BASEMENT IMPACT ASSESSMENT
SCREENING REPORT

FOR

PROPOSED DEVELOPMENT

AT

60 FROGNAL
LONDON
NW3 6XG

FOR

MRS NATALIE CHESTER

Project No. P1872

Issue Date: January 2013
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CONTENTS

1.00 INTRODUCTION

1.01 Michael Alexander Consulting Engineers has been appointed to prepare a Basement Screening Report to support the Planning Application for the extension and modifications to the existing house at 60 Frognal, London NW3 6XG.

1.02 This report has been prepared by Aidan Rivett-Carnac BEng CEng MIStructE and reviewed by Isaac Hudson MEng MA(Cantab) CEng MIStructE, both Chartered Structural Engineers.

1.03 The proposed works involve a lower ground floor extension of the existing undercroft area under the existing ground floor terrace at the rear of the property, together with internal modifications and above ground extensions.

1.04 The existing property is a detached dwelling dating from the mid 20th century. The house comprises living areas at lower ground floor and ground floor and bedroom accommodation at the first and second floor levels. The external walls are constructed from solid masonry and the internal walls are a combination of masonry and load bearing timber stud walls. The upper floors and the roof are of timber construction. The house was remodelled and extended in 2006, including a basement extension and lightwell to the South East corner.

1.05 The property is located within the Hampstead Conservation Area.

1.06 The property is not a Listed building.

1.07 The majority of properties along Frognal are four storey residential detached properties - refer to photos in Appendix C.

It is unclear exactly how many properties nearby have basements, but with reference to Figure 25 of the Camden Geological, Hydrogeological and Hydrological Study (Camden Planning Applications), there seems to be several basement applications to the north of the site which have been given approval since June 2005.

It is noted that there is a recently constructed basement extension to number 62 Frognal which is the neighbouring property to the north of number 60 Frognal.

1.08 This document addresses the specific key issues in DP27 as described in Camden Planning Guidance CPG 4 (April 2011) in terms of the screening exercise.

2.00 BASEMENT PROPOSALS

2.01 The details of the existing building and proposals for the basement and upper floors are shown on Charlton Brown Architects drawings, as follows:-

1163/AP01 – Proposed Site Plan
1163/AP02 – Proposed Plans
1163/AP03 – Proposed Elevations
1163/S01 – Existing Site Plan
1163/S02 – Existing Plans
1163/S03 – Existing Elevations

2.02 The new basement will extend into the existing undercroft below the ground floor terrace at the North East of the property.

2.03 The new basement will be approximately 2.7m below ground where it joins the existing basement, but only 1.5m below ground at the garden end due to the existing topography. The top of the basement extension is therefore at the same level as the existing ground floor garden terrace.

2.04 The rear wall of the extended basement is therefore partially above ground.

2.05 The details of the existing structure, site boundaries and site soil conditions will be subject to further detailed exploratory work, prior to works commencing on site.

2.06 The design and construction of the building structure will be in accordance with current Building Regulations, British Standards, Codes of Practice, Health and Safety requirements and good building practice.

3.00 GROUNDWATER

3.01 STAGE 1 (SCREENING)

3.01.1 The impact of the proposed development on ground water flows is considered here as outlined in Camden Planning Guidance CPG 4 (April 2011). The references are to the screening chart Figure 1 in CPG4.

3.01.2 (Q1) With reference to the Camden Geological, Hydrogeological and Hydrological Study (Figure (a) in Appendix A) the site is above a secondary aquifer.

3.01.3 (Q1b) The water table surface recorded on a nearby site was found to vary between 2 and 6 metres below ground level. The new basement may therefore slightly extend beneath the water table surface, however there is no evidence of water ingress in the existing basement or lightwells which are at similar depths.

3.01.4 (Q2) With reference to the Camden Geological, Hydrogeological and Hydrological Study, (Refer Figures (b) and (c) in Appendix A), the nearest watercourse is a head stream of the Westbourne River which is located to the east side of Frognal. The local geology suggests that the site is located near to a spring line but this is further downhill from the site.

From the British Geological Society 'Geoindex' the nearest water well is adjacent to Hampstead High Street approximately 500m from the site.

3.01.5 (Q3) With reference to the Camden Geological, Hydrogeological and Hydrological Study, the site is not within the catchment of the pond chains on Hampstead, nor the Golder's Hill Chain.

3.01.6 (Q4) With reference to figure (k) and (l), there will be no difference between the existing and proposed surface permeability. Therefore there will be no impact on the change in proportion of hard landscaped areas.

3.01.7 (Q5) Soakaways are not considered appropriate to the site, due to the sub-soil conditions, and therefore no collected surface water will be discharged to ground as part of the site drainage.

3.01.8 (Q6) There are no local ponds or other surface water features in close vicinity to the site.

3.01.9 On the basis of items 3.01.1 to 3.01.8 above, and in reference to Figure 1 of CPG4, the aspects to be highlighted in respect of ground water are:

- The site being above a secondary aquifer (Q1a)
- The potential for the basement extending below the water table (Q1b)
- The site being near to a spring line, albeit uphill from it. (Q2)

The level of groundwater will be determined by installing a standpipe to establish the water table levels at the site.

4.0 GROUND STABILITY

4.01 STAGE 1 (SCREENING)

4.01.1 The impact of the proposed development on land stability is considered here as outlined in Camden Planning Guidance CPG 4 (April 2011). The references are to the screening chart figure 2 in CPG4.

4.01.2 (Q1) The site slopes north-south and west–east by approximately 2 degrees and therefore there are no slopes within the site that are natural or manmade greater than 7 degrees.

4.01.3 (Q2) The surrounding land will generally remain at existing slopes in the permanent condition.

4.01.4 (Q3) With reference to the Camden Geological, Hydrogeological and Hydrological Study, (Refer Figure (i) in Appendix A), the neighbouring properties have slopes of less than 7 degrees.

4.01.5 (Q4) The surrounding areas slope towards the south-east of the site. With reference to the Camden Geological, Hydrogeological and Hydrological Study (Refer Figure (i) in Appendix A), the closest site with a slope greater than 7 degrees is located to the east, around 50m from the site. However, with reference to the local topography (Refer Figure (m) in Appendix A) this area is at a similar or lower level to the proposed basement and hence the basement construction could not lead to slope instability within the wider hill setting.

