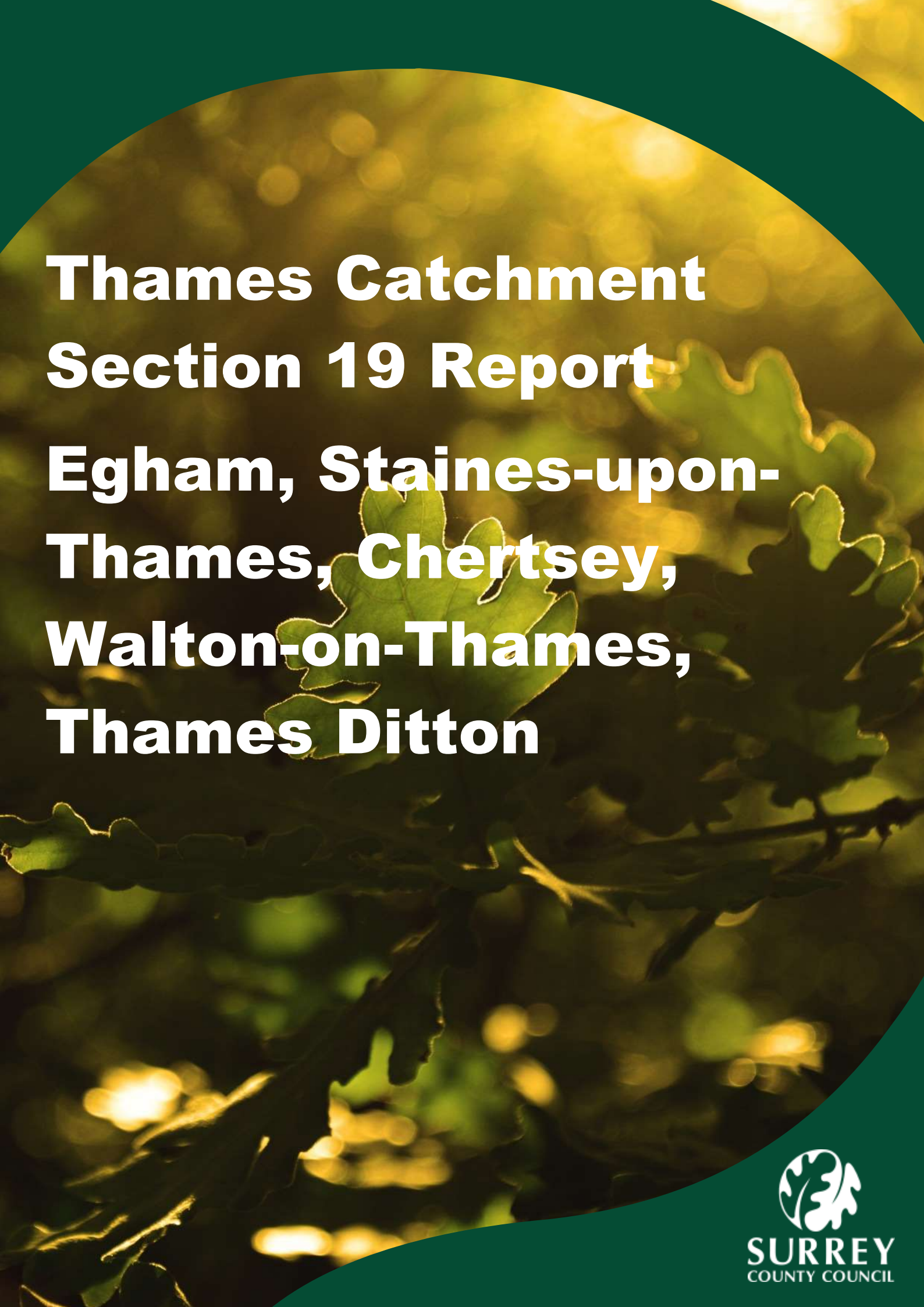
Thames Catchment Section 19 Report

Egham, Staines-upon-Thames, Chertsey, Walton-on-Thames, Thames Ditton



SURREY
COUNTY COUNCIL

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Introduction

Under the Flood and Water Management Act 2010 the Lead Local Flood Authority (LLFA) must (to the extent that it considers it necessary or appropriate) undertake an investigation upon becoming aware of a flood incident within its area.

An LLFA is defined under Section 6(7) of Flood and Water Management Act as being the county council for that area. Section 19(1) requires that the investigation determines the Risk Management Authorities (RMAs) that have relevant flood risk management functions and whether each of those authorities have exercised or propose to exercise those functions.

Section 19(2) requires that the LLFA publishes the results of its investigation and notify the relevant RMAs accordingly.

