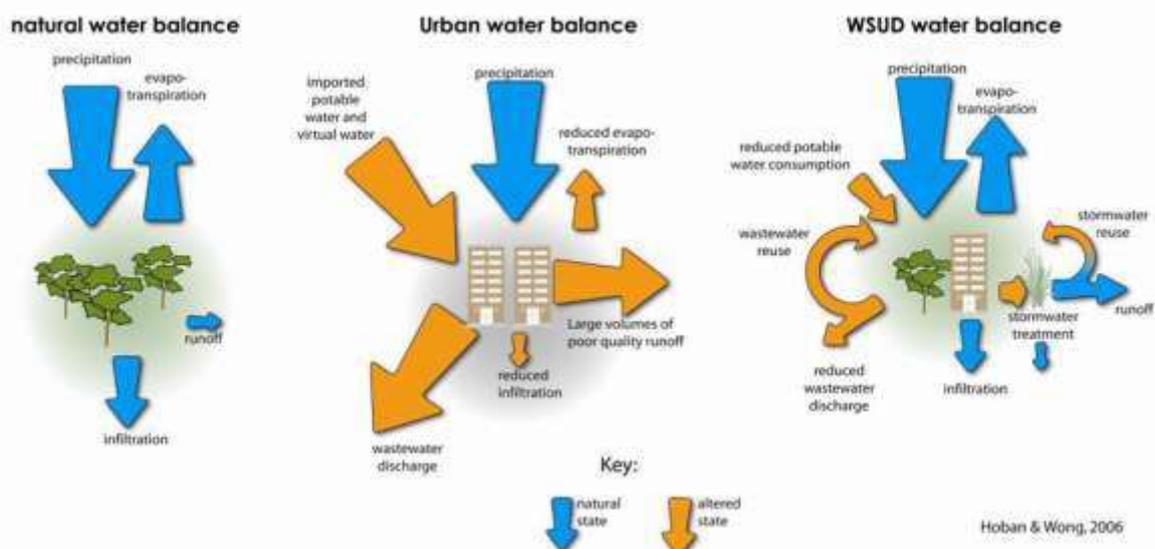
Long Term

For the long term, if more people start to make changes in how rainwater is dealt with on their property, we could see a real benefit in reduced flood risk.

At the moment, in many urban areas, rainwater is conveyed quickly into pipes. As many hard surfaces such as roads and pavements are constructed, more rainwater finds its way into those pipes and eventually they can't take any more flow. This is when flooding occurs.

What we need to do is to try to get back to the situation where rain falling in a particular place can go back into the ground, or be held up in areas such as ponds, rather than flowing immediately into sewers and watercourses.

Below is an illustration of the differences between the natural and urban water balance, and how what is termed as water sensitive urban design can help reduce flood risk.



Urban Water Management Cycle Management (Water Sensitive Urban Design)
Hoban, A., and Wong, T.H.F., (2006) "WSUD resilience to Climate Change", 1st international Hydropolis Conference, Perth WA, October 2006.

The really good news is that some of the things we can do as individuals to reduce flood risk can make our homes better places to live, reduce the use of tap water and even increase property values.

Ideas of what you can do:

Small Scale Water Saving Measures

There are a number of small-scale measures that you can do to help save water at home. Devices which help save water when showering, washing up, flushing the toilet and watering your garden can be order for free from Thames Water, click on the links below to learn how to save water and order your freebies!

- [Thames Water: Save water](#)
- [Thames Water: Save water at home](#)
- [Thames Water: Water-saving ideas](#)
- [Thames Water: Order your freebies](#)

Rainwater Harvesting

Rainwater harvesting is a very easy way of reducing flow received by the sewers and watercourses while at the same time reducing potable water consumption.

[Environment Agency: Harvesting Rainwater for domestic uses: an information guide](#)

Rain Gardens

Rain gardens are aesthetically very pleasing naturally planted areas that serve as storage for rainwater by slowing the flow of water passing to receiving sewers. They also facilitate evapotranspiration from plants and allow water to penetrate into the ground for irrigation of vegetation.