4.01.6 (Q5) The underlying soil strata is the Claygate Member, and with reference to Camden Geological, Hydrogeological and Hydrological Study (refer figure (e) and in Appendix A), the stratigraphic boundary with the London Clay is approximately 90m to the south of the site.

4.01.7 (Q6) All trees of significant size within the site will be retained and therefore no significant trees will be felled as part of the proposed works as referred to on Charlton Brown's drawing numbers 1163/AP01 and 1163/S01.

4.01.8 (Q7) The Claygate member strata is generally considered to have medium volume change potential, although this can vary depending on the silt and sand content of the upper strata. There is therefore a risk of buildings founded in the Claygate member experiencing seasonal shrink-swell subsidence, although this risk is significantly lower than for buildings founded in London Clay.

4.01.9 (Q8), (Q11) With reference to the Camden Geological, Hydrogeological and Hydrological Study, (refer Figures (b) and (c) in Appendix A), the nearest surface water is the pond located adjacent to Heath Street, which is noted approximately 800m to the north of the site.

The site is remote from the Hampstead and Golders Hill Chain Catchments. With reference to the Camden Geological, Hydrogeological and Hydrological Study, (refer Figures (a) in Appendix A) the local geology suggests the site is approximately 80m from a spring line. The potential spring line is however downhill from the site so should not impact on its hydrology.

4.01.10 (Q9) The site is not in the vicinity of any recorded areas of worked ground. With

reference to the Camden Geological, Hydrogeological and Hydrological Study (Refer figure (e) in Appendix A) the nearest recorded on the geological map is located to the north of Finchley Road approximately 470m from the site.

4.01.11 (Q10) With reference to the Camden Geological, Hydrogeological and Hydrological Study (Refer figure (a) in Appendix A) the site is above a secondary aquifer.

4.01.12 (Q12) The closest the new excavation from the pedestrian pathway is approximately 10m.

4.01.13 (Q13) The new basement extends beyond the line of the rear wall of the neighbouring property at number 62 Frognal, which is approximately 4 metres away. There is a relatively recently constructed basement in the rear garden of number 62 Frognal and therefore the depth of the proposed basement at number 60 Frognal will be at a similar or lesser depth than the basement of number 62. Therefore it will not be necessary to consider the differential depth of foundations between the two properties.

4.01.14 (Q14) With reference to Open Street Map (Refer figure (d) in Appendix A), there are no National Rail tunnels located below the site. The nearest rail tunnel is the National Rail line approximately 350m to the south of the site. The Northern Line runs approximately 400m to the north-east of the site.

4.01.15 On the basis of items 4.01.1 to 4.01.14 above and in reference to Figure 2 of CPG4, the aspects that should be highlighted in respect of land stability are:

- The impact of the site being within a wider hillside setting (Q4)
- The site being adjacent to a spring line (Q8)
- The site being above a secondary aquifer (Q10)

It is not considered necessary to consider further the other issues in the screening stage where a negative response was given.

4.01.16 The issues raised above will need to be addressed by:

- Site investigations to determine site specific soil conditions and the depth of existing foundations

- Groundwater monitoring and/or trial excavations to determine the level of the water table locally.

These processes will need to occur in due course in order to develop the design and produce construction information; and to meet the requirements of building control and in the preparation of Party Wall Awards with the adjoining owners.

5.0 SURFACE FLOW AND FLOODING

5.01 STAGE 1 ASSESSMENT (SCREENING)

5.01.1 The impact of the proposed development on the surface water environment and whether a flood risk assessment is required is considered here as outlined in Camden Planning Guidance CPG 4 (April 2011). The references are to the screening chart figure 3 in CPG4.

5.01.2 (Q1) With reference to the Camden Geological, Hydrogeological and Hydrological Study, the site is not within the catchment of the pond chains in Hampstead, nor the Golder's Hill Chain.

5.01.3 (Q2) On completion of the development the surface water flows will be routed similarly to the existing condition, with rainwater run-off collected in a surface water drainage system and discharged to a combined sewer.

5.01.4 (Q3) With reference to figure (k) and (l), there will be virtually no difference between the existing and proposed surface permeability, apart from 3.5m² for the new staircase which will be added to the rear. It is assumed that the stair will be free draining onto the surrounding soft landscaped areas. Therefore there will be no impact on the change in proportion of hard landscaped areas.

5.01.5 (Q4) All surface water for the site will be contained within the site boundaries and collected as described in 5.01.3 above; hence there will be no change from the development on the quantity or quality of surface water being received by adjoining sites.

5.01.6 (Q5) The surface water quality will not be affected by the development, as in the permanent condition surface water will be collected and discharged to the public sewer.

5.01.7 On the basis of 5.01.1 to 5.01.6 above, with reference to figure 3 in CPG4, it is not considered necessary to consider further any aspects of the development in respect of surface flow and flooding, due to the negative responses above.

5.01.8 (Q6) Frognal is not listed as a street at risk of surface water flooding within the table in Camden Planning Guidance CPG 4 (April 2011). However it is one of the streets highlighted as having been affected by the 2002 floods on the sewer flood map included in theCamden Geological, Hydrogeological and Hydrological Study (refer figure (f) in Appendix A).

The Thames Water Sewer Flooding records (refer Appendix B) do not record any history of sewer flooding for the property. Furthermore the Thames Water asset search shows that adjacent to the property the sewers are 6-7m below street level and hence significantly below the proposed basement level. Hence it is concluded that the site is unlikely to have been affected by the 2002 floods.

5.01.9 From reference to the EA Rivers and Sea Flood Maps (Refer figure (g) in Appendix A), the site is not located within a flood risk zone. The EA Reservoir flood map (Refer figure (h) in Appendix A), shows that the site is not at risk of flooding from reservoirs.