The purpose of this document is to summarise the results of the Section 19 investigations and clarify the cause and frequency of reported flooding within the River Thames corridor (see Figure 1) attributed to ‘Storm Henk’. It details the effects of the flooding in the catchment between 2 and 12 January 2024. It will outline which RMAs have a flood risk functions and whether these were used or are planned to be used.

Locations of the Investigations

This report addresses sites that flooded within the Thames corridor catchment. There are 17 sites in total, spread across 5 sub-catchment areas (see Figures 2, 3, 4, 5 & 6). There were approximately 129 incidents of internal property flooding and 354 incidents of external property flooding reported within the Thames catchment at the time of writing. This is likely to be an underestimation. See Table 1 below for the summary.

Location (sub-area catchment)	Internal Flooding Reports	External Flooding Reports	Total
Egham	13	53	66
Staines-upon-Thames	68	74	142
Chertsey	39	117	156
Walton-on-Thames	9	105	114
Thames Ditton	0	5	5
Total	**129**	**354**	**483**

Table 1: Sub area catchment reports of flooding

This report does not contain a comprehensive list of the Section 19 sites but supporting maps showing the sub-catchment areas in more detail are available.

Flood Incident

Weather Conditions

A major storm event, Storm Henk, hit the UK between the 2 to 12 of January 2024. The storm came from the Atlantic and was characterised by unusually large and deep areas of low pressure, which brought rainfall and very strong winds. The overall amount of rainfall recorded during January 2024 was slightly above the long-term average at 101%. Approximately 67% of the monthly total rainfall was accounted for on 1, 2 and 4 January together.

The additional runoff to watercourses which were already flowing at rates above typical winter maximum levels caused rivers to exceed channel capacities in a number of locations.

Data from the Environment Agency states that it was the wettest early winter period (October to January) since 2001 for a number of areal units in the south. It was also the wettest winter period since 2014 for the south-east as a whole. Generally, the winter rainfall averaged approximately 160% of the Long-Term Average (LTA).

Parts of North-West Surrey received an increase in the amount of rainfall that they would normally expect at this time of year. This caused wide-spread flooding across the Thames catchment from a range of sources which started with surface water flooding especially in the more built-up areas where drainage infrastructure was overwhelmed. The surface water flooding was exacerbated by the already saturated ground, with groundwater levels across the region at a high level. Fluvial flooding then followed several days after the rainfall with the Thames flooding out of its banks at several locations.

Catchment Conditions

The River Thames and several of its tributary’s flow through North-West Surrey, including the River Colne, the River Wey, the River Wey Navigation, the Addlestone Bourne, the Chertsey Bourne, the Meadlake Ditch, Sweeps Ditch, Rythe, the Mole, the Ember and the Abbey River.

During early January, flows at the groundwater fed indicator sites contrasted significantly with those draining impermeable catchments. As a result of the wet winter, the groundwater fed rivers had consistently high flows.

Figures 7, 8 & 9 (below) show the local rainfall data recorded at 3 gauging stations; Ham Island, Chertsey and Birch Green.
The daily rainfall totals achieved in January 2024 were not as significant as those seen during the Christmas Eve storm in December 2013 but, due to the ground already being saturated from previous rainfall events in the autumn and winter, the January 2024 rainfall caused the largest river flows which in turn caused the Thames to come out of bank in several locations.

