Basement Impact Assessment

Of

11 Fitzjohn's Avenue
Camden
NW3 5JY

for

Fitzjohn's Avenue Hampstead Ltd

LBH4424bia Ver 1.0

September 2016

LBH WEMBLEY

Geotechnical & Environmental

Project No: LBH4424bia

Report Ref: LBH4424bia Ver 1.0

Date: 16th September 2016

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Foreword-Guidance Notes

GENERAL

This report has been prepared for a specific client and to meet a specific brief. The preparation of this report may have been affected by limitations of scope, resources or time scale required by the client. Should any part of this report be relied on by a third party, that party does so wholly at its own risk and LBH WEMBLEY Geotechnical & Environmental disclaims any liability to such parties.

The observations and conclusions described in this report are based solely upon the agreed scope of work. LBH WEMBLEY Geotechnical & Environmental has not performed any observations, investigations, studies or testing not specifically set out in the agreed scope of work and cannot accept any liability for the existence of any condition, the discovery of which would require performance of services beyond the agreed scope of work.

VALIDITY

Should the purpose for which the report is used, or the proposed use of the site change, this report may no longer be valid and any further use of or reliance upon the report in those circumstances shall be at the client's sole and own risk. The passage of time may result in changes in site conditions, regulatory or other legal provisions, technology or economic conditions which could render the report inaccurate or unreliable. The information and conclusions contained in this report should therefore not be relied upon in the future.

THIRD PARTY INFORMATION

The report may present an opinion on the disposition, configuration and composition of soils, strata and any contamination within or near the site based upon information received from third parties. However, no liability can be accepted for any inaccuracies or omissions in that information.

DRAWINGS

Any plans or drawings provided in this report are not meant to be an accurate base plan, but are used to present the general relative locations of features on, and surrounding, the site.

Introduction

1.1 Background

It is proposed to renovate the existing buildings to allow for the establishment of a series of residential flats, as part of this re-development a single storey basement is proposed beneath the main building at the front of the site.

1.2 Brief

LBH WEMBLEY Geotechnical & Environmental have been appointed to carry out a Basement Impact Assessment (BIA) for submission to London Borough of Camden in order to satisfy the specific requirements of Camden Planning Policy DP27 on Basements and Lightwells and Supplementary Planning Guidance CPG4 on Basements and Lightwells.

This report is to be submitted in support of upcoming planning application to allow for new residential accommodation, within a new basement and the renovation of the upper floors.

1.3 Documents Consulted

The following documents have been consulted during the preparation of this document:

1. Proposed Drawings of 11 Fitzjohn's Avenue, by Bchitecture, dated May 2016, refs: 114H, 115G, 211F and 212G

2. Existing Drawings, by Bchitecture, dated April 2016, refs: 100/A, 101/A, 102/A, 103/A.

3. Camden Planning Guidance 4, Basements and Lightwells, 2015

4. Camden Development Policies DP27 – Basements and Lightwells, 2010

5. London Borough of Camden Geological, Hydrogeological and Hydrological Study, by Ove Arup & Partners Limited, dated 18th November 2010, Issue 01

2. The Site

2.1 Site Location

The site is situated on the gentle lower southern slopes of Hampstead Hill and sits along Fitzjohn's Avenue, approximately 200m east of Finchley Road Station. The site may also be located approximately by postcode NW3 5JY or by National Grid Reference 526568, 184761.

2.2 Site Description

The site is rectangular in shape, measuring approximately 50m by 16m, and consists of the existing buildings of 11 Fitzjohn's Avenue.

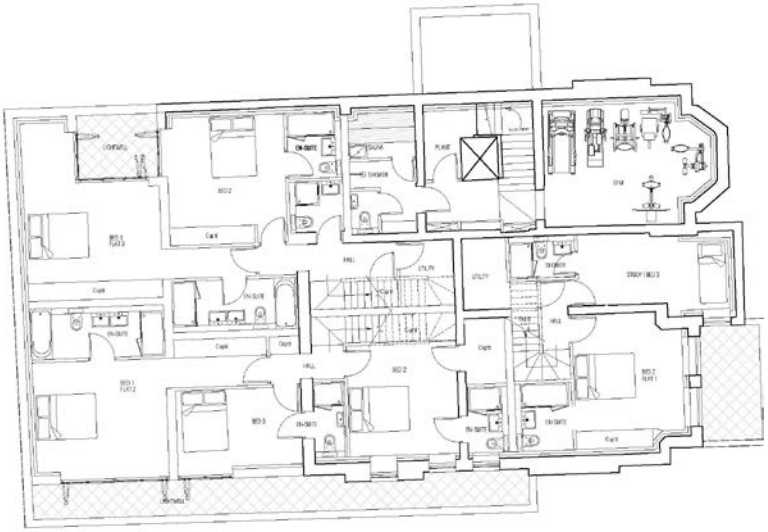
The existing buildings consist of a four storey Victorian brick built detached house, which also includes a large single storey brick extension to the rear of the property. The site is currently vacant.