APPENDIX A

FIGURES

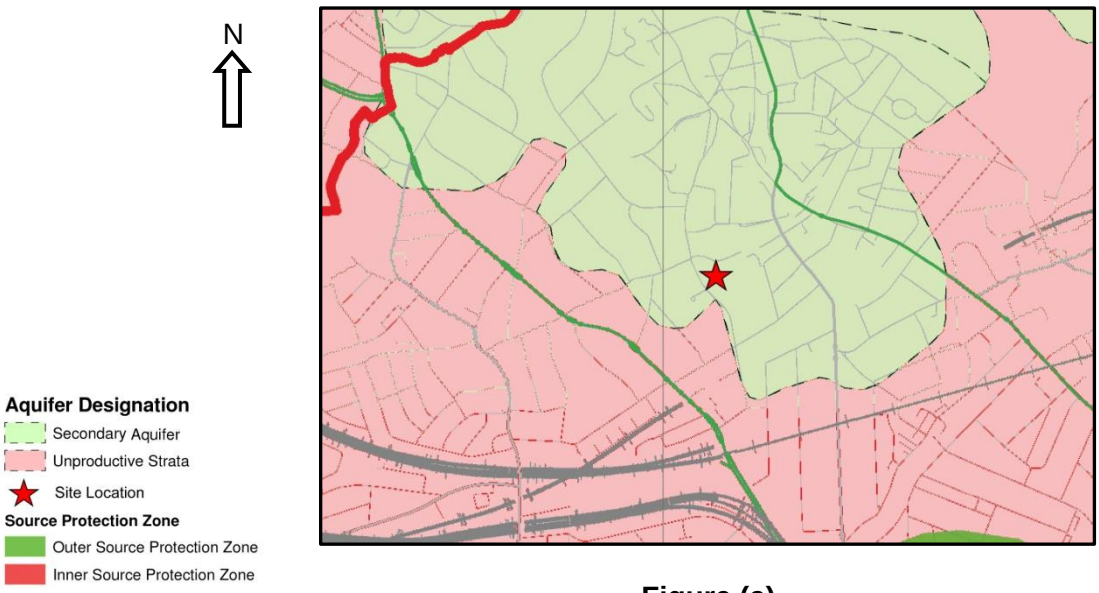


Figure (a)
Acquifer Designation Map
(Extract from Fig 8 of Camden Geological, Hydrogeological and Hydrological Study)

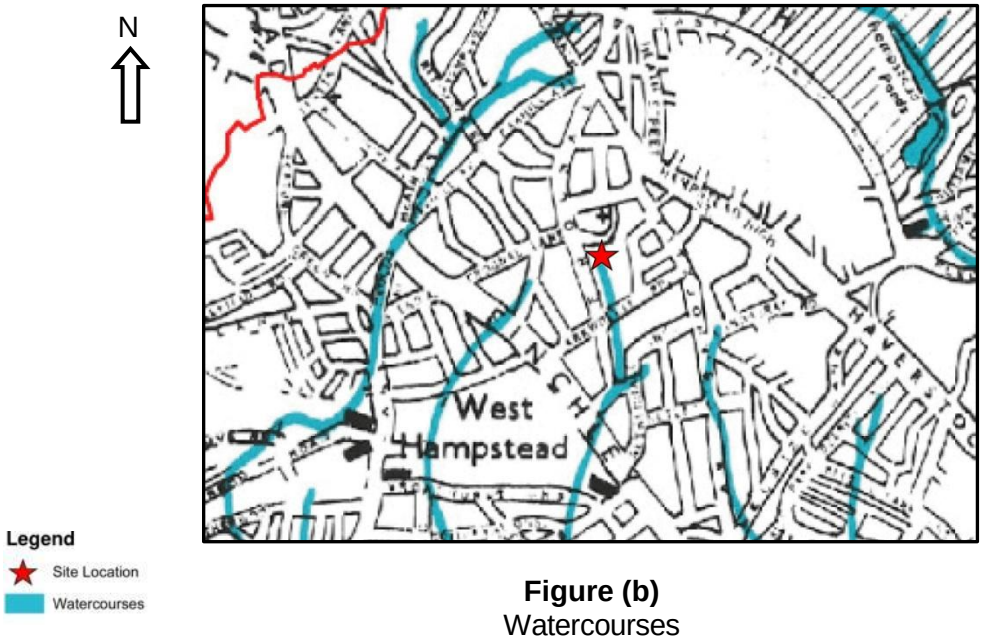


Figure (b)
Watercourses
(Extract from Fig 11 of Camden Geological, Hydrogeological and Hydrological Study)

Figure (c)
Surface Water Features
(Extract from Fig 12 of Camden Geological, Hydrogeological and Hydrological Study)

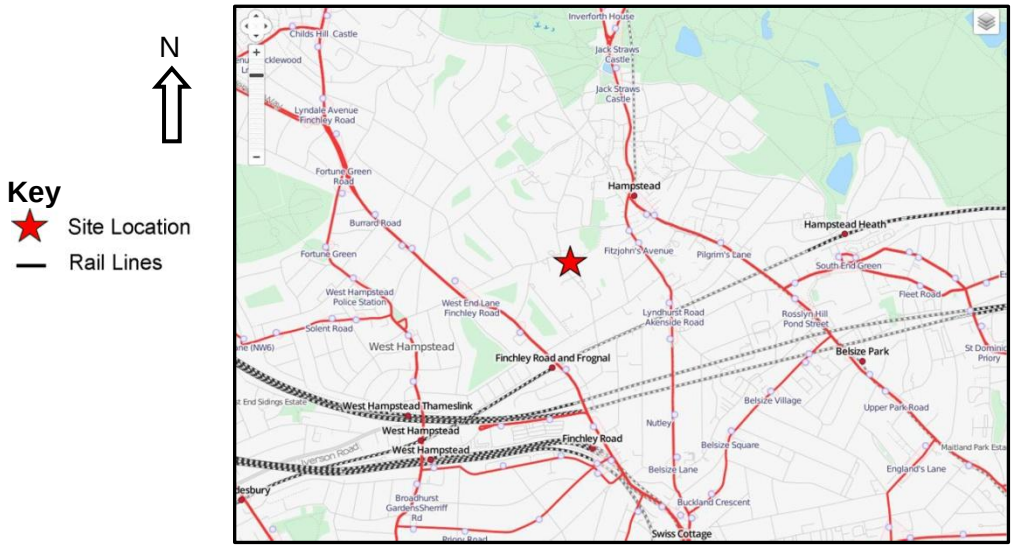


Figure (d)
Map of local transport infrastructure
(Extract from Open Street Map)

