APPENDIX 1

London Borough of Southwark

Local Flood Risk Management Strategy 2023 - 2029

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Foreword

Over 2,000 properties are at a high risk of flooding from surface water within the Southwark borough. With the effects of climate change this number is likely to rise in coming years. It is vital that we invest and support the development of flood risk management within the Southwark borough to better protect people, property and the natural environment.

Collaboration between departments in Southwark Council, led by the Flood Risk Management Team, has meant that sustainable and innovative flood alleviation projects have been successfully delivered.

The Dulwich and Herne Hill areas experienced widespread flooding in 1984, 2004, and 2007. In 2015 a flood alleviation scheme was completed that provided £12m of economic benefit to the area, whilst protecting over 200 properties at risk of surface water flooding and 80 properties at risk of sewer flooding.

This Local Flood Risk Management Strategy sets out four strategic objectives which Southwark Council will follow to deliver improved flood risk management duties over the next six years. These are underpinned by core themes of flood risk awareness, collaboration and communication, socio-economic and environmental benefits, and climate change.

Our recently updated Surface Water Management Plan has refreshed our understanding of flood risk within the Southwark borough. This information has subsequently informed decisions taken for this Local Flood Risk Management Strategy, from which a detailed action plan has been produced which establishes 41 actions for delivery by Southwark Council and other risk management authorities to improve Southwark's flood resilience.

The Southwark Flood Risk Management Team will lead on the delivery of most actions however it is crucial that risk management authorities collaborate effectively to support the overall delivery of flood risk management.

Flood risk cannot be avoided completely but actions taken by individuals, businesses, community groups, and organisations can help to reduce damage and improve recovery.

We would like to thank colleagues across Southwark Council for contributing to the development of this Local Flood Risk Management Strategy. We would also like to thank the Environment Agency and Thames Water for their support in taking ownership of some actions within the Southwark borough.

Alongside this we would like to thank all those who have taken the time to respond to our public consultation and provided us with valued feedback which will be considered through the development and delivery of this Local Flood Risk Management Strategy.

Councillor James McAsh

Cabinet Member for the Climate Emergency, Clean Air and Streets

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Figures and tables

Abbreviations

Abbreviation	Definition
BNG	Biodiversity Net Gain
CDA	Critical Drainage Area
DEFRA	Department for Environment, Food and Rural Affairs
DLUHC	Department for Levelling Up, Housing and Communities
DWMP	Drainage and Wastewater Management Plan
EA	Environment Agency
FAS	Flood Alleviation Scheme
FCERM	Flood and Coastal Erosion Risk Management
FRMP	Flood Risk Management Plan
FRR	Flood Risk Regulations
FWMA	Flood and Water Management Act 2010
GiA	Grant in Aid
HRA	Habitats Regulations Assessment
JTS	Joint Thames Strategies
LFRMS	Local Flood Risk Management Strategy
LLFA	Lead Local Flood Authority
LoDEG	London Drainage Engineers Group
LPA	Local Planning Authority
MAFP	Multi-Agency Flood Plan
NFM	Natural Flood Management
PFR	Property Flood Resilience
PFRA	Preliminary Flood Risk Assessment
RFCC	Regional Flood and Coastal Committee
RMA	Risk Management Authority
RoFSW	Risk of Flooding from Surface Water
SEA	Strategic Environmental Assessment
SFRA	Strategic Flood Risk Assessment
Southwark borough	The geographical area known as the London Borough of Southwark.
Southwark Council	The Local Authority who governs the London Borough of Southwark.
SuDS	Sustainable Drainage Systems
SWMP	Surface Water Management Plan
TFA	Thames Flood Advisors
TfL	Transport for London
TWUL	Thames Water Utilities Limited
UGF	Urban Greening Factor

Executive Summary

Summary of LFRMS

The Local Flood Risk Management Strategy (LFRMS) presents how the Lead Local Flood Authority (LLFA) will deliver flood risk management in partnership with other stakeholders for the next six years, through a new set of four strategic objectives and 41 updated / new actions.

The four Strategic Objectives are:

A. To improve community awareness of local flood risks and the authorities responsible for managing them.
B. To collaborate with internal departments, organisations, authorities and partnership groups to support successful communication in managing flood risk.
C. To support development across Southwark encouraging the integration of SuDS within planning designs to promote sustainable multi-beneficial solutions that contribute to wider social, economic and environmental outcomes.
D. To apply knowledge on local flood risk to assist in improving Southwark's resilience to the impacts of climate change.

Southwark's LLFA is proposing a stronger focus on improving public understanding of flood risk and the RMAs who are responsible for these. There will be improved communication between RMAs and the public through partnership schemes and the delivery of website improvements and community engagement activities. In partnership with the LPA, the LLFA will be supporting resilient development across Southwark that addresses flood risk and the impacts of climate change.

The actions established in this LFRMS will be adaptable and will aim to align with any future changes in technical guidance and/or policy. This will ensure that an effective and resilient approach will be taken in delivering flood risk management.

Monitoring and reviewing

The LFRMS is typically updated every six years in line with Flood Risk Management Plans (FRMPs), although the LFRMS may require an update prior to this due to the following reasons:

- Significant changes in the LLFA's understanding of flood risk or flood monitoring practices.
- Significant changes in Government guidance / legislation.

An on-going review of progress in delivering the LFRMS will be tracked within an internal (Council only) version of the action plan. Periodic updates will then be published on Southwark Council's flood risk management webpages to show the progress of delivering these actions.

1. Introduction

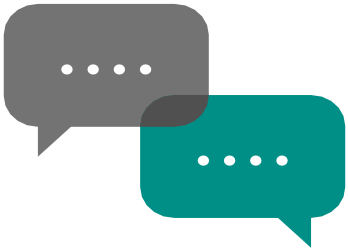
There are more than 5.2 million properties at risk of flooding and coastal erosion in England, as stated in the National Flood and Coastal Erosion Risk Management (FCERM) Strategy for England (2020). Flooding is dynamic and cannot be fully prevented, but there are methods to better manage and prepare the chance of flooding. Preparing for flooding is more necessary than ever with the growing pressures from climate change.

1.1 What is a Local Flood Risk Management Strategy?

The purpose of the Local Flood Risk Management Strategy (LFRMS) is to present how the Lead Local Flood Authority (LLFA) will deliver flood risk management within its administrative boundary. This is based on the local flood risk for the area and is supported by outputs from other strategic documents, such as the Strategic Flood Risk Assessment (2017) (SFRA) and Surface Water Management Plan (2022) (SWMP). In conjunction with the LFRMS a detailed action plan will be produced listing actions the LLFA will take to manage flood risk.

Southwark's LFRMS covers:

- The roles and responsibilities of authorities
- Southwark's local flood risk
- How the LLFA plans to support resilient local communities
- Sustainable flood risk management
- What Southwark Council has done to manage flood risk
- Actions for delivering flood risk management in the future



1.2 Why do we need a LFRMS?

The Flood and Water Management Act (2010) (FWMA) sets out the responsibilities and duties governing bodies must deliver. Under this legislation, Southwark Council is appointed as the LLFA for the Southwark borough. The LLFA is responsible for the management of surface water, groundwater, and ordinary watercourses (defined as 'local flood risks'). As part of this the LLFA has the statutory duty to update its LFRMS along with other strategic flood risk documents. This LFRMS replaces the previous Southwark LFRMS published in 2015. Further information on policy and legislation that inform the LFRMS can be found in *Appendix B1.*

1.3 How has the LFRMS been prepared?

The process of drafting a new LFRMS has involved workshops where a variety of Risk Management Authorities (RMAs) have contributed ideas and comments on the delivery of local flood risk management.

The LFRMS has been through a public consultation process where members of the public and other stakeholders had the opportunity to provide feedback. This took place in Summer 2023. Following this, appropriate actions were taken to amend the LFRMS and its associated documents.

1.4 Additional assessments

As the LFRMS is a local strategy, it must be assessed through Strategic Environmental Assessment (SEA) and Habitats Regulations Assessment (HRA) screening reports.

