

Basement Impact Assessment

At

86 Mill Lane London NW6 1NL

Date: January/February 2017

Design information – Structural

1. Introduction

Camden Council will only permit basement and underground developments that do not:

- Cause harm to the built and natural environment and local amenity
- Result in flooding
- Lead to ground instability

Camden Council requires that applicants demonstrate by methodologies appropriate to the site that schemes:

- maintain the structural stability of the building and neighbouring properties;
- avoid adversely affecting drainage and run-off or causing other damage to the water environment; and
- avoid cumulative impacts upon structural stability or the water environment in the local area.

Applicants will be required to submit information relating to the above within a Basement Impact Assessment (BIA) which is specific to the site and particular proposed development.

In certain situations we will expect an independent verification of Basement Impact Assessments, funded by the applicant.

The site address is 86 Mill Lane London NW6 1NL. The approximate National Grid Reference of the site is TQ24931 85144

Maurice Cox MA. MICE has been appointed by the client, Mr Alan Heywood to produce a Basement Impact Assessment (BIA) to accompany the planning application submitted by Tony Covey of The Design Works – Camden Planning Ref 2016/6359/P

The BIA has been produced in accordance with the guidance given within the Camden planning documents listed below:

Camden Planning Guidance Document CPG4: Basements and Lightwells,
Camden Geological, Hydrogeological and Hydrology Study – Guidance for subterranean development, November 2010 (Arup)

The Design Works were advised by the LPA case officer on 19/12/2016:

In relation to the lightwell, as it is explained in CPG4 you will need to clearly state why a full BIA assessment would not be required in this instance. As you already have knowledge from the previous works at no 66 Mill Lane that would be helpful. However, the process would have to be held by a person which has the relevant qualifications indicated in CPG4.

In addition, Camden Council requires that all the documentation in relation to extension at the basement level to be assessed by Campbell Reith which is third party audit. In order to start the audit you will need to complete Part B of the attached BIA audit form. Based on the information provided I will contact Campbell Reith which will issue a fee for their assessment dependant on the type of works you are proposing.

2. Existing Building and Site Constraints

The site is roughly rectangular in shape and measure approximately 21.5m long x 4.8m wide

Topographic maps show the site as being at approximately 65-70m elevation above sea level

The site is located on Mill Lane, which has a slope of approximately 1 degree towards the West, from the East

The property is an existing 4 storey mid terrace with an existing basement extending to the full footprint of the buildings and with a small vaulted area beneath part of the front forecourt which forms part of the demise (Formerly a coal storage area with a chute from the forecourt which is still in existence). The privately owned forecourt area is across the full width of the property and extends around 3.1m to meet the back edge of the public footpath. The forecourt, like adjacent properties is open although a number of properties have railings and/or lightwells



No's 92 – 86 Mill Lane

No 78 Mill Lane

The ground and basement floors comprise a shop with ancillary space used for commercial purposes until recently. The ground floor is open plan with timber stud partitioning around the communal entrance and staircase leading to the upper residential floors. A beam at high level provides intermediary support to the upper floors along the line of the internal load bearing spine wall. The basement consists of a large open plan area with a 230 thick brick wall under the stairwell side of the internal load bearing spine wall with a beam across to the Party Wall with No 84

To the rear part of the basement within the back addition are toilets which served the ground floor café. Ground level of the rear courtyard garden falls at or below basement floor level. The rear of the building has windows overlooking the courtyard and a door leading onto it. At the front the ground level of the privately owned forecourt is around 150 – 250mm below the existing ground floor level

Ground, first and second floor construction is all timber joists boarded over with plastered ceilings of varying thicknesses. The basement floor is of solid construction throughout. All internal walls above entrance level are timber stud frame with the spine wall being load bearing and running across the building between the two Party Walls

The existing basement has a ceiling height of 2.03m towards the front of the building and 2.08m towards the rear of the building due to a small ramp in the floor at the middle point of the building. The floor is of solid construction overlaid with ceramic tiles. The Design Works have indicated that this floor construction could be around 0.325m thick

The architectural team for this project undertook a similar scheme at 66 Mill Lane which was approved in 2014 with the works commencing in 2015 and being completed early in 2016. There is therefore precise knowledge to hand of conditions encountered and the relative simplicity of the project at hand. An almost identical project was completed shortly before No 66 at No's 60/62

