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Royal Borough of Windsor & Maidenhead

THAMES FLOODING

JANUARY 2024 - SECTION 19 REPORT

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Contents

EXECUTIVE SUMMARY

The flooding that occurred in the Royal Borough of Windsor and Maidenhead was widespread, resulting in significant impact to residential properties, businesses and infrastructure.

This flooding was the result of heavy rainfall occurring between the 2nd and 12th January across the Thames Catchment from Storm Henk. This significant rainfall was not able to be absorbed by the catchment due to weather over the preceding year being wetter than average. This meant that more water ran across the surface and through drainage features into the River Thames. This led to Thames levels increasing quickly and coming out of bank between Oxfordshire and Surrey, including the RBWM.

The Council has recorded a total of 271 properties as being impacted by flooding to any extent, with 94 properties being recorded as being flooded internally. The majority of these properties were flooded in 6 parishes: Hurley, Bisham, Cookham, Datchet, Wraysbury and Old Windsor. This mostly occurred between the 7th and 10th of January. As well as the property impact there were a number of road closures put in place causing disruption to local infrastructure. This included multiple roads in Cookham meaning the Cookham Causeway Plan was enacted.

The main cause of flooding was the significant rainfall across the catchment causing the River Thames to break its banks, flooding properties close to the river or in low lying areas where water flows through. In addition to this, groundwater was a significant cause of flooding and in some areas, this increased the severity and duration of flooding meaning that recovery from the incident was more difficult.

As with all flooding incidents there is significant learning to be achieved by Risk Management Authorities and communities into preparation and response. As such a number of Borough Wide recommendations have been made in this report. In all areas there were also more local factors which influenced the flooding for which local recommendations have also been made, tailored to specific issues in those areas.

INTRODUCTION

This report will describe the flooding experienced within the Royal Borough of Windsor and Maidenhead during the flooding from the River Thames in January 2024.

SECTION 19 FLOOD INVESTIGATION REPORT REQUIREMENTS

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 on becoming aware of a flood incident within its area.

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

Section 19(2) requires that the LLFA publishes the results of its investigation and notifies the relevant risk management authorities accordingly of the roles and responsibilities that apply to them for the incident that has occurred.

METHOD

This report has been developed through a combination of desk study, workshop and site work to identify the areas impacted by flooding caused by Storm Henk in January 2024.

DESK STUDY

The desk study undertaken uses a combination of historic datasets as well as real time gauge data to understand ground and weather conditions around and during Storm Henk. The data that has been utilised includes:

- Historic flooding datasets
- River level data
- Groundwater level data

To go alongside this, the property data recorded during the incident has also been mapped to show the extent and locations of the impacted properties.

WORKSHOP

Workshops have been organised with the impacted Parish Councils where representatives from the Parish Council and the community have inputted data into the report by annotating maps of their areas. The data collected includes:

- Flooding extents including sources of flooding if known.
- Flood flow directions
- Flood defence features such as local defences that provided protection during the incident.
- Other local points of interest.

The data collected was then digitised to be used alongside the property flooding data to identify data gaps or queries which could be answered through visiting the sites.

All property flood data has been collected in accordance with the Council's Privacy Notice.

SITE VISIT

Site visits have then been undertaken in those areas where data gaps have been identified as well as other points of interest relevant to causes and impacts of the flooding. The site visits have been undertaken by a Council staff These meetings have been a combination of door knocking and organised visits to speak with residents to discuss the flooding that has occurred around them and to verify the information already recorded. Due to the level of resource available, it was not possible to visit all areas where there was reports of flooding. As such the properties reported to have been impacted and the extents that have been mapped are to be used as indicative of the true impact of the flooding.

GAPS IN DATA

It is widely expected that there are gaps in the data that has been recorded. This can be for a number of reasons, most commonly that some residents will not have reported the impact of the flooding to their property. This can be due to fears of impact to insurance or mortgages, not wanting to share this information in case it impacts future house sales or simply not knowing who to report the flooding to.

The presence of gaps in the data recorded has been minimised through the process above, by engaging with stakeholders, including Parish and Borough Councillors, across the impacted areas to record as much knowledge as possible and then visit the sites where significant data gaps are present to identify methods of flooding. It is not possible to fill all gaps however as this would take significant resource and time to undertake.

REPORT STRUCTURE

This report will first set out the context of the flooding incident, giving a brief overview of the underlying flood risk data with more detailed information being located within the Appendices of the report.

The report will summarise the incident across the Borough before detailing the location specific issues, moving downstream, for each of the areas which have been identified. This will also detail location specific recommendations based on the relevant Risk Management Authority roles, responsibilities and functions. The report will then summarise the incident with information showing the overall impact across the borough with overarching recommendations which are not location specific.

LOCATIONS OF INVESTIGATION

This investigation report focuses on the 6 parishes which were primarily impacted by the flooding which occurred during and following Storm Henk in January 2024. These areas are shown in Figure 1.

While other areas were also impacted, most of the wider impact was not linked to the main sources of flooding that this report provides detail on. These other areas have been investigated individually with reports completed as part of business-as-usual work

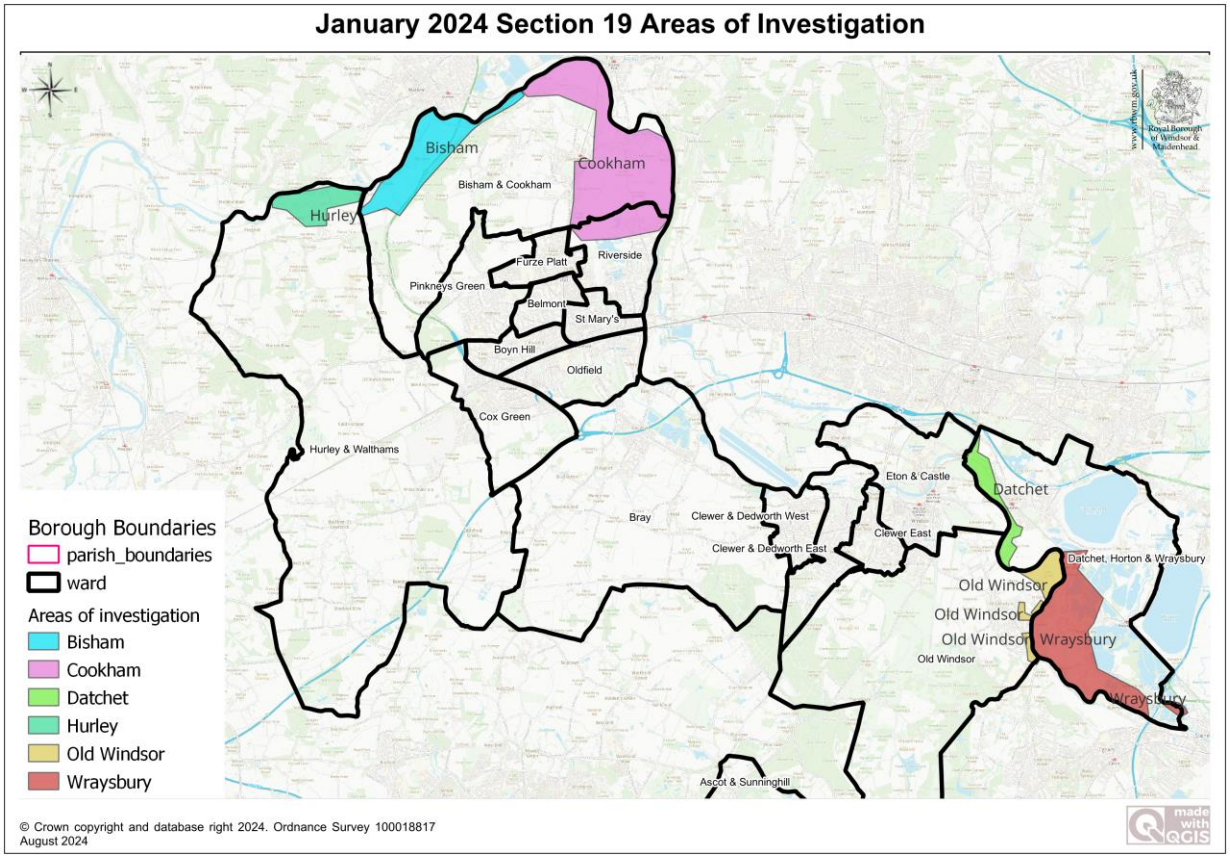

Figure 1- Map showing the areas investigated within this Section 19 Report

CONTEXT OF THE FLOODING INCIDENT

This section will set out the context of the flooding from the river Thames including ground conditions and rainfall before and during the flooding incident.

LEAD UP TO STORM HENK

The flooding incident from the river Thames that occurred in the Royal Borough in January 2024 was preceded by a sustained wet period across the entire Thames catchment over the 6 to 12 months before the flooding.

The Environment Agency publish Water Situation reports monthly and these provide detail of rainfall data and the groundwater situation on a National and Catchment basis. The reports for January and March 2024 have been used to inform this report as they contain details which provide context for rainfall and groundwater levels before and during the flooding incident in January 2024 and the preceding months. These reports are being used along with data retrieved from National Datasets for rainfall and groundwater levels in order to set out the ground and rainfall conditions for the Thames catchment before and during the flooding incident.

Rainfall

The months preceding January 2024 were recorded as being much wetter than the average rainfall over the whole Thames catchment back to the Summer of 2023. The Flood Situation Report for January 2024 shows that the rainfall nationally, including the Thames Catchment, have been either notably high or exceptionally high over both the 6 months and 12 months before the flooding incident.

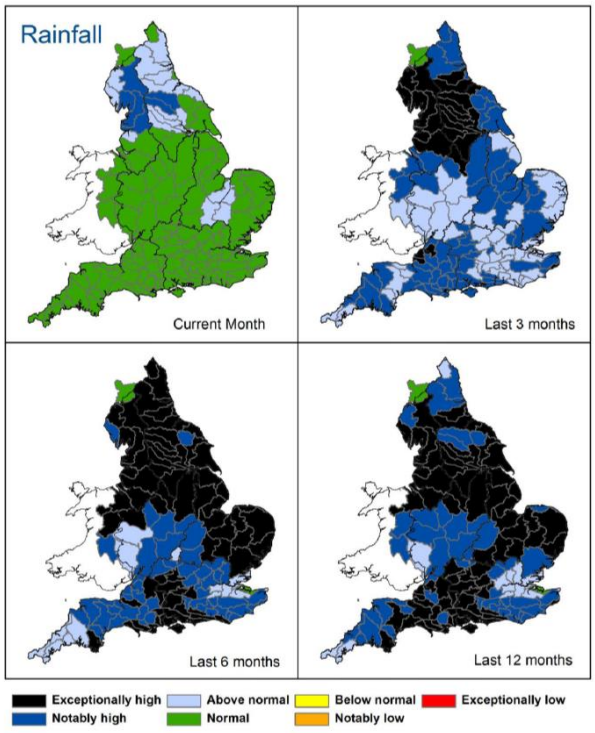

Figure 2-Total rainfall for hydrological areas across England for January 2024, referred to as current month, (up to 31 January 2024), the preceding 3 months, the preceding 6 months, and the preceding 12 months, classed relative to an analysis of respective historic totals. (Source - Environment Agency Monthly Water Situation Report: January Crown Copyright 2024)

Figure 2 shows the total rainfall as a per percentage compared to the historic totals for January. The total rainfall for January was shown to be normal compared to historic levels however the preceding 3, 6 and 12 months were all above normal for the entire Thames Catchment.

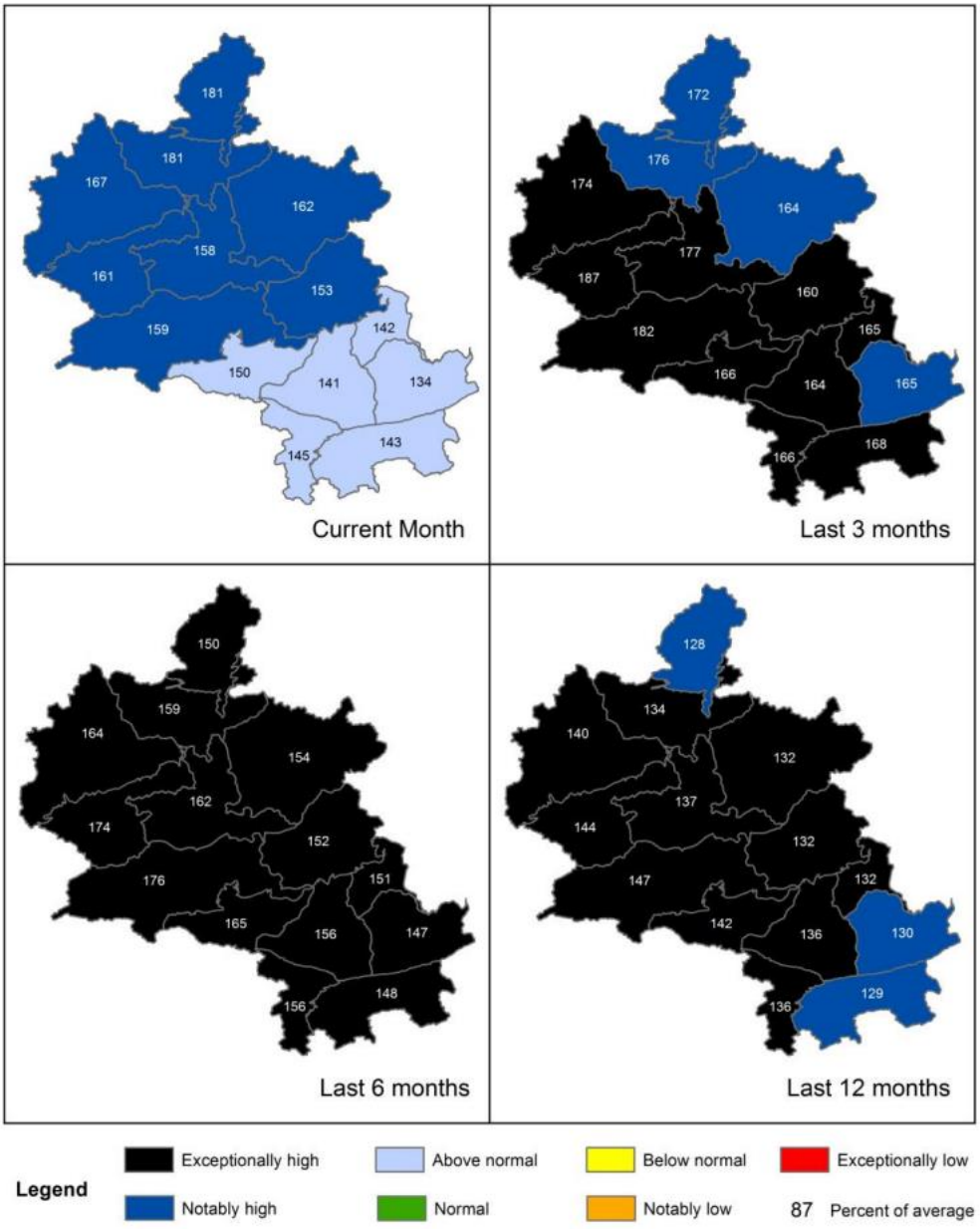

Figure 3- Total rainfall for hydrological areas across the Thames Catchment for January 2024, referred to as current month, (up to 31 January 2024), the preceding 3 months, the preceding 6 months, and the preceding 12 months, classed relative to an analysis of respective historic totals. (Source - Environment Agency Thames Monthly Water Situation Report: December Crown Copyright 2024)

Figure 3 displays the percentage of rainfall relative to average rainfall levels for 3 months, 6 months and 12 months leading up to January, taken from the Thames Monthly Water Situation Report for December 2023. This shows that across the catchment for the 3 months leading up to the January 2024, sub-catchments of the Thames experienced between 160-187% of the average rainfall for that period. Over the last year, the Thames catchment experienced between 128-147% of the average rainfall for the year.

Groundwater levels

There is limited data for groundwater levels in the Borough. Data has been taken from groundwater gauges at Summerleaze in Maidenhead and Albany Park in Poyle. While the Albany Park site is located outside of the borough, it is located 3.5km from Ham Island in Old Windsor and 3.8km from the Village Green in Wraysbury.

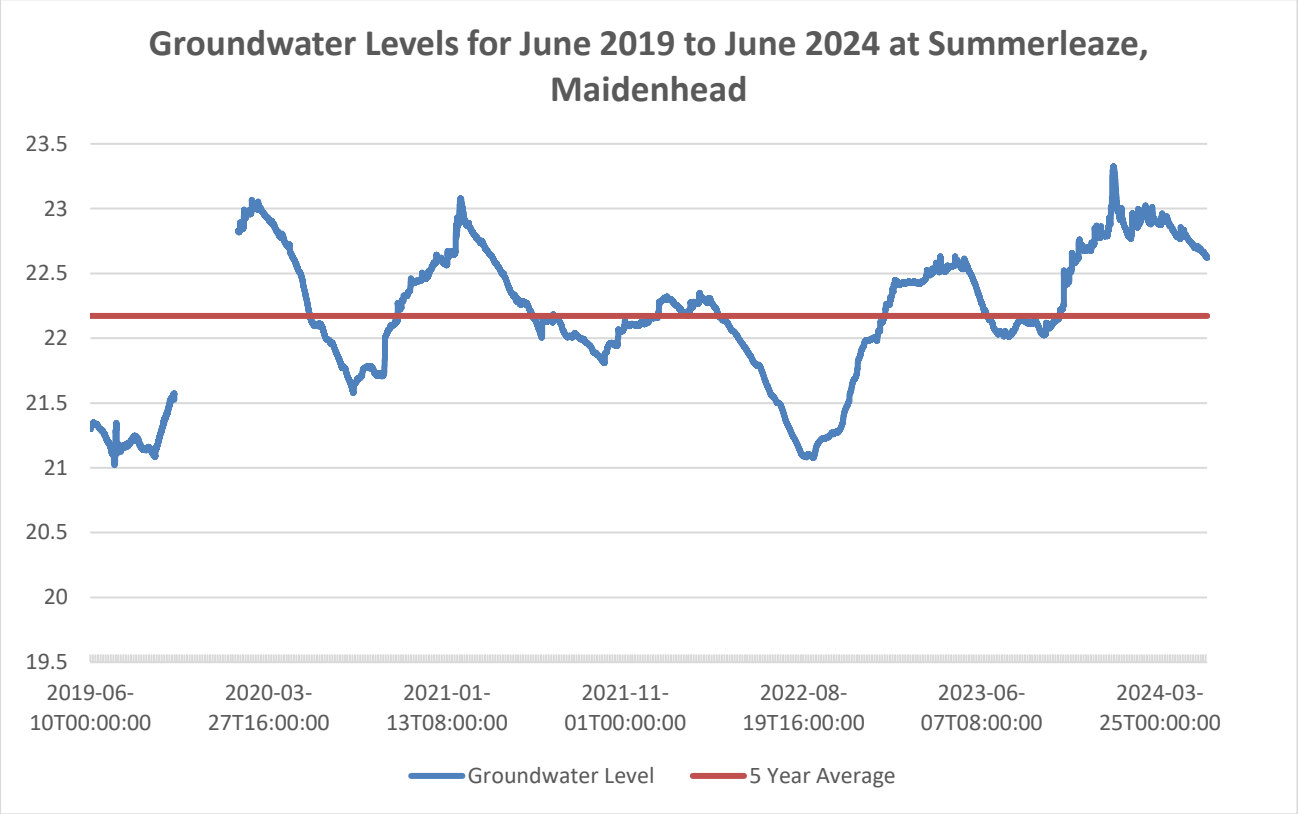

Figure 4- Groundwater readings in meters above ordnance datum from June 2019 to June 2024 taken at Summerleaze, Maidenhead, alongside the 5-year average.