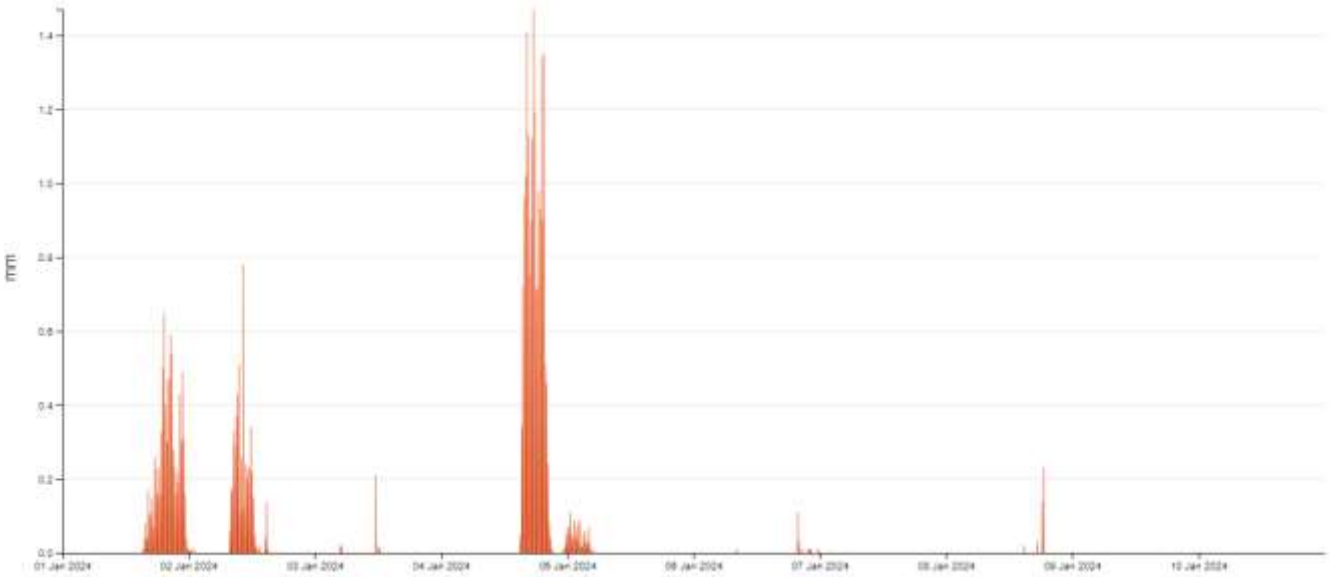

Figure 7 Ham Island Rainfall Data

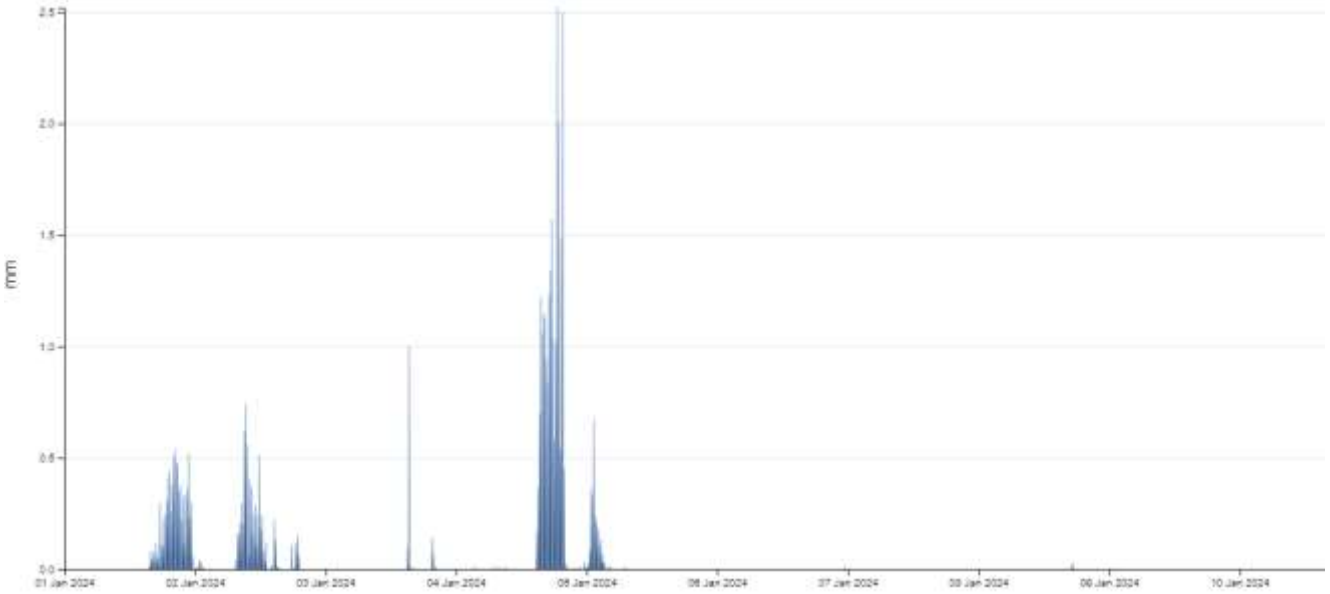

Figure 8 Chertsey Rainfall Data

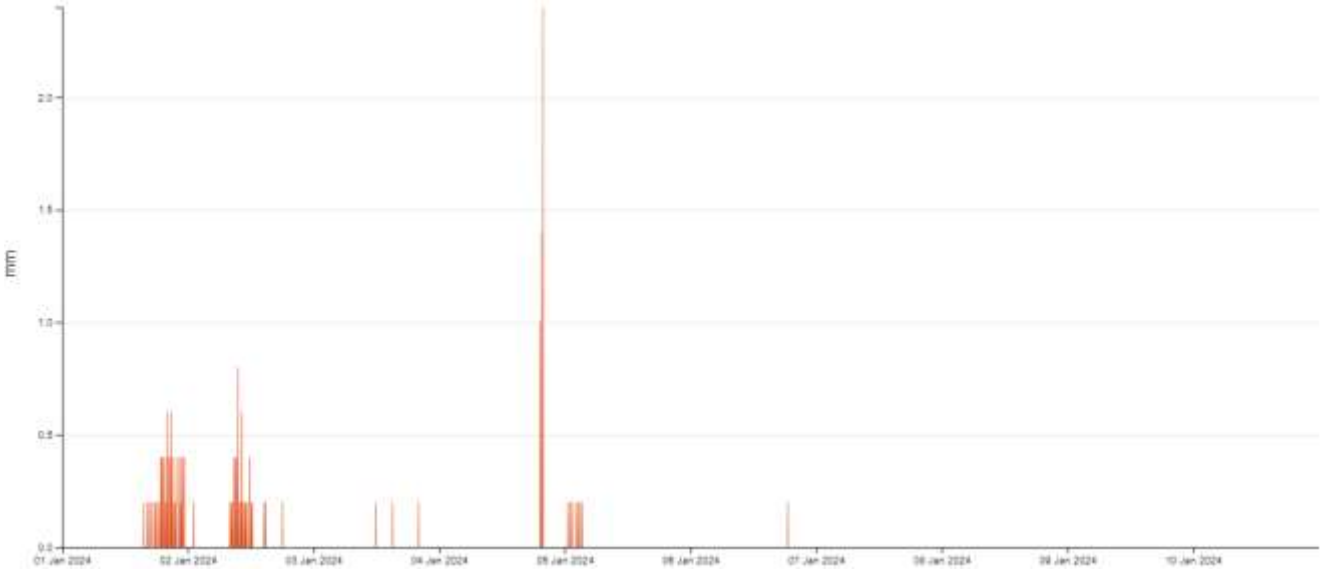

Figure 9 Birch Green, Staines Rainfall Data

Figures 10, 11, 12 & 13 (below) show the observed river levels for the River Thames at Bell Weir, Staines, Penton Hook and Thames Ditton Island for the same time span.

