RAB Consultants

91 High Street, Hampton Wick
Flood Risk Assessment

16 August 2011
Version 1.0
Ref: RAB 291SE

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Revision History

Version	Date	Amendments	Issued to
1.0			

Quality Control

Action	Signature	Date
Prepared	C Haggett	16/08/11
Checked	G Wilson	17/08/11
Approved	R. Burton	18/08/11

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1.0 Introduction

RAB Consultants have prepared this flood risk assessment in support of a redevelopment at 91 High Street, Hampton Wick, KT1 4DG.

Planning Policy Statement 25: Development and Flood Risk (PPS25) requires a flood risk assessment to be carried out to ensure that new development is safe from flooding and will not increase the risk of flooding.

2.0 Site Location

The proposed site is at the (former) Railway Tavern Public House, 91 High Street, Hampton Wick, KT1 4DG in the London Borough of Richmond-upon-Thames, grid reference TQ 174 697 (Appendix A). Access to the site leads directly off the High Street, Hampton Wick.

3.0 Site History and Development Proposals

The site currently consists of a two-story detached property dating from the 19th Century. The building on the site comprises approximately 2,241 square feet (sq.ft) (208 square metres (sq.m)), with a ground floor of approximately 1,036 sq.ft, first floor level of approximately 968 sq.ft, and useable basement space of approximately 237 sq.ft. The ground floor level provides three main trade areas with a central bar together with male and female toilets to the rear. The first floor level provides five habitable rooms, a bathroom, and a separate toilet. There is also a full height basement cellar. There is a small garden at the rear of the property on the site, accessible from a pedestrian right of way at the north side of the premises.

Figure 1: 91 High Street, Hampton Wick

The proposal is to convert the vacant commercial 'Public House' premises to two self-contained dwellings with living space provided on three floors including the basement. One dwelling will be located in the basement, the other on the ground and first floors.

The development falls into the "minor development and change of use" category and as such, the PPS25 Guidelines state that: "applications for minor development and changes of land use should not be subject to the Sequential or Exception Tests but will still have to meet requirements for FRAs and flood risk reduction". As a consequence, a Flood Risk Assessment is presented in this document but this does not include either a Sequential or Exception Test.

The intention to convert the existing basement into a one-bedroom flat places the development into the "highly vulnerable" classification of flood risk as defined in Table D.2 of PPS25. However, there are a number of factors that serve to mitigate the flood risk and these are presented in section 4.5 below.

4.0 Flood Risk

4.1 River Thames

The site is approximately 300m west of the River Thames and is located within Flood Zone 2, assessed as having between a 1% and 0.1% annual probability of river flooding according to the Environment Agency's flood map (Appendix A). There are no raised defences on the River Thames in the vicinity of the site.

Modelled flood levels at cross sections near to the site were obtained from the Environment Agency and are given in Table 1.

Table 1: Modelled flood levels (m AOD) for a range of flood annual probabilities

Node label	20%	5%	1%	1% +CC	0.1%
16.065	5.30	6.07	6.88	7.44	8.06
16.067	5.37	6.19	7.03	7.65	8.34
16.069	5.38	6.19	7.02	7.63	8.31
16.077	5.48	6.27	7.10	7.71	8.41
16.083	5.53	6.31	7.13	7.73	8.43
Floodplain level	n/a	n/a	n/a	n/a	7.97

The basement of the development has an entrance threshold level of 7.656m AOD and the entrance threshold level of the ground floor accommodation is 8.632m AOD. These levels were measured by RAB Consultants on 2 August 2011 and tied to a benchmark located on the railway bridge, Upper Teddington Road, Hampton Wick.

4.2 Climate Change

Climate change must be considered when assessing flood risk. The Environment Agency modelled levels for the Thames (Table 1) take into account the effects of climate change.

Node 16.065 is on the adjacent stretch of the River Thames to 91, High Street making 7.44m AOD, the 1.0% annual probability flood level plus climate change, the most appropriate modelled level to assess flood risk at the site. The modelled floodplain level in the vicinity of the site is 7.97m AOD for the 0.1% annual probability flood.