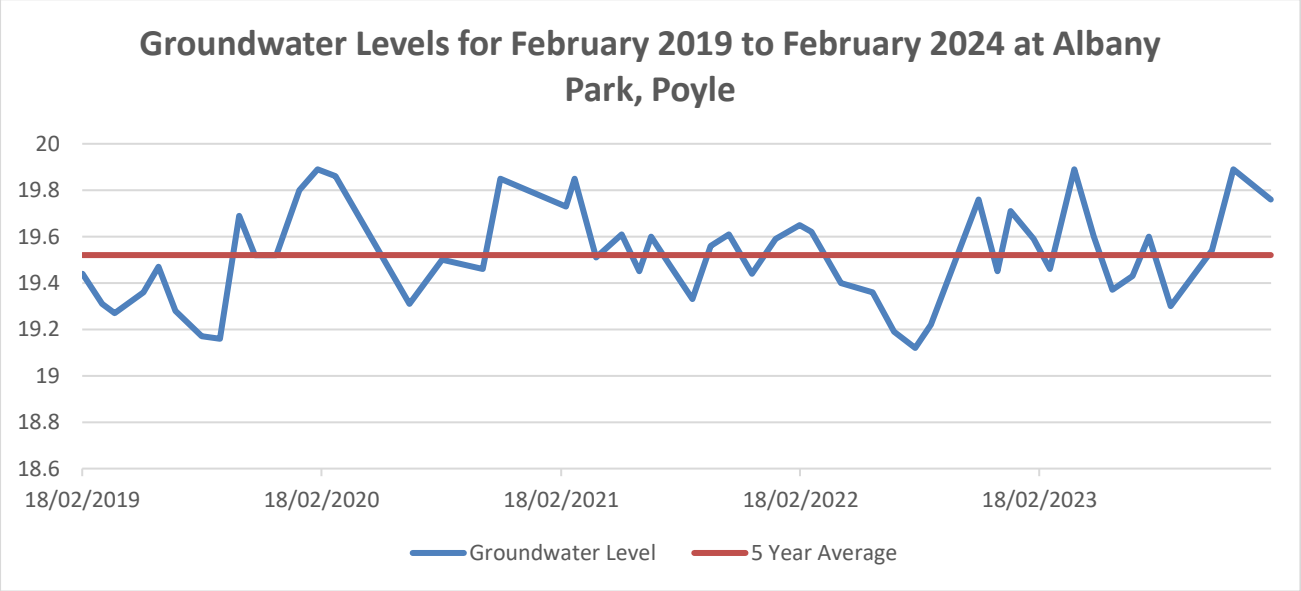

Figure 5- Groundwater readings in meters above ordnance datum from February 2019 to February 2024 taken at Albany Park, Poyle, north of Wraysbury alongside the 5-year average. This is used to indicate levels in the east of the Borough.

There is also a monitoring station at Windsor Road in Wraysbury however this gauge has no data recorded for this time period with the most recent reading being in September 2023. The data has been shown below to show the context of groundwater levels in the area over the 5 years preceding the flooding with levels fluctuating at around the 5 year average value and above.

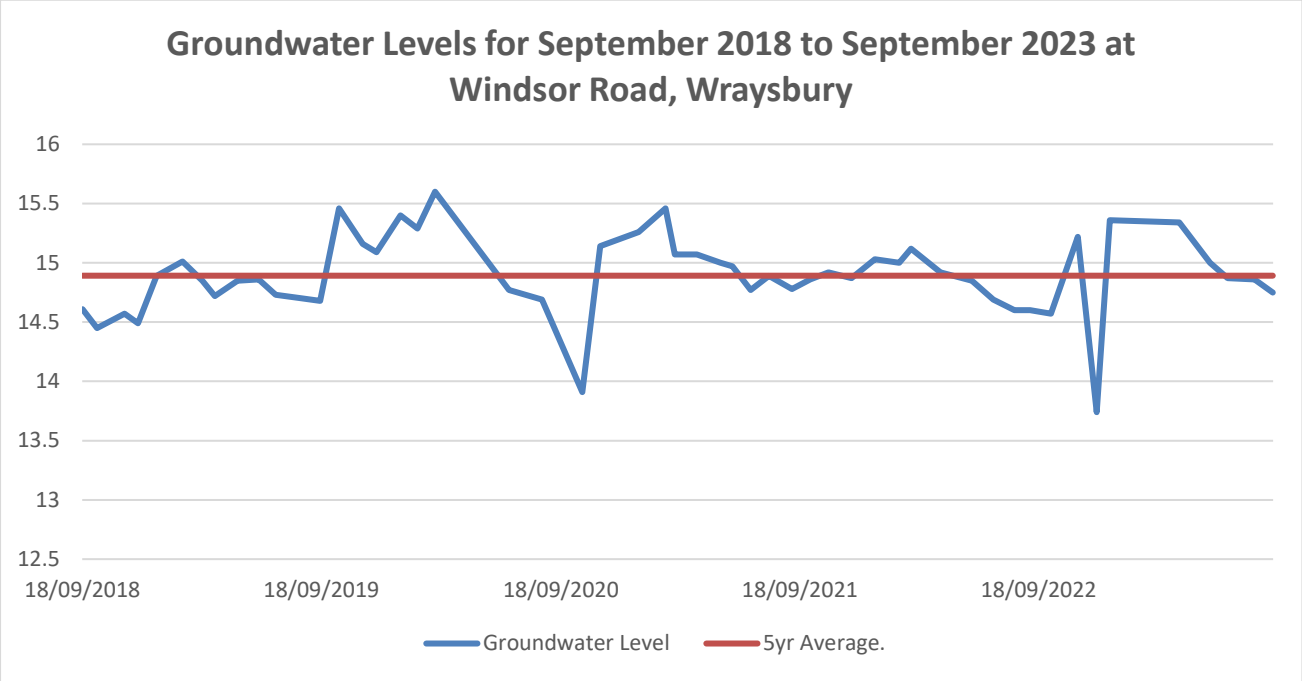

Figure 6- Groundwater readings in meters above ordnance datum from September 2018 to September 2023 taken at Windsor Road, Wraysbury alongside the 5-year average. This is used to indicate levels in the east of the Borough.

The very high levels of rainfall in the year before the flooding in January 2024 have resulted in significant rises in groundwater levels. This followed a period beforehand where groundwater levels fell during the summer of 2022.

Groundwater levels have consistently risen in the Borough to January 2024, staying at levels higher or around the 5-year average level since the winter of 2022. The groundwater levels from the Winter of 2023 at Summerleaze have remained higher than any level since February 2021.

Summary

The lead up to Storm Henk, with very high rainfall levels across the catchment which were consistent over the 2023. Groundwater levels being consistently high over this period which resulted in the capacity of the catchment to absorb water and drain slowly towards the rivers to be limited. The likelihood of significant amounts of water flowing across the surface to water bodies was high during Storm Henk, reducing the amount of time it would take for water to reach the river Thames.

DURING STORM HENK

The flooding incident impacted many areas of the borough. The main areas impacted are those that are situated next to the River Thames because the vast majority of the impact was from Fluvial Flooding however groundwater flooding also resulted in significant impact. Some impacts from surface water flooding were also recorded on the day the rainfall from Storm Henk hit the borough however the impact was very localised and not widespread. As such, the impacts from surface water have been investigated within business-as-usual work.

This section will set out the conditions brought by Storm Henk and the borough wide impacts.

Rainfall

Storm Henk brought high levels of rainfall across the Thames Catchment recorded by various rain gauges. The table below shows the levels of rainfall against the average rainfall for January.

Rainfall Gauge	**Rainfall recorded on 3rd January 2024 (mm)**	**Rainfall recorded on 4th January 2024 (mm)**	**Rainfall recorded on 5th January 2024 (mm)**	**Average daily rainfall for January for complete history of gauging stations (mm) with years indicated**
Ham Island	0.24	20.43	0.01	1.96 (2005-2024)
Marsh Lane	1.98	22.07	5.29	1.86 (2019-2024)
University of Reading	1.42	25.58	0.64	2.17 (2014-2024)
Chieveley, West Berkshire	2.23	36.86	0.13	1.87 (1980-2024)
Abingdon	31.59	30.78	0.00	1.62 (1986-2024)
Osney Lock, Oxford	2.07	27.35	0.00	1.73 (1986-2024)

Table 1- Table showing a comparison between rainfall that fell on 4th January 2024 during Storm Henk with the average levels for January.

As shown in Table 1, the average daily rainfall has been significantly exceeded by the rainfall that fell in Storm Henk across the entire Thames Catchment.

Marsh Lane and Ham Island gauges are located within the Royal Borough of Windsor and Maidenhead and are highlighted in purple. The other gauges are each located further upstream and outside of the borough to show the context of the rainfall across the catchment.

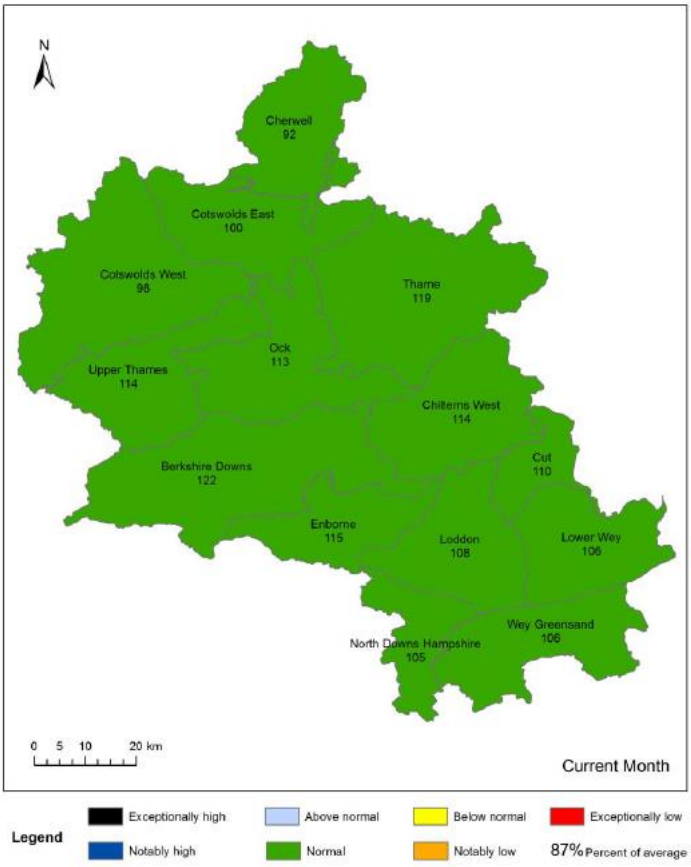

Figure 7- Total rainfall for hydrological areas across the Thames Catchment for January 2024, referred to as current month, (up to 31 January 2024), the preceding 3 months, the preceding 6 months, and the preceding 12 months classed relative to an analysis of respective historic totals. (Source - Environment Agency Monthly Water Situation Report: January Crown Copyright 2024)

The Water Situation Report for January shows that total rainfall over January was normal compared to historic levels however looking at rainfall data for the gauges presented in Table 1, 26-45% of the monthly rainfall came from Storm Henk on 4th January when compared to the average of the previous 5 years rainfall for January.

This is confirmed in the Thames Catchment Monthly Water Situation Report for January which states that while 74mm of rainfall was received in January across the Thames Catchment (108% of the monthly Long Term Average rainfall), 65% of the monthly rainfall came between the 1st and 4th January. Storm Henk brought a third of the month's rain on 4th January.

Groundwater levels

As shown in figures 4 and 5, groundwater levels in the borough had been high for some time before the flooding. The levels shown in figures 7 and 8 show the height of the groundwater shortly before, during and following Storm Henk.

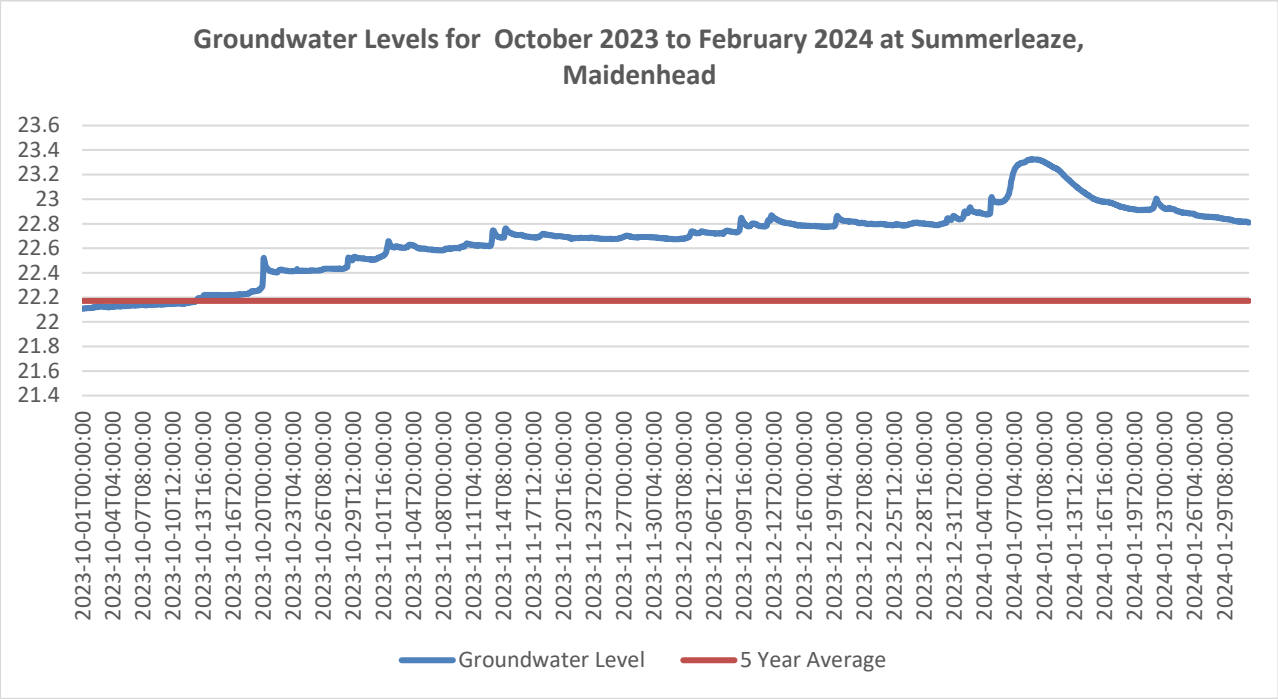

Figure 8-Groundwater readings in meters above ordnance datum from October 2023 to February 2024 taken at Summerleaze, Maidenhead, alongside the 5-year average.

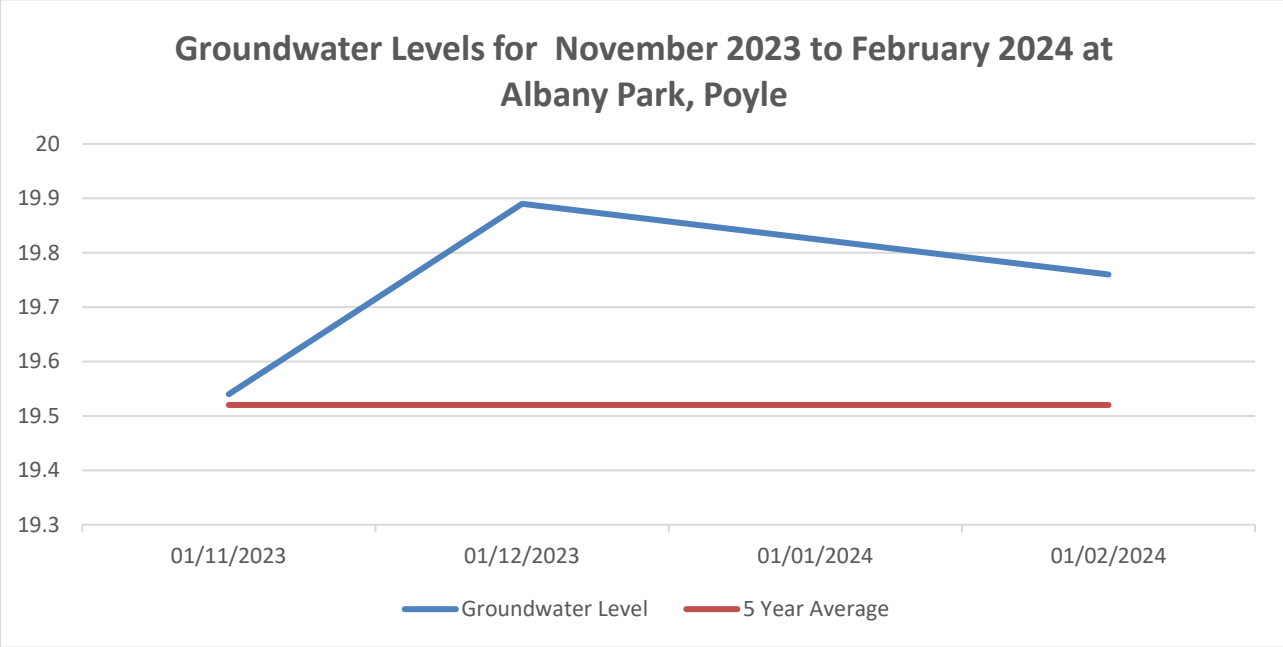

Figure 9-Groundwater readings in meters above ordnance datum from November 2023 to February 2024 taken at Albany Park, Poyle, alongside the 5-year average.

There is more data available from the Summerleaze gauging station with only 3 readings taken from the Albany Park as this point does not have an automatic feed and instead is a point for dip readings to be taken.

The figures show that up to January 2024, groundwater levels were above the 5-year average level and continuing to rise. The data from the Summerleaze gauge shows a spike in groundwater levels immediately after the rainfall came from Storm Henk. This is likely to account to any capacity in soil moisture being taken up and the water flowing through the river gravels as river levels began to rise. There is no data for this time from the Albany Park gauge however it is likely to be similar.