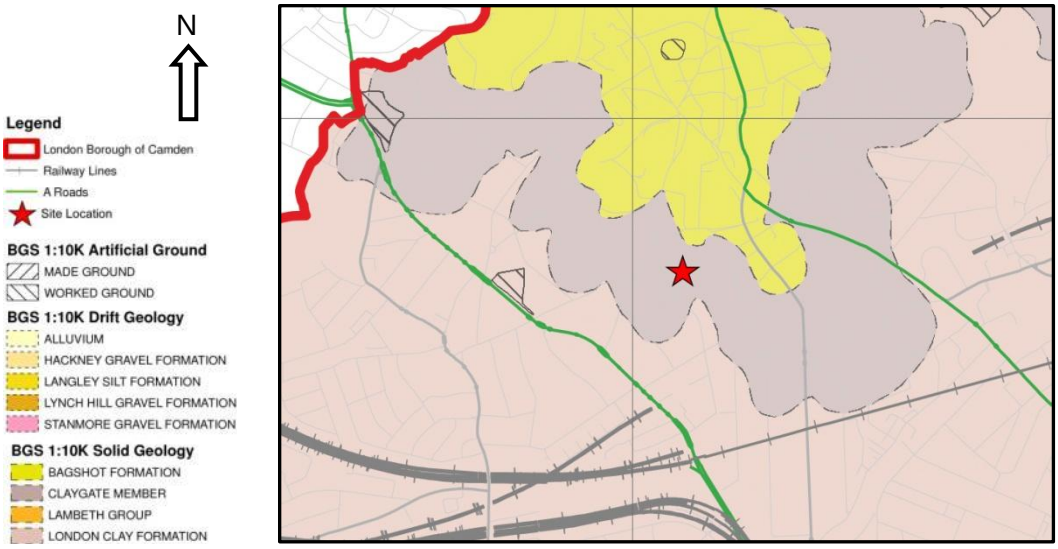


Figure (e)
Geological Map
(Extract from Fig 4 of Camden Geological, Hydrogeological and Hydrological Study)

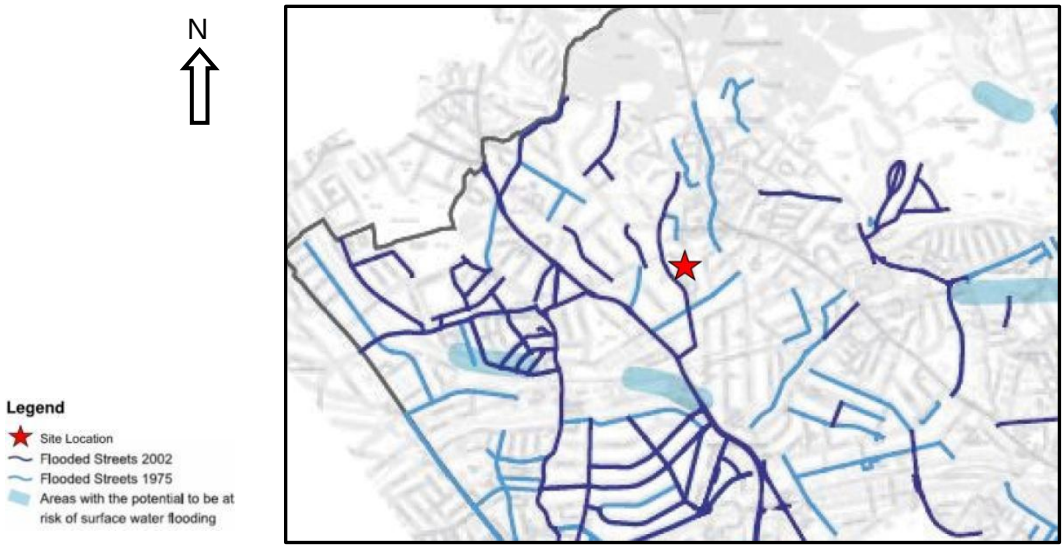


Figure (f)
Sewer Flood Map
(Extract from Figure 15 of Camden Geological, Hydrogeological and Hydrological Study)

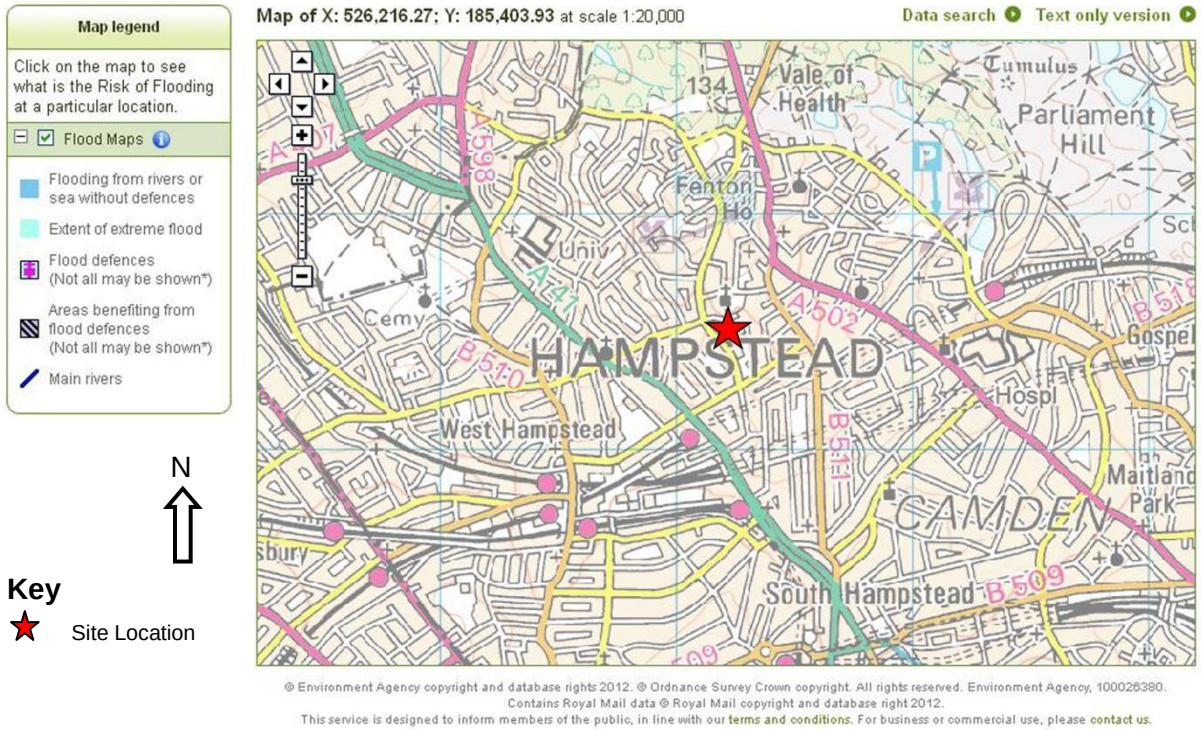


Figure (g)
Areas at Risk of Flooding from Rivers or Sea
(Extract from Environment Agency flood map)