Strategic Environmental Assessment
The purpose of the SEA is to assess whether the proposed LFRMS strategic objectives and actions will pose any significant impacts to local environments or habitats. An SEA is required under the European SEA Directive (2001) which establishes five stages of assessment.

Stage A:	Setting the context and objectives, establishing the baseline and deciding on the scope.
Stage B:	Developing and refining options and assessing affects.
Stage C:	Preparing the environmental report.
Stage D:	Consulting on the draft strategy and the SEA report.
Stage E:	Monitoring the significant effects of implementing the strategy.

Appendix A2 presents the SEA screening report which completes Stage A and determines whether progression onto later stages is required.

Habitats Regulations Assessment
The purpose of the HRA is to determine if the proposed LFRMS strategic objectives or actions will pose any risks or implications to habitats and protected areas. This is required under the Conservation of Habitats and Species Regulations (2017). There are three tasks to a full HRA.

Task 1:	Screening. To check if the strategy, plan or proposal is likely to have a significant effect on a European site's conservation objectives.
Task 2:	Appropriate Assessment. To assess the significant effects of the proposal in more detail and identify ways to avoid or minimise any effects.
Task 3:	Derogation. To consider if proposals that would have an adverse effect on a European site quality for exemption.

Appendix A3 presents the HRA screening report which completes Task 1 and determines whether progression onto later tasks is required.

Figure 1-1 Photograph of flora and the Shard building in Southwark *(Credit: Southwark Council)*

1.5 The LFRMS strategic objectives

The LFRMS is required to produce a set of strategic objectives which will outline targets for the LLFA for the next six-year LFRMS period. Southwark's strategic objectives also align to the main objectives established in the National FCERM Strategy.

The Southwark LFRMS strategic objectives are presented in *Table 1-1* with the LFRMS Action Plan set out in *Appendix A1.*

Communication with stakeholders and delivery partners will be key to ensuring the effective delivery of the LFRMS actions. By providing updates on advancements in flood risk knowledge and the delivery of projects, Southwark's LFRMS will ensure communities are well informed and become more resilient.

The LFRMS aims to support the delivery of the National FCERM Strategy by following its three core objectives, which are:

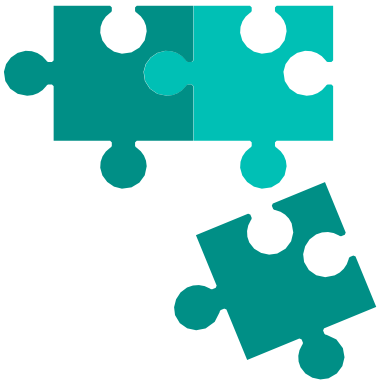
- Climate resilient places: working with partners to bolster resilience to flooding and coastal change across the nation, both now and in the face of climate change.
- Today's growth and infrastructure resilient in tomorrow's climate: making the right investment and planning decisions to secure sustainable growth and environmental improvements, as well as resilient infrastructure.
- A nation ready to respond and adapt to flooding and coastal change: ensuring local people understand their risk to flooding and coastal change and know their responsibilities and how to take action.

Table 1-1 Southwark Council's LFRMS strategic objectives 2023-2029

Objective A To improve community awareness of local flood risks and the authorities responsible for managing them.
Objective B To collaborate with internal departments, organisations, authorities and partnership groups to support successful communication in managing flood risk.
Objective C To support development across Southwark encouraging the integration of Sustainable Drainage Systems (SuDS) within planning designs to promote sustainable multi-beneficial solutions that contribute to wider social, economic and environmental outcomes.
Objective D To apply knowledge on local flood risk to assist in improving Southwark's resilience to the impacts of climate change.

2. Roles and responsibilities

2.4 How is flood risk management shared between authorities?



Many different RMAs assist with the management of flood risk, they can range from government organisations to private companies, and each have their own duties to perform before, during and after a flooding incident.

A summary of which RMA manages each type of flood risk within Southwark can be seen below in *Table 2-1.* There are also additional responsibilities involving drainage management duties which must be performed to assist in reducing flood risk. The RMAs responsible for these drainage management tasks are summarised in *Table 2-2.*

Table 2-1 Responsibilities of RMAs to manage different types of flood risk

Flood Risk Responsibility	Risk Management Authority		
	Southwark LLFA	Environment Agency	Thames Water
Fluvial flooding from main rivers & estuaries		✓	
Tidal flooding		✓	
Ordinary watercourses (small designated rivers)	✓		
Flooding from public sewers			✓
Groundwater flooding	✓		
Reservoir flooding		✓	
Surface water flooding	✓		

Table 2-2 Drainage management responsibilities of RMAs

Drainage Responsibility	Risk Management Authority		
	Southwark Council	Transport for London	National Highways
Highway drainage and asset management of major A-roads (Red Routes)		✓	
Highway drainage and asset management of motorways			✓
Highway drainage and asset management of other public roads	✓		

Southwark Council - LLFA

Southwark Council is one of the principal RMAs for managing local flood risk within the borough. The Council has many responsibilities and duties in managing flood risk which are shared across different departments. The Flood Risk Management Team have the following responsibilities as the LLFA, mostly under the FWMA:

- Prepare and maintain a LFRMS, consulting with local organisations and the public.
- Perform works to manage local flood risk in its authority area.
- Maintain an asset register, which is a record of features that have a significant effect on flooding in the area.
- Undertake flooding investigations when a significant flooding incident has occurred. The threshold criteria for when the Southwark LLFA will conduct a flooding investigation is presented in *Figure 2-1*.
- Regulate and maintain the proper flow of ordinary watercourses, including issuing consents and enforcing obligations on physical structures.
- Provide technical advice as a statutory consultee on surface water drainage proposals for major development to Southwark's Local Planning Authority (LPA).
- To assist the Southwark in its lead role in emergency planning and recovery after a flood event.

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

- Determine whether, in its opinion, there is a significant flood risk in its authority area, identifying the part of the area affected by the risk (flood risk areas) and detailing this within a Preliminary Flood Risk Assessment (PFRA).
- Prepare in relation to each relevant flood risk area (1) a flood hazard map, and (2) a flood risk map.
- Prepare a flood risk management plan in relation to each relevant flood risk area.
- Co-operate with any other relevant authority which is exercising its function under the FRR.

Southwark Council - Local Highways Authority

Southwark Council is also responsible for drainage issues affecting public roads, pavements and footpaths, such as blocked and broken gullies and drains. This applies to adopted highways in the Southwark borough which can be checked via the online mapping service here.

Flood Investigation Criteria

We are likely to carry out and publish a detailed investigation when the following criteria are met:

- If three or more properties (residential or commercial) flood internally* as part of a single flood event in the same location.
- If five or more properties (residential or commercial) flood externally (within property boundary) as part of a single event in the same location.
- If one or more properties (residential or commercial) flood internally two or more times within a 12-month period from the initial flood incident.
- If a section of Major Highway** or Major Rail Link becomes impassable.
- If a section of Minor Highway*** becomes impassable to emergency vehicles or Minor Rail Link becomes impassable.

** Internal flooding is defined where water enters the habitable part of a residential property. This excludes garages, outhouses, storage areas and gardens.*

*** Major Highway is defined as TfL operated roads (TLRN), Strategic Road Network (SRN), Principal Road Network and Distributor Roads.*

**** Minor Highway is defined as Unclassified Road Network including Local Access Roads and Private Streets.*

Figure 2-1 Southwark's Flood Investigation Criteria under Section 19 of the FWMA

Thames Water

Thames Water Utilities Limited (TWUL) is the clean water and sewerage provider within Southwark. TWUL has the responsibility to manage the risk of flooding in relation to water supplies and wastewater facilities. TWUL must also manage the flood risks posed from their infrastructure if it were to fail and ensure that public sewers are well maintained.

The Environment Agency

The Environment Agency (EA) is the national flood risk authority for the UK.