These high groundwater levels led to very low soil moisture deficits. Soil Moisture Deficits show the ability of the ground to absorb water from rainfall. A low soil moisture deficit means that there is little to no capacity within the ground to absorb rainfall. This can lead to increased surface water runoff as the water will naturally pool on the surface and flow to the nearest low points which can commonly be local water bodies such as watercourses. Most local watercourses in the borough flow into the main rivers which feed the river Thames. The quicker water reaches these watercourses, the quicker water will be able to flow towards the Thames. This is likely to reduce the time it will take for river levels to rise which in turn will increase groundwater pressure resulting in localised groundwater flooding where ground levels are lower than the level of the river.

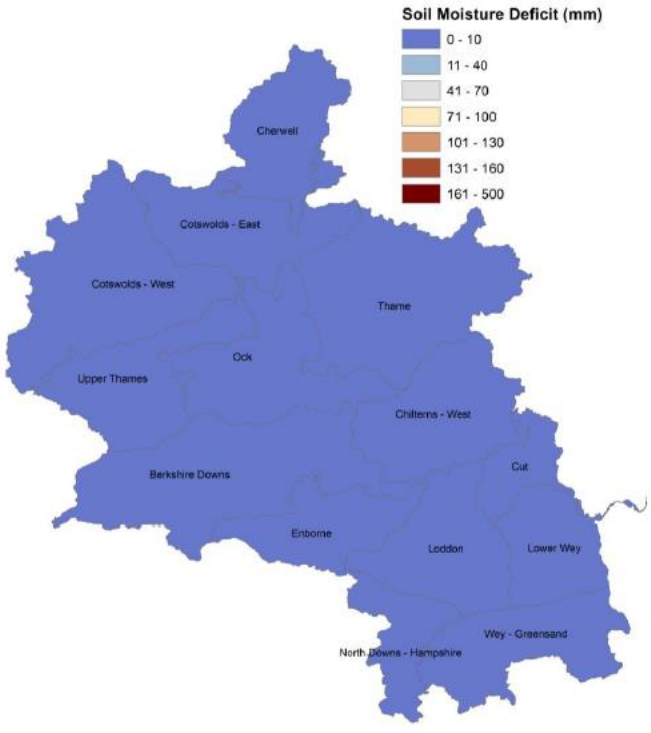

Figure 10- Soil moisture deficits for the week ending 31 December 2023. Shows the areal SMD estimate in millimetres. (Source - Environment Agency Thames Monthly Water Situation Report: January Crown Copyright 2024)

During Storm Henk, the Soil Moisture Deficit is shown in Figure 5 at the end of December was very low across the Thames Catchment, meaning there was little to no capacity for

absorption of rainfall. This therefore led to a large amount of the rainfall flowing over the surface into watercourses and then to the Thames, impacting the river levels and rate of rise.

River levels

River levels for the Thames were either notably or exceptionally high over January. As mentioned previously this was due to high groundwater within permeable strata such as chalk and greensands supporting flows of water to the local watercourses and rivers. As well as this, the high groundwater and saturated land and clay strata in other areas supported high runoff rates to other receptors across the catchment.

The river levels on the Thames changed significantly and quickly during the flooding incident with peak flows on the Thames within the Borough occurring between the 7th and 9th of January as water moved down the Thames.

River Levels rose quickly across the borough on the 7th January with the peak of the flow levels for all gauges being recorded in the late hours of the 7th January in Hurley and the 8th January for the rest of the borough. The peak was then reached in Staines as water moved out of the Borough on 9th January.

The levels recorded at each of the River Level Gauges, presented in Appendix 3, show significant rises in levels around this time period with the exception of the sections of the Thames protected by the Maidenhead, Windsor and Eton Flood Alleviation Scheme (MWEFAS). These gauges are Maidenhead, Bray Lock and Romney Lock. The levels for these gauges rose in a similar pattern to the other gauges located in the borough however levels were either slightly below or above the top of the normal range due to the operation of MWEFAS.

The gauges in north and east of the borough recorded river levels that were close to but below that of the highest level recorded for that gauge. The exception for this was at Hurley Lock where a level of 0.531m was recorded in comparison to the previous high of 0.52m recorded on 10th February 2014. Residents across the borough generally agreed that this was the case with many saying that levels were high but not as bad as that in the winter of 2014.

The main issue related to river levels that was raised by residents was that levels rose quicker than 2014 with some residents reporting rises in levels overnight in comparison to the course of a few days during previous incidents. Across the borough, the average rate of increase in river level per hour (taken over a 6-hour period) was consistently around 1cm per hour over the borough. Table below shows the timings of these significant rates of increase (anything calculated at a rate of 0.8cm per hour).

Gauge Location	Timings of increase
Hurley Lock	7th January 1am to 4.30am
Marlow Lock	6th January 12.30pm to 7th January 5.30am
Cookham Lock	6th January 10am to 7th January 9am
Romney Lock	6th January 4.15pm to 8th January 6am
Windsor	6th January 3.45pm to 8th January 6.45am
Old Windsor	N/A
Bell Weir	6th January 4.30pm to 8th January 11.15am

Table 2- Table showing the timings when the River Thames is recorded to have increased in flow level over 0.8cm per hour over a 6-hour period following Storm Henk. This data looks as far as 10th January and the immediate impact of Storm Henk.

Table 2 shows clearly that the increases in rate consistently started on the 6th January across the borough but lasted for longer periods of time further downstream.

Data for the areas protected by MWEFAS have not been included as their rates of increase were less consistent. The data showed occasional large increases in rate before sharp decreases which likely coincide with operation of the flood relief scheme.

Old Windsor Lock data could also not be analysed properly as there is a gap in gauge data between 7th January 8.30pm and 8th January 1.15pm where levels were not shown to have increased. This does not match reports from residents. A consistent rate of increase is shown though until 8th January 7.15pm.

Maidenhead, Windsor and Eton Flood Alleviation Scheme (MWEFAS)

The Maidenhead, Windsor and Eton Flood Alleviation Scheme, commonly known as the Jubilee River, was operated due to the river Thames levels increasing following Storm Henk.

The scheme was operated regularly through the incident with regular flow increases between the 31st December 2023 and 9th January. Flow levels returned to normal levels, similar to that earlier in December 2023, on 15th January 2024.

Some residents report that the Maidenhead, Windsor and Eton Flood Alleviation Scheme has increased the risk of flooding in areas of the borough, mainly in the east of the Borough. Residents sight that the rate of at which water is making it to this point has decreased as the MWEFAS channel is shorter than that length of the Thames. It is not possible to determine if this is the case based solely on the gauge data available however the Environment Agency states that the Maidenhead Windsor and Eton Flood Alleviation Scheme (MWEFAS) which includes the Jubilee Flood Relief Channel is designed and operated to ensure that it does not make flooding worse for communities downstream. The Environment Agency has published information of the scheme online.

Summary

The rainfall and groundwater levels leading up to January 2024 meant that any large amount of rainfall across the Thames Catchment would see it react rapidly and lead to high river levels more quickly than normal. The lack of ability of the ground to soak up water is likely to have resulted in the vast majority of the rainfall to flow across the land as surface water flow.

SUMMARY OF THE IMPACT OF THE JANUARY 2024 FLOODING FROM THE THAMES ACROSS THE ROYAL BOROUGH OF WINDSOR AND MAIDENHEAD

Reported Property Data

Table 3 shows the total numbers of properties reported to have been flooded internally (in the habitable space of the property) and externally (including garages and outbuildings).

	Internal	External	Total
Royal Borough of Windsor and Maidenhead	94	177	271

Table 3- Total number of properties reported to have been impacted from Thames flooding in January 2024

Table 4 shows the number of properties reported to have been impacted in the most affected Parishes in the Borough with Figure 11 showing how the different areas compare.

Town	Internal	External
Hurley	8	8
Bisham	16	11
Cookham	14	3
Datchet	3	1
Wraysbury	46	116
Old Windsor	7	27
Other	0	11

Table 4-Numbers of properties reported to be impacted by flooding from Thames Flooding in January 2024

It is worth noting that the true number of properties impacted is likely to be much larger than the reported number. This is because many residents will not report, or are reluctant to report, flooding to their property over fear that reporting the impact to their property will impact their mortgages and property insurance.

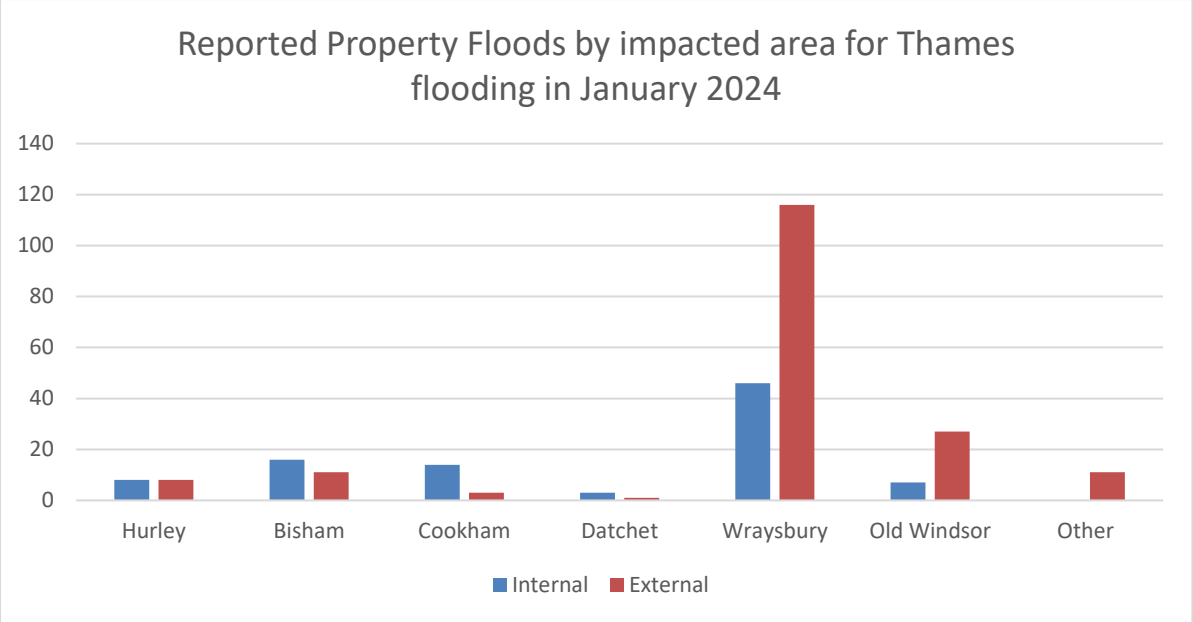

Figure 11- Graph showing reported property impact across the impacted Towns and Villages in the Royal Borough of Windsor and Maidenhead

In addition to the property impact, there were 13 road closures recorded within the borough which were the result of the flooding from the River Thames. These can be seen in Appendix 11. A map of this can be shown in Figure 12 below.

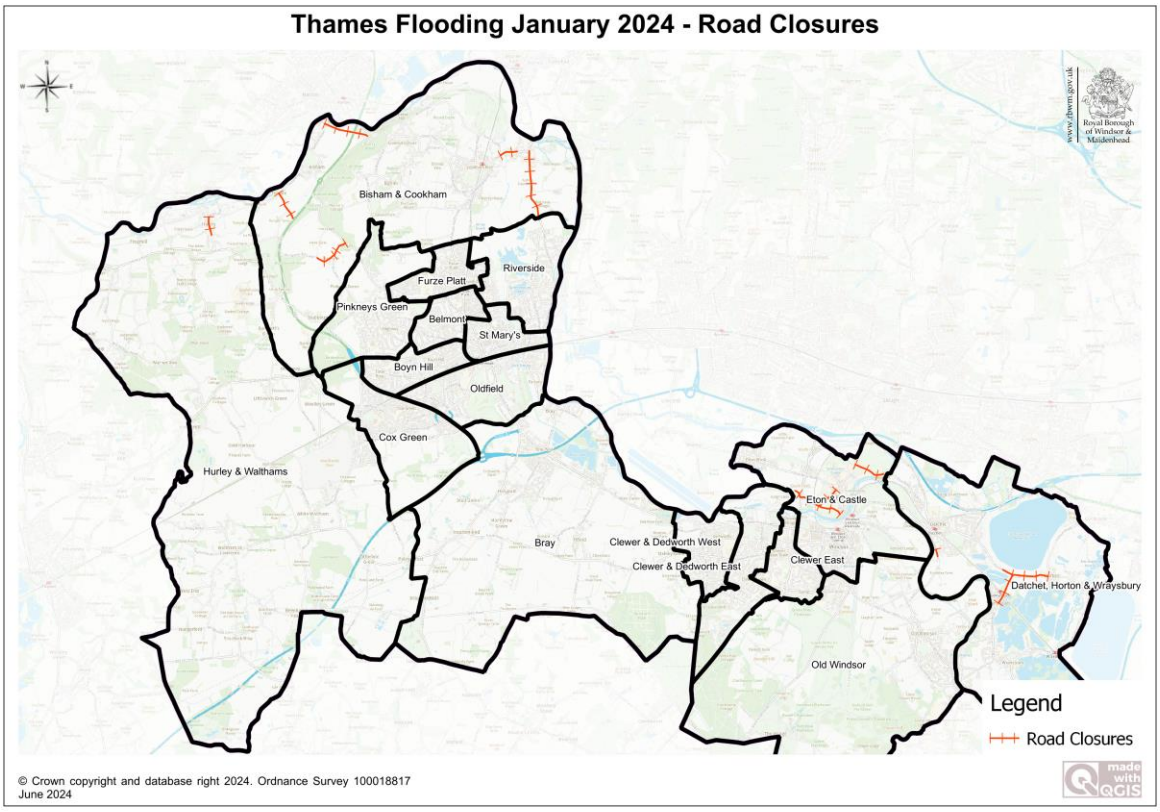

Figure 12- Map of road closures during Thames flooding in January 2024

Timeline of the Incident

The flooding that occurred in the Borough progressed over a couple of weeks following Storm Henk. As mentioned in the Context section, while Storm Henk began on 2nd January in Oxfordshire, the storm hit the Borough on 4th January.

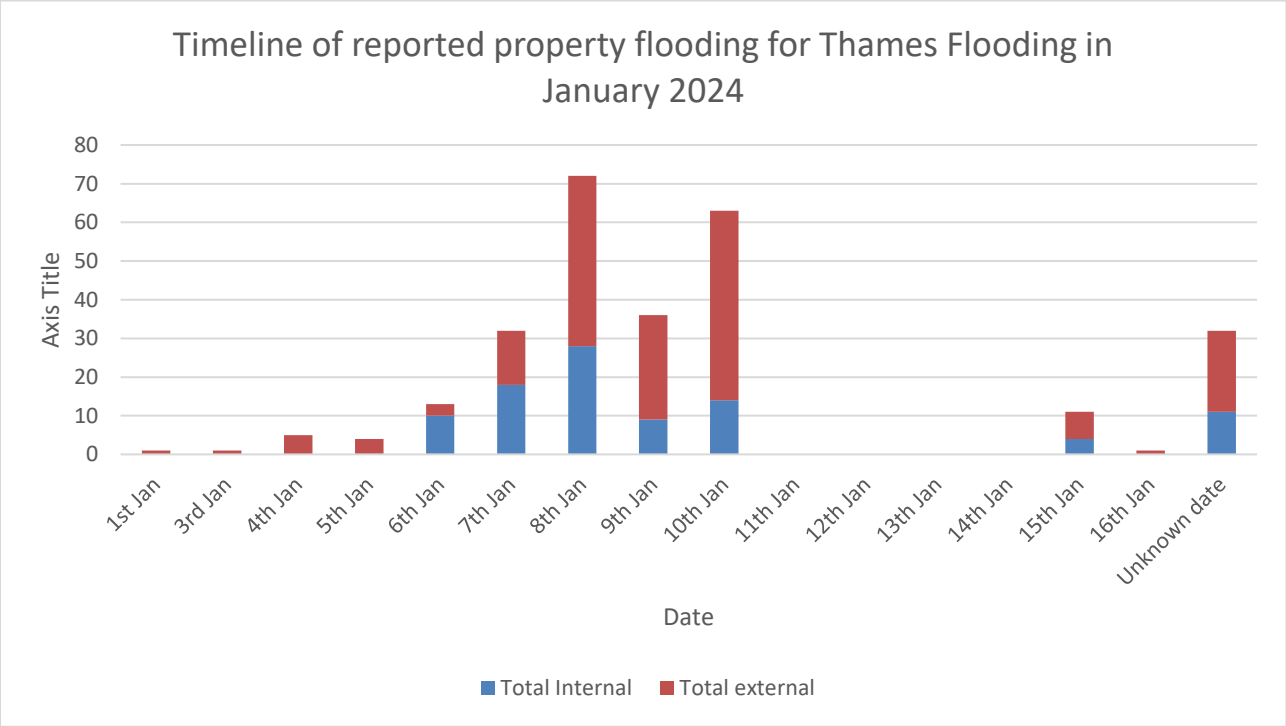

Figure 13- Graph showing timeline of property impacts before, during and after Storm Henk

The property flooding peaked between the 8th and 10th January with the highest count of internally flooded properties being in Cookham and Wraysbury. The road closures that occurred in the Borough also happened around this time, matching up with the peak of levels of the River Thames shown in Appendix 3.

The road closures followed a similar pattern. There were 2 road closures in place on the 7th January and 12 on the 8th January.

There was also impact to some other major infrastructure. It was reported to the Council that Sunnymeads train station in Wraysbury was closed because of the flooding.

Causes of flooding across the Borough

Most of the impact to properties and roads in the borough were impacted by fluvial or groundwater flooding however there was also an impact from surface water flooding and backing up of sewerage and drainage infrastructure. The general causes of flooding across the borough is described in this section with location specific issues detailed in area specific sections.

Fluvial

Consistent high rainfall in the months preceding January 2024 ensured that soil moisture deficits were very small across the catchment as Storm Henk occurred. This meant that the extremely high rainfall that fell on 3rd and 4th January mostly ran across the surface into the drainage networks and quickly into the rivers ending at the River Thames. This led to river

levels rising quickly and the River Thames bursting its banks and flooding properties located near to the river.

When river levels rose, there was also impact from smaller channels which flow into the River Thames backing up. This is because as the level on the Thames rises above that of it's tributaries, water will flow back up these channels. This meant that properties not located next to the Thames but near tributaries were also impacted by fluvial flooding.

Groundwater

Floodplains commonly have a layer of deposits, usually made up of materials such as sands, silts and gravels, which sit above the bedrock. These are river deposits from historic flooding incidents. These historic deposits are permeable which mean water is able to flow through them more easily. As river levels rose, water from the channel will also have flowed through the superficial deposits and emerged in areas which sit topographically below the level of flow of the Thames or other local features.

Surface Water

Some areas were impacted by surface water flooding from the initial rainfall from Storm Henk. These were very localised with 5 properties being reported to have been affected.

This flooding generally occurs when rainfall flows across the surface to local low points where water cannot flow away or where properties sit on local surface water flow routes.