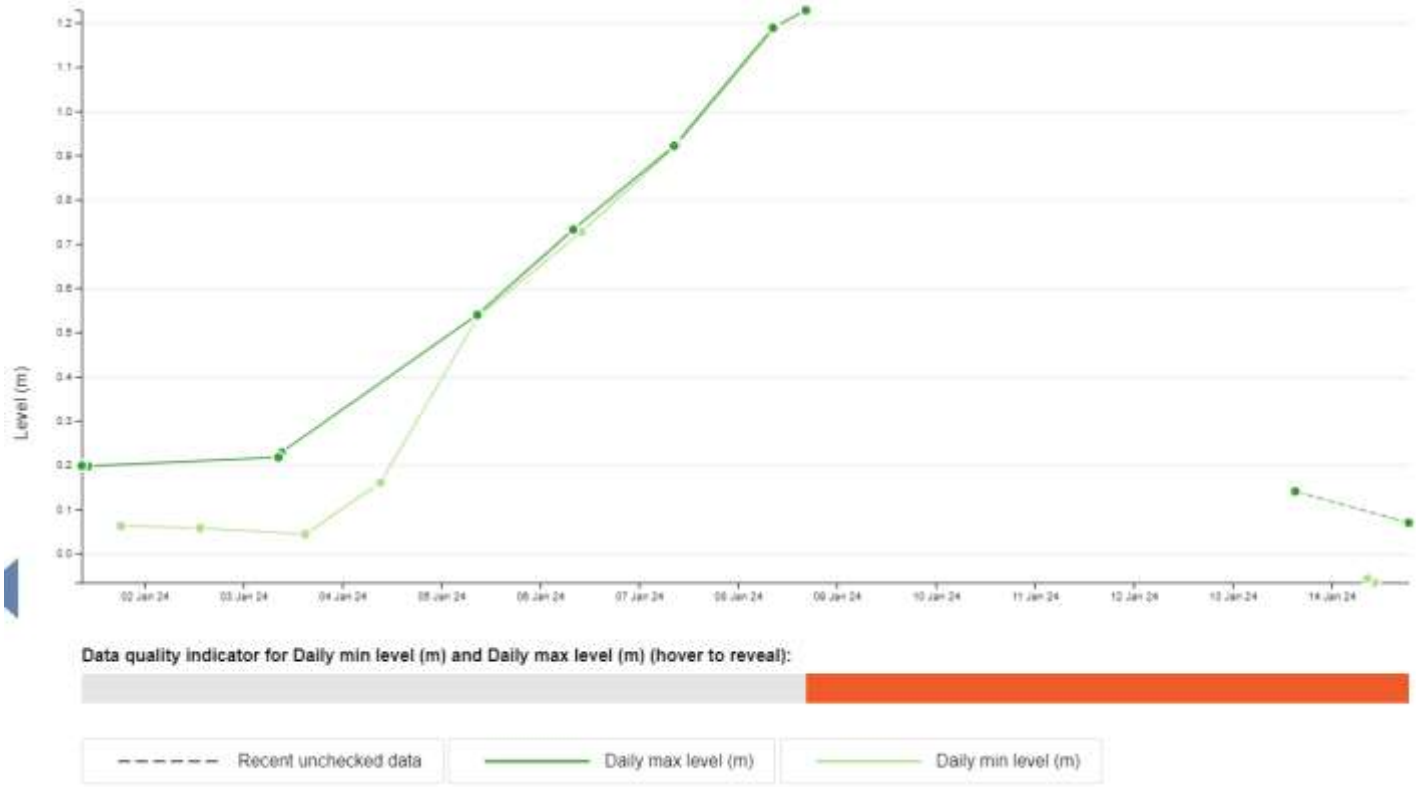

Figure 10 Bell Weir River Thames - Level Data

Figure 11 Staines River Thames - Level Data

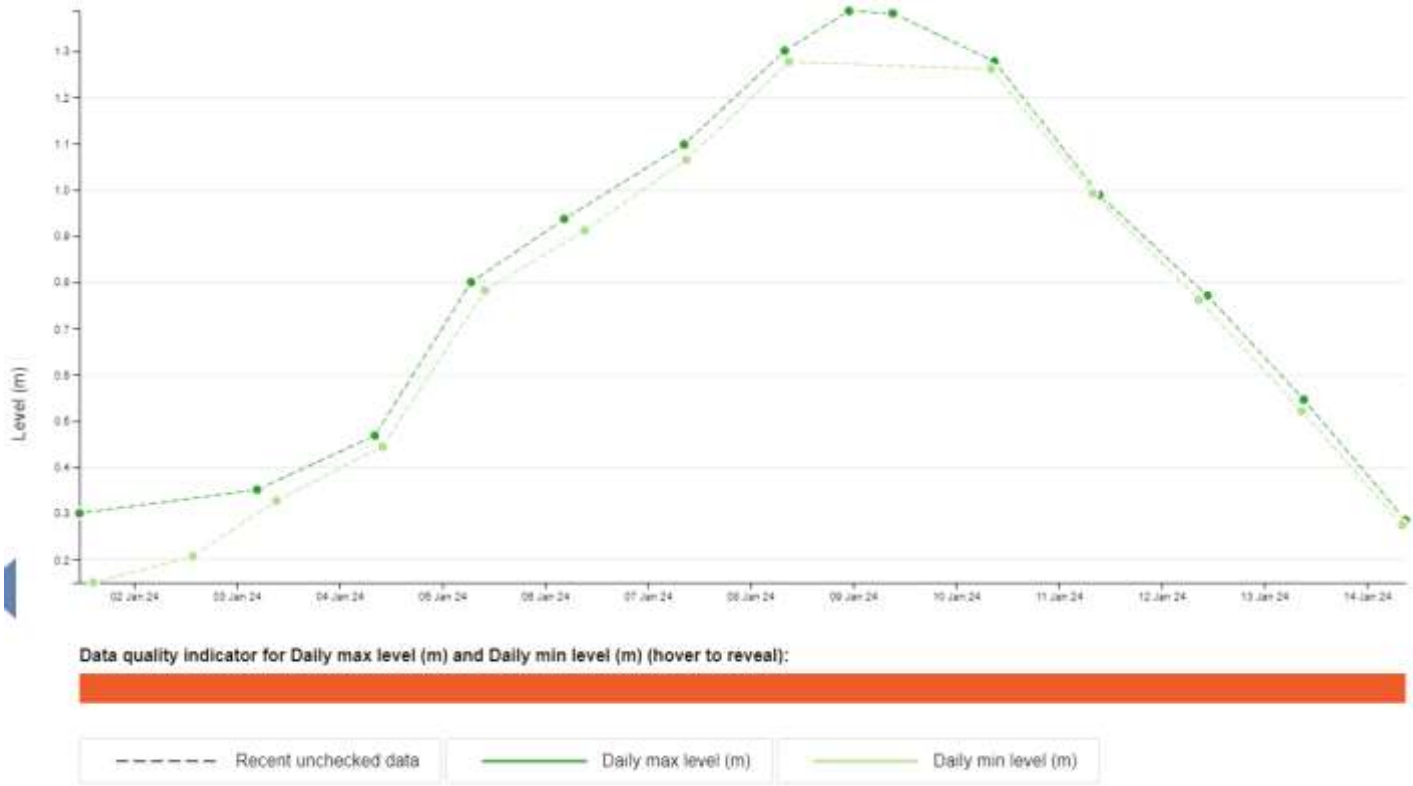

Figure 12 Penton Hook River Thames - Level Data

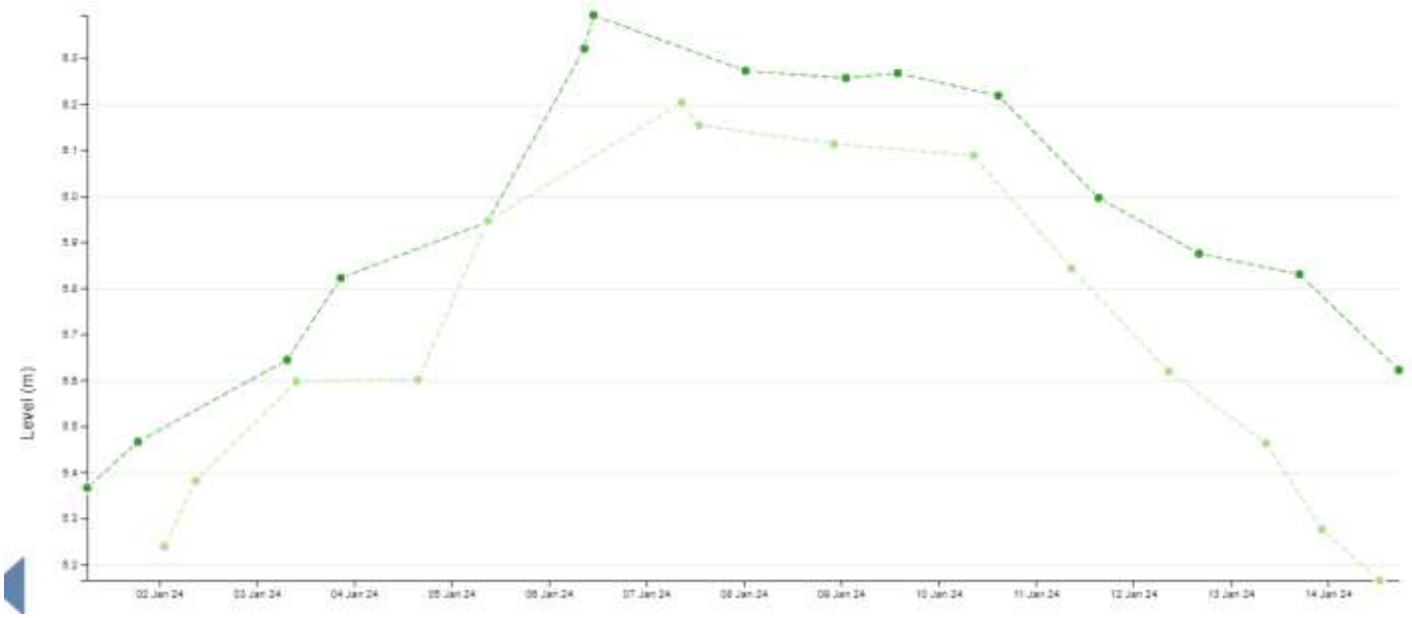

Figure 13 Thames Ditton River Thames - Level Data

Following the rainfall between 2-5 January 2024, the River Thames reached its highest point at Dachet to Teddington on the 10 January 2024. River levels steadily dropped during the rest of January, reaching pre-storm event flows on 14-15 January 2024.

Flooding from the River Thames caused wide-spread issues across Egham, Staines-upon-Thames, Chertsey, Walton-on-Thames and Thames Ditton and backing up in many of the tributaries.

The 5 sub catchment areas in are described in more detail below:

A. Egham

See Figure 2 for map of area. A very low-laying area on the south bank of the Thames, much of which is within Flood Zone 3 with the rest in Flood Zone 2.

To the south-west of the sub-catchment the land steeply raises, with any overland flow being conveyed north and north-east towards the Thames.

The M25 motorway splits the sub-catchment area, to the east is a fairly built-up area and includes the Mead Lake Ditch main river, a tributary of the Thames.

The bedrock geology is London Clay Formation a largely impermeable Clay, silt and sand with superficial deposits of Alluvium - Clay, silt, sand and gravel which can also be relatively impermeable.