Large watercourses, categorised by the EA as main rivers, are under the EA's regulatory control however the EA also has strategic overview of all sources of flooding and coastal erosion as defined under the FWMA. There are no main rivers that flow through Southwark, although the EA is responsible for managing the risk of flooding from the River Thames which forms the northern border of the borough.

The EA has further responsibilities including:

- Delivering flood risk warnings in partnership with the Met Office.
- Producing flood risk maps and data.
- Managing the construction and maintenance of flood defences on main rivers.
- Consenting / enforcement of works near to or within main rivers.
- Producing guidance on Flood Risk Management Plans (FRMPs).
- Supporting other flood risk RMAs by providing resources and allocating funding from Government for projects.

Category One Responders

A Category One Responder has responsibilities under the Civil Contingencies Act (2004) when a major flooding incident is declared. They will be involved in managing and delivering the response, and include organisations such as:

- Southwark Council
- Emergency Services
- EA

Other organisations may also be involved depending on the circumstances of the incident, such as what the cause of flooding is. Southwark Council is required to produce a Multi-Agency Flood Plan (MAFP) which will present the emergency response Southwark Council will deliver in the instance of a major flood event. The MAFP defines major flooding as an incident where there is an extensive inundation of structures and roads. Further information can be found online here. London also has its own Strategic Flood Response Framework (updated June 2022) which provides strategic direction to London Responders before, during and after a significant flooding incident in London.

Transport for London

Transport for London (TfL) has the duty to manage the public transport network for London. Under this role TfL also has the responsibility to manage certain highway drainage and roadside ditches under the Highways Act (1980).

Landowners

Private landowners are responsible for taking measures to protect their own land and property from flooding. Any measures put in place must not inflict a greater negative impact on surrounding property / land by increasing their flood risk.

Riparian landowners have a duty to ensure that any structures on their land linked to neighbouring watercourses are clear of debris so that watercourses can flow naturally. Natural right of drainage is allowed however landowners must not artificially channel water in a way that will affect neighbouring property, and if a landowner has flood defences these must also be maintained correctly.

Additional guidance on how to manage a watercourse on a property can be found here.

Figure 2-2 Photograph of flooding at Herne Hill prior to FAS delivery *(Credit: Southwark Council)*

3. Local flood risk

3.4 What are the flood risks in Southwark?

Southwark is vulnerable to a variety of sources of flooding, which include:

- Flooding from surface water
- Flooding from rivers / tidal flooding
- Flooding from groundwater
- Flooding from sewers
- Flooding from artificial sources

Descriptions of each flood risk and how they affect infrastructure in Southwark are summarised below. For further detailed information please refer to the recently updated SWMP (2022) for Southwark.

You can check the local flood risk for your postcode area via the **check your long-term flood risk** tool

Flooding from surface water

The definition of surface water flooding is when rainwater cannot drain away quickly enough via existing drainage systems or into the ground through infiltration. This often occurs during times of intense rainfall, resulting in pooling or overland water flows. This is the most likely type of flooding for residents within Southwark to experience. As *Table 3-1* shows that 2,365 properties are at a high risk from surface water flooding.

Table 3-1 The total number of properties at risk of flooding from surface water during different expected rainfall events

	Total no. properties
1 in 30-year rainfall event	2,365
1 in 100-year rainfall event	7,130
1 in 1000-year rainfall event	23,880

Ordinary watercourses, such as the Albion Channel, are rivers which are not managed by the EA. These are instead the responsibility of the LLFA. The ordinary watercourses in the Southwark borough can be viewed within maps here.

Flooding from rivers / tidal influences

Flooding from rivers (also known as fluvial flooding) is when a river's capacity is exceeded, and the river's banks are breached by the excess water. The Southwark borough only has interactions with one main river, the River Thames, the risk of which is managed by the EA. The EA's statutory rivers map can be viewed here.

The risk of fluvial flooding is categorised into high, medium, low and very low, these can be checked online for a specific area here, and the chance of flooding for each risk level is summarised in *Table 3-2.*

Table 3-2 The percentage chance of flooding for risk levels

Risk level	% chance of flooding
High	Greater than 3.3%
Medium	Between 1% and 3.3% each year
Low	Between 0.1% and 1% each year
Very low	Less than 0.1% each year

Tidal influences have the potential to impact fluvial flooding in Southwark as the borough is within the tidal extent of the River Thames. This may occur when there are extremely high tides or storm surges which increase the amount of water being funnelled into the River Thames. This can then cause fluvial flooding. Southwark is protected by the Thames Barrier and other flood defences which help to protect infrastructure.

Flooding from groundwater

Instances of groundwater flooding occur when groundwater levels within aquifers rise to the surface. Southwark has several 'lost rivers' which are rivers which no longer exist on the surface but are still present underground. Areas near to these 'lost rivers' may be at greater risk of groundwater flooding at times of high groundwater levels or heavy prolonged rainfall.

Flooding from sewers

Sewer flooding occurs when the volume of rainfall entering the sewer is too large to be contained. This results in the sewers backing up, surcharging and creating overland flow. The majority of sewers in Southwark are combined (surface water and foul water within the same piped network) and are managed by TWUL. Sewer flooding may occur for a variety of reasons; these are explained within Southwark's SWMP along with further information on the number of sewer flooding incidents within the borough as recorded by TWUL. You can view where live combined sewer outflows have occurred using TWUL's online mapping tool.

Figure 3-1 Photograph of a blocked gully in Southwark
(Credit: Southwark Council)

Flooding from artificial sources

Artificial flooding happens as a result of infrastructure failure or human interaction, typical sources include reservoirs and canals. Certain areas of eastern Southwark are vulnerable to artificial flooding from reservoirs if there were to be a breach. Maps of Southwark's flood risks can be viewed here.

3.5 Flooding history in Southwark

Flooding history within Southwark is limited and there have not been many significant flooding events recorded since the previous LFRMS. In a twenty-year period between 2001-2021 there have been 102 flood incidents which the LLFA have on record. The recently updated SWMP (2022) includes further information on where flooding incidents have occurred, from a variety of flooding sources.

However, it should be noted that not all incidents of flooding are reported to the LLFA. It has been identified that residents are not always aware of where to report cases of flooding, therefore some flooding incidents may have been reported to other RMAs which the LLFA may be unaware of. In order for the LLFA to have a thorough overview of all flooding occurring within Southwark, it is recommended to always report incidents of flooding to the LLFA via the online reporting tool. This information can then inform locations for potential interventions and Flood Alleviation Schemes (FASs).

The LLFA is looking to improve its approach of working in partnership with other RMAs to support the improvement of communication across the flood risk management authorities within the Thames River Basin District. Strategic Objective B focuses on this and the proposed actions for this can be viewed in *Appendix A1*. Existing ways of how the LLFA already works in partnership across internal departments and external authorities is summarised in *Section 6.4.*

It should be noted that some areas of public green space in Southwark will flood occasionally as these areas help to manage flooding at times of high rainfall. Surface water flow paths may be redirected to channel water towards these spaces away from properties and infrastructure to protect them from flood water. Green spaces can recover quicker than a property following a flood and avoids costly fees which could be faced by property owners.

3.6 Climate change and flood risk

Southwark Council recently updated its Climate Change Strategy in July 2021. This document sets out a clear vision on how climate change targets will be delivered.

Priority 3 of the Climate Change Strategy, 'Thriving Natural Environment', aims to use improvements to natural spaces to support Southwark becoming a carbon neutral borough. Increasing tree coverage and green spaces can help to reduce flood risk by creating greater storage for rainwater via uptake in trees and greater infiltration to the ground through permeable surfacing.

Southwark Council's aim of becoming carbon neutral by 2030 is also something which the LLFA supports and looks to maximise opportunities within the delivery of FASs. Actions addressing climate change issues have been included under LFRMS Strategic Objective D and broadly aim to:

- To reduce carbon emissions, with the aim of being carbon neutral.
- To improve biodiversity by contributing to net environmental / biodiversity gain.