There was not widespread flooding of areas due to surface water flooding. As such, road flooding issues and reported flooding issues were picked up within normal business as usual workstreams.

Sewerage and Drain Backup

Areas across the borough were impacted by drainage infrastructure and sewerage backing up. This occurred through both the highway drainage infrastructure and Thames Water public sewers. Underground infrastructure can be susceptible to ingress from other water sources. Examples of this are:

- Groundwater ingress through cracks or joins in pipework.
- Misconnections such as surface water connections to the foul public sewers.
- Water flowing over the surface through openings such as manhole covers. This can include fluvial flows across land which can also reach highway gullies.

In each of these cases, water is reaching infrastructure which is not designed to take water from other sources.

Other causes of issues can include blockages within networks which cause a backup of water when the capacity to the obstruction is exceeded.

Finally, there were a number of sewage pumping stations which were impacted by the flooding in January 2024. Pumping stations across the borough were impacted by different issues. This includes not being able to cope with the amount of water that was flowing through the network. In one case, a pumping station had to be switched off due to ingress of floodwater into electrical equipment In these cases, systems will fill with flood water and through use from properties before backing up into properties will occur.

Other local impacts

Most of the impact was felt in the six parishes broken down in figure 9, there were impacts recorded from other areas to a smaller extent.

This section provides some details on the smaller areas that were impacted by Storm Henk but were picked up within business-as-usual workflows due to their locality and scale of impact.

The area with the most reports of impact to property was Maidenhead Court Road in Maidenhead. Residents reported flooding to the road and some minor garden flooding at Maidenhead Court Road in Riverside Ward. This area drains to soakaways. As such with no further reports of issues, it is assumed that groundwater rose through the soakaways which resulted in the localised flooding to the road and nearby gardens.

COMPARISON TO WINTER 2014 FLOODING

A breakdown about historic flooding in the borough can be found in Appendix 2.

Anecdotal evidence across the borough gave mixed views around the impact of the flooding from Strom Henk, with some areas indicating that the flooding was worse than the flooding in the winter of 2014 and others indicating the impact was not as severe. This was shown in the background data with some areas such as Hurley having Thames levels higher than those in 2014 (highest on record) and others sitting below the highest level recorded.

The main reason for the difference between the flooding incidents is the sources of flooding. The 2014 flooding incident was primarily fluvial flooding, both in January and February 2014. Some areas experienced surface water flooding initially and others groundwater following the incident however this is likely to have extended the flooding duration with severity increased in areas closer to the river. The more severe flooding in the borough came in the second wave of flooding in February 2014. This was because river levels and groundwater levels were already very high due to the January flooding. The flooding in January 2024 was more comparable to the flooding in January 2014 however this incident was driven by a combination of fluvial and groundwater flooding occurring at similar times. In some areas, groundwater had little impact however in areas such as Bisham and Wraysbury, this increased the severity of the impact and the duration of the recovery as water could not naturally drain away from properties.

BOROUGH WIDE RECOMMENDATIONS

The following recommendations should be examined by the flood risk management authorities and residents to be assessed for their feasibility and financial viability. Recommendations are not instructions and need to be examined by the relevant Risk Management Authority or individual.

The following recommendations are not specific to any one area of the borough and could be applied across each of the impacted areas, subject to assessment of feasibility and financial viability.

Reference	Area	Recommendation	Context	Primary Risk Management Authority	Secondary Risk Management Authorities	Duty, Power or Role of Primary RMA	Timescales for recommendation
RBWM1	Borough Wide	Royal Borough of Windsor and Maidenhead and Environment Agency to work together to review the processes for post flooding recovery action.	In order to ensure that authorities have a plan for dealing with issues such as pooling groundwater following a flooding incident	Royal Borough of Windsor and Maidenhead	Environment Agency Thames Valley Local Resilience Forum	Lead Local Flood Authority and Emergency Planning Service	By April 2025
RBWM2	Borough Wide	Explore the possibility and extent of task for the formal designation of informal defences as flood defence assets	Ensure informal defences are considered for inclusion as formal flood defences where appropriate	Environment Agency	N/A	Strategic Flood Risk Authority responsible for Fluvial Flood risk	Ongoing
RBWM3	Borough Wide	Consider the designation of informal defences as flood risk assets under Land Drainage Act 1991 s21 Asset register	Ensure informal structures are considered for inclusion as on the Flood Risk Asset register where appropriate	Royal Borough of Windsor and Maidenhead	N/A	Duty to maintain asset register under s.21 Land Drainage Act 1991	By December 2025
RBWM4	Borough Wide	Consider running awareness sessions for residents regarding their flood risk and measures they can take to improve their resilience to flooding	To further residents and homeowners' knowledge of flood risk in their areas and steps they can take to	Royal Borough of Windsor and Maidenhead	Environment Agency	Lead Local Flood Authority and Emergency Planning Service	Ongoing

			mitigate the impact of flooding to their properties.				
RBWM5	Borough Wide	Residents and businesses in affected areas should consider installation of Property Flood Resilience measures at their properties	Installation of measures to properties to reduce the impact or likelihood of impact to properties during a flooding incident	Residents and businesses	N/A	Property owners	Ongoing
RBWM6	Borough Wide	Residents and businesses in affected areas should consider creating personal resilience plans to minimise the impact of flooding incidents	Personal resilience plans ensure that residents know who to contact and can centrally store details such as insurance references which minimise the overall impact and speed up recovery	Residents and businesses	Royal Borough of Windsor and Maidenhead	Property owners	Ongoing
RBWM7	Borough Wide	Royal Borough of Windsor and Maidenhead to refine the understanding of groundwater flood risk within the borough	Groundwater flood risk is widely an unknown in many areas. As such, work to better understand how groundwater affects flooding	Royal Borough of Windsor and Maidenhead	Environment Agency	Lead Local Flood Authority with responsibility for management of flood risk	By December 2027

			incidents such as this is an important step to managing the risk it causes			from groundwater	
RBWM8	Borough Wide	Improvement of communication material to promote Floodre and Build Back Better scheme	To ensure residents have easy access to useful information following a flooding incident.	All Risk Management Authorities - led by Royal Borough of Windsor and Maidenhead	Parish Councils Flood Wardens Other Community groups	Lead Local Flood Authority	By April 2025
RBWM9	Borough Wide	Improve links with the local communities in order to improve the sharing of information at times of flooding.	At times during the response there were delays in information either being shared or accessed by RMAs meaning issues arose without action for some time. For example, where roads flooded, closures were not put in place in some cases for some time meaning motorists drove through flood water creating bow	Royal Borough of Windsor and Maidenhead	Parish Councils Flood Wardens Other Community groups	Lead Local Flood Authority Emergency Planning Service	By April 2025

			waves towards properties.				
RBWM10	Borough Wide	Consider community resilience materials and promotional opportunities including linking into national campaigns in order to increase residents' knowledge on flood risk and how they can manage risk to their homes	There is limited understanding of flood risk in the wider communities so more information being available for signposting and campaigns can improve this knowledge base.	Royal Borough of Windsor and Maidenhead	Environment Agency Thames Water Parish Councils Flood Wardens Other Community Groups	Lead Local Flood Authority Emergency Planning Service	By December 2025
RBWM11	Borough Wide	Residents and businesses in affected areas to consider the development of their own personal resilience plans and amendments/updates of community resilience plans	It is always likely that the areas impacted will be affected by flooding during certain flooding incidents. As such, residents and businesses have plans in place in order to take account of their own flood risk to minimise the impact to their	Residents and businesses	Royal Borough of Windsor and Maidenhead	Property owners	By February 2025

			lives and damage to their property				
RBWM12	Borough Wide	Support the communities across the Borough to improve their own resilience	See RBWM4, RBWM5, RBWM6, RBWM8, RBWM10, RBWM11, H5, C5, W8, OW2, OW3	Multi-agency	N/A	Emergency Planning Service, Environment Agency, RBFRS and other responding agencies via the Berkshire Resilience Group	Ongoing
RBWM13	Borough Wide	Promote awareness of the responsibilities of landowners to maintain watercourses across the Borough	Watercourses that are not maintained can obstruct the free flow of water. In a fluvial flooding situation, this can also obstruct the flow of flood water away from an impacted area, increasing the time it takes for an area to recover.	Royal Borough of Windsor and Maidenhead	Environment Agency Parish Councils	Lead Local Flood Authority	By September 2025

Table 5- Recommendations which may be appropriate for areas across the Borough

STRATEGIC ACTIONS AND FLOOD RISK MANAGEMENT FUNCTIONS

A number of actions were taken by the different Flood Risk Management Authorities and other Risk Management Authorities within the response to flooding from Storm Henk. Most of these actions were taken through partnership co-operation within the Thames Valley Local Resilience Forum (TVLRF) command structure.

The actions taken by the Royal Borough of Windsor and Maidenhead are set out below.

Preparation

In preparation for the flooding, the Royal Borough of Windsor and Maidenhead undertook briefings for flood wardens in the communities in November 2023. This included the Council (both Lead Local Flood Authority and Emergency Planning teams), the Environment Agency and Met Office.

The Council also gave briefings to Flood Forums, Borough Councillors and Parish Councils as well as putting systems in place in relation to the Council's readiness to increase cover over the festive period.

Response

In response to the flooding incident, RBWM took the below strategic actions.

Date	Coordination in place
02/01/2024	Thames Valley Local Resilience Forum – Partner Activation Teleconference (TVLRF PAT) Based on forecast, which included an Amber Wind Warning with a medium likelihood of medium impacts a multi-agency PAT was put in place to consider the risks and potential impacts.
03/01/2024	RBWM Flood Coordination meeting – internal all service meeting to assess the current situation and risk to the area.
03/01/2024	Virtual Emergency Operation Centre (EOC) in place- internal coordinating centre which oversees the impacts in the area, resource allocation and working with the communities
05/01/2024	Major Incident declared across Thames Valley
05/01/2024, 1100hrs	Internal response meeting took place
05/01/2024, 1230hrs	Flood Wardens meeting took place
05/01/2024	Storm Henk
06/01/2024	Cookham Causeway Plan – on standby
06/01/2024	Cookham Causeway Plan – activated 12:40
07/01/2024	Virtual EOC in place 24/7/24
07/01/2024 to 11/01/2024	TVLRF Multi-Agency Tactical Coordinating Group meetings (TCG)
07/01/2024 to 11/04/2024	TVLRF Multi-Agency Strategic Coordinating Group meetings (SCG)
08/01/2024	Physical EOC Emergency Operations Centre put in place due to rising concerns in relation to the impact on Wraysbury.
08/01/2024	Emergency Services attend Emergency Operations Centre
08/01/2024	TCG called in relation to Wraysbury Flooding 2100hrs

Date	Coordination in place
08/01/2024	SCG Called in relation to Wraysbury Flooding 2145hrs
08/01/2024	Rest Centre arrangements put in place – Windsor Leisure Centre
09/01/2024	Evacuation process commences (early hours)
10/01/2024	Evacuated residents return home
10/01/2024	Physical EOC Closes – return to virtual
12/01/2024	Cookham Causeway closed
12/01/2024	Virtual EOC Closes
15/01/2024	RBWM Recovery Group meet
15/01/2024 to 22/01/2024	Berkshire Coordination Group meetings (Daily to start then alt days/ weekly until close)

Table 6-Strategic actions undertaken by RBWM

In order to make these decisions there were twice daily Tactical Command Group (TCG) and Strategic Command Group (SCG) meetings.

Other response activities include but not limited to:

- Staff and contractors were deployed to communities spotting in advance of flooding and when reports of flooding were received in order to assess the situation.
- Communications were sent to flood wardens, Parish Councils and Ward Councillors. These were also promoted on social media, the RBWM website and internally to staff and professional partners.
- To support communities where the foul sewer network was impacted and use of internal facilities was difficult in Wraysbury, RBWM provided 20 portaloos around the 7th January 2024.

Actions taken by the Environment Agency include but not limited to:

Between the 1st and 8th January, the Environment Agency issued over 73 flood warnings and many flood alerts. Upon initial review of the January 2024 flood levels with other floods have found that the River Thames levels from Marlow to Bell Weir Lock were like the January 2014 flood event and less than the February 2014 event.
The Environment Agency operated and maintained their assets including:

- Thames Weirs were fully drawn allowing the river to act in a natural state.
- Assets were operated along the Lower Colne and Colne Brook according to operating procedures.
- The Windsor, Maidenhead and Eton Flood Alleviation Scheme was in operation, which included the Jubilee Flood Relief Channel in early January. As part of this regular gate movements were made in line with the operating procedures until levels in the River Thames decreased.
- The Cookham flood gates were closed on 4th January and the Environment Agency operated pumps at Cookham and the Myrke Culvert.
- By the 8th January the Jubilee Flood Relief Channel was operating at full capacity. At this point a flood Warning was issued for Windsor and Maidenhead.
- The Environment Agency deployed Community Information Officers to multiple locations.

- The Environment Agency stopped pumping at Myrke Ditch on the 11th January.
- By the13th January, all pumping operations in Cookham were stopped. Mobile pumps deployed at Cookham and Mryke Culvert were returned to depots. Closed footpaths along the Jubilee were re-opened. Marsh Lane Car Park was re-opened.
- The last gate operation on the Jubilee Flood Relief Channel was made and the channel returned to normal operation flow (10 cumecs) on the 16th January.

FLOOD RISK MANAGEMENT FUNCTIONS AND ACTIONS EXCERISED FOLLOWING THE INCIDENT

Following the end of the incident, the Thames Valley Local Resilience Forum response cell was closed and the incident moved into the recovery phase. During this phase, there were no joint cells with authorities working in partnership on a case-by-case basis for individual issues.

In the recovery phase, the Royal Borough of Windsor and Maidenhead set up 3 Recovery Cells. These are shown in Figure 13.

Figure 14- Recovery cells set up within the recovery phase of the Storm Henk in January 2024

The actions taken by the Royal Borough of Windsor and Maidenhead Recovery Cells included:

- Opening of closed roads
- Cleaning of impacted adopted roads.
- Undertaking additional collections for missed bin collections.
- Undertaking investigations into the flooding incident under Section 19 of the Flood and Water Management Act 2010, including meeting impacted residents on site.
    - This included meetings with each of the impacted Parishes to collect data from those on the ground throughout the incident.
- Supporting vulnerable residents with their recovery
- Attending public meetings, such as Parish Council meetings alongside partners to answer questions from elected representatives and residents.
- Recording and reporting data collected through investigations to DEFRA to confirm eligibility for Central Government Grants.
- Setting up processes for residents and businesses to claim DEFRA Grants
- Liaising with other Risk Management Authorities when issues are identified on the ground.

- Undertaking a Response Debrief with officers involved, parish councils and the community.

Actions taken by the Environment Agency include:

- Restore our people, systems and assets as quickly and effectively as possible, where appropriate, ready for future events
- Ensure timely and adequate data collection and storage of information

LOCATION SPECIFIC FLOODING

The following sections of this report detail the location specific causes and impacts in the 6 areas in the borough that were affected the most by the flooding brought by Storm Henk.

This section will detail the causes and impacts in:

- Hurley
- Bisham
- Cookham
- Datchet
- Wraysbury
- Old Windsor

The areas are ordered moving from upstream to downstream on the River Thames.

In addition to causes and impacts, recommendations will be made which are specific to the area. These recommendations will not include those in Table 5 which are relevant to the whole borough and will be more targeted to the local issues identified and raised by residents and communities.

HURLEY

This section details the causes and impacts of the flooding to Hurley Village.

DESCRIPTION OF FLOODING

Reports of flooding in Hurley started coming into the Council on the morning of the 7th January. This coincides with the peak level of the River Thames as shown in Figure 14.

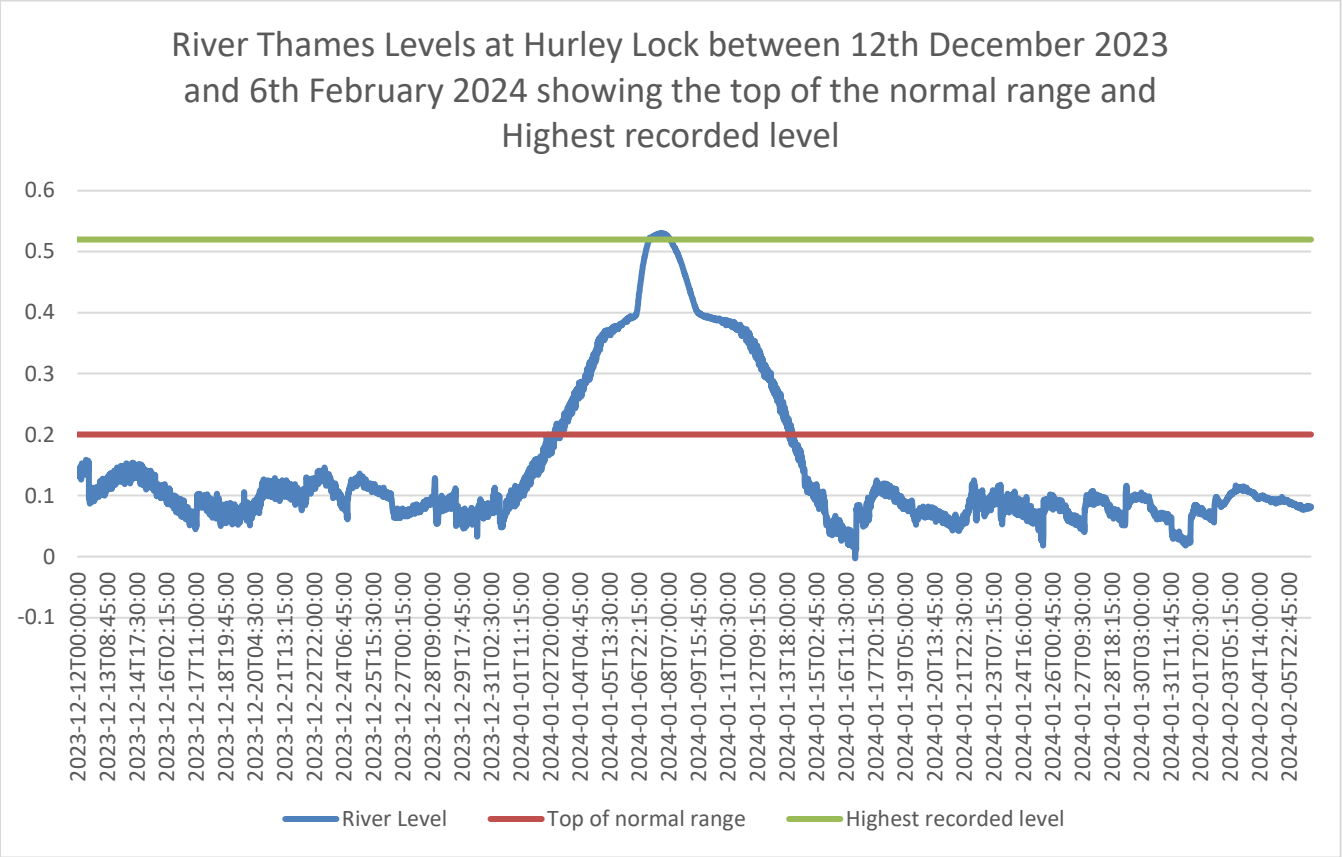

Figure 15- Graph showing River Thames levels in meters at Hurley Lock from 12th December 2023 to 6th February 2024.

