

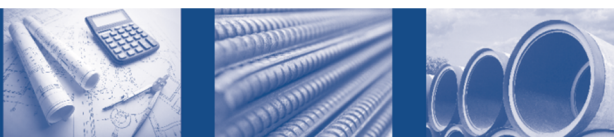
**THE THAMES HOTEL
RAY MEAD ROAD
MAIDENHEAD
SL6 8NR**

FLOOD RISK ASSESSMENT ADDENDUM

JSA PLANNING

FEBRUARY 2018

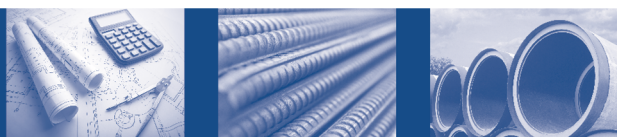
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APPENDICES

**Appendix A - RSK Consultants Flood Risk Assessment, The Thames Hotel
(Report No. 131826-R1(0), September 2012)**

Appendix B - Site Location Plan, Existing and Proposed Floor Plans

Appendix C - EA Product 4 Data & Climate Change Allowances

Appendix D - Flood Emergency Plan

REFERENCES

Environment Agency Flood Map Information © and database right www.environment_agency.gov.uk

Technical Guidance to the National Planning Policy Framework - NPPF (2012)
Department for Communities and Local Government ISBN: 978-1-4098-3410-6

Contains British Geological Survey materials © NERC (2014)

Royal Borough of Windsor and Maidenhead Council (RBWM) - Strategic Flood Risk Assessment (Level 1 SFRA)
June 2017 (Revision 07).

1 Introduction

1.1 Scope

JSA Planning is resubmitting an application (ref:17/03224/FULL) for the renewal of the previously approved planning permission (ref:06/02233/FULL) for development at The Thames Hotel in Maidenhead, comprising the demolition of existing single and two storey extensions with the construction of replacement three and four storey extensions with basement.

1.2 The development permitted by this planning permission was supported by a Flood Risk Assessment, (Report No. 131826-R1(0), September 2012) by RSK Consultants and was approved by The Borough of Windsor and Maidenhead and the Environment Agency (WA/2012/113440/01-L01) in October 2012, subject to the implementation of mitigation measures detailed within the FRA.

1.3 The purpose of this addendum report is to provide an update to the approved RSK FRA to consider whether the assessed level of flood risk to the site has changed and to confirm that the proposed mitigation measures are appropriate to the current and future level of risk, in accordance with present flood risk legislation and the latest guidance on climate change allowances.

1.4 This report should read conjunction with the approved RSK FRA (Report No. 131826-R1(0), September 2012) contained within Appendix A.

1.5 Report Structure

The National Planning Policy Framework (NPPF) and the Flood Risk and Coastal Planning Practice Guidance (PPG) is the current guidance on development and flood risk in England and Wales.

The Flood Risk technical guidance for the National Planning Policy Framework requires a Flood Risk Assessment (FRA) to be carried out on sites over 1ha or within flood zone 2/3 to consider all potential forms of flooding including that from river, sea, estuarial, land drainage, groundwater, overland flow, surface water run-off, sewer systems, and artificial water bodies (lakes, reservoirs, canals etc.) to both the development site and to offsite parties and land.

1.6 This report will take the structure of a 'Flood Risk Assessment' in accordance with the National Planning Policy Framework (NPPF), the Flood Risk and Coastal Planning Practice Guidance, Environment Agency's Flood Risk Assessment Guidance and CIRIA Report 624 'Development and Flood Risk'.

1.7 The objective of this report is:

- To confirm whether the site is affected by a current or anticipated future risk flooding from all sources for the lifetime of the development.
- To confirm that this development will not increase the risk of flooding to any offsite properties and land.
- To propose suitable mitigation measures to reduce the impact of flooding to the site and to occupants.
- To undertake calculations to establish the foul and surface water runoff rates from the existing site and to assess the potential foul and surface water runoff from the proposed development.
- To detail a suitable strategy for the management of foul and surface water generated from the proposed development allowing for future climate change.
- To satisfy the approving planning authority that the most sustainable foul and surface water drainage solutions have been considered, in line with Environment Agency guidance, The Building Regulations (Document H 2002) and government legislation such as the Flood and Water Management Act 2010 (Defra) and The National Planning Policy Framework (NPPF & PPG).

2 The Development Site

2.1 The application site is located at The Thames Hotel situated on the corner of Ray Mead Road and Ray Park Road in Maidenhead.

The 1880m² site consists of the hotel building, car park and grounds.

The main part of The Thames Hotel constructed in circa 1884 is three and four storey, with a more recent (Pre 1978) single story extensions adjoining the northern part and a two story extension to the west part of the original building.

Access to the site and car park is currently off Ray Park Road to the south of site.

2.2 The application seeks to renew planning permission granted in 20006 to construct a four storey north (side) extension and a three storey west and north (rear and side) extension with basement following demolition of the existing two storey west (rear) and single storey (north) extensions (renewal of approved planning permission 12/02920/FULL).

2.3 The development of this site will increase the current total building footprint by 9m², however, no additional habitable bedrooms are to be created and the number of occupants will not increase.

2.4 Topography

The overall topography of the area is relatively flat.

The site falls towards the west with ground levels across the site ranging from 24.05m-23.20mAOD (metres above Ordnance Datum).

The ground floor level of the main building is at 24.28mAOD with a conference room located at 23.40mAOD.

2.5 Geology

Information published by the British Geological Survey (BGS) indicates that the site is anticipated to be directly underlain by Alluvium (Clay, Silt, Sand and Gravel) overlying The Seaford Chalk Formation and Newhaven (Chalk).

2.6 Groundwater

With reference to BGS records the site is underlain superficial deposits of alluvium soils.

Due to the site's proximity to the River Thames, it would be expected for groundwater levels beneath the site to be elevated (shallow) and in hydraulic continuity with the River Thames.

2.7 Hydrogeology

The Environment Agency has classified the site as located within an Outer (Zone 2) Groundwater Source Protection Zone for groundwater abstractions.

This is defined by a 400 day travel time from a point below the water table to an abstraction point.

Under the Environment Agency's classification system, the bedrock of The Seaford Chalk Formation and Newhaven is classified as a 'Principle Aquifer. These are layers that have high intergranular and/or fracture permeability - meaning they usually provide a high level of water storage. They may support water supply and/or river base flow on a strategic scale.

2.8 The superficial Alluvium soils are classified as ‘Secondary A’ Aquifers. These are permeable layers capable of supporting water supplies at a local scale and in some cases, form an important source of base flow to rivers.

2.9 The site is within the catchment of the River Thames.
It would be expected that the flow of groundwater beneath the site be consistent with the local surface topography and in hydraulic continuity with the River Thames.

2.10 Site Drainage Characteristics

The existing site is predominantly impermeable and is currently served by a dedicated combined drainage system taking foul flows from the hotel building and surface water runoff from hardstanding areas including the car park and roofs.

The onsite combined drainage system discharges un-attenuated into the offsite Thames Water public foul/combined sewer system within Ray Park Road.

2.11 Soil Permeability

Information published by the BGS indicates that the site is directly underlain Alluvium (Clay, Silt, Sand and Gravel).

Although Alluvium soils can be permeable and suitable for infiltration, the level of clay content within these soils can significantly reduce permeability and may not be suitable for SuDS that rely on full infiltration.

The anticipated presence of groundwater at relatively shallow depths across the site would likely preclude the use of full infiltration SuDS.

Therefore, it is anticipated that infiltration will not be a feasible method to effectively dispose of the any additional surface water runoff generated from the proposed redevelopment.

Figure 1: Site Location

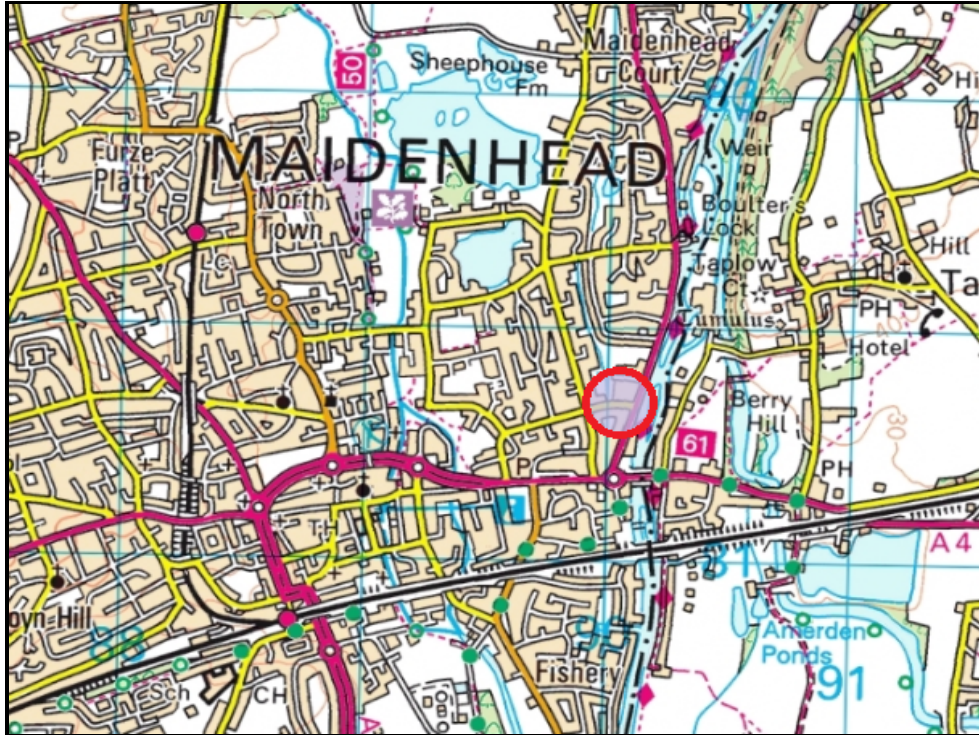


Image courtesy of: @2018 Microsoft Corporation Image courtesy of Ordnance Survey

Figure 2: Development site boundary



Image courtesy of: Imagery @ 2018 Digital Globe, Getmapping plc, Infoterra Ltd & Bluesky, Map data @2018 Google

3 Flood Risk Assessment

- 3.1 A Flood Risk Assessment requires that an evaluation of all potential forms of flood risk to the site are considered.

In accordance with the Environment Agency's Flood Risk Assessment Guidance, NPPF, PPG and CIRIA Report 624, sources of flooding to be assessed include tidal, fluvial (rivers, streams and watercourses), pluvial (overland rainfall runoff), groundwater, artificial sources (canals and reservoirs) and existing / proposed sewerage and water mains infrastructure.

3.2 Historic Flood Events

The main source of data for flood risk and recorded incidents of flooding for this site has been the *Royal Borough of Windsor and Maidenhead Council (RBWM) - Strategic Flood Risk Assessment (Level 1 SFRA) June 2017 (Revision 07)*.

Additional information has been obtained from The Environment Agency (historic flood extents map), British Society Chronology of Extreme Hydrological Events, and local news and media archives.

- 3.3 Within the SFRA study, consultation was carried out with all relevant authorities and organisations including the Environment Agency, Thames Water, The Royal Borough of Maidenhead and Windsor Council and local community stakeholders to identify known and/or perceived problem areas with respect to flooding.

- 3.4 It is recognised that the Royal Borough of Windsor and Maidenhead (RBWM) has a considerable flood history.

Significant events of fluvial flooding from the River Thames has affected the Royal Borough on numerous occasions over the past 125 years.

Major floods have occurred in 1894, 1947 and 2014, with floods of lesser severity in 1954, 1959, 1974, 1981, 1990, 2000, 2003, 2007, 2012 and 2013/14.

The borough also suffers from a combination of localised surface water, groundwater and sewer flooding.

- 3.5 In context of the site, the SFRA and the EA Historic Flood Map indicates the site has been affected by fluvial flooding three times in the past 70 years, in 1947, 1974 and 1990 when the River Thames overflowed its banks.

In November 2000 and the winter of 2013-2014 fluvial flooding effected parts of Ray Park Road and Ray Mead Road to the south and east of the site however this did not encroach in to the site boundary.

- 3.6 The RBWM 2017 SFRA indicates that flooding from existing sewers has been recorded on Ray Park Road to the south of the site.

- 3.7 Anecdotal evidence from the owners of the hotel indicate flooding to basement levels within the site from groundwater seepages, although no internal flooding of the main building has been recorded from the fluvial flood events.

3.8 Fluvial

The nearest fluvial flood risk to the site is from the main rivers of the River Thames and the Jubilee River located 20m and 400m east of the site respectively and the Clappers Brook/Stream (ordinary watercourse), located 50m to the north of the site.

3.9 Flood Map for Planning (Rivers and Sea)

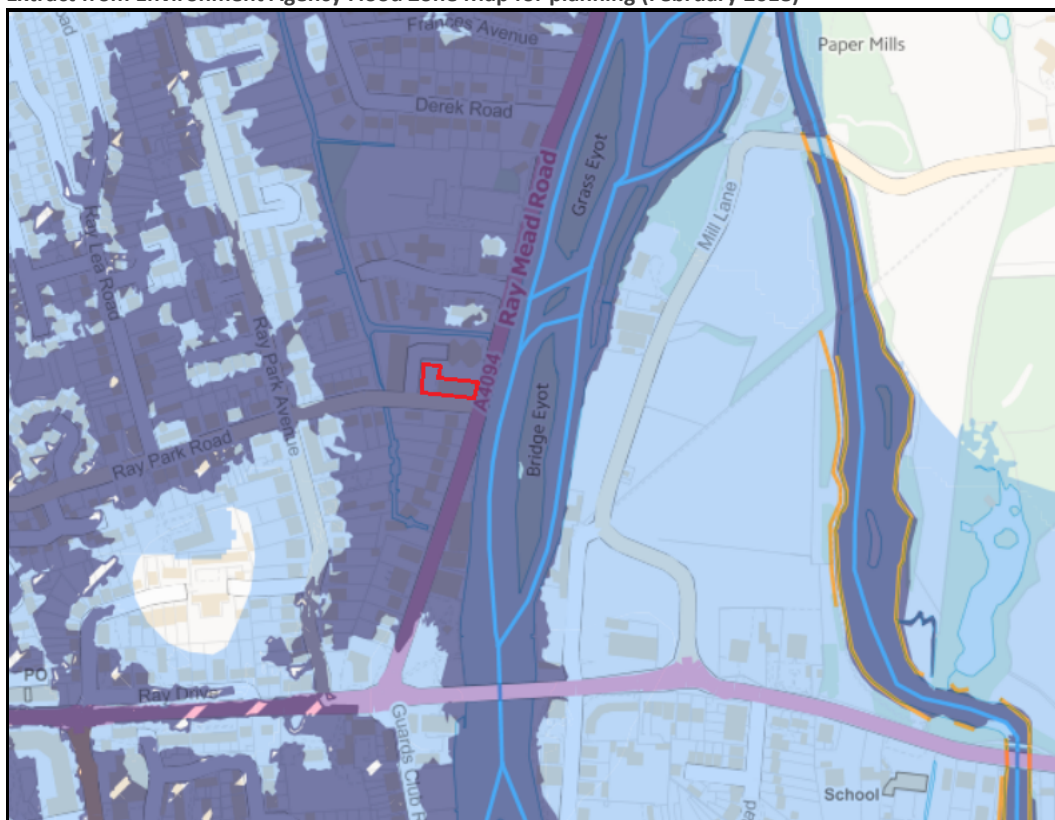
The Environment Agency (EA) is the principal flood risk management authority in England and Wales.

The Flood Map for Planning (Rivers and Sea) updated quarterly by the EA, shows the natural floodplain occurring from rivers or the sea ignoring the presence of flood defences and assesses the probability of flooding to land.

3.10 The Flood Zone Map (Figure 3) has been produced from a combination of a national generalised computer model (NaFRA), detailed local hydraulic modelling and calibrated against historic fluvial flood event outlines.

Figure 3: Fluvial Flood Zone Map

Extract from Environment Agency Flood Zone Map for planning (February 2018)



Contains Environment Agency information © Environment Agency 2018

Key:



Main Rivers

Dark Blue : (Flood Zone 3)

Shows the area that could be affected by flooding, either from rivers or the sea, if there were no flood defences. This area could be flooded: from the sea by a flood that has a 0.5% (1 in 200) or greater chance of happening each year, or from a river by a flood that has a 1% (1 in 100) or greater chance of happening each year.

Light Blue : (Flood Zone 2)

Shows the additional extent of an extreme flood from rivers or the sea.

These outlying areas are likely to be affected by a major flood, with up to a 0.1% (1 in 1000) chance of occurring each year.

These two colours show the extent of the natural floodplain if there were no flood defences or certain other manmade structures and channel improvements.

Clear : (Flood Zone 1)

Shows the area where flooding from rivers and the sea is very unlikely.

There is less than a 0.1% (1 in 1000) chance of flooding occurring each year.

- 3.11 As confirmed by the latest Environment Agency 'Flood Zone Map' (February 2018), the whole site is located within Flood Zone 3. 'Flood Zone 3' is land assessed as having a greater than a 1 in 100 (>1%) annual probability of flooding from a main river in each year.
- 3.12 The site is offered a level of 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) maintained by the Environment Agency. 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) from this defence although site is still located in flood zone 3.
- 3.13 Flood Zone 3 is further divided into Zone '3a' (1:100 (1%) to 1:20 (5%) AEP) and Zone '3b' (flood storage area having greater than a 1:20 (>5%) AEP). The RBWM 2017 SFRA (Dwg:0499-SFRA-LV1, figure 6) indicates that the site is within Flood Zone 3a.

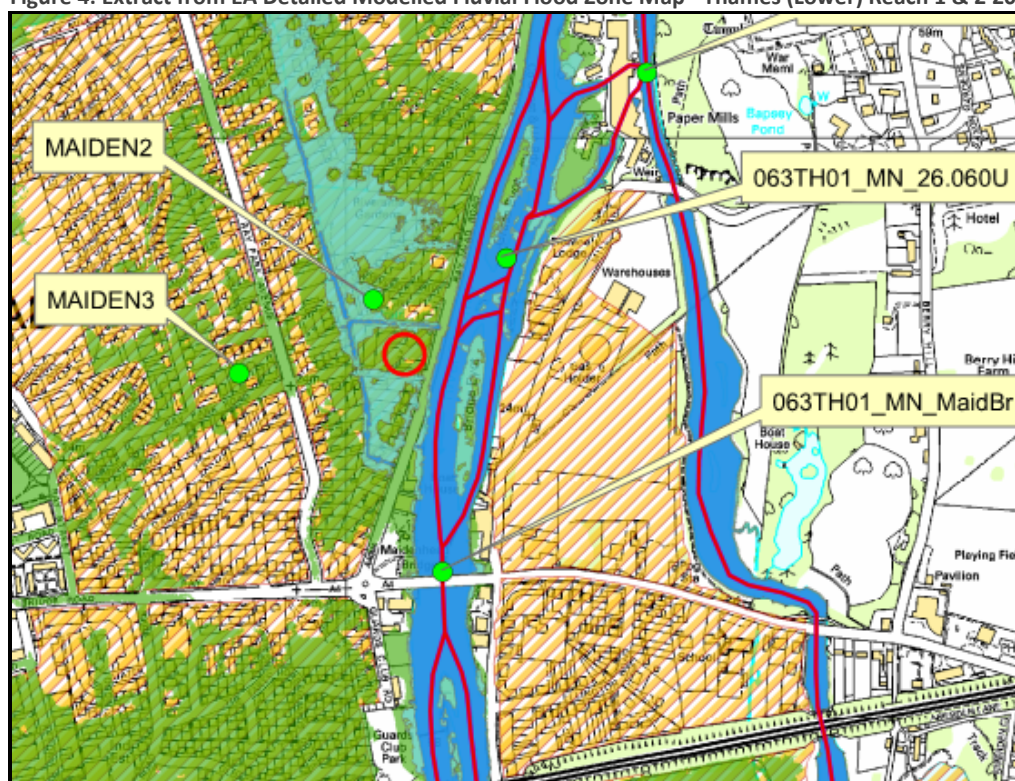
3.14 Detailed Hydraulic Modelling

A number of detailed hydraulic flooding models have been carried out by the Environment Agency for watercourses throughout the Borough.

The model most appropriate to the site is the for the River Thames (incorporating the Jubilee River part of the Maidenhead, Windsor and Eton Flood Alleviation Scheme):

Thames (Lower) Reach 1 & 2 2007; (Hurley to Cookham) and (Cookham to Windsor), completed in December 2007.