B. Staines-upon-Thames

See Figure 3 for map of area. Downstream of Egham on the northern bank of the Thames. Staines-upon-Thames is similar to Egham with a lot of very low laying land. The catchment stretches down the Thames past Penton Hook and includes Laleham. Much of the catchment has predominantly been built over and falls within Flood Zone 3 and 2 covering the majority of the area with some small ‘dry islands’ at a slightly higher elevation.

The catchment contains a number of main rivers including the River Colne (including its tributary the Wraysbury River), the River Ash and Sweeps Ditch, all tributaries of the Thames.

The bedrock geology of Staines-upon-Thames is London Clay Formation a largely impermeable Clay, silt and sand with a mix of superficial deposits of Alluvium - Clay, silt, sand and gravel which can also be relatively impermeable and Shepperton Gravel Member - Sand and gravel. A permeable soil allowing groundwater to flow below the surface. Whereas Penton Hook and Laleham have a bedrock geology of Claygate Member - Sand, silt and clay, also largely impermeable with superficial deposits of Alluvium - Clay, silt, sand and gravel which can also be relatively impermeable and Langley Silt Member - Clay and silt as you move north away from the Thames.

C. Chertsey

See Figure 4 for map of area. Downstream of the Staines-upon-Thames catchment on the south bank of the Thames. The catchment is predominantly within Flood Zone 3. The area to the east of Chertsey town centre is less urbanised, with large areas of open land (predominantly flood plain).

Downstream of Chertsey the catchment of Chertsey Meads, Pharaoh’s Island, Hamnaugh Island, Lock Island and Hamm Court Estate. These areas are in very low-laying land on the north and south banks of the Thames.

There are several main rivers within the catchment, the Abbey River and the Chertsey and Addlestone Bourne all being tributaries of the Thames.

The bedrock geology is Bagshot Formation comprising of Sand which is relatively impermeable with superficial deposits of Alluvium - Clay, silt, sand and gravel which can also be relatively impermeable.

D. Walton-on-Thames

See Figure 5 for map of area. Downstream from Chertsey, the sub-catchment containing Shepperton sits on the north bank of the Thames is very low-laying land within Flood Zone 3 and 2 adjacent to the Thames. Shepperton is predominantly built up with the main town outside of Flood Zones 2 and 3.

Further downstream Walton on Thames is located on the south bank of the Thames and Upper Halliford/Sunbury on the north bank. Walton on Thames is a built up area at a higher level than the north side of the Thames, mostly outside of Flood Zones 2 and 3. Upper Halliford/Sunbury on the north bank are fully within Flood Zone 3 and 2 and are at a lower level than the south bank.

The River Ash runs through the catchment and is a tributary of the Thames.

The bedrock geology of Shepperton is the Claygate Member - Sand, silt and clay, which is largely impermeable with superficial deposits of Shepperton Gravel Member - Sand and gravel. A permeable soil allowing groundwater to flow below the surface.

The bedrock geology of Walton-on-Thames is Bagshot Formation (to the south) comprising of Sand which is relatively impermeable, and Claygate Member (to the north) which is Sand, silt and clay, also largely impermeable, with superficial deposits of Taplow Gravel Member - Sand and gravel. A permeable soil allowing groundwater to flow below the surface. Whereas, Upper Halliford/Sunburys bedrock geology is London Clay Formation a largely impermeable Clay, silt and sand, with superficial deposits of Shepperton Gravel Member - Sand and gravel. A permeable soil allowing groundwater to flow below the surface.

E. Thames Ditton

See Figure 6 for map of area. Downstream of Walton on Thames, is the sub-catchment of Thames Ditton, a built-up area on the south bank of the River Thames which contains large areas of Flood Zone 3 and 2. Thames Ditton is extremely low-laying adjacent to the Thames, which gradually increases in level further south.

Thames Ditton is located between the River Ember (including the River Mole) and the Rythe main rivers, both tributaries of the River Thames.

The bedrock geology is London Clay Formation a largely impermeable Clay, silt and sand with superficial deposits of Kempton Park Gravel Member - Sand and gravel over the majority of the area. These are normally permeable and allow the flow of groundwater below the surface.

Method

This investigation has been undertaken using a combination of desk and site-based studies to determine the causes and frequency of flooding, these are detailed within the individual annexes to this report which have been grouped together within the 5 sub-catchments detailed earlier.

Following these investigations and studies, meetings were held with other Risk Management Authorities including Thames Water, Environment Agency, Runneymede Borough Council, Spelthorne Borough Council, Elmbridge Borough Council, Surrey County Council Highways, National Highways and Network Rail to understand what other works and investigations have been undertaken since the flood event and any historic flooding in these locations.

Roles and Responsibilities

There are a range of Risk Management Authorities (RMAs) which together cover all sources of flooding.