The change of use of the existing basement into residential accommodation will ideally necessitate an increase in headroom to somewhere in the region of 2.3m, an increase of between 0.22 & 0.27m. If it is also determined that a new solid floor is desirable or required for other reasons to meet modern building regulation standards then excavation to a depth of 0.40m below finished floor level would be required. The distance between the existing basement finished floor level and the ceiling level of the ground floor is 5.545m (+ 0.325 = 5.87m)

The Design Works advise three options are available to improve the headroom to the existing basement:

Option 1 – Level and raise the existing basement floor providing a waterproof tanking membrane, insulation and a liquid screed (20mm + 80mm + 35mm = Say 0.135m), then raise the level of the existing ground floor reconstructing it at a higher level with a construction zone of say 0.31m. A false ceiling would also be provided to the underside of the first floor to provide additional acoustic separation to the existing residential use above resulting in a loss of 0.3m. The existing finished ground floor level has a stepped approach, therefore not one allowing wheelchair access, which would require an additional 3 steps. *(This approach was adopted at No 60/62 Mill Lane)*
 $5.545 - 0.135 - 0.31 - 0.3 - 2.3 = 2.5\text{m}$ ceiling height for the retained ground floor retail use etc.

Option 2 – Reduce levels by breaking up the existing basement floor and excavating allowing for acoustic separation above and below the existing ground floor construction. The acoustic layer applied to the underside of the ground floor would be 0.05m thick. Excavation to the necessary reduced level would need to be $2.3 + 0.05 + 0.4 = 2.75\text{m}$. The underside of the existing basement floor construction below underside of ground floor is considered to be between 2.355m and 2.405m resulting in required excavations of between 0.35m and 0.4m. *(This approach was adopted at No 66 Mill Lane)*

Option 3 – A combination of options 1 & 2 could be adopted to avoid the need for underpinning if likely excavations would be below the level of the existing foundations



Stage 1 – Screening

3.1. Introduction

As part of the pre planning application process for basements within Camden, there are 4 stages that are defined within the Camden documentation that must be worked through in order to be able to:

- demonstrate how the proposed construction will impact on the existing situation
- identification of items that need to be investigated further, further investigation of these items
- describe proposed mitigation measures.

Information required within the screening stage is contained within Sections 3.2 – 3.4 below.

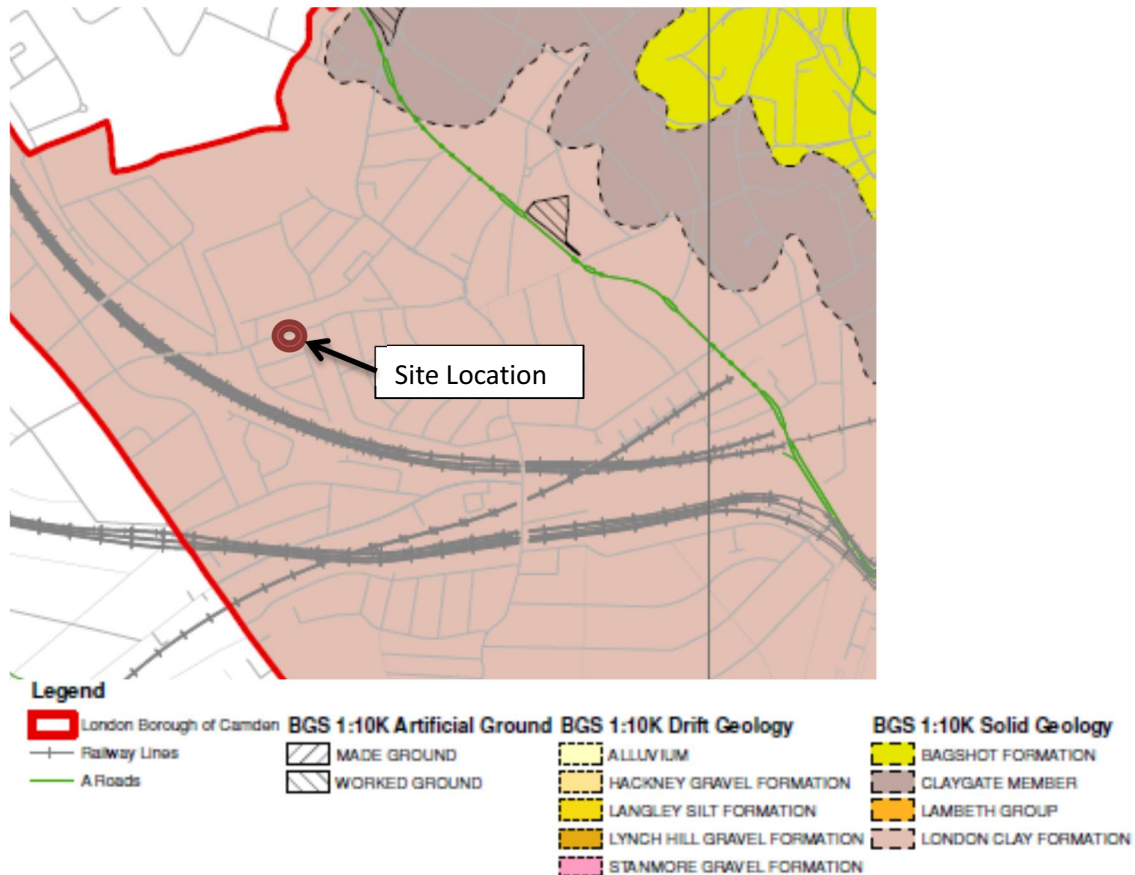
Where a respondent answers “yes” or “unknown” to any of the questions in the flowcharts these matters will need further investigation. “No” answers will require written justification.

