BASEMENT IMPACT ASSESSMENT

FOR

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Issue Status

Issue No.	Date of Issue	Details	Produced by	Checked by
1	16/02/15	INITIAL ISSUE	L.A. McDonald	
2	5/5/15	Screening and Construction Method Statement Added	L.A. McDonald	

CONTENTS

Appendices

1.0 Brief

As instructed by Soul Creating Space in their letter dated 22nd January 2015 Ellis and Moore Consulting Engineers Ltd. have undertaken a Basement Impact Assessment (BIA) in accordance with the Guidelines 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	Desk Study
Stage 4	Impact Assessment.

In preparing the report, the following Appendices have been relied on to provide information.

Appendix 1	Desk Study by Ground Engineering Ltd.
Appendix 2	Structural Scheme drawings prepared by Ellis and Moore for the basement including a Construction Method Statement.
Appendix 3	Thames Water Sewer Records
Appendix 4	Camden Geological, Hydrogeological and Hydrological Maps.

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 end of terrace building on the site from Victorian times.. The general profile of the land slopes gently down to the south.

The flow charts Figure 1 in the Camden Planning Guidance have been considered and it has been decided that a Basement Impact Assessment is necessary because of ground water potential.

The following are the answers to the Figure 1 subterranean (ground water) Flow Screening Chart using the numbering in the document.

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

1B From the nearby sites the level of the basement floor will be similar to the water level in the ground.

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. The building occupies the full area of the plot.

5. The proposed surface water run off will be the same as existing for the reason given in question 4 above.

6. This does not apply as the site is not near a local pond or spring line.

The following are the answers to Figure 2 slope stability Flow Screening Chart considered as follows using the numbering in the document.

1. The site does not slope at a greater incline than 1 in 8.
2. The proposed landscaping will not alter existing levels to provide a slope at the property boundary.
3. The neighbouring land does not include railway cuttings.
4. The site is not within a wider hillside setting.
5. London Clay is likely to be the shallowest strata on the site immediately below made ground.
6. There will be no trees felled as part of the development.
7. There is history of shrinking and swelling of clay in this area, but no particular evidence on this site at present.
8. The site is not within a 100 metres of a water course or a potential spring line.
9. This site is within an area of previously worked ground.
10. The site is likely to be of principle aquifer in the chalk that will be below the London Clay. It is likely that a perched water table at the interface between the made ground and the clay will be encountered during the works.
11. The site is not within 50 metres of Hampstead Heath ponds.
12. The site is within 5 metres of a highway and the back of the kerb forms the front boundary to the site.
13. The proposed basement will significantly increase the depth of the foundations relative to the neighbours properties.
14. The site is not over any exclusion zone of any tunnels.

The following are the answers to the Figure 3. – Surface floor and Flooding and Flow Screening Chart

1. The site is not within the catchment of the pond chains on Hampstead Heath.
2. As far as the building is concerned the site drainage in terms of surface water flows will be identical as at present due to the area of the roof being similar.

3. The proposed basement will not result in a change to the proportion of hard surface or paved external areas.
4. The proposed basement will not result in any changes to the profile of inflows, surface water potentially being received by the adjacent properties.
5. The proposed basement will not result in any changes to the quality of surface water being received by adjacent properties as it will be collected in the main sewer as at present.
6. The site is not in an area to be at risk from surface water flooding.

As a result of the answers to the above questions it is proposed that a Desk Study and an Intrusive Soils Investigation is undertaken.

Stage 2 – Scoping

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

As the site is in Zone 1 it is proposed that a Flood Risk Assessment will not be undertaken as part of this exercise due to the limited size of the development. It is concluded that the site is not prone to flooding.

Referring to the map indicating water courses near to the site it is to the west of River Fleet which is culverted.

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

In Appendix 3 the Thames Water Sewer Records indicate that there is a combined sewer serving the property.

As a result of the above information it was concluded that the Desk Study was required to be included in this report.

