WATER | ENVIRONMENT

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[redacted]

Our Ref: 14016/AMG

28th July 2021

The Royal Borough of Windsor and Maidenhead
Town Hall
St Ives Road
Maidenhead
Berkshire
SL6 1RF

To Whom It May Concern

Dear Sir/Madam,

109 HIGH STREET, ETON, SL4 6AN
FLOOD RISK STATEMENT

This Flood Risk Statement assesses the risk of flooding from all sources relating to the proposed development at 109 High Street, Eton (SL4 6AN), hereafter referred to as 'the site'. The property at the site has been used as commercial and two residential dwellings. The previous planning application for the site included extension of the existing building to the south and west following demolition of additions to the original listed building. The demolition and extension at the rear of the property has already been carried out under the previous planning application, 17/02460/FULL, which was approved.

This report refers to the new planning application which involves the reconfiguration of the internal layout and an extension of the development at the first-floor level.

As shown on the GOV.UK Flood Map for Planning, the site is located within defended Flood Zone 3 of the River Thames. This means that the site may be affected by the 1 in 100 year fluvial flooding event, neglecting the influence of flood defences in the area. The minor changes to the building footprint are covered under the previously approved planning application. This planning application refers to internal reconfiguration and extension of the first floor and the Environment Agency Standing Advice for Minor Extensions is considered in this report.

This Flood Risk Statement has been prepared with due consideration of the updated National Planning Policy Framework[1] (NPPF), the latest Planning Practice Guidance[2] (PPG) for Flood Risk and Coastal Change, and the local planning policy in effect in the area of the site.

Since submission of the previous planning application 2017, which was approved and has been partially implemented, more comprehensive flood modelling information has been released that includes the anticipated impacts of climate change. The estimated design flood level has since reduced by 160mm (from 20.81m down to 20.65m AOD). This Flood Risk Statement takes into account the latest available information.

[1] Ministry of Housing, Communities and Local Government (March 2012, revised July 2021), National Planning Policy Framework
[2] Ministry of Housing, Communities and Local Government (March 2014), Planning Practice Guidance: Flood Risk and Coastal Change, Accessed 22/07/2021

DESCRIPTION OF DEVELOPMENT

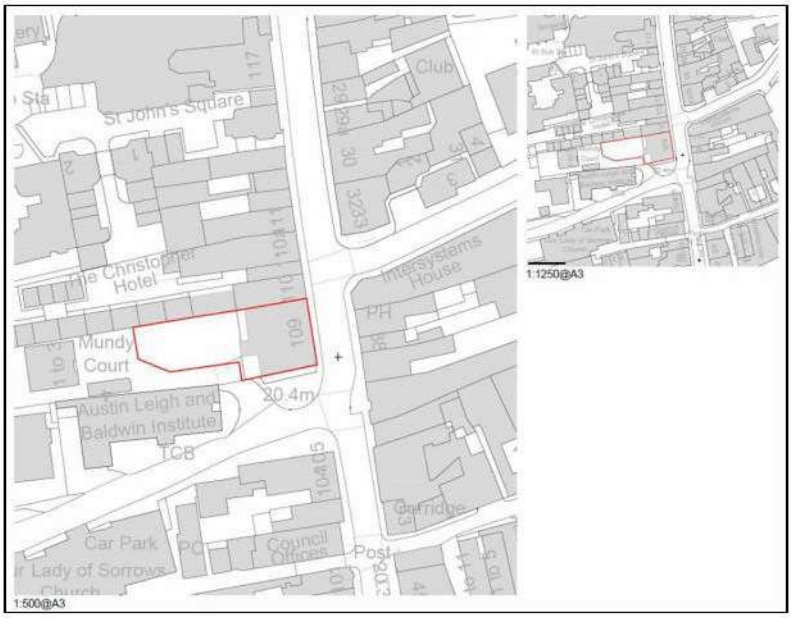


Figure 1: Site Location[3]

No. 109 High Street, Eton is an existing commercial and residential development located in the Royal Borough of Windsor and Maidenhead. The site is bounded to the east by High Street, to the south by Eton Court and to the northwest by the Christopher hotel. The location of the site can be seen in Figure 1.

Proposed Development

The proposed development includes extension of the existing building to the south and west following demolition of additions to the original listed building, this has been partially implemented under the previous planning application. The changes since the previous planning application are reconfiguration of the internal layout and extension at first floor level. Two residential units proposed span ground, first and second floor. The ground floor will remain partly commercial / office use, and partly used for the entrance to both residential dwellings and their associated kitchen / dining area and a sitting room area for House 1 Bedrooms for both residential units are located at a minimum on the first floor level. There will be no sleeping accommodation on the ground floor.

There will be no increase in the number of dwellings on the site and the development is considered to be classified as minor development household extension. The Environment Agency standing advice must be followed when carrying out a flood risk assessment for the type of development proposed.

ASSESSMENT OF FLOOD RISK

In assessing the risk of flooding to the site, data from the Environment Agency regarding the risk of flooding from the River Thames were acquired. Furthermore, the data from the Royal Borough of Windsor and Maidenhead Preliminary Flood Risk Assessment[4] (PFRA) and Strategic Flood Risk Assessment[5] (SFRA) have been taken into consideration.

[3] Extract from Lewandowski Architects Site Location Plan, 2577-PL-B010-00
[4] WSP, May 2011, Royal Borough of Windsor and Maidenhead Preliminary Flood Risk Assessment
[5] June 2017 (Revision 07), Royal Borough of Windsor and Maidenhead Strategic Flood Risk Assessment

Historic Flooding

According to the Environment Agency's Historic Flood Map, the site appears to be within the flood outline of the River Thames flooding event on the 12th December 1947. The Windsor and Maidenhead Preliminary Flood Risk Assessment (PFRA) have 8 records of flooding in a radius of 200m from the site. One of these floods was recorded as Highway and Fluvial, another as Sewer flooding and the other six records are classified as having unknown sources of flooding. All these records are about Eton and the Royal Borough of Windsor and Maidenhead and there are no site specific records of historic flooding. The Addendum[6] states that flooding incidents reported over the preceding 6 years has not indicated new areas at significant risk nor has it changed the Lead Local Flood Authority's (LLFA) understanding of surface water flood risk in the area.

No further records of historic flooding affecting the site or surrounding area were identified.

Risk Of Flooding From Rivers And The Sea

The River Thames is located approximately 200m south of the site and 130m east of the site and flows in a north-easterly direction. At this location, the River Thames is not affected by tidal influences and, therefore, the source of flooding from the Thames is fluvial in Eton.

The online GOV.UK maps represent the latest existing data for identifying zones of low, medium and high probability of flooding from rivers and the sea. The Flood Zone map centred on the site is presented in Figure 2.

Dark blue indicates an area that may be affected by 0.5% Annual Exceedance Probability (AEP) tidal flooding event or the 1% AEP fluvial flooding event, neglecting the influence of any flood defences in the area. This is categorised by the Environment Agency as 'Flood Zone 3'.

Hatched areas represent the zones benefitting from flood defences. Light blue shows the additional extent of an extreme flood (land affected during the 0.5% AEP to 0.1% AEP tidal or fluvial flooding event) and is categorised as 'Flood Zone 2'.

Finally, the areas that are not highlighted with any colour or hatching indicate that the annual probability of the site flooding from rivers and tides is less than 0.1% AEP. These zones are categorised as 'Flood Zone 1'. It is shown that the site lies within defended Flood Zone 3 of the River Thames.

[6] Royal Borough of Windsor and Maidenhead Preliminary Flood Risk Assessment, December 2017

Figure 2 - Gov.uk Flood Map for Planning[7]

The GOV.UK Flood Zone maps only include the outlines of the flood event but do not include any flood water levels. In this context, the EA provided flood water levels for different return periods events to inform the risk of fluvial flooding to the site.

Climate Change

The projected impacts of climate change are likely to result in increased risk of flooding from rivers due to increased intensity and frequency of extreme rainfall events.

Revised climate change allowances were defined in July 2021 and are presented within the Environment Agency's 'Flood risk assessments: climate change allowances' guidance available on the GOV.UK website. The new range of allowances is based on percentiles which describe the proportion of possible scenarios that fall below an allowance level.

The 'Central' allowance is based on the 50th percentile, the 'Higher Central' is based on the 70th percentile and the 'Upper End' is based on the 90th percentile. The peak river flow allowances were updated in July 2021 to be based on management catchments instead of river basin districts. The proposed site lies within the Maidenhead and Sunbury Management Catchment. The expected lifetime of the development is considered to be 100 years due to its residential use. Therefore, the peak river flow allowances are as follows in Table 1.

[7] © Environment Agency copyright and / or database rights 2021. All rights reserved. © Crown Copyright and database right 2021. Ordnance Survey licence number 100024198

Table 1 - Peak river flow allowances for the Maidenhead and Sunbury Management Catchment

Management Catchment Name	Allowance category	Total potential change anticipated for the '2080s'
Maidenhead and Sunbury	Upper End	81%
	Higher Central	47%
	Central	35%

The climate change guidance recommends that for 'More Vulnerable' development located in Flood Zone 3a, the 'Central' allowance should be used.

The site is considered to be in Flood Zone 3a as the Fluvial Flood mapping provided in the EA's Product 4 indicates that the site is not affected in the 5% AEP flood event. Flood Zone 3b is typically classified as an area likely to flood in the 5% AEP flood event.

Modelled Flood Water Levels

The EA have provided their Product 4 document which includes modelled flood outlines and flood water levels for several extreme events at various grid cells in the floodplain in the area of the site (refer to enclosures). The highest flood level is recorded southwest of the site, at 'Floodplain 2'. There is a 70mm level difference for the flood level for the same event, recorded on the site, at 'Floodplain 1'. 'Floodplain 1' levels have been used in this assessment as they are located on the site. An extract is provided in Table 2 below.

Table 2 – EA modelled floodplain flood levels

	Flood levels (m AOD)		
2D grid cell reference	**1 in 100 year**	**1 in 100 year (+35% increase in flows)**	**1 in 100 year (+75% increase in flows)**
Floodplain 1	No data	20.65	20.71

These flood levels do not quite correlate with the new peak river flow allowance for the River Thames, however, the latest guidance states that the "Central" allowance should be applied to this development type. For the Maidenhead and Sunbury Management Catchment the "Central" allowance refers to 35% increase. This event is analysed in the Environment Agency Product 4. Therefore the design flood level is 20.65m AOD.

Additionally, as shown in the Product 4, the difference in flood level between the '+35% increase in flows" and the '+75% increase in flows' scenario is only 60mm, implying that flood levels from extreme events are not particularly sensitive to the uncertainty in the future effects of climate change.

Flood Water Levels in Relation to the Site

Based on freely available Environment Agency LiDAR data, the general ground level around the building is approximately 20.32 m AOD. The ground floor is set 150 mm above the street level, based on the Architect's section through the existing building, at an estimated 20.47 m AOD. The 1% annual probability flood event would result in a flood depth of 330 mm externally and if water entered the building, the internal flood depth would be 180 mm.

DESIGN RESPONSE TO FLOOD RISK

The proposed development involves the reconfiguration of an existing commercial building with two dwellings at 109 High Street. The EA has published FRA standing advice to follow for 'Vulnerable' developments. This indicates that the ground floor levels should be a minimum of whichever is higher of 300mm above the general ground level of the site or 600mm above the estimated river flood level.

As the proposed development is for an internal reconfiguration, the floor levels are not expected to change. To mitigate the consequences of a flood, the 2007 Communities and Local Government document 'Improving the Flood performance of New Buildings'[8] has been reviewed to assess suitable measures for the site.

In this document, the 'Rationale for design strategies' flow chart describes the strategy to consider depending on the flood water depth. In the context of the site, a flood water depth shallower than 0.6m is expected and therefore, the approach proposed is to keep water out ('Water Exclusion Strategy'). Therefore, the following measures may be considered:

- Use temporary building-level defence measures, such as flood boards on doorways, which can increase the flood resistance of the building;
- Use durable fittings that are not significantly affected by water and can be easily cleaned;
- Place fittings, like electrical appliances, on plinths as high as practicable above floor so that they are above the floodwater level;
- Install non-return valves for the drainage system to prevent back-flow of sewage;
- Install electrical sockets above flood water level.

All sleeping accommodation is located on the first floor and above, significantly above the 1% annual probability flood level including the "central" allowance for climate change of 20.65 m AOD, and therefore the risk to residents is low.

Safe Access and Egress

The proposed development will not increase the number of dwellings and therefore the development will not increase any burden on emergency services in the event of a flood. A full Flood Evacuation Plan has therefore not been prepared for this planning application. Despite this, the development would be safe for future residents as described below.

The site is located within a dry island as shown on the Environment Agency predicted flood extent maps. Precedence has been set by the 'Eton Court' development (Ref: 12/01867/FUL) which showed that 'safe' (in accordance with Environment Agency and DEFRA guidance) access is available in Eton High Street south from Eton Court except for a short section of the footpath between 99 and 103 High Street. The RBWM granted planning permission subject to a Flood Evacuation Plan which was secured by condition. The property will continue to use the existing evacuation route post development south towards Windsor consistent with the route provided in the Eton Court application.