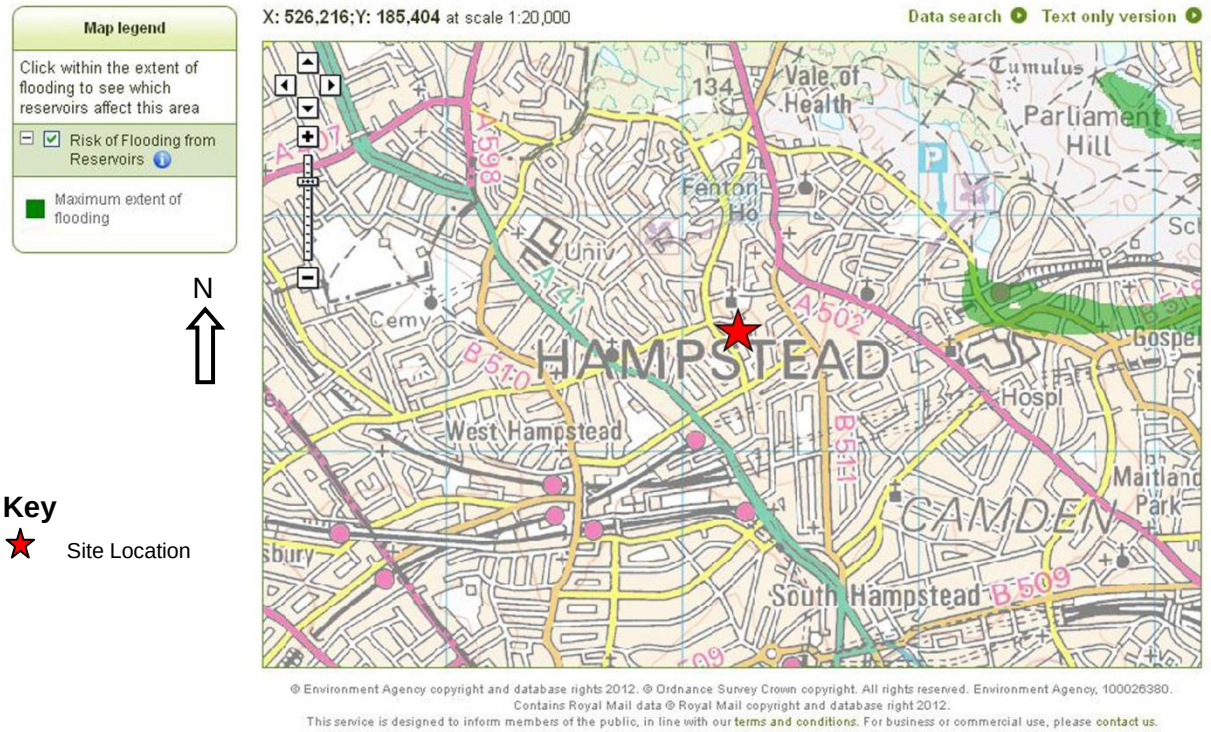


Figure (h)
Areas at Risk of Flooding from Reservoirs
(Extract from Environment Agency flood map)

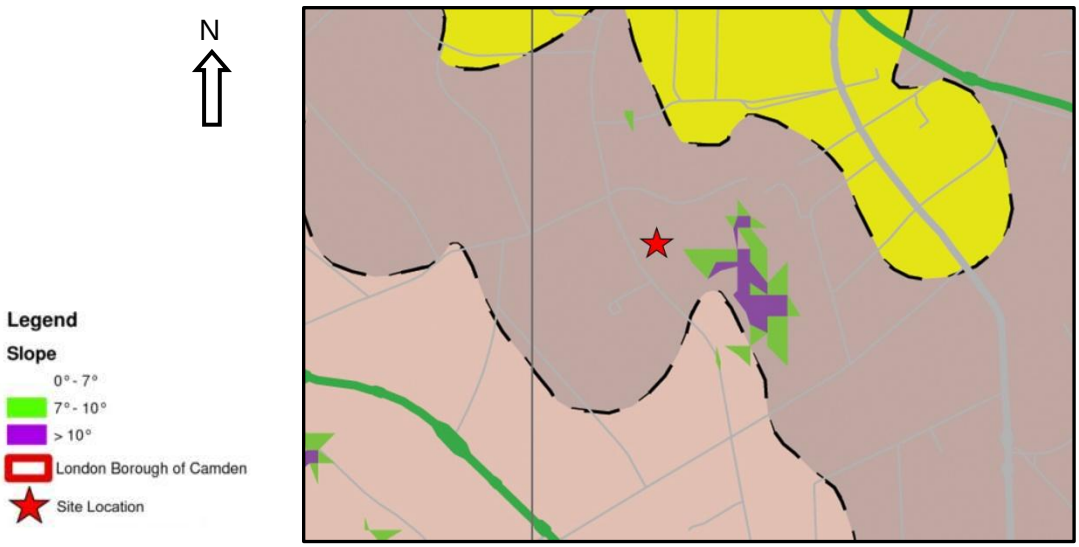


Figure (i)
Slope Angle Map
(Extract from Figure 16 of Camden Geological, Hydrogeological and Hydrological Study)