Figure 4: Extract from EA Detailed Modelled Fluvial Flood Zone Map - Thames (Lower) Reach 1 & 2 2007 (2007)



Legend

- Thames Model Node Data
- Main River
- 20% AEP flood extent
- 5% AEP flood extent
- 1% AEP flood extent
- ReservoirUnits_FlowsLevels

3.15 As confirmed by the latest Environment Agency hydraulic model the whole site is located within Flood Zone 3a, assessed as having between a 1 in 100 (1%) and 1:20 (5%) annual probability of flooding from the River Thames each year.

Table 1: Modelled in channel flood levels - Thames (Lower) Reach 1 & 2 2007 (2007)

Node label	Model	Easting	Northing	Flood Levels (mAOD)			
				20% AEP	5% AEP	1% AEP	1% AEP (+20% on river flows)
063TH01 MN 26.069	Thames (Lower) Reach 1 & 2 2007	490335	182305	22.67	23.17	23.97	24.47
063TH01 MN 107+00	Thames (Lower) Reach 1 & 2 2007	490438	182096	23.84	23.84	24.51	25.00
063TH01 MN 26.060U	Thames (Lower) Reach 1 & 2 2007	490234	181826	22.53	23.04	23.89	24.41
063TH01 MN MaidBr	Thames (Lower) Reach 1 & 2 2007	490141	181370	22.37	22.89	23.71	24.19

3.16 The closest nodal point to the site *063TH01 MN 26.06U* indicates the 100year+cc (1%AEP +20%) flood level is 24.41mAOD.

3.17 This model was generated in 2007, therefore the RSK FRA (2012) is current in terms of establishing the 1%AEP+cc (20%) flood level.

3.18 Flood Levels and Climate Change

In February 2016 the Environment Agency revised climate change sensitivity allowances for peak river flows, based on river basin districts.

This site is located within the 'Thames River Basin District' and as such it is assessed that a 35% (higher central) to 70% (Upper end) increase in peak river flows up to the year 2115 should be anticipated within the River Thames, an increase from the previous 20% allowance.

3.19 In the absence of a hydraulic model to apply the increase in flows, the EA have produced guidance '*Thames Area Climate Change Allowances (January 2017)*', as to the application of allowances to be used within flood risk assessments to determine the potential flood depths for the lifetime of the development.

This guide suggests that as a basic approach, an allowance of 700mm (higher central) to 1000mm (Upper end) is added to the current 1:100 (1%) AEP flood level (23.89mAOD) to allow for potential climate change effects.

Therefore, the worst case (Upper end) 100year+cc (1%AEP+cc) flood level is calculated at **24.89mAOD**.

3.20 The floor level of the existing hotel main building is at 24.28mAOD, with surrounding ground levels ranging from 23.20 to 24.00mAOD across the site.

A conference room located to the west of the main building is at a lower level of 23.40mAOD.

Therefore, the main building could experience flood depths of up to 610mm during the 100 year climate change flood event, with flood depths of up to 1.69m externally.

3.21 Managing and Mitigating Fluvial Flood Risk

The development permitted by planning permission (ref:06/02233/FULL) was supported by a Flood Risk Assessment, (Report No. 131826-R1(0), September 2012) by RSK Consultants and was approved by The Borough of Windsor and Maidenhead Council and the Environment Agency (WA/2012/113440/01-L01) in October 2012, subject to the implementation of the following mitigation measures:

1. Finished floor levels set no lower than existing - 24.28 (mAOD).
2. Flood resistance/resilience measures incorporated into the design.
3. The basement of the hotel shall at no time be used for guest accommodation.
4. The basement and lift pits shall be tanked in accordance with best practice construction methods.
5. Prior to the first occupation of the hotel accommodation the subject of this application a flood management and evacuation plan shall be submitted to and approved in writing by the Local Planning Authority. The flood management and evacuation plan shall be implemented as approved and maintained in operation unless any variation to it has first been agreed in writing by the Local Planning Authority.
6. The finished floor level of the building hereby approved shall be in accordance with the approved plans.

- 3.22 To ensure that the development complies with the approved FRA the above mitigation measures will be recommended for implementation by this report.

3.23 Finished Floor Levels

The finished floor level of the main building which is to remain, is located at 24.28mAOD. To maintain disabled access throughout the site the finished floor levels of the existing conference room and the new replacement three and four storey extensions cannot be raised above the 1%AEP+cc flood level, therefore will be set at no lower than the existing FFL at 24.28mAOD as per the RSK recommendation and in accordance with EA recommendations.

3.24 Flood resistance and resilience

As this redevelopment cannot be located in a lower flood risk area and the ground floor level cannot be raised above the estimated flood level, flood resistant and resilient mitigating measures are to be incorporated where feasible for the new extensions and existing building.

- 3.25 The Department for Communities and Local Government has published guidance (*Improving the Flood Performance of New Buildings: flood resilient construction, 2007*) on how to improve the resilience of properties at risk of flooding.

- 3.26 This guide states that as the potential flood water depths within the existing building and new extensions could be as theoretically high as 610mm deep over the lifetime of the development, it is considered that keeping water out of the building by implementing any external flood resistant barriers would also need to be complimented by internal flood resilient/proof construction methods/materials that accepts that water may enter the ground floor/basement of the building but which minimises the damage that any flood waters would cause, enabling quick re-occupation of the property.

Below are flood resilient/proof construction methods/materials that can be incorporated at this site for the existing building and new build extensions:

Floors

- Replace any chipboard flooring with treated timber floorboards.
- Replace floor including joists with treated timber or to a solid concrete floor with damp proof membrane and provide tiled finish.
- Cover any airbricks or vents before onset of flood.

Walls

- Replace mineral insulation within internal partition walls with closed cell insulation.
- Replace gypsum plaster with more water resistant material, such as lime plaster or cement render.
- Replace doors, windows, skirting boards, doorframes and window frames with treated wood, fibreglass, UPVC or other similar water-resistant alternatives.
- Water resistant sealants, which are used around windows and doors and on porous materials such as bricks.

Interior

- Mount any boilers on wall above the level that floodwater is likely to reach or on first floor.
- Replace ovens with raised, built-under type. These are more likely to be above the flood line but are lighter to move for deeper flood.
- Move electrics to at least one metre above floor with cables dropping from first-floor level distribution down to power outlets at high level on wall.
- Move service meters to at least one metre above floor level and place them in plastic housings.
- Use of water resistant or low permeability materials for the kitchen units.
- Fit non-return valves on drains and pipes to prevent sewage from flowing back through pipes from toilets and sinks.
- Flood skirts or barriers, which protect any possible inlet for water on doors and are drawn into position when there's a threat of flooding (used for up to 600mm depth of water).
- Design in access to all spaces to enable drying and cleaning.

3.27 In addition to the suggested measures above, the basement level is to be tanked to prevent groundwater ingress and shall not be utilised as habitable accommodation. Internal access from the basement level to the ground and first floor levels should be provided at all times and consider the needs of the disabled. Lift shafts should also be tanked to prevent ground water ingress in accordance with best practice methods.

3.28 Flood Management Plan

In addition to the measures listed above, it is also recommended that a Flood Warning and Evacuation Plan is put in place by the hotel to ensure that guests/staff can safely evacuate from the site to an accessible dry location in the onset of an extreme flood.

The hotel management and staff will be available to provide 24 hour onsite response and implementation of the plan.

The management plan will inform staff and guests of how to keep up to date with the latest information in the event of a flood warning, flood line direct and other emergency contact details and the designated evacuation route to higher upper levels inside the building or to a safe dry location beyond the boundary of the site.

- 3.29 As the development site lies within Flood Zone 3, it will be eligible to sign up to receive warnings of potential flooding through the Environment Agency's Flood line Warnings Direct (FWD).

The Environment Agency usually endeavours to issue public warnings at least two hours prior to the onset of flooding to enable residents/guests to evacuate via a designated safe route.

3.30 Safe Access and Egress

NPPF states that for developments in a designated high flood risk zones, it is necessary to prove safe access and egress routes in the event of an extreme flood, in accordance with DEFRA report 'Flood Risk Assessment Guidance for New Developments R&D Technical Report FD2320.

- 3.31 FD2320 states that a 'safe access or exit route' is required to enable the evacuation of people from the development, provide the emergency services with access to the development during a flood and to enable flood defence authorities to carry out any necessary duties during the period of flood.

- 3.32 Developments within Zone 3a High Probability should have a dry escape route above the 1 in 100 year flood level taking into account climate change.

The EA will recommend that a route of access and egress with a 'very low flood hazard' to an area outside the 100year plus climate change floodplain is achievable.

At this site however, due to the potential depth of flood waters, access and agrees with a 'very low flood hazard' to an area above the 100 year plus climate change flood will not be achievable once water levels have peaked at the site.

However, the LPA in consultation with the Emergency Planning team within the local authority and the Emergency Services should decide whether a site specific flood evacuation plan is a reasonable way of managing safe and egress at this site taking into account the amount of time people have to evacuate, the distance to a safe area and if the flood evacuation plan is a reasonable way of managing safe and egress.

- 3.33 Due to the large flat nature of the upstream catchment of the River Thames, the response to rainfall and the subsequent rise in water levels is gradual, therefore the EA should have warning times upwards of 5 days prior to the potential onset of an extreme flood.

This would give sufficient time for the hotel staff to implement the flood management plan and allow guests to evacuate via safe dry routes from the site prior to the onset of an extreme flood.

3.34 It should be noted that the redevelopment of this site will not increase the number of guestrooms within the hotel and therefore will not increase the population with the floodplain or increase the current level of burden on emergency services during an extreme event.

3.35 Primary Route (Early Warning – Site not inundated)

It is considered that with the appropriate warning measures in place and given the amount of time this would be issued prior to a flood onset (days), the site could be safely evacuated on foot and by vehicle before the main access and egress route from the site was inundated. The primary early evacuation route would be along onto Ray Park Road and onto Ray Mead Road (A4094) southwards towards the A4 Bridge Road and onwards to public amenities. From here it would be advised to head away from the floodplain, west on the A4 towards J9 of the A404 or east on the A4 towards Slough.

3.36 Secondary Route (Flood Inundation)

If at the time of evacuation flood levels do not permit safe exit from the site then the flood evacuation plan will state for all occupants of the building to seek safe refuge on the upper floor levels of the hotel building.

3.37 Flood Storage Capacity

There will be no change in external ground levels across the site including landscaped areas and the car park. The footprint of the main building will also remain unchanged. The development proposals will increase the total building footprint by 8.7m². The RSK FRA indicated that this would result in a loss of 6m³ in flood storage. Due to the effects of climate change and resultant increase in predicted flood level, the loss of flood plain storage due to the building extension could be in the region of 11m³ during the 100 year plus climate change event. Due to the large scale and flat nature of the floodplain, this loss of storage volume at the site would not have a significant effect on peak flood levels offsite and will not alter existing flood flow paths.

3.38 Flood compensation has been considered at this site however there is no available land within the site boundary that is outside the floodplain (above the 1:100year+cc level). The EA advises that level for level compensation involves matching the volumes lost to the flood plain through increases in built footprint with new flood plain volume by reducing ground levels. Although level for level compensation cannot be provided, any potential effects can be minimised by slightly lowering the level within the existing car park. By lowering the finished level across the 650m² car park by 20mm, an additional 13m³ of flood storage can be provided.

3.39 Planning Policy

In accordance with the Flood Risk and Coastal Planning Practice Guidance (PPG); *Table 3 - Flood risk vulnerability and flood zone 'compatibility'*; (Figure 4) development (classified as 'more' vulnerable) is considered appropriate within Zone 3a.

Figure 5 - DGLC Flood risk and coastal change Table 3: flood risk vulnerability and flood zone 'compatibility'
DGLC Flood risk and coastal change

Flood Zones	Flood Risk Vulnerability Classification				
	Essential infrastructure	Highly vulnerable	More vulnerable	Less vulnerable	Water compatible
Zone 1	✓	✓	✓	✓	✓
Zone 2	✓	Exception Test required	✓	✓	✓
Zone 3a †	Exception Test required †	X	Exception Test required	✓	✓
Zone 3b *	Exception Test required *	X	X	X	✓*

Key:

✓ Development is appropriate

X Development should not be permitted.

3.40 Sequential and Exception Tests

Under Planning Policy Guidance definition the proposed development is considered as 'Minor Development' - *non-domestic extensions with a footprint of less than 250m*. Therefore the Sequential and Exception tests do not need to be applied to this development.

3.41 Surface Water

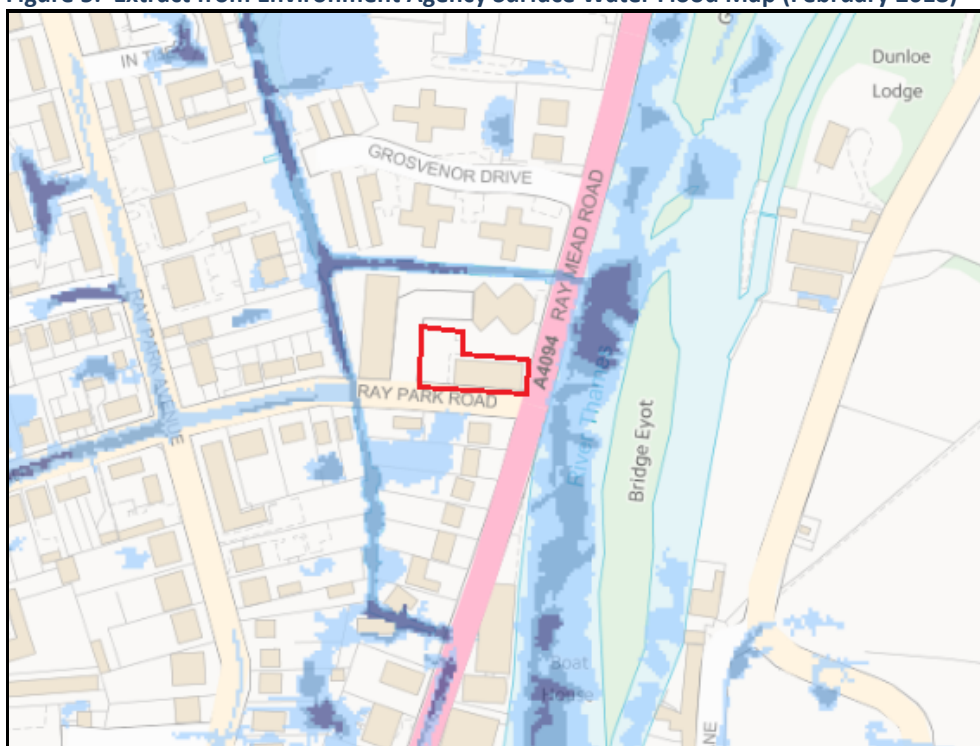
The 'FMfSW' (Flood Map for Surface Water Flooding) presented within the SFRA confirms that no incidents of flooding from surface water runoff have been recorded within the site boundary.

Since the SFRA report was published, no further evidence of additional surface water flooding at the site has been identified.

3.42 The Environment Agency's 'uFMfSW' (updated Flood Map for Surface Water) (Figure 5) is a theoretical assessment of potential overland flow paths, ground levels and drainage systems using information from RBWM Council as the LLFA to indicate areas that may be susceptible to surface water flooding.





3.43 This map indicates that the whole of the existing site has a 'very low' (less than a 1:1000 or 0.1%) risk of flooding from surface water runoff.

Figure 5: Extract from Environment Agency Surface Water Flood Map (February 2018)



Contains Environment Agency information © Environment Agency 2018

Key:

-  High (Greater than 1:30(3.3%) chance of flooding)
-  Medium (Between 1:100(1%) and 1:30(3.3%) chance of flooding)
-  Low (Between 1:1000 (0.1%) and 1:100 (1%) chance of flooding)
-  Very Low (Less than 1:1000 (0.1%) chance of flooding)

3.44 Tidal

The River Thames only becomes tidally influenced 15km downstream of the site from Teddington Lock.

Therefore given the location of the site, the risk of tidal flooding is very low.

3.45 Groundwater

With reference to the RBWM SRFA there have been no recorded events of exclusive groundwater emergence across the site or within the main building.

There is evidence of groundwater seepages to the existing basement level of the building, confirming the presence of a high water table.

3.46 Due to the underlying alluvium soils and the proximity of the site to the River Thames is it likely that groundwater levels will be elevated (shallow) beneath the site.

There is a known risk of groundwater emergence along the River Thames corridor in Maidenhead due to the presence of the highly permeable 'Thames Gravels'.

Groundwater beneath the site will likely be in hydraulic continuity with the River Thames, with water levels in the river influencing groundwater levels beneath the site.

3.47 The AsGWF map contained within the RBWM SRFA indicates that the site has a >75% susceptibility to groundwater flooding.

Therefore, the site is at moderate risk of groundwater flooding during normal conditions, however this risk increases when the River Thames is in flood.

As these sources of flooding are inextricably linked with the reach of the Thames floodplain, the proposed mitigation methods and flood management plan for this development are relevant to both groundwater and fluvial flooding.

3.48 The basement level at the site is to be tanked to prevent groundwater ingress and shall not utilised as habitable accommodation.

Internal access from the basement level to the ground and first floor levels should be provided at all times and consider the needs of the disabled.

Lift shafts should also be tanked to prevent ground water ingress.

3.49 The influence of groundwater and the bearing capacity of the soils will be taken into consideration during the detailed design of all new foundations.

To mitigate the effect of groundwater within excavations during the site construction phase, a dewatering system will remove unwanted groundwater to ensure construction is carried out in dry and stable conditions.

Prior to any dewatering, the ground worker will prepare and submit a method statement for the local authority / Environment Agency sign off prior to the operation of any pumping.

3.50 The proposed development is unlikely to have any significant impact upon natural groundwater flows beneath the site either during or after completion of the proposed works and therefore is unlikely to create an increased risk of flooding on or off the site.

If groundwater levels were to rise above the base of proposed foundations during winter months, groundwater would be able to flow laterally around these obstructions without any major increase in local groundwater levels and consequently will have a negligible effect on the site wide and offsite groundwater flow regime and overall flood risk from groundwater.

3.51 Existing Sewers & Water Mains

There are no recorded incidents of sewer flooding internally or within the boundary of the site.

3.52 With reference to RBWM SFRA an incident of sewer flooding has been recorded within Ray Park Road beyond the southern boundary of the site.

The exact details of this incident are unknown, however the site was not affected.

With reference to the Thames Water DG5 flood register, no incidents of potable water main flooding has been recorded within the vicinity of the site.

3.53 Under the development proposals all existing public foul, storm and potable water infrastructure within the vicinity of the development will be suitably protected during all construction activities and afforded the required easements specified by the water authority.

This will prevent the risk of flooding and to allow unrestricted access for any future maintenance and repairs

3.54 Under the development proposals, the peak rate of surface water runoff and foul flows from the site into the existing local public drainage infrastructure will not increase.

This will ensure that the proposed development has a 'no detriment' impact on the existing foul/ surface/combined sewer system within the area and does not create an increase in flood risk.

3.55 Artificial Sources

With reference to the SFRA there have been no recorded incidents of flooding to the site or surrounding areas from artificial sources.

3.56 The Environment Agency has assessed that the site is not at risk from reservoir flooding.

4 Existing and Proposed Site Runoff

- 4.1 This section aims to calculate the estimated peak rate and volume of surface water runoff from the existing site. These existing discharge figures are then used to establish the post-development constraints to inform the preliminary design of the surface water drainage strategy.
- 4.2 The existing 1880m² site is predominantly impermeable with all runoff collected by a positive surface water drainage system and discharge offsite into the public foul sewer network as a combined system. The development proposals do not increase the total impermeable area at the site.

4.3 Existing Surface Water Runoff Peak Runoff Rate & Volume (Greenfield)

An appropriate method of establishing the peak runoff rates from the existing brownfield site is via the Modified Rational Method 'Q=2.78 Cv Ci I A':

Where:

Q = Peak discharge (l/s)

Cv = Rational method runoff coefficient (roof/hardstanding use 0.84)

Cr = Routing Coefficient (use 1.3)

I = Average Rainfall Intensity, (mm/hr) (equal to time of concentration for site, use 15mins)

A = Contributing area (0.188ha)

Return Period (1: Year)	Duration (mins)	Ave.I (mm/hr)	+40%
1	15	30	42
30	15	73	102
100	15	94	132
100	360	10.1	14.1

Existing Peak Runoff (0.188 ha catchment)

1 in 1 year	17.1 l/s
1 in 30 year	41.7 l/s
1 in 100 year	53.6 l/s
Volume 100y 6hr	114 m³

4.4 Post Development Surface Water Runoff Peak Runoff Rate & Volume

The procedure for surface water management in accordance within 'Rainfall runoff management for developments' (DEFRA/EA Report – SC030219 E, 2013) and the 'Non-statutory technical standard for sustainable drainage systems' (DEFRA, 2015) are set out below.

In the case of brownfield sites, drainage proposals will be measured against the existing performance of the site.