Another development that set precedence is the development at 124-124A High Street Eton Windsor (Ref: 13/01896/FUL) that was granted planning permission. This particular development was further to the north on high street, where flooding is more extensive and deeper. The proposed development was also larger than what is proposed for this site.

[8] CIRIA, Improving the flood performance of new buildings – Flood resilient construction, May 2007

The Thames catchment is a large (9950 km^2) primarily rural catchment at its fluvial limit in Teddington and as a result has a long response time to rainfall events. Almost all large fluvial flood events in the Thames are caused by extensive winter frontal rainfall and at the site, the River Thames exhibits a response time of a couple of days to such events. This would give residents adequate time to safely evacuate their property if needed.

If residents do not have sufficient time or do not wish to evacuate the property, they could remain in the upper levels of the property using the available internal staircases.

Flooding from other Sources

Tidal Flooding

The site lies approximately 20 km inland from the limit of the Thames Estuary at Teddington Lock. General ground levels of the development are above 20 m AOD above mean sea level. The risk of flooding from the sea is therefore low.

Flooding from Land

Flooding from surface water arises during intense rainfall events when floodwater is unable to infiltrate into the ground or discharge into local ditches or artificial drainage infrastructures. In an urban environment, the risk of flooding from surface water and from overloaded sewer is closely related, and both are included in the relevant surface water flooding datasets. Flooding events are typically of short duration (unless there is a drainage system blockage) but can be severe.

The GOV.UK have online mapping covering the risk of surface water flooding which indicates the likely extent of overland flooding and highlights natural flow paths in the area of the site. On the map, the dark blue areas represent areas at 'High' risk of flooding from surface water with a greater than 3.3% (1 in 30) annual probability of flooding. The lighter blue areas are at 'Medium' risk of flooding from surface water with a 1% to 3.3% (1 in 100 to 1 in 30) annual probability of flooding. The pale blue areas are at 'Low' risk of flooding from surface water with a 0.1% to 1% (1 in 1000 to 1 in 100) annual probability of flooding. Areas that are not highlighted are considered at 'Very Low' risk of flooding from surface water with less than 0.1% (1 in 1000) annual probability of flooding.

The surface water map for the area surrounding the site is shown in Figure 4. It shows that the site is at 'Very Low' risk of surface water flooding. Eton Court to the south of the site is classified as 'Low' risk of surface water flooding.

Figure 3 - GOV.UK Surface Water Flooding Extent Map

Figure 4 and Figure 5 show respectively the 'Medium' risk event (1 in 100 year event) and the 'Low' risk event (1 in 1000 year event) in the area of the site.

It shows that the site is not at risk during these scenarios and therefore it is not expected to flood from surface water. Furthermore, Eton Court south of the site could experience surface water flooding shallower than 300mm during the "Low" risk event and no flooding in the "Medium" risk event.

The design flood event is the 1 in 100 year plus climate change event. However, the GOV.UK surface water flood maps do not include an allowance for climate change. Therefore, the 1 in 1000 year surface water mapping is used as a surrogate for the design flood event and is a conservative view on the surface water flood risk at the site.

According to the available data, the site is not expected to flood from surface water during the design event, and it is hence at low risk of surface water flooding.

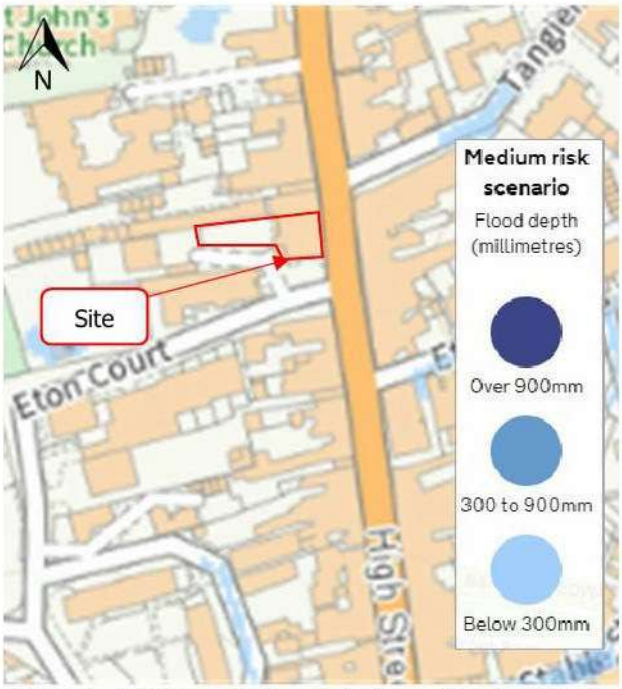


Figure 4 - GOV.UK Medium Risk of Flooding from Surface Water (Depth)

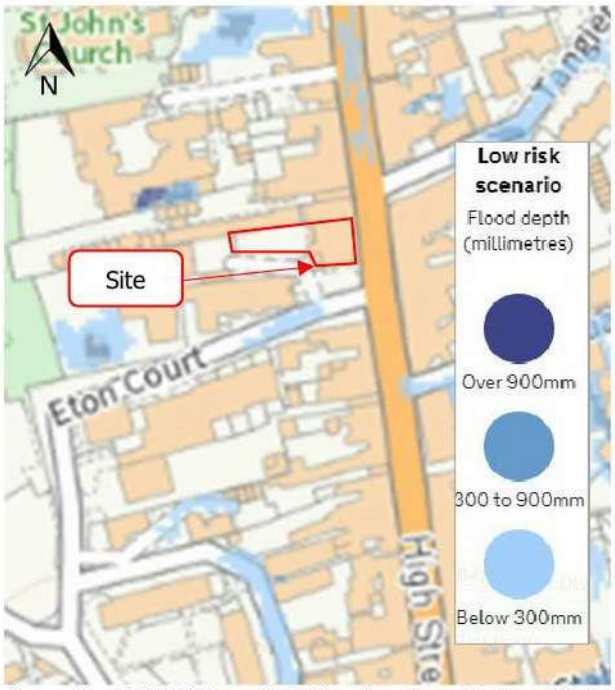


Figure 5 - GOV.UK Low Risk Flooding from Surface Water (Depth)

Flooding from Groundwater

Groundwater flooding is caused by the emergence of water originating from sub-surface permeable strata, and is often localised in low lying areas which are underlain by permeable aquifers.

Following a prolonged period of rainfall, a rise in the water table may be observed and this can result in groundwater flooding at the surface. Groundwater responds slowly to variations in rainfall and therefore flooding may be seen for extended periods of time.

There is a known risk of groundwater emergence along the River Thames due to the presence of 'Thames Gravels'. Figure E 'Areas Susceptible to Groundwater Flooding' of the SFRA shows the proportion of each 1km grid square within the Borough where geological and hydrogeological conditions indicate that groundwater might emerge. This map shows that the site is located within a grid square where the susceptibility to groundwater flooding is 75% or greater.

As shown on DEFRA's Magic maps[9], the site is located within a Groundwater Source Protection Zone (SPZ) II (Outer Protection Zone). The online maps also show that the superficial drift and the bedrock geology beneath the site are classified as 'Principal' aquifers (see Figure 6). By definition, 'Principal' aquifers exhibit high permeability and/or provide a high level of water storage. They may support water supply and/or river base flow on a strategic scale.

The British Geological Survey (BGS) 1:50,000 online surface geology map gives additional details related to the geology at the site. It shows that the geology beneath the site is made of a bedrock of Seaford Chalk and Newhaven Chalk Formation overlain by Shepperton Gravel Member (sand and gravel). The combination of these deposits supports the information presented above, in that the geological formations present beneath the site can support groundwater.

[9] Available at: https://magic.defra.gov.uk/

Groundwater levels are likely to be hydraulically linked to water levels in the River Thames, and therefore, the risk of groundwater flooding independent from fluvial flooding is considered to be low.

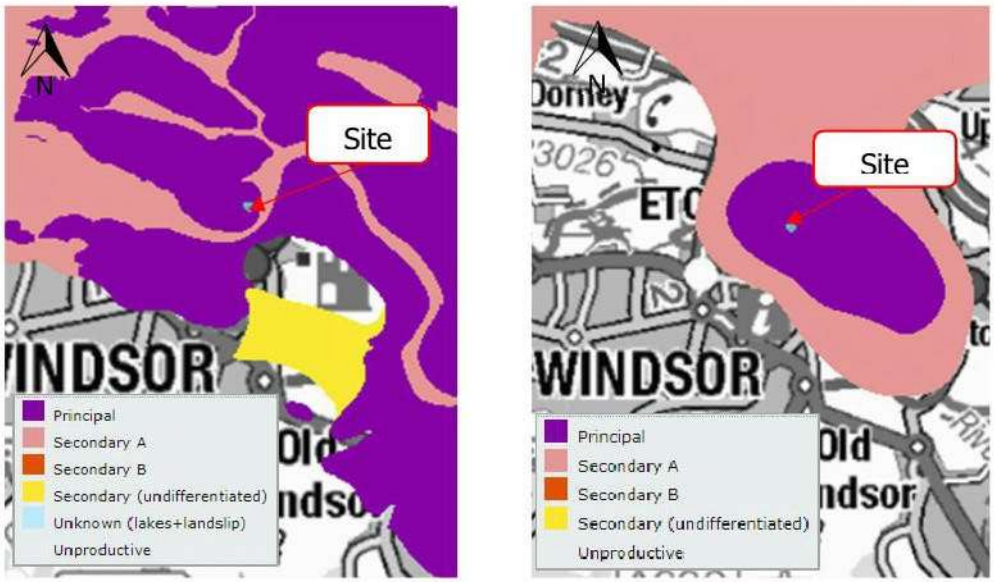


Figure 6 - DEFRA's Magic Aquifer Designation Map (Left: Superficial Deposits; Right: Bedrock)

The site is mainly hard paved, which reduces the likelihood of emergence of groundwater flooding. Flooding due to groundwater emergence elsewhere in the area would follow localised flow paths, similar to those shown on surface water risk map and discharge to the local sewer system. Moreover, the site is located within a densely developed area and any significant quantity of groundwater emergence through developed, impermeable surfacing is considered unlikely. In addition, the properties do not include a basement. On this basis, the risk of groundwater flooding to the site is considered to be low.

Flooding from Sewers

Sewer flooding generally results in localised short term flooding caused by intense rainfall events overloading the capacity of sewers.

The Windsor and Maidenhead PFRA has collated data from the DG5 register from Thames Water Limited which records. The PFRA have two records of flooding within Eton. One of these floods was recorded as overland flow and the other record is from highways flooding. A Sewer Flooding History Enquiry was sent to Thames Water who stated that "The flooding records held by Thames Water indicate that there have been no incidents of flooding in the requested area as a result of surcharging public sewers."

The existing private surface water network for the building and its connection to the Thames Water network will be unchanged following development. Therefore, the risk of flooding from sewers to the site is considered to be low.

Flooding from Artificial Sources

The GOV.UK Long Term Flood Risk Maps for Reservoir Flooding show that the site could be affected by reservoir flooding, as shown in Figure 7.

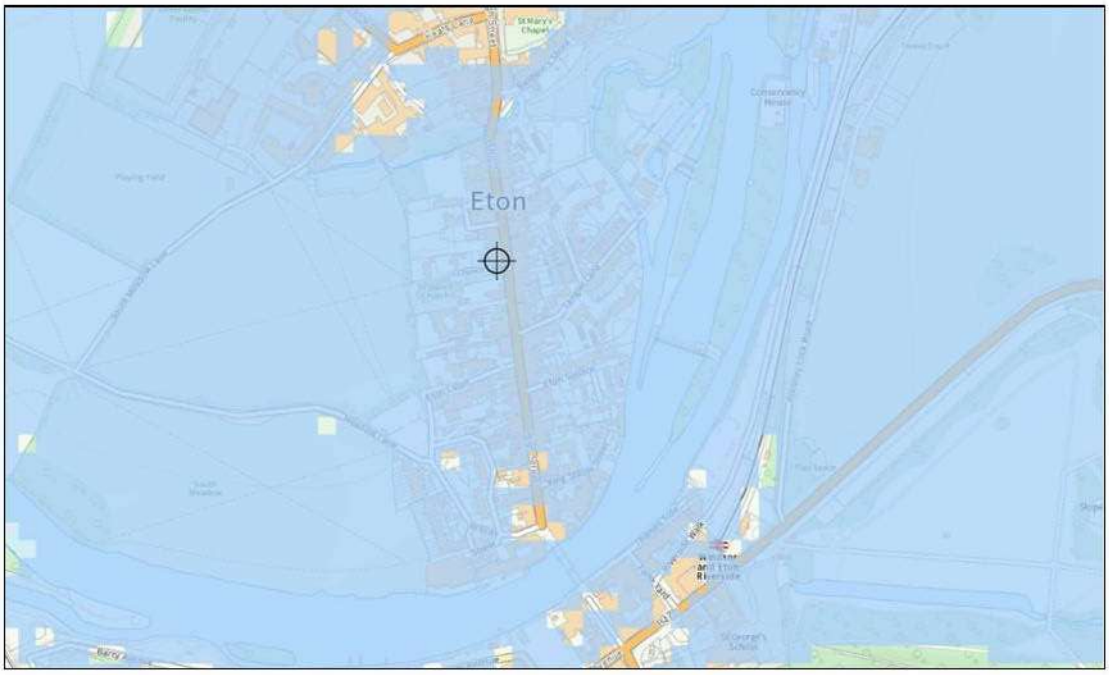


Figure 7 - GOV.UK Long Term Flood Risk Map for Reservoir Flooding

As presented in the RBWM SFRA, there is only one reservoir within the Borough: The Queen Mother Reservoir, located to the south east of Windsor. There are also several reservoirs located to the south east of the Royal Borough boundary which would impact parts of the Royal Borough, these are: the Wraysbury, King George VI and Staines Reservoirs. All these reservoirs are monitored and are very stringently managed by Thames Water and the Environment Agency.