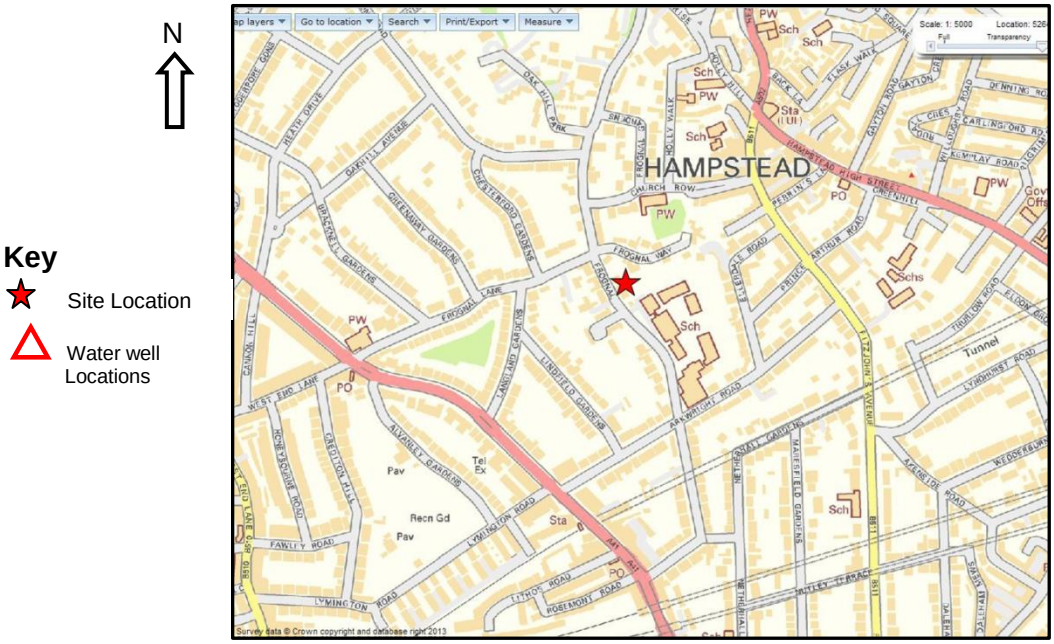


Figure (j)
Map showing Water Well Locations
(Extract from British Geological Survey, Geoindex)

Figure (k)
Existing impermeable area plan

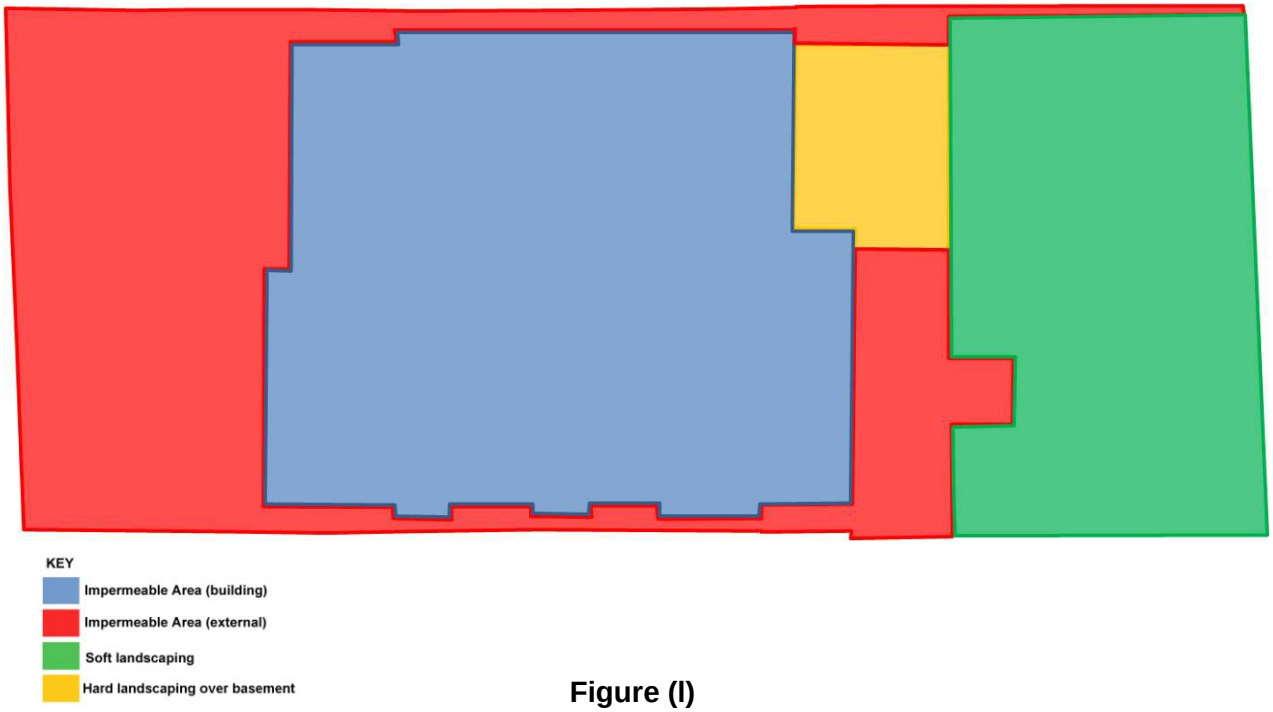


Figure (l)
Proposed impermeable area plan

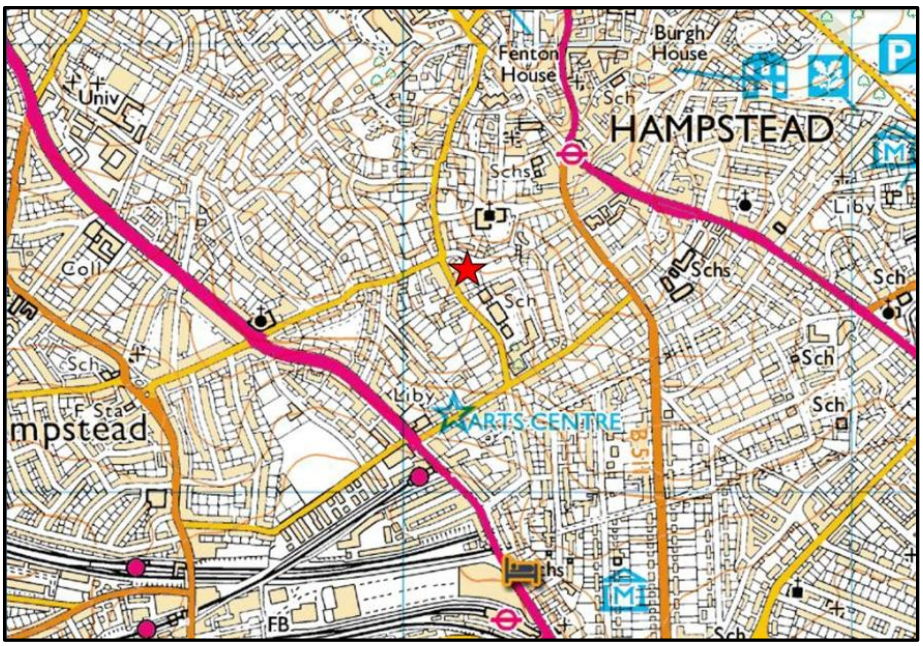


Figure (m)
Topography Map
(Extract from Ordnance Survey Mapping)