3.2. Groundwater flow

Q1a. Is the site located directly above an aquifer?

No. The mapped bedrock geology underlying the site (London Clay Formation) is classified as Unproductive Strata; drift deposits or rock layers with low permeability that have negligible significance for water supply or river base flow

See Extract from Camden Aquifer Designation Map Below



Q1b. Will the proposed basement extend beneath the water table surface?

No. The Design Works were involved in the design process and attended site on a regular basis during the construction stages of the works to No 66 Mill Lane and personal knowledge of the site which is approximately 50m to the West of the subject property where no issues were encountered concerning the water table level. This is expected to also be the case with 86 Mill Lane

Q2. Is the site within 100m of a watercourse, well (used/disused) or potential spring line?

No. The nearest historical water course, a tributary to the River Westbourne, is about 400m south southeast of the site. This is likely to have been partially or fully culverted. This has been identified from a map of the Lost Rivers of London – Barton, shown below. Any current surface water features are in excess of 100m from the site

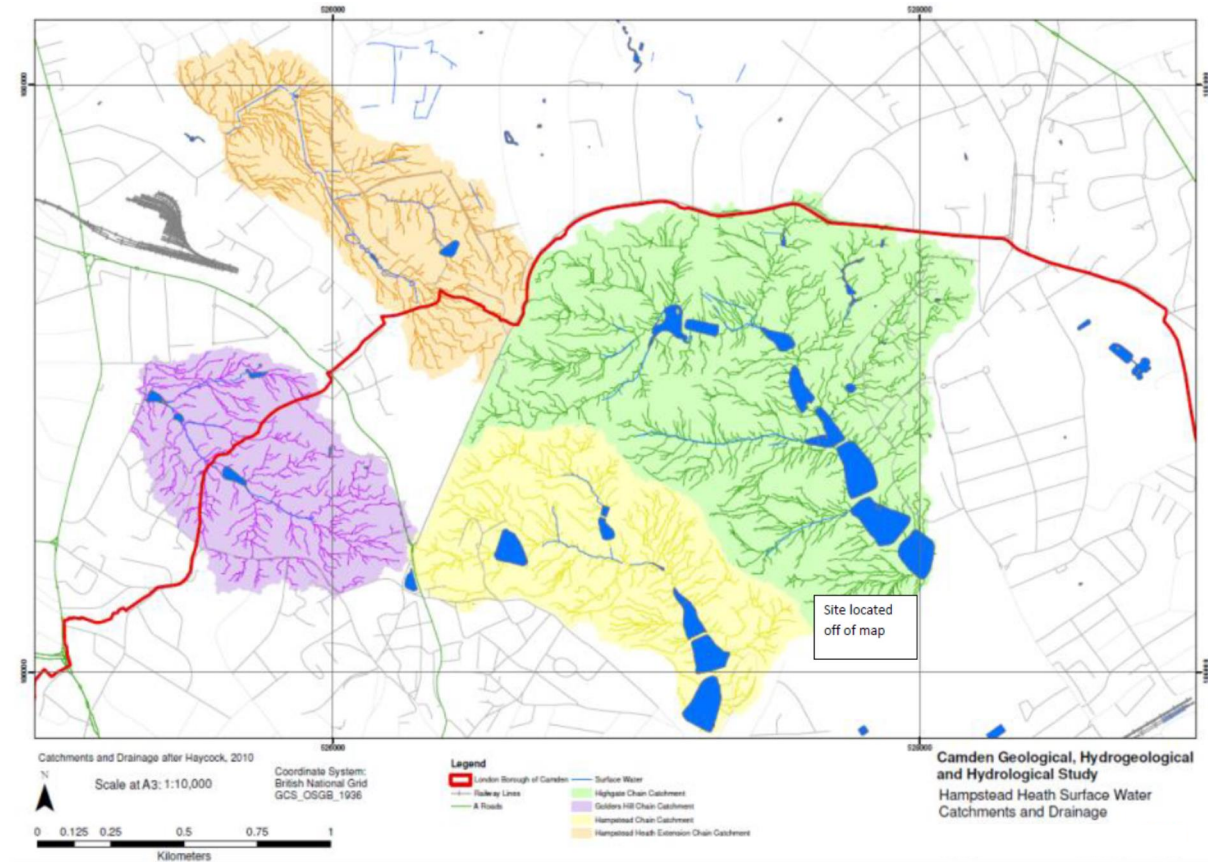


We are unaware of any water wells within the immediate area

Spring lines for the Golders Hill Chain Catchment to the north east are around 2km to the north of the site

Q3. Is the site within the catchment of the pond chains on Hampstead Heath?