Indeed, reservoirs are known as national critical infrastructures and are actively managed to meet high level of safety standards. This includes an ISO 9000 accredited reservoir surveillance management process and regular inspections to the requirements of the Reservoirs Act 1975 by a suitably qualified panel of engineers, making a breach extremely unlikely. The risk of reservoir flooding to the site is therefore considered to be low.

Sequential and Exception Test

The proposed development is considered "minor development" and therefore the Sequential and Exception Tests do not need to be applied, according to the "Notes to table 3" section of the Flood Risk and Coastal Change Guidance, paragraph: 067.

Effect on the risk of flooding elsewhere

Since the site is not at risk of flooding except for fluvial flooding in the 1% annual probability plus climate change event, and there is no overall increase to the existing above-ground building structure, the proposals will not result in any change in the risk of flooding to third party landowners or property.

The external changes to the development were considered under the previous planning application and have been implemented. This report refers to the internal reconfiguration of the development and therefore SuDS provision has not been included for the development. The existing drainage network will be used and surface water will be discharged from the site via existing connections.

Summary

This statement sets out the baseline flood risk to the property from all sources in accordance with the NPPF and provides a summary of the proposed measures that will be incorporated into the development in order to minimise the risks and consequences of flooding.

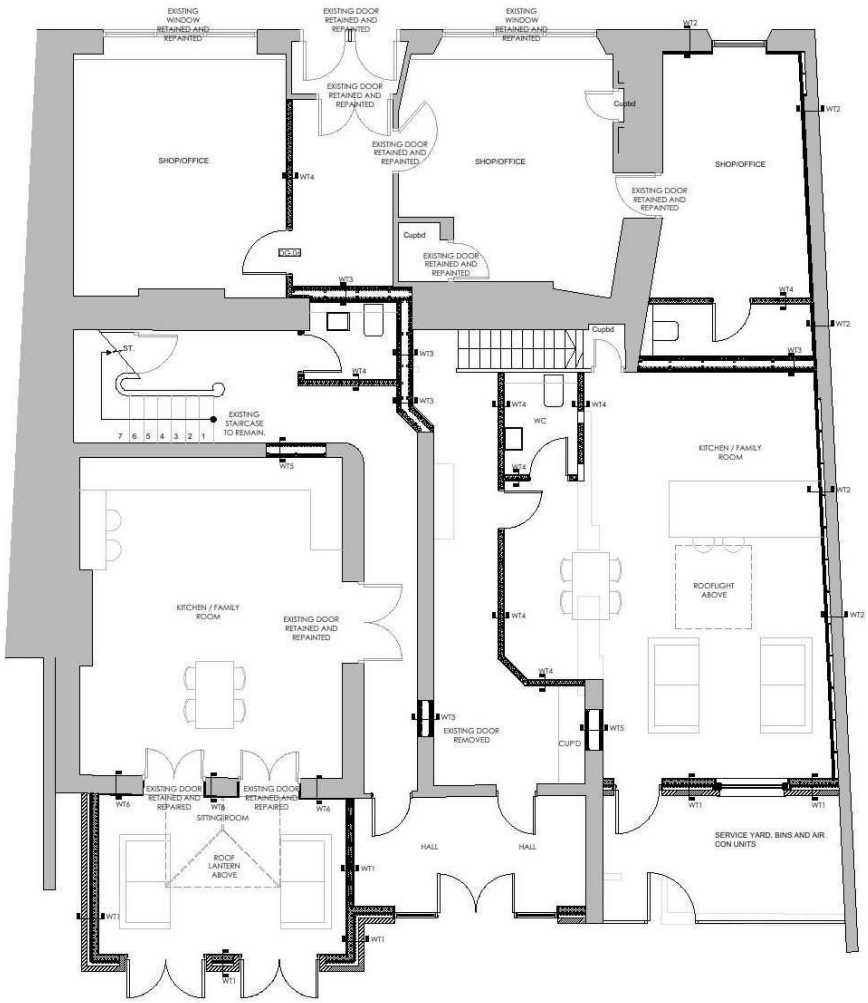
The report has been updated to include the latest more comprehensive flood modelling information for the area and the design flood level has subsequently been reduced by 160mm from 20.81m AOD in the previous report to 20.65m AOD.

The proposed development will not increase the number of dwellings and therefore the development will not increase any burden on emergency services in the event of a flood. As described in the report, almost all large fluvial flood events in the Thames are caused by winter frontal rainfall, events to which the River Thames exhibits a response time of a couple of days. This would give residents adequate time to safely evacuate their property, if needed, or they could remain in the upper levels of the property using the available internal staircases.

Yours sincerely,

Agnes Gannon
BEng (Civil)
Senior Environmental Engineer

Enclosures:
- Proposed Ground Floor Plans
- Proposed First Floor Plans
- Proposed Second Floor Plans
- Product 4, Environment Agency



GROUND FLOOR PLAN

OUTSIDE
INSIDE

ROOF TYPE 1 - PITCHED ROOF - 243MM
ACHIEVES U-VALUE OF 0.18W/M²K

OUTSIDE-INSIDE
265x165x13MM CLAY PLAIN TILE
35x25MM HORIZONTAL TIMBER BATTENS
SARKING FELT
50MM VENTILATED SPACE
120MM KOOLTHERM K7 PITCHED ROOF BOARD PARTIALLY FILLING THE SPACE BETWEEN THE RAFTERS.
USE EXISTING RAFTERS WHERE POSSIBLE. IF NOT POSSIBLE REFER TO S.E SPECIFICATION.
32.5MM K118 INSULATED PLASTERBOARD, FIXED UNDER RAFTERS.
2.5MM THISTLE MULTIFINISH SKIM COAT WITH PAINTED FINISH.
COLOUR TBC BY CLIENT.

OUTSIDE
INSIDE

ROOF TYPE 2 - FLAT ROOF - 324MM
ACHIEVES U-VALUE OF 0.18W/M²K

OUTSIDE-INSIDE
SARNAFIL SINGLE PLY MEMBRANE FULLY ADHERED
120MM THERMAROOF TR27 LPC/FM
VAPOUR CONTROL LAYER
18MM PLYWOOD DECK
TIMBER FIRRINGS TO 1:60 FALL TO S.E SPECIFICATION
47x170mm TIMBER JOISTS AT 400 CENTRES TO S.E SPECIFICATION
12.5MM GYPROC WALLBOARD
2.5MM THISTLE MULTIFINISH SKIM COAT WITH PAINTED FINISH.
COLOUR TBC BY CLIENT.

FLOOR TYPE 1 - GROUND FLOOR - 403MM
ACHIEVES U-VALUE OF 0.22W/M²K

FLOOR FINISHES. TBC BY CLIENT.
65MM SCREED
VAPOUR SEPARATION LAYER
60MM KOOLTHERM K103 FLOOR BOARD INSULATION
DAMP PROOF MEMBRANE
BLOCK AND BEAM FLOOR TO S.E SPECIFICATION.

FLOOR TYPE 2 - SECOND FLOOR - 328MM
ACHIEVES U-VALUE OF 0.22W/M²K

FLOOR FINISHES. TBC BY CLIENT.
18MM PLYWOOD
47x170mm TIMBER JOISTS AT 400 CENTRES TO S.E SPECIFICATION.
FULL FILL ISOVER APR 1200 INSULATION
12.5MM GYPROC WALLBOARD
2.5MM THISTLE MULTIFINISH SKIM COAT WITH PAINTED FINISH.
COLOUR TBC BY CLIENT.

INSIDE
INSIDE

WALL TYPE 4 - GENERAL PARTITION WALL - 119MM

INSIDE-INSIDE
2.5MM THISTLE MULTIFINISH SKIM COAT WITH PAINTED FINISH.
COLOUR TBC BY CLIENT.
12.5MM GYPROC WALLBOARD ON 10MM DABS
38x89MM TIMBER STUDS AT 600 CENTRES TO S.E SPECIFICATION.
FULL FILL ISOVER APR 1200 INSULATION
12.5MM GYPROC WALLBOARD ON 10MM DABS
2.5MM THISTLE MULTIFINISH SKIM COAT WITH PAINTED FINISH.
COLOUR TBC BY CLIENT.
IN BATHROOMS CLIENT TO CONFIRM IF TILES ARE REQUIRED. IF TILES ARE REQUIRED, WALLBOARD SUBSTITUTED FOR TILEBACKER BOARD.

INSIDE
INSIDE

WALL TYPE 5 - INTERNAL INFILL WALL - WIDTH TO SUIT

INSIDE-INSIDE
2.5MM THISTLE MULTIFINISH SKIM COAT WITH PAINTED FINISH.
COLOUR TBC BY CLIENT.
12.5MM GYPROC WALLBOARD.
38MM TIMBER STUDS AT 600 CENTRES TO S.E DESIGN & SPECIFICATION WITH 50MMFULL FILL ISOVER APR 1200 INSULATION BETWEEN STUDS.
VOID TO SUIT.
38MM TIMBER STUDS AT 600 CENTRES TO S.E DEISNG & SPECIFICATION WITH 50MMFULL FILL ISOVER APR 1200 INSULATION BETWEEN STUDS.
12.5MM GYPROC WALLBOARD.
2.5MM THISTLE MULTIFINISH SKIM COAT WITH PAINTED FINISH.
COLOUR TBC BY CLIENT.

INSIDE
INSIDE

WALL TYPE 6 - EXISTING WALL

INSIDE-INSIDE
2.5MM THISTLE MULTIFINISH SKIM COAT WITH PAINTED FINISH.
COLOUR TBC BY CLIENT.
12.5MM GYPROC WALLBOARD ON 10MM DABS
EXISTING WALL

EXISTING WALLS TO BE RETAINED, MADE GOOD AND REPAINTED.

EXISTING STRUCTURE TO BE REMOVED

OUTSIDE
INSIDE

WALL TYPE 1 - BRICK EXTERNAL WALL - 327.5MM
ACHIEVES U-VALUE OF 0.25W/M²K

OUTSIDE-INSIDE
102.5MM BRICKWORK.
50MM CAVITY
50MM KINGSPAN KOOLTHERM K108 CAVITY BOARD INSULATION
100MM BLOCK WORK TO S.E SPECIFICATION
12.5MM GYPROC WALLBOARD ON 10MM DABS
2.5MM THISTLE MULTIFINISH SKIM COAT WITH PAINTED FINISH.
COLOUR TBC BY CLIENT.

INSIDE
OUTSIDE

WALL TYPE 2 - EXISTING BRICK EXTERNAL WALL -
ASSUMED U-VALUE OF 0.28W/M²K

INSIDE-OUTSIDE
2.5MM THISTLE MULTIFINISH SKIM COAT WITH PAINTED FINISH.
COLOUR TBC BY CLIENT.
47.5MM KINGSPAN KOOLTHERM K118 INSULATED PLASTERBOARD ON 10MM DABS
WHERE WALL STEPS BACK, TIMBER STUDS TO BE USED, TO S.E DESIGN AND SPECIFICATION
EXISTING CAVITY WALL

INSIDE
INSIDE

WALL TYPE 3 - INTERNAL SEPARATING WALL - 295MM

INSIDE-INSIDE
2.5MM THISTLE MULTIFINISH SKIM COAT WITH PAINTED FINISH.
COLOUR TBC BY CLIENT.
2 LAYERS OF 12.5MM GYPROC WALLBOARD
89MM TIMBER STUDS AT 600 CENTRES. TO S.E DESIGN AND SPECIFICATION.
60MM ISOVER APR 1200 INSULATION BETWEEN STUDS
62MM CAVITY
60MM ISOVER APR 1200 INSULATION BETWEEN STUDS
89MM TIMBER STUDS AT 600 CENTRES. TO S.E DESIGN AND SPECIFICATION.
2 LAYERS OF 12.5MM GYPROC WALLBOARD
2.5MM THISTLE MULTIFINISH SKIM COAT WITH PAINTED FINISH.
COLOUR TBC BY CLIENT.

INSIDE
OUTSIDE

WALL TYPE 7 - FIRST FLOOR BRICK EXTERNAL WALL - 328.5MM
ACHIEVES U-VALUE OF 0.24W/M²K

OUTSIDE-INSIDE
102.5MM FACING BRICKWORK.
50MM CAVITY
KINGSPAN NILVENT BREATHABLE MEMBRANE
9MM CLASS 3 PLYWOOD
89MM TIMBER STUDS TO S.E DESIGN AND SPECIFICATION
50MM KINGSPAN KOOLTHERM K112 FRAMING BOARD INSULATION
32.5MM KINGSPAN KOOLTHERM K118 INSULATED PLASTERBOARD
2.5MM THISTLE MULTIFINISH SKIM COAT WITH PAINTED FINISH.
COLOUR TBC BY CLIENT.