4.3 Previous Flood History

The owner of the site has no knowledge of fluvial flooding at 91 High Street, Hampton Wick. However, the Environment Agency records show that the area has been affected by flooding on the following occasions: there was flooding between 23 December 2002 and 12 January 2003 and during the Spring of 1947, both resulting in the channel capacity of the River Thames being exceeded. The Flood Event Outlines Map presented in Appendix C, indicates that 91 High Street was not directly affected by fluvial flooding in 2003 and 1947.

Thames Water has indicated that there have been incidents of flooding in the vicinity as a result of surcharging of public sewers but were unable to provide details of specific instances of sewer flooding that directly affected 91 High Street (Appendix D).

4.4 Risk of Flood Defence Breach or Overtopping

The Environment Agency is not able to specify the current standard of protection from flooding but it is understood that there are no formal flood defences protecting this site.

4.5 Recommended Finished Floor Levels

The current ground floor threshold level is 8.632m AOD, which is 1.192m above the 1.0% annual probability plus climate change flood level, but the basement level is approximately 3m below this flood level. However, there are several local factors not accounted for by the existing flood map that significantly reduce the flood risk:

- Flood water from the River Thames would approach the property from the rear. The ground level in the rear garden is 7.785m AOD as opposed to a 1 in 1000 year floodplain level of 7.97m AOD at the site. This means that the flood depth would be just 0.185m for this extreme event. The rear of the property is fully surrounded by brick walls and this forms an effective primary defence against flooding of this magnitude and depth.

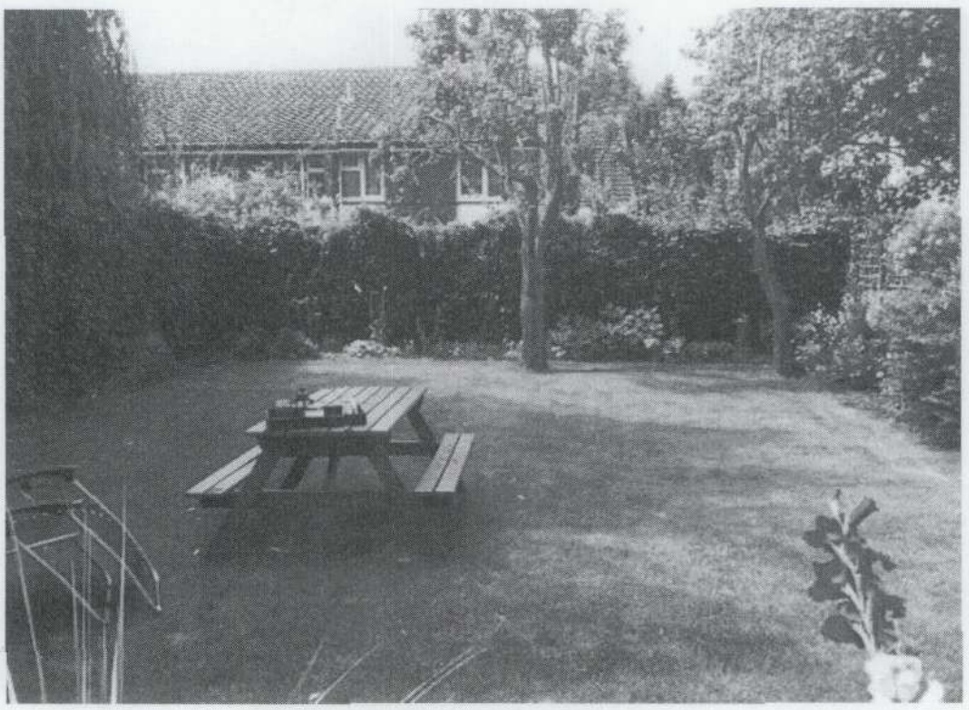

Figure2: Rear Garden and Garden Walls

- The owner is willing to construct a retaining wall around the basement at the rear of the property at 600mm above the 1.0% annual probability plus climate change flood level i.e. 8.04m AOD. This would form an effective secondary flood defence for the site;

- Investigations indicate that the route for flood water from the River Thames is via Old Bridge Street (7.224m AOD), the High Street and then Park Road (7.842m AOD), Hampton Wick. In Park Road, flood water would flow down a slip road (7.285m AOD) into a lower level car park (6.842m AOD). The car park is fully enclosed by buildings and substantial concrete walls. It is likely that flood water would be pounded in this area and would be impeded from flowing north-westwards to the rear of 91 High Street.