No. The site is outside the Highgate Chain Catchment. This is shown by the map below



Q4. Will the proposed basement development result in a change in the proportion of hard surfaced/paved areas?

No. The amount of hard surfaced / paved area will be very similar to those currently existing. The front light well will be sited within the current paved forecourt and the rear garden is currently mainly finished as hardstanding

Q5. As part of the site drainage, will more surface water (e.g. rainfall and run-off) than at present be discharged to the ground (e.g. via soakaways and/or SUDS)?

No. The proposals will not alter the site drainage

Q6. Is the lowest point of the proposed excavation (allowing for any drainage and foundation space under the basement floor) close to, or lower than, the mean water level in any local pond (not just the pond chains on Hampstead Heath) or spring line?

No. There are no known local water features in the immediate vicinity of this site

3.3. Slope Stability

Q1. Does the existing site include slopes, natural or manmade, greater than 7 degrees? (Approximately 1 in 8).

No. The existing topography across the northern boundary, at the front of the property, currently falls from west to east with a slope angle of approximately 1 to 1½ degrees. Ground levels to the rear of the property are flat and level

Q2. Will the proposed re-profiling of landscaping at the site change slopes at the property boundary to more than 7°?

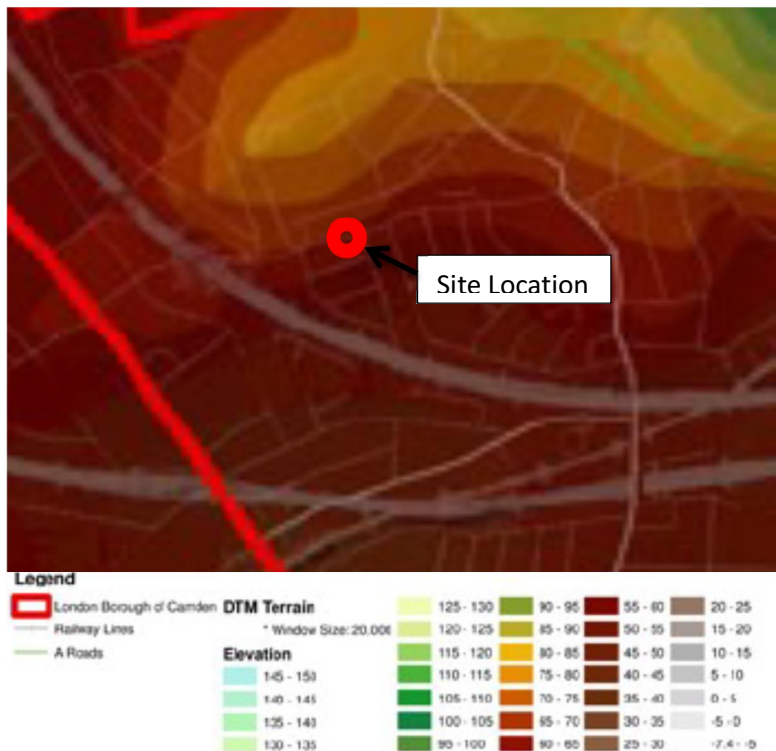
No. There is no remodelling of the site elevations proposed