4.5 Peak Flow

For brownfield developments, the peak runoff rate from the redevelopment to any drain, sewer or surface water body up to the 1 in 100 year rainfall event including an appropriate allowance for climate change, must be no greater than the existing pre-developed rate of run-off for the same event and where reasonably practicable to the greenfield runoff rate.

4.6 Volume Control

For brownfield developments, the runoff of volume from the development to any highway drain, sewer or surface water body in the 1 in 100 year, 6 hour rainfall event including an appropriate event, must be no greater than the existing pre-developed volume.

Where it is not reasonably practicable to constrain the volume of runoff (i.e. via infiltration) the runoff volume must be discharged at a rate that does not adversely affect flood risk.

4.7 Under the development proposals there will be no net increase in impermeable area, therefore the peak rate and volume of surface water from the site into the offsite sewer network will not increase for all equivalent rainfall events as a result of this redevelopment.

4.8 However, in addition to this minimum criteria all redevelopments on brownfield sites should aim to provide a level of betterment over existing conditions to reduce the burden on the downstream sewer network and reduce the risk of sewer flooding.

4.9 The National Planning Policy Framework requires that consideration is given to the effect of climate change on the surface water flows generated by any new development.

Table 2 of *the NPPF - Flood Risk Assessments: Climate Change Allowances – Detailed Guidance (Feb 2016)*, specifies that an assessment of a 40% increase in rainfall intensity allowance is made when calculating post development runoff rates for site with a design lifespan of approximately 100 years.

4.10 Therefore, to achieve a reduction in peak runoff rates and to provide a level of betterment, it is proposed that SuDS will be incorporated into the development to reduce the current peak rates of runoff from the site.

5 Foul and Surface Water Drainage Strategy

- 5.1 The National Planning Policy Framework (NPPF) requires that developments do not exacerbate flood risks both to the development site and to offsite parties and land, which means there is a need to control surface water drainage and overland runoff to ensure there are no increases in peak rates and volumes of runoff as a result of the development.
- 5.2 Although the amount of impermeable areas at the site will not increase as a result of the development proposals, there is an opportunity to introduce ideals of 'sustainable development' within the site via the provision of Sustainable Drainage Systems (SuDS) to reduce peak rates of runoff and improve water quality.
- 5.3 SuDS are more sustainable than conventional drainage methods because they can mitigate many of the adverse effects of urban stormwater runoff on the environment. This can be achieved through reducing runoff rates and volumes to sewer networks and watercourses, reducing the risk of downstream flooding. Where appropriate SuDS can reduce pollutant concentrations in stormwater, protecting the quality of the receiving water body.
- 5.4 The Building Regulations Document H (2015) and The SuDS Manual CIRIA 753 (2015) details the appropriate hierarchy of potential methods for disposing of surface water from a development:
1. A soakaway or some other adequate infiltration system, or where that is not practicable;
 2. A watercourse, or where that is not practicable;
 3. A sewer.
- 5.5 Following a review of the site geology (potential made ground), soil permeability and potentially high groundwater levels at the site, it is presumed that infiltration SuDS cannot be feasibly introduced at the site to dispose of surface water runoff. It is not considered practical to discharge surface water from the site directly into the River Thames and there are no other suitable watercourses in the immediate vicinity of the site.
- 5.6 As the main hotel building is to remain and the proposed extensions will replicate the existing hotel footprint, the current surface water drainage infrastructure serving the hotel and extensions will remain post-development.
- 5.7 To incorporate a SuDS element at the site it is proposed that the existing carpark area is resurfaced with permeable block paving with a stone sub-base reservoir (30% voids OGCR). The stone sub-base is to be tanked with an impermeable membrane to prevent infiltration and negate the potential for mobilisation of contaminants into the underlying aquifer. Tanking of the permeable paving will also prevent the ingress of groundwater and ensure all flows are contained within the paving system to prevent lateral flows from creating a flood risk to offsite parties.

5.8 Runoff from the permeable paving will be conveyed via cellular collector cells located within the stone-sub base, through a flow control chamber to restricted flows to a trickle rate of 1 l/s, before discharging into the existing car park drainage system and into the offsite sewer.

The permeable block paving with a stone sub-base (sealed system) will provide the required storage volume to manage the 1:100year (1% AEP) storm event, plus an extra allowance of 40% for the predicted potential increase in peak rainfall up to 2115, with the peak discharge rate restricted to a maximum of 1.0 l/s via an orifice flow control device.

5.9 For the proposed car park area of 730m², the approximate volume required within the permeable paving to store the 1:100y+40% rainfall event, discharging at a maximum rate of 1 l/s is 38m³.

Permeable block paving with a plan area of 730m² and with a minimum 200mm deep stone sub-base (30% voids) laid at a gradient of 1:500 towards the flow control chamber will provide the required attenuation volume.

Table 1: Existing and proposed peak surface water runoff rates

RAINFALL EVENT	EXISTING PEAK RUNOFF (1880m ²)	PROPOSED PEAK RUNOFF (1150m ² + 1 l/s)	REDUCTION IN PEAK RUNOFF POST DEVELOPMENT	PROPOSED PEAK RUNOFF (1150m ² + 1 l/s) +40%cc	REDUCTION IN PEAK RUNOFF POST DEVELOPMENT
1 in 1 year	17.1 l/s	11.5 l/s	- 33 %	15.7 l/s	- 10 %
1 in 30 year	41.7 l/s	26.5 l/s	- 36 %	36.6 l/s	- 12 %
1 in 100 year	53.6 l/s	33.8 l/s	- 37 %	47.1 l/s	- 12 %

5.10 The above table demonstrates that the proposed surface water drainage strategy for site will provide a significant level of betterment over current conditions, with up to a 37% reduction peak flows.

This can achieved by restricting the runoff from the 730m² car park area to 1 l/s up to the 1:100+40% rainfall event via the use of permeable block paving (tanked) , thereby reducing the overall site peak runoff rate.

5.11 When considering the allowance for the predicted 40% increase of rainfall intensity for the lifetime of the development, the peak rate of runoff from the site will be no more than current rates.

5.12 The proposed surface water drainage strategy offers a sustainable, safe and robust system which will afford complete flood risk protection to occupant of The Thames Hotel and to existing offsite properties and land.

5.13 Pollution Prevention

In terms of water quality, the proposed surface system offers a suitable level of mitigation in accordance with the Environment Agency pollution prevention guidance GP3, CIRIA C697 and DEFRA guidance.

The process of sedimentation is the principle pollution removal mechanism in SuDS as pollution in surface water runoff is generally attached to sediment particles.

By reducing flow velocities and capturing sediments, a significant reduction in pollutant loads can be achieved.

- 5.14 The under-drained permeable block paving within the car parking area will provide a high level of treatment through capture of silts, filtration of hydrocarbons and other pollutants through the pavers, filter membrane and media sub-base prior to discharging offsite into the existing foul / combined sewer system.

5.15 SuDS Management and Maintenance

The hotel maintenance team will manage the surface water drainage system including the permeable block paving and flow control chamber and implement a robust inspection and maintenance programme to ensure the optimum operation of the surface water drainage network is continually maintained.

- 5.16 Foul flows from the existing hotel currently discharges offsite into the Thames Water public foul sewer network. It is proposed that all existing foul connection are maintained and utilised for the hotel extensions.

- 5.17 The development proposals will not increase the number of guestrooms at the hotel and will not result in an increase in occupants.
Therefore, the peak rate and volume of foul flows from the site will not increase over current conditions.



The Thames Hotel, Ray Mead Road, Maidenhead
Flood Risk Assessment

APPENDIX A

RSK CONSULTANTS FLOOD RISK ASSESSMENT (FRA)

THE THAMES HOTEL (REPORT NO. 131826-R1(0), SEPTEMBER 2012)



Thames Hotel

Thames Hotel, Maidenhead

Flood Risk Assessment

131826-R1(0) - FRA

RECEIVED
24 OCT 2012
PLANNING

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SEPTEMBER 2012

RSK



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APPENDICES

Appendix A	Service Constraints
Appendix B	NPPF Technical Guidance Note
Appendix C	Environment Agency Correspondence
Appendix D	NPPF Technical Guidance: Flood Zones and Land Use Vulnerability



The comments given in this report and opinions expressed are subject to RSK Group Service Constraints provided in **Appendix A**.

3 SITE DESCRIPTION

3.1 Site Location

Figure 1 shows the site location, the proposed site for development is situated approximately 1km to the north-east of Maidenhead centre and within 20m of the River Thames fronted by Ray Mead Road. The Windsor and Eton Flood Alleviation Scheme (MWEFAS) is located approximately 450m the east.

The site is bounded by:

- North – Property known as “The Boathouse” part residential and light industry at ground level.
- East – A4094 Ray Mead Road with River Thames immediately to the east.
- South – Ray Park Road with residential properties to the south.
- West – Hotel car park immediately adjoining car park area for residential flats.

The site is flat, and contains a large three to four storey hotel, the main part of which was erected between 1884 and 1886. It has since had a number of extensions added to it, including a large two storey addition to its western flank (along Ray Park Road), and a number of single storey additions to the rear. The site is a hotel, car park and grounds currently occupying 1,880m². The hotel itself occupies 563m².

The hotel is brick-built, with a tiled-roof of varying heights over. It has five small dormer windows at third floor level fronting Ray Park Road, as well as a single large pitched roof element to three- and four-storey level.

There is a further two-storey (with pitched-roof over, including a pitched glass insertion forming its roof pitch) element west of this, which is in appearance a mix of mock-Tudor and more modern concrete archways. In construction, this part is essentially separate to but adjoining the main building, and sits lower than it both internally and externally.

There is a terrace along the Ray Mead Road frontage set around 1 metre above pavement level, facing the Thames River.

There is a single-storey flat-roofed extension to the rear of the building which houses a beer store, and which lies within 0.5m of the site's boundary with the adjacent flats. There are also two single-storey, pitched roof extensions to the rear of the building, of different heights, set back some 2.8m from the site's northern boundary. The rear of the building also has an old metal external fire escape staircase from ground to first floor level, and several large exhaust outlets.

There is a close-boarded fence to around 2m in height along the site's northern boundary, immediately abutted and topped by a lleylandi hedge, on the neighbouring property.

There is very little in the way of soft landscaping in and around the site. The proposed development is to be located over existing hardstanding areas.



3.4.1 Flood Zones

The EA Indicative flood map of the area, **Figure 3** shows the extent of the flood envelop and indicates the area of benefit associated with the completed MWEFAS. Based on the EA Flood Maps the site is shown to be located within FZ3a and is outside the area of benefit associated the MWEFAS

The EA and SFRA flood mappings are based on broad scale modelling of the River Thames and aerial survey data. Detailed hydraulic modelling has been carried out by the EA as part of the Lower Thames Remodelling Study, which was completed December 2007.

The modelled flood level data has been utilised in conjunction with the detailed topographical survey of the site to determine the extent of flood zones on site.

3.4.2 Historic Flood Events

The SFRA shows the site as having experienced surface water and fluvial flooding.

The EA have confirmed that flooding of the site occurred during the man River Thames flood event of 1947 (considered to be a 1 in 60 year event) as well as in 1974 and 1990. However, the EA have no records of internal flooding of the buildings.

Site advice confirms that some internal flooding of the basement areas has occurred due to groundwater seepage through the basement walls. No direct flooding has occurred due to fluvial events.

3.4.3 Existing Flood Defences

The Maidenhead, Windsor and Eton Flood Alleviation Scheme (MWEFAS) reduces the risk of flooding in the area. However, the EA mapping confirms that the site is not currently located within the Area Benefiting from Defences (ABD).

3.4.4 Detailed Hydraulic Modelling

The EA modelled flood level data has been provided from the Lower Thames Reach 1 (Hurley to Cookham) and Reach 2 (Cookham to Windsor) which was remodelled in December 2007 and includes the Jubilee River, which forms part of the MWEFAS. The re-modelled flood level data provided by the EA as part of the Product 4 Flood Data Enquiry are provided within **Appendix C**.

3.5 Site Hydrogeology

According to the Environment Agency groundwater mapping, the hydrogeology of the site consists of a Principal Chalk Aquifer overlain by a Secondary A Aquifer consisting of the superficial Alluvial deposits. Due to the large-scale mapping, the aquifer outlines can only be approximate.

The Site is not located within a Groundwater Source Protection Zone. According to the EA mapping, the site lies within a Groundwater Vulnerability Zone classified as 'Major



4 DEVELOPMENT PROPOSALS

It is proposed to demolish and rebuild existing extensions to the Thames Hotel in Ray Mead Road, Maidenhead. Primarily there is a large two storey element, with a pitched-roof lantern light, which forms an incongruous extension to the western flank of the building, fronting Ray Park Road. This would be demolished, and replaced with a slightly larger extension, which would match and closely replicate the appearance of the existing building. The overall footprint of the building would increase by just 8.7m².

The development would be carried out to enable the complete refurbishment of the Thames Hotel. Currently, the hotel has a number of very small bedrooms, and no disabled access. It is proposed to increase the size of the smallest rooms, and to provide lift access to all floors, while improving the external appearance of the building. No additional rooms are to be created.

As part of the refurbishment, it is proposed to relocate the main entrance to the Hotel. The hotel is currently entered from Ray Park Road, near its junction with Ray Mead Road. It is proposed to create a new entrance from the hotel car park at the western end of the building.



5.2 Relevant Studies

5.2.1 Strategic Flood Risk Assessment (SFRA)

Title: Windsor and Maidenhead Borough Council, Level 1 Strategic Flood Risk Assessment, April 2009 ^(Ref. 6)

The principle aim of the SFRA was to map all forms of flood risk in order to provide an evidence base to locate new development. It also aims to provide appropriate policies for the management of flood risk, and identify the level of detail required for site-specific FRAs. The SFRA contains maps detailing flood sources and risks. The specific details for the area surrounding the site are given below.

For this site the Royal Borough of Windsor & Maidenhead Strategic Flood Risk Assessment (SFRA) identifies that localised flooding issues affect properties and infrastructure within the Borough. They include groundwater flooding, surcharging of the underground sewer system, the blockage of culverts and gullies and surface water flooding.

The SFRA map shows that the entire site is located within FZ3a and is also located within a historic flood event.

The Borough has also been affected by River Thames no less than nine times within the past 100 years with the most recent event in 2003. Substantial investment has been made in recent years to alleviate the risk of flooding, including the Maidenhead, Windsor & Eton Flood Alleviation Scheme. The Borough is also threatened by other watercourses but the proposed site is most likely affected by River Thames.

One of the approaches (to be adopted by this development) is that redevelopment and refurbishment of existing buildings in the floodplain is carried out to achieve resilience and/or resistance, which is also one of the proactive approach suggested in the SFRA.

5.2.2 Details of Previous Site-Specific FRA

An FRA was produced by RSK Group Ltd ^(Ref. 1) based on PPS25 in 2009 for the same proposed scheme that is the subject of a planning application for the renewal of the extant consent.

5.2.3 Drainage

Private Drainage and Public Sewers

The existing surface water from the scheme is directed to the surrounding public sewer network. It is achieved by gravity around the buildings and through the car park area, which includes the car parking drainage.



Table 6.1: Modelled Flood Levels for the Lower Thames Reach 1 and 2

Node Label	Flood Levels (mAOD)				
	5-year	20-year	100-year	100-year + CC	1000-year
063TH01_MH_26.060U	22.53	23.04	23.89	24.41	-

These levels and the predicted flood extent in relation to the existing hotel are shown on in section on **Figure 5** and in plan on **Figure 6**.

As can be seen the 1 in 100 year event is predicted to surround the hotel but the ground floor level (at around 24.28m AOD) is above the flood level by some 390mm. It should be noted that the Conference / function room located to the west of the main building is at a lower elevation (23.40m AOD) and could be subject to flooding during extreme events.

The predicted effects of climate change indicate that flood levels could rise by around 480mm over the next 50 years. If this were the case flood levels could exceed the current ground floor level by around 130mm.

6.3 Flooding from the Sea (Tidal Flood Risk)

The River Thames is tidally influenced up to Teddington Lock, and therefore, given the location of the site is approximately 15km upstream of the tidal limit along the River Thames, the risk of tidal flooding at this site is **low**.

6.4 Flooding from the Land (Surface Water Flood Risk)

The SFRA provides very little detail on localised sewer flooding issues within the study area. However, review of the topographical survey indicates that in the event of overloading of public sewer system overland flows will follow the topography and run in a southerly direction along Ray Mead Road and west along Ray Park Road. Based on existing finished floor levels and external levels around the perimeter of the building, any sewer flooding within the site drainage system will tend to flow away from the building.

Therefore the risk of surface water flooding is considered to be **low**

6.5 Flooding from Groundwater

Based on the underlying geology of the site it is likely that shallow ground water is present within the Secondary A Aquifer, which is in continuity with the River Thames located immediately to the east of the site.



7 PLANNING CONTEXT

7.1 Application of Planning Policy

NPPF includes (Section 10) measures specifically dealing with development planning and flood risk using a sequential characterisation of risk based on planning zones and the EA Flood Map. The main study requirement is to identify the flood zones and vulnerability classification relevant to the proposed development, based on an assessment of current and future conditions.

Within NPPF Technical Guidance on flood risk (reproduced as **Appendix D**) each flood zone has a list of appropriate land uses dependent on vulnerability to flooding.

7.2 Land Use Vulnerability

From the NPPF Technical Guidance, a “less vulnerable” land use could be appropriate to Flood Zone 3a (High Probability of flooding at higher than 1 in 100 annual probability) with the “more vulnerable” use only permitted if the exception test is passed. For a “more vulnerable” class, development on this site could be appropriate within Flood Zone 2 (Medium Probability of flooding at less than 1 in 100 but higher than 1 in 1,000 annual probability).

In applying the sequential test, reference is made to the following table (reproduced from Table 3 contained within NPPF);

Table 7.1: Flood Risk Vulnerability and Flood Zone ‘Compatibility’

Flood Risk Vulnerability Classification (Table D2)		Essential Infrastructure	Water Compatible	Highly Vulnerable	More Vulnerable	Less Vulnerable
Flood Zone (Table D1)	Zone 1	Appropriate	Appropriate	Appropriate	Appropriate	Appropriate
	Zone 2	Appropriate	Appropriate	Exception Test Required	Appropriate	Appropriate
	Zone 3a	Exception Test Required	Appropriate	Should not be permitted	Exception Test Required	Appropriate
	Zone 3b functional floodplain	Exception Test Required	Appropriate	Should not be permitted	Should not be permitted	Should not be permitted

With reference to **Appendix D**, Table 2, this residential development can be classed as ‘more vulnerable’



8 FLOOD MITIGATION MEASURES

8.1 Flood Displacement

The current modelled flood levels indicate that the main building remains outside the flood limits with the proposed floor level of 24.28m AOD some 390mm above the predicted 1 in 100yr flood level.

It can be seen that the redevelopment of the western part of the site and the raising of the former conference / function room to maintain a constant floor level throughout the hotel brings this section of the building above the flood levels.

This raising of the internal ground floor level by 880mm together with the infilling of around 8.7m² of access corridor will result in the potential loss of around 144m² of flooded floor space representing around 97m³ of flood storage. However, it should be noted that only 8.7m² of this area is currently outside the existing building footprint and potentially available for flood storage.

The remainder is contained within the building and constrained by doors, furniture, fixtures and fitting and cannot be reasonably considered as active flood storage.

Thus, the potential loss of flood storage resulting from this development is in the order of 6m³. Therefore, given that the garden areas remain unchanged in extent and level, whilst the car parking areas and main building footprint remain unaltered, the impact on third part flood risk of the displacing 6m³ is considered negligible.

8.2 Finished Floor Levels

The Environment Agency typically advises three minimum freeboard levels with respect to the flood design levels for proposed residential elements in new developments, relating to the 1 in 100-year flood level, as set out in **Table 8.1**.

Table 8.1: Advisory Minimum Finished Levels for Proposed New Development

Residential Element of Development	EA's Flood-Related Criterion
Ground Floors	Flood Level + 300mm freeboard
Dry External Access/Egress	Flood Level + 300mm freeboard
Car Parking	200mm maximum depth of flooding

The existing ground floor finished levels as shown on the topographical survey as 24.28m AOD which is approximately 390mm above the current 1 in 100 (1% annual probability event) fluvial flood level of 23.89m AOD. The predicted climate change flood level of 24.412m AOD will extend over much of the ground floor with a depth of water in the region of 132mm. This depth of water will exceed skirting levels and potentially reach the level of existing electrical and telephone connection points.



8.4 Flood Response Plan

The site is located within Flood Zone 3a and is subject to shallow flooding within the curtilage of the site and therefore it is considered prudent to consider the implementation of a flood response plan.

Forecasting of flooding on the River Thames is well developed through 24 hour monitored telemetry and flood forecasting models allowing around 36 hours notice of an impending storm surge.