APPENDIX B

THAMES WATER RECORDS

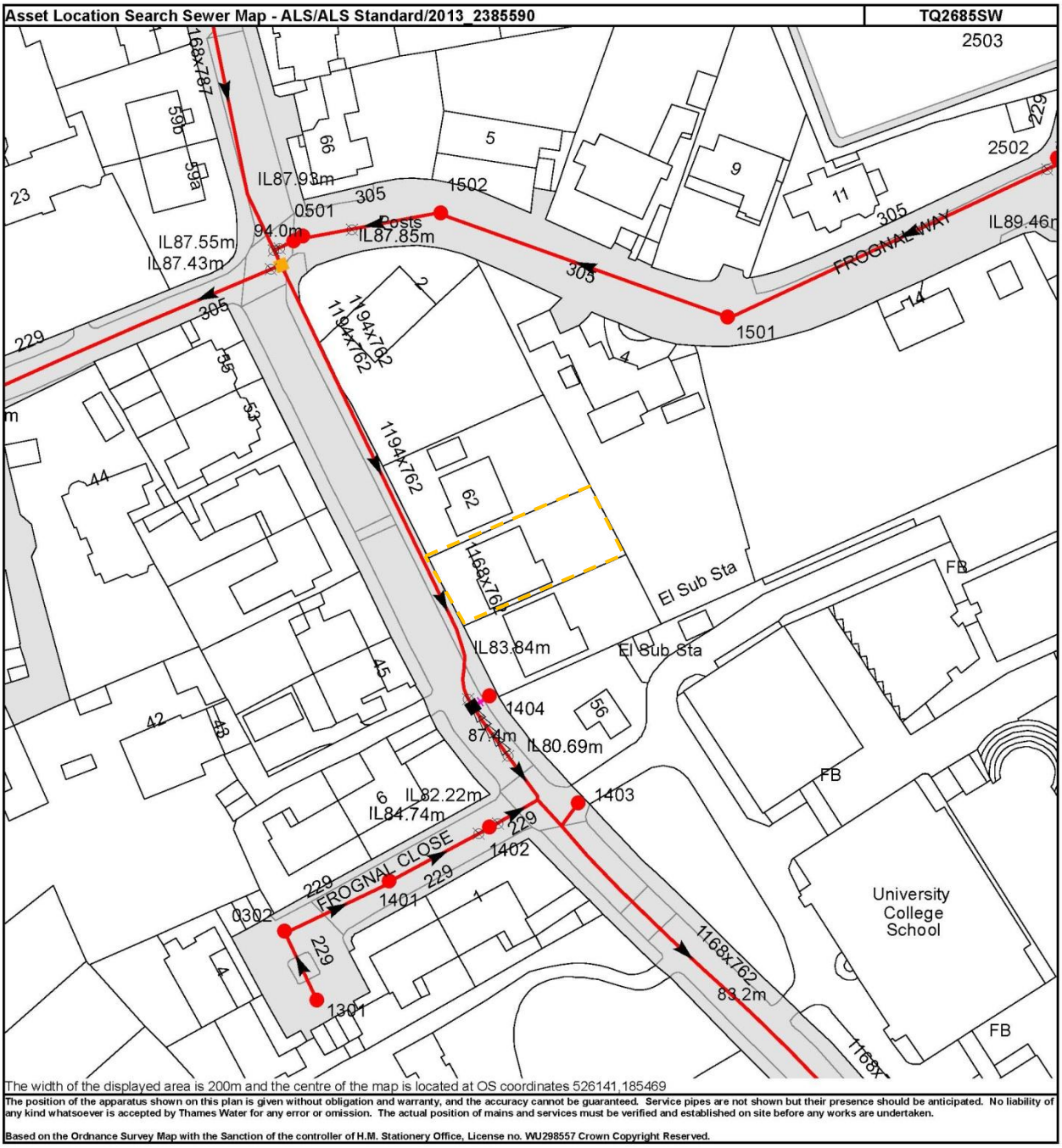
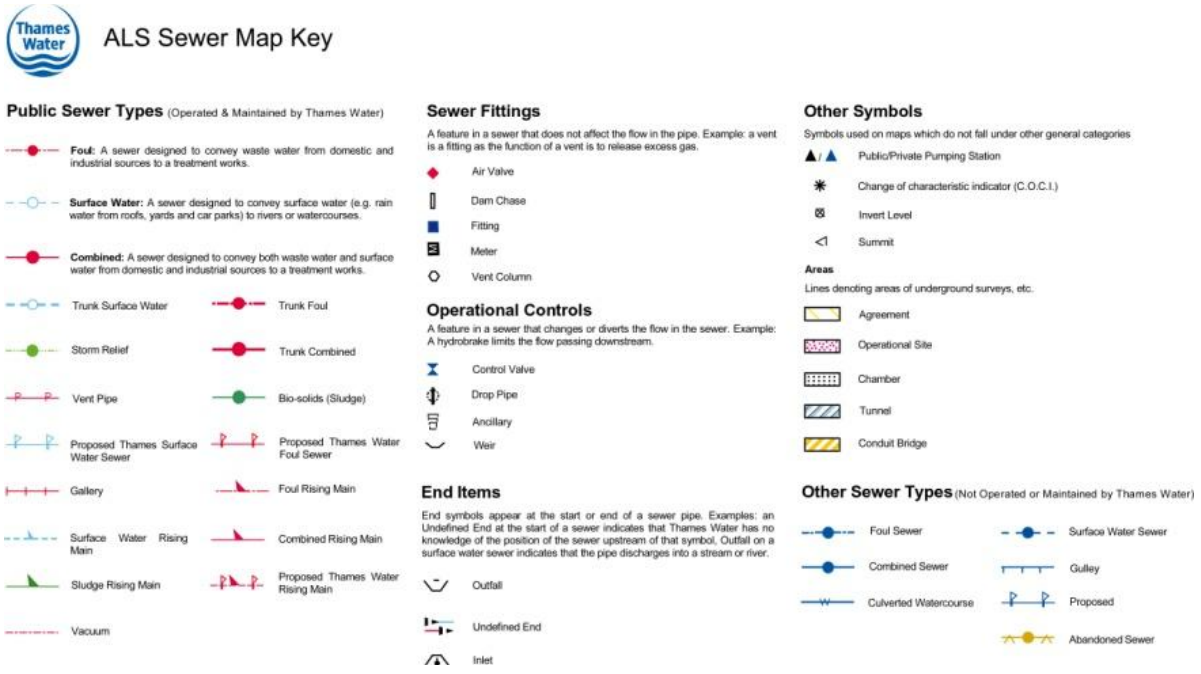