Figure 3: Top of Slip Road off Park Road, Hampton Wick

Figure 4: Car Park at Bottom of Slip Road off Park Road

The site is consequently not expected to flood even under the most extreme flood scenario.

It is therefore recommended that floor levels be retained at their current level.

The residual risk can be mitigated by the use of flood resilience in the design of the basement for example electrical sockets and circuitry should be isolated in the basement from the rest of the building, using water resistant plaster, laying floor tiles and fitting non-return valves on drains and water inlet and outlet pipes.

More detailed information regarding flood resilient design can be found at the Environment Agency's website (www.environment-agency.gov.uk) and in 'Improving the flood performance of new buildings' (www.planningportal.gov.uk/uploads/br/flood_performance.pdf).

4.6 Safe Access and Exit

The road level of the High Street, Hampton Wick adjacent to the property is above the 0.1% flood level and therefore safe and dry access will be maintained even during the most extreme flood scenarios. There are, however, low points in the High Street which are subject to flooding under the railway bridge and in the Park Road vicinity. The access/exit route will be therefore along the High Street and via Seymour Road. The entrance/exit route from the basement entrance would to be protected by the retaining wall.

The Environment Agency's flood warning service does cover Hampton Wick but 91 High Street does not fall within the River Thames at Hampton and Hampton Wick Flood Warning Area. As a consequence the Agency cannot offer a flood warning service directly for this property. However, the owner could register 91 High Street as an Area of Interest to the River Thames at Hampton and Hampton Wick Flood Warning Area.

The Environment Agency provides a free flooding information service for this area. The quick dial code is 0845 988 1188 followed by 173121.

The residents of 91 High Street should act in accordance with the Flood Warning and Evacuation Plan contained in Appendix E. The plan should be held and maintained by the residents and should be regularly reviewed and tested.

5.0 Surface Water Runoff

The proposed development would not appreciably increase the impermeable area at the site and as a consequence there will not be an appreciable increase in runoff rate or volume. However, there may be an opportunity for some surface water runoff betterment.

5.1 SUDS – Sustainable Drainage Systems

Paragraph 1.3.2 from the SUDS manual (C697) discusses the SUDS 'management train', which is intended to mimic the natural catchment process as closely as possible. The hierarchy of techniques used to achieve the management train include:

Table 2: Hierarchy of techniques and their descriptions	
Technique	**Description**
Prevention	The use of good site design and housekeeping measures to prevent runoff and pollution (e.g. rainwater harvesting/reuse).
Source control	Control of runoff at or very near its source (e.g. soakaways, porous and pervious surfaces, green roofs).
Site control	Management of water in a local area or site (e.g. routing water to large soakaways, infiltration or detention basins).
Regional control	Management of runoff from a site or several sites (e.g. balancing ponds, wetlands).

Due to the scope of the development, there is very limited potential for the application of SUDS approach. Regional, site and source control techniques are not considered to be applicable, however prevention techniques are thought to offer some surface water betterment.

Table 3: Feasibility of Techniques at the Proposed Site		
Technique	**Issues**	**Feasible? Y/N**
Prevention		
Good site design and housekeeping / rainwater harvesting.	Water butts could be considered for rainwater collection from the rooftop for use with cleaning operations or irrigation of plants.	Y
Source Control		
Porous and pervious materials / soakaways / green roof.	There is no opportunity to use porous and pervious materials with the proposed development. The use of a green roof would not be in keeping with the surrounding area and is likely to be prohibitively expensive for this type of development.	N
Site and Regional Control		
Infiltration / detention basins / balancing ponds / wetlands / swales / retention ponds.	The scope of the development is too small for these techniques	N

In summary, there is a limited potential to use SUDS techniques for this development. Consideration should be given to the use of water butts. The

proposed redevelopment at the site will not appreciably increase the rate or volume of surface water runoff. There is likely to be a small reduction with the use of the above technique.

6.0 Conclusion

The proposed site at 91, High Street, Hampton Wick falls within flood zone 2. It is proposed to redevelop the existing building creating two dwellings – one of which will be located in the existing basement.