Stage 3 – Desk Study

A Desk Study has been undertaken by Ground Engineering Ltd. and is included in Appendix 1.

The Desk Study can be summarised as follows. From records of adjacent sites it is concluded that the site is underlain by London Clay with made ground near the surface. There is no basement to this property currently at this time it was considered that sufficient work has been undertaken to conclude on the scope of the basement works. An intrusive soils investigation will be required which would require 1 borehole to be drilled to 12 metres and 4 trial pits to be excavated one on each of the perimeter walls of the property to determine the foundations of adjacent buildings.

At the same time if water is encountered then the level should be monitored on at least three occasions. Given local records it is likely this will be a perched water table on top of the London Clay as a result of stormwater runoff.

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 and underpin the adjacent buildings where necessary. The details of the proposed works are indicated on marked up copies of the Sprunt drawings 1,2,4,5,6-F-15-00-3.1. The proposal is to form the basement in 1500 mm long sections using an underpinning sequence after having underpinned any of the adjacent buildings using mass concrete blocks tied together. The excavation to form the L shaped units will require propping which will involve the use of sacrificial steel sheets at the rear of the excavation particularly where the underpinning of the adjacent property has not been undertaken. A detailed method statement will be prepared to accompany the working drawings. At present a suggested Construction Method Statement has been included in Appendix 2.

It is likely that the basement slab, walls and ground floor slab 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 by gravity into one of the existing manholes. It will be necessary to undertake a CCTV survey of the existing drainage prior to the works commencing so that access can be achieved into the existing for both the foul and storm drainage

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

During the site works, it is likely that localised pumping of excavations may be required as a result of rainfall or a perched water table.

Conclusions

The following conclusions are drawn based on the information available to date:

- From the Desk Top Studies it is concluded that this building will not impose any restrictions on the flow of ground water as there are no basements in this area to restrict the flow around the basement walls. This will be checked when the intrusive site investigation is undertaken.
- As far as flooding is concerned the existing drainage should be able to cope.
- Various flood maps have been consulted and they generally indicate that the site is in an area of low flood risk, therefore no flood protection precautions are required for this development.
- As a result of the extensive foundation works proposed on this property there is a possibility as a result of the work there may be some minor cracking in the adjacent buildings as the foundations settle in. This should be viewed as part of the works. Method Statements will be required for both the underpinning and the proposed structural works to form the basement.

- It is 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 the 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 was concluded that this basement can be constructed successfully as long as the guidelines in this report are followed. It is likely that there will be little or no effect on the ground water conditions below the site.

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Ground Engineering Ltd.

APPENDIX 1

DESK STUDY BY GROUND ENGINEERING LTD

APPENDIX 2

STRUCTURAL SCHEME DRAWINGS

BY

ELLIS AND MOORE CONSULTING ENGINEERS LTD.

PROJECT: 15311 81 BAYHAM STREET, LONDON NW1

CONSTRUCTION METHOD STATEMENT

The following is a suggested construction method statement for the basement to be read in conjunction with the Sprunt Scheme Drawings

1. Undertake a schedule of condition including photographs of all the properties bordering the site.

2. Demolish the existing building to ground level providing protection to exposed party walls and propping as necessary.

3. Underpin the adjacent properties in a numbered sequence of 1 metre wide pins using walers and props in the excavation at 1.00 centres vertically for the depth of the excavation. The depth will be of the order of 3 metres. Use a sacrificial back sheet in all excavations to limit settlement of the adjacent properties and consequently possible damage. The under pins should be mass concrete with linking reinforcement.

4. Excavate 1500 long sections to form the L shaped retaining wall sections. and prop as necessary similar to item 3 above down to the underside level of the basement slab, cast the slab then the wall and reprop the face of the wall. Repeat until all sections have been cast and repropped. In this instance the width of the excavations is to be 1500 mm.

5. Commencing at ground level excavate the dumpling in the middle of the site and provide horizontal props to all walls to support lateral loads in conjunction with steel walers.