A flood evacuation plan should be developed for future residents, who should also be informed of the EA's regional Flood Warning system (Floodline Warning Direct) to provide adequate forewarning in the event of a predicted flood in the neighbourhood in order to decrease the risk to a 'safe' level.

The EA charter is to provide a minimum 2 hours advance warning, which would provide sufficient time for ground floor occupants to be evacuated to an area of safe refuge within the upper floors of the proposed development.

As with fire escape procedures, all staff as well as all potential occupiers of the hotel rooms should be made aware of flood warning information and contacts, including the provision of EA website and Flood line information. At present there is no provision for safe dry access during extreme flood events. The hotel will be required to register with the Environment Agency flood warning system. It is recommended that a safety protocol be introduced such that once warnings have been issued; residents of the hotel are advised of escape procedures, which should include early evacuation to safe areas. In the case of the Thames Hotel the nearest dry areas would be immediately east of the A4 bridge across the Thames some 400m south-east of the site.

8.5 Surface water management

The existing surface water from the scheme is directed to the surrounding public sewer network. It is achieved by gravity around the buildings and through the car park area, which includes the car parking drainage. The proposed refurbishment will not change the drainage regime or increase impermeable areas as the whole building structure is surrounded by hardstanding areas.

It should be noted that the proposed National SuDS Standards ^(Ref. 10) (B7) makes it clear that off-site impacts should not increase flood risk elsewhere but considers previously developed land. The Standards state:

"Where the site is on previously developed land and neither Approach 1 nor 2 is reasonably practicable then:

- a) *An approach as close to Approach 1 (i.e. The peak flow rates must not be greater than the equivalent greenfield runoff rates for these events. The critical duration rainfall event must be used to calculate the required storage volume for the 1 in 100 year rainfall event.) as is reasonably practicable must be used;*

9 CONCLUSIONS AND RECOMMENDATIONS

The following conclusions and key recommendations have been formatted from this FRA.

Table 9.1: Flood Risk Assessment Summary

Development description and location	1.
What type of development is proposed and where will it be located? <ul style="list-style-type: none"> Redevelopment of the Thames Hotel in Ray mead Road, Maidenhead, Berkshire 	1a
What is its vulnerability classification? <ul style="list-style-type: none"> Hotel development are classified as 'More vulnerable' 	1b
Is the proposed development consistent with the Local Development Documents? <ul style="list-style-type: none"> The proposals are considered Minor Development as defined within footnote 10 of the NPPF Technical Guide: Extension less than 250 sq.m 	1c
Provide evidence that the Sequential Test or Exception Test has been applied in the selection of this site for this type of development? <ul style="list-style-type: none"> Paragraph 104 of the NPPF states that minor developments are not subject to the Sequential Test and Exception Test, however, a FRA is required to demonstrate that the site will be safe in flood risk terms over the lifetime of the development 	1d
Definition of the flood hazard	2.
What source of flooding could affect the site? <ul style="list-style-type: none"> Direct flooding from the adjacent River Thames, groundwater seepage into the basement and lift pits 	2a
Describe how flooding could occur? <ul style="list-style-type: none"> Out of bank flooding during extreme flood events and possible increase in groundwater level due to increase river flow during intense rainfall event 	2b
What are the existing surface water drainage arrangements for the site? <ul style="list-style-type: none"> The existing surface water from the site is directed to the surrounding public sewer network. It is achieved by gravity around the building and through the car park area, which includes the car parking drainage. 	2c
Probability	3.
Which flood zone is the site within? <ul style="list-style-type: none"> Flood Zone 3a 	3a



How will run-off from the completed development be prevented from causing an impact elsewhere? <ul style="list-style-type: none">• Redevelopment will not increase surface water flow enough to impact surrounding areas. Surface water will use the existing drainage network	7b
Residual risks	8.
What flood related risks will remain after the implementation of measures to protect the site from flooding? <ul style="list-style-type: none">• Fluvial flooding as a result of overtopping of the River Thames banks during extreme events and groundwater flooding of basement levels	8a

In summary, this document updates a previous assessment of the Thames Hotel site in accordance with the requirements of the NPPF and confirms that redevelopment should be possible with careful consideration of the proximity of the River Thames and the flooding issues. The refurbishment will enable the inclusion of water resistant materials and design that will improve the building structure.

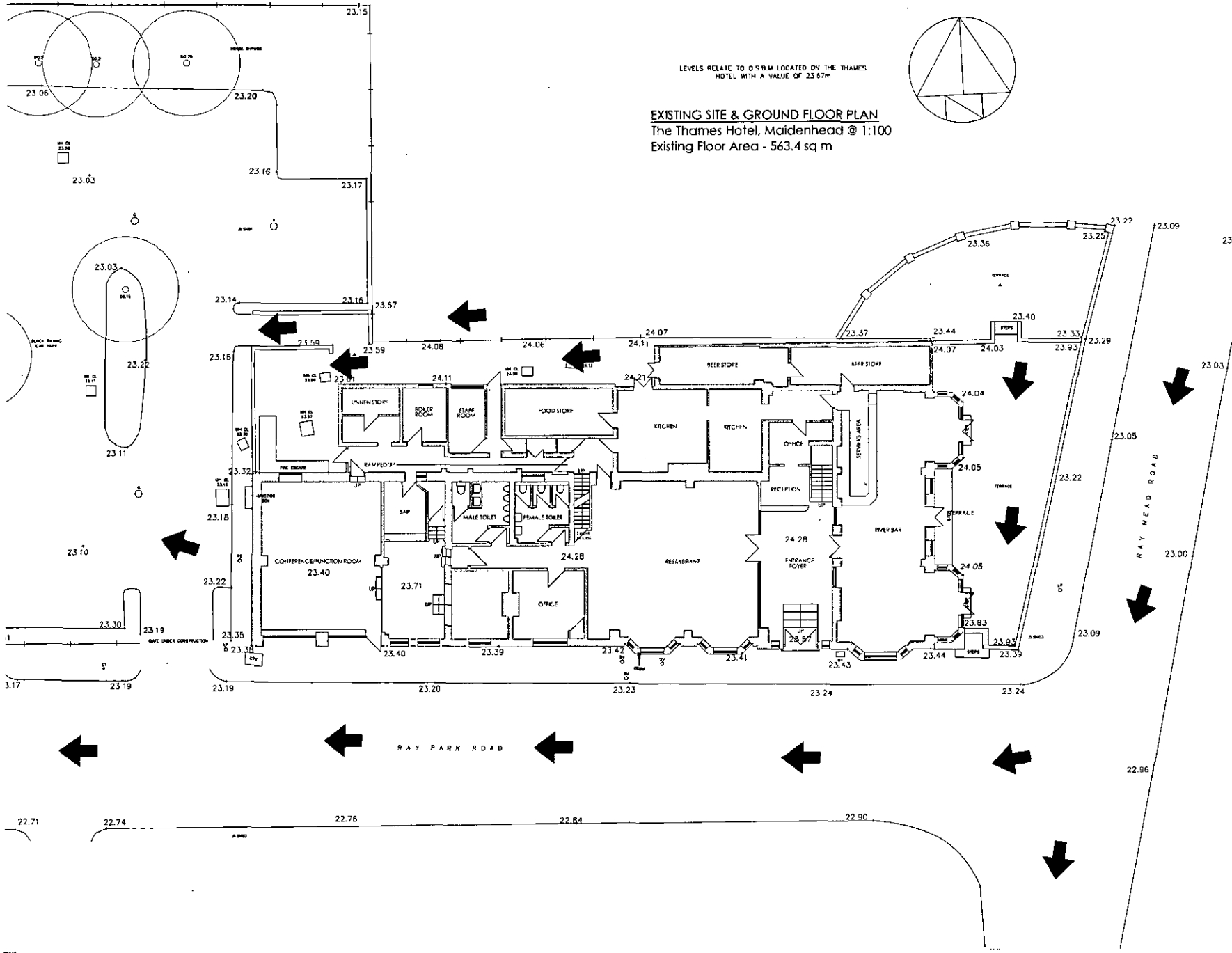
The raising of the floor level within the conference room will improve mobility around the hotel as well as protect that area from flooding.

The proposals balance the flood storage volumes and should not impede flood flows. However, there are a few key recommendations, these are:

- a) Design of the new dwellings in accordance with "Preparing for Floods" a DEFRA publication, CIRIA guidance C624 "Development and flood risk" and CLG "Improving the flood performance of new buildings";
- b) Inclusion of the site as part of an area wide flood risk alert and that the occupiers are made aware of this; and
- c) Renovation of the basement areas and introduction of a lift pit need to be constructed in accordance with best practice for areas with high groundwater levels.



FIGURES



LEVELS RELATE TO O'S B.M. LOCATED ON THE THAMES HOTEL WITH A VALUE OF 23.67m

EXISTING SITE & GROUND FLOOR PLAN
 The Thames Hotel, Maidenhead @ 1:100
 Existing Floor Area - 563.4 sq m

LEGEND

← Flood flow path

Figure 2

P2	14.07.06	Updated		KYC	CP	CP
Rev.	Date	Amendment	Drawn	Chk'd	App'd	

RSK GROUP PLC
 LAND & DEVELOPMENT ENGINEERING LTD

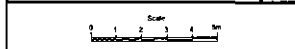
18 Parkway Road, Maidenhead, SL7 1JH, UK
 Tel: +44 (0)1628 557777
 Fax: +44 (0)1628 557700
 E-mail: sales@rskgroup.com
 Website: www.rskgroup.com

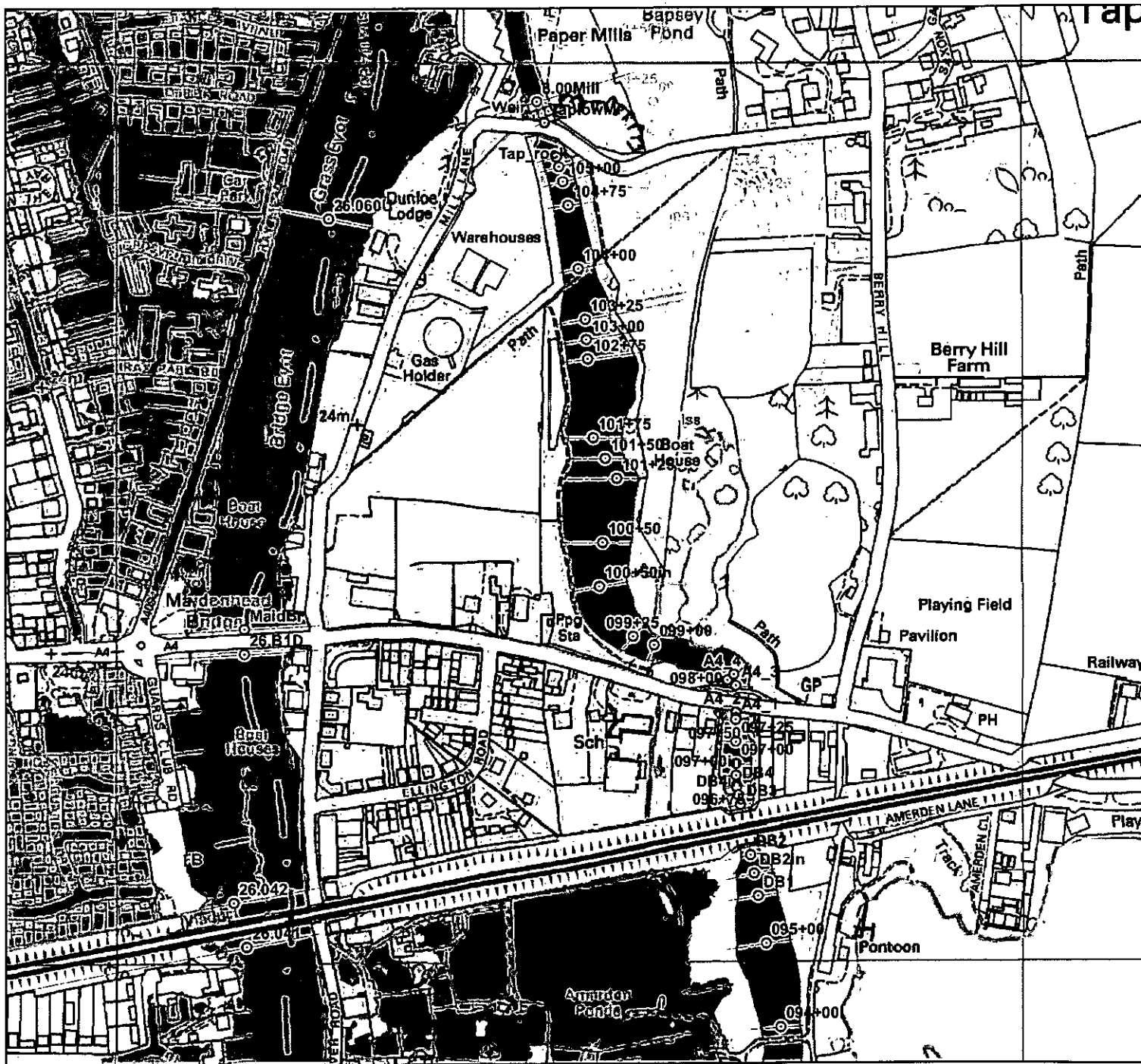
Client: **THE THAMES HOTEL**

Project Title: **THE THAMES HOTEL
 RAY MEAD ROAD
 MAIDENHEAD**

Drawing Title: **EXISTING SITE SURVEY
 WITH EXISTING
 FLOOD FLOW ROUTE**

Drawn:	Date:	Checked:	Date:	Approved:	Date:
KYC	14.07.06	CP	14.07.06		
Scale:	1:100	Unit Size:	A1	Orientation:	m
Project No:	130349	Drawing Title:	SITE SURVEY.dwg		
Drawing No:	LDE 1000	Sheet:	P2		





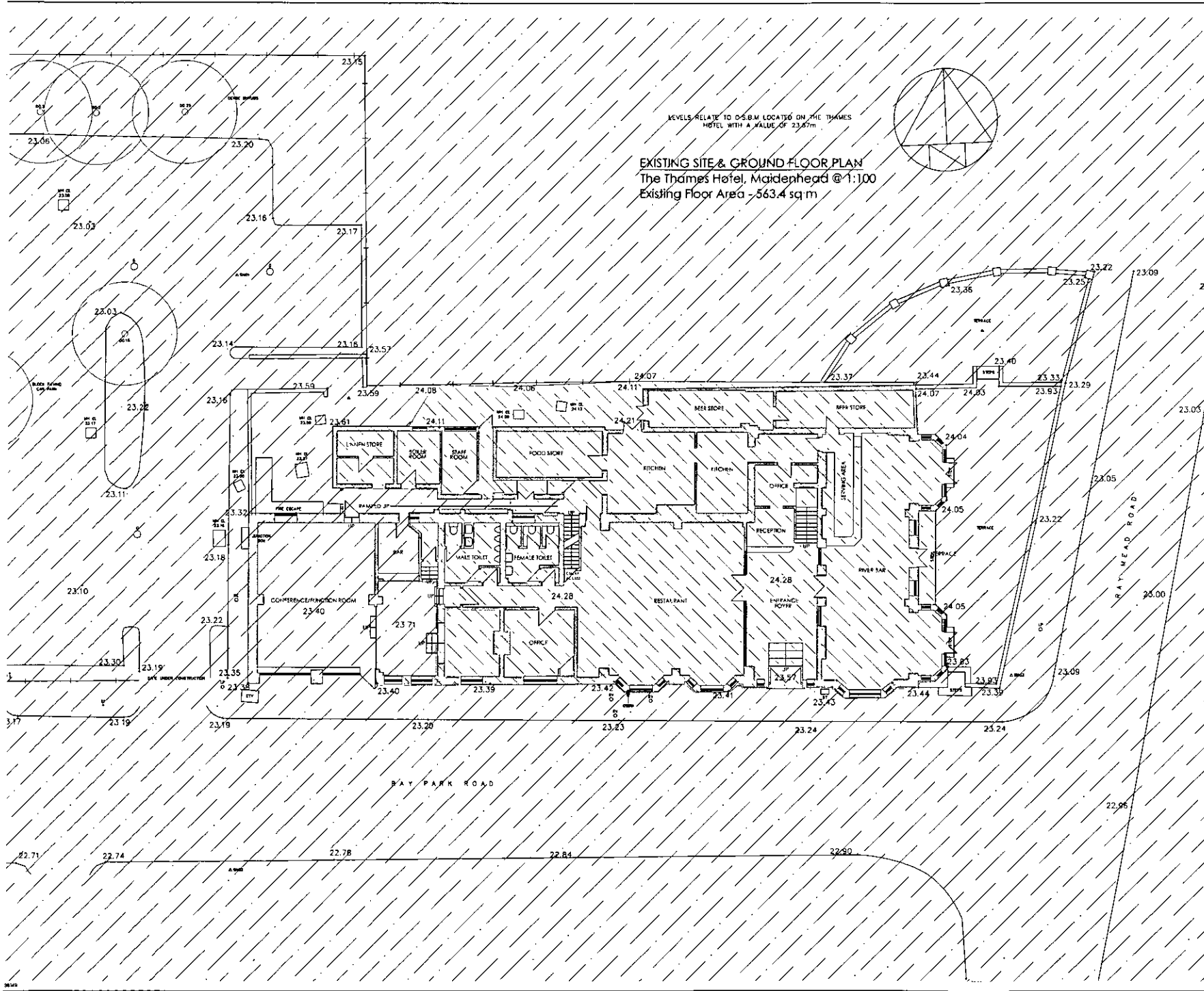
Environment Agency
 South East Thames Area
 Frimley Business Park
 Frimley
 GU16 7SQ

Flood Model Data Request

This document is a GeoPDF. Select layers to interact with the document. Use the object tool to query features. Refer to the attachments for information about the data, standard notice and how to use this document.


Map created: January 2009

Scale 1:6,000



LEVELS RELATE TO D.S.B.M. LOCATED ON THE THAMES HOTEL WITH A VALUE OF 23.67m

EXISTING SITE & GROUND FLOOR PLAN
 The Thames Hotel, Maidenhead @ 1:100
 Existing Floor Area - 563.4 sq m

 Extent of EA predicted 1 in 100 year flood (23.893m AOD)


 Additional Extent of EA predicted 1 in 100 year +20% flood (24.412m AOD)

Figure 6

Rev	Date	Description	Drawn	Check	Appd
P2	14.07.09	Updated		KYC	CP

RSK GROUP PLC	
LAND & DEVELOPMENT ENGINEERING LTD	
11 Fingert Road 100m E of Maidenhead Maidenhead, Berks SL6 4JH	TEL: 01628 27700 FAX: 01628 27700 E-MAIL: info@rsk.co.uk WWW: www.rsk.co.uk

Client: **THE THAMES HOTEL**

Project Title: **THE THAMES HOTEL
RAY MEAD ROAD
MAIDENHEAD**

Drawing Title: **EXISTING SITE SURVEY
SHOWING EXTENTS OF
PREDICTED FLOODING**

Drawn	Date	Checked	Date	Approved	Date
KYC	14.07.09	CP	14.07.09		

Scale	Drawing File	Orientation
1:100	A1	m

Project No: 130349 Drawing File: SITE SURVEY.dwg

Drawing No: LDE 1002 Rev: P2

Scale: 1:100



RSK GROUP
SERVICE CONSTRAINTS

1. This report and the Drainage design carried out in connection with the report (together the "Services") were compiled and carried out by RSK LDE Ltd (RSK) for Thames Hotel (the "client") in accordance with the terms of a contract between RSK and the "client" dated August 2012. The Services were performed by RSK with the skill and care ordinarily exercised by a reasonable Civil Engineer at the time the Services were performed. Further, and in particular, the Services were performed by RSK taking into account the limits of the scope of works required by the client, the time scale involved and the resources, including financial and manpower resources, agreed between RSK and the client.

2. Other than that expressly contained in paragraph 1 above, RSK provides no other representation or warranty whether express or implied, in relation to the Services.

3. Unless otherwise agreed the Services were performed by RSK exclusively for the purposes of the client. RSK is not aware of any interest of or reliance by any party other than the client in or on the Services. Unless expressly provided in writing, RSK does not authorise, consent or condone any party other than the client relying upon the Services. Should this report or any part of this report, or otherwise details of the Services or any part of the Services be made known to any such party, and such party relies thereon that party does so wholly at its own and sole risk and RSK disclaims any liability to such parties. Any such party would be well advised to seek independent advice from a competent environmental consultant and/or lawyer.

4. It is RSK's understanding that this report is to be used for the purpose described in the introduction to the report. That purpose was a significant factor in determining the scope and level of the Services. Should the purpose for which the report is used, or the proposed use of the site change, this report may no longer be valid and any further use of or reliance upon the report in those circumstances by the client without RSK's review and advice shall be at the client's sole and own risk. Should RSK be requested to review the report after the date hereof, RSK shall be entitled to additional payment at the then existing rates or such other terms as agreed between RSK and the client.