The main source of flooding at the site is from the River Thames. There are no raised flood defences on the River Thames in the vicinity of Hampton Wick. The Hampton Wick area has been subject to fluvial flooding in 2003 and 1947 but 91 High Street was not directly affected. There have been instances of flooding as a result of surcharging sewers in the area but again, no record of the property being directly affected.

The development will not appreciably increase surface water runoff rate or volume from the site.

Although the construction of a one-bedroomed flat in the basement places the development into the "highly vulnerable" classification for flood risk, there are several factors serving to mitigating the flood risk.

Flood levels for a 0.1% event are calculated to be just 0.185m at the rear of the property. A brick wall around the rear garden forms an effective defence for a flood of this depth. This primary defence should be supplemented by a secondary defence in the form of a new retaining wall around the rear of the basement. In addition, it is doubtful whether flood water would actually reach 91 High Street due to the configuration of buildings along the flood route from the River Thames.

It can be concluded therefore that the proposed development is appropriate for the level of flood risk.

7.0 Recommendations

The following actions are recommended:

- Maintain the floor levels at existing.
- Construct a water resistant retaining wall around the basement at the rear of the property to be set 600mm above the 1.0% annual probability plus climate change flood level i.e. 8.04m AOD.
- The basement should be tanked to prevent the ingress of groundwater.
- A flood resilient design should be included in the design of the basement for example electrical sockets and circuitry should be

isolated in the basement from the rest of the building, using water resistant plaster, laying floor tiles and fitting non-return valves on drains and water inlet and outlet pipes;

- Residents will sign up for the Environment Agency's Flood Warning Service and register the property as an Area of Interest.
- Residents must maintain and review the Flood Warning and Evacuation Plan set out in Appendix E.

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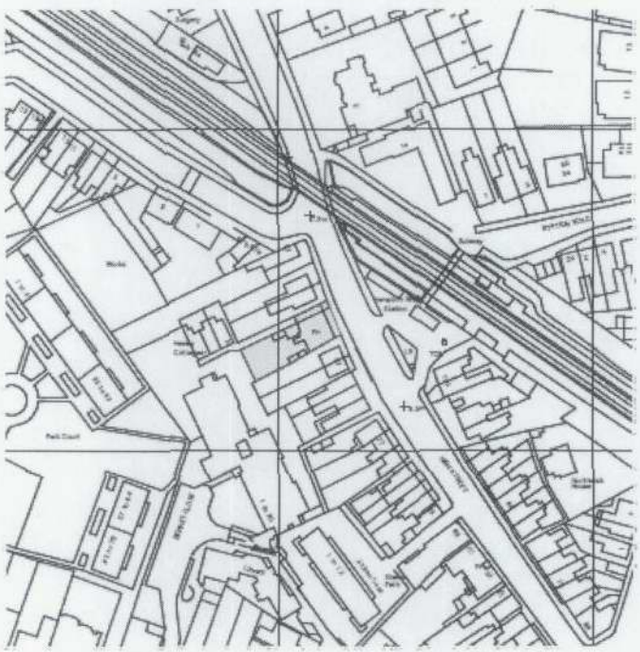
Appendix A – Location Plan and Flood Map