INSIDE
OUTSIDE

WALL TYPE 8 - WINDOW INFILL - 235MM
ACHIEVES 0.19W/M²K

OUTSIDE-INSIDE
2.5MM THISTLE MULTIFINISH SKIM COAT WITH PAINTED FINISH.
COLOUR TBC BY CLIENT.
2x52.5MM KINGSPAN K1118 INSULATED PLASTERBOARD
25x47MM TREATED SOFTWOOD TIMBER BATTENS AT 600MM CENTRES.
102.5 FACING BRICKS TO MATCH EXISTING

INSIDE
OUTSIDE

WALL TYPE 9 - WINDOW INFILL - 230MM
ACHIEVES U-VALUE 0.27 W/M²K

OUTSIDE-INSIDE
2.5MM THISTLE MULTIFINISH SKIM COAT WITH PAINTED FINISH.
COLOUR TBC BY CLIENT.
87.5MM KINGSPAN K118 INSULATED PLASTERBOAD
25x47MM TREATED SOFTWOOD TIMBER BATTENS AT 600MM CENTRES.
100MM BLOCK WORK TO S.E SPECIFICATION.
15MM WEBERPRAL M RENDER APPLIED TO MANUFACTURERS RECOMMENDATIONS.

0m 1m 2m 3m 4m

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NOTES

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REV	DATE	DESCRIPTION	DRAWN
00	JULY 2021	ISSUED FOR PLANNING	SH

CLIENT
MR R JAGDEV

PROJECT
109 HIGH STREET
ETON

DRAWING TITLE
PROPOSED GROUND FLOOR PLAN

STATUS
FOR PLANNING

PROJECT No	DWG TYPE	DWG No	REV
2577	PL	B200	00

SCALE	DATE	DRAWN	CHECKED
1:100@A3	JULY 2021	SH	DL

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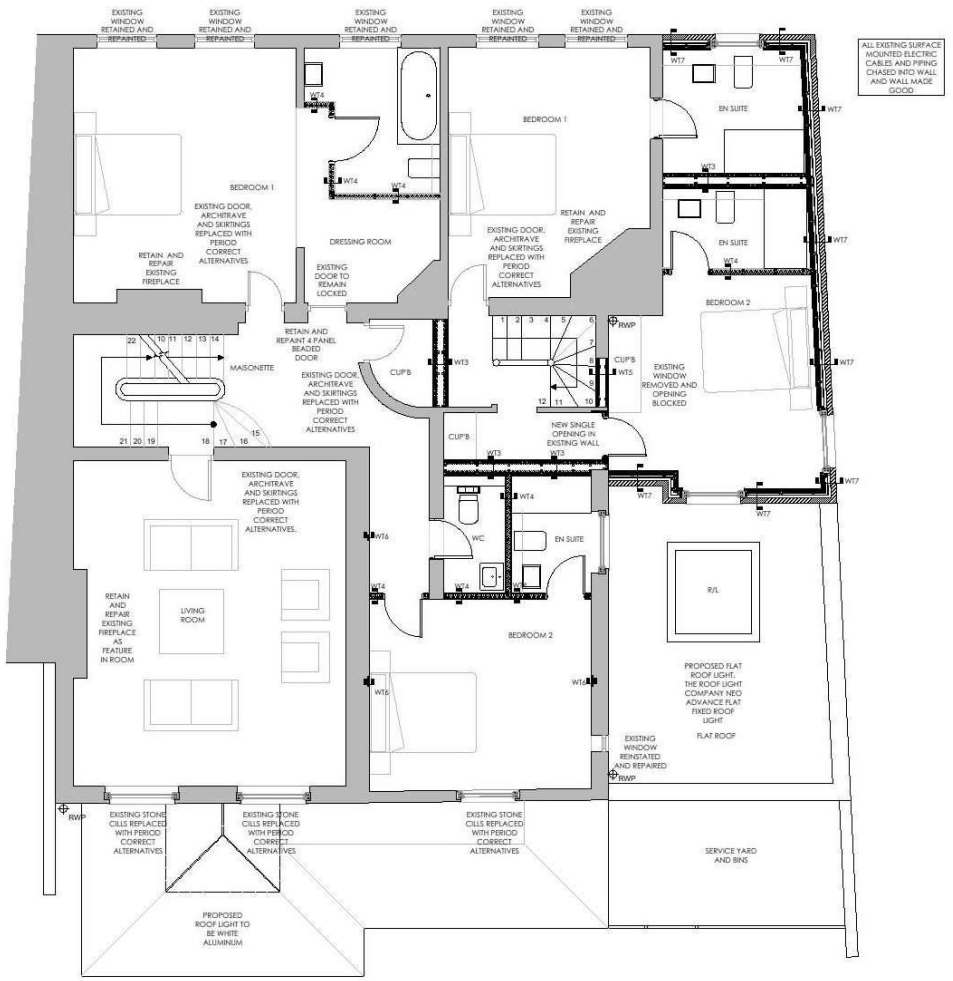

FIRST FLOOR PLAN

OUTSIDE / INSIDE

ROOF TYPE 1 - PITCHED ROOF - 243MM
ACHIEVES U-VALUE OF 0.18W/M²K

OUTSIDE-INSIDE
265x165x13MM CLAY PLAIN TILE
35x25MM HORIZONTAL TIMBER BATTENS
SARKING FELT
50MM VENTILATED SPACE
120MM KOOLTHERM K7 PITCHED ROOF BOARD PARTIALLY FILLING THE SPACE BETWEEN THE RAFTERS.
USE EXISTING RAFTERS WHERE POSSIBLE. IF NOT POSSIBLE REFER TO S.E SPECIFICATION.
32.5MM K118 INSULATED PLASTERBOARD, FIXED UNDER RAFTERS.
2.5MM THISTLE MULTIFINISH SKIM COAT WITH PAINTED FINISH.
COLOUR TBC BY CLIENT.

OUTSIDE / INSIDE

ROOF TYPE 2 - FLAT ROOF - 324MM
ACHIEVES U-VALUE OF 0.18W/M²K

OUTSIDE-INSIDE
SARNAFIL SINGLE PLY MEMBRANE FULLY ADHERED
120MM THERMAROOF TR27 LPC/FM
VAPOUR CONTROL LAYER
18MM PLYWOOD DECK
TIMBER FIRRINGS TO 1:60 FALL TO S.E SPECIFICATION
47x170mm TIMBER JOISTS AT 400 CENTRES TO S.E SPECIFICATION
12.5MM GYPROC WALLBOARD
2.5MM THISTLE MULTIFINISH SKIM COAT WITH PAINTED FINISH.
COLOUR TBC BY CLIENT.

FLOOR TYPE 1 - GROUND FLOOR - 403MM
ACHIEVES U-VALUE OF 0.22W/M²K

FLOOR FINISHES. TBC BY CLIENT.
65MM SCREED
VAPOUR SEPARATION LAYER
60MM KOOLTHERM K103 FLOOR BOARD INSULATION
DAMP PROOF MEMBRANE
BLOCK AND BEAM FLOOR TO S.E SPECIFICATION.

FLOOR TYPE 2 - SECOND FLOOR - 328MM
ACHIEVES U-VALUE OF 0.22W/M²K

FLOOR FINISHES. TBC BY CLIENT.
18MM PLYWOOD
47x170mm TIMBER JOISTS AT 400 CENTRES TO S.E SPECIFICATION.
FULL FILL ISOVER APR 1200 INSULATION
12.5MM GYPROC WALLBOARD
2.5MM THISTLE MULTIFINISH SKIM COAT WITH PAINTED FINISH.
COLOUR TBC BY CLIENT.

INSIDE / INSIDE

WALL TYPE 4 - GENERAL PARTITION WALL - 119MM

INSIDE-INSIDE
2.5MM THISTLE MULTIFINISH SKIM COAT WITH PAINTED FINISH.
COLOUR TBC BY CLIENT.
12.5MM GYPROC WALLBOARD ON 10MM DABS
38x89MM TIMBER STUDS AT 600 CENTRES TO S.E SPECIFICATION.
FULL FILL ISOVER APR 1200 INSULATION
12.5MM GYPROC WALLBOARD ON 10MM DABS
2.5MM THISTLE MULTIFINISH SKIM COAT WITH PAINTED FINISH.
COLOUR TBC BY CLIENT.
IN BATHROOMS CLIENT TO CONFIRM IF TILES ARE REQUIRED. IF TILES ARE REQUIRED, WALLBOARD SUBSTITUTED FOR TILEBACKER BOARD.

INSIDE / INSIDE

WALL TYPE 5 - INTERNAL INFILL WALL - WIDTH TO SUIT

INSIDE-INSIDE
2.5MM THISTLE MULTIFINISH SKIM COAT WITH PAINTED FINISH.
COLOUR TBC BY CLIENT.
12.5MM GYPROC WALLBOARD.
38MM TIMBER STUDS AT 600 CENTRES TO S.E DESIGN & SPECIFICATION WITH 50MMFULL FILL ISOVER APR 1200 INSULATION BETWEEN STUDS.
VOID TO SUIT.
38MM TIMBER STUDS AT 600 CENTRES TO S.E DEISNG & SPECIFICATION WITH 50MMFULL FILL ISOVER APR 1200 INSULATION BETWEEN STUDS.
12.5MM GYPROC WALLBOARD.
2.5MM THISTLE MULTIFINISH SKIM COAT WITH PAINTED FINISH.
COLOUR TBC BY CLIENT.

INSIDE / INSIDE

WALL TYPE 6 - EXISTING WALL

INSIDE-INSIDE
2.5MM THISTLE MULTIFINISH SKIM COAT WITH PAINTED FINISH.
COLOUR TBC BY CLIENT.
12.5MM GYPROC WALLBOARD ON 10MM DABS
EXISTING WALL

EXISTING WALLS TO BE RETAINED, MADE GOOD AND REPAINTED.

EXISTING STRUCTURE TO BE REMOVED

OUTSIDE / INSIDE

WALL TYPE 1 - BRICK EXTERNAL WALL - 327.5MM
ACHIEVES U-VALUE OF 0.25W/M²K

OUTSIDE-INSIDE
102.5MM BRICKWORK.
50MM CAVITY
50MM KINGSPAN KOOLTHERM K108 CAVITY BOARD INSULATION
100MM BLOCK WORK TO S.E SPECIFICATION
12.5MM GYPROC WALLBOARD ON 10MM DABS
2.5MM THISTLE MULTIFINISH SKIM COAT WITH PAINTED FINISH.
COLOUR TBC BY CLIENT.

INSIDE / OUTSIDE

WALL TYPE 2 - EXISTING BRICK EXTERNAL WALL -
ASSUMED U-VALUE OF 0.28W/M²K

INSIDE-OUTSIDE
2.5MM THISTLE MULTIFINISH SKIM COAT WITH PAINTED FINISH.
COLOUR TBC BY CLIENT.
47.5MM KINGSPAN KOOLTHERM K118 INSULATED PLASTERBOARD ON 10MM DABS
WHERE WALL STEPS BACK, TIMBER STUDS TO BE USED, TO S.E DESIGN AND SPECIFICATION
EXISTING CAVITY WALL

INSIDE / INSIDE

WALL TYPE 3 - INTERNAL SEPARATING WALL - 295MM

INSIDE-INSIDE
2.5MM THISTLE MULTIFINISH SKIM COAT WITH PAINTED FINISH.
COLOUR TBC BY CLIENT.
2 LAYERS OF 12.5MM GYPROC WALLBOARD
89MM TIMBER STUDS AT 600 CENTRES. TO S.E DESIGN AND SPECIFICATION.
60MM ISOVER APR 1200 INSULATION BETWEEN STUDS
62MM CAVITY
60MM ISOVER APR 1200 INSULATION BETWEEN STUDS
89MM TIMBER STUDS AT 600 CENTRES. TO S.E DESIGN AND SPECIFICATION.
2 LAYERS OF 12.5MM GYPROC WALLBOARD
2.5MM THISTLE MULTIFINISH SKIM COAT WITH PAINTED FINISH.
COLOUR TBC BY CLIENT.

INSIDE / OUTSIDE

WALL TYPE 7 - FIRST FLOOR BRICK EXTERNAL WALL - 328.5MM
ACHIEVES U-VALUE OF 0.24W/M²K

OUTSIDE-INSIDE
102.5MM FACING BRICKWORK.
50MM CAVITY
KINGSPAN NILVENT BREATHABLE MEMBRANE
9MM CLASS 3 PLYWOOD
89MM TIMBER STUDS TO S.E DESIGN AND SPECIFICATION
50MM KINGSPAN KOOLTHERM K112 FRAMING BOARD INSULATION
32.5MM KINGSPAN KOOLTHERM K118 INSULATED PLASTERBOARD
2.5MM THISTLE MULTIFINISH SKIM COAT WITH PAINTED FINISH.
COLOUR TBC BY CLIENT.