Q3. Does the development neighbour land, including railway cuttings and the like, with a slope greater than 7 degrees? (Approximately 1 in 8)

No. The site is a mid-terrace property which lies between similar if not identical properties both of which have existing basements at or about the same level

Q4. Is the site within a wider hillside setting in which the general slope is greater than 7 degrees? (Approximately 1 in 8)

No. The site appears to be located on a west southwest – east northeast trending ridge. Locally, the site is set within a relatively flat setting, with levels falling gradually to the east / northeast but with slopes considerably less than 7 degrees. See Map below indicating Terrain Elevations



Q5. Is the London Clay the shallowest strata on the site?

No. The bedrock geology is mapped as London Clay Formation (Refer to Map in relation to Q 1a of Section 3.2 above: Extract from North Camden Geological Map) however, made ground soils may be present due to location of the existing combined foul and surface water drain run believed to be to the right of the location of the lightwell which was the case with the development at 66 Mill Lane. Ground conditions will need to be established by excavation of a trial hole within the area of the proposed lightwell.

Q6. Will any tree/s be felled as part of the proposed development and/or are any works proposed within any tree protection zones where trees are to be retained? (Note that consent is required from LB Camden to undertake work to any tree/s protected by a Tree Protection Order or to tree/s in a Conservation Area if the tree is over certain dimensions).

No. There are no trees on or adjacent the site. The proposed lightwell is contained within the privately owned forecourt which is paved and bordered by the public footpath and highway

Q7. Is there a history of seasonal shrink-swell subsidence in the local area, and/or evidence of such effects at the site?

No. We have no evidence indicating any possible shrink-swell subsidence in the local area

Q8. Is the site within 100m of a watercourse or a potential spring line?

No. The nearest watercourse or spring line is in excess of 100m from this site, see maps in relation to Q's 2 & 3 of Section 3.2 above, and is about 400m from the nearest historical water course (Lost Rivers of London – Barton)

Q9. Is the site within an area of previously worked ground?

No. The site is not thought to be located within an area of previously worked ground. See extract of North Camden Geological Map in relation to Q 1a of Section 3.2 above

Q10. Is the site within an aquifer? If so, will the proposed basement extend beneath the water table such that dewatering may be required during construction?

No. The Map: Camden Aquifer Designation Map (See map in relation to Q 1a of Section 3.2 above), shows that the site is located within the London Clay Formation which is an Unproductive Strata

Q11. Is the site within 50m of Hampstead Heath ponds?

No. The site is approximately 3.0km from Hampstead Ponds.

Q12. Is the site within 5m of a highway or pedestrian right of way?