Beyond this the LLFA will collaborate with Southwark climate change leads to support the delivery of the Climate Change Action Plan where these actions relate to flood risk.

Climate change is also set to increase the risk of tidal flooding Southwark is vulnerable to from the River Thames. At present this risk is managed by the Thames Tidal Defence System which in its entirety includes:

- The Thames barrier and eight other flood barriers.
- Over 330km of walls and embankments
- Over 400 other structures such as flood gates, outfalls and pumps.

However these assets need to be regularly maintained and where this cannot be met there is a reduced standard of protection offered by the Tidal Thames Defence System due to asset deterioration and the impact of climate change.

To manage this the Thames Estuary 2100 Plan sets out an adaptive plan for different rates of sea level rise and monitors how the estuary is changing. Regular reviews of this plan enables an effective approach to maintaining and improving defences along the Thames Estuary against the effects of climate change.

Figure 3-2 Photograph of works notice for the London Bridge SuDS Scheme at Melior Street *(Credit: Southwark Council)*

4. Advice for residents

The National FCERM Strategy for England explains that the implementation of flood risk management strategies must be a collaborative approach and that everyone needs to support these actions. It is essential that individuals, communities, businesses, land managers and infrastructure providers help towards planning and adapting to future flooding and coastal change.

4.4 Being aware

The first step is for residents and property owners is to check their long-term flood risk using the online tool managed by the EA. Alternatively this information can be obtained by contacting the Floodline by telephone on **0345 988 118** or textphone **0345 602 6340**.
Residents can also check for flooding by using the EA's tool to see flood predictions for the next five-day period.

If the property is located within a Flood Zone it is recommended that the property owner and/or resident registers for Flood Alerts which is a free service. These alerts can also be registered for by contacting the Floodline on the numbers above. Basement and ground floor properties may be at greater risk of flooding, but upper floor properties could still be cut off by floodwater.

The National Flood Forum offers advice and support to people at risk of flooding. They can be contacted on **01299 403 055**.

Basement properties

Residential basement properties may be more at risk during a flooding event than a ground or upper floor property. It is therefore more important that residents are aware of their flood risk and take steps such as preparing an emergency flood plan. The Mayor of London produced a Flash Flooding leaflet which should be read by anyone living in a basement property. This leaflet includes information on how to be prepared for flash floods.

4.5 Property resilience

Although preventing all flooding is not possible, there are ways to mitigate the impacts of flooding. There are two main approaches that can be adopted when looking to protect a property these are:

1. **Resistance** –
   Aims to prevent water entering a building.
2. **Resilience** –
   Aims to reduce the damage that is done when water does enter a building.

There are a variety of measures that can be put in place to increase a properties resistance and / or resilience to flooding. These are often called Property Flood Resilience (PFR) measures but can be known under other names. Some simple PFR options include:

- Non-return valves fitted on drains and pipes
- Applying water resistant paints
- Fitting automatic anti-flood airbricks

The National Flood Forum also provide an independent directory - Blue Pages - of PFR products where you can find examples of PFR measures. Although these are not endorsed by the National Flood Forum and an informed decision by the property owner should be made. The Southwark LLFA strongly recommends always checking PFR certifications.

It is also important to consider external areas to a property and how non-permeable surfaces in driveways and gardens can increase flood risk. Property owners should consider de-paving areas or switching to permeable materials which allow water to seep into the ground. Options of green roofs for storing rainwater and providing biodiversity benefits could also be considered by property owners. The use of water butts to store rainwater can further contribute to flood resilience. This also supports other Southwark Local Plan objectives on reducing water usage (P67) through encouraging greywater recycling where possible.

Unused parking bays, small grassed areas, public realm areas and wide footways, and potentially roundabouts and traffic islands, could provide an opportunity for Southwark Council to put in place small scale SuDS. This will help to reduce flood risk and may also include updated planting improving amenity and biodiversity. If you think there is an opportunity near you, please contact the Flood Risk Management Team.

Property owners should also check if their insurance covers flood damage. Re-insurance after a flood can be difficult but schemes such as FloodRe can help with this. Insurance providers should be contacted directly to see if they offer additional support with flood risk insurance.

4.6 What to do before, during and after a flood

The EA has produced guidance on actions individuals can take before, during and after a flood. A summary of this advice follows in *Figure 4-1*, but full guidance can be found online here.

Figure 4-1 Summary of EA advice on what to do before, during and after a flood

4.7 How to report different types of flooding

As part of the update to Southwark's LFRMS the LLFA has revised how to report flooding incidents on the Southwark Council website. This is a simpler process which will enable the LLFA to improve its response to reports of flooding and develop more detailed records to support the selection of areas for future FAS. Full information on how to report incidents of various types of flooding is explained in *Figure 4-2.*

HOW TO REPORT A FLOOD

For blocked sewers, sewer flooding and burst water mains	**Thames Water** **0800 316 9800** **TWUL online reporting tool**
For surface water flooding, groundwater flooding and flooding from ordinary watercourses	**Southwark LLFA** **Flood reporting form**
For blocked or polluted rivers, flooding from the sea and flooding from main rivers	**Environment Agency** **0800 80 70 60 (24/7 service)**
For blocked private drains and flooding caused by private drains	**Property owner / Landowner**
For blocked drains and/or gullies on roads adopted by Southwark Council	**Southwark Highways** **Pothole/Street surface repair**
For blocked drains and/or gullies on highways managed by Transport for London	**Transport for London** **TfL Street care reporting tool**

Figure 4-2 Information on how to report different types of flooding

5. Guidance on sustainable solutions

5.1 Sustainable flood risk management

It is expected that as the climate changes, there will be a greater risk of flooding due to rising sea levels along with more extreme weather. It is therefore imperative that LLFAs are supported by the National Government to perform their duties and deliver flood risk mitigations to improve resilience for their Local Authority areas.

However, delivering effective FASs can also deliver other advantages, including biodiversity benefits, urban greening, and creating carbon sinks. Actions C10 and D3 aim to ensure that opportunities to support improvements towards Southwark's Urban Greening Factor (UGF) and Biodiversity Net Gain (BNG) are taken. The drivers behind the UGF and BNG help to further support the slowing of surface water and increase attenuation offering mutual benefits for flood risk and environmental improvement. These options will be given strong consideration and where possible adopted within the development of FAS. Sustainable flood risk management within Southwark should aim to achieve the following:

- Make informed investment decisions to reduce the numbers of people and property by targeting high risk areas that have the greatest risk of flooding.
- Utilise space in urban settings to increase water storage to slow the flow of surface water.
- Support successful SuDS that will reduce pressure on sewer systems, working to reduce flood risk and improve water and environmental quality.
- Share knowledge and information with the public on understanding flood risk and how they can take appropriate action to protect themselves, property and businesses.
- Produce effective actions to manage flood risk that can adapt to a changing climate.

Sustainable flood risk management is the responsibility of everyone, from the LLFA to an individual property owner. Flood risk cannot only be managed via LLFA FASs but also needs developers and property owners to make informed decisions when making alterations to help improve resilience within an area. This is why effective communication is crucial and action A4 of the LFRMS has been created to ensure the LLFA helps to improve public awareness and understanding of PFR.

5.2 Sustainable Drainage Systems

Sustainable Drainage Systems (SuDS) are designed to manage rainwater as close to the source as possible to relieve pressures on sewer systems by mimicking natural drainage via infiltration and attenuation. SuDS offer multiple benefits such as:

- Reducing flood risk.
- Managing air and water quality and pollution.
- Improving amenity spaces such as creating habitats, recreational areas, or places for biodiversity.
- Aiding groundwater and/or aquifer recharge.
- Improving local environmental education.
- Supporting successful development schemes through aesthetically-pleasing, greening design.

Examples of SuDS include:

- Water harvesting (water butts, blue roofs).
- Infiltration (soakaways, infiltration trenches).
- Detention or attenuation (bioretention, raingardens, retention ponds, geocellular storage).
- Conveyance (swales, conveyance channels).

Details of the various SuDS already installed in Southwark by the LLFA can be found in *Section 6.1* and proposed works in *Section 7.2*.