Appendix 7 shows the extent of flooding and flow direction of flood water for all areas. Appendix 7a shows this for Hurley. The flood water that impacted Hurley flowed over lower sections of the riverbank to the north of Hurley Caravan Park. This water flowed south and a watercourse known locally as the Lady Place Ditch initially protected Hurley Caravan Park as this takes water to a downstream section of the Thames. Once the capacity of this channel was exceeded water continued to flow south through the caravan park and Hurley Cricket Club. The flood water also impacted the Thames Water sewage pumping station located next door to the Cricket Club with residents reporting loss of sewage facilities however no residents reported backing up of the sewage network into their properties.

Flood water then flowed either east along Shepherds Lane or continued south until it reached the Bisham Brook which then flows to the East.

The flow of water along Shepherds Lane flowed into a ditch which took water to the High Street. Water was then obstructed when entering a culvert inlet at the access to a property. This culvert runs to the back of the Olde Bell Pub. Hurley Parish Council report that this watercourse has been culverted piecemeal over time with the section at the Pub being the

last section to be completed. Due to the loss of capacity over time, residents report that water backed up through highway gullies which are assumed to flow into this culvert, contributing to the flooding to the High Street.

The flood waters that met the Bisham Brook caused the watercourse to flow at bank full level however the watercourse prevented further flows to the south. Instead, water flowed to the east following the route of the watercourse. This flow continued until the Bisham Brook meets Hurley High Street. The culvert that takes water under the road acted as an obstruction causing water to break from the banks of the brook and flood one property internally and one externally. The water that flowed out of the brook flowed over the High Street but flow but could not re-enter the brook due to a wall built up on the east side of the road.

Figure 16- Photo showing flooding to Hurley High Street

This caused flooding to the High Street, which in combination with the flooding at the junction of Shepherds Lane meant that that approximately 400m of the road was impacted, from the junction of Mill Lane to the junction with Bell Court. Residents reported bow waves were being created by cars as they drove through and that this even continued following the road being closed, with residents reporting that this was the difference in some cases between a property flooding internally or not.

IMPACT OF THE FLOODING INCIDENT

Table 6 sets out the numbers of properties impacted by flooding in Hurley. It is important to note that these figures are based on the numbers of properties who reported flooding and

those that were visited subsequently. The true impact is expected to be larger due to some residents not reporting flooding for reasons such as fear of impact to their insurance or mortgages.

Internal Flooding	External Flooding
8	8

Table 7-Table showing the reported property impact in Hurley

Of the properties impacted, there were 3 internally flooded commercial properties.

In addition to these properties, Hurley also had 1 road closure. This was the High Street. High Street is also the main road for much of the village meaning that the road flooding and being closed had an impact on residents being able to get in and out of the village.

CAUSES AND PATH OF FLOODING

The main cause of the flooding was the very high level of rainfall over the year preceding and during Storm Henk over the Thames catchment. This in turn resulted in major flooding across the borough with the River Thames coming out of bank.

There were also some local factors that influenced the flooding in Hurley. The culverting of watercourses in the area has created artificial obstructions in the village for flood flows to be diverted away. In most cases however this is unlikely to have prevented the flooding but may have reduced the capacity of the watercourse to store water. In addition, the design of the headwall structure around Orchard House prevents exceedance flows across the road from re-entering the Bisham Brook. This is likely to have contributed to the flooding to the High Street.

RECOMMENDATIONS/FLOOD RISK FUNCTIONS IDENTIFIED

The following recommendations should be examined by the flood risk management authorities and residents to be assessed for their feasibility and financial viability. Recommendations are not instructions and need to be examined by the relevant Risk Management Authority or individual.

Reference	Area	Recommendation	Context	Primary Risk Management Authority	Secondary Risk Management Authorities	Duty, Power or Role of Primary RMA	Timescales for recommendation
H1	Hurley	Investigate history of the culverting of the watercourse at the Olde Bell Pub and determine if reinstatement is feasible.	The watercourse has been historically culverted, so further investigation and discussion is needed in order to identify what action is feasible.	Royal Borough of Windsor and Maidenhead	N/A	Lead Local Flood Authority	By April 2025
H2	Hurley	Consider what resilience measures are possible to mitigate the impact of flooding to Pumping Station on Shepherds Lane	The pumping station on Shepherds Lane is on the flow path of fluvial flood waters from the north. As such it may be vulnerable with some residents reporting outages to the sewage network during the incident	Thames Water	N/A	Sewerage Undertaker	TBC
H3	Hurley	Inspect the culvert running under Hurley High Street downstream of Orchard House to identify any obstructions	Ensuring the culvert under the High Street is clear and free flowing.	Royal Borough of Windsor and Maidenhead	N/A	Highway Authority	By April 2025

H4	Hurley	Consider investigating ways to allow exceedance flows over the High Street from Orchard House back into the watercourse on the eastern side of the road	If no maintenance work is required from H3 measures should be considered to allow the flow of water easily back into the Bisham Brook to minimise flooding to the highway	Royal Borough of Windsor and Maidenhead	N/A	Highway Authority	By April 2025
H5	Hurley	The residents of Hurley Caravan Park should consider developing a Community Resilience Plan	Hurley Caravan Park is one of the first locations that is impacted by fluvial flooding in Hurley. As such, it is appropriate that residents are prepared.	Residents of Hurley Caravan Park	Royal Borough of Windsor and Maidenhead	Community at risk	Ongoing

Table 8- Recommendations for Hurley

BISHAM

This section details the causes and impacts of the flooding to Bisham Parish.

DESCRIPTION OF FLOODING

The flooding in Bisham came from a combination of exceedance of the River Thames channel and emerging groundwater.

Property flooding began on the 6th January and peaked on the 7th January. Property flooding continued with residents reporting flooding to their properties up to the 10th January.

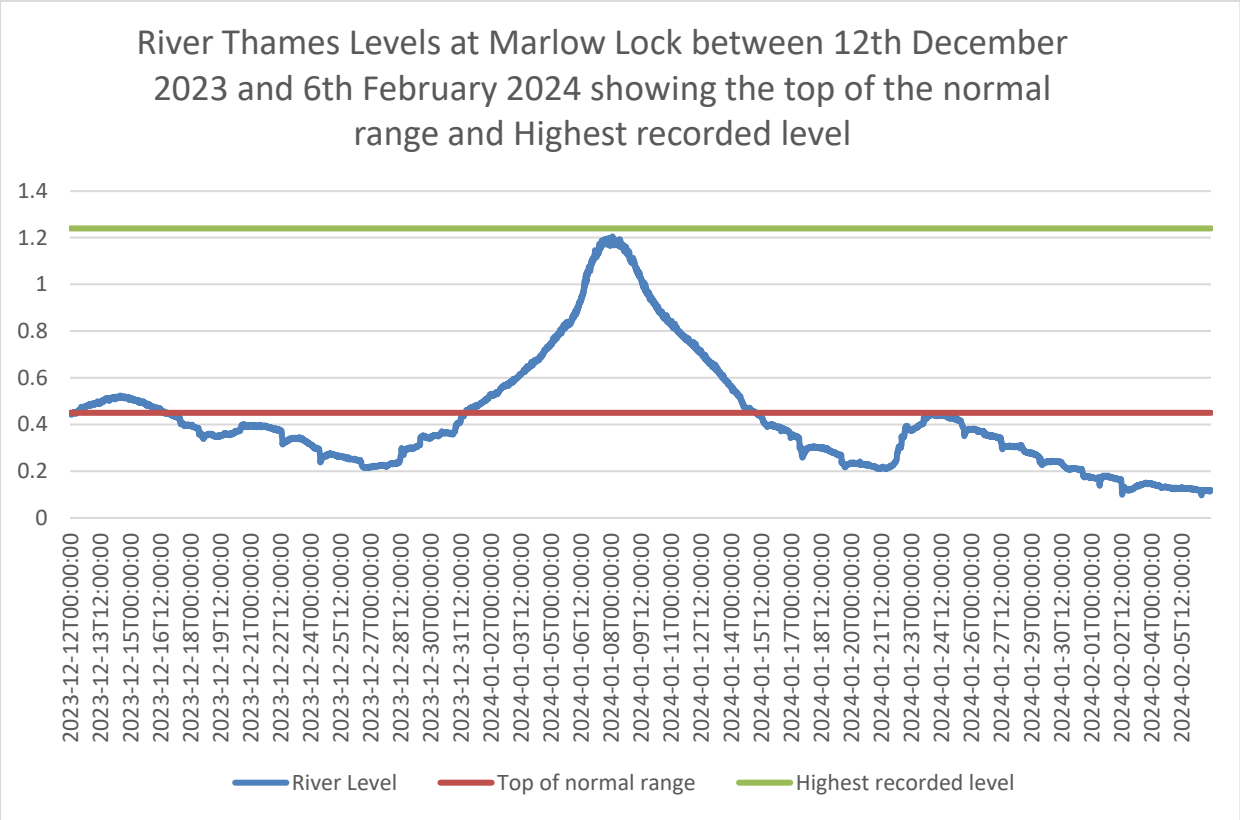

Figure 17- Graph showing River Thames levels in meters at Marlow Lock from 12th December 2023 to 6th February 2024.

Most of the properties that experienced flooding were located next to the Thames and as such flooded from the river breaking it's banks. This was widespread across Bisham alongside the Thames with most properties impacted to some degree.

In addition to the properties adjacent to the Thames, there were a couple of flow routes for flood water observed. The first of these was where water flowed south across Quarry Wood Road impacting properties to the south. The second was across agricultural fields to the west of the A404 bridge.

Bisham Parish Council also raised concern over the level of a footbridge located over the Bisham Brook at The Green indicating that they believed it sat too low and was causing water to back up in the Brook. While there was evidence of water flowing up against the bridge, the Environment Agency have confirmed that this was investigated in detail previously with flooding to the Green generally occurring before the level of the footbridge is reached.

Residents report that flood water for properties located next to the Thames were impacted for approximately 2 weeks.

Bisham also experienced widespread flooding from emergent groundwater. This impacted a number of properties along Bisham Road which were not impacted by fluvial flows directly from the river. The groundwater that emerged came up over a few days and residents reported that it reached approximately 4 feet deep with water rising 8 inches overnight on the 7th January.

Groundwater flooding was widespread across agricultural land. In some cases, there was joint interaction between groundwater and fluvial flows.

IMPACT OF THE FLOODING INCIDENT

Table 8 sets out the numbers of properties impacted by flooding in Bisham. It is important to note that these figures are based on the numbers of properties who reported flooding and those that were visited subsequently. The true impact is expected to be larger due to some residents not reporting flooding for reasons such as fear of impact to their insurance or mortgages.

Internal Flooding	External Flooding
16	11

Table 9- Table showing the reported property impact in Bisham

Of the properties impacted, there were 2 internally flooded commercial properties.

There were 4 road closures within Bisham Parish. These were:

- Quarry Wood Road
- Dungrove Hill Lane
- Lee Lane
- Braddenham Lane

These closures limited access to Bisham from the east and however roads were still accessible from the south.

Figure 18- Road closure of Quarry Wood Road, Bisham

CAUSES AND PATH OF FLOODING

The main cause of the flooding was the very high level of rainfall over the year preceding and during Storm Henk over the Thames catchment. This in turn resulted in major flooding across the borough with the River Thames coming out of bank.

The flow routes of fluvial water mentioned in the Description of Flooding were likely the result of lower walls and banks on that part of the Thames. This was also the cause of the closure of Quarry Wood Road as the flow routes were observed between the junction with Bisham Road and west of the A404 bridge.

In addition to this, emergent groundwater was widespread across Bisham with a number of properties impacted by groundwater rising over a couple of days. The groundwater rise was gradual at first but sped up through the incident with residents reporting an 8-inch rise in groundwater levels overnight on the 7th January.

The Parish Council reported that flood water backed up along the watercourse at The Green. It is not known if this was the result of water backing up from the River Thames or if the level increased due to groundwater draining away from adjacent areas however no properties were reported to have been impacted on The Green.

The road closures in Bisham were the result of different mechanisms of flooding. Dungrove Hill Lane and Lee Lane flooded due to intense rainfall causing surface water to runoff adjacent fields onto the highway. The highway drainage infrastructure on Dungrove Hill Lane

requires a clean to remove silt from both gullies and soakaways. This is currently blocked meaning that sections of the road flood regularly during rainfall with more significant flooding on this occasion. Lee Lane is similar however the connections for the gullies have been damaged meaning more significant works are required to restore this part of the highway drainage network.

RECOMMENDATIONS/FLOOD RISK FUNCTIONS IDENTIFIED

The following recommendations should be examined by the flood risk management authorities and residents to be assessed for their feasibility and financial viability. Recommendations are not instructions and need to be examined by the relevant Risk Management Authority or individual.

Reference	Area	Recommendation	Context	Primary Risk Management Authority	Secondary Risk Management Authorities	Duty, Power or Role of Primary RMA	Timescales for recommendation
B1	Bisham	Undertake drainage work at Dungrove Hill Lane	The gullies and soakaways on Dungrove Hill Lane are full of silt and not able to drain water.	Royal Borough of Windsor and Maidenhead	N/A	Highway Authority	By July 2025
B2	Bisham	Capital works at Lee Lane	The highway drainage system at Lee Lane is damaged and requires capital works to establish a new point of drainage	Royal Borough of Windsor and Maidenhead	N/A	Highway Authority	By July 2025

Table 10- Recommendations for Bisham

COOKHAM

This section details the causes and impacts of the flooding to Cookham Parish.

DESCRIPTION OF FLOODING

The flooding in Cookham Parish was more widespread than that in Hurley and Bisham.

The peak flow of the Thames occurred overnight between the 7th and 8th January 2024. This matched up with the start of the property flooding in Cookham with the most severe flooding occurring on the 8th January.

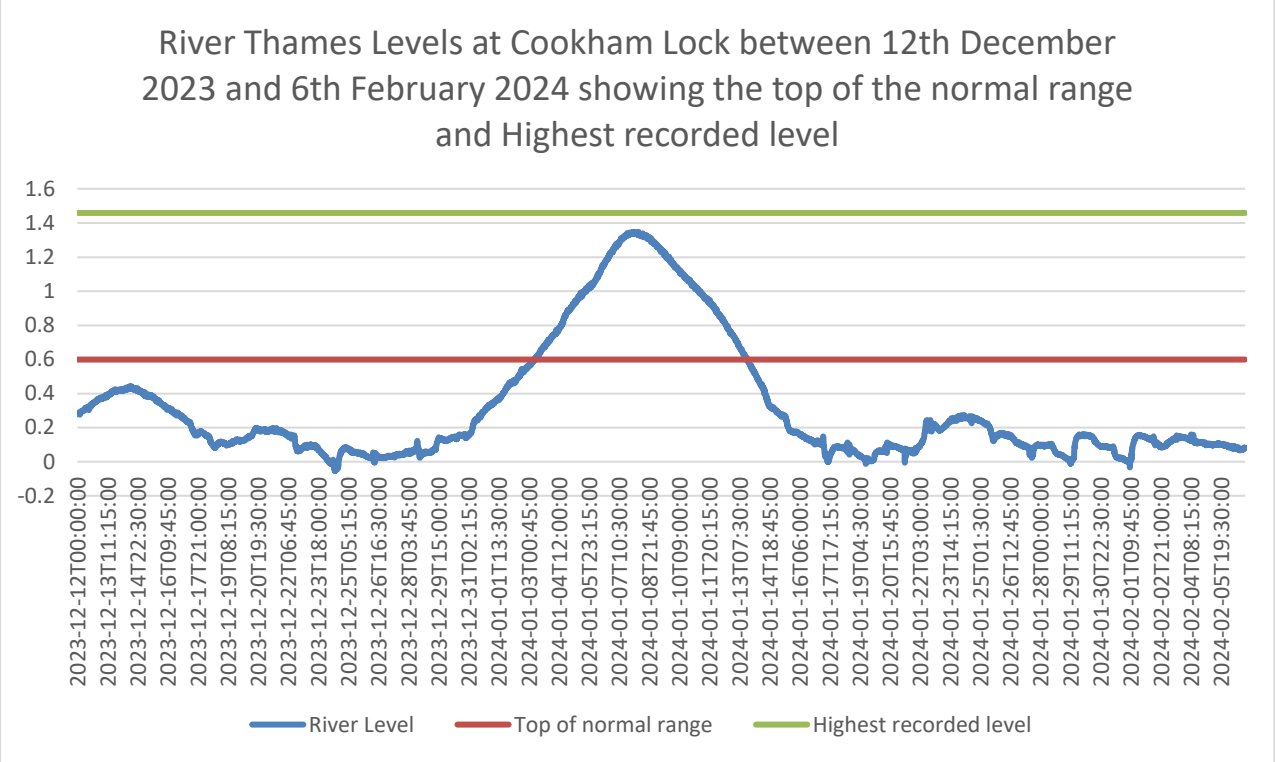

Figure 19- Graph showing River Thames levels in meters at Cookham Lock from 12th December 2023 to 6th February 2024.

Like other areas, land and properties close to the river were impacted where the Thames broke its banks. Unlike Hurley and Bisham, Cookham is a smaller density of properties on the riverside.

Most of the fluvial flooding however was the result of a flow route flowing from the north at Cookham Moor. The flood flows exceeded the levels of the Marsh Meadow Bund and flowed south, joining up with watercourses such as Strande Water. This water flowed over Moor Road flooding up to approximately 3 feet deep and resulting in the road being closed. The main flood water flowed south and then diverted to the east once it met the North Maidenhead Bund, flowing across Sutton Road and through Battlemead Common to rejoin the Thames. The flow across Sutton Road also resulted in the road being closed.

The two road closures of Moor Road and Sutton Road, along with the works being done to the Cookham Bridge meant that the Cookham Causeway Plan was enacted to ensure Cookham Village could still be accessed.

While the majority of the flooding in Cookham was the result of fluvial flooding, there were a couple of reported areas of groundwater flooding also. It is also very likely that the areas impacted by fluvial flooding were also impacted by groundwater rising which would increase the depth of flooding in those areas.

The fluvial flood water that flowed through the Strande Water travelled to areas such as Strande Lane with some water also flowing through agricultural land. Residents at Strande Lane report that flooding happened to properties as water flowed from the surrounding land. Residents also reported that they believe that the level of water increased over time due to the flow of water may have been obstructed by the North Maidenhead Bund. In addition to this, the area was impacted by rising groundwater which some properties flooding internally from under floorboards.