5. The passage of time may result in changes in site conditions, regulatory or other legal provisions, technology or economic conditions which could render the report inaccurate or unreliable. The information and conclusions contained in this report should not be relied upon in the future without the written advice of RSK. In the absence of such written advice of RSK, reliance on the report in the future shall be at the client's own and sole risk. Should RSK be requested to review the report in the future, RSK shall be entitled to additional payment at the then existing rate or such other terms as may be agreed between RSK and the client.

6. The observations and conclusions described in this report are based solely upon the Services, which were provided pursuant to the agreement between the client and RSK. RSK has not performed any observations, investigations, studies or testing not specifically set out or required by the contract between the client and RSK. RSK is not liable for the existence of any condition, the discovery of which would require performance of services not otherwise contained in the Services. For the avoidance of doubt, unless otherwise expressly referred to in the introduction to this report, RSK did not seek to evaluate the presence on or off the site of asbestos, electromagnetic fields, lead paint, heavy metals, radon gas or other radioactive or hazardous materials.

7. The Services are based upon RSK's observations of existing physical conditions at the Site gained from a walk-over survey of the site together with RSK's interpretation of information including documentation, obtained from third parties and from the client on the history and usage of the site. The Services are also based on information and/or analysis provided by independent testing and information services or laboratories upon which RSK was reasonably entitled to rely. The Services clearly are limited by the accuracy of the information, including documentation, reviewed by RSK and the observations possible at the time of the walk-over survey. Further RSK was not authorised and did not attempt to independently verify the accuracy or completeness of information, documentation or materials received from the client or third parties, including laboratories and information services, during the performance of the Services. RSK is not liable for any inaccurate information or conclusions, the discovery of which inaccuracies required the doing of any act including the gathering of any information which was not reasonably available to RSK and including the doing of any independent investigation of the information provided to RSK save as otherwise provided in the terms of the contract between the client and RSK.



APPENDIX B

NPPF Technical Guidance Note

Site-specific Flood Risk Assessments (FRAs)

As set out in the National Planning Policy Framework, local planning authorities should only consider development in flood risk areas appropriate where informed by a site-specific flood risk assessment. This should identify and assess the risks of all forms of flooding to and from the development and demonstrate how these flood risks will be managed so that the development remains safe throughout its lifetime, taking climate change into account. Those proposing developments should take advice from the emergency services when producing an evacuation plan for the development as part of the flood risk assessment.

BS 8533-2011 Assessing and managing flood risk in development Code of practice, Nov 2011

Assessing the risk of flooding

4.1 General

A detailed, development-based flooding investigation should be undertaken to determine:

- a) the likelihood and consequence of flooding in and around the development, from all sources,
- b) how the development might alter the existing flooding regime, potentially increasing the risk of flooding elsewhere; and
- c) the design measures needed to manage the risk of flooding in and around the development.

NOTE: a detailed, development-based flooding investigation to be prepared and submitted to the planning authority as part of the planning application. By producing the flood investigation at such an early stage, it can be used to influence the conceptual layout and design of the development and reduce (or avoid) the risk of flooding.

4.2 Site information

Before undertaking a detailed assessment of the risk of flooding, information about the site and surroundings should be obtained, including:

- a) details of existing infrastructure (e.g. reservoirs, canals, culverts, flood risk management infrastructure and/or drainage infrastructure);
- b) details of existing raised flood risk management infrastructure (e.g. the level of protection afforded by them and their condition);
- c) evidence of historical flooding;
- d) topographic mapping including local features (e.g. boundary walls and hedges);
- e) information on site ground conditions.

Assessing the risk of flooding to the development site and beyond

The risk of flooding associated with a proposed development should be assessed as the combination of the likelihood of flooding and its consequence. The following factors should be assessed:



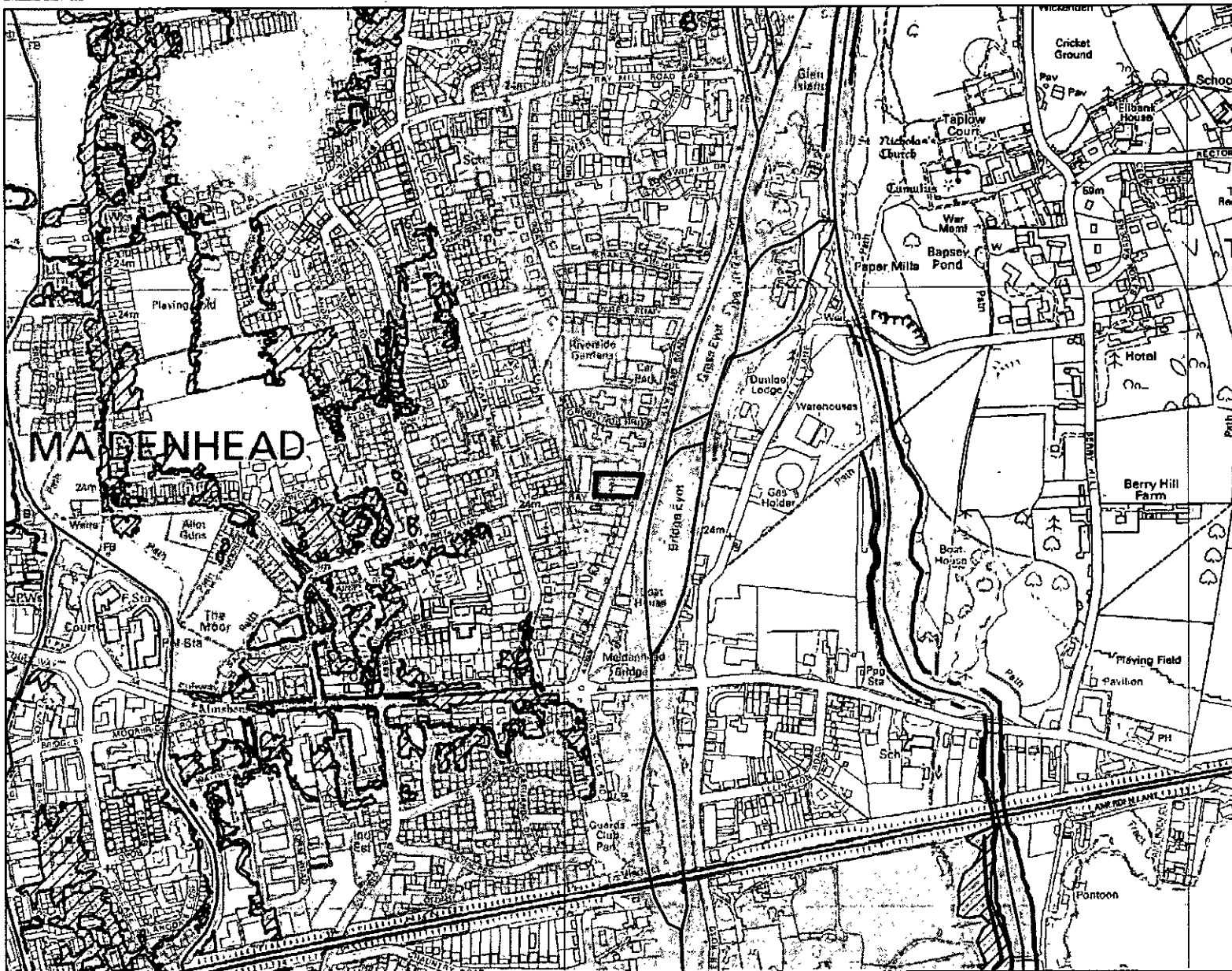
APPENDIX C

Environment Agency Correspondence

Thames Hotel
Thames Hotel, Maidenhead
Flood Risk Assessment
131826-R1(0)-FRA

Flood Map centred on Ray Mead Road, Maidenhead

Created 22/08/2012 - REF: BE_0074_01



Environment Agency

Kilometres

0 0.15 0.3



Legend

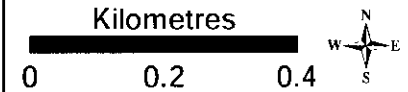
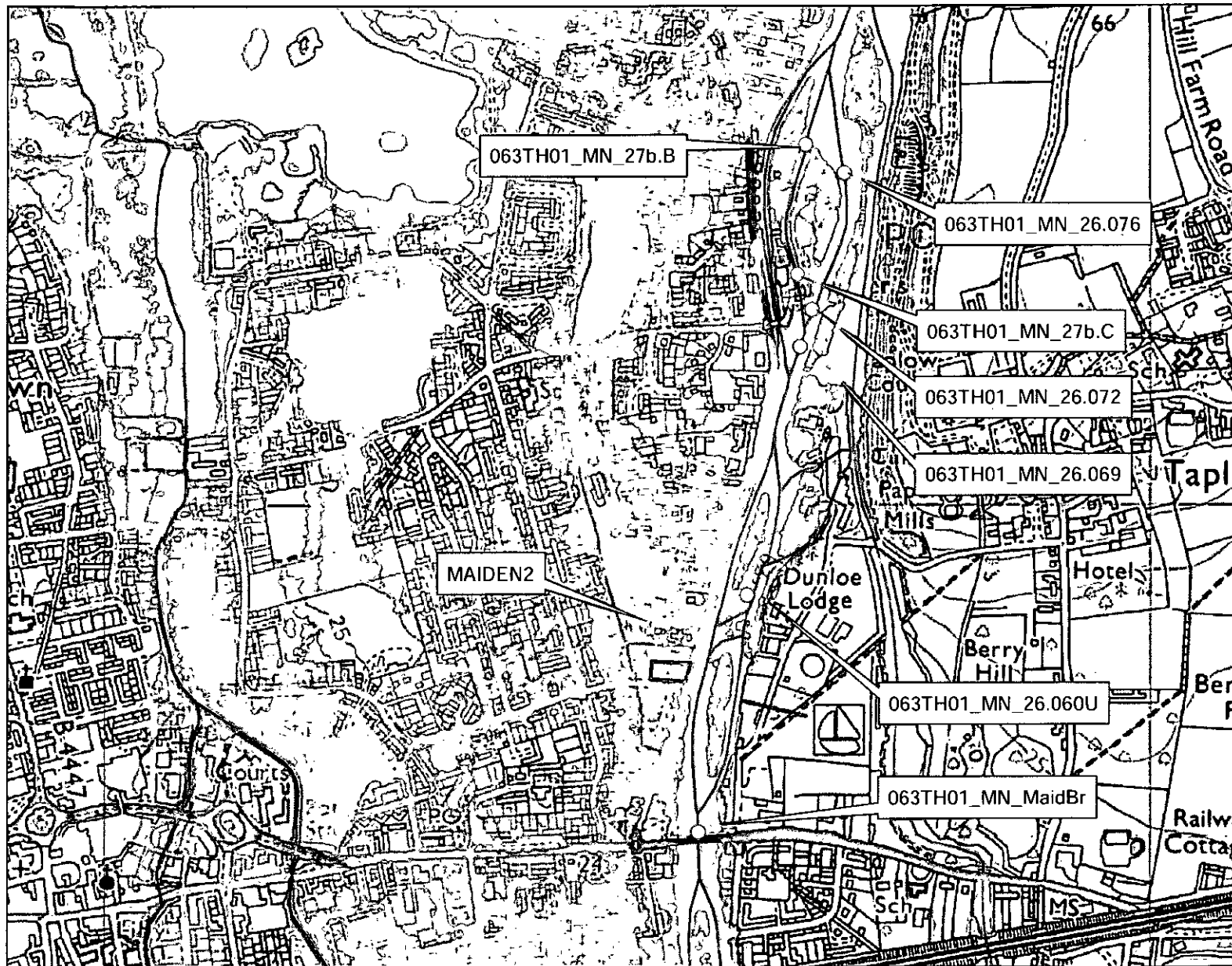
- Site
- Main River
- Flood defences
- Areas benefiting from flood defences
- Flooding from rivers or sea (FZ3)
- Extent of extreme flood (FZ2)
- Flood Map - flood storage areas

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.

Detailed FRA Map centred on Ray Mead Road, Maidenhead
 Created 28/08/2012 - REF: BE_0074_01



Legend

- Nodes
- Site
- Main River
- 20% AEP flood extent
- 5% AEP flood extent
- 1% AEP flood extent
- 1%CC AEP flood extent

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

1%CC = 1% Climate Change extent
 This is the 1% AEP event with an allowance for climate change (+20% on river flows)

Modelled flood levels for reservoir units

The modelled flood levels for the reservoir unit closest to your site is provided below:

Reservoir label	Model	Centre-point Easting	Centre-point Northing	flood levels (mAOD)				
				20% AEP	5% AEP	1% AEP	1% AEP with climate change allowance (+20% on river flows)	0.1% AEP
MAIDEN2	Lower Thames Reach 1 & 2 - ISIS model 2007	490021	181976	21.00	23.05	23.89	24.40	

This flood model has represented some parts of the floodplain with reservoir units.
 The flood water levels have been calculated for these areas directly.
 Therefore, for a site located within a reservoir unit, in-channel water levels are not relevant and are not supplied.

Historic flood data

BE_0074_01

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
EA0620030101570	06JanuaryNewYear2003	23/12/2002	12/01/2003	main river	channel capacity exceeded (no raised defences)
EA0620001200425	06DecemberWinter2000	01/01/2000	12/12/2000	main river	channel capacity exceeded (no raised defences)
EA0619900200262g	06FebruaryWinter1990	01/01/1990	12/12/1990	main river	channel capacity exceeded (no raised defences)
EA0619741100274	06NovemberAutumn1974	01/01/1974	12/12/1974	main river	channel capacity exceeded (no raised defences)
EA0619470300431b	06MarchSpring1947	01/01/1947	12/12/1947	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.



Within the NPPF Technical Guidance, each flood zone has a list of appropriate land uses dependent on vulnerability to flooding. The flood zones are described in Table 1: Flood Zones reproduced below. (Note: These flood zones refer to the probability of river and sea flooding, ignoring the presence of defences).

NPPF Technical Guidance Table 1: Flood Zones

Zone 1 - Low Probability
Definition
This zone comprises land assessed as having a less than 1 in 1000 annual probability of river or sea flooding in any year (<0.1%)
Appropriate uses
All uses of land are appropriate in this zone
FRA requirements
For development proposals on sites comprising one hectare or above the vulnerability to flooding from other sources as well as from river and sea flooding, and the potential to increase flood risk elsewhere through the addition of hard surfaces and the effect of the new development on surface water run-off, should be incorporated in a FRA. This need only be brief unless the factors above or other local considerations require particular attention.
Policy aims
In this zone, developers and local authorities should seek opportunities to reduce the overall level of flood risk in the area and beyond through the layout and form of the development, and the appropriate application of sustainable drainage techniques. Sustainable drainage systems cover the whole range of sustainable approaches to surface drainage management. They are designed to control surface water run off close to where it falls and mimic natural drainage as closely as possible.
Zone 2 - Medium Probability
Definition
This zone comprises land assessed as having between a 1 in 100 and 1 in 1,000 annual probability of river flooding (1% – 0.1%) or between a 1 in 200 and 1 in 1,000 annual probability of sea flooding (0.5% – 0.1%) in any year.
Appropriate uses
Essential infrastructure and the water-compatible, less vulnerable and more vulnerable uses, as set out in Table 2, are appropriate in this zone. The highly vulnerable uses are <i>only</i> appropriate in this zone if the Exception Test is passed.
FRA requirements
All development proposals in this zone should be accompanied by a FRA.
Policy aims



In this zone, developers and local authorities should seek opportunities to:

- reduce the overall level of flood risk in the area through the layout and form of the development and the appropriate application of sustainable drainage systems; and
- relocate existing development to land with a lower probability of flooding.

The vulnerability classes are related to the sensitivity of the development to flooding and also consider the risk to people, property and services. The vulnerability classification Table 2 from NPPF Technical Guidance is reproduced below.

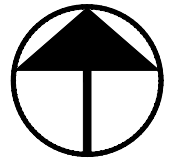
NPPF Technical Guidance Table 2: Flood Risk Vulnerability Classification

Vulnerability classes	Description
Essential Infrastructure	<ul style="list-style-type: none"> • Essential transport infrastructure (including mass evacuation routes) which has to cross the area at risk, • Essential utility infrastructure which has to be located in a flood risk area for operational reasons, including electricity generating power stations and grid and primary substations; and water treatment works that need to remain operational in times of flood. • Wind turbines
Highly Vulnerable	<ul style="list-style-type: none"> • Police stations, Ambulance stations and Fire stations and Command Centres and telecommunications installations required being operational during flooding. • Emergency dispersal points. • Basement dwellings. • Caravans, mobile homes and park homes intended for permanent residential use. • Installations requiring hazardous substances consent.¹ (where there is a demonstrable need to locate such installations for bulk storage of materials with port or other similar facilities, or such installations with energy infrastructure or carbon capture and storage installations, that require coastal or water-side locations, or need to be located in other high flood risk areas, in these instances the facilities should be classified as "Essential Infrastructure"²)
More Vulnerable	<ul style="list-style-type: none"> • Hospitals. • Residential institutions such as residential care homes, children's homes, social services homes, prisons and hostels. • Buildings used for: dwelling houses; student halls of residence; drinking establishments; nightclubs; and hotels. • Non-residential uses for health services, nurseries and educational establishments. • Landfill and sites used for waste management facilities for hazardous waste.³ • Sites used for holiday or short-let caravans and camping, subject to a specific warning and evacuation plan.



The Thames Hotel, Ray Mead Road, Maidenhead
Flood Risk Assessment

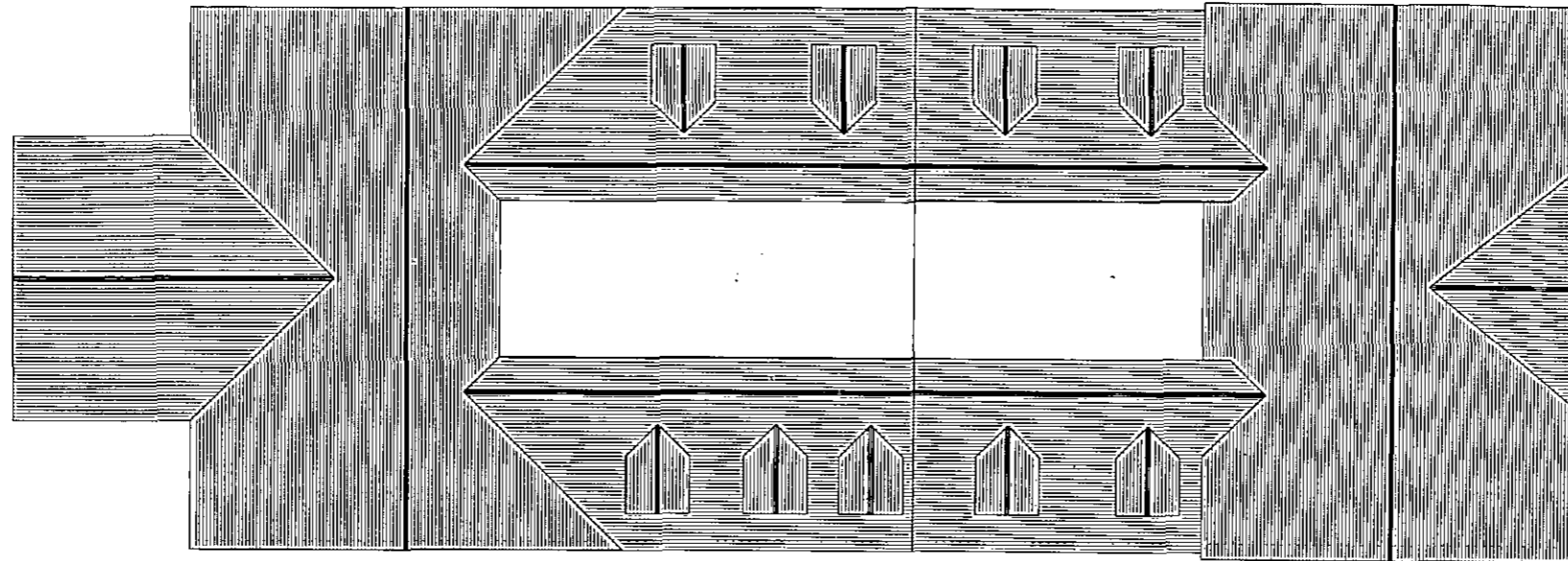
APPENDIX B
SITE LOCATION PLA
EXISTING & PROPOSED FLOOR PLANS



■ Mr Owens
Thames Hotel, Maidenhead
■ Location Plan

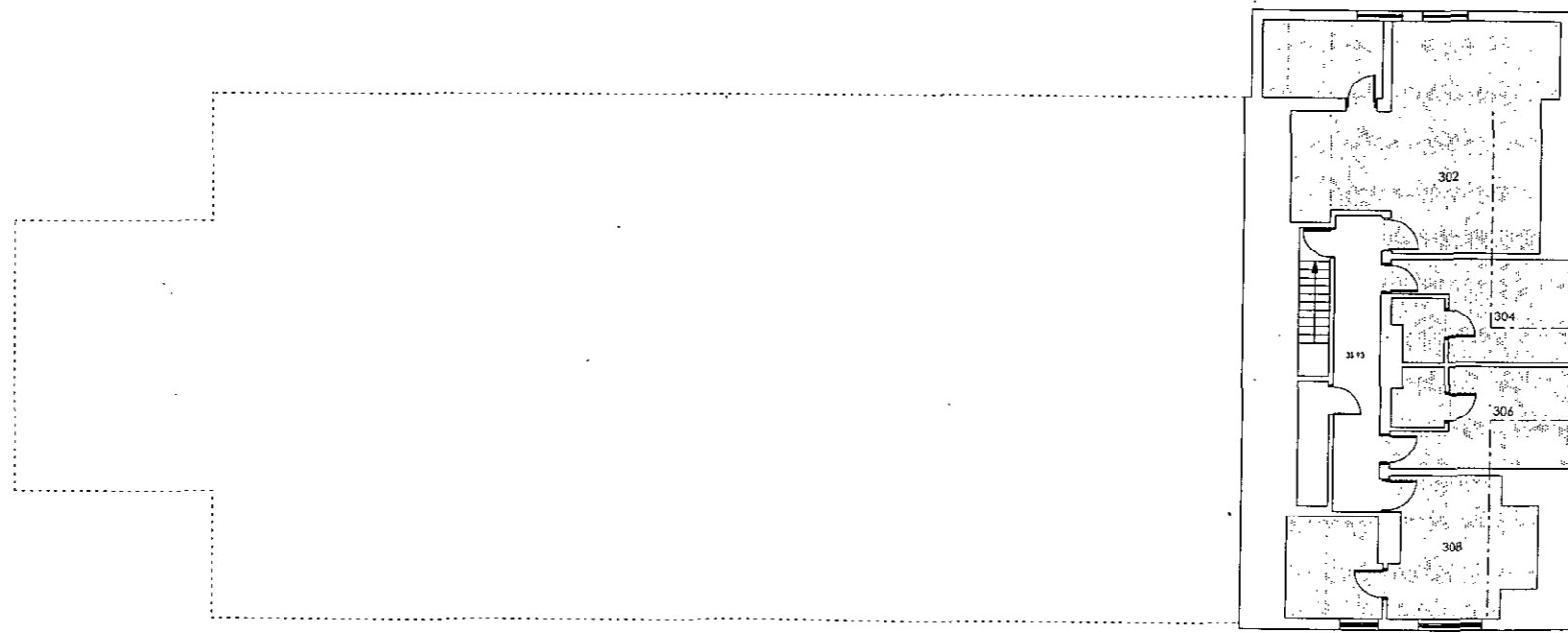
■ Project OTHM
■ Dwg No/rev. PL-100
■ Scale 1:1250@A4
■ Date OCT 2017
■ Checked by AC

