Ellis and Moore Consulting Engineers Ltd
Sovereign House
1 Albert Place
Finchley
London
N3 1QB

020 7281 4821
www.ellisandmoore.com

BASEMENT IMPACT ASSESSMENT

22 FORTESS GROVE, KENTISH TOWN

LONDON NW5 2HD

LONDON BOROUGH OF ISLINGTON

REFERENCE 15613 - 20151007

ISSUE STATUS

Issue No.	Date of issue	Details	Produced By	Checked by
1	07.10.2015	IFC	SV	PD
2	12.10.2015	IFA	SV	PD

S. Vosper
BSc CEng MICE MIHT MASCE MDSA
Ellis and Moore Consulting Engineers Ltd.

P. Deane
BEng CEng MICE MIStructE
Ellis and Moore Consulting Engineers Ltd.

CONTENTS

Appendices:

1.0 Brief

As instructed by L. Borek of Les Property Development. Ellis and Moore Consulting Engineers Ltd have undertaken a Basement Impact Assessment (BIA) in accordance with the Planning Guidance CPG4 prepared by Camden Council.

The wording in the Camden document is as follows:

Subterranean development of the site would trigger the need for a Basement Impact Assessment (BIA) prepared in accordance with Camden CPG4 (Basement and Lightwells). The policy DP27 sets out that applications should demonstrate (by Methodologies appropriate to the site) that schemes comply with the criteria (A) to (H). The BIA should address the impact of the proposals in terms of the stability and water environment, using the screening flow chart set out in the CPG. In particular, structural stability of the existing building on the site would be of concern and so the issue of slope stability will require attention.

This report follows the Camden Council requirements at the following Stages.

Stage 1	Screening
Stage 2	Scoping
Stage 3	Site Investigation and Study
Stage 4	Impact Assessment.

Finally conclusions have been drawn to aid the consideration by the Local Planning Authority (LPA).

In preparing the report, the following information sources have been relied on to provide information.
Soils Investigation Report.
Thames Water Sewer Records
EA and Camden Geological, Hydrogeological and Hydrological Maps.

This report has been prepared by Ellis and Moore Consulting Engineers Ltd. staff Holding the required qualifications relevant to the matters being considered as detailed in CPG 4 Basements and Lightwells.

2.0 Stage 1 - Screening

A Basement Impact Assessment has been requested for this development to determine if the proposed works will result in possible flooding in future either due to ground or surface water.

Currently there is a two storey terraced building on the site dating from Victorian times. The general profile of the land slopes down gently to the South.

The flow charts Figures 1, 2 and 3 in the Camden Planning Guidance CPG4 document have been considered and it has been decided that a Basement Impact Assessment is necessary because of surrounding structures and proximity of public highway.

The following are the answers to the CPG 4 Flow Screening Chart Figure 1.

1A The site is not located above an aquifer as it is underlain by London Clay.

1B The proposed level of the basement floor will not extend beneath the recorded water table found in the borehole as part of the site investigation, but this is subject to seasonal variation.

2. The site is not within 100 metres of a water course.

3. The site is not within the catchment of the pond chains on Hampstead Heath.

4. The proposed basement development will occupy the same amount of hard surfaced areas as the current building and will not change the proportion of hard surfaced areas.

5. The proposed surface water run-off will remain as existing so there will be no additional discharge.

6. The site is not near a local pond or spring line.

The following are the answers to the CPG 4 Flow Screening Chart Figure 2.

1. The existing site is almost level and does not include any slopes greater than 1in 8
2. There is no proposed re-profiling of the landscape.
3. The development is not close to a railway cutting or any slopes steeper than 1 in 8.
4. The site is not within a hillside setting
5. London Clay is the shallowest strata on the site below the made ground.
6. There are no trees on the site
7. There is no history of tree root subsidence in the area.
8. The site is not within 100 metres of the water course with potential spring line.
9. The site has been developed in the past and the records are included in the soils investigation report.
10. The site is not within an aquifer. There is a possibility of finding ground water if the weather is inclement during the construction period and localised pumping may be required during construction.
11. The site is not within 50 metres of the Hampstead Heath Ponds
12. The site is within 5 metres of the highway as there is a Public Highway immediately outside the front of the building.
13. The proposed basement will significantly increase the differential depth of foundations relative to the neighbouring properties.
14. The site is not over any tunnels either railway or underground.

The following are the answers to CPG 4 Flow Screening Chart Figure 3.

1. The site is not within the catchment area of the pond chains on Hampstead Heath.
2. The surface water flows from the site will not materially change or change route as the existing building is being retained.
3. The proposed development will not result in a change in the proportion of hard surfaced external areas.
4. The proposal will not result in changes to the profile of inflows surface water.
5. The quality of the surface water. The proposal will not result in changes to the quality of surface water being received.
6. The site is not in an area known to be at risk from surface water flooding.