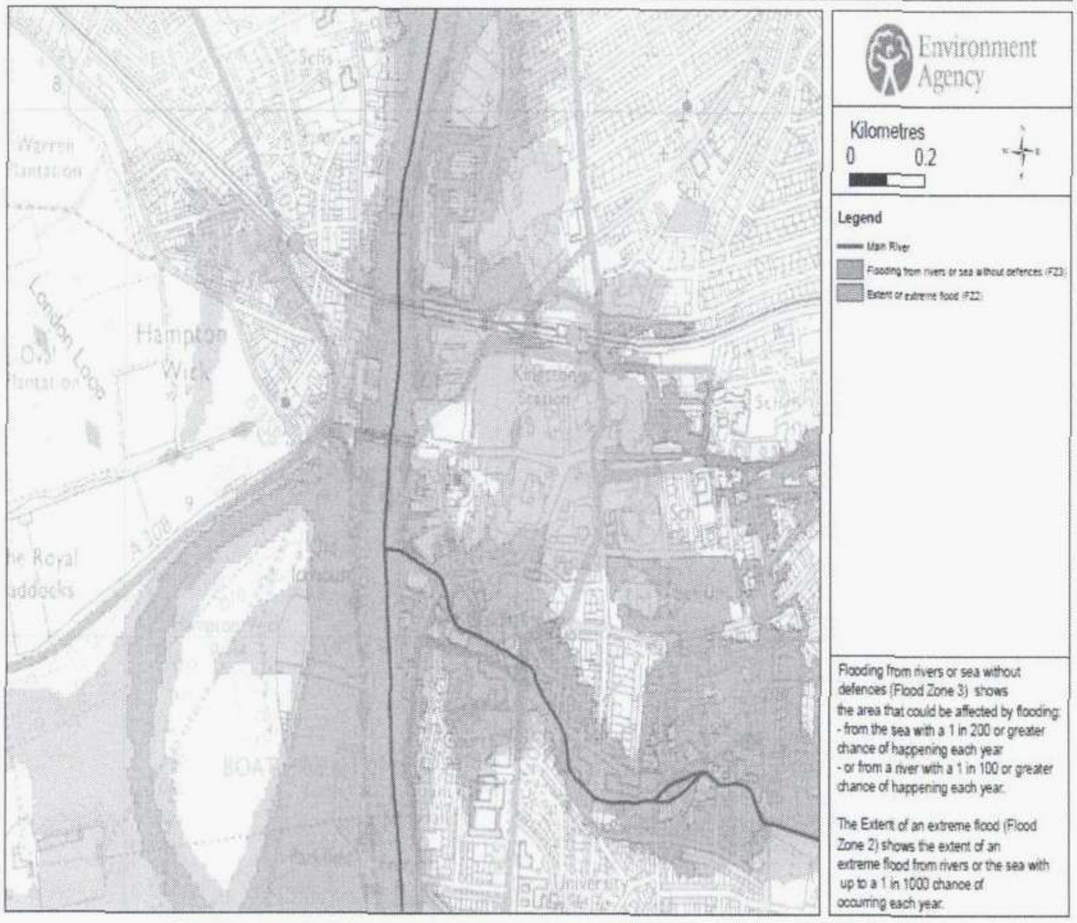
client
Mr & Mrs Waller

Michael Jones Architects
129 kew road richmond tw9 2ps tel 020 8948 1862
fax 020 8948 4069 info@mjarchitects.co.uk

job title
Railway Public House

drawing title
Site Location Plan

Flood Map for High Street, Hampton Wick - created 9 August 2011 REF: WT001500



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Appendix B – Development Proposals

Site Description & Context

The Local Planning Authority is London Borough of Richmond upon Thames.

As shown on the photograph below, the building on site is a distinctive two-storey detached property dating from the19th Century. Despite minor extensions and outbuildings, the property has changed little in recent years.

The building on the site comprises approximately 2,241 square feet (sq.ft) (208 square metres (sq.m)), with a ground floor of approximately 1,036 sq.ft, first floor level of approximately 968 sq.ft, and useable basement space of approximately 237 sq.ft. The ground floor level provides three main trade areas with a central bar together with male and female toilets to the rear. The first floor level provides five habitable rooms, a bathroom, and a separate toilet. There is also a full height basement cellar.

There is a small garden at the rear of the property on the site, accessible from a pedestrian right of way at the north side of the premises.

The total site comprises approximately 0.08 acres.

Site Designations

The building on the site is classified as a Building of Townscape Merit (BTM), with the site designated within a Conservation Area and Mixed-Use Area. On the Environment Agency's online website, extract below, the Site lies within a floodplain. The area is likely to be affected by a major flood, with up to a 0.1 per cent (1 in 1,000) chance of occurring each year (Flood Zone 2).

Proposal

Full Planning Application (Reference: 11/1596/FUL) is for the conversion of the vacant commercial 'Public House' premises (Use Class A4: Drinking Establishment) to two self-contained flats (Use Class C3: Dwelling Houses), including minor alterations to the rear elevation. The application is currently on-hold pending the submission of additional supporting information regarding flood risk.

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Appendix C – Correspondence from Environment Agency

Environment Agency

Claire Wilenchik
RAB Consultants Ltd
Lichfield Business Village
The Friary
Lichfield
Staffordshire
WS13 6QG

Our ref: WT/001500
Your ref:

Date: Wednesday 10 August 2011

Dear Claire

Provision of Product 4 for The (former) Railway Tavern Public House, 91 High Street, Hampton Wick KT1 4DG

Thank you for your request of 22 July to use Environment Agency data, Product 4, in the development of the FRA for The (former) Railway Tavern Public House, Hampton Wick. The information is attached.