Ground Infiltration

A good way to reduce rainwater that has to be collected by the sewerage system is to put it back into the ground. This is called ground infiltration. There are various systems that can be used to do this. It is important to note that ground infiltration techniques can only be used in certain situations. If the natural level of the water in the ground, the water table, is high or the soil in the area is clay perhaps it is unlikely that ground infiltration could be used.

Permeable Materials

The use of drive and pathway materials that facilitate the direct passing of water into the ground with a consequent reduction in flows being passed to sewers. Gravel type drives can be particularly good for this but even hard surfaces can be constructed in such a way as to enable water to pass through them.

Note: the paving-over of front gardens that has occurred over the last 20 years or so in urban areas particularly has given rise to a significant increase in the volume of water in certain sewers. Going back to using permeable materials in front gardens rather than the usual impermeable tarmac or concrete can start to reverse this trend.

Real-life Examples: Click the links below for specific projects occurring in Haringey and the wider London area

- [Haringey Green Streets](#)
- [Susdrain Case Studies](#) *for the whole of the UK – zoom into London*
- [Thames Water: What's happening in my area?](#) – *select London*

Click on the links for information on Haringey Council's [Building Control](#) and [Planning applications](#) (procedures/requirements)

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How will we record flooding incidents?

The recording of incidents of flooding is really important. We need to get much more information on where flooding is happening within the borough and the type of flooding. If we have this information we can make sure that we spend any monies available in the most cost effective way to reduce as much flooding as possible.

To report flooding please use our flood reporting form which can be found [here](#), to email us at frontline@haringey.gov.uk, or you can also speak to us by calling 020 8489 0000.

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How can we reduce the impact of flooding?

It is not possible to completely stop flooding but we can certainly take steps to reduce the effect that any flooding can cause.

There are a number of ways that we can do this:

- Make sure that people in an area that is at risk of flooding are given early warnings
 - [Click here for to register for the Environment Agency's early warnings](#)
- Make sure that in particularly vulnerable areas, people have access to information on ways to protect their property from flooding. Flood dams/walls can be used to prevent water entering property and changes can be made to things like materials used to the inside of the property etc., so that a flood doesn't cause so much damage and recovery after a flood is much quicker.
 - [Click here for the Environment Agency web pages on preparing your property for flooding](#)
 - [Click here for the National Flood Forum: Ready for Flooding \(Before, During and After\) information booklet](#)
- Ensure that people have information on insurance. Getting insurance can be more difficult for people living in houses that can be flooded. Have a look at the link below to get help with this.
 - [Click here for the Environment Agency Flooding web pages on insuring property at risk of flooding](#)
- Make sure that people know who to go to, to clean up after a flood.
 - [Click here for information from the Environment Agency - "Guide: After a flood"](#)
 - [Click here for information from Thames Water help and advice on Sewer flooding](#)

Haringey has comprehensive plans in place for dealing with a range of emergencies which include provision for flooding.

- [Click here for Haringey web pages dedicated to Haringey out of hours emergencies](#)
- [Click here for information on the Haringey Multi-Agency Emergency Response and Emergency Planning](#)

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How will we encourage innovation in flood risk management?

[Climate change](#) and increasing urban development will bring real challenges for how we manage surface water in Haringey. The costs in the future associated with doing things in the traditional way i.e. disposing of rainwater into sewers, are likely to be enormous and we need to be thinking about cleverer ways of doing things. We also have to be finding ways of using rainwater more effectively for the expected more lengthy periods where we have less rain than before. All this means that we will need at all times to be innovative in what we do.