INSIDE / OUTSIDE

WALL TYPE 8 - WINDOW INFILL - 235MM
ACHIEVES 0.19W/M²K

OUTSIDE-INSIDE
2.5MM THISTLE MULTIFINISH SKIM COAT WITH PAINTED FINISH.
COLOUR TBC BY CLIENT.
2x52.5MM KINGSPAN K118 INSULATED PLASTERBOARD
25x47MM TREATED SOFTWOOD TIMBER BATTENS AT 600MM CENTRES.
102.5 FACING BRICKS TO MATCH EXISTING

INSIDE / OUTSIDE

WALL TYPE 9 - WINDOW INFILL - 230MM
ACHIEVES U-VALUE 0.21 W/M²K

OUTSIDE-INSIDE
2.5MM THISTLE MULTIFINISH SKIM COAT WITH PAINTED FINISH.
COLOUR TBC BY CLIENT.
87.5MM KINGSPAN K118 INSULATED PLASTERBOAD
25x47MM TREATED SOFTWOOD TIMBER BATTENS AT 600MM CENTRES.
100MM BLOCK WORK TO S.E SPECIFICATION..
15MM WEBERPRAL M RENDER APPLIED TO MANUFACTURERS RECOMMENDATIONS.

0m 1m 2m 3m 4m

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REV	DATE	DESCRIPTION	DRAWN
00	JULY 2021	ISSUED FOR PLANNING	SH

CLIENT
MR R JAGDEV

PROJECT
109 HIGH STREET
ETON

DRAWING TITLE
PROPOSED FIRST FLOOR PLAN

STATUS
FOR PLANNING

PROJECT No	DWG TYPE	DWG No	REV
2577	PL	B201	00

SCALE	DATE	DRAWN	CHECKED
1:100@A3	JULY 2021	SH	DL

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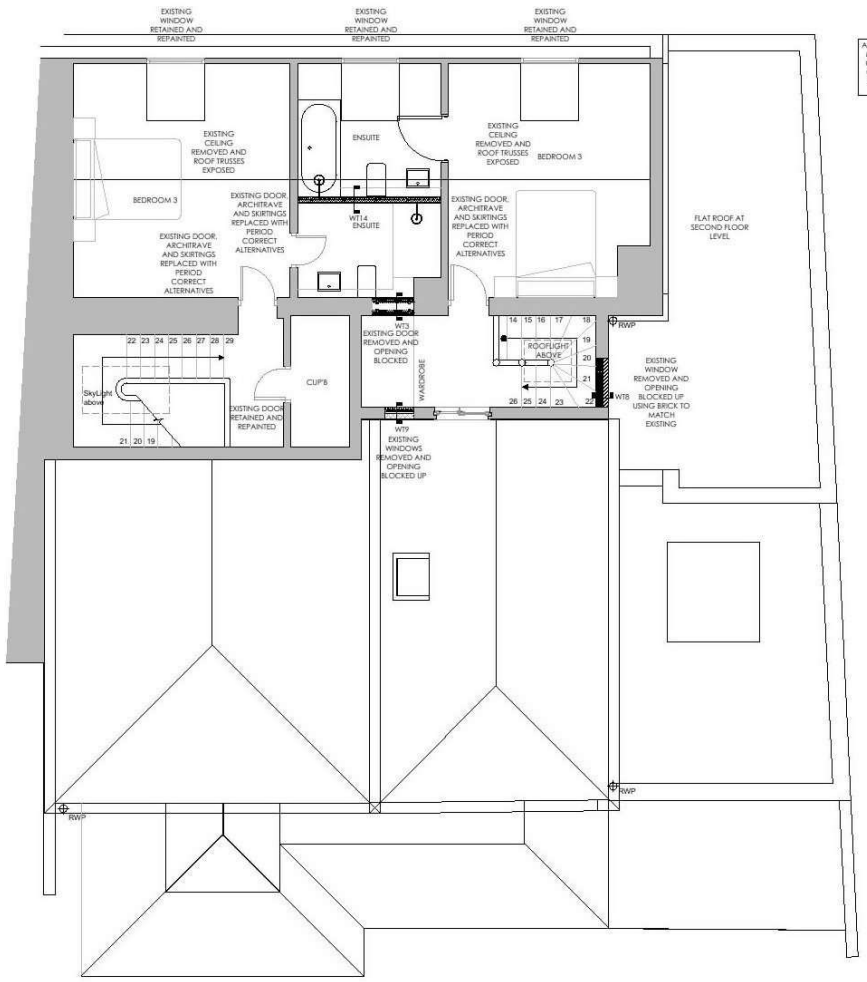

SECOND FLOOR PLAN

ALL EXISTING SURFACE MOUNTED ELECTRIC CABLES AND PIPING CHASED INTO WALL AND WALL MADE GOOD

OUTSIDE
INSIDE

ROOF TYPE 1 - PITCHED ROOF - 243MM
ACHIEVES U-VALUE OF 0.18W/M²K

OUTSIDE-INSIDE
265x165x13MM CLAY PLAIN TILE
35x25MM HORIZONTAL TIMBER BATTENS
SARKING FELT
50MM VENTILATED SPACE
120MM KOOLTHERM K7 PITCHED ROOF BOARD PARTIALLY FILLING THE SPACE BETWEEN THE RAFTERS.
USE EXISTING RAFTERS WHERE POSSIBLE. IF NOT POSSIBLE REFER TO S.E SPECIFICATION.
32.5MM K118 INSULATED PLASTERBOARD, FIXED UNDER RAFTERS.
2.5MM THISTLE MULTIFINISH SKIM COAT WITH PAINTED FINISH.
COLOUR TBC BY CLIENT.

OUTSIDE
INSIDE

ROOF TYPE 2 - FLAT ROOF - 324MM
ACHIEVES U-VALUE OF 0.18W/M²K

OUTSIDE-INSIDE
SARNAFIL SINGLE PLY MEMBRANE FULLY ADHERED
120MM THERMAROOF TR27 LPC/FM
VAPOUR CONTROL LAYER
18MM PLYWOOD DECK
TIMBER FIRRINGS TO 1:60 FALL TO S.E SPECIFICATION
47x170mm TIMBER JOISTS AT 400 CENTRES TO S.E SPECIFICATION
12.5MM GYPROC WALLBOARD
2.5MM THISTLE MULTIFINISH SKIM COAT WITH PAINTED FINISH.
COLOUR TBC BY CLIENT.

FLOOR TYPE 1 - GROUND FLOOR - 403MM
ACHIEVES U-VALUE OF 0.22W/M²K

FLOOR FINISHES. TBC BY CLIENT.
65MM SCREED
VAPOUR SEPARATION LAYER
60MM KOOLTHERM K103 FLOOR BOARD INSULATION
DAMP PROOF MEMBRANE
BLOCK AND BEAM FLOOR TO S.E SPECIFICATION.

FLOOR TYPE 2 - SECOND FLOOR - 328MM
ACHIEVES U-VALUE OF 0.22W/M²K

FLOOR FINISHES. TBC BY CLIENT.
18MM PLYWOOD
47x170mm TIMBER JOISTS AT 400 CENTRES TO S.E SPECIFICATION.
FULL FILL ISOVER APR 1200 INSULATION
12.5MM GYPROC WALLBOARD
2.5MM THISTLE MULTIFINISH SKIM COAT WITH PAINTED FINISH.
COLOUR TBC BY CLIENT.

INSIDE
INSIDE

WALL TYPE 4 - GENERAL PARTITION WALL - 119MM

INSIDE-INSIDE
2.5MM THISTLE MULTIFINISH SKIM COAT WITH PAINTED FINISH.
COLOUR TBC BY CLIENT.
12.5MM GYPROC WALLBOARD ON 10MM DABS
38x89MM TIMBER STUDS AT 600 CENTRES TO S.E SPECIFICATION.
FULL FILL ISOVER APR 1200 INSULATION
12.5MM GYPROC WALLBOARD ON 10MM DABS
2.5MM THISTLE MULTIFINISH SKIM COAT WITH PAINTED FINISH.
COLOUR TBC BY CLIENT.
IN BATHROOMS CLIENT TO CONFIRM IF TILES ARE REQUIRED. IF TILES ARE REQUIRED, WALLBOARD SUBSTITUTED FOR TILEBACKER BOARD.

INSIDE
INSIDE

WALL TYPE 5 - INTERNAL INFILL WALL - WIDTH TO SUIT

INSIDE-INSIDE
2.5MM THISTLE MULTIFINISH SKIM COAT WITH PAINTED FINISH.
COLOUR TBC BY CLIENT.
12.5MM GYPROC WALLBOARD.
38MM TIMBER STUDS AT 600 CENTRES TO S.E DESIGN & SPECIFICATION WITH 50MMFULL FILL ISOVER APR 1200 INSULATION BETWEEN STUDS.
VOID TO SUIT.
38MM TIMBER STUDS AT 600 CENTRES TO S.E DEISNG & SPECIFICATION WITH 50MMFULL FILL ISOVER APR 1200 INSULATION BETWEEN STUDS.
12.5MM GYPROC WALLBOARD.
2.5MM THISTLE MULTIFINISH SKIM COAT WITH PAINTED FINISH.
COLOUR TBC BY CLIENT.

INSIDE
INSIDE

WALL TYPE 6 - EXISTING WALL

INSIDE-INSIDE
2.5MM THISTLE MULTIFINISH SKIM COAT WITH PAINTED FINISH.
COLOUR TBC BY CLIENT.
12.5MM GYPROC WALLBOARD ON 10MM DABS
EXISTING WALL

EXISTING WALLS TO BE RETAINED, MADE GOOD AND REPAINTED.

EXISTING STRUCTURE TO BE REMOVED

OUTSIDE
INSIDE

WALL TYPE 1 - BRICK EXTERNAL WALL - 327.5MM
ACHIEVES U-VALUE OF 0.25W/M²K

OUTSIDE-INSIDE
102.5MM BRICKWORK.
50MM CAVITY
50MM KINGSPAN KOOLTHERM K108 CAVITY BOARD INSULATION
100MM BLOCK WORK TO S.E SPECIFICATION
12.5MM GYPROC WALLBOARD ON 10MM DABS
2.5MM THISTLE MULTIFINISH SKIM COAT WITH PAINTED FINISH.
COLOUR TBC BY CLIENT.

INSIDE
OUTSIDE

WALL TYPE 2 - EXISTING BRICK EXTERNAL WALL - ASSUMED U-VALUE OF 0.28W/M²K

INSIDE-OUTSIDE
2.5MM THISTLE MULTIFINISH SKIM COAT WITH PAINTED FINISH.
COLOUR TBC BY CLIENT.
47.5MM KINGSPAN KOOLTHERM K118 INSULATED PLASTERBOARD ON 10MM DABS
WHERE WALL STEPS BACK, TIMBER STUDS TO BE USED, TO S.E DESIGN AND SPECIFICATION
EXISTING CAVITY WALL

INSIDE
INSIDE

WALL TYPE 3 - INTERNAL SEPARATING WALL - 295MM

INSIDE-INSIDE
2.5MM THISTLE MULTIFINISH SKIM COAT WITH PAINTED FINISH.
COLOUR TBC BY CLIENT.
2 LAYERS OF 12.5MM GYPROC WALLBOARD
89MM TIMBER STUDS AT 600 CENTRES. TO S.E DESIGN AND SPECIFICATION.
60MM ISOVER APR 1200 INSULATION BETWEEN STUDS
62MM CAVITY
60MM ISOVER APR 1200 INSULATION BETWEEN STUDS
89MM TIMBER STUDS AT 600 CENTRES. TO S.E DESIGN AND SPECIFICATION.
2 LAYERS OF 12.5MM GYPROC WALLBOARD
2.5MM THISTLE MULTIFINISH SKIM COAT WITH PAINTED FINISH.
COLOUR TBC BY CLIENT.

INSIDE
OUTSIDE

WALL TYPE 7 - FIRST FLOOR BRICK EXTERNAL WALL - 328.5MM
ACHIEVES U-VALUE OF 0.24W/M²K

OUTSIDE-INSIDE
102.5MM FACING BRICKWORK.
50MM CAVITY
KINGSPAN NILVENT BREATHABLE MEMBRANE
9MM CLASS 3 PLYWOOD
89MM TIMBER STUDS TO S.E DESIGN AND SPECIFICATION
50MM KINGSPAN KOOLTHERM K112 FRAMING BOARD INSULATION
32.5MM KINGSPAN KOOLTHERM K118 INSULATED PLASTERBOARD
2.5MM THISTLE MULTIFINISH SKIM COAT WITH PAINTED FINISH.
COLOUR TBC BY CLIENT.

INSIDE
OUTSIDE

WALL TYPE 8 - WINDOW INFILL - 235MM
ACHIEVES 0.19W/M²K

OUTSIDE-INSIDE
2.5MM THISTLE MULTIFINISH SKIM COAT WITH PAINTED FINISH.
COLOUR TBC BY CLIENT.
2x52.5MM KINGSPAN K118 INSULATED PLASTERBOARD
25x47MM TREATED SOFTWOOD TIMBER BATTENS AT 600MM CENTRES.
102.5 FACING BRICKS TO MATCH EXISTING

INSIDE
OUTSIDE

WALL TYPE 9 - WINDOW INFILL - 230MM
ACHIEVES U-VALUE 0.21 W/M²K

OUTSIDE-INSIDE
2.5MM THISTLE MULTIFINISH SKIM COAT WITH PAINTED FINISH.
COLOUR TBC BY CLIENT.
87.5MM KINGSPAN K118 INSULATED PLASTERBOAD
25x47MM TREATED SOFTWOOD TIMBER BATTENS AT 600MM CENTRES.
100MM BLOCK WORK TO S.E SPECIFICATION.
15MM WEBERPRAL M RENDER APPLIED TO MANUFACTURERS RECOMMENDATIONS.