Figure B1 - Extract from Thames Water Asset Search showing a combined sewer

NB. Levels quoted in metres Ordnance Newlyn Datum. The value -9999.00 indicates that no survey information is available

Manhole Reference	Manhole Cover Level	Manhole Invert Level
1301	89.91	87.74
1401	88.72	85.96
1402	86.98	n/a
1403	86.35	80.51
1404	88.07	n/a
1501	94.18	88.8
1502	93.02	88.25
0302	89.8	87.09
0503	n/a	n/a
-	-	-
0501	n/a	n/a

The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.



Sewer Flooding
History Enquiry

Thames Water Property Searches
12
Vastern Road
Reading
RG1 8DB

Search address supplied 60
Frognal
London
NW3 6XG

Your reference P1872 60 Frognal London NW3 6XG

Our reference SFH_SFH_Standard_2013_2385588

Search date **08 January 2013**

Thames Water Utilities Ltd

Property Searches
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.thameswater-propertysearches.co.uk

Sewer Flooding
History Enquiry

Search address supplied: 60. Frognal, London, NW3 6XG

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

TWUL, trading as Property Searches, 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 Searches
PO Box 3189
Slough SL1 4WW

DX 151280 Slough 13

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I www.thameswater-propertysearches.co.uk

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

Sewer Flooding
History Enquiry

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 no incidents of flooding in the requested area as a result of surcharging public sewers.

Although Thames Water does not have records of public sewer flooding within the vicinity, please be aware that property owners are not legally obliged to report this flooding to Thames Water. In addition flooding from private sewers, watercourses and highways drains are not the responsibility of Thames Water, and such incidents may not be noted in our records. We therefore strongly advise you to contact the current owners and occupiers of the premises and inquire about sewer flooding.

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 Searches
PO Box 3189
Slough SL1 4WW

DX 151280 Slough 13

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Clearwater Court, Vastern Road
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APPENDIX C

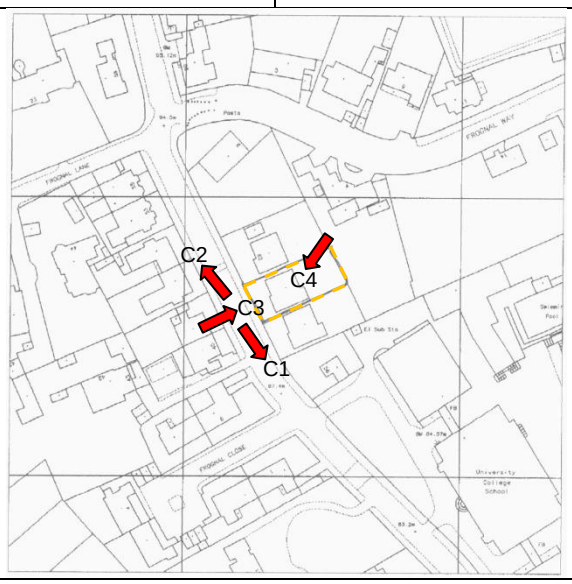
PHOTOGRAPHS

Photo C1

Photo C2

Photo C3

Photo C4



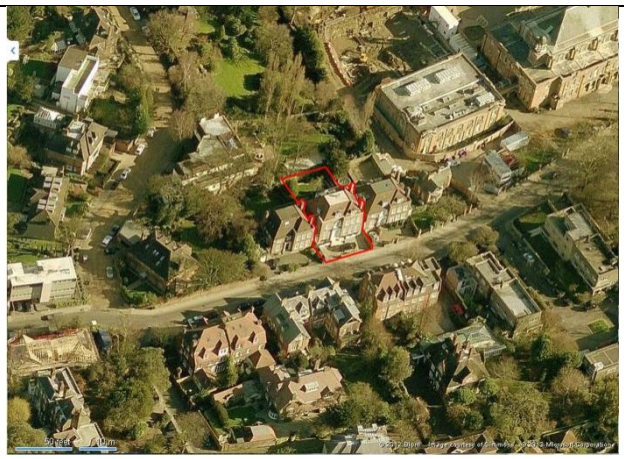


Photo C5

Photo C6

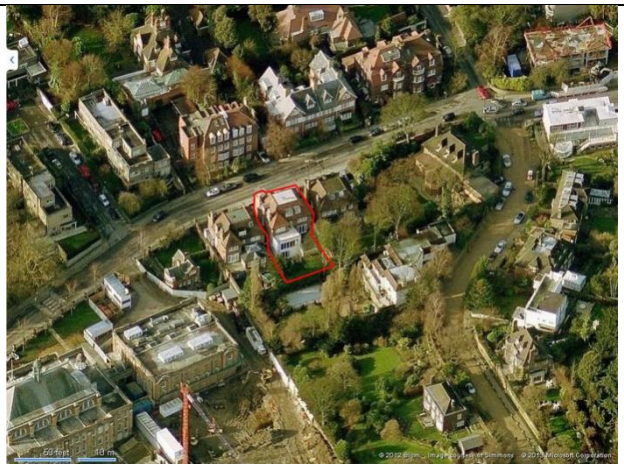


Photo C7

Photo C8