jsa
jsa architects



RECEIVED
24 OCT 2012
PLANNING

PROPOSED ROOF FLOOR PLAN
The Thames Hotel, Maidenhead @ 1:100

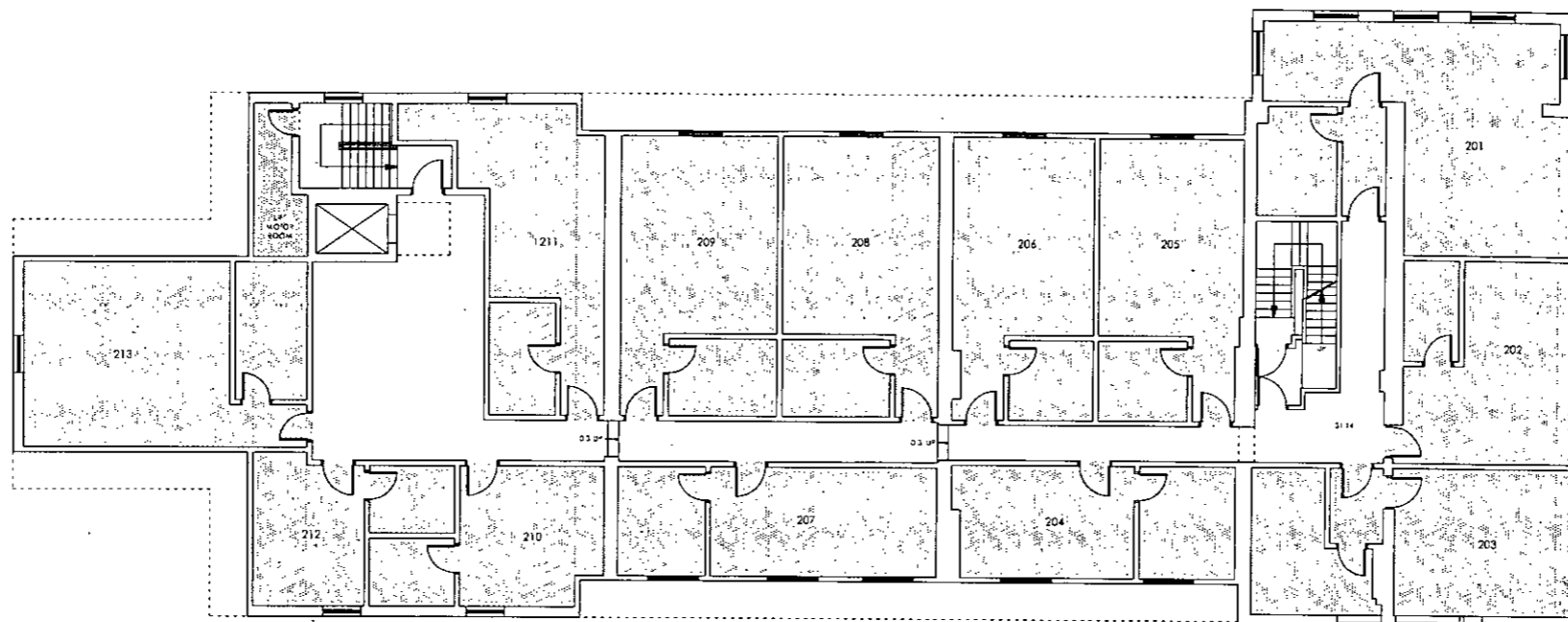


12/02920

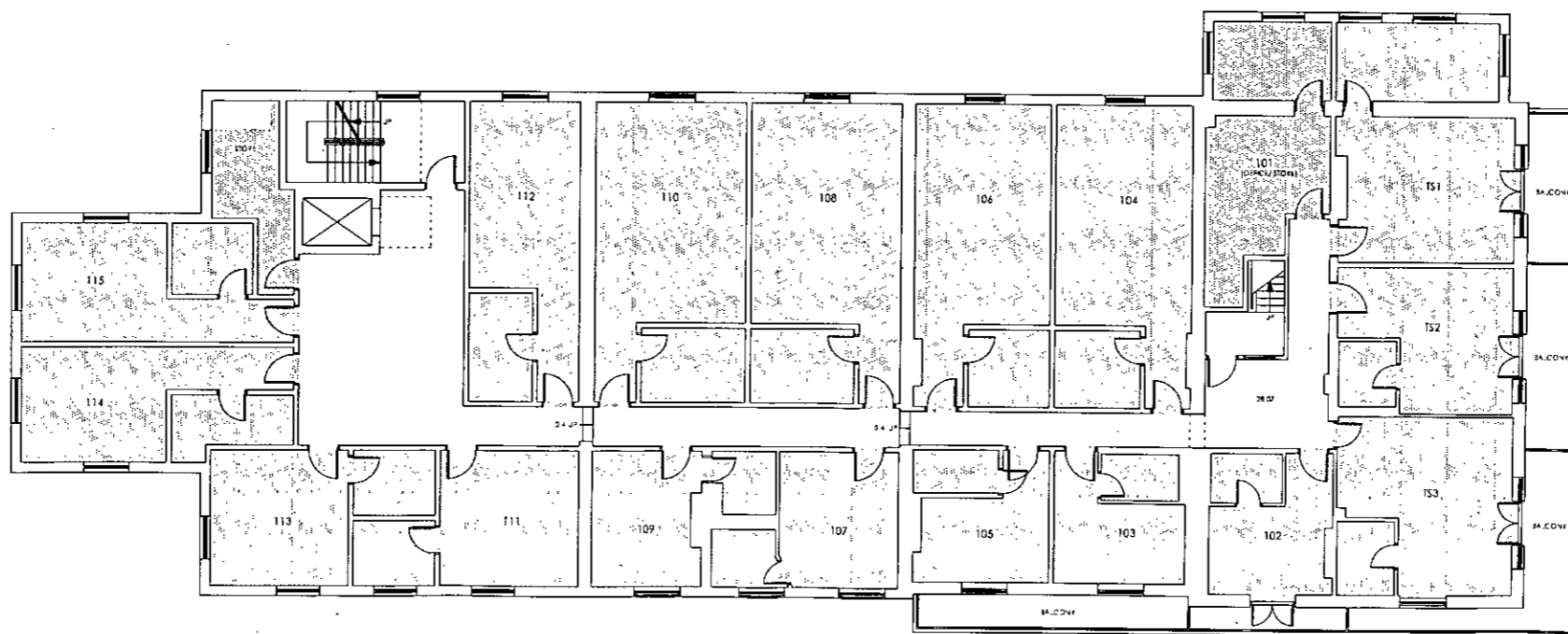
PROPOSED THIRD FLOOR PLAN
The Thames Hotel, Maidenhead @ 1:100

- Key - - Service Area
 - Public Area
 - Bedroom




RECEIVED
24 OCT 2012
PLANNING



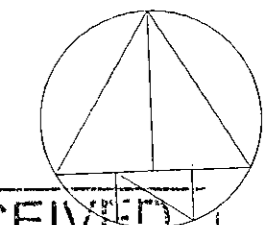
PROPOSED SECOND FLOOR PLAN
The Thames Hotel, Maidenhead @ 1:100



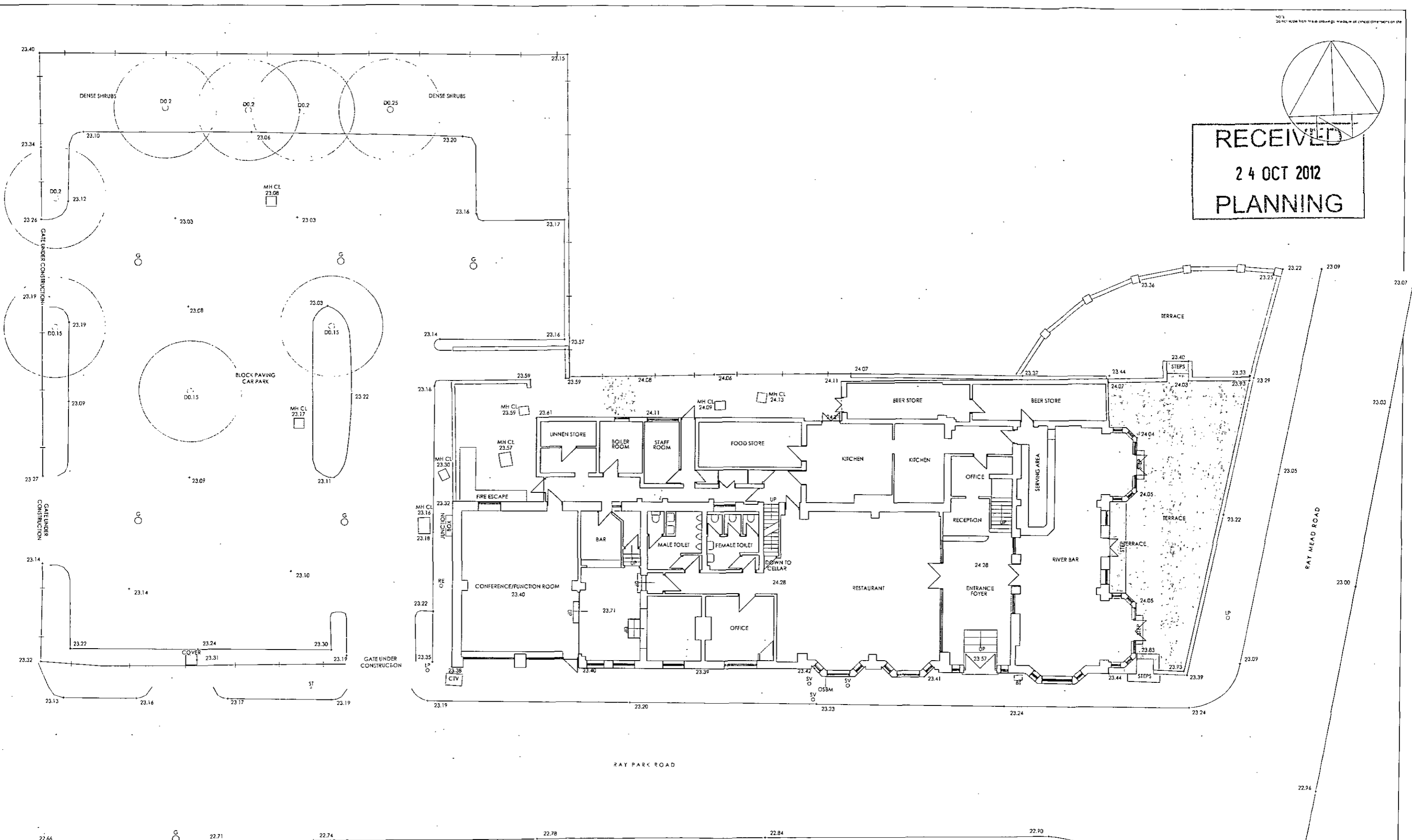
PROPOSED FIRST FLOOR PLAN
The Thames Hotel, Maidenhead @ 1:100

- Key -
-  - Service Area
 -  - Public Area
 -  - Bedroom

12/02920



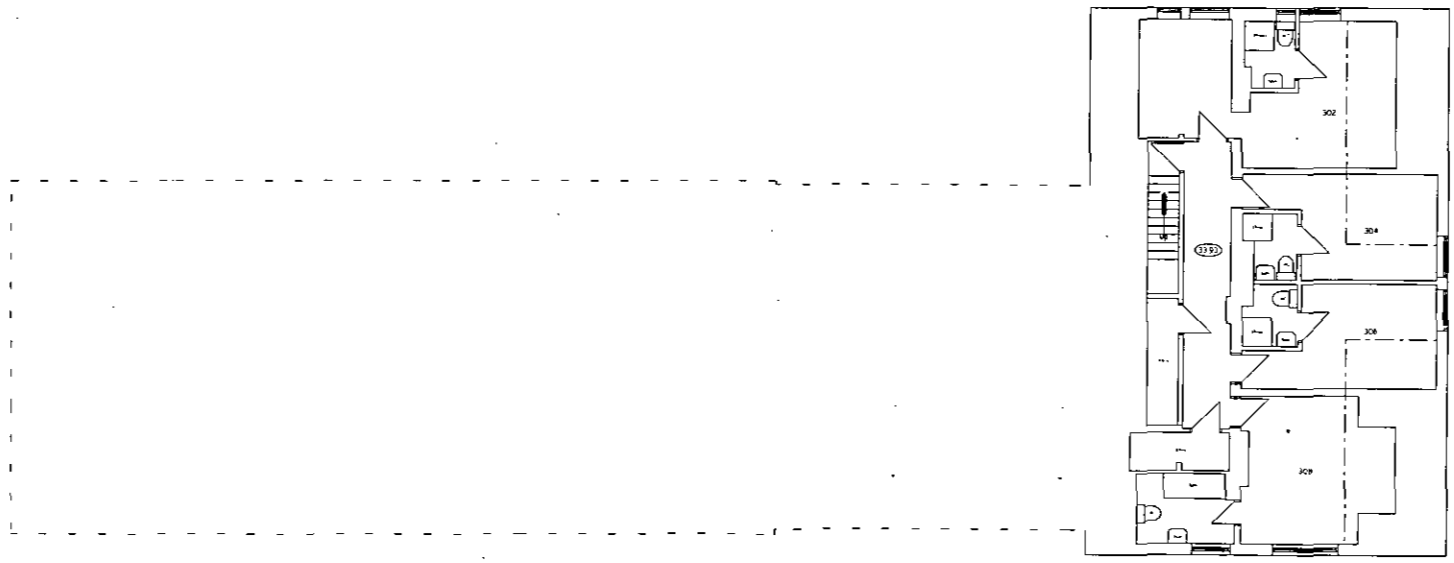
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24 OCT 2012
PLANNING



- 1 in 5 year flood level - 21.20
- 1 in 20 year flood level - 23.37
- 1 in 50 year flood level - 23.81
- 1 in 100 year flood level - 24.08

12/02920

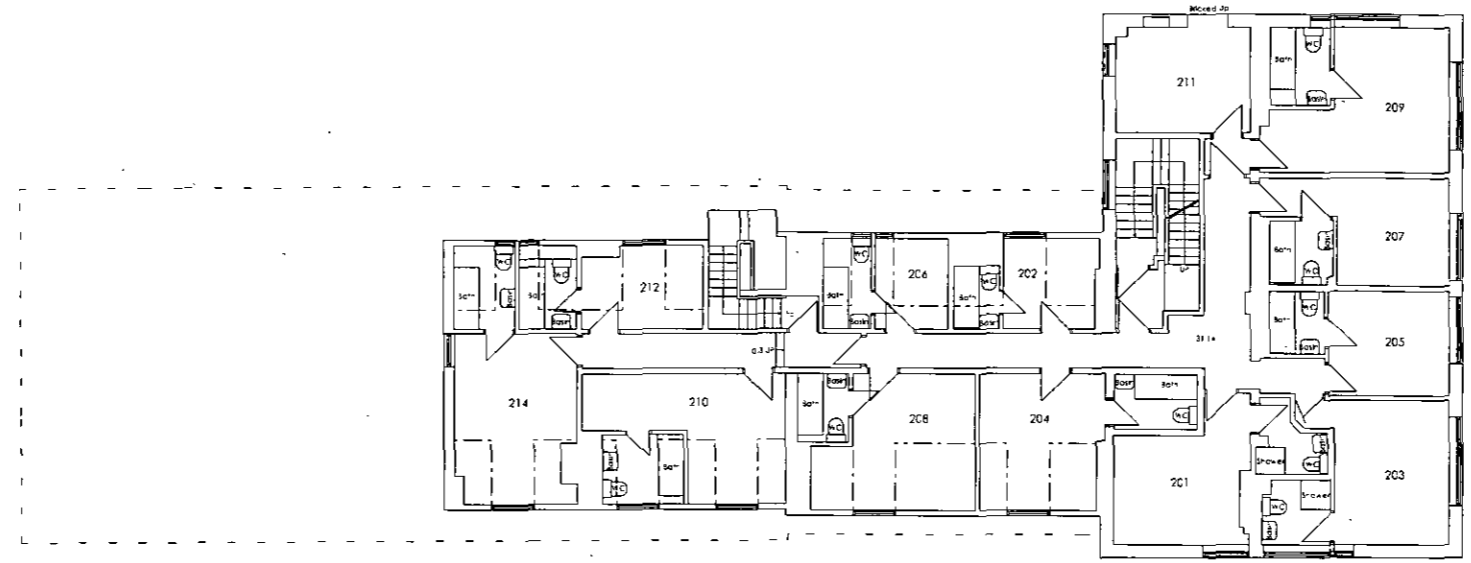
RECEIVED
24 OCT 2012
PLANNING



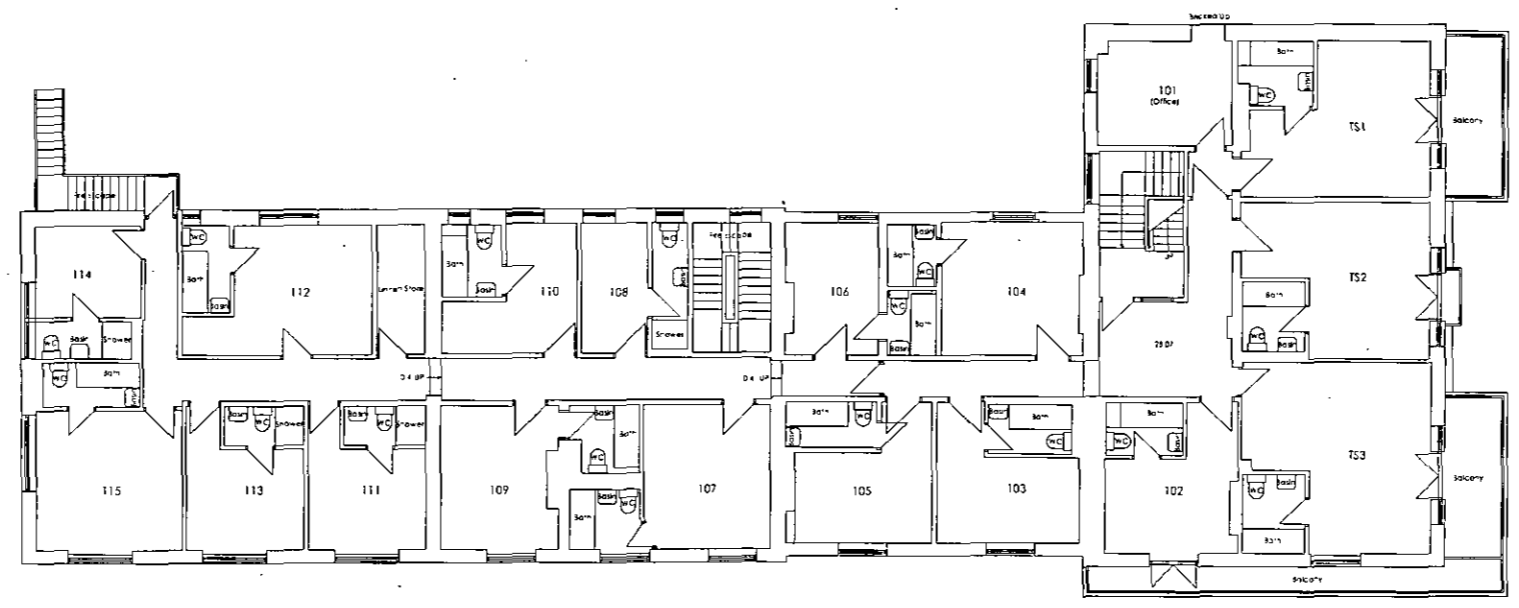
EXISTING THIRD FLOOR PLAN
The Thames Hotel, Maidenhead @ 1:100