Stage 2 – Scoping -

This section deals with the points raised in Stage 1 which require further investigation.

This Section`s answers have been given as no or not applicable as part of the Flow Screening exercise except for the requirement to consider the proximity of the public highway and the differential depth of the the foundation relative to the neighbouring properties.

For this Stage, information has been sought from various sources including the Camden Geological, Hydrogeological and Hydrological maps together with the sewer records.

Structures abutting the public highway will be required to support the highway during and after construction. Therefore the developer will be required to apply to Camden Highways for approval in principal (AIP) for construction of a structure abutting the highway during the detailed design period which must be approved before works commence.

The site is in a Flood Zone 1 and has a site area less than 1.0 Ha therefore a Flood Risk Assessment will not be required due to the limited size of the development. However it is clear from a review of LB Camden`s SFRA and the EA website mapping that the site has a low possibility of flooding.

Referring to the map indicating water courses near the site it is to the west of the Fleet River which is culverted and controlled by Thames Water (TW).

The geology of the area indicates that the site is underlain by made ground and London Clay of substantial thickness.

The Thames Water (TW) Sewer Records indicate that there is a combined sewer serving the property and a surface water sewer also close to the property.

An intrusive soils investigation in addition to a Desk Study is included in this report.

Stage 3 – Site Investigation and Study

A soils investigation has been undertaken and is included in Appendix.

The survey can be summarised as follows. A single borehole and a single foundation inspection pit were undertaken. The borehole was drilled to 10.0 metres below existing ground level and three trial pits where used to expose the existing foundation to the existing building and confirm the site depths to the London Clay. Insitu testing was undertaken and a standpipe was installed to check the groundwater level. A subsequent visit was made to check the ground water level, which was recorded at rising to 3.97 metres below existing ground level.

A desk study was undertaken as part of the soils investigation. The information is included in Stage 2 above as part of the Scoping. In this instance it is considered that sufficient soils investigation work was undertaken to conclude on the soil conditions as the development is limited in scope.

It is further concluded given recent experience of projects in this area that the water found in the borehole is either a perched water table near the surface or seasonally variable. It will be constantly monitored upon the commencement of the site works.

At this stage no further monitoring of the groundwater conditions is required due to the depth that was recorded in the soils investigation.

Stage 4 – Impact Assessment

From the information gathered in the previous Stages 1 to 3, it is considered that the most applicable structural solution would be to construct a series of L shaped retaining walls, underpinning the existing walls of the building.

The depth of the made ground below existing ground level and the level of water that was found in the standpipe implies the excavation will require adequate propping during the construction.

This is likely to involve the use of sacrificial steel sheets at the rear of the excavation to prevent damage to the adjacent properties and uphold the public highway.

A detailed design and method statement will be prepared to accompany the working drawings.

It is likely that the ground slab and walls would be formed in waterproof concrete using one of the waterproofers either Caltite or Pudlo.

Due to the depth of the new basement it is likely that the foul water may have to be pumped up to the existing ground level and fed into an existing SVP which drains into an existing manhole. It will be necessary to undertake a drainage CCTV survey of the existing sub – surface drain pipes prior to the works commencing so that access can be achieved into the existing for the foul drainage.

It is concluded that the proposed drainage will adequately take care of any rainfall and runoff as it will be similar to the existing.

During the site works, it is likely that localised pumping of excavations may be required as a result of possible rainfall and a possible temporary perched water table forming in the open excavation.

Conclusions

The following conclusions are drawn based on the investigative work undertaken to date:

- From the Soils Investigation it is concluded that this building will not impose any restrictions on the flow of ground water as the underside of the basement is approximately 900mm above the water level that was measured.

- Localized flooding by sewer surcharge or water burst should not rise above 150mm and the the existing local drainage should be able to cope.

- Various flood maps have been consulted and they generally indicate that the site is in the area of low flood risk therefore no flood protection precautions are required for this development.

  As a result of the property being underpinned there is the possibility that as a result of the work there will be some minor cracking in the existing building as the underpinning settles in. This should be monitored as part of the works

  .

- Monitoring will be undertaken as follows with target points on the Party walls. Vertical movements of the party walls will be measured with the limits set as follows:
  5mm green – OK
  10mm amber – review working methods
  15mm red – stop work.

  Relative measurements will also be taken between points.

  Given the properties of the clay and the information in the soils investigation settlements would be of the order of 15mm to 20mm taking into account theoretical heave. Past experience indicates that this would result in Category of Damage 2 which is crack widths of less than 5mm which can easily be filled. Using the working methods proposed it is considered that this is realistic in conjunction with the proposed monitoring.