Finally, Cookham was widely impacted by outages of the foul sewer network. Areas such as Lightlands Lane and Westwood Green. No residents reported sewage backing up into their properties however residents did report that they could not use the foul network as a result of the system being overwhelmed by the volume of water. Much of this is likely linked to the Lightlands Lane Pumping Station being out of service during the flooding incident. It is reported that this was not functioning as the electrical supply was damaged by flood water but may also have been impacted by the presence of flood water around the pumping station and quantity of water running through the network overworking the pumping station.

Thames Water have confirmed that this was due to a large part of the gravity sewer network being submerged by floodwater from the River Thames, plus some sections being impacted by groundwater ingress. The large volume of water entering the sewer network overloaded it, leading to loss of service to some residents. The Lightlands Lane was switched off for 2 days during the flooding incident with loss of the use of the sewer network extending beyond times when the pumping station was turned off.

The flooding started to subside around the 12th to the 15th January allowing the closures of Moor Lane and Sutton Road to be lifted and the Cookham Causeway to be closed to traffic.

IMPACT OF THE FLOODING INCIDENT

Table 10 sets out the numbers of properties impacted by flooding in Cookham. It is important to note that these figures are based on the numbers of properties who reported flooding and those that were visited subsequently. The true impact is expected to be larger due to some residents not reporting flooding for reasons such as fear of impact to their insurance or mortgages.

Internal Flooding	External Flooding
14	3

Table 11- Table showing the reported property impact in Cookham

Of the properties impacted, there was 1 internally flooded commercial property.

There were 2 road closures within Cookham Parish. These were:

- Sutton Road
- The Pound.

Due to these road closures causing significant issues in terms of access to Cookham village, the Cookham Causeway Plan was enacted on 6th January 2024 to allow limited access by both foot and road.

Due to this loss of access, some businesses reported that there was an additional commercial impact to the road closures due to loss of footfall and traffic coming through.

There was also loss of the sewage network in areas such as Lightlands Lane and Westwood Green due to the loss of power to the sewage pumping station on Lightlands Lane.

Figure 20-Photo showing flooding to the Lightlands Lane Pumping Station

CAUSES AND PATH OF FLOODING

The main cause of the flooding was the very high level of rainfall over the year preceding and during Storm Henk over the Thames catchment. This in turn resulted in major flooding across the borough with the River Thames coming out of bank.

The main flow route came from north of the village over Cookham Moor. This flow was temporarily obstructed by the Marsh Meadow Bund however this was overtopped once the flood waters exceeded its design capacity. This is the point at which Moor Road and Sutton Road were impacted by flooding as water continued to flow south via the existing watercourse network such as Strande Water and the White Brook.

This flow continues to flow south until it reaches the North Maidenhead Bund which then directs flow to the east, back towards the main channel of the Thames. In addition to this there is also a sluice at which allows some water to be released to the south via the

watercourse network. Some residents on Strande Lane have reported however that the North Maidenhead Bund holds up water, potentially increasing the risk of flooding and impact of flood water to their properties.

In addition to the fluvial flows, the flooding in Cookham was also fed by groundwater with some properties not impacted by fluvial flooding instead being impacted by water rising from underneath. This was seen significantly in the southern parts of Cookham including Lightlands Lane and Strande Lane where water rose in field adjacent to properties and was not able to drain away for a couple of months.

This rising groundwater, as well as the volume of fluvial flood water is also a significant reason for the impact to the public sewer network throughout the incident. Thames Water have reported that a significant impact on their network was ingress of significant amounts of water which exceeded the capacity of the sewer system. This meant that the sewer network had very limited capacity throughout the flooding incident for residents to use their facilities.

This was a combination of the Lightlands Lane Pumping Station not being able to deal with the capacity of water being transported and a loss of electrical supply as the electrical substation next to the pumping station was compromised by flood water resulting in the pumping station being turned off for 2 days.

RECOMMENDATIONS/FLOOD RISK FUNCTIONS IDENTIFIED

The following recommendations should be examined by the flood risk management authorities and residents to be assessed for their feasibility and financial viability. Recommendations are not instructions and need to be examined by the relevant Risk Management Authority or individual.

Reference	Area	Recommendation	Context	Primary Risk Management Authority	Secondary Risk Management Authorities	Duty, Power or Role of Primary RMA	Timescales for recommendation
C1	Cookham	Thames Water to consider investigating what steps or works may be required to mitigate the impact of flooding to the Lightlands Lane Pumping Station. This should include conversations with other Risk Management Authorities and Utilities.	The Lightlands Lane pumping station is regularly impacted by flooding or from losses of power supply at times of significant flooding	Thames Water	SSEN (Electric Utility)	Sewerage Undertaker	By December 2024

C2	Cookham	Royal Borough of Windsor and Maidenhead and National Trust to consider removing hay bales from fields where flood waters are known to flow through	Residents are concerned about the potential impact of flood water picking up hay bales and carrying them until the they become obstructions to the flow of water. While on this occasion no increase in risk of flooding was evident, this may not always be the case.	Royal Borough of Windsor and Maidenhead & National Trust	Other Landowners	Landowner	By March 2025
C3	Cookham	Royal Borough of Windsor and Maidenhead to consider investigating the condition of the penstock on High Street Cookham to ensure it is fully functional. It is also recommended that the Council review the Plan to open and close the penstock during a flooding	Follow a flooding event it is important to ensure all infrastructure is fully functioning. It is also a good time to review the Cookham Causeway plan where the Penstock plan is located.	Royal Borough of Windsor and Maidenhead & National Trust	N/A	Lead Local Flood Authority, Highway Authority, Emergency Planning Service	By March 2025

		incident and who holds the relevant keys.					
C4	Cookham	Environment Agency to investigate resident concerns that mitigation bunds from MWEFAS are impacting properties on Strande Lane	Residents have raised concerns that mitigation bunds installed as part of the Maidenhead, Windsor and Eton Flood Alleviation Scheme are holding flood water and deflecting this flow towards Strande Lane.	Environment Agency	N/A	Strategic Flood Risk Authority responsible for the management of MWEFAS	Ongoing
C5	Cookham	The residents of Strande Lane should consider developing a Community Resilience Plan	Strande Lane is impacted by all sources of flooding and is also at risk of having access cut off when the road which	Residents of Strande Lane	Royal Borough of Windsor and Maidenhead	Community at risk	Ongoing

			meets Lightlands Lane floods. Residents would benefit from understanding what steps to take when different issues arise.				

Table 12- Recommendations for Cookham

DATCHET

This section details the causes and impacts of the flooding to Datchet Parish.

DESCRIPTION OF FLOODING

Like all other areas in the borough, Datchet Parish also experienced flooding as a result of the peak flows of the River Thames exceeding the capacity of the river channel however this was not as widespread as other areas.

The peak of the flow came through Windsor Lock, upstream of Datchet, on 8th January 2024 as shown in Figure 20.

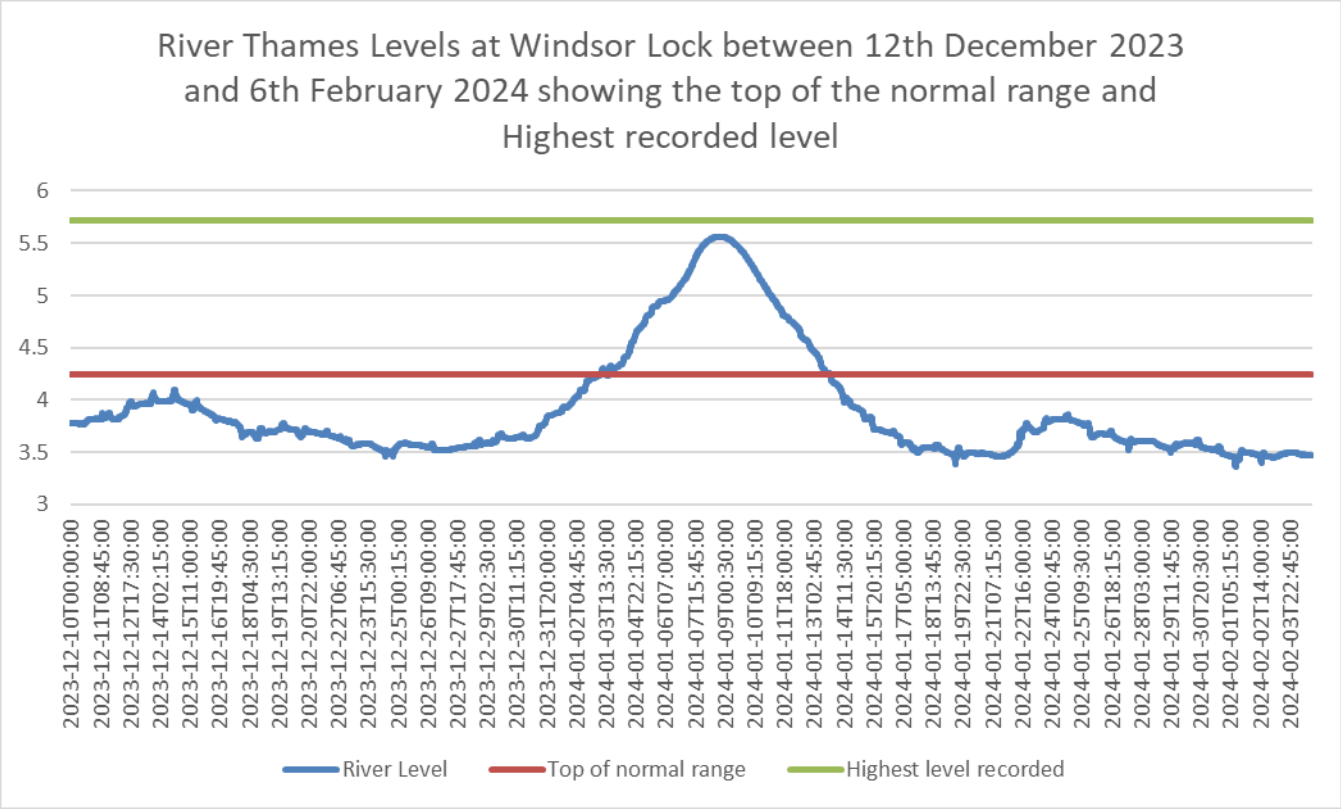

Figure 21- Graph showing River Thames levels in meters at Windsor Lock from 12th December 2023 to 6th February 2024.

There were two main points at which fluvial flows came out of the channel. These were through a channel flowing into Datchet Golf Course and on Southlea Road.

Water back flowed through a drainage ditch into Datchet Golf Course, via a tunnel under Windsor Road, which flooded the vast majority of the site, including the practice pitch of the Golf Course. In addition to this water also flowed into the Golf Course via a roadside watercourse running adjacent to Windsor Road. Water also flowed into the Golf Course from the north around Black Potts weir and a watercourse running adjacent to Windsor Road. This flow of water was prevented from flowing any further east by the Sumptermead Bund running through the Golf Course.

The Sumptermead Bund continues into the premises of Eton End School, with the railway line running over it for a short distance. Where this is the case, there is an historic cattle pass which runs under the railway. In 2014, large sandbags were installed to prevent flow

from entering the grounds of the school. These sandbags are still in place but are not in a condition which prevented the flow of flood water. As such some fluvial flood water flowed into the grounds of the school. Internal flooding of a basement storeroom and external classrooms and external flooding of most of the site as the site experienced some groundwater rising throughout the incident, adding to the volume of water on the site. The flooding at the school remained for an extended period of time as the presence of the bund prevented flood water from being able to drain away.

Residents also report that the Myrke Ditch to the north of Datchet also broke its banks which allowed flood water to flow across nearby fields. This mixed with rising groundwater and flooded field to the north of Eton End School however no further properties were recorded as being impacted. It is not clear if the Myrke Ditch did break its banks however as the pumping undertaken by the Environment Agency should prevent this.

Flooding also occurred at Southlea Road, where a road closure was in place as a result of flood water from the River Thames flowing through a point where part of an informal bund had been removed by landowners. This allowed water to flow through the site and onto the highway, flowing east into the Thames Water site, however no impact to the site has been recorded.

Flooding was also recorded elsewhere on Southlea Road however this was limited to river side properties with water not reaching road level in most cases.

The Parish Council also reported that while the level of water in the Datchet Common Brook allowed water to backflow into the ditch at Datchet Recreation Ground, there was very limited impact, with only one property recorded as being impacted in the eastern part of Datchet Village. In addition, there was only a small amount of water on Datchet Recreation Ground which came from the ditch breaking banks and localised pooling from rising groundwater. This was significantly less impactful than the flooding in 2014.

Finally, in addition to Southlea Road, Datchet Road and Horton Road to the east of Datchet Village were closed as a result of flooding. This flooding included sewage on the road which came from surcharging manholes situated on the highway.

Flooding in Datchet subsided around 11th January 2024 with road closures also lifted on the same day. There were however some rural areas such as the fields around the Eton End School with groundwater present for a prolonged period of time and this remained the case for a couple of months like other areas in the borough.

The Myrke Ditch runs parallel to the downstream end of the Jubilee and has an outfall into the Jubilee downstream of Black Potts Weir where the Jubilee rejoins the River Thames. When the Jubilee is in operation as a flood relief channel penstocks in the culvert close to prevent the Thames backing up into the Myrke Ditch. The Environment Agency deploys mobile pump(s) in the penstock chamber to overpump flows from the Myrke Ditch into the Jubilee.

IMPACT OF THE FLOODING INCIDENT

Table 12 sets out the numbers of properties impacted by flooding in Datchet. It is important to note that these figures are based on the numbers of properties who reported flooding and those that were visited subsequently. The true impact is expected to be larger due to some

residents not reporting flooding for reasons such as fear of impact to their insurance or mortgages.

Internal Flooding	External Flooding
3	1

Table 13- Table showing the reported property impact in Datchet

Of the properties impacted, there was 1 internally flooded commercial property.

There were 2 road closures within Datchet Parish. These were:

- Southlea Road
- Datchet Road and Horton Road (including the roundabout junction)

These road closures significantly impacted access to Datchet from the south (Wraysbury and Old Windsor) with traffic being directed on the motorway network instead.

Figure 22-Photo showing flooding on Southlea Road, Datchet

CAUSES AND PATH OF FLOODING

The main cause of the flooding was the very high level of rainfall over the year preceding and during Storm Henk over the Thames catchment. This in turn resulted in major flooding across the borough with the River Thames coming out of bank.

This rising water directly led to some properties situated on the banks being flooded internally. The water level did not break the channel banks for the most part, flood water reached areas away from the channel due to existing flow routes into the Thames. The first

of these was the ditch connecting Datchet Golf Course to the Thames via a tunnel under Windsor Road. Water back flowed through this channel, under Windsor Road and into the Gold Course. The Golf Course then acted as the flood plain to store flood water during the incident. The Sumptermead bund which runs through and along the eastern boundary of the Golf Course prevented flooding progressing to residential areas to the east.

The other main flow route which caused impacts to Datchet was located at Southlea Road. The removal of a section of the Southley Bund by one private landowner allowed flood water to flow from the main channel to the east. This flooded the property and then onto the highway, resulting in the road being closed. Water continued to flow to the east however there was no further impact recorded.

The full cause of the road closure at Datchet Road and Horton Road is unknown however there was reported issues with sewage surcharge at this location. The flooding is also likely to be caused by the capacity of the culvert under Horton Road, which allows the Datchet Common Brook to pass under the highway, being exceeded. It is already known that the Datchet Common Brook was likely to be flowing at bank-full conditions however it is unknown if the obstruction was from water flowing downstream or if flows were backing up through the channel. The capacity of the Datchet Common Brook due to the level of silt in the channel has been an issue raised by Datchet Parish Council for some time, particularly on land owned by Thames Water adjacent to the Queen Mother Reservoir.

This also links into the impact felt at Datchet Recreation Ground as the water back flowed from the Datchet Common Brook through the local drainage infrastructure to the recreation ground. This is likely due to a combination of local topography and the capacity of the Datchet Common Brook being likely reduced due to the level of silt in the channel.

RECOMMENDATIONS/FLOOD RISK FUNCTIONS IDENTIFIED

The following recommendations should be examined by the flood risk management authorities and residents to be assessed for their feasibility and financial viability. Recommendations are not instructions and need to be examined by the relevant Risk Management Authority or individual.

Reference	Area	Recommendation	Context	Primary Risk Management Authority	Secondary Risk Management Authorities	Duty, Power or Role of Primary RMA	Timescales for recommendation
D1	Datchet	Environment Agency to consider reinstatement of the bund at the property Poplars.	Development work has seen a section of bund removed which allowed flood water to flood Southlea Road	Environment Agency	N/A	Relevant authority for Fluvial Flood Risk	By December 2025
D2	Datchet	Thames Water to consider maintenance of the Datchet Common Brook. Environment Agency copied as relevant authority with enforcement powers for this maintenance.	The Parish Council has raised the level of silt in the channel for some time. Maintenance of the channel would increase the capacity of the channel to hold flood water	Thames Water	Environment Agency	Landowner	TBC

Table 14- Recommendations for Datchet

WRAYSBURY

This section details the causes and impacts of the flooding to Wraysbury Parish including both Wraysbury and Hythe End.

DESCRIPTION OF FLOODING

Wraysbury Parish was the area of the borough with the widest flooding impacts from Storm Henk in January 2024. While the peak flow of water from the Thames arrived at Wraysbury on 8th January, as shown on Figure 22 which shows the recorded levels of the River Thames at Old Windsor Lock, external flooding was being recorded as early as 1st January with the first report of internal flooding occurring on the 7th January.