12/02920

RECEIVED
24 OCT 2012
PLANNING

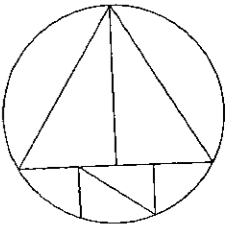


EXISTING SECOND FLOOR PLAN
The Thames Hotel, Maidenhead @ 1:100



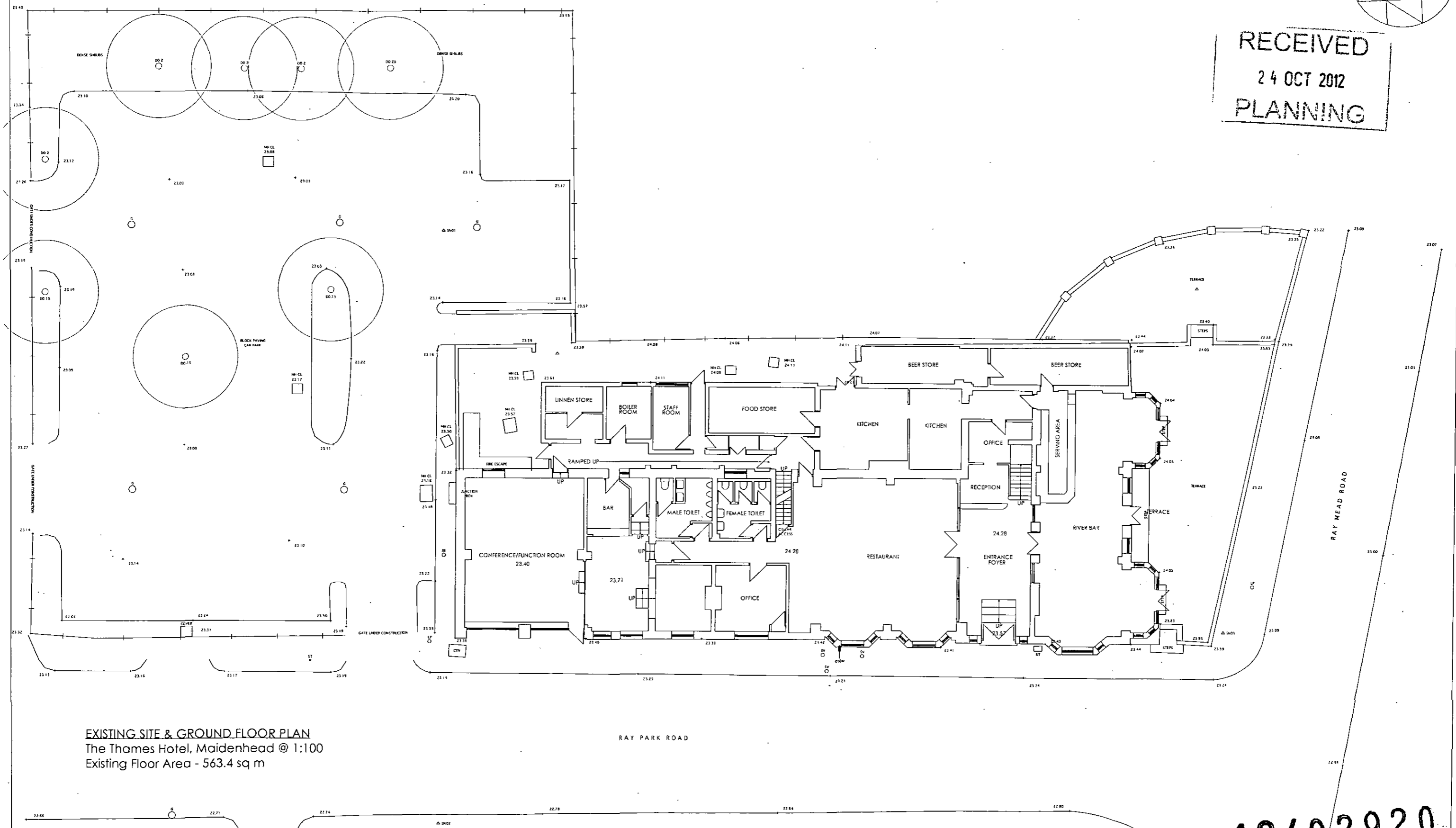
EXISTING FIRST FLOOR PLAN
The Thames Hotel, Maidenhead @ 1:100

12/02920



LEVELS RELATE TO O.S.B.M LOCATED ON THE THAMES HOTEL WITH A VALUE OF 23.67m

RECEIVED
24 OCT 2012
PLANNING



EXISTING SITE & GROUND FLOOR PLAN
The Thames Hotel, Maidenhead @ 1:100
Existing Floor Area - 563.4 sq m

12/02920



The Thames Hotel, Ray Mead Road, Maidenhead
Flood Risk Assessment

APPENDIX C
ENVIRONMENT AGENCY PRODUCT 4 DATA
CLIMATE CHANGE ALLOWANCES – THAMES AREA

Product 4 (Detailed Flood Risk) for The Thames Hotel, Maidenhead Our Ref: THM_72639

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 separately)
- 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 read the enclosed guidance which sets out our 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

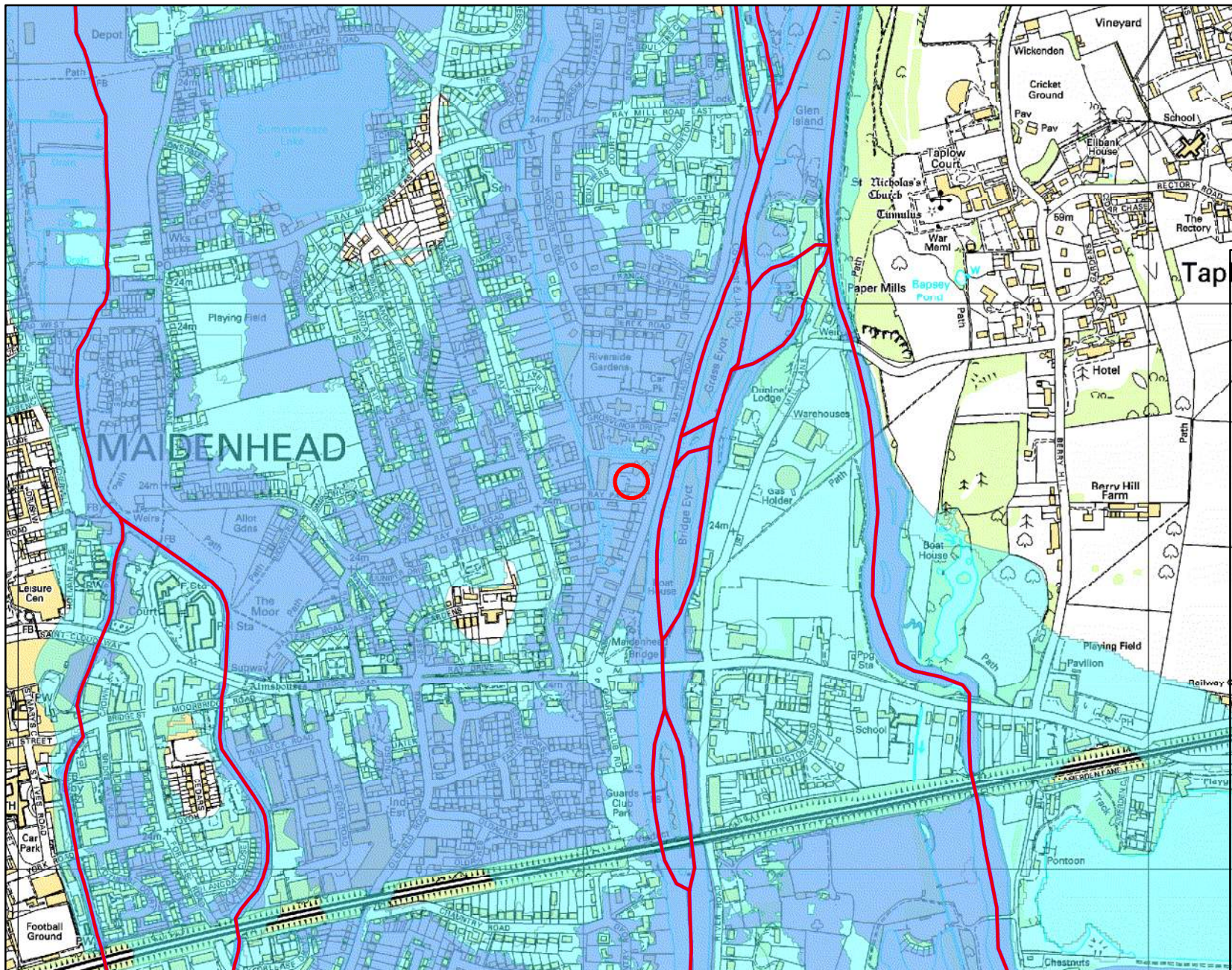
<http://www.environment-agency.gov.uk/research/planning/82584.aspx>

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

<http://www.environment-agency.gov.uk/research/planning/33580.aspx>

Flood Map for Planning centred on: Thames Hotel, Maidenhead

Created on 24/01/2018 REF: THM_72639



Kilometres
0 0.09 0.18

Legend

- Main River
- Flooding from rivers or sea (FZ3)
- Extent of extreme flood (FZ2)

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.

Defence information

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

THM_72639

Model: Thames (Lower) Reach 1 & 2 2007

Description: Lower Thames Reach 1 (Hurley to Cookham) and Reach 2 (Cookham to Windsor):

The information provided is taken from the Lower Thames Remodelling Study which was completed in December 2007. Reaches 1 and 2 of this study were modelled using ISIS 1D.

This model includes the Jubilee River (part of the Maidenhead, Windsor and Eton Flood Alleviation Scheme). The flow in the Jubilee River is limited to approximately 180m³/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.

The model accuracy has generally been maintained to be within ± 150 mm of the gauged data at the head and tail water levels at the main locks on the River Thames for the calibration event. For the verification event the level difference between modelled and observed flood levels is within ± 150 mm for all but three of the main locks on the Thames (Romney tail, Bell head and Sunbury tail). Overall, the model accuracy is within the specified limits of the standard specification and is therefore deemed appropriate.

Model design runs:

1 in 5 / 20% AEP; 1 in 20 / 5% AEP; 1 in 50 / 2% AEP; 1 in 100 / 1% AEP; and 1 in 100+20% / 1% AEP with climate change

Mapped outputs:

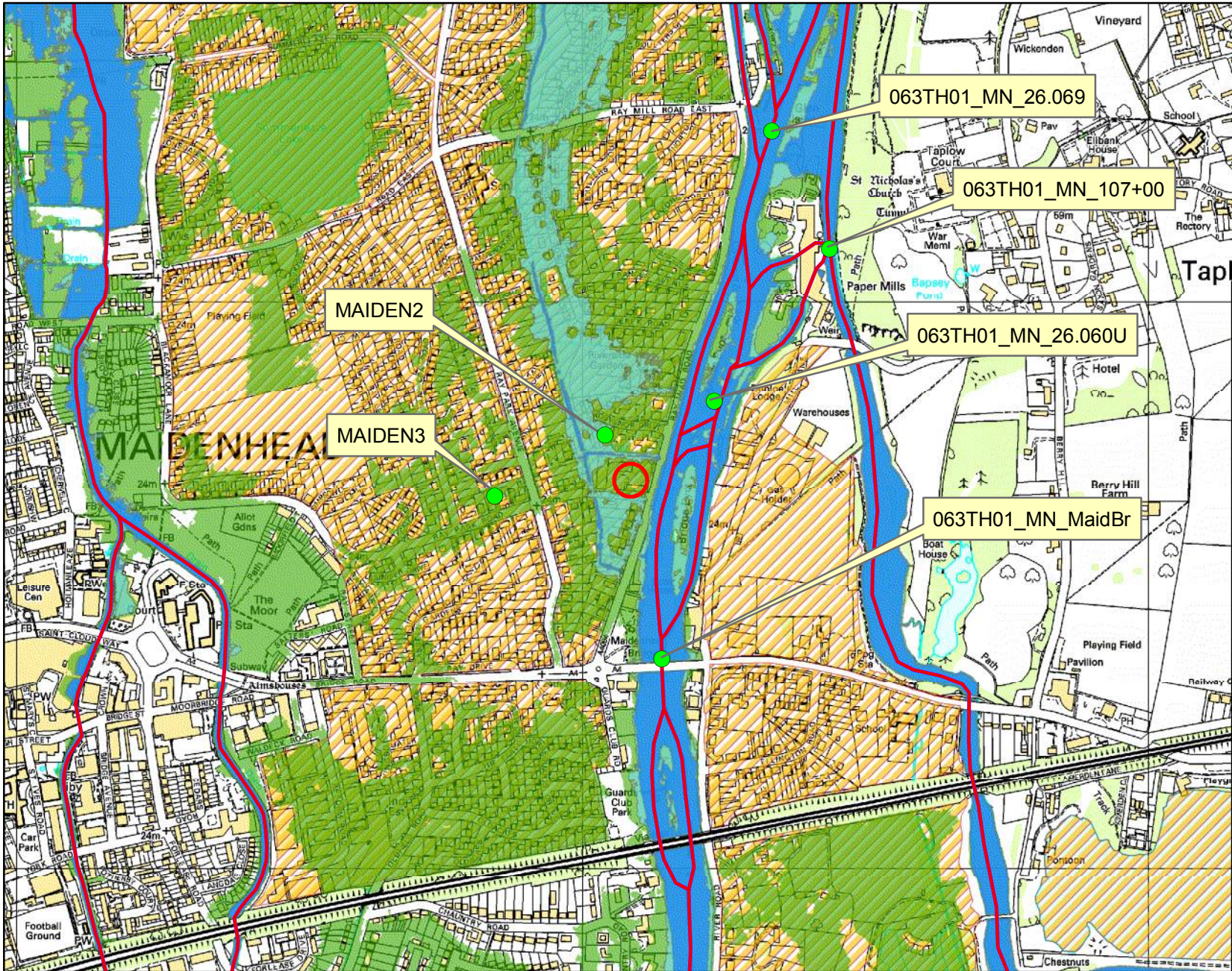
1 in 5 / 20% AEP; 1 in 20 / 5% AEP; 1 in 100 / 1% AEP; and 1 in 100+20% / 1% AEP with climate change

Model accuracy:

Levels ± 150 mm

FRA Map centred on: Thames Hotel, Maidenhead

Created on 24/01/2018 REF: THM_72639



Kilometres
 0 0.09 0.18

Legend

- Thames Model Node Data
- Main River
- 20% AEP flood extent
- 5% AEP flood extent
- 1% AEP flood extent
- ReservoirUnits_FlowsLevels

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

1%CC = 1% Climate Change extent
 This is the 1% AEP event with an allowance for climate change (+20% on river flows)

Modelled in-channel flood flows and levels

THM_72639

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:

Node label	Model	Easting	Northing	Flood Levels (mAOD)			
				20% AEP	5% AEP	1% AEP	1% AEP (+20% on river flows)
063TH01_MN_26.069	Thames (Lower) Reach 1 & 2 2007	490335	182305	22.67	23.17	23.97	24.47
063TH01_MN_107+00	Thames (Lower) Reach 1 & 2 2007	490438	182096	23.84	23.84	24.51	25.00
063TH01_MN_26.060U	Thames (Lower) Reach 1 & 2 2007	490234	181826	22.53	23.04	23.89	24.41
063TH01_MN_MaidBr	Thames (Lower) Reach 1 & 2 2007	490141	181370	22.37	22.89	23.71	24.19

Node label	Model	Easting	Northing	Flood Flows (m3/s)			
				20% AEP	5% AEP	1% AEP	1% AEP (+20% on river flows)
063TH01_MN_26.069	Thames (Lower) Reach 1 & 2 2007	490335	182305	181.46	239.35	329.67	373.15
063TH01_MN_107+00	Thames (Lower) Reach 1 & 2 2007	490438	182096	133.87	181.63	183.69	185.08
063TH01_MN_26.060U	Thames (Lower) Reach 1 & 2 2007	490234	181826	181.34	239.27	308.34	343.27
063TH01_MN_MaidBr	Thames (Lower) Reach 1 & 2 2007	490141	181370	181.21	239.19	353.76	437.44

Note:

Due to recent 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>

Modelled flood levels for reservoir units

THM_72639

The modelled flood levels for the reservoir unit closest to your site is provided below:

Reservoir label	Model	Centre-point Easting	Centre-point Northing	flood levels (mAOD)			
				20% AEP	5% AEP	1% AEP	1% AEP (+20% on river flows)
MAIDEN2	Lower Thames Reach 1 & 2 - ISIS model 2007	490021	181976	21.00	23.05	23.89	24.40
MAIDEN3	Lower Thames Reach 1 & 2 - ISIS model 2007	489620	181776	22.00	22.00	23.89	24.40

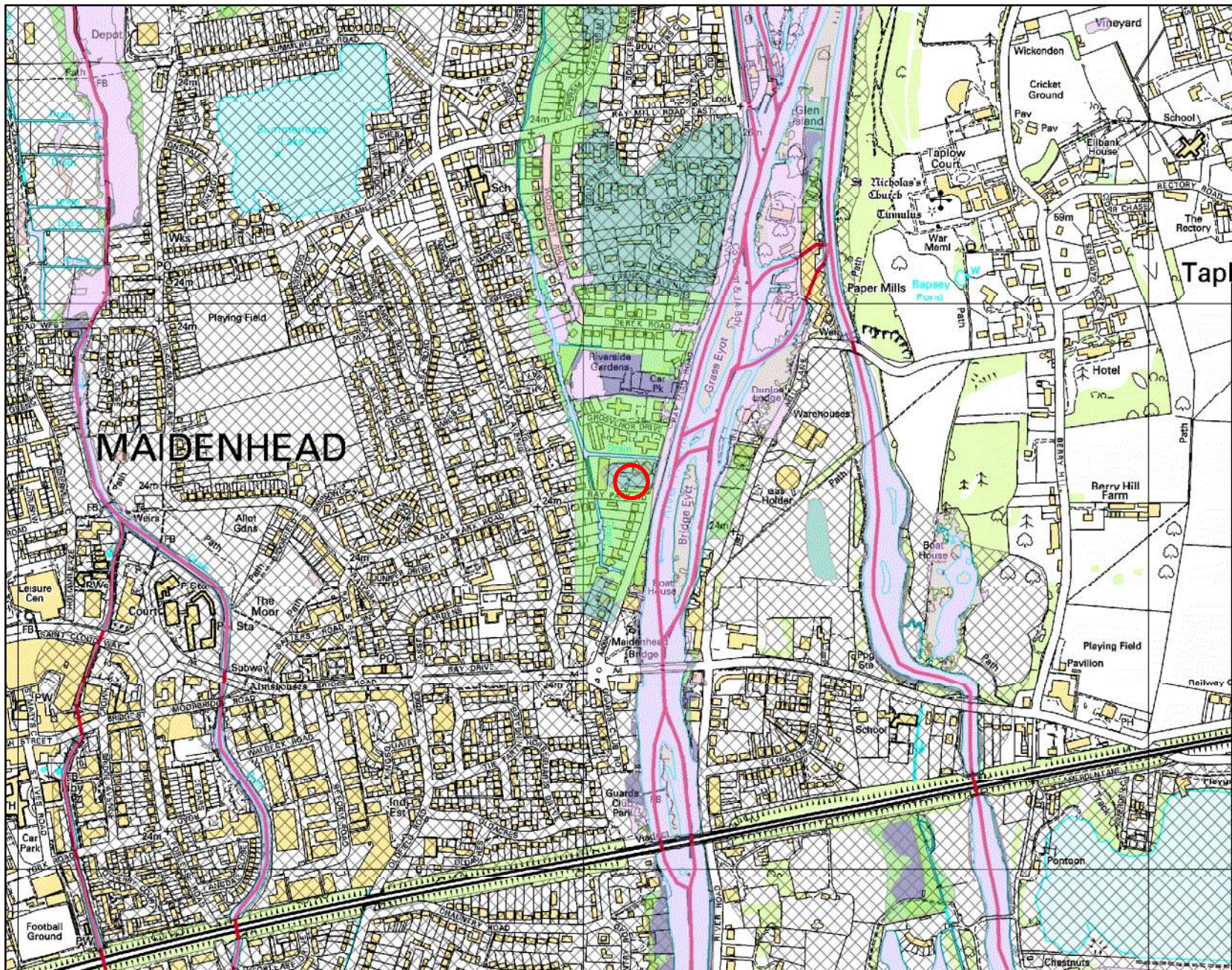
This flood model has represented some parts of the floodplain with reservoir units.