6. When the excavation is complete down to the top of the base and the walls are laterally propped cast the basement slab.

7. Provide formwork for the ground floor slab and cast the ground floor slab.

8. After the ground slab concrete is cured remove the props and shuttering.

NOTES

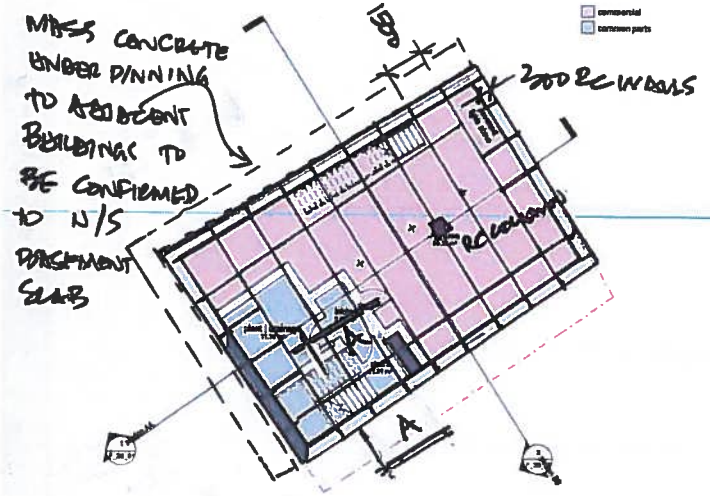
1. The proposed method statement will be developed further to include temporary works details.

2. The sequence of works given may be altered as a result of site conditions and specialist advice.

3. Level monitoring of all the walls of adjacent properties as described in the BIA.

4. Condition surveys to be undertaken on all buildings on completion of the casting of the ground floor and at handover of the completed superstructure.

The proposed work will be the subject of Party Wall Awards.



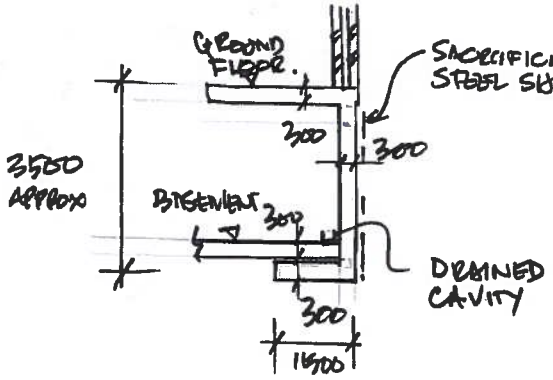
1 level -1
1:100

2 level 0
1:100

TRIAL PITS TP1 – TP4

BOREHOLE BH1 – 12 METRES

300 MM THICK GROUND FLOOR SLAB



SECTION A – A

RETAINING WALL ON PERIMETER OF BUILDING CONSTRUCTED IN 1500 MM LONG SECTIONS IN A NUMBERED SEQUENCE

NOTE ALL REINFORCED CONCRETE UP TO GROUND FLOOR LEVEL TO BE WATER PROOF

MARKED UP TO SHOW THE BASEMENT CONSTRUCTION

10.2.15

JOB NUMBER

15311

Boundary line

N

Scale 1:200 in meters

3-1 JK 31.10.14 RS PLANNING SUBMISSION

REV BY DATE CHK DESCRIPTION

STATUS

STAGE 3 - PLANNING

CONTRACTOR

N/A

PROJECT

81a/b BAYHAM STREET

CLIENT

REV 1

DRAWING TITLE

LOWER GROUND & GROUND FLOORS_GA

DATE CREATED	DATE AMENDED	SCALE
29.10.14	31.10.14	1 : 100@A1
DRAWN BY	AMENDED BY	CHECKED
JK	JK	RS

DRAWING NO & REVISION

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APPENDIX 3

THAMES WATER SEWER RECORDS

APPENDIX 4

CAMDEN GEOLOGICAL, HYDROGEOLOGICAL AND HYDROLOGICAL MAPS

APPENDIX 5

SITE PLAN