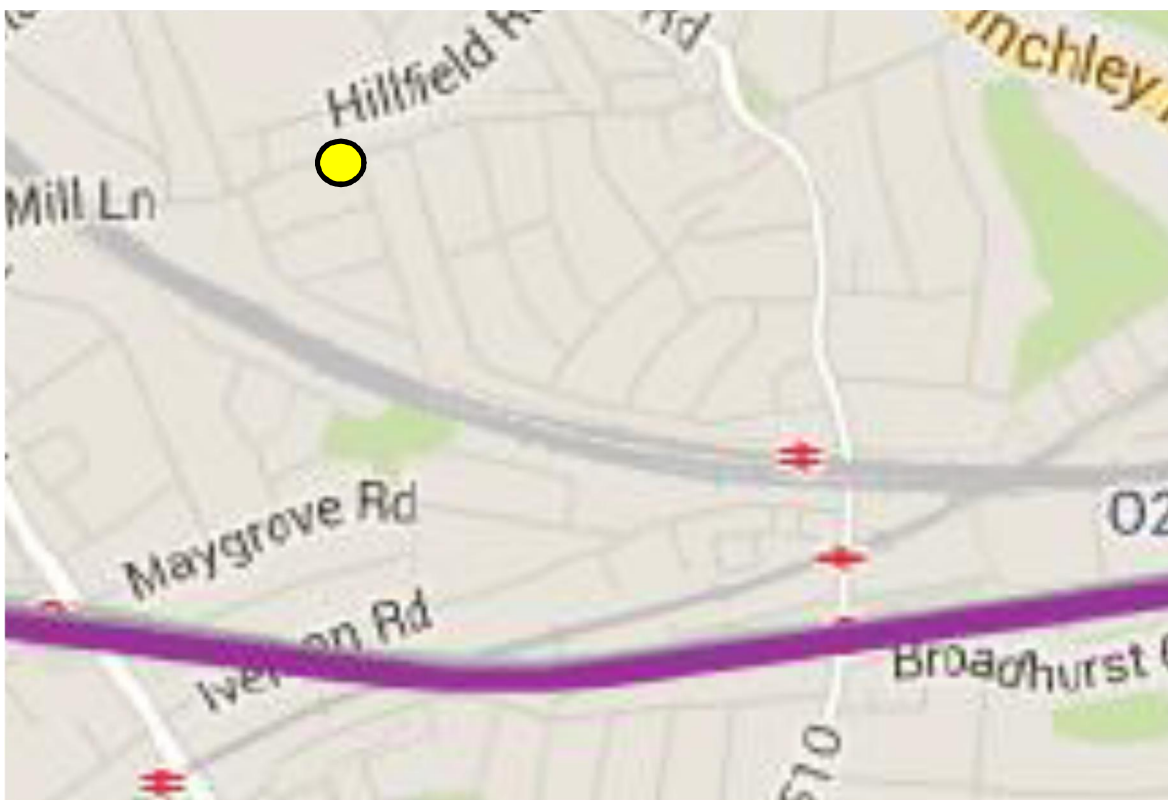
Yes. The edge of the proposed lightwell is approximately 1.5m from the back edge of the pavement on Mill Lane however this is not considered likely to involve a significant excavation. An identical excavation and light well was also formed at 66 Mill Lane towards the end of 2015/early 2016 by hoarding the site at the edge of the public footpath and with returns along the party wall lines. Excavation was carried out adopting temporary planking and strutting removed in phases as the new retaining structure was placed and raised to ground level

Q13. Will the proposed basement significantly increase the depth of foundations relative to neighbouring properties?

No. The proposed front lightwell will extend to approximately 2.2m below ground level which will be above the level of the existing basement floor level of the subject property and located at least 1.0m from the party walls with the adjoining properties. There are party walls between No 86 (the subject property) and No's 84 & 88 (adjoining the property to either side). These walls will not need to be underpinned as all 3 properties have existing basements at or about the same level. The scheme does propose to excavate and provide a new floor to the basement of solid construction but this will not be carried out until trial holes have been excavated to ascertain the depth of the existing foundations and the scheme will be adapted/revised to ensure no excavation is carried out below the level of the existing foundations

Q14. Is the site over (or within the exclusion zone of) any tunnels, e.g railway lines?

No. There are no known tunnels within the vicinity of this site. The Thameslink overground and main railway line into London St Pancras (Grey Lines on map below) together with London Underground Metropolitan Line (Magenta Line on map below) are located at least 750m and 250m respectively to the south of the site.



3.4. Surface Flow and Flooding

Q1 Is the site within the catchment of the pond chains on Hampstead Heath?

No. The site is outside the Highgate Chain Catchment. See map in relation to Q 3 of Section 3.2 above

Q2. As part of the proposed site drainage, will surface water flows (e/g volume of rainfall and peak run-off) be materially changed from the existing route?

No. Existing surface water on the site either flows into the existing below ground drainage system, or soaks into the existing soft landscaping.

In the proposed condition, the drainage serving the drained cavity to the perimeter of the basement and the drainage serving the front lightwell will be either pumped (in the case of the basement perimeter) or gravity drained into the existing drainage serving the current basement level facilities. It is proposed that the existing connection of the combined foul and surface water drainage to the sewer within the roadway will be maintained. The existing drainage will be investigated within the detailed design phase.

Q3. Will the proposed basement development result in a change in the proportion of hard surfaced/paved external areas?

No. The amount of hard standing on the site will be very similar to that within the existing condition.

Q4. Will the proposed basement result in changes to the profile of the inflows (Instantaneous and long term) of surface water being received by adjacent properties or downstream watercourses?

No. The proposals will not alter surface water flows.