The flood water levels have been calculated for these areas directly.

Therefore, for a site located within a reservoir unit, in-channel water levels are not relevant and are not supplied.

Historic Flood Map centred on: Thames Hotel, Maidenhead

Created on 24/01/2018 REF: THM_72639



Kilometres
0 0.09 0.18

Legend

Flood Event Outlines

year

- 1947
- 1974
- 1990
- 2000
- 2002
- 2014

— Main River

Historic flood data

THM_72639

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
EA0619470300431b	06MarchSpring1947	01/01/1947	12/12/1947	main river	channel capacity exceeded (no raised defences)
EA0619741100274	06NovemberAutumn1974	01/01/1974	12/12/1974	main river	channel capacity exceeded (no raised defences)
EA0619900200262g	06FebruaryWinter1990	01/01/1990	12/12/1990	main river	channel capacity exceeded (no raised defences)
EA0620001200125	06DecemberWinter2000	01/01/2000	12/12/2000	main river	channel capacity exceeded (no raised defences)
EA0620030100614	06JanuaryNewYear2003	23/12/2002	12/01/2003	unknown	channel capacity exceeded (no raised defences)
EA061002014010	Winter 2013/2014	23/11/2013	28/02/2014	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.

Thames Area Climate Change Allowances

Guidance for their use in flood risk assessments

Jan 2017

We recently updated our national guidance on climate change allowances for Flood Risk Assessments. The following information provides additional local guidance which applies to developments within our Thames area boundary.

Climate change allowances - overview

The National Planning Practice Guidance refers planners, developers and advisors to the Environment Agency to our guidance on considering climate change in Flood Risk Assessments. We updated this guidance in February 2016 and it should be read in conjunction with this document to inform planning applications, local plans, neighbourhood plans and other projects. It provides:

- Climate change allowances for peak river flow, peak rainfall, sea level rise, wind speed and wave height
- A range of allowances to assess fluvial flooding, rather than a single national allowance
- Advice on which allowances to use for assessments based on vulnerability classification, flood zone and development lifetime

Updated climate change allowances guidance:

<https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances>

National Planning Practice Guidance:

<http://planningguidance.communities.gov.uk/>

Assessing climate change impacts on fluvial flooding

Table A below indicates the level of technical assessment of climate change impacts on fluvial flooding appropriate for new developments depending on their scale and location (flood zone). Please note that this should be used as a guide only. Ultimately, the agreed approach should be based on expert local knowledge of flood risk conditions, local sensitivities and other influences.

Applicants and consultants may contact the Environment Agency at the pre-planning application stage to confirm the assessment approach on a case-by-case basis. We provide standard guidance free of charge or bespoke advice for a fee for developments for which we are a statutory consultee. If your development is instead covered by Flood Risk Standing Advice, we recommend you contact the relevant Local Planning Authority for their guidance and confirmation of the assessment approach. Flood Risk Standing Advice can be found here:

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

Table A defines three possible approaches to account for flood risk impacts due to climate change in new development proposals:

1. **Basic** - Developer can add an allowance to the 'design flood' (i.e. 1% annual probability) peak levels to account for potential climate change impacts. The allowance should be derived and agreed locally by Environment Agency teams.
2. **Intermediate** - Developer can use existing modelled flood and flow data to construct a stage-discharge rating curve, which can be used to interpolate a flood level based on the required peak flow allowance to apply to the 'design flood' flow.
3. **Detailed** - Perform detailed hydraulic modelling, through either re-running Environment Agency hydraulic models (if available) or construction of a new model by the developer.

Table A – Indicative guide to assessment approach

Vulnerability classification	Flood zone	Assessment by development type		
		Minor	Small-Major	Large-Major
Essential infrastructure	Zone 2	Detailed		
	Zone 3a	Detailed		
	Zone 3b	Detailed		
Highly vulnerable	Zone 2	Intermediate/Basic	Intermediate/Basic	Detailed
	Zone 3a	Not appropriate development		
	Zone 3b	Not appropriate development		
More vulnerable	Zone 2	Basic	Basic	Intermediate/Basic
	Zone 3a	Basic	Detailed	Detailed
	Zone 3b	Not appropriate development		
Less vulnerable	Zone 2	Basic	Basic	Intermediate/Basic
	Zone 3a	Basic	Basic	Detailed
	Zone 3b	Not appropriate development		
Water compatible	Zone 2	None		
	Zone 3a	Intermediate/Basic		
	Zone 3b	Detailed		

Definitions of terms in Table A

Minor

1-9 dwellings/less than 0.5 ha; office/light industrial under 1ha; general industrial under 1 ha; retail under 1 ha; travelling community site between 0 and 9 pitches.

Small-Major

10 to 30 dwellings; office/light industrial 1ha to 5ha; general industrial 1ha to 5ha; retail over 1ha to 5ha; travelling community site over 10 to 30 pitches.

Large-Major

30+ dwellings; office; light industrial 5ha+; general industrial 5ha+; retail 5ha+; gypsy/traveller site over 30+ pitches; any other development that creates a non-residential building or development over 1000 sqm.

Further info on vulnerability classifications:

<http://planningguidance.communities.gov.uk/blog/guidance/flood-risk-and-coastal-change/flood-zone-and-flood-risk-tables/table-2-flood-risk-vulnerability-classification/>

Further info on flood zones:

<http://planningguidance.communities.gov.uk/blog/guidance/flood-risk-and-coastal-change/flood-zone-and-flood-risk-tables/table-2-flood-risk-vulnerability-classification/>

Specific local considerations

Where the Environment Agency and the applicant or their consultant has agreed that a basic level of assessment is appropriate, the figures in Table B below can be used as an allowance for potential climate change impacts on peak design (i.e. 1% annual probability) fluvial flood level rather than undertaking detailed modelling.

Table B – Local allowances for potential climate change impacts

Watercourse	Central	Higher central	Upper
Thames	500mm	700mm	1000mm

Use of these allowances will only be accepted after discussion with the Environment Agency.

Fluvial food risk mitigation

Please use the [national guidance](#) to find out which allowances to use to assess the impact of climate change on flood risk.

For planning consultations where we are a statutory consultee and our [Flood Risk Standing Advice](#) does not apply, we use the following benchmarks to inform flood risk mitigation for different vulnerability classifications.

These benchmarks are a guide only. We strongly recommend you contact us at the pre-planning application stage to confirm this on a case-by-case basis. Please note you may be charged for pre-planning advice.

For planning consultations where we are not a statutory consultee or where our Flood Risk Standing Advice does apply, we recommend local planning authorities and developers use these benchmarks but we do not expect to be consulted.

Essential Infrastructure

For these developments, our benchmark for flood risk mitigation is for it to be designed to the **upper end** climate change allowance for the epoch that most closely represents the lifetime of the development, including decommissioning.

Highly Vulnerable

For these developments in flood zone 2, the **higher central** climate change allowance is our minimum benchmark for flood risk mitigation. In sensitive locations it may be necessary to use the **upper end** allowance.

More Vulnerable

For these developments in flood zone 2, the **central** climate change allowance is our minimum benchmark for flood risk mitigation. In flood zone 3 the **higher central** climate change allowance is our minimum benchmark for flood risk mitigation. In sensitive locations it may be necessary to use the **higher central** (in flood zone 2) and the **upper end** allowance (in flood zone 3).

Water Compatible or Less Vulnerable

For these developments, the **central** climate change allowance for the epoch that most closely represents the lifetime of the development is our minimum benchmark for flood risk mitigation. In sensitive locations it may be necessary to use the **higher central** to inform built in resilience, particularly in flood zone 3.

Further info on our Flood Risk Standing Advice:

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

There may be circumstances where local evidence supports the use of other data or allowances. Where you think this is the case we may want to check this data and how you propose to use it.

For more information

Please contact our Thames area Customers and Engagement team:

[Enquiries THM@environment-agency.gov.uk](mailto:Enquiries_THM@environment-agency.gov.uk)



The Thames Hotel, Ray Mead Road, Maidenhead
Flood Risk Assessment

APPENDIX D

FLOOD EMERGENCY PLAN

**THE THAMES HOTEL
RAY MEAD ROAD
MAIDENHEAD
SL6 8NR**

FLOOD EMERGENCY PLAN

FEBRUARY 2018





DOCUMENT CONTROL RECORD

Document Issue:

Rev	Date	Issue Status	Prepared by	Checked by
-	16.02.18	First Issue for comment	C.Pendle	A.McShane



1 Introduction

1.1 Scope & Objective

This document has been prepared to provide the principles of a Flood Emergency Plan for both the management/staff and occupants of 'The Thames Hotel' in Maidenhead.

1.2 The objective of this plan is to:

- Raise awareness of the risk of flooding at the site location.
- Detail the availability of Flood Warnings from the Environment Agency.
- Estimate rate and duration of a potential flood event.
- Detail how the plan is triggered and by who and when, and what actions are required by those people in the area.
- Describe the evacuation procedure and identify safe escape routes that can be quickly accessed before and during a flood.

2 Flood Risk

2.1 Introduction

The Thames Hotel currently lies within a 'Flood Zone 3', which means that the site is at a high risk of flooding from the River Thames if it was bursts its banks.

The likelihood of this happening is between a 1% to 5% chance each year.

- 2.2 When this happens flood waters could reach as high as 0.6m within the hotel and over 1m on external areas surrounding the site, extending for 500m from the site. Due to the nature of the River Thames, the onset of a flood of this scale and the time for flood water to rise to this level should be relatively slow and take a matter of days to reach its peak.
- 2.3 This means that there should be plenty of time between government agencies such as the Met Office and the Environment Agency issuing a flood alert and for flood waters to inundate the site.
- 2.4 In the event of a flood alert being used by the Environment Agency, the primary aim of the Flood Emergency Plan is for the hotel management/staff to encourage complete evacuation of occupants from the site to a safe location outside the extent of the potential floodplain.

2.5 Flood Warning System

To alert the hotel management/staff to the onset of flooding, The Thames Hotel is registered to the Flood Warning Direct (FWD) service.

This service operated by the Environment Agency, endeavours to provide a minimum flood warning of 2 hours to the hotel management via phone, text or email and operates 24 hours a day, 365 days a year.

- 2.6 This service is in place to ensure that the hotel management and staff are made aware of the potential for flooding, triggering the hotel's dedicated *Flood Management Plan* and to provide sufficient time for the appropriate preparations to be made to safeguard its residents.
- 2.7 While the site will provide safe refuge above the maximum flood level on upper floors of the building, when a flood warning is issued by the hotel and staff advise to do so, all residents are encouraged to evacuate the site as soon as possible.

3 Environment Agency Flood Warning Direct Service (FWD)

- 3.1 The Thames Hotel is registered to the Flood Warnings Direct service.
Telephone: 0345 988 1188
<https://www.gov.uk/sign-up-for-flood-warnings>
- 3.2 This is a service that provides flood warnings to the hotel management and staff by phone, text or email and operates 24 hours a day, 365 days a year.
This service utilises direct measurements of rainfall, river levels, tide levels, in-house predictive models, rainfall radar data and information from the Met Office.
If flooding is forecast, warnings are issued using a set of easily recognisable codes at least two hours prior to the onset of flooding.
Descriptions of these codes and the actions to be taken are described in the table below.
- 3.3 The EA provide four types of warnings, Severe Flood Warning, Flood Warning, Flood Alert and Warning no longer in force:

Online flood risk forecast	 FLOOD ALERT	 FLOOD WARNING	 SEVERE FLOOD WARNING	Warning no longer in force
What it means Be aware. Keep an eye on the weather situation.	What it means Flooding is possible. Be prepared.	What it means Flooding is expected. Immediate action required.	What it means Severe flooding. Danger to life.	What it means No further flooding is currently expected in your area.
When it's used Forecasts of flooding on our website are updated at least once a day.	When it's used Two hours to two days in advance of flooding.	When it's used Half an hour to one day in advance of flooding.	When it's used When flooding poses a significant threat to life.	When it's used When river or sea conditions begin to return to normal.

- 3.4 Further flood advice and information can be found at:
<https://www.gov.uk/check-if-youre-at-risk-of-flooding>
www.environment-agency.gov.uk
- 3.5 This includes the 'Live Flood Warning Map' and the 'Three Day Flood Risk Forecast'.
The Live Flood Warning Map shows the locations where Flood Alerts, Flood Warnings or Severe Flood Warnings are in force.
The Environment Agency issues flood warnings when we expect flooding to occur and is updated with information from the EA flood warning systems every 15 minutes.

3.6 **Flood Alert**

Flooding is possible, all residents will be made aware but evacuation not yet necessary.
Contact **Floodline** on **0345 988 1188** and www.environment-agency.gov.uk



- 'Flood Alert' means flooding of low lying land and roads is expected.
- The EA will issue a Flood Watch status when flooding is possible. This will be issued by the EA through their website and Flood Warning Direct based upon the weather and river conditions.

When a 'Flood Alert' is issued the hotel staff/management will convene and liaise with the relevant local authorities.

The following actions should be also be taken by all staff and guests:

- Be aware of water levels in the River Thames and whether the river is rising or falling.
- Listen to and watch for weather and flood warnings on local radio and TV.
- Make arrangements in case of a need for alternative accommodation, charge phones and prepare other useful equipment to cope with the emergency.

3.7 **Flood Warning**

Flooding is expected, immediate action required, hotel staff will prepare all residents for full evacuation.

Contact **Floodline** on **0345 988 1188** and www.environment-agency.gov.uk



- 'Flood Warning' means flooding is expected at the site.
- When a 'Flood warning' is issued, hotel staff/management will prepare to safeguard the property and prepare to evacuate all occupants from the site via the designated emergency exit routes.

The following actions should be also be taken by the hotel management:

- Contact the local emergency authorities to find out whether evacuation is considered necessary and where they are providing facilities for evacuees.
- Continue to liaise with the local authorities' emergency teams and collect and distribute relevant information from the control and communications centre.

- Hotel staff should locate keys for locking windows and tools for switching off gas and electricity supplies. It will be necessary to switch off utilities and secure unoccupied rooms during evacuation.
- Call the Environment Agency 'Floodline' on 0345 988 1188, check Environment Agency website www.environment-agency.gov.uk periodically and listen to and watch for weather and flood warnings on local radio and television stations.
- If water levels begin to fall without reaching the hotel, hotel staff should continue to monitor the situation.
- Residents should stay alert and be ready to evacuate until the EA issues "Warning no longer in force" status to the area.

3.8 **Severe Flood Warning**

Severe flooding, danger to life, immediately evacuate to a safe location



- 'Severe flood warning' means that severe flooding is expected. There is extreme danger to life and property and people are advised to act immediately and evacuate to a safe location

At this stage the local authority, the emergency services and the Environment Agency should be managing the situation, with widespread flooding potentially over a large area, and will endeavour to provide advice on an evacuation route, shelter and assistance to evacuees.

The Environment Agency aim to provide at least 2 hours warning between the Flood Warning alert being issued and the commencement of flooding.

When a 'Severe Flood warning' is issued all staff and residents should:

- Evacuate when a Flood Warning or Severe Flood Warning status is issued.
- If flood levels continue to rise, residents are advised to evacuate before safe access is lost. At this level driving through flood water may become hazardous and residents must evacuate beforehand.
- Residents should monitor the flood progression and evacuate, on foot as soon as possible.
- The safe access route in times of flood will be clearly marked and signposted and residents should use this route for means of evacuation rather than attempting an alternative route.
- In this instance residents may be advised to stay with the hotel on the upper floors by the relevant authorities.

3.9 Warnings are no longer in force

When an all clear 'Warnings are no longer in force' is issued the hotel staff/management will:

- Contact the local authority to check that it is safe to return to the site.
- The hotel management are aware that if floodwaters have entered the property it will need to be cleaned disinfected and repaired and fully dried out prior to reoccupation.
- The hotel management will check that the building is safe before entering the building, and if there are any doubts professional opinion should be sought.
- If there is any doubt that appliances may be water damaged they must be checked before switching the power or gas back on.
- Keep listening to weather reports.
- Only return to evacuated buildings if you are told it is safe.

3.10 **Safe Refuge and Safe Exit Route**

Listed below are the details of the safe egress routes from the development during the various potential flood scenarios.

Please refer to Appendix B for the Flood Evacuation Route Plan.

- 3.11 Designated escape routes will be established from each active area of the site, with clear signage marking the way to the site assembly point and from there to the site exit. A site layout map showing key locations and information for emergency personnel will be displayed prominently at all entrances to the hotel.

Residents will be able to get information directly from the hotel at the designated information point including a list of emergency telephone numbers a copy of the Flood Emergency Plan.

- 3.12 As it may not be possible to make the site safe from flooding during an extreme event, signs within the hotel will make residents aware of the potential for inundation of the external areas of the site.

If residents choose to remain on site during the flood, safe refuge from flood waters will be available within upper floors of the hotel which is located above the anticipated flood level. However, residents should be aware that once flood waters restrict access to the site, the emergency services may not be able provide assistance or aid.

The hotel will aim to have a constant available stock of sufficient water, food, medical supplies and warm clothing/blankets for a one week (7 day) period to allow adequate time for the flood to recede.

3.13 **Primary Route (Early Warning – Site not inundated)**

It is considered that with the appropriate warning measures in place, the site could be safely evacuated on foot and by vehicle before the main access and egress route from the site was inundated.

The primary early evacuation route would be along onto Ray Park Road and onto Ray Mead Road (A4094) southwards towards the A4 Bridge Road and onwards to public amenities. This routes have a pavement for pedestrians to reach an area completely outside the 100year +cc flood level.

From here it would be advised to head away from the floodplain, west on the A4 towards J9 of the A404 or east on the A4 towards Slough.

3.14 Secondary Route (Flood Inundation)

If at the time of evacuation flood levels do not permit safe exit from the site then the flood evacuation plan will state for all occupants of the building to seek safe refuge on the upper floor levels of the hotel building.

3.15 Important Contacts & Further Information

- Environment Agency Floodline: **0345 988 1188** (24 hrs a day)
- Environment Agency Customer Service line 03708 506 506 (office hours only)
- www.environment-agency.gov.uk/flood
- www.environment-agency.gov.uk/homeandleisure/floods/3days/125305.aspx
- [www.apps.facebook.com/floodalerts](https://www.facebook.com/floodalerts)
- www.metoffice.gov.uk
- www.highways.gov.uk
- Flood Resilience and Resistance Guidance: CIRIA Report C688 (2010. W McBain, D Wilkes, M)



The Thames Hotel

Primary Evacuation Route

Towards J9 of A404 / Maidenhead Train Station

Towards Slough / Taplow Train Station

REV. No.	DATE	DESCRIPTION	INITIALS
Client	MJA CONSULTING CIVIL AND STRUCTURAL ENGINEERS Monarch House, Barton Lane, Abingdon, Oxon, OX14 3NB Tel: 01235 555173 Fax: 01235 523226		
Project	THE THAMES HOTEL		
Title	Early Warning Flood Evacuation Route	Scale	Date
Checked	Drawn	Drawing No.	Rev

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