  Detailed design and Method statements will be required for both the underpinning and the proposed structural works to form the basement.

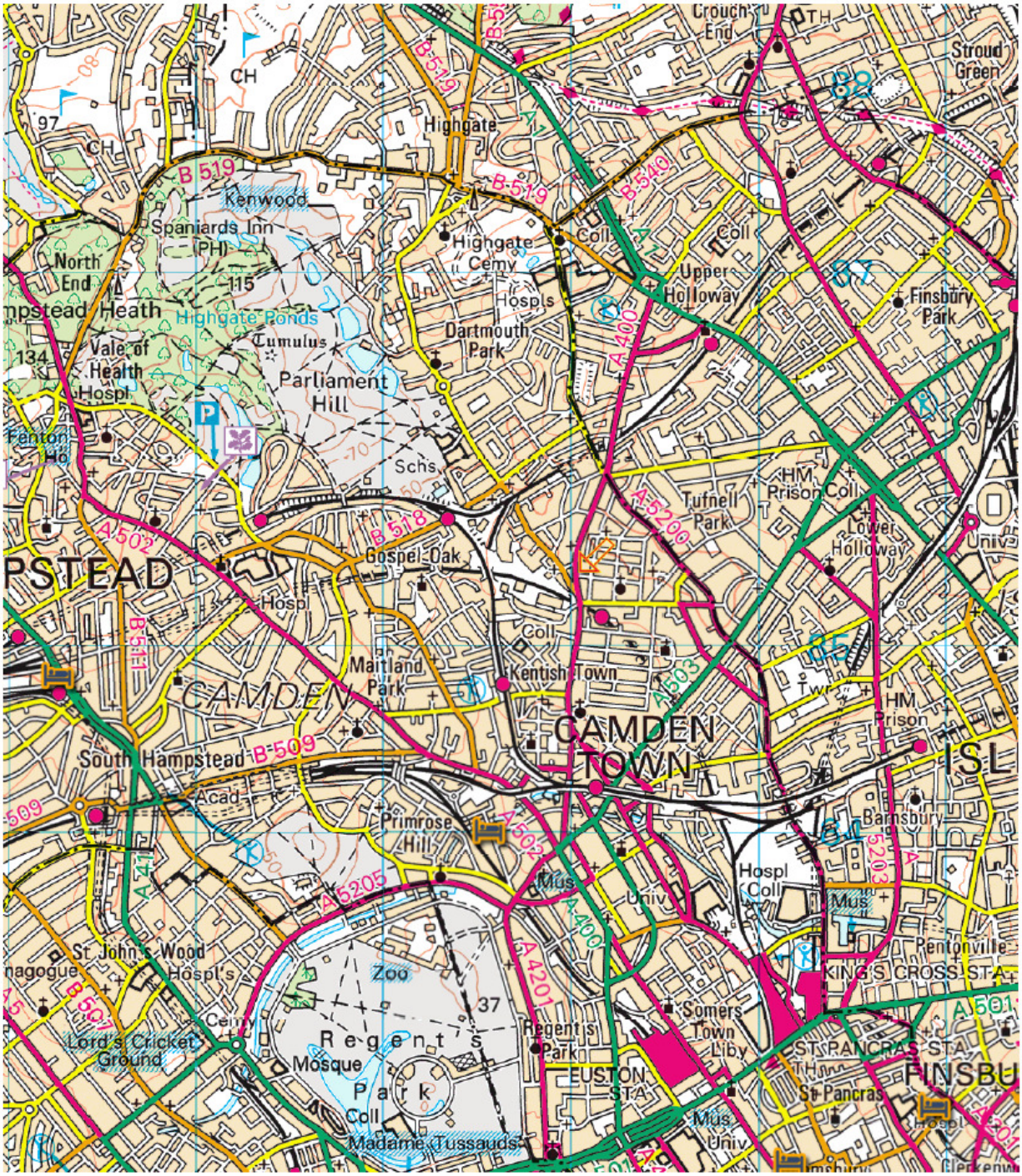
- It was concluded that when the basement is completed there should be no residual issues affecting the property or the land surrounding the building. It will be aim of the contractor to undertake the work using the safest possible techniques given the type of structure that has been selected.

- In summary it is concluded that this basement can be constructed successfully as long as the guidelines in this assessment report are followed. It is likely that there will be only limited local effect on the groundwater conditions below the site.