The Environment Agency (EA) is responsible for taking a strategic overview of the management of all sources of flooding and coastal erosion in England and Wales. They have prepared strategic plans which set out how to manage risk, provide evidence (for example their online flood maps), and provide advice to the Government. They provide support to the other RMAs through the development of risk management skills and provide a framework to support local delivery. The EA also has operational responsibility for managing the risk of flooding from main rivers, reservoirs, estuaries and the sea, as well as being a coastal erosion RMA. Main Rivers are defined through a map which is updated annually. These tend to be the rivers which pose a significant risk to property in the country and the EA have permissive powers to carry out maintenance works on them.

Lead Local Flooding Authorities (LLFAs) are responsible for developing, maintaining and applying a strategy for local flood risk management in their areas. As part of this, the LLFA liaises regularly with the EA as well as the other RMAs. They need to produce reports when there is a reported flood, and they have to keep a register of flood risk management assets. They also have responsibility for managing the risk of flooding from surface water and groundwater.

District and Borough Councils can carry out flood risk management works on ordinary watercourses. Ordinary watercourses are rivers which are not designated as ‘Main Rivers’. Through the planning processes, they control development in their area, ensuring that flood risks are effectively managed.

Water and sewerage companies are responsible for managing the risks of flooding from their drainage systems, including both their surface water only systems and combined sewer systems.

Highway Authorities are responsible for providing and managing highway drainage and roadside ditches and must ensure that road projects do not increase flood risk.

Table 2 below summarises the RMAs responsible for the sites within the annexes of this report. The ticks indicate which authorities have responsibility for which function. SCC is the LLFA. Thames Water (TW) is the water company that has responsibility for all sources of sewer flooding. There are no IDBs within north-west Surrey.

Flood Source	EA	LLFA (SCC)	Borough/District Council (Runneymede, Spelthorne, Elmbridge)	Water Company (Thames Water)	Highway Authority (SCC, National Highways
Main River	✓				
Surface Water		✓			✓
Surface Water (on or coming from the highway)					✓
Surface Water (on or coming from the railway)					
Sewer Flooding				✓	
Ordinary Watercourse			✓		
Groundwater		✓			
Reservoirs	✓				

Table 2 Risk Management Authorities

Strategic Actions and Flood Risk Management Functions

RMAs have defined flood risk management functions under the Flood and Water Management Act (2010) and other various Acts. A flood risk management function is a function listed in the Act (or related Acts) which may be exercised by an RMA for a purpose connected with flood risk management. The annexes accompanying this report set out some of the strategic actions and relevant flood risk management functions that were carried out before, during and after the flooding that occurred across north-west Surrey and particularly in Runnymede, Spelthorne and Elmbridge during January of 2024.

All RMAs under the Flood and Water Management Act (2010) have a duty to cooperate with regards to their flood risk management functions, including raising awareness of flood risk and the sharing of information. Landowners also have riparian responsibilities under the Land Drainage Act (1991) to maintain and undertake any necessary works on assets on their land (with consent from the relevant RMA) which may have an effect on flood risk including watercourses and drainage assets.

Recommendations

Recommendations are not instructions and need to be examined by the relevant Risk Management Authority or individual and for them to make a decision on whether action the recommendation or not. The LLFA cannot require a third party to deliver a recommendation action.

The annexes accompanying this report each set out the recommendations for RMAs and residents. The options presented should be examined by the risk management authorities and residents to be assessed for their feasibility and financial viability.

List of Annexes

Annex A. Egham

- Green Lane, Egham, Runnymede
- Riverside, Egham, Runnymede

Annex B. Staines-upon-Thames

- Wheatsheaf Lane & Penton Hook Road, Staines-upon-Thames
- Riverside Close, Staines-upon-Thames
- Budebury Road, Staines-upon-Thames
- Commercial Road, Parkside Place, Knightsbridge Crescent
- Church Street, Staines-upon-Thames
- Guildford Street, Staines-upon-Thames
- Chertsey Lane including Timsway, Bundys Way & Mayfield Gardens

Annex C. Chertsey

- Hamm Court, Weybridge
- Ferry Lane, Towpath, Lock/Pharohs Island, Docketts Eddy Lane and Chertsey Road enclosed area
- Abbeyfields Park Home/Old Littelton Lane/Chertsey Bridge Road

Annex D. Walton-on-Thames

- Felix Lane/Ash Estates, Shepperton
- Wheatley’s Eyot and adjacent roads, Sunbury-on-Thames
- Las Palmas Estate and Desborough Island, Shepperton
- Fordbridge Road, Sunbury-on-Thames

Annex E. Thames Ditton

- Ditton Island and south bank of the River Thames, Thames Ditton