0m 1m 2m 3m 4m

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REV	DATE	DESCRIPTION	DRAWN
00	JULY 2021	ISSUED FOR PLANNING	SH

CLIENT
MR R JAGDEV

PROJECT
109 HIGH STREET
ETON

DRAWING TITLE
PROPOSED SECOND FLOOR PLAN

STATUS
FOR PLANNING

PROJECT No	DWG TYPE	DWG No	REV
2577	PL	B202	00

SCALE	DATE	DRAWN	CHECKED
1:100@A3	JULY 2021	SH	DL

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Product 4 (Detailed Flood Risk) for Site on Eton High St SL4 6AN
Our Ref: THM165163

Product 4 is designed for developers where Flood Risk Standing Advice FRA (Flood Risk Assessment) Guidance Note 3 Applies. This is:

i) "all applications in Flood Zone 3, other than non-domestic extensions less than 250 sq metres; and all domestic extensions", and

ii) "all applications with a site area greater than 1 ha" in Flood Zone 2.

Product 4 includes the following information:

Ordnance Survey 1:25k colour raster base mapping;
Flood Zone 2 and Flood Zone 3;
Relevant model node locations and unique identifiers (for cross referencing to the water levels, depths and flows table);
Model extents showing *defended* scenarios;
FRA site boundary (where a suitable GIS layer is supplied);
Flood defence locations (where available/relevant) and unique identifiers; (supplied separately)
Flood Map areas benefiting from defences (where available/relevant);
Flood Map flood storage areas (where available/relevant);
Historic flood events outlines (where available/relevant, not the Historic Flood Map) and unique identifiers;
Statutory (Sealed) Main River (where available within map extents);

A table showing:

i) Model node X/Y coordinate locations, unique identifiers, and levels and flows for *defended* scenarios.

ii) Flood defence locations unique identifiers and attributes; (supplied seperately)

iii) Historic flood events outlines unique identifiers and attributes; and

iv) Local flood history data (where available/relevant).

Please note:

If you will be carrying out computer modelling as part of your Flood Risk Assessment, please request our guidance which sets out the requirements and best practice for computer river modelling.

This information is based on that currently available as of the date of this letter. You may feel it is appropriate to contact our office at regular intervals, to check whether any amendments/ improvements have been made. Should you re-contact us after a period of time, please quote the above reference in order to help us deal with your query.

This information is provided subject to the enclosed notice which you should read.

This letter is not a Flood Risk Assessment. The information supplied can be used to form part of your Flood Risk Assessment. Further advice and guidance regarding Flood Risk Assessments can be found on our website at:

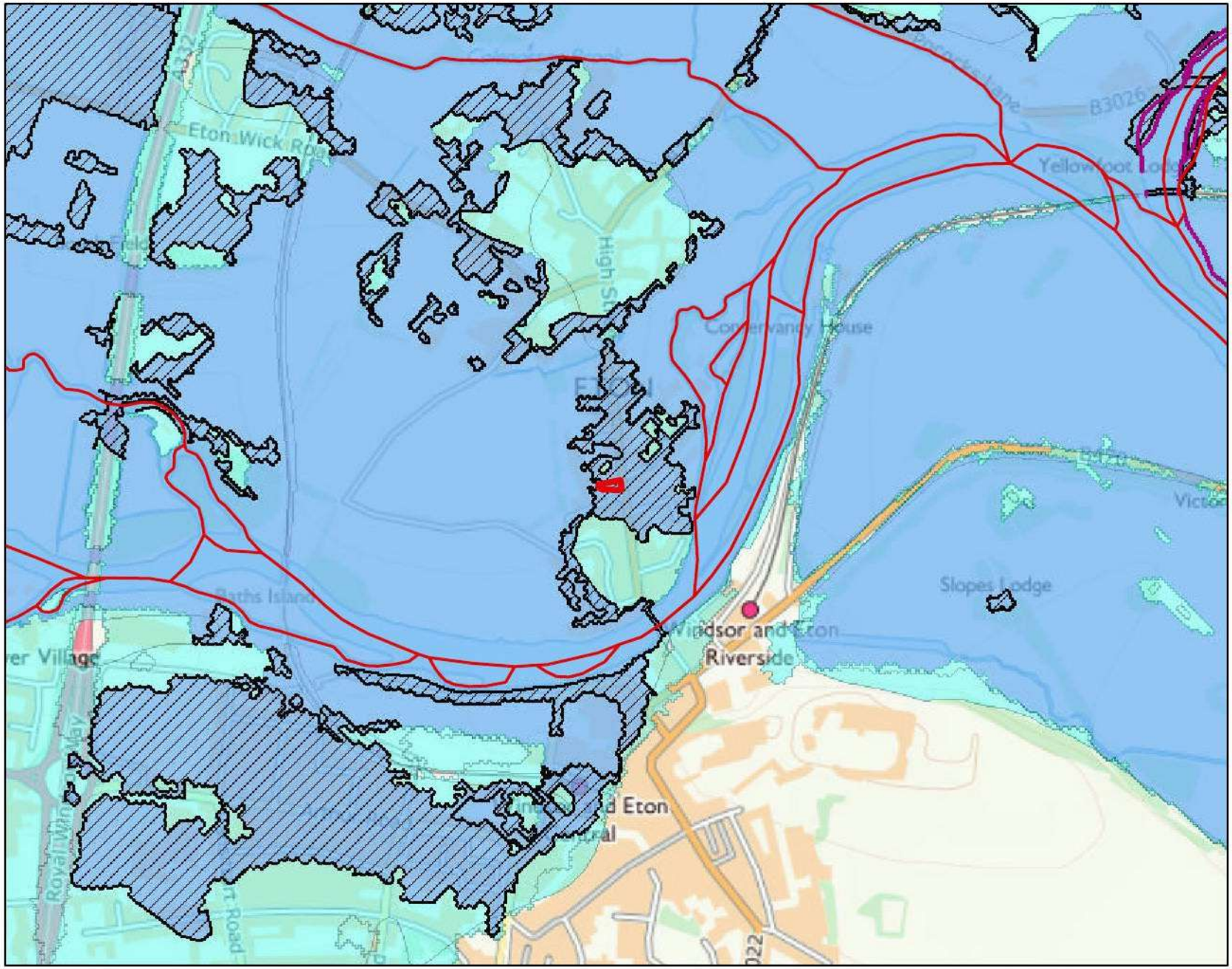
https://www.gov.uk/guidance/flood-risk-assessment-local-planning-authorities

If you would like advice from us regarding your development proposals you can complete our pre application enquiry form which can be found at:

https://www.gov.uk/government/publications/pre-planning-application-enquiry-form-preliminary-opinion

Red Kite House, Howbery Park, Wallingford, Oxon OX10 8BD
Customer services line: 08708 506 506
Email: WTenquiries@environment-agency.gov.uk

Flood Map for Planning centred on SL4 6AN
Created on 12.03.20 REF: THM165163



Environment Agency

Kilometres

0 0.25 0.5

Legend

- Main River
- Flood defences
- Areas benefiting from flood defences
- Flooding from rivers or sea (FZ3)
- Extent of extreme flood (FZ2)
- Flood Map - flood storage areas

Flooding from rivers or sea without defences (Flood Zone 3) shows the area that could be affected by flooding:
- from the sea with a 1 in 200 or greater chance of happening each year
- or from a river with a 1 in 100 or greater chance of happening each year.

The Extent of an extreme flood (Flood Zone 2) shows the extent of an extreme flood from rivers or the sea with up to a 1 in 1000 chance of occurring each year.

Contact Us: National Customer Contact Centre, PO Box 544, Rotherham, S60 1BY. Tel: 03708 506 506 (Mon-Fri 8-6). Email: enquiries@environment-agency.gov.uk

Defence information

THM165163

Defence Location:	Jubilee Channel & Maidenhead Bund
Description:	This location is offered protection from the Maidenhead, Windsor and Eton Flood Alleviation Scheme consisting predominantly of the Jubilee River and the North Maidenhead Bund. The North Maidenhead Bund is a raised earth embankment (approx 1.5m). The Jubilee River is a diversion channel on the River Thames and carries high level flows away from the Maidenhead, Windsor and Eton area. The site is offered up to 1 in 25 protection (4% chance of occurring annually). Although it is given some protection from defences it is still in flood zone 3, we would strongly advise the owner to register to receive direct warnings to enable them to plan sufficiently in a flood event. Both defences are maintained by the Environment Agency. There are no other planned defences in this area.

Model information

THM165163

Model: Thames (Hurley to Teddington) 2019

Description: The information provided is taken from the Lower River Thames Modelling Study which was completed in December 2019. The model was developed using ISIS-TUFLOW. The flood-frequency behaviour of the Lower Thames is assessed in this project using the multitude of river flow and level records that are available, concentrating mostly on the flow record at the Kingston/Teddington gauge site. Flow records are also available at other gauging sites along the modelled section of the River Thames.

This model fully supersedes the following models: Thames (Lower) Reach 1 & 2 – 2007;
Thames (Lower) Reach 3 – 2009; Thames (Lower) Reach 4 – 2010. And partially supersedes:
Thames (Henley to Hurley) 2002 (lower extent only)

This model includes the Jubilee River (part of the Maidenhead, Windsor and Eton Flood Alleviation Scheme). The design capacity for the Jubilee River is limited to approximately 215m3/s and is designed to remain in-bank irrespective of any increase in flows in the River Thames. Where appropriate this will need to be considered when assessing flood risk.

There are several points along the Lower Thames where there are interactions between the main river and tributaries. At these point's, other local models will need to be additionally assessed to ensure the correct site specific values are being used. These locations include Chertsey Town, and along the extent of the Chalvey Ditches.

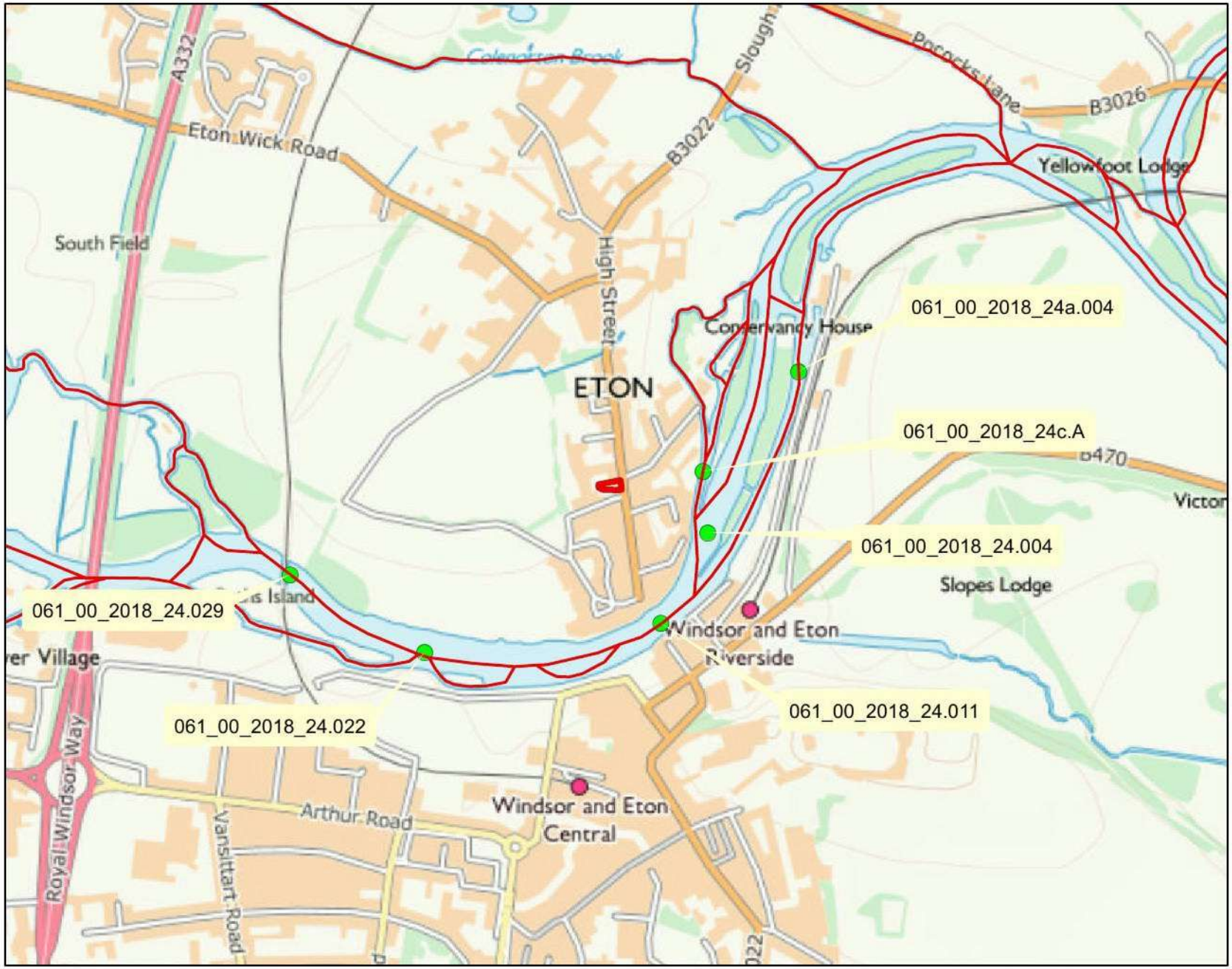
Throughout the majority of the catchment, the model has replicated the flow and level variations observed from gauges during flood events with a high degree of accuracy (± 150mm), however at some sites this was not possible across the whole event. This reflects local variations rather than a fundamental issue with the model (e.g., Bray, Romney and Penton Hook Lock).