The good news is that if we go about things in the right way, by using up to date techniques, we can do things that make a real improvement in the aesthetics of the places where people live and in the sustainability of how they live. Residents and the council can think about having all sorts of things such as rain gardens and systems for collecting rainwater that can be used for flushing toilets (rainwater harvesting) when they construct new buildings or when trying to resolve an existing flooding problem. In addition when we construct roads and footpaths, or if perhaps residents want to pave over their front garden, we must think about using designs/materials that allow water to pass into the ground and make a real reduction in flows that have to be taken away by the sewer system.

Our motto will be: Think Clever.

Have a look at some of the innovative things that we are doing already in the borough such as the [Haringey Green Streets](#) project

You could also have a look at some other innovative schemes happening elsewhere in London e.g. [Counters Creek](#).

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What flood improvement schemes have been carried out by Haringey?

This area of the drainage and flooding web pages lists the historic, current and future drainage and flooding schemes, in the Haringey area.

[Link to Database of Drainage and Flooding Schemes in Haringey](#)

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Guiding Principles on the National Strategy

The Haringey Plan is being prepared in accordance with requirements of the National Flood and Coastal Risk Management Strategy.

NB this national strategy includes regular reference to coastal flooding which of course does not have relevance for Haringey:

The [National Flooding and Coastal Risk Management Strategy](#), which forms the overall basis for the Haringey Flood Plan sets out general guiding principles:

- Organisations with flood risk responsibility should work in partnership with communities.
- Flood risk should be considered on a catchment basis (*River and sewer catchments do not tie in with council boundaries and joint working with other organisations in the same catchment will be required*).
- Flood risk and coastal erosion management authorities should support communities by managing risks in ways that take account of all impacts and the whole-life costs of investment in risk management.
- A risk-based management approach targets resources to those areas where they have greatest effect. (*It is not technically, economically or environmentally feasible to prevent flooding and coastal erosion altogether*).
- As well as reducing the risks to people and property, the effective management of flooding can bring significant economic, environmental and social benefits.
- Beneficiaries should be encouraged to invest in risk management.



Figure taken from National Flooding and Coastal Risk Management Strategy

Flood and coastal erosion management may mean that difficult decisions have to be taken on where risk management activities can and can't be carried out at both national and local levels. These decisions, and the processes by which they are taken, will be guided by a number of high-level principles. These are outlined below:

Community focus and partnership working

The risk management authorities should work in partnership with communities to understand the community perspective of flooding and coastal erosion, help communities understand and actively prepare for the risks, and encourage them to have direct involvement in decision-making and risk management actions. This includes giving communities a bigger say in what action is taken, greater responsibility for managing their own risks and decisions on local funding priorities, and as a result greater accountability for the level of safety and protection achieved and the way in which the risks are managed.

The aim is to ensure that decision making and ownership of risk management measures are as local as possible but also based on a consideration of the whole catchment and the national framework philosophies. In this way we can ensure a fair allocation of funds and avoid the transfer of risk elsewhere without prior agreement. [Lead Local Authorities](#) will have a coordinating and strategic role, taking on board the input of other local bodies and communities through consultation and public scrutiny and overview proceedings. To do this they will need to work closely with Regional Flood and Coastal Committees.

Communities living and working in areas at risk should be represented within any local flood risk management partnerships that are formed, for example through attendance by members of local flood action groups. They should also be involved in community resilience initiatives. Lead Local Flood Authorities, working together with Regional Flood and Coastal Committees, will also be able to consider how both the costs and benefits of investment made as part of local flood risk management strategies should be spread between geographical areas, communities and sectors.

Involving representatives of communities at risk can help inform local decisions on what is needed and who should be asked to contribute towards the costs of investment, so that costs and benefits are shared fairly overall. Funding decisions will be less centralised than under the current system, and there will be a clear basis for local participation in shaping risk management via consultation on local strategies and Lead Local Flood Authority membership of Regional Flood and Coastal Committees.

Partnership working is also required to ensure that risk is managed in a co-ordinated way beyond authority boundaries, for example across catchments or along the coast, with Lead Local Flood Authorities working together collectively, for example in a similar way to the collaborative approach adopted by coastal groups, and as part of Regional Flood and Coastal Committees. By working in partnership with communities, risk management authorities will achieve clearer understanding of the issues, and be able to bring together those best placed to develop and provide solutions.