The surrounding area is residential in nature, with the properties either side being of a similar age and construction. A new single storey basement is currently being constructed at the neighbouring property No.9 Fitzjohn's Avenue, whilst No.13 Fitzjohn's doesn't currently have a basement.

There are a number of semi-mature trees (including silver birch and ash) located within the rear garden of the property, with some additional semi-mature trees (including ash) along the eastern boundary wall of the site, fronting onto Fitzjohn's Avenue.

2.3 Proposed Development

It is proposed to construct a single level basement (approximately 3.5m deep) underneath part of the existing main building. The upper levels of the house are to be renovated, allowing for the development of a number of flats to be established.



Proposed Basement Layout

Desk Study

2.4 Site History

During the nineteenth century the site was located on an area of agricultural land, with the existing main building and the surrounding area being developed by the end of the century.

The recent rear extension had been constructed by the early 1990's, with this space being used for a activity room, for the residents of the care home located in the main building.

The site has recently become vacant.

2.5 Geological Information

The BGS records that the site is underlain by London Clay Formation. No superficial deposits are recorded. Archive water well records suggest that the London Clay extends to 80m overlying almost 10m of Woolwich & Reading Beds and less than 5m of Thanet Sand overlying the Upper Chalk Formation.

2.6 Hydrogeological / Hydrological Information

The London Clay Formation is classified as Unproductive Strata.

The nearest surface water feature is the now culverted River Tyburn, located some 50m to the east of the site.

The site is not at risk of flooding from rivers or sea. However Fitzjohn's Avenue has been identified as a street at risk of surface water flooding, specified in the London Borough of Camden Strategic Flood Risk Assessment and therefore a flood risk assessment will be required.

3. Stage 1 - Screening Assessment

3.1 Purpose and Methodology

Screening uses checklists to identify whether there are matters of concern (with regard to hydrogeology, hydrology or ground stability) which should be investigated using a BIA (Section 6.2 and Appendix E of the CGHSS) and is the process for determining whether or not a BIA is required. There are three checklists as follows:

- subterranean (groundwater) flow
- slope stability
- surface flow and flooding

3.2 Screening Checklist for Subterranean (Groundwater) Flow

Question	Response	Justification
Is the site is located directly above an aquifer?	**NO**	The BGS records that the site is underlain by London Clay Formation. No superficial deposits are recorded.
Will the proposed basement extend beneath the water table surface?	**NO**	No groundwater is expected within the London Clay.
Is the site within 100m of a watercourse, well (used/disused) or potential spring line?	**YES**	The culverted head waters of the River Tyburn is located some 50m to the east of the site. Carried forward to scoping.
Will the proposed development result in a change in the area of hard-surfaced/paved areas?	**YES**	The proposed site layout will slightly increase the amount of hardstanding
Will more surface water (e.g. rainfall and run-off) than at present will be discharged to the ground (e.g. via soakaways and/or SUDS)?	**NO**	There is no drainage discharged into the ground.
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?	**NO**	There are no nearby ponds.

3.3 Screening Checklist for Stability

Question	Response	Justification
Does the existing site include slopes, natural or manmade, greater than 7 degrees?	**NO**	The site is level.
Does the proposed re-profiling of landscaping at the site change slopes at the property boundary to more than 7 degrees?	**NO**	No re-profiling of the site is planned.
Does the development neighbour land, including railway cuttings and the like, with a slope greater than 7 degrees?	**NO**	The neighbouring roads and the school grounds to the rear are flat-lying.
Is the site within a wider hillside setting in which the general slope is greater than 7 degrees?	**NO**	No. Figure 16 of the CGHHS shows the site to be in an area of zero to seven degrees slope.
Is London Clay the shallowest strata at the site?	**YES**	Carried forward to scoping
Will trees be felled as part of the proposed development and/or are works proposed within tree protection zones where trees are to be retained?	**NO**	No trees are to felled
Is there a history of seasonal shrink-swell subsidence in the local area, and/or evidence of such effects at the site?	**NO**	No evidence of cracks or building movements was evident upon visiting the site and no effects were noted in any of the adjacent and surrounding buildings.
Is the site within 100m of a watercourse of a potential spring line?	**YES**	The culverted head waters of the River Tyburn is located some 50m to the east of the site. Carried forward to scoping.
Is the site within an area of previously worked ground?	**NO**	No. Figure 2 of the CGHHS shows the site not to be in an area of worked ground.
Is the site within an aquifer?	**NO**	The London Clay Formation is classified as Unproductive Strata.
Will the proposed basement extend beneath the water table such that dewatering may be required during construction?	**NO**	No water table is expected to be present.
Is the site within 50m of the Hampstead Heath ponds?	**NO**	The Hampstead Heath ponds are over 2km to the north of the site.
Is the site within 5m of a highway or pedestrian right of way?	**YES**	Carried forward to scoping
Will the proposed basement significantly increase the differential depth of foundations relative to the neighbouring properties?	**YES**	Carried forward to scoping
Is the site over (or within the exclusion zone of) tunnels, e.g. railway lines?	**NO**	No exclusion zones are located near the site