5.3 Natural Flood Management

Natural Flood Management (NFM) is a method of managing excess water in a way which mimics natural processes, helping to protect and restore the natural environment. NFM aims to reduce the peak flood flow by holding back or delaying water from moving through a system quickly in the event of excessive rainfall. NFM is often a more natural approach than SuDS sourcing more natural materials instead of manmade features.

There are four mechanisms of NFM which are:

1. Increasing flood storage: creating temporary areas where water can be stored during a flood event and then released slowly overtime, for example reconnecting functional floodplains and creating storage ponds.
2. Increasing catchment and channel roughness: increasing the resistance to water flows which will help to slow the flow, for example increasing planting and restoring river meanders.
3. Increasing losses: this means to increase the amount of water infiltrating into the ground or that is lost to the atmosphere via evapotranspiration, for example reducing soil compaction.
4. De-synchronising peak flows from tributaries: slowing the movement of water in one tributary compared to another to reduce the amount of water reaching a main river downstream at one point in time.

Further examples of NFM techniques have been collated by the EA to form an evidence base which highlights the implementation of NFM through case studies, demonstrating the benefits to flood risk management. Detailed guidance for practitioners is also provided within the NFM manual.

Although there are limited opportunities for large scale NFM projects within Southwark due to being a central London brough, it is important to highlight that small scale SuDS and NFM can still be delivered within urbanised development schemes, on private land and on Council-owned land. For example the Herne Hill FAS which saw the implementation of earth bunds and habitat creation in Dulwich Park and Belair Park, see *Section 6.1* for more information.

The Wildfowl and Wetlands Trust (WWT) has been allocated funding from the Thames RFCC to work with local authorities in the Thames region such as Southwark Council to provide expert advice on NFM. More information can be found here. The Southwark LLFA has engaged with the WWT and is exploring the potential for NFM across the borough.

5.4 Planning policy and planning applications

The LLFA's role

The LLFA has a statutory duty to review major planning applications. Clarification on what levels of development are considered a major and minor application for Southwark Council can be found here. The LLFA provide comments on the surface water drainage elements of the proposed development / scheme in addition to checking that appropriate measures have been proposed to manage any flood risks present. Where policy is being achieved the LLFA can recommend approval to the LPA, sometimes with planning conditions.

For major applications the LLFA will review:

- The drainage hierarchy set out in the London Plan (2021) is being adhered to ensure as sustainable features are being included, and that sufficient justification is provided, see *Figure 5-1*.
- Proposed runoff rates are equal to or as close to greenfield runoff rates as possible.
- Calculations are provided for greenfield, existing, and proposed runoff rates for return periods of: 1 in 1-yr, 1 in 30-yr and 1 in 100-yr rainfall events, and that an appropriate climate change allowance has been applied.
- The required attenuation storage volume to achieve the proposed runoff rate(s), and the proposed attenuation storage volume for the site, both supported by calculations.
- That sufficient maintenance tasks and frequencies have been stated along with a maintenance owner for the proposed features.

The LLFA is not a statutory consultee for minor applications and is therefore not required to undertake a review of these applications or provide any comments. Developments within areas the LLFA consider to be at higher risk of flooding are more likely to be reviewed. However it is at the discretion of the LLFA whether a minor application is reviewed, and this is likely to be dependent upon resourcing and funding.

The Government are considering the enactment of Schedule 3 of the FWMA (the 'SuDS Approving Body') which may change the way Local Authorities assess, approve and adopt drainage assets in the future. This is expected to come into force in 2024 and the LLFA will continue to contribute to how this should be implemented.

The developer's role

A developer is expected to meet the necessary policy requirements on sustainable drainage systems, these policies include:

- National Planning Policy Framework (Paragraph 159-169)
- Planning Practice Guidance
- London Plan (Policies SI 12 and SI 13)
- Southwark's Local Plan (Policy P68)
- Non-Statutory Technical Standards for Sustainable Drainage Systems

The LLFA has also produced a Developer's Guide for Surface Water Management which helps to establish what the developer must provide to the LLFA when making an application. Pre-application advice can also be sought from the LLFA by making the relevant enquiry via the LPA.

The LLFA requires applicants for all major developments to provide a Sustainable Drainage Proforma as also aligned with requirements of 32 other London LLFAs.

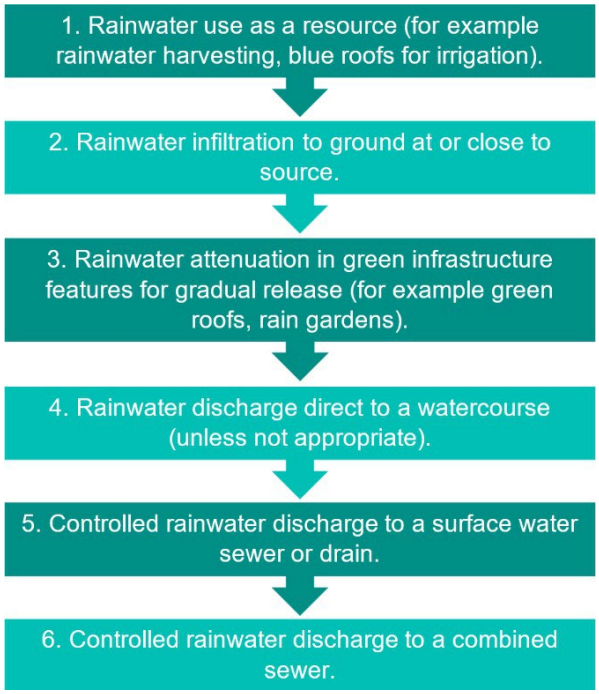


Figure 5-1 The drainage hierarchy as set out in the London Plan (2021)

6. What Southwark Council has done to manage flood risk

6.4 Flood alleviation schemes and SuDS work

The LLFA have been heavily involved with the delivery of various FASs across the borough in response to flooding reports. Through the successful application for funding, the LLFA has been able to deliver these schemes which have alleviated flooding in high-risk areas. Below are some key schemes that Southwark LLFA has completed since the previous LFRMS.

Further information on funding routes is explained in *Section 7.4.*

Herne Hill FAS (2015)

Location	SE21 7EB & SE21 7JH
Feature	Attenuation tanks and detention basins
Details	This FAS was implemented in response to widespread flooding that affected the Dulwich and Herne Hill areas in 1984, 2004 and 2007. The scheme involved the construction of earth bunds and the installation of attenuation tanks across three sites: Dulwich Park, Dulwich Sports Ground and Belair Park. It is estimated that the scheme provides approximately £12m of economic benefit, protects over 200 properties at risk of surface water flooding, and protects 80 properties at risk of sewer flooding. In addition to flood benefits, the scheme included the creation of wetlands and wildflower meadows which enhanced local habitats and biodiversity. This scheme was funded by EA Grant in Aid (GiA) funding and funding from TWUL.

Comber Road SuDS (2015)

Location	SE5 0EW
Feature	Swales and permeable paving
Details	A small swale and an area of permeable paving were installed outside Laing House. This scheme was funded by Southwark Council and the GLA.

Keppel Road SuDS (2018)

Location	SE1 0FB
Feature	Raingardens
Details	A small-scale SuDS project consisting of three small raingardens along a previously underused alley. This scheme was funded by the Better Bankside project and Southwark Council.

Coleman Road FAS (2019)

Location	SE5 7TF
Feature	Attenuation tank
Details	This scheme involved the installation of a new surface water pipe which discharges into a large attenuation tank under the playground of St George's C of E Primary School. This scheme received EA GiA funding and was also funded by TWUL and the Southwark Council Community Infrastructure Levy.