This will build on the accountability of Lead Local Flood Authorities and take advantage of the flexibility for risk management authorities to enter into agreements with others to carry out work on their behalf if they so choose. The key aims should include the identification of synergies and efficiencies and ways of maximising these, the development of better links with other related work, and the promotion of better sharing of information and expertise.

A catchment and coastal "cell" based approach

In understanding and managing flood and coastal risks locally, it is essential to consider the impacts on other parts of the catchment or coast. Activities must seek to avoid passing risk on to others within the catchment or along the coast without prior agreement. This agreement could, potentially, include the provision of funding by upstream communities for actions and measures carried out by others to manage downstream risks.

The catchment or coastal cell approach is also key to managing risks at source and achieving wider benefits through more integrated water management and increasing the opportunity for developing new sources of funding as well as pooling resources and expertise. Catchment flood management plans and shoreline management plans, or equivalent, provide an important building block for this co-ordination.

Sustainability

Flood risk and coastal erosion management authorities should support communities by managing risks in ways that take account of all impacts and the whole-life costs of investment in risk management. The risk management solutions should be forward looking, taking account of potential risks that may arise in the future and being adaptable to climate change. They should also work with natural processes where possible and enhance the environment.

More sustainable approaches to flood and coastal erosion risk management generally work with natural process and include managed re-alignment and upland grip blocking. These are often more resilient to extreme events and provide better value for money over the long-term than more traditional approaches based on structural or engineered, interventions. Both flooding and coastal erosion result from natural processes and can have positive benefits.

Much of the unique landscape and wildlife in England depends on a certain amount of flooding or coastal erosion. The relatively high proportion of Grade One agricultural land at risk of flooding is no coincidence, as the flooding of land with nutrient-rich sediment creates fertile soil. In many cases landowners are farming the flood plain, and in other areas land that has been reclaimed from the sea. Adopting more sustainable approaches to the management of flood and coastal erosion risks can greatly improve the environmental condition of rivers, wetlands, coastal areas, and the social and economic circumstances around and within settlements. [The Flood and Water Management Act \(2010\)](#) includes a requirement for Local Authorities, highways agencies and [Internal Drainage Boards](#) to contribute towards sustainable development and separate guidance is being provided by [Defra](#) alongside this strategy on how this may be achieved.

Proportionate, risk-based approaches

It is not technically, economically or environmentally feasible to prevent flooding and coastal erosion altogether. A risk-based management approach targets resources to those areas where they have greatest effect. Risk management measures consider both the probability over time of a flood or coastal erosion happening and the consequences that might arise if it did, for example by assessing the average annual damages that arise from floods or coastal erosion.

To do this the sources, pathways, receptors and consequences of risk need to be understood and addressed as appropriate to manage all of the factors that combine to create risk. Further detail on this approach is available in the [Guidelines for Environmental Risk Assessment and Management \(2000\)](#).

Such an approach involves using a tiered assessment i.e. starting at a high, screening level and in stages becoming more detailed to address the risks identified. It seeks to make risk management more straightforward, removing unnecessary barriers while ensuring that legal and Government policy requirements are met. All aspects of risk management should be carried out in a proportionate way that reflects the size and complexity of the risk and society's ability to manage it. Investment in managing risk, and who pays for it, should reflect the benefits that result.

Multiple benefits

As well as reducing the risks to people and property, flood and coastal erosion risk management can bring significant economic, environmental and social benefits. It can enhance and protect the built, rural and natural environments, cultural heritage and biodiversity by preventing loss and damage to habitats and heritage assets and reducing pollution, for example through the use of [Sustainable Drainage Systems](#). It can contribute to regeneration and income generation, protect infrastructure and transport links, and contribute to economic growth. It is important that communities are able to shape risk management actions to take account of local priorities, and that this is supported, where appropriate, by local contributions to achieve additional benefits that might not be possible otherwise.