If you have requested this information to help inform a development proposal, then you should note the detail in the attached advisory text on the use of Environment Agency Information for Flood Risk Assessments / Flood Consequence Assessments.

Flood Warnings Information

- Floodline Warnings Direct does cover Hampton Wick but this particular property doesn't fall within the River Thames at Hampton and Hampton Wick Flood Warning area so we can't offer a flood warning service directly for this property.
- The property does however fall within Flood Zone 2 (the extent of the flood from rivers or the sea with a 1000 to 1 chance of flooding in any year).
- You could register as an Area of Interest to the River Thames at Hampton and Hampton Wick Flood Warning area if you wish.
- The Floodline quickdial code is: 173121
- The contact number for Floodline is 0845 988 1188

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

- With regards to the Flood Warning lead time, our customer charter states that we will provide main river flood warnings at least two hours before flooding happens in areas where we are able to provide a service.

This information is provided subject to the enclosed Standard Notice, which you should read.

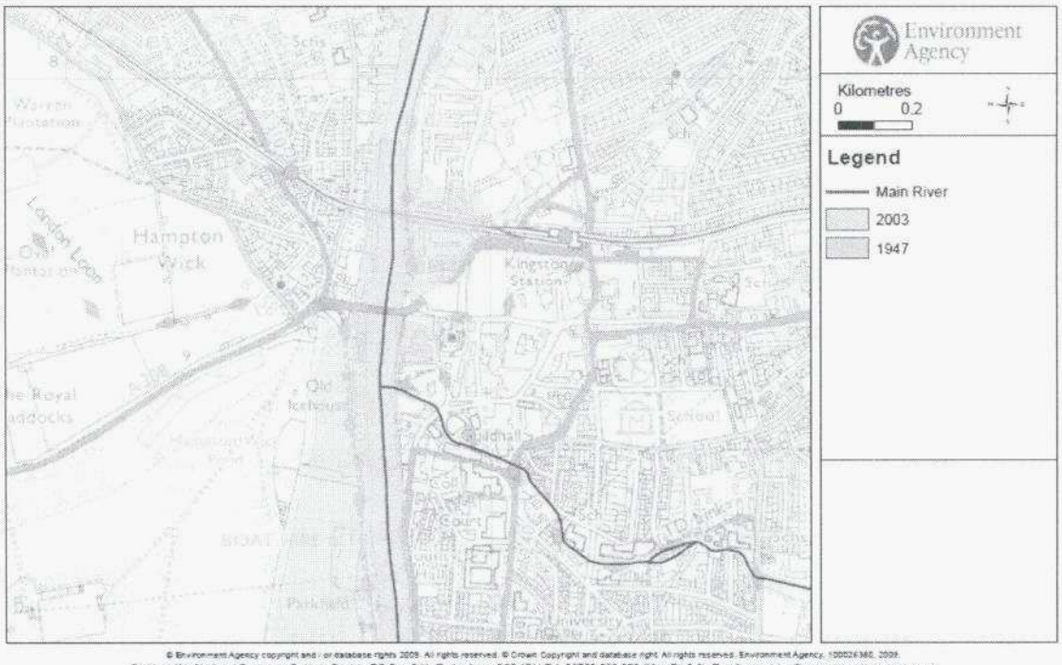
If you have any queries or would like to discuss the content of this letter further please contact me.

Yours sincerely

Dawn Cooper
External Relations Officer
Direct dial 01276 454796
Direct e-mail wtenquiries@environment-agency.gov.uk

Enc. Detailed FRA/FCA Map / Standard Notice

Flood Event Outlines Map for High Street, Hampton Wick - created 9 August 2011 REF: WT001500



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Appendix D – Correspondence from Thames Water

Sewer Flooding

History Enquiry

Thames Water

Thames Water Property Insight
12
Vastern Road
Reading
RG1 8DB

Search address supplied	91 High Street Hampton Wick KT1 4DG
Your reference	N/A
Our reference	SFH_SFH Standard_2011_2058647
Search date	**04 August 2011**