3.4 Screening Checklist for Surface Flow and Flooding

Question	Response	Justification
Is the site within the catchment area of the pond chains on Hampstead Heath?	**NO**	The site is outside of the catchment areas of the Hampstead Heath ponds as shown in Figure 14 of the CGHHS
As part of the site drainage, will surface water flows (e.g. rainfall and run-off) be materially changed from the existing route?	**NO**	Surface water flows will be disposed of by the existing means.
Will the proposed basement development result in a change in the proportion of hard-surfaced/paved areas?	**YES**	The proposed site layout will result in a small increase to the proportion of hard to soft surfaced areas.
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**	All drainage is to the sewer as per existing.
Will the proposed basement result in changes to the quality of surface water being received by adjacent properties or downstream watercourses?	**NO**	All drainage is to the sewer as per existing.

4. Stage 2 - Scoping Assessment

Where the checklist is answered with a "yes" or "unknown" to any of the questions posed in the flowcharts, these matters are carried forward to the scoping stage of the BIA process.

The scoping produces a statement which defines further the matters of concern identified in the screening stage. This defining should be in terms of ground processes, in order that a site specific BIA can be designed and executed (Section 6.3 of the CGHHS).

The issues identified from the checklists as being of concern in the previous sections are as follows:

- **Is the site within 100m of a watercourse, well (used/disused) or potential spring line?**
  The guidance advises that flow from a spring, well or watercourse may increase or decrease if the groundwater flow regime which supports that water feature is affected by a proposed basement. If the flow is diverted, it may result in the groundwater flow finding another location to issue from with new springs forming or old springs being reactivated.
  A secondary impact is on the quality of the water issuing or abstracted from the spring or water well respectively.
- **London Clay is the shallowest strata at the site.**
  The guidance advises that of the at-surface soil strata present in LB Camden, the London Clay is the most prone to seasonal shrink-swell (subsidence and heave).
- **The site is within 5m of a highway or pedestrian right of way.**
  The guidance advises that excavation for a basement may result in damage to the road, pathway or any underground services buried in trenches beneath the road or pathway.
- **The proposed basement will significantly increase the differential depth of foundations relative to the neighbouring properties.**
  The guidance advises that excavation for a basement may result in structural damage to neighbouring properties if there is a significant differential depth between adjacent foundations.
- **The proposed development will result in a change in the area of hard-surfaced/paved areas.**
  The guidance advises that the sealing off of the ground surface by pavements and buildings to rainfall will result in decreased recharge to the underlying ground. In areas underlain by an aquifer, this may impact upon the groundwater flow or levels. In areas of non-aquifer (i.e. on the London Clay), this may mean changes in the degree of wetness which in turn may affect stability.
  The guidance advises that a change in the in proportion of hard surfaced or paved areas of a property will affect the way in which rainfall and surface water are transmitted away from a property. This includes changes to the surface water received by the underlying aquifers, adjacent properties and nearby watercourses. Changes could result in decreased flow, which may affect ecosystems or reduce amenity, or increased flow which may additionally increase the risk of flooding.

The assessment of potential impacts is informed by an intrusive ground investigation and all the above issues are to be carried forward for impact assessment.

The screening assessment has identified no groundwater issues and given the impermeable geology no potential cumulative hydrogeological effects are identified.

The site is at risk of surface water flooding, and will require a flood risk assessment.

5. Stage 3 – Scope for Site Investigation

It is currently proposed to construct two 15m deep cable percussion boreholes.

Groundwater monitoring standpipes will be installed in both boreholes. A geotechnical and ground movement assessment will then be completed.

A series of structural trial pits are to be constructed to assess the existing building foundations, along with the foundations of the buildings neighbouring the site.

A Flood Risk Assessment is to also be prepared to address the risk of surface water flooding at the site.