Greener Delawyk SuDS Retrofit (2019)

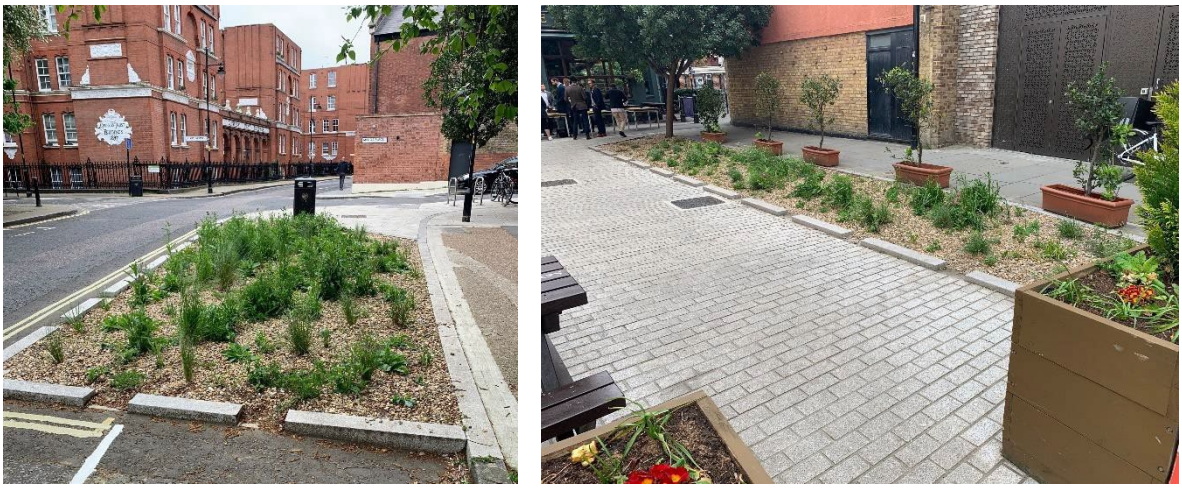
Location	SE24 9JE
Feature	Raingarden, permeable paving, and de-paving
Details	This scheme made use of several multifunctional SuDS features to create greener, more pleasant spaces for the local residents. An existing roof rainwater downpipe was diverted into a new raingarden, a small area of permeable footway was installed, and existing areas of hardstanding were de-paved and replaced with a lawn / wildflower meadow. This reduced surface runoff to the sewer system, and also enhanced biodiversity and improved air quality. This SuDS retrofit was funded by the GLA Greener City fund, and the Southwark Council Cleaner Greener Safer fund.

London Bridge SuDS

This small-scale scheme is spread across three sites in the London Bridge Critical Drainage Area: Melior Street, Snowsfields, and Lewes House.

The raingardens and planters will intercept highway runoff and slow its flow into Thames Water's historic combined sewer system which is at capacity.

The scheme also sits within the Team London Bridge Business Improvement District and Team London Bridge provided funding and support to the project.



Rain gardens at Snowfields (left) and Melior Street (right) *(Credit: Southwark Council)*

6.5 Strategic updates

Since the previous LFRMS both Southwark's SFRA and SWMP have been updated. These are to reflect changes in legislation and updates to modelling of flood risk that have since taken place.

Strategic Flood Risk Assessment (2017)

A SFRA is required under the National Planning Policy Framework to support developers and other stakeholders in considering flood risk when making planning decisions. Southwark Council last updated its SFRA in 2017 and this should be updated periodically in response to updated modelling to maintain a comprehensive understanding of flood risk. The outputs of the SFRA are used by the LPA, developers, the EA and others to inform planning choices so that they effectively manage flood risk.

Thames Flood Risk Management Plan (2021-2027)

A FRMP establishes how RMAs will work together to manage flood risk. These cover a specific area and Southwark is covered under the Thames River Basin District FRMP. The first FRMPs were published in March 2016 and established a set of actions across England for 2015-2021. The majority of actions assigned to the Southwark LLFA were based off of the 2011 SWMP and have since been completed or are in the process of being updated.

Surface Water Management Plan (2022)

A SWMP is conducted to assess the Risk of Flooding from Surface Water (RoFSW) and its interactions with other types of flooding.

Southwark Council's previous SWMP (2011) identified Critical Drainage Areas (CDAs) which were high risk areas vulnerable to surface water flooding. Following updates to EA guidance the updated SWMP (2022) has adopted a catchment-based approach. This approach means that the whole Southwark borough is divided into basins, and these are then separated into subsequent catchments. These are calculated based on where surface water flows within Southwark.

Southwark's SWMP produced a ten-year action plan detailing how to manage the RoFSW and also produced a ranking of key areas (hotspots) where there is a significant RoFSW. These outputs will be used to inform where future FASs may be delivered.

Flood Risk Asset Register

The LLFA has updated its Flood Risk Asset Register in 2023. The aim of this was to identify and record all known flood management infrastructure. Maintaining an updated Flood Risk Asset Register is a requirement of the LLFA under the FWMA. The data collated in the Flood Risk Asset Register will be used by teams in Southwark Council, shared with other asset management organisations to identify gaps, and reinforce maintenance obligations.

Surface Water Modelling – Camberwell

With funding from the EA, the LLFA is has completed surface water modelling for the area of Camberwell. This area was identified to be of high-risk from surface water flooding based on the outcomes of the SWMP. The modelling will help to improve the LLFAs understanding of flood risk in Camberwell to inform FAS and SuDS interventions.

SuDS Opportunity Mapping

The LLFA has also completed an options assessment for SuDS opportunities across the Southwark borough. This analysis looked at a range of factors which may impact the feasibility of SuDS. The outputs show where the most suitable locations are within Southwark for SuDS to be delivered, primarily focusing on areas within Southwark's highways.

6.6 Technical updates

The Southwark LLFA maintains an efficient approach to ensuring that it contributes to the development of wider technical understanding on flood risk. This includes responding to consultations and reviews established by other RMAs on flood risk documents and/or modelling.

In recent years the Southwark LLFA has taken part in workshops and provided responses to the consultation on TWUL's Drainage and Wastewater Management Plan (DWMP). A DWMP is a document created by water companies to outline a collaborative long-term strategic plan highlighting the known and expected future risks to drainage and identifying solution strategies to mitigate.

The Southwark LLFA has is also supporting draft outputs of the EA's National Flood Risk Assessment (NaFRA 2) examining the levels of RoFSW and contributing the locations of recent FASs to feed into final model outputs. The EA are updating this modelling to provide enhanced technical detail in the flood mapping in the area, which Southwark can utilise to update its own technical knowledge, addressing Strategic Objective A of this LFRMS.

6.7 Partnership working

Thames Regional Flood and Coastal Committee (RFCC)

RFCCs are established by the EA under the FWMA and bring together members who have been appointed by Local Authorities and independent members. Each RFCC has the following three main purposes:

- To ensure there are coherent plans for identifying, communicating, and managing flood and coastal erosion risks across catchments and shorelines.
- To encourage efficient, targeted and risk-based investment in FCERM that represents value for money and benefits local communities.
- To provide a link between the EA, LLFAs, other RMAs, and other relevant bodies to build an understanding of flood and coastal erosion risks.

South-Central Flood Partnership Group

The South-Central Flood Partnership Group is led by the Southwark LLFA. This is a strategic flood partnership group meeting between the Southwark and Lambeth LLFAs. Members from the Thames Flood Advisors (TFAs), EA and TWUL are also invited to attend. These are quarterly meetings which allow for the sharing of advice and technical knowledge between RMAs to support the effective management of flood risk for the South-Central London Region.

Neighbouring boroughs also play a significant role in impacting Southwark's flood risk. Where FASs are completed in locations up-stream of Southwark the outcome is that surface water flows into Southwark will be reduced, helping to lower the risk of surface water flooding. Potential schemes and drainage management processes that could benefit from cross-borough working are encouraged through this forum.

London Drainage Engineers Group (LoDEG)

LoDEG is an organisation which supports the 33 London Councils in their responsibility for managing flood risk and highway drainage. Quarterly meetings are held and are attended by LLFAs, EA, TWUL, TfL, TFA and others. These meetings serve to share and inform on flood risk management and also raise issued faced by flood risk RMAs.