APPENDIX 1

SITE LOCATION PLAN

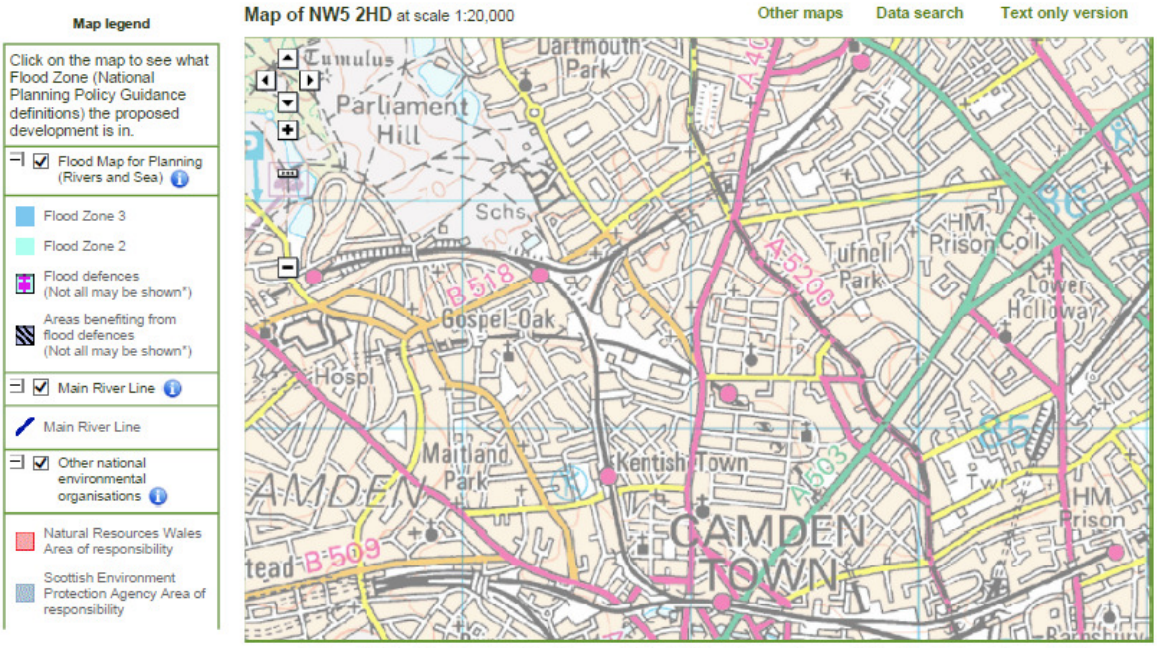

HIGHGATE
HIGHGATE CEMETERY
WHITTINGTON HOSPITAL
HIGHGATE PONDS
HIGHGATE MEN'S POND
PARLIAMENT HILL
DARTMOUTH PARK
UPPER HOLLOWAY
HOLLOWAY
TUFNELL PARK
H.M. PRISON HOLLOWAY
GOSPEL OAK
NW5
KENTISH TOWN
ATHLETICS TRACK
THE FORUM
ST. DOMINIC'S PRIORY
MAITLAND PARK ESTATE
HAVERSTOCK HILL
CHALK FARM
CAMDEN TOWN
KING'S CROSS
PRIMROSE HILL
FORTESS ROAD
JUNCTION ROAD
BRECKNOCK ROAD
KENTISH TOWN ROAD
CAMDEN ROAD
YORK WAY
ROYAL COLLEGE ST
ST PANCRAS WAY
CAMDEN ST
A400
A5200
A502
A503
B518
B517
B509


Crouch End
Stroud Green
Highgate
Kenwood
Spaniards Inn (PH)
Highgate Cemy
Coll
Upper Holloway
Finsbury Park
North End
Hampstead Heath
Highgate Ponds
Tumulus
Dartmouth Park
Hospls
Vale of Health
Hospl
Parliament Hill
Fenton Ho
Schs
HM Prison
Tufnell Park
Lower Holloway
Univ
Gospel Oak
Hospl
Coll
Maitland Park
Kentish Town
CAMDEN
CAMDEN TOWN
Twr
HM Prison
South Hampstead
Acad
Primrose Hill
Barnsbury
Hospl
Coll
Mus
Univ
St John's Wood
Hospl's
Zoo
Cemy
Lord's Cricket Ground
Regent's Park
Mosque
Somers Town
Liby
Pentonville
KING'S CROSS ST.A
ST PANCRAS ST.A
EUSTON ST.A
St Pancras
Coll
Madame Tussauds
Mus
Univ

APPENDIX 2

HYDROLOGICAL MAPS

.



EA FLOOD MAP

FLOOD ZONE 1

APPENDIX 3

SITE INVESTIGATION REPORT

REPORT IS SEPARATE DOCUMENT