Model design runs:
1 in 2 / 50% Annual Exceedance Probability (AEP); 1 in 5 / 20% AEP; 1 in 10; 10% AEP;
1 in 20 / 5% AEP; 1 in 30 / 3.3% AEP; 1 in 40 / 2.5% AEP; 1 in 50 / 2% AEP; 1 in 75% / 1.33% AEP; 1 in 100 / 1% AEP; 1 in 100+15% / 1% AEP plus 15%; 1 in 100+25% / 1% AEP plus 25%; 1 in 100+35% / 1% AEP plus 35%; 1 in 100+70% / 1% AEP plus 70%; 1 in 1000 / 0.1% AEP

Mapped outputs:
1 in 5 / 20% AEP; 1 in 100 /1% AEP; 1 in 100+25% / 1% AEP plus 25%; 1 in 100+35% / 1% AEP plus 35%; 1 in 100+70% / 1% AEP plus 70%

Model accuracy:
Levels ± 150mm

Node Map centred on SL4 6AN
Created on 12.03.20 REF: THM165163



Environment Agency

Kilometres

0 0.25 0.5

Legend

- Main River
- Model Nodes

AEP = Annual Exceedance Probability
The probability of a flood of a particular magnitude, or greater, occuring in any given year

Where available climate change extents have been calculated with an additional flow added to an AEP event. An example of how this is written is 1%+20% AEP.

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Modelled in-channel flood flows and levels

THM165163

The modelled flood levels and flows for the closest most appropriate model node points for your site that are within the river channel are provided below:

				Flood Levels (mAOD)							
Node label	Model	Easting	Northing	20% AEP	5% AEP	1% AEP	1% AEP (+20% increase in flows)	1% AEP (+25% increase in flows)	1% AEP (+35% increase in flows)	1% AEP (+70% increase in flows)	0.1% AEP
061_00_2018_24.029	Thames (Hurley to Teddington) 2019	496066	177331	18.89	19.52	20.18	0.00	20.54	20.74	20.80	20.80
061_00_2018_24.022	Thames (Hurley to Teddington) 2019	496309	177192	18.88	19.50	20.15	0.00	20.52	20.73	20.79	20.79
061_00_2018_24.011	Thames (Hurley to Teddington) 2019	496735	177244	18.71	19.33	19.82	0.00	20.10	20.25	20.33	20.30
061_00_2018_24.004	Thames (Hurley to Teddington) 2019	496820	177407	18.71	19.34	19.84	0.00	20.13	20.28	20.36	20.33
061_00_2018_24c.A	Thames (Hurley to Teddington) 2019	496811	177517	18.71	19.34	19.84	0.00	20.13	20.28	20.36	20.33
061_00_2018_24a.004	Thames (Hurley to Teddington) 2019	496984	177698	18.70	19.28	19.59	0.00	19.70	19.79	19.95	19.88
	0										

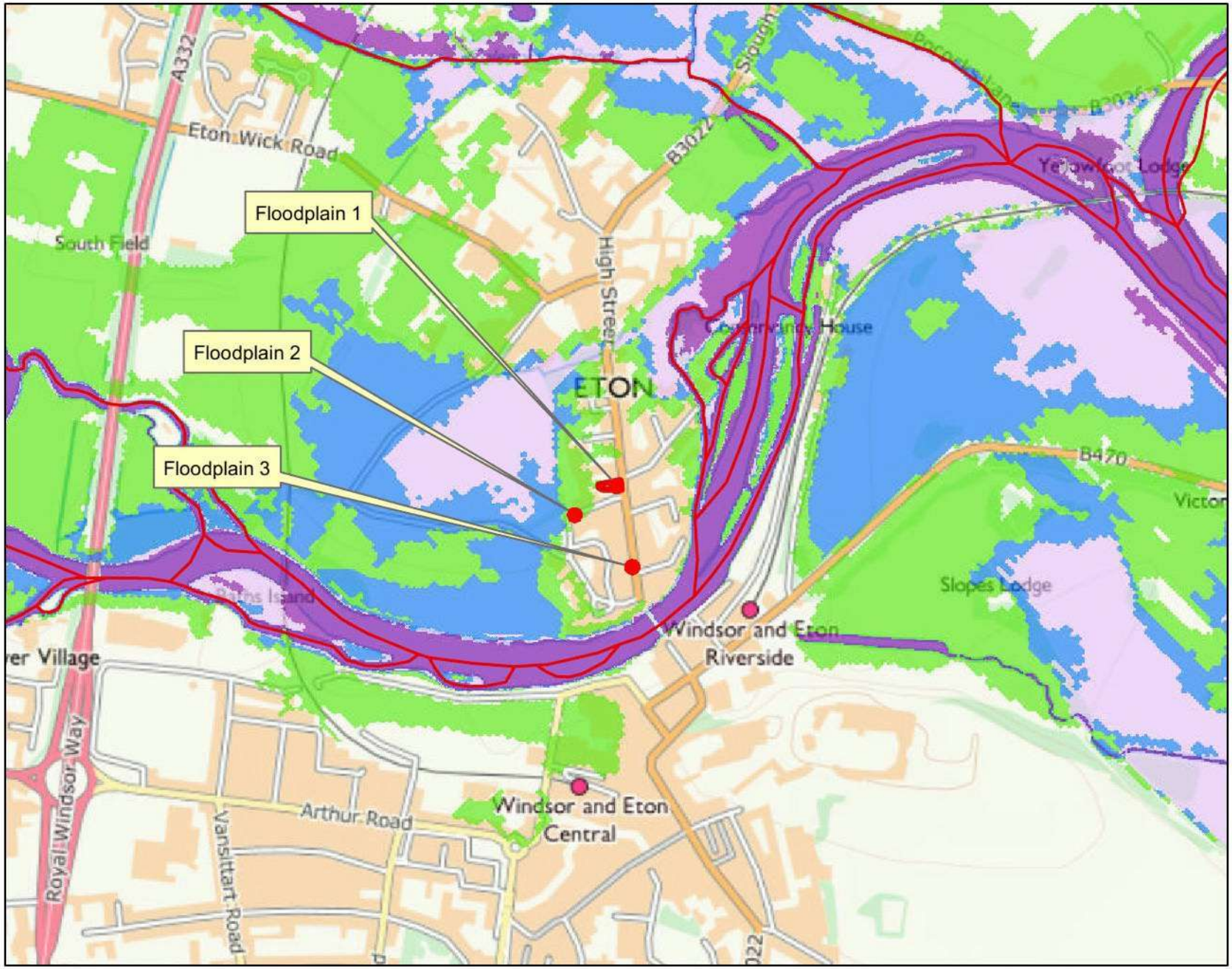
				Flood Flows (m3/s)							
Node label	Model	Easting	Northing	20% AEP	5% AEP	1% AEP	1% AEP (+20% increase in flows)	1% AEP (+25% increase in flows)	1% AEP (+35% increase in flows)	1% AEP (+70% increase in flows)	0.1% AEP
061_00_2018_24.029	Thames (Hurley to Teddington) 2019	496066	177331	187.28	226.38	333.14	0.00	387.38	409.61	430.88	430.43
061_00_2018_24.022	Thames (Hurley to Teddington) 2019	496309	177192	194.78	241.81	339.83	0.00	367.98	368.40	370.06	368.91
061_00_2018_24.011	Thames (Hurley to Teddington) 2019	496735	177244	195.72	241.47	378.95	0.00	432.37	452.92	457.45	457.22
061_00_2018_24.004	Thames (Hurley to Teddington) 2019	496820	177407	195.70	241.47	378.95	0.00	432.63	455.14	460.83	460.67
061_00_2018_24c.A	Thames (Hurley to Teddington) 2019	496811	177517	4.93	52.74	122.75	0.00	152.28	168.96	187.82	188.85
061_00_2018_24a.004	Thames (Hurley to Teddington) 2019	496984	177698	10.32	44.82	121.85	0.00	159.20	169.37	179.81	179.86

Note:

Due to changes in guidance on the allowances for climate change, the 20% increase in river flows should no longer to be used for development design purposes. The data included in this Product can be used for interpolation of levels as part of an intermediate level assessment.

For further advice on the new allowances please visit
https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances

Detailed FRA map1 centred on SL4 6AN
Created on 12.03.20 REF: THM165163



Environment Agency

Kilometres

0 0.25 0.5

Legend

- Main River
- 20% AEP Defended Flood Outline
- 10% AEP Defended Flood Outline
- 5% AEP Defended Flood Outline
- 1% AEP Defended Flood Outline

AEP = Annual Exceedance Probability
The probability of a flood of a particular magnitude, or greater, occuring in any given year

Where available climate change extents have been calculated with an additional flow added to an AEP event. An example of how this is written is 1%+20% AEP.

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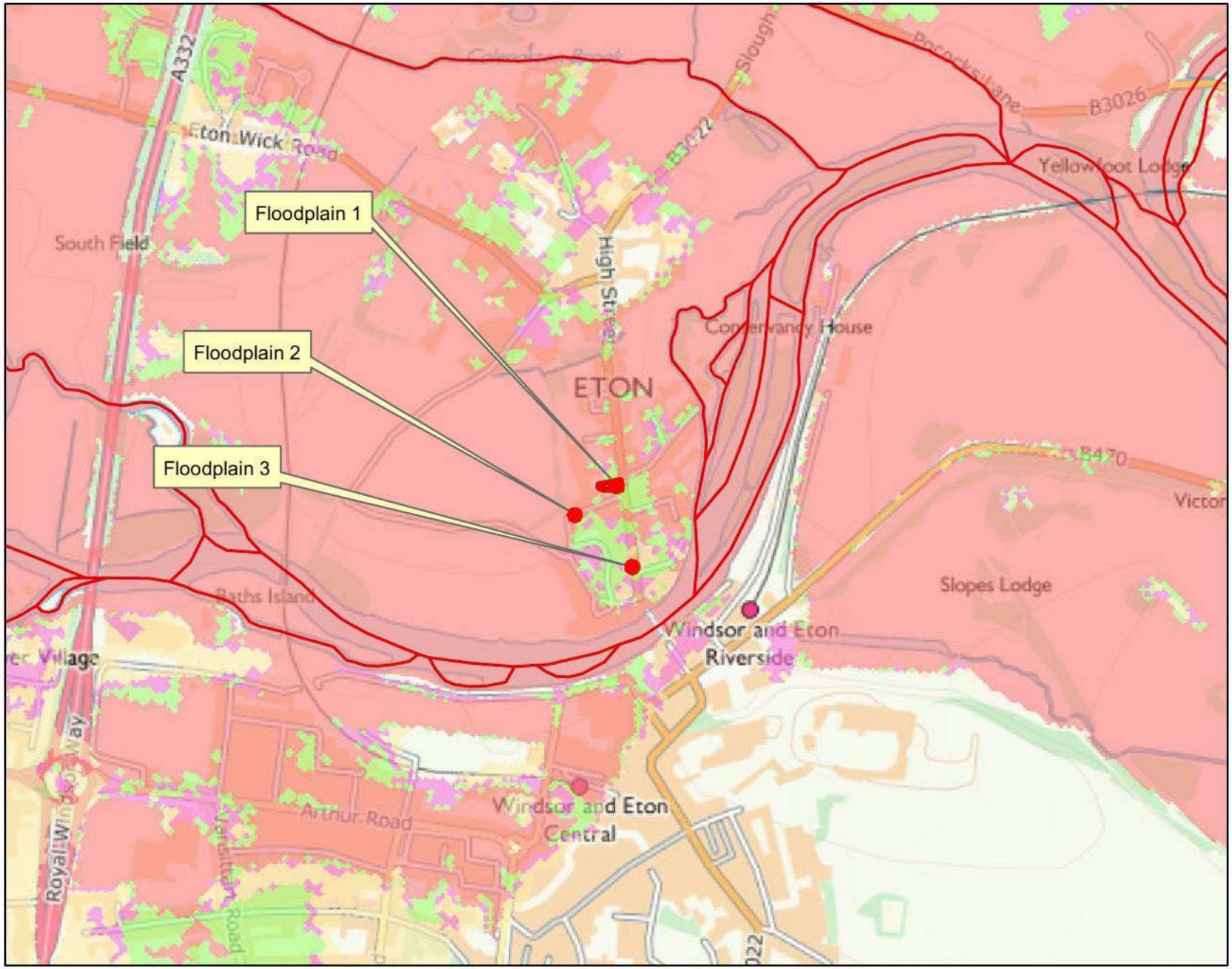
Detailed FRA map2 centred on SL4 6AN
Created on 12.03.20 REF: THM165163



Environment Agency

Kilometres

0 0.25 0.5

Legend

- Main River
- 1%+15% CC AEP Defended Flood Outline
- 1%+25% CC AEP Defended Flood Outline
- 1%+35% CC AEP Defended Flood Outline
- 1%+70% CC AEP Defended Flood Outline

AEP = Annual Exceedance Probability
The probability of a flood of a particular magnitude, or greater, occuring in any given year

Where available climate change extents have been calculated with an additional flow added to an AEP event. An example of how this is written is 1%+20% AEP.