This principle should also apply to other activities, for example development, land use or infrastructure planning where flood and coastal erosion risk management benefits may also be achieved alongside the main objectives. In all instances, flood and coastal risk management should avoid damaging the environment, including the historic environment, and wherever possible work with natural processes and always seek to provide environmental benefit, as required by the Habitats, Birds and Water Framework Directives.

This may include providing new habitats, which may not be directly linked to flood and coastal erosion risk management schemes, to compensate for those that are lost as a result of actions to protect people and property. Treasury policy guidance on funding, Defra policy guidance on environmental benefits, and the Environment Agency's [Flood and Coastal Erosion Risk Management Appraisal Guidance](#) gives more information on this and how it should be achieved.

Beneficiaries should be encouraged to invest in risk management

The benefits achieved when flood and coastal erosion risks are managed are in many cases localised and lead to personal or private gain through the protection of specific individuals, communities and businesses. They can also be public, through the reduction of future costs to society arising from incident recovery.

The private as well as public nature of the benefits suggests that costs should not fall to the general taxpayer alone. If they did, future plans would always be constrained by what Central Government could provide. Plans would also be subject to national controls to ensure value for money to the taxpayer, limiting the scope for local influence. If costs are borne by national budgets alone, there would be a lack of local incentive to take sensible steps to reduce risk where possible, to avoid actions that might increase it, and to keep the costs of risk management actions proportionate.

Overall, there is the opportunity for significantly more risk management activity to take place if alternative sources of funding can be secured in each area to reflect the local benefits that would be delivered. Any funding found locally can supplement the amounts available nationally and mean as many communities as possible can be protected.

In his [review of the summer 2007 flooding](#), Sir Michael Pitt suggested that better aligning beneficiaries with those that pay would create a more efficient and responsive system. To do this he recommended that 'Government should develop a scheme that allows and encourages local communities to invest in flood risk management measures'. He also said that developers, in potentially increasing local flood risk, should 'make a full contribution towards both the costs of building and maintaining the necessary defences.' In taking this recommendation forward, the Government has made clear that "we cannot continue all of the work that the Environment Agency has historically done at the taxpayer's expense. Government investment in flood and coastal erosion risk management is significant, but we need to ensure that we get best value for money".

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Responsibilities of Haringey Council

This section looks at what responsibilities Haringey has in connection with drainage and flooding.

- Clearing of gullies
 - [Click here for information on Haringey's gully cleansing programme](#)
- Maintaining an asset register and carrying out maintenance on these assets, such as [flood defences](#) and flood storage ponds
 - [Click here for Haringey Council's Asset Register and maintenance of flood defences](#)
- Carrying out duties under the Land Drainage Act
 - [Click here for Haringey Council's duties under the Land Drainage Act](#)
- Development Control
 - [Click here for guidance on Development Control](#)

[Click here for a Database of Drainage and Flooding Schemes undertaken in Haringey](#)

[Click here for Action Plans for each Critical Drainage Area within the Haringey](#)

Gully Cleansing Programme

“Haringey undertake an annual programme of routine gully maintenance and cleaning that is focused on the areas designated in the [Surface Water Management Plan](#) as [Critical Drainage Areas](#) and the gullies therein. All other gullies in the borough are maintained on a reactive basis should a problem be identified.”

Due to parked vehicles on most roads in the Borough, many gullies are not accessible to enable this important work to be undertaken. Our Contractors will visit on up to three occasions to attempt to gain access but, in many roads, gullies are simply not being maintained as we are unable to access them. To resolve this issue we now have a traffic order that enables us to suspend parking in the roads we intend cleansing. To limit the inconvenience to residents, we will not undertake gully operations in adjacent roads at the same time.

We are currently implementing new technologies into the gully cleansing operations to provide real-time information of gullies cleansed and any issues found. Data collected is uploaded into our asset database to inform future gully cleansing and capital drainage scheme work in the Borough.