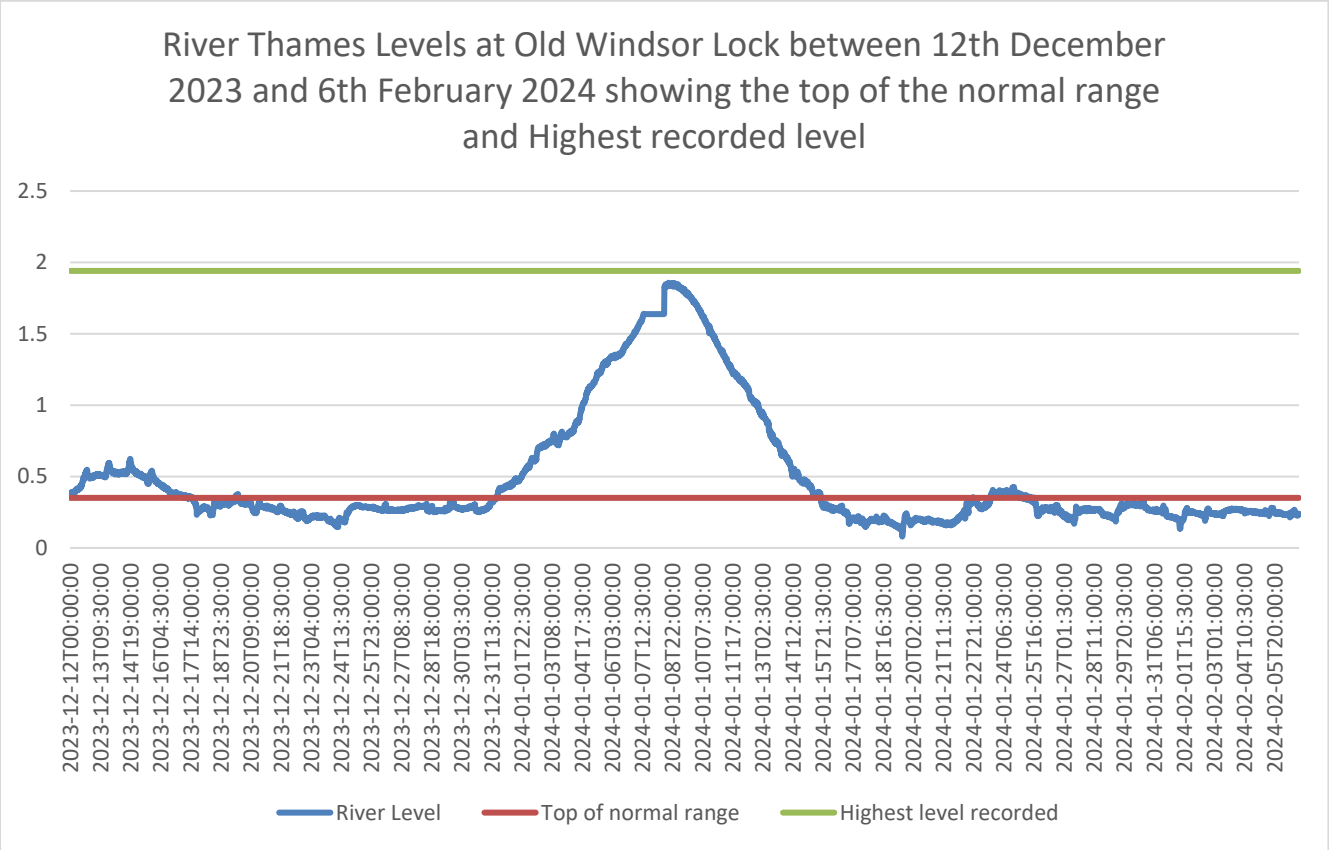

Figure 23- Graph showing River Thames levels in meters at Old Windsor Lock from 12th December 2023 to 6th February 2024.

The high level of flow recorded meant that fluvial flooding was recorded for the vast majority of the area in Wraysbury adjacent to the River Thames. This includes a large number of properties as Wraysbury has a significant amount of residential development close to the river.

The Thames broke its banks in a number of locations in Wraysbury. When this was the case, flood waters were reported to flow south to join up with the River Channel again as it changes direction around Hythe End. This follows the topography of the area and likely flows old channel routes of the River Thames prior to development.

Most of the locations that the Thames broke its banks are areas without any type of defence, including informal defences. The Avenue, in the north of Wraysbury, was however an area that has an informal bund but was impacted by flooding on this occasion. This was due to

flood water flowing through a gap in the informal bund allowing water to flow through to the front of properties and the highway. The flood water also continued to flow east until it entered the large lake which sits north of Wraysbury village. This caused the level of the lake to increase an approximately 6 feet at the beech north of the village green according to locals. This lake does not have an outflow meaning that this increase in level took approximately 4 months to reduce to normal levels.

Fluvial flood water was also reported to cause flooding externally to properties, as well as the village green, which are situated adjacent to the Wraysbury Drain. This is likely the result of water backing up through the channel however the impact of this source of flooding was not reported to be significant through the incident.

A major factor in the severity of the overall impact of the flooding in Wraysbury was the addition of rising groundwater and groundwater flow through the area. Rising groundwater caused flooding underneath a large number of properties, including an increased impact to some properties already impacted by fluvial flooding closer to the river. Areas such as Ouseley Road and Wharf Road however are areas where the fluvial impact was smaller however a large number of properties experienced groundwater rising in gardens. This rising groundwater was not able to flow away in most locations. This includes Garson Lane, although residents with permission of the landowners to the south, released some water through a bund situated on the southern boundary of the properties. The rising groundwater did not soak back into the ground for a significant period of time with some properties reporting flooding still being in their gardens 4 months after the flooding occurred.

Groundwater flow was an additional issue at the Village Green. This was linked to the increase in levels to the lakes to the north which were filled by fluvial flows. Water in the lake is likely to have flowed through the ground to the lower lying village green. The Wraysbury Drain would then normally take flood waters away from the village green to rejoin with the Thames in Hythe End. The flooding in January 2024 made it clear that reports of a blockage in Hythe End were very likely as photos following the incident showed the watercourse at bank full levels at Feathers Lane in Hythe End, but a very low flow at downstream sections of Hythe End Road. As such, there was limited flow available for the water to be disposed of and likely increasing the amount of time it took for groundwater levels to reduce on the village green.

Groundwater flooding was also reported to be a significant issue at Hythe End Road as residents reported that in many cases properties were impacted by groundwater flowing from fields to the north before they were impacted by fluvial flooding from the south.

IMPACT OF THE FLOODING INCIDENT

Table 14 sets out the numbers of properties impacted by flooding in Wraysbury. It is important to note that these figures are based on the numbers of properties who reported flooding and those that were visited subsequently. The true impact is expected to be larger due to some residents not reporting flooding for reasons such as fear of impact to their insurance or mortgages.

Internal Flooding	External Flooding
46	116

Table 15-Table showing the reported property impact in Wraysbury

Of the properties impacted, there were 5 internally flooded commercial properties.

There was 1 road closure within Wraysbury Parish. This was:

- Welley Road

While Welley Road was the only road formally closed, a number of other roads were inaccessible due to the flooding. These included (but may not be limited to):

- Hythe End Road
- The Island
- Friary Island
- King John's Close
- Feathers Lane

Wraysbury was also not accessible from the north as due to the Horton Road and Datchet Road closure in Datchet Parish. This meant that traffic looking to enter or leave Wraysbury was forced to go via the M25 or through Surrey.

Much of the impact was also felt in Wraysbury due to the time it took for water levels to subside. As groundwater levels remained high for months, residents could not access their gardens or in some cases their properties for long periods of time. The village green was also reported to not be useable for recreational activities. This remained the case until the summer.

Figure 24-Photo showing flooding around Hythe End Road, Wraysbury

While most residents across the borough remained in their homes, a number of residents in Wraysbury are known to been displaced from their properties during the flooding however they were able to return shortly after the fluvial flood waters started to recede.

CAUSES AND PATH OF FLOODING

The main cause of the flooding was the very high level of rainfall over the year preceding and during Storm Henk over the Thames catchment. This in turn resulted in major flooding across the borough with the River Thames coming out of bank.

Fluvial flooding as such was the major cause of the initial flooding in Wraysbury with many areas not having formal or informal flood defences. The impact to many properties was reduced in areas such as Friary Island and Wharf Road as properties have been built up since flooding in 2014.

The flooding at The Avenue however was caused by the removal of part of the informal flood bund that runs along the back of many of the properties. This is an informal defence built up historically to provide an additional level of protection to properties in the northern part of Wraysbury. One section appears to have been removed as a result of a property being redeveloped and the ground being levelled as part of the works. The requirement for any development in the flood zones (in this case flood zone 3) requires voids to be utilised underneath the property. This in turn allowed flood water to pass underneath the property flowing on The Avenue causing flooding to both the highways adjacent, causing the Welley Road closure but also caused flooding to neighbouring properties.

This flow from The Avenue also continued into the adjacent lakes increasing the water levels. It is believed this was a major driver as to why groundwater was high in Wraysbury for so long after the incident. This high ground water meant that flood water around properties away from the river took a long time, in some cases months, to soak away. As such, Wraysbury was not able to fully recover from the incident for some time. This was not helped by the local drainage infrastructure, such as the Wraysbury Drain, being impeded at downstream sections such as in Hythe End and in the Ankerwyke site. This further reduced the ability for Wraysbury to drain away its flood water, increasing the amount of time water remained following the flooding. The Parish Council have also raised concerns that this is a wider issue for many watercourses in Wraysbury and may have prevented other areas of pooling water to flow away.

Figure 25-Photo showing flooding to properties around Garson Lane, Wraysbury

In addition to these obstructions to flow, it was reported that the smaller channel around Friary Island has been historically blocked as some residents have blocked it to create accesses to their properties. This may have increased the risk of flooding to other properties in that area which sit close to the channel, with one property being flooded internally while others nearby were not affected as severely.

RECOMMENDATIONS/FLOOD RISK FUNCTIONS IDENTIFIED

The following recommendations should be examined by the flood risk management authorities and residents to be assessed for their feasibility and financial viability. Recommendations are not instructions and need to be examined by the relevant Risk Management Authority or individual.

Reference	Area	Recommendation	Context	Primary Risk Management Authority	Secondary Risk Management Authorities	Duty, Power or Role of Primary RMA	Timescales for recommendation
W1	Wraysbury	Royal Borough of Windsor and Maidenhead to consider undertaking work to better understand the flood risk associated with the Wraysbury Drain	Better understanding of the Wraysbury Drain is needed before spending/enforcement can be undertaken.	Royal Borough of Windsor and Maidenhead	N/A	Lead Local Flood Authority	By December 2026
W2	Wraysbury	Environment Agency to consider undertaking enforcement action against landowners who have built over sections of the side channel around Friary Island.	Residents have informed that the channel has been obstructed/blocked by installation of driveways over the channel. Further investigation and possibly enforcement is required to ensure the free flow of water downstream	Environment Agency	N/A	Relevant authority for Main Rivers	By April 2025

W3	Wraysbury	Royal Borough of Windsor and Maidenhead to consider undertaking further investigation to determine what if any obstructions are located within the Horton Drain, including man-made obstructions, and determine if any enforcement of maintenance is required.	Further investigation of the Horton Drain is required to ensure water can flow without any significant obstructions	Royal Borough of Windsor and Maidenhead	Environment Agency	Lead Local Flood Authority	By December 2025
W4	Wraysbury	Environment Agency to consider action to determine whether the bund at The Avenue can be reinstated.	Development work has seen a section of bund removed which allowed flood water to pass through the Avenue, flow across Welley Road to the lakes.	Environment Agency and Royal Borough of Windsor and Maidenhead	N/A	Relevant authority for Main Rivers Local Planning Authority	By December 2025
W5	Wraysbury	Royal Borough of Windsor and Maidenhead and Environment Agency to consider ways to mitigate the impact of flooding to properties at Garson Lane	Flood waters get trapped in the gardens of Garson Lane without any way for water to flow away. During the flooding incident residents made a gap in the bund to allow water to flow away	Royal Borough of Windsor and Maidenhead	Environment Agency	Lead Local Flood Authority	By December 2027

		where water is trapped behind a bund. This though must take impact to other property into consideration.	and speed up recovery.				
W6	Wraysbury	Royal Borough of Windsor and Maidenhead to work with the Environment Agency to ensure information provided at planning stages is able to pick up any potential informal defences to limit the chance that they are lost as a result of new developments being permitted	Due to the redevelopment of a property in Wraysbury, flooding occurred to a number of properties as a result of section of informal flood bund being removed	Royal Borough of Windsor and Maidenhead	Environment Agency	Lead Local Flood Authority and Planning Authority	By April 2025
W7	Wraysbury	Royal Borough of Windsor and Maidenhead to work with the National Trust as landowners to maintain sections of the watercourse	To give Wraysbury further ability to drain following a flooding incident, maintenance of the watercourse network at Ankerwyke is needed to remove obstructions to flow	National Trust	Royal Borough of Windsor and Maidenhead	Landowner	Ongoing

		network through the Ankerwyke site					
W8	Wraysbury	Communities across Wraysbury should consider developing Community Resilience Plans	There are multiple communities in Wraybury that flood in slightly different ways. These communities would benefit from understanding what steps they should take in the event of a flood	Communities of Wraysbury	Royal Borough of Windsor and Maidenhead	Community at risk	Ongoing

Table 16- Recommendations for Wraysbury

OLD WINDSOR

This section details the causes and impacts of the flooding to Old Windsor Parish.

DESCRIPTION OF FLOODING

Old Windsor is on the other side of the River Thames from Wraysbury meaning that the timescales of flooding were very similar. Old Windsor Lock as such is the most appropriate river gauge also to take readings from. Figure 22 which shows the recorded levels of the River Thames at Old Windsor Lock however in the case of Old Windsor, while the peak of the Thames occurred on the 8th January, the majority of reported internal flooding occurred on the 6th January. Further flooding between the 7th to the 9th January occurred however this was mostly confined to external flooding.

The majority of the reported flooding that occurred in Old Windsor was recorded on Ham Island. The flooding to Ham Island came from two main directions. The first of these to occur was when the wall that makes up the western boundary between the properties and the river was overtopped. This started at one property but spread to the others that make up this boundary between numbers 23 and 25. This resulted in some of those properties nearest the wall to be flooded internally and others to be flooded externally.

Figure 26- Photo showing flooding at Ham Island

At a similar time, a second flow route of water onto Ham Island also occurred. This flow route back flowed through a ditch located within the Thames Water land to the east of the residential portion of Ham Island. Once the capacity of the channel was exceeded, water spilled across the land and flowed north. The residential properties were initially protected by a bund creating a boundary between the residential and Thames Water land. The bund runs up to point which is approximately level with 16 Ham Island, meaning that once flood water reached this point it flowed into land closer to the residential properties which included garages and gardens, before flowing towards the properties themselves and the road. Most properties on Ham Island are built up off the ground so while some were impacted internally, most did not experience flooding of habitable space.

While fluvial flooding spanned most of the southwestern part of Ham Island, fluvial flood water was not the primary source of flooding on the eastern part of the island. This is because the eastern boundary of Ham Island with the Thames has a raised bank which increases the height of the water required for fluvial flooding to occur at this point. This area experienced widespread groundwater flooding. This was particularly felt on land rented by the Blue Acre Horse Sanctuary on the eastern side of Ham Island. This is shown in Appendix 7f.

Other areas that were flooded during Storm Henk include land adjacent to the Meadow Way ditch. The flooding from this source was limited to agricultural land around the watercourse with no properties reporting any flooding.

On Straight Road, a number of properties adjacent to the river were flooded internally however this was generally restricted to garages and habitable ground floor spaces. This was limited to the southern part of Straight Road There were other properties including commercial property which was also impacted in this area. The Tapastries, on the northern end of Straight Road, was also impacted with properties being flooded externally however residents report that flood water came up through drainage infrastructure on the road.

IMPACT OF THE FLOODING INCIDENT

Table 17 sets out the numbers of properties impacted by flooding in Old Windsor. It is important to note that these figures are based on the numbers of properties who reported flooding and those that were visited subsequently. The true impact is expected to be larger due to some residents not reporting flooding for reasons such as fear of impact to their insurance or mortgages.

Internal Flooding	External Flooding
7	27

Table 17 - Table showing the reported property impact in Old Windsor

Of the properties impacted, there was 1 internally flooded commercial property.

Included in the impacted commercial property is the Blue Acre Horse Sanctuary. The flooding to the land resulted in only one third of the land being usable to house the horses. As such, the sanctuary had to move most of the animals on the site to other stables.

The other commercial area that was impacted was the Thames Water sewage treatment plant. While there was flooding to the land around the plant, the site was functional throughout the flooding incident. Some residents on Ham Island reported that the Thames Water pumping station stopped working as it was surrounded by flood water. This limited the use of resident’s toilets drains.

There were no road closures in Old Windsor parish however flooding to the A308 in Surrey caused a road closure to be put in place by Surrey County Council which prevented direct access to and from the M25 via Runnymede.

CAUSES AND PATH OF FLOODING

The main cause of the flooding was the very high level of rainfall over the year preceding and during Storm Henk over the Thames catchment. This in turn resulted in major flooding across the borough with the River Thames coming out of bank. This was the direct cause of

flooding to the properties closest to the river This was more limited in Old Windsor than in other areas however with more local factors having a role in the flooding.

The first of these local features was the wall at Ham Island. While it did not cause flooding, residents were concerned throughout the peak flow of the Thames that the condition of the wall may cause it to collapse which would create a surge of water towards properties. The reason for this concern is that the wall has a number of cracks which residents observed flood water coming through. Water levels were high against the wall for a prolonged period of time also which residents were concerned would put additional strain on the wall. The level of the Thames during the peak of flow was higher than the level of the wall. This resulted in water flowing over the wall like a weir and flowing quickly towards the properties closest to the wall.

Figure 27- Photo showing the River Thames flowing next to the wall at Ham Island on 6th January 2024

Residents also reported that water flowed towards properties on Ham Island once the capacity of the ditch running through the Thames Water land to the east was exceeded and flood water flooded the adjacent fields. This progressed north through the incident until it flowed around the bund, approximately level with 16 Ham Island. This allowed water to flow into a field closer to properties which then built up higher until it flowed towards properties. Thames Water have confirmed that while there is some flood risk benefit to the bund, it was not originally built for that purpose, instead being a protection for the site against people looking to enter the land without permission.

The rising groundwater in Old Windsor, similar to other areas, was likely the result of fluvial water flowing through superficial deposits such as river gravels and emerging at low points matching the level of the river flow. Some areas however indicated that water rose through local drainage infrastructure. This was likely the result of water ingress through joins or breaks in pipework.

RECOMMENDATIONS/FLOOD RISK FUNCTIONS IDENTIFIED

The following recommendations should be examined by the flood risk management authorities and residents to be assessed for their feasibility and financial viability. Recommendations are not instructions and need to be examined by the relevant Risk Management Authority or individual.

Reference	Area	Recommendation	Context	Primary Risk Management Authority	Secondary Risk Management Authorities	Duty, Power or Role of Primary RMA	Timescales for recommendation
OW1	Old Windsor	Environment Agency to consider inspecting and taking any necessary steps to maintain the wall at Ham Island	There are a number of cracks in the wall which provide resistance to flooding from the Thames. Residents are concerned that the condition of the wall may require remedial work	Environment Agency	Landowners	Asset owners	By December 2026
OW2	Old Windsor	Royal Borough of Windsor and Maidenhead to work with residents and Blue Acre Horse Sanctuary to assist in development/updating of resilience and emergency plans	A number of residents of Ham Island sought advice during the incident. Development of plans would assist residents in future	Royal Borough of Windsor and Maidenhead	Environment Agency	Emergency Planning Service	Ongoing

OW3	Old Windsor	The residents of Ham Island should consider developing a Community Resilience Plan	Ham Island is uniquely impacted by flooding and residents would benefit from understanding what steps should be taken in the event of a flooding incident	Residents of Ham Island	Royal Borough of Windsor and Maidenhead	Community at risk	Ongoing

Table 18- Recommendations for Old Windsor

CONCLUSIONS

The flooding that resulted from Storm Henk shows that learning is needed to be taken forward both in terms of preparation and response but also in recovery. This can only be achieved by Risk Management Authorities and communities working together collaboratively to ensure plans are devised for brough wide and location specific issues.