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Modelled floodplain flood levels

THM165163

The modelled flood levels for the closest most appropriate model grid cells for your site are provided below:

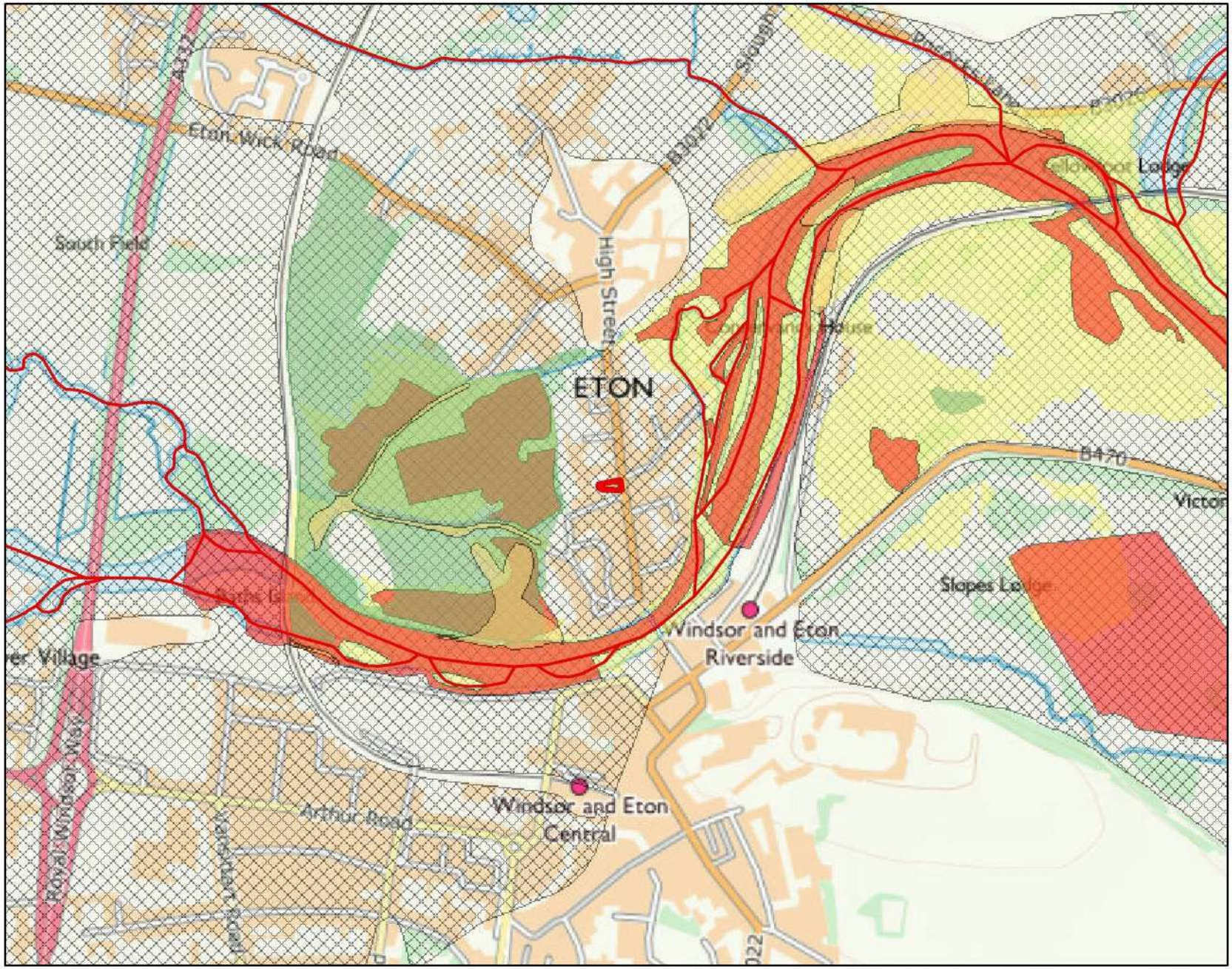
				flood levels (mAOD)							
2D grid cell reference	Model	Easting	Northing	20% AEP	5% AEP	1% AEP	1% AEP (+15% increase in flows)	1% AEP (+25% increase in flows)	1% AEP (+35% increase in flows)	1% AEP (+70% increase in flows)	0.1% AEP
Floodplain 1	Thames (Hurley to Teddington) 2019	496,654	177,491	No data	No data	No data	No data	20.48	20.65	20.71	1.06
Floodplain 2	Thames (Hurley to Teddington) 2019	496,580	177,440	No data	No data	0.69	20.37	20.51	20.71	20.78	1.52
Floodplain 3	Thames (Hurley to Teddington) 2019	496,683	177,346	No data	No data	No data	No data	No data	No data	20.62	0.52

This flood model has represented the floodplain as a grid.
The flood water levels have been calculated for each grid cell.

Note:
Due to changes in guidance on the allowances for climate change, the 20% increase in river flows should no longer to be used for development design purposes. The data included in this Product can be used for interpolation of levels as part of an intermediate level assessment.

For further advice on the new allowances please visit
https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances

Historic Flood Map centred on SL4 6AN
Created on 12.03.20 REF: THM165163



Environment Agency

Kilometres

0 0.25 0.5

Legend

Main River

year

- 1947
- 1974
- 1990
- 2000
- 2002

Flooding from rivers or sea without defences (Flood Zone 3) shows the area that could be affected by flooding:
- from the sea with a 1 in 200 or greater chance of happening each year
- or from a river with a 1 in 100 or greater chance of happening each year.

The Extent of an extreme flood (Flood Zone 2) shows the extent of an extreme flood from rivers or the sea with up to a 1 in 1000 chance of occurring each year.

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Historic flood data

THM165163

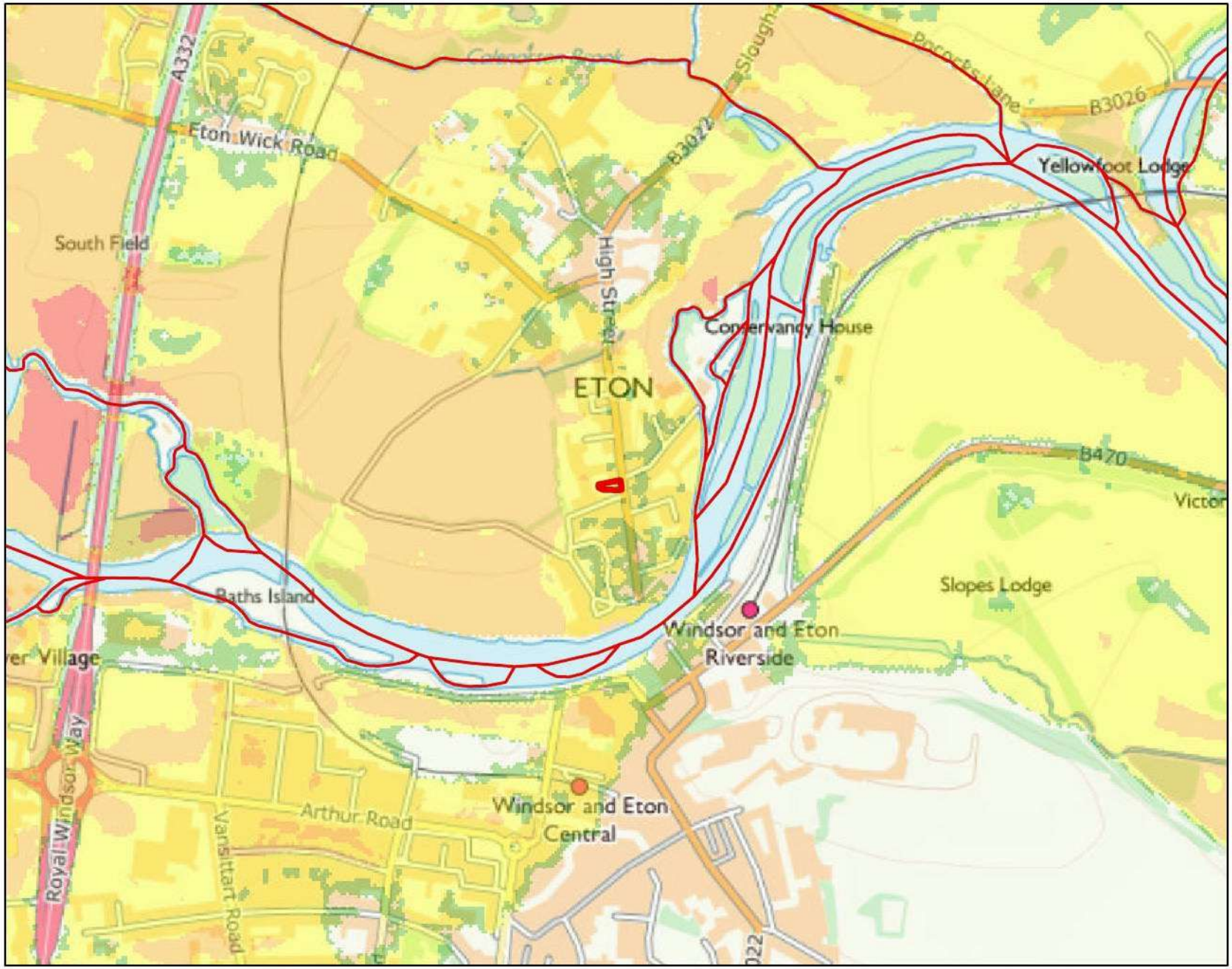
Our records show that the area of your site has been affected by flooding.
Information on the floods that have affected your site is provided in the table below:

Flood Event Code	Flood Event Name	Start Date	End Date	Source of Flooding	Cause of Flooding
EA061947March00001	06MarchSpring1947	01/01/1947	12/12/1947	main river	channel capacity exceeded (no raised defences)
EA0619741100316	06NovemberAutumn1974	01/01/1974	12/12/1974	main river	channel capacity exceeded (no raised defences)
EA0619900200136	06FebruaryWinter1990	01/01/1990	12/12/1990	main river	channel capacity exceeded (no raised defences)
EA0620001200228	06DecemberWinter2000	01/01/2000	12/12/2000	main river	channel capacity exceeded (no raised defences)
EA0620030100901	06JanuaryNewYear2003	23/12/2002	12/01/2003	main river	channel capacity exceeded (no raised defences)

Please note the Environment Agency maps flooding to land not individual properties. Floodplain extents are an indication of the geographical extent of a historic flood. They do not provide information regarding levels of individual properties, nor do they imply that a property has flooded internally.

Start and End Dates shown above may represent a wider range where the exact dates are not available.

Hazard Map centred on SL4 6AN
Created on 12.03.20 REF: THM165163



Environment Agency

Kilometres

0 0.25 0.5

Legend

- Main River
- Low hazard
- Hazard to some
- Hazard for most
- Hazard to all

For hazard and debris factor we used HR Wallingford and Environment Agency (May 2008) supplementary note on flood hazard ratings and thresholds for development planning and control purpose. The following calculation is used:

HR = d x (v+0.5) + DF

HR = flood hazard rating
d = depth of flooding (m)
v = velocity of floodwaters (m/sec)
DF = debris factor calculated (0, 0.5, 1 depending on probability that debris will lead to a hazard)

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Hazard Mapping

THM165163

Hazard Mapping methodology:

To calculate flood hazard with the debris factor we have used the supplementary note to Flood Risk to People Methodology (see below).
The following calculation is used:

HR = d x (v+0.5) + DF

Where HR = flood hazard rating
d = depth of flooding (m)
v = velocity of floodwaters (m/sec)
DF = debris factor calculated (0, 0.5, 1 depending on probability that debris will lead to a hazard)

The resultant hazard rating is then classified according to:

Flood Hazard	Colour	Hazard to People Classification	
Less than 0.75		Very low hazard	- Caution
0.75 to 1.25		Danger for some	- includes children, the elderly and the infirm
1.25 to 2.0		Danger for most	- includes the general public
More than 2.0		Danger for all	- includes the emergency services

REF: HR Wallingford and Environment Agency (May 2008) Supplementary note of flood hazard ratings and thresholds for development planning and control purpose – Clarification of the Table 113.1 of FD2320/TR2 and Figure 3.2 of FD2321/TR1

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