[Asset Register](#) and maintenance of [flood defences](#)

It is important for us to have information on all the different parts of the system that have a role in dealing with surface water such as open watercourses, underground storage tanks and overflows, to name but a few examples. We are currently setting up systems to collect and store this information and when we have finished the work we will be able to provide information on where each item is, who owns it and what is its state of repair. We will also be able to show where each asset is on a map background.

The [Flood and Water Management Act](#) requires us as a [Lead Local Flood Authority](#) to maintain a register of structures and features likely to have a significant effect on flood risk in its area. The act also states that this register must be ready for inspection at all reasonable times.

Information on asset and flood defence maintenance information is being collated and stored by council and is available on request.

Haringey Council's duties under the Land Drainage Act

Haringey has responsibilities under the Land Drainage Act. See information on this below which has been extracted and summarised from the [Defra](#) website.

The Land Drainage Act 1991 requires that a watercourse be maintained by the owner of the land that it runs through in such a condition that the free flow of water is not impeded. Such a land owner is described as a [riparian owner](#). The riparian owner must accept the natural flow from upstream but need not carry out work to cater for increased flows resulting from some types of works carried out upstream, for example a new housing development.

- [Link to Land Drainage Act \(1991\)](#)

If a riparian owner fails to carry out his responsibilities under the Land Drainage Act, or if anyone else causes a watercourse to become blocked or obstructed, Haringey has powers of enforcement by serving a notice under the Act. If this is ignored, the Council may carry out the necessary work itself and then recharge the person responsible (the riparian owner) for the full cost incurred. The person responsible may also be prosecuted for nuisance under the Public Health Act 1936.

- [Link to Public Health Act \(1936\)](#)

The 1994 Act amends the Land Drainage Act of 1991 in relation to the functions of internal drainage boards and local authorities.

- [Link to Amended Land Drainage Act \(1994\)](#)

The Environment Agency website provides lots of useful information on aspects associated with riparian ownership:

- [Know your rights and responsibilities](#)
- [Guide: Living on the Edge](#)

Development Control

For information on the Council's development control processes in relation to drainage issues follow the link below:

http://www.haringey.gov.uk/sites/haringeygovuk/files/developer_information_main_text_-_160519.pdf

[For Guidance on Planning Applications please click here](#)

Database of Drainage and Flooding Schemes undertaken in Haringey

This area of the drainage and flooding web pages lists the historic, current and future drainage and flooding schemes, in the Haringey.

Some examples of current and future known schemes in the borough are:

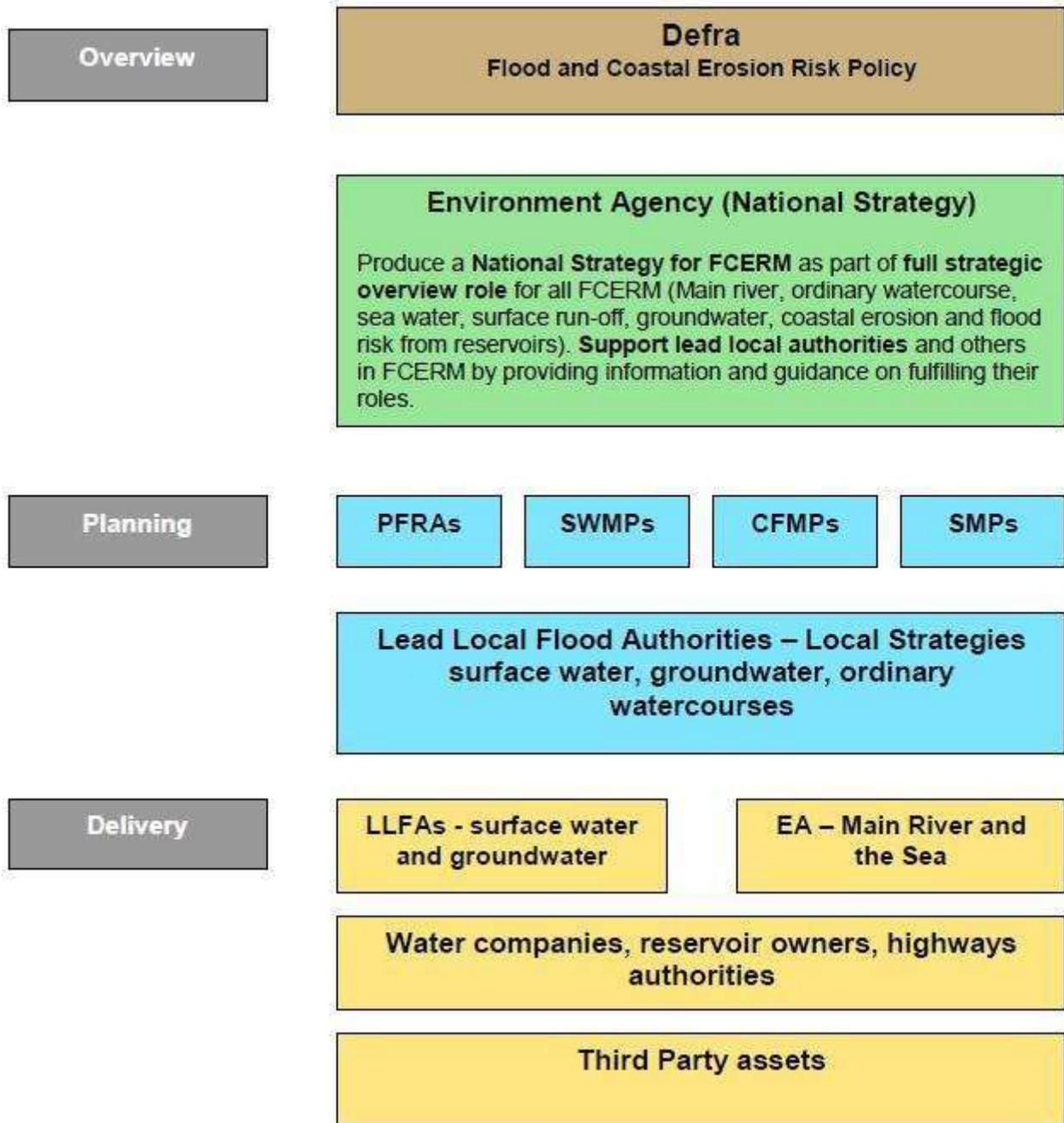
Date of Construction	The construction	Location	The Purpose
Unknown	Storage tank	Albert Recreation Ground	Flood Alleviation Scheme
Unknown	Storage tank	Aylmer Road	Flood Alleviation Scheme
Unknown	Storage tank	Priory Park	Flood Alleviation Scheme
Unknown	Storage tank	Woodside Park	Flood Alleviation Scheme
Unknown	Local online capacity upgrades	Throughout Haringey	Provide additional storage in the system
2014	SuDS scheme	Campsbourne Estate	Improve drainage and capacity
2016	SuDS scheme	Rectory Gardens	Improve drainage conditions and mitigate flooding
2017	SuDS scheme	Stonebridge Road	Improve drainage conditions and mitigate flooding
Currently under construction (late 2018)	SuDS scheme	Crescent Garden	Improve drainage conditions and mitigate flooding
Scheme to be constructed 2019/20	SuDS scheme	Queens Wood	Flood Alleviation Scheme

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This illustration shows where some of the key documents sit within the delivery of local flood and coastal risk management.



Taken from Haringey's Surface Water Management Plan

Acronym Definitions in the Illustration:

Preliminary Flood Risk Assessments (PFRAs)

Surface Water Management Plans (SWMPs)

Catchment Flood Management Plans (CFMPs)

Shoreline Management Plans (SMPs)

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