Q5. Will the proposed basement result in changes to the quality of surface water being received by adjacent properties or downstream properties?

No. The quality of the surface water will be unaltered.

Q6. Is the site in an area known to be at risk from surface water flooding, such as? South Hampstead, West Hampstead, Gospel Oak and King's Cross, or is it at risk from flooding, for example because the proposed basement is below the static water level of a nearby surface water feature?

No. The site is not considered to be at risk from surface water flooding although Mill Lane is included within Figure 5.1 (from the Core strategy London Borough of Camden), which records flooded streets from 1975 & 2002, (Map below) it is considered that surface water will run off with the slope of the street towards the east northeast and then down Broomsleigh Street, which is not listed as at risk of flooding nor appears on the map showing flooded roads in either 1975 or 2002, and which falls more steeply towards the south nor is West Hampstead indicated as a key location at risk of flooding in North Camden. See Table 6.1 below

Fig. 5.1 - Map of flooded roads in 1975 and 2002 floods

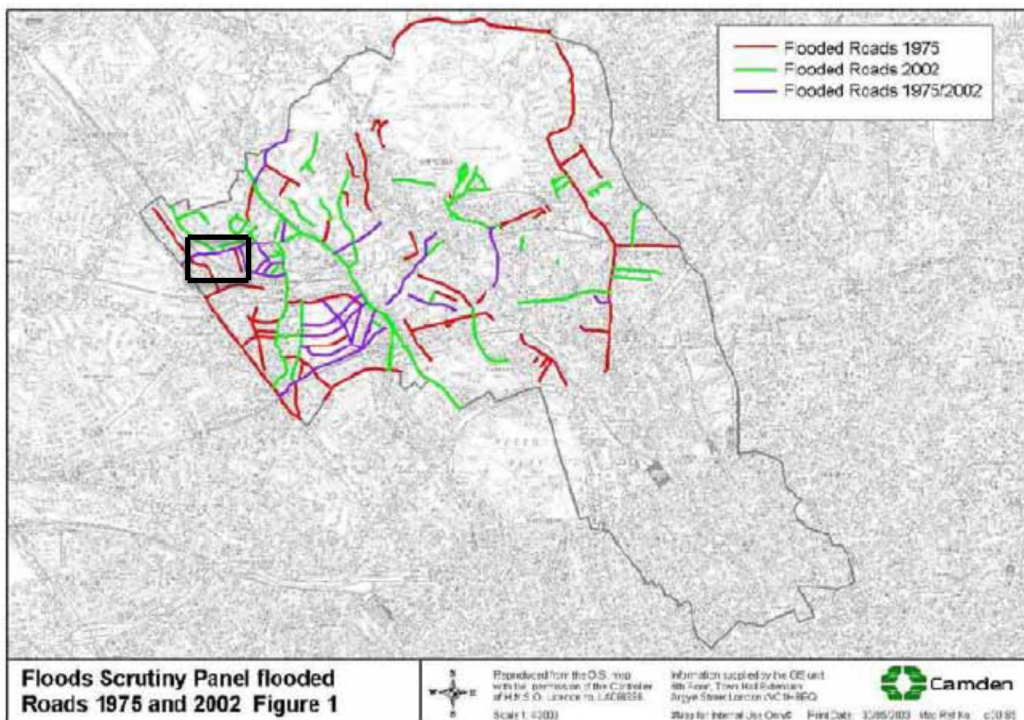


Table 6.1 Key locations at risk of flooding in Camden North

Location	Flood Alleviation Scheme
Heath Street area	Hampstead Town
Hampstead Heath Street area	Hampstead Town
Willow Road area	Hampstead Town
Pond Street area	Hampstead Town
Haverstock Hill area	Hampstead Town
Mansfield Road area	Gospel Oak
Gordon House Road area	Gospel Oak
York Rise area	Highgate
St. Albans Road area	Highgate
Highfields Grove area	Highgate
Dartmouth Park Hill area	Highgate

The "Risk of Flooding from Surface Water" mapping on the Environment Agency website (January 2016) shows the site to be within an area of very low to low risk. See map below. This means that each year, this area has a chance of flooding of less than 1 in 100 (1%) for the low risk location and less than 1 in 1000 (0.1%) for the very low risk location. No issues were encountered with the development 50m to the west of the property at 66 Mill Lane. As a result, a separate Flood Risk Assessment has not been prepared for the site