Thames Water Utilities Ltd

Property Insight
PO Box 3189
Slough SL1 4WW

DX 151280 Slough 13

T 0118 925 1504
F 0118 923 6655/57
E searches@thameswater.co.uk
I www.twpropertyinsight.co.uk

Registered in England and Wales
No. 2366661, Registered office
Clearwater Court, Vastern Road
Reading RG1 8DB

Sewer Flooding
History Enquiry

Thames Water

Search address supplied: 91, High Street, Hampton Wick, KT1 4DG

This search is recommended to check for any sewer flooding in a specific address or area

TWUL, trading as Property Insight, are responsible in respect of the following: -

(i) any negligent or incorrect entry in the records searched;

(ii) any negligent or incorrect interpretation of the records searched;

(iii) and any negligent or incorrect recording of that interpretation in the search report

(iv) compensation payments

Thames Water Utilities Ltd

Property Insight
PO Box 3189
Slough SL1 4WW

DX 151280 Slough 13

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E searches@thameswater.co.uk
I www.twpropertyinsight.co.uk

Registered in England and Wales
No. 2366661, Registered office
Clearwater Court, Vastern Road
Reading RG1 8DB

Sewer Flooding

History Enquiry

Thames Water

History of Sewer Flooding

Is the requested address or area at risk of flooding due to overloaded public sewers?

The flooding records held by Thames Water indicate that there have been incidents of flooding in the requested area as a result of surcharging public sewers.

Although Thames Water may have records of sewer flooding within the area, the details of the effect of this flooding on individual properties should be obtained from the current owners. This should include flooding from watercourses and highway drains, neither, of which are the responsibility of Thames Water.

For your guidance:

- A sewer is "overloaded" when the flow from a storm is unable to pass through it due to a permanent problem (e.g. flat gradient, small diameter). Flooding as a result of temporary problems such as blockages, siltation, collapses and equipment or operational failures are excluded.
- "Internal flooding" from public sewers is defined as flooding, which enters a building or passes below a suspended floor. For reporting purposes, buildings are restricted to those normally occupied and used for residential, public, commercial, business or industrial purposes.
- "At Risk" properties are those that the water company is required to include in the Regulatory Register that is presented annually to the Director General of Water Services. These are defined as properties that have suffered, or are likely to suffer, internal flooding from public foul, combined or surface water sewers due to overloading of the sewerage system more frequently than the relevant reference period (either once or twice in ten years) as determined by the Company's reporting procedure.
- Flooding as a result of storm events proven to be exceptional and beyond the reference period of one in ten years are not included on the At Risk Register.
- Properties may be at risk of flooding but not included on the Register where flooding incidents have not been reported to the Company.
- Public Sewers are defined as those for which the Company holds statutory responsibility under the Water Industry Act 1991.
- It should be noted that flooding can occur from private sewers and drains which are not the responsibility of the Company. This report excludes flooding from private sewers and drains and the Company makes no comment upon this matter.
- For further information please contact Thames Water on Tel: 0845 9200 800 or website www.thameswater.co.uk

Thames Water Utilities Ltd

Property Insight
PO Box 3189
Slough SL1 4WW

DX 151280 Slough 13

T 0118 925 1504
F 0118 923 6655/57
E searches@thameswater.co.uk
I www.twpropertyinsight.co.uk

Registered in England and Wales
No. 2366661, Registered office
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Reading RG1 8DB

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Appendix E – Flood Warning and Evacuation Plan

Flood Risk

91 High Street, Hampton Wick is approximately 300m west of the River Thames and is located within Flood Zone 2, assessed as having between a 1 in 100 and 1 in 1000 annual probability of river flooding (1% – 0.1%) according to the Environment Agency's flood map (Appendix A).

How Flood Warnings will be provided

The Environment Agency provides a free flood warning dissemination service "Floodline Warnings Direct" for the Hampton Wick area, which offers a 2 hour flood warning lead time. However, 91 High Street does not fall within the Hampton and Hampton Wick Flood Warning Area and as such, the Environment Agency cannot offer a flood warning service directly for this property. The owner of the property could register as an Area of Interest to the River Thames at Hampton and Hampton Wick Flood Warning Areas and the owner should contact the Environment Agency to register for this service by calling 0845 988 1188.