Southwark Biodiversity Partnership

The Southwark Biodiversity Partnership was established in 2004 and connects stakeholders who have an interest in biodiversity. This is led by the Southwark Ecology Team and has quarterly meetings to discuss challenges and opportunities. The Southwark LLFA has recently joined this partnership with the aim of improving how biodiversity is integrated into FASs.

London Resilience Group

The Southwark Emergency Planning Team lead this group and regularly meet to review and discuss the variety of risks facing London. The Southwark LLFA sits within this group and supports feedback on flooding incidents and how flood risk is being managed within Central London.

Joint Thames Strategies

The Joint Thames Strategies (JTS) are an approach set out from the TE2100 Plan which supports an integrated landscape planning approach for the River Thames. There are currently three strategies which are preparing to undergo review and updates as part of the JTS refresh. There is however an area in Central London not yet covered by a landscape strategy and the Southwark LLFA is working with other boroughs within this area to help produce a new strategy and bridge this gap.

7. What Southwark Council is planning to do to manage flood risk

7.4 New action plan

One of the tasks of creating a LFRMS is to produce a new and updated action plan. This is a set of actions linked to each of the strategic objectives and contains specific task areas that the LLFA will be working towards in delivering the LFRMS for the next six-year period (2023-2029).

To produce the LFRMS action plan, a workshop has been carried out with the relevant internal and external stakeholders to discuss their roles in delivering joint actions with the LLFA. Feedback from this workshop has been reflected within the LFRMS and its action plan to ensure that responsibility is taken for each of the actions and that resource is available from each of the stakeholders. These stakeholders have also had the opportunity to review these actions during the public consultation of the LFRMS.

The new action plan can be viewed in *Appendix A1*. The action plan contains action and delivery specifics, and programme details. Delivery details will note who the lead RMA is and if there are any partner RMAs for the action. The programme estimates the timescale for delivering the action and its current status. There is also additional information provided on where each LFRMS action links to relevant legislation and policy.

7.5 Flood alleviation schemes

In conjunction with delivering the LFRMS action plan the LLFA aims to deliver a number of FASs in areas at high risk of flooding. These will be selected based on recent strategic updates and modelling as well as areas where significant numbers of flood reports have been received, highlighting the experienced flooding within the area.

Astley House

Location	SE1 5HU
Feature	Detention basin
Details	This scheme will disconnect the existing roof downpipes on the Astley House building from the sewer and divert surface water flows into a new detention basin, before re-connecting back to the Thames Water sewer. This is to slow the flow of rainwater during storm events. The project is being funded by Southwark Council and Thames Water.

Feasibility Studies

The LLFA is undertaking an assessment of Southwark's flood risk information to identify potential sites for future schemes. This is taking into account work completed from the SWMP and the recent modelling and SuDS opportunity mapping. Bringing together the recent strategic updates will allow the LLFA to prioritise SuDS / NFM / FAS interventions in the most appropriate locations to reduce the flood risk to Southwark residents, properties and businesses. The delivery of future schemes will feed into various actions in the LFRMS Action Plan and also supports wider objectives, such as those in the FRMP.

Lost Peck Flood Alleviation and Environmental Improvement Scheme

The Lost Peck FAS aims to provide flood storage in the Peckham Rye Park & Common in order to protect properties from flooding that lie along the Lost Peck River flow path (flowing south to north).

The scheme involves the construction of earth bunds to create two large detention basins.

It is estimated that this FAS will reduce the flood risk for 282 properties, 111 of which will move from a higher flood risk band to a lower one.

The project is predominantly funded by the Environment Agency.

Areas of Peckham Rye Park where the Northern bund (left) and Southern bund (right) will be cosntructed *(Credit: Southwark Council)*

7.6 Key stakeholders

Throughout the process of delivering this LFRMS internal and external RMAs have been made aware of key milestones and have had the opportunity to provide comments and suggestions towards the LFRMS. Stakeholders have been involved in various workshops to discuss what should be included within the LFRMS, and this feedback has been incorporated where agreed with the LLFA.

It is crucial to collaborate well between stakeholders as the delivery of the LFRMS action plan will include shared responsibility between RMAs for some actions.

Internal stakeholders

Internal stakeholders consist of Southwark Council departments / teams and representatives. These include, but are not limited to, Highways, Emergency Planning, Parks & Ecology, Climate Change Teams and the Local Planning Authority.

External stakeholders

External stakeholders include any individual or organisation that does not work within Southwark Council. This includes organisations such as the EA, TfL and TWUL, but also covers external representatives from the Thames RFCC and other working groups.

7.7 How will these actions be funded?

The LLFA will seek funding from a variety of sources to support the delivery of its LFRMS action plan and in the delivery of forthcoming FASs. Action B3 specifically looks to target funding by monitoring opportunities and evaluating the best options to pursue.

A major source of funding for LLFAs comes from the Department for Environment, Food and Rural Affairs (DEFRA) which provides funding through its FCERM GiA fund. To receive this funding the LLFA must complete an appraisal process which will test if the proposed scheme (or action(s)) will provide any of the following benefits:

1. Benefit properties at risk of flooding
2. Lessen the indirect impacts from flooding (for example, mental health impacts)
3. Achieve wider environmental benefits
4. Improve amenity of an area

LLFAs may apply for this funding to finance FAS design and construction and/or the preliminary feasibility / modelling studies. In conjunction with GiA funding, the LLFA can also apply for Local Levy funding. This funding is managed by the Thames RFCC, *Section 6.4,* and is raised through a levy on Local Authorities. Local levy funding is supported by the EA.

Other avenues of funding may include revenue provided by the Department for Levelling Up, Housing and Communities (DLUHC) which can help to fund general LLFA duties. It is usual practice for the LLFA to submit an internal business case to bid for the amount of funding they require from the DLUHC revenue funding because the funding is not specifically allocated for LLFA use.

There are also funding contributions which can come from developers. These include the Community Infrastructure Levy (CIL) and Section 106 monies. CIL allows local authorities to raise funds from developers undertaking new building projects in their administrative area. This money can then be used to fund a wide range of local infrastructure projects. Section 106 monies are another type of funding which comes from the Town and Country Planning Act (1990) and allows local authorities to seek financial contributions from developers towards the costs of providing community and social infrastructure, this as a result of increased demand due to a new development taking place. Both these sources of funding can support flood mitigation and alleviation schemes.

TWUL also offers funding for projects that will relieve capacity pressures on the TWUL-owned sewer system. The London Bridge SuDS Schemes delivered by Southwark's LLFA were successful in receiving TWUL funding. The EA also have additional funding pots available which prioritise additional environmental benefits, including water quality improvements, therefore it is important that the LLFA works closely with partners to prioritise bidding for funding which, if successful, will increase the likelihood of FAS delivery.

Funding is often seen as one of the most significant barriers to FASs which is why the LLFA is open to opportunities for funding or support towards schemes from third parties including benefitting property owners, community groups and charity organisations. Such routes are known as Partnership Funding, and the FCERM GiA process actively encourages its use to reduce the financial burden on public funding.