This is even more important with flooding events, from all sources, becoming more common place due to the impact of climate change. As such, preparation is key moving forward. Communities should ensure they themselves are prepared at both a personal and a local level to react to flooding incidents in the same way that Risk Management Authorities should be prepared for emergencies. Communities play a vital part in the response to a flooding incident at times where RMAs may not be able to assist or are not yet at the scene of the incident. Without the actions of certain members of the community, the impact of the incident could be harder felt on the residents on the borough.

It is equally as important however that preparation for recovery is undertaken. Again, this should be done in a collaborative manner to ensure the needs of the communities are considered and weighed against the ability of the RMAs to assist with their issues at times of flooding.

The recommendations in this report are the starting point to investigating how the impact of flooding could be mitigated in future and responses to these recommendations will be made available in Appendix 8.

APPENDICES

1- RISK MANAGEMENT AUTHORITIES WITHIN ROYAL BOROUGH OF WINDSOR AND MAIDENHEAD
2- HISTORY OF FLOODING IN THE ROYAL BOROUGH OF WINDSOR AND MAIDENHEAD
3- BACKGROUND DATA ASSOCIATED WITH FLOODING INCIDENT
4- FLOOD RISK OF THE ROYAL BOROUGH OF WINDSOR AND MAIDENHEAD
5- GLOSSARY OF TERMS
6- IDENTIFICATION OF RISK MANAGEMENT AUTHORITIES
7- MAPS SHOWING EXTENT OF FLOODING
    a. HURLEY
    b. BISHAM
    c. COOKHAM
    d. DATCHET
    e. WRAYSBURY
    f. OLD WINDSOR
8- SUMMARY TABLE OF RECOMMENDATIONS
9- SOURCES OF DATA
10- LIST OF ROAD CLOSURES

APPENDIX 1 – RISK MANAGEMENT AUTHORITIES WITHIN ROYAL BOROUGH OF WINDSOR AND MAIDENHEAD

The below table shows the relevant Risk Management Authorities for flooding issues within the Royal Borough of Windsor and Maidenhead while also specifying the source of flooding they are responsible for managing. Links to webpages have also been provided where possible.

Risk Management Authority	Source of flooding	Webpages
Royal Borough of Windsor and Maidenhead	Surface Water flooding and Groundwater flooding Highway Flooding Emergency Planning Service	Flooding | Extreme weather | Royal Borough of Windsor and Maidenhead
Environment Agency	Fluvial flooding	Environment Agency - GOV.UK (www.gov.uk)
Thames Water	Sewer flooding	Contact us | How to contact Thames Water customer services
Berkshire Fire and Rescue	Emergency Service	N/A

Table 19-Flood Risk Management Authorities and Business as Usual contact details.

As well as the above, landowners also have a responsibility to manage the risk of flooding to their own properties and their communities where they have watercourses running through or adjacent to their property. In these circumstances, landowners or adjacent landowners are responsible for maintaining the channel of the watercourse to enable water to flow freely downstream.

Table 20 lists out contact details for these Risk Management Authorities which can be used to report flooding issues, including during a flooding incident.

Risk Management Authority	Reason to contact	Contact information
Berkshire Fire and Rescue and other emergency services	If there is a threat to life or evacuation needed.	Call 999
Royal Borough of Windsor and Maidenhead	For reporting surface water and groundwater flooding issues to both property and the highway. For reporting obstructions or blockages to ordinary watercourses.	Flooding.enquiries@rbwm.gov.uk For other Highway issues please use Highways@rbwm.gov.uk **Email addresses are monitored during working hours.** 01628 683800 during office hours, if outside normal office hours 01753 853517. Report a flooding or drainage problem | Royal Borough of Windsor and Maidenhead (rbwm.gov.uk)
Royal Borough of Windsor and Maidenhead	For queries about emergency planning and preparation outside of an incident. Contact details during Major Incidents will be publicised at the time.	Emergency.planning@rbwm.gov.uk **Email address is monitored during working hours.**
Environment Agency	For reporting flooding from Main Rivers such as the River Thames. For reporting obstructions to flow within Main River channels.	enquiries@environment-agency.gov.uk Environment Agency - GOV.UK (www.gov.uk) Environment incident hotline Telephone (24 hour service) 0800 80 70 60" and "Floodline# Telephone (24 hour service) 0345 988 1188 Type talk (for the hard of hearing) 0345 602 6340"
Thames Water	For reporting flooding from public sewers.	0800 316 9800 Contact us | How to contact Thames Water customer services

Table 20-Flood Risk Management Authorities and contact details.

APPENDIX 2- HISTORY OF FLOODING IN ROYAL BOROUGH OF WINDSOR AND MAIDENHEAD

The Royal Borough of Windsor and Maidenhead has a considerable history of flooding, particularly in relation to fluvial flooding from the River Thames however the Borough also has a history of surface water and groundwater flooding. This is set out in the table below:

Date	Event
January 1896	Flooding across the Thames Valley
December 1872/January 1873	Flooding across the Thames Valley
November 1875	Flooding in central areas of Windsor
December 1876/January 1877	Flooding in Windsor
1891	Flooding in Windsor
1894	Flooding in Windsor
1899	Flooding in Home Park
1912	Flooding in Home Park
January 1926	Flooding in Windsor
1929	Flooding in Windsor
January 1936	Flooding in Windsor
1947	Extensive flooding from the River Thames in Wraysbury, Datchet, Old Windsor, Clewer, Eton, Cookham, Bisham and Hurley.
1968	Flooding across Old Windsor
August 1969	Residential surface water flooding in Cookham
August 1970	Flooding across Windsor
1971	Flooding across Old Windsor
March 1972	Residential property flooding in Windsor
1974	Flooding across Old Windsor
1988	Surface Water flooding in Cookham
1993	Fluvial flooding in Windsor and Old Windsor
c.2000	Surface water flooding in Fifield
November 2002	Flooding across Windsor and Maidenhead. Flooding in Waltham St Lawrence
January 2003	Fluvial and groundwater flooding in Wraysbury, Datchet, Old Windsor, Cookham, Bisham and Bisham. Approximately, 128 houses were affected, many of which were located in the Ham Island and Wraysbury areas of the Royal Borough.
November 2005	Surface Water flooding in Ascot
2006	Residential flooding in Maidenhead
July 2007	Surface water flooding occurred across the borough with communities of Windsor, Maidenhead, Cookham, Holyport, White Waltham, Sunninghill and Waltham St Lawrence being some of the worst affected. This was the result of unseasonably wet months over May and June and a large downpour in July.
2007/2008	Sewer flooding in Cookham
2008	Flooding in Waltham St Lawrence
February 2009	Flooding from Poyle Channel
August 2011	Residential flooding in Maidenhead
November and December 2012	River Thames flooding of residential flooding with saturated ground thought to increase runoff to rivers.

December 2013 to February 2014	Extensive fluvial flooding across the borough in Wraysbury, Datchet, Old Windsor, Cookham, Bisham and Hurley. Surface water in Feb 2014 also impacted Fifield, Oakley Green, Holyport, Waltham St Lawrence and White Waltham. Approximately 170 properties were confirmed as experiencing internal flooding from a variety of sources including main rivers (145), fluvial gravels from main rivers (25) and groundwater (1). Although a significant and prolonged event, the Environment Agency records indicate that the flooding experienced in February 2014 in Windsor was estimated to be between a 6.6% AEP (1 in 15 year) and 5% AEP (1 in 20 year) flood event
September 2016	Residential surface water flooding in Maidenhead
January 2021	Residential surface water flooding in Bray Parish

Table 21- Historic flooding in Royal Borough of Windsor and Maidenhead

APPENDIX 3- BACKGROUND DATA ASSOCIATED WITH FLOODING INCIDENT

The following data has been used to inform the Section 19 Report. This data includes:

- River Levels on River Thames in lead up to and during the flooding incident (Environment Agency)
- Rain Gauge Data (Environment Agency)
- Groundwater Gauge Data (Environment Agency)
- Fluvial Flood Risk Mapping (Environment Agency)
- Surface Water Flood Risk Mapping (Environment Agency)
- Susceptibility to Groundwater Flooding (British Geological Survey)
- Historic Flood Mapping (Environment Agency)
- Property Flood Database (RBWM)
- Superficial geology (British Geological Survey)
- Bedrock geology (British Geological Survey)

APPENDIX 4- FLOOD RISK OF ROYAL BOROUGH OF WINDSOR AND MAIDENHEAD

Due to the file sizes, these maps are available upon request via email to flooding.enquiries@rbwm.gov.uk

The majority of this data, along with any more recent updates through the NAFRA2, are publicly available on Gov.uk

APPENDIX 5- GLOSSARY OF TERMS

Acronym	Definition
RBWM	Royal Borough of Windsor & Maidenhead
EA	Environment Agency
TW	Thames Water
LLFA	Lead Local Flood Authority
RMA	Risk Management Authority
LPA	Local Planning Authority
LDA1991	Land Drainage Act 1991
FWMA2010	Flood and Water Management Act 2010
TVLRF	Thames Valley Local Resilience Forum
SCG	Strategic Coordinating Group
TCG	Tactical Coordinating Group
Main River	Main Rivers are usually larger streams and rivers, but some are smaller watercourses of local significance. Main Rivers are designated by the Environment Agency and can be viewed on the Main Rivers Map.
Ordinary Watercourse	Ordinary Watercourses are usually smaller watercourses, and any not designated by as a Main River by the Environment Agency. These are defined in section 72 of the Land Drainage Act 1991. This excludes public sewers.
Very Low Flood Risk	Area with a very low probability of flooding from rivers (< 1 in 1,000 annual chance of flooding or <0.1%).
Low Flood Risk	Area with a low probability of flooding from rivers (between a 1 in 1000 and 1 in 100 annual chance of flooding or between 0.1% and 1%)
Medium Flood Risk	Area with a medium probability of flooding from rivers (between a 1 in 100 and 1 in 30annual chance of flooding or between 1% and 3.33%).
High Flood Risk	Area with a high probability of flooding from rivers (> 1 in 30 annual chance of flooding or greater than 3.3%).
Flood Risk Management Function	A flood risk management function is a function listed in the Act (or related Acts) which may be exercised by a risk management authority for a purpose connected with flood risk management.
Annual Probability	Throughout this document, flood events are defined according to their likelihood of occurrence. The term ‘annual probability of flooding’ is used, meaning the chance of a particular flood occurring in any one year. This can be expressed as a percentage. For example, a flood with an annual probability of 1 in 100 can also be referred to as a flood with a 1% annual probability. This means that every year there is a 1% chance that this magnitude flood could occur.
Instances of property flooding	The count of reported incidents of property flooding that occurred in January 2024.

Table 22- Glossary of Terms

Sources of Flooding

Source	Definition
Fluvial Flooding	Exceeding of the flow capacity of river channels (whether this is a Main River or an Ordinary Watercourse), leading to overtopping of the riverbanks and inundation of the surrounding land. Climate change is expected to increase the risk of fluvial flooding in the future.
Groundwater flooding	Emergence of groundwater at the surface (and subsequent overland flows) or into subsurface voids as a result of abnormally high groundwater flows, the introduction of an obstruction to groundwater flow and / or the rebound of previously depressed groundwater levels.
Surface Water Flooding	Intense rainfall exceeds the available infiltration capacity and / or the drainage capacity leading to overland flows and surface water flooding. Climate change is expected to increase the risk of surface water flooding in the future. This source is also referred to as pluvial flooding.
Sewer Flooding	Flooding from sewers is caused by the exceeding of sewer capacity and / or a blockage in the sewer network. In areas with a combined sewer network system there is a risk that land and infrastructure could be flooded with contaminated water. In cases where a separate sewer network is in place, sites are not sensitive to flooding from the foul sewer system.
Other Sources of Flood Risk	Flooding from canals, reservoirs (breach or overtopping) and failure of flood defences.

APPENDIX 6 – IDENTIFICATION OF RISK MANAGEMENT AUTHORITIES

There are a number of Risk Management Authorities (RMAs) that work together during a flooding incident, all covering different roles with regards to different sources of flooding and statutory functions.

Environment Agency (EA)

The EA are the authority tasked with strategic oversight of flooding and flood risk management and coastal erosion risk management in England and Wales. They have prepared strategies and plans that set out the ways that flood risk can be managed, providing data (e.g. Surface water and fluvial flood mapping) and provide advice to Government. The EA also support other RMAs to manage the risk of flooding in their areas with local support and guidance which can be utilised to deliver flood mitigation measures. Operationally, the EA are the authority responsible for the management of flood risk from Main Rivers, reservoirs, estuaries and the sea as well as coastal erosion. Main Rivers are watercourses designated by the Agency as having significant flood risk associated to them and tend to be larger watercourses. The EA also have permissive powers to carry out maintenance works however this does not mean they are responsible for this maintenance with landowners or adjacent landowners remaining responsible under section 25 of the Land Drainage Act 1991.

Royal Borough of Windsor and Maidenhead

As a Unitary Authority, the Royal Borough of Windsor and Maidenhead have a number of responsibilities linked to flooding which would normally be split between County and Borough or District Councils.

Lead Local Flood Authority (LLFA)

LLFAs are responsible for developing and maintaining and applying a strategy for management of local flood risk including flood risk from surface water, groundwater and ordinary watercourses. Ordinary watercourses are all other watercourses, as defined under section 72 of the Land Drainage Act 1991, which are not designated as Main Rivers by the EA. The LLFA works with other RMAs regularly to ensure that flood risk is being properly managed in their areas. LLFAs are responsible for undertaking investigations and complete reports into flooding incidents that the LLFA is informed of to a level which is appropriate to the scale of flooding.

LLFAs have other duties including maintaining a register of flood management assets and are the statutory consultee for surface water management on new major development sites.

Highway Authority

Highway Authorities also have responsibility for the management of flood risk, particularly that which involves the Highway. Highway Authorities are responsible for managing and maintaining highway drainage infrastructure such as gullies and soakaways.

Emergency Planning Service

The Emergency Planning Service is responsible for guiding the response of the Council to incidents, including flooding. In the case of RBWM, this takes the form of a Joint Emergency Planning Unit (JEPU) between RBWM, Bracknell Forest and West Berkshire. The Emergency Planning Service are also able to provide guidance to Parish Councils, communities and individuals that wish to put together their own emergency and resilience plans.

Water and Sewerage Companies

Water and Sewerage Companies are responsible for managing the risk of flooding from drainage systems such as public sewers, including both surface water and combined systems. They are also responsible for maintaining these features should that be required.

Table 22 summarises which RMAs are responsible for managing the risk of flooding from different sources. For the Royal Borough of Windsor and Maidenhead, the RMAs are as follows:

- RBWM are the Lead Local Flood Authority
- RBWM are the Highway Authority
- Thames Water are the Water and Sewerage Company

	Environment Agency	RBWM	RBWM	Thames Water
Flood Source	Strategic Flood Risk Authority	Lead Local Flood Authority	Highway Authority	Sewerage Undertaker
Main River				
Surface Water				
Surface Water on or coming off Highway)				
Sewer Flooding				
Ordinary Watercourse				
Groundwater				
Reservoirs				

Table 23-Table identifying the relevant Risk Management Authority for different flooding issues

APPENDIX 7 – MAPS SHOWING THE RECORDED EXTENT OF FLOODING

See list of appendices on the Council Website

APPENDIX 8 – SUMMARY TABLE OF RECOMMENDATIONS

APPENDIX 9 – DATA SOURCES

The following datasets have been used to put together this report. Where data is publicly available, links are provided.

Where data has been collected by the Council from its investigations, it has been completed in accordance with its Privacy Notice - Privacy notice : Property Flood Database | Royal Borough of Windsor and Maidenhead (rbwm.gov.uk)

Dataset	Source
Property flood data	Investigations and reports during the incident
Extent of flooding	Investigations and reports during the incident
Rainfall, groundwater, and river level data	DEFRA Hydrology Data Explorer Hydrology Data Explorer - Explore
Thames Valley LRF Records	Confidential records
RBWM Response Debrief	Internal document
Flood Risk Mapping (Fluvial and Surface Water flood risk)	Check the long term flood risk for an area in England - GOV.UK (www.gov.uk)
Groundwater flood risk	Data held on license from British Geological Survey (BGS)
Historic Flood Map	Data held on license from the EA
Geological Data showing superficial and bedrock deposits	BGS Geology Viewer (BETA)
Flood Warnings and Alert areas	Live flood map - Check for flooding - GOV.UK (check-for-flooding.service.gov.uk)

Table 24-Datasets used in compiling Section 19 report

APPENDIX 10 – ROAD CLOSURES

Road Closure	Town	Source	Summary
Closure of The Pound due to flooding.	Cookham	Fluvial	Closed 7th Jan to 15th Jan
Closure of Quarry Wood Road for its entire length due to flooding.	Bisham	Fluvial	Closed 8th Jan to 15th Jan for its entire length
Closure of B3026 Pococks Lane from junction with Slough Road to White Rose Lane due to flooding	Eton	Fluvial	Closed 8th Jan to 15th Jan
Dungrove Hill Lane from junction with Lee Lane to Hyde Farm due to flooding	Bisham	Surface Water	Closed from 8th Jan to 15th Jan
Closure of Lee Lane from its junction with A308 Marlow Road to Dungrove Hil Lane	Bisham	Surface Water	Closed 8th Jan to 15th Jan
Closure of Meadow Lane for its entire length due to flooding.	Eton	Fluvial	Closed 8th Jan to 14th Jan
Closure of South Meadow Lane from junction with Meadow Lane to B3026 Eton Wick Road due to flooding.	Eton	Unknown	Closed 8th Jan to 12th Jan
Closure of A4094 Sutton Road due to flooding.	Cookham	Fluvial	Closed 7th Jan to 12th Jan
Closure of High Street, Hurley between the junctions of Mill Lane and Bell Court due to flooding	Hurley	Fluvial	Closed 8th Jan to 11th Jan
Closure of Bradenham Lane for its entire length due to flooding	Bisham	Fluvial	Closed 8th Jan to 11th Jan for entire length
Closure of B376 Welley Road from junction with Horton Road to Welley Avenue due to flooding.	Wraysbury	Fluvial	Closed 8th Jan to 11th Jan
Closure of Horton Road and Datchet Road from entrance to Liquid Leisure to jnct with Park Lane, Horton due to flooding.	Datchet	Fluvial	Closed 8th Jan to 11th Jan
Closure of Southlea Road from Beaulieu Close to slip road due to flooding.	Datchet	Fluvial	Closed 8th Jan to 11th Jan

Table 25-Road Closures during January 2024 flooding

Document Name	RBWM Section 19 Flood Investigation Report – Storm Henk January 2024		
Document Author	Ben Crampin – Principal Flood Risk Manager		
Document owner	Ben Crampin – Principal Flood Risk Manager		
Accessibility	Checked		
File location	SharePoint		
Destruction date	N.A		
How this document was created	Version 1	BC	30/01/2025
	Version 2		
	Version 3		
Circulation restrictions	None		
Review date	N/A		