When concerned about potential flooding, the owner should call Floodline on 0845 988 1188 where an option to type in a quick-dial code for the relevant warning area will be given. For 91 High Street the quick-dial number is 173121. This will give an automated response regarding any flood warnings that may have been issued for this area. If the owner wishes to speak to someone about flooding in relation to 91 High Street, he/she needs to state that the property lies in the River Thames, Hampton and Hampton Wick Flood Warning Area.

The owner of 91 High Street will be able to choose how they are contacted by the Environment Agency in the event of a flood, such as an automated telephone call, fax or email.

The Environment Agency use flood warning codes, four in total, and each with specific public information / advice relating to it:

FLOOD ALERT

Definition: *Flooding of low lying land and roads expected.*

What this means for 91 High Street, Hampton Wick

The River Thames is rising and flooding of low lying areas close to the river is possible. The risk of flooding at 91 High Street is very low.

What to do:

- Monitor local news and weather forecasts.
- Be aware of water levels near you.
- Call Floodline on 0845 988 1188.

FLOOD WARNING
FLOODING IS EXPECTED. IMMEDIATE ACTION REQUIRED

FLOOD WARNING

Definition: *Flooding of homes and businesses is expected. Act Now!*

What this means for 91 High Street, Hampton Wick.

The River Thames is still rising, flooding of property is likely in low lying, vulnerable areas. The risk of flooding at 91 High Street is low.

What to do:

- Monitor local news and weather forecasts.
- Be aware of water levels near you.
- Call Floodline on 0845 988 1188.

SEVERE FLOOD WARNING

SEVERE FLOODING.
DANGER TO LIFE.

SEVERE FLOOD WARNING

Definition: *Act now! Severe flooding is expected with extreme danger to life and property.*

What this means for 91 High Street, Hampton Wick

The River Thames is still rising, widespread flooding of property is expected. There is a risk of flooding in Hampton Wick, including 91 High Street.

What to do:

- Ring Floodline and monitor water levels.
- Be prepared to evacuate the property.
- Turn off gas, electricity and water supplies if it is safe to do so.

- Stay in a high place with means of an escape.
- Consider moving valuable items to a higher area within the property if water threatens to enter the hall.
- Avoid walking or driving through flood water.
- In danger call 999 immediately.
- Listen to emergency services.

ALL CLEAR

Definition: *No further flooding is expected. Water levels will start to go down.*

What to do:

- Keep listening to the weather reports.
- Only return to evacuated buildings if you are told it is safe.
- Beware of sharp objects and pollution in flood water.
- If your property or belongings are damaged, contact your insurance company. Ask their advice before starting to clean up.

Emergency Flood Plan for 91 High Street, Hampton Wick

A list of useful telephone numbers:	**Environment Agency:**	
	Floodline	0845 988 1188
	Environment Agency – General Enquires	(08708) 506506
	Emergency Services:	
	London Fire Brigade	020 8555 1200
	Metropolitan Police	101
	London Ambulance Service	020 3069 0240

Personal numbers (for residents to include):	(In an emergency, dial 999)	
	London Borough of Richmond	08456 122 660 or 020 8744 2442
	Insurance Company	
	Neighbours	
A Flood Kit: (This should be collected and stored in a place where it can be easily accessed).	This should include: Any key documents (accounts, insurance details, etc) Torch (with spare batteries), Battery or wind-up radio, A mobile phone (with the useful telephone numbers already stored and a full battery), Rubber gloves, Wellington boots, Waterproof clothing, First aid kit, Blankets.	
Medication:	Does anyone need regular medication?	
Valuable and sentimental belongings:	Get into the habit of storing these in a high place	
Flood boards / sandbags:	Have a few flood boards and sandbags prepared to block doorways and airbricks.	
Gas, Electricity and Water:	Ensure that you know how to turn these off, be aware that you may need to do this in the dark.	

Motor Vehicles:	Is there anywhere that the vehicle(s) could be stored (a garage?) so that they do not cause any damage if they are moved by flood waters?
Evacuation:	If flooding is severe, you may be evacuated. Think about what you need to take with you. Make provisions for your pets.
DON'T WAIT FOR A FLOOD TO SEE IF YOUR FLOOD PLAN WORKS, TEST IT NOW!	