Appendix A1 – Action Plan

Appendix A2 – SEA

Appendix A3 – HRA

Appendix B1 – Legislation and policies

International	
EU Water Framework Directive (2000)	The EU Water Framework Directive (WFD), published in 2000, makes it a requirement for Member States of the EU to improve and maintain the state of all waters, including surface waters and groundwater. All waters are to achieve a "good" ecological status by 2015 or, at the latest, by 2027. The WFD request that water management plans are developed using a river basin approach. The WFD was adopted into UK law in 2003 and will become part of new UK law following the UK's departure from the European Union.
EU Floods Directive (2007)	The EU Floods Directive dictates how Member States should approach the flood risk management of all types of floods. A three stage process was to be followed. For the initial cycle, by 2011 Member States had to produce Preliminary Flood Risk Assessments (PFRAs) to identify areas where water courses and coast lines are potentially at risk of flooding. By 2015, mapping of flood risk areas showing the extent, assets and number or inhabitants at risk were created. By 2015, Flood Risk Management Plans (FRMPs) for areas at high risk of flooding were produced, including measures to reduce flood risk. The EU Flood Directive was implemented in UK law through the Flood Risk Regulations (FRR) (2009) and will be a continuing law following the UK's departure from the EU. The cycle restarted in 2016 and Southwark's LLFA have been involved in updates since.
IPCC Climate Change Report (2021)	The Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment Report aims to assess the physical science basis of climate change. The headlines from the 2021 report include predictions of +1.5^{O}C temperature change in the next two decades and that climate change is presently affecting every populated region of the globe.
National	
Civil Contingencies Act (2004)	The Civil Contingencies Act is a legislative framework for civil protection in the UK that establishes the roles and responsibilities on organisations that play a role in preparing for and responding to emergencies. Under the Act, Local Authorities and the EA are Category 1 responders. Some of the Local Authority's duties include putting in place emergency plans, sharing and co-operating with other local responders to enhance efficiency.
The Pitt Review (2007)	Following the extreme flooding that took place in the summer of 2007, a comprehensive review led by Sir Michael Pitt, known as the Pitt Review, was commissioned by the UK Government. The Pitt Review provided 92 recommendations to improve flood risk management in England, notably that County Councils, large metropolitan boroughs, and Unitary Authorities should take lead on the management of flood risk. The Pitt Review recommendations were accepted by the Government and initiated the creation of the FWMA.
Flood Risk Regulations (2009)	The FRR implements the EU Floods Directive in England. Flood risk management, as set out by the framework, requires the production of PFRAs, the identification of flood risk areas, mapping of such areas and FRMPs.
Flood and Water Management Act (2010)	The FWMA aims to provide better, more sustainable management of flood risk and coastal erosion along with improving the sustainability of water resources. The FWMA defines structures and responsibilities for managing flood risk, notably

	with the introduction of LLFAs which impart the role of managing local flood risk to County Councils, large metropolitan boroughs, and Unitary Authorities. The EA is appointed to hold the strategic overview role of all sources of flooding, in addition to managing the flood risk from main rivers and the sea. The FWMA also places a statutory duty on the EA to develop a NFCERMS for England, which all LFRMSs must align with.
UK 25 Year Environment Plan (2018)	The UK's 25 Year Environment Plan sets out the Government's plan to improve the environment within a generation. Key focuses of the plan include: (1) clean air, (2) clean and plentiful water, (3) thriving plants and wildlife, (4) reducing the risks of harm from environmental hazards, (5) using resources from nature more sustainably and efficiently, (6) enhancing beauty, heritage and engagement with the natural environment, (7) mitigating and adapting to climate change, (8) minimising waste, (9) managing exposure to chemicals and (10) enhancing biosecurity.
Flood and Coastal Erosion Risk Management Policy (2020)	The FCERM Policy Statement reflects the government's long-term ambition to increase the resilience to flood and coastal erosion risk nationwide.
National Flood and Coastal Erosion Risk Management Strategy (2020) NFCERMS Action Plan (2021)	The NFCERMS sets out a framework for RMAs involved in managing flood risk in order to increase the nation's flood resilience. The publication of the NFCERMS was followed by an Action Plan aligned with the long-term objectives of the NFCERMS.
National Planning Policy Framework (2021, revised)	The National Planning Policy Framework (NPPF) sets out the planning policies to provide sustainable development and is published by DLUHC. The NPPF provides guidance on developing Local Plans in line with national planning policies. These policies include avoiding and managing risks from flooding, in line with the role of LPAs to prepare local plans and to decide on planning application permissions. The NPPF is supported by Planning Practice Guidance (PPG), including the Flood Risk and Coastal Change PPG, which is revised as necessary.
Environment Act (2021)	The Environment Act is the UK's new framework of environmental protection since departing from the EU. It is intended to provide legal regulations on nature protection, water quality, clean air and other environmental protections. The Environment Act provides the Government with powers to set new binding targets, including for air quality, water, biodiversity, and waste reduction, and also establishes a new environmental watchdog – the Office for Environmental Protection.
Regional	
Thames Catchment Flood Management Plan (2009)	The Thames Catchment Flood Management Plan (CFMP) is a plan which helps RMAs such as the EA to plan and agree the most effective ways to manage flood risk in the future. A CFMP considers all types of inland flooding from rivers, groundwater, surface water and tidal flooding but not directly from the sea (coastal flooding) which is instead covered in Shoreline Management Plans. CFMPs also consider likely effects of climate change, land use change / management and the need for future development.
Mayor of London's Climate Change Adaptation Strategy (2011)	This Mayor of London's Climate Change Adaption Strategy sets out the framework for improving the quality of life in London and for protecting the natural environment. It provides an action plan for making London more sustainable by using three 'pillars': retrofitting London, greening London and cleaner air for London. The strategy presents the understanding of main climate change effects on London as well as analysing the effects on cross-sector issues including health, economy, and infrastructure. The strategy also provides a 'roadmap to resilience' outlining actions, with lead and partner organisations. Since then, the

	Greater London Authority (GLA) have also produced a London Environment Strategy (2018).
London Regional Flood Risk Appraisal (2018)	The London Regional Flood Risk Appraisal (RFRA) provides an overview of all sources of flooding in London and addresses both its probability and consequences. The evidence of the London RFRA subsequently informs the London Plan and should inform local-level flood risk assessments and local plans.
London Sustainable Drainage Action Plan (2021)	The London Sustainable Drainage Action Plan addresses a specific need to promote the awareness, and the retrofitting, of sustainable drainage systems right across London. It contains a series of actions to make London's drainage system work in a more natural way with the main focus on the retrofitting of sustainable drainage to existing buildings, land and infrastructure. Sector-specific sustainable drainage (SuDS) guidance has been developed as part of the London Sustainable Drainage Action Plan.
The London Plan (2021)	The London Plan is a general Strategic Development Strategy for London. Producing a Strategic Development Strategy is a requirement of the London Mayor established under GLA legislation. The London Plan establishes an integrated economic, environmental, transport and social framework for the development of London for the next 20-25 years.
Thames Estuary 2100 Plan (2023)	The Thames Estuary 2100 (TE2100) Plan was developed by the EA and provides strategic direction for managing flood risk in the Thames Estuary to the end of the century. The TE2100 plan is an adaptive strategy and is reviewed on an interim basis every five years and on a full basis every ten years. The plan considers different long-term options for managing tidal flood risk depending on changes in factors which determine the level of flood risk, including sea level rise.
Local	
Strategic Flood Risk Assessment (2017)	A SFRA is required by the NPPF and provides a strategic overview of all forms of flood risk within a designated area. A SFRA assesses the risk from all sources of flooding, the cumulative effect that development or changing land use could have, and the effect of climate change on the risk of flooding. A SFRA should also identify opportunities to reduce the causes and effects of flooding, including potential areas of land for flood risk management infrastructure. The SFRA provides guidance for the Local Plan, individual planning applications, future flood management, emergency planning and how to adapt to climate change.
Local Plan (2022)	The Local Plan is developed by the LPA and sets out a vision and framework for the future development of the area. Southwark Council's Local Plan sets out policy and guidance to manage growth and guide development within the Southwark borough. It addresses needs and opportunities in relation to housing, the economy, community facilities and infrastructure, as well as conserving and enhancing the natural and historic environment, mitigating, and adapting to climate change and achieving well designed places. The plan is made up of the combination of strategic policies, addressing important priorities for the Southwark borough, and non-strategic policies.
Surface Water Management Plan (2022)	A SWMP is a plan produced by LLFAs that presents the surface water flood risk for an area and forms a strategy on how to manage this with local partners. A SWMP considers flooding from sewers, drains, groundwater, and surface runoff from land, small watercourses and ditches that occur as a result of heavy and / or prolonged rainfall. The SWMP also includes a long-term action plan to manage surface water flood risk which will influence land-use planning, emergency planning and future developments. SWMPs also aim to identify SuDS opportunities to manage surface water flood risk which contributes towards the WFD requirements.