

11 Fitzjohn's Avenue, NW3 5JY

Basement Impact Assessment  
Audit

For

London Borough of Camden

Project Number: 12466-27  
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April 2017

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## Document Details

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## 1.0 NON-TECHNICAL SUMMARY

- 1.1. CampbellReith was instructed by London Borough of Camden, (LBC) to carry out an audit on the Basement Impact Assessment submitted as part of the Planning Submission documentation for 11 Fitzjohn's Avenue (planning reference 2017/1263/P). The basement is considered to fall within Category B as defined by the Terms of Reference.
- 1.2. The Audit reviewed the Basement Impact Assessment for potential impact on land stability and local ground and surface water conditions arising from basement development in accordance with LBC's policies and technical procedures.
- 1.3. CampbellReith was able to access LBC's Planning Portal and gain access to the latest revision of submitted documentation and reviewed it against an agreed audit check list.
- 1.4. The Basement Impact Assessment (BIA) and Ground Movement Assessment (GMA), Construction Management Statement (CMS) and the Flood Risk Assessment (FRA) have all been prepared by well-known firms of engineering consultants using individuals who possess suitable qualifications.
- 1.5. The BIA has confirmed that the proposed basement will be founded within London Clay and that the London Clay is overlain by approximately 0.4-1.1m of Made Ground.
- 1.6. It is unlikely that ground water will be encountered during basement foundation excavation. However, the design of the basement underpin walls has conservatively allowed for ground water pressure.
- 1.7. The neighbouring properties are shown on the various sections and details provided in the CMS. There is a basement under construction at No 13. There is no basement at No 9.
- 1.8. Analysis has been undertaken of the ground movements and this has been assessed for excavation and construction (unloading and loading) in both the short and long term conditions. This has resulted in the proposed works obtaining a Burland Category 1.
- 1.9. A movement monitoring strategy during excavation and construction is provided in the BIA and CMS. This should be agreed under the Party Wall Act.
- 1.10. It is accepted that the surrounding slopes to the development site are stable, that the development will not impact on the wider hydrogeology of the area and is not in an area subject to flooding.
- 1.11. The BIA meets the criteria of CPG4 and DP27.

## 2.0 INTRODUCTION

- 2.1. CampbellReith was instructed by London Borough of Camden (LBC) on 13<sup>th</sup> March 2017 to carry out a Category B Audit on the Basement Impact Assessment (BIA) submitted as part of the Planning Submission documentation for 11 Fitzjohns Avenue, 2017/1263/P.
- 2.2. The Audit was carried out in accordance with the Terms of Reference set by LBC. It reviewed the Basement Impact Assessment for potential impact on land stability and local ground and surface water conditions arising from basement development.
- 2.3. A BIA is required for all planning applications with basements in Camden in general accordance with policies and technical procedures contained within
- Guidance for Subterranean Development (GSD). Issue 01. November 2010. Ove Arup & Partners.
  - Camden Planning Guidance (CPG) 4: Basements and Lightwells.
  - Camden Development Policy (DP) 27: Basements and Lightwells.
  - Camden Development Policy (DP) 23: Water.
- 2.4. The BIA should demonstrate that schemes:
- a) maintain the structural stability of the building and neighbouring properties;
  - b) avoid adversely affecting drainage and run off or causing other damage to the water environment;
  - c) avoid cumulative impacts upon structural stability or the water environment in the local area, and;
  - d) evaluate the impacts of the proposed basement considering the issues of hydrology, hydrogeology and land stability via the process described by the GSD and to make recommendations for the detailed design.
- 2.5. LBC's Audit Instruction described the planning proposal as "*Construction of Basement floor level beneath building to provide additional floor space to consented residential units (Use Class C3) dated 08/09/2016 (ref: 2016/4057/P)*"

The Audit Instruction also confirmed the development at 11 Fitzjohns Avenue does not involve, or neighbour, listed buildings.

2.6. CampbellReith accessed LBC's Planning Portal on 6<sup>th</sup> April 2017 and gained access to the following relevant documents for audit purposes:

- Geotechnical, Ground Movement and Basement Impact Assessment (BIA), LBH Wembley, March 2017
- Construction Method Statement (CMS), Blue Engineering, March 2017
- Flood Risk Assessment (FRA), LBH Wembley, Sep 2016
- Monitoring Proposal
- Existing Consented Plans (Planning Consent Ref 2016/5782/P), Bchitecture, Nov 2016
- Proposed Plans, Bchitecture, Nov 2016
- Residents comments

### 3.0 BASEMENT IMPACT ASSESSMENT AUDIT CHECK LIST

Item	Yes/No/NA	Comment
Are BIA Author(s) credentials satisfactory?	Yes	Page 2 of BIA.
Is data required by Cl.233 of the GSD presented?	Yes	Where required for this development.
Does the description of the proposed development include all aspects of temporary and permanent works which might impact upon geology, hydrogeology and hydrology?	Yes	Section 2.2 of BIA and CMS.
Are suitable plan/maps included?	Yes	Detailed plans/maps provided in FRA.
Do the plans/maps show the whole of the relevant area of study and do they show it in sufficient detail?	Yes	
Land Stability Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Section 4.3 of BIA.
Hydrogeology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Section 4.2 of BIA. Q3 is missing but covered by section 4.4 of BIA.
Hydrology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Section 4.4 of BIA. Q6 is missing but confirmed in section 3.3 and in the FRA.
Is a conceptual model presented?	Yes	Section 3.2 of BIA.
Land Stability Scoping Provided? Is scoping consistent with screening outcome?	Yes	Section 4 of BIA.

Item	Yes/No/NA	Comment
Hydrogeology Scoping Provided? Is scoping consistent with screening outcome?	Yes	Section 5 of BIA.
Hydrology Scoping Provided? Is scoping consistent with screening outcome?	Yes	Section 5 of BIA.
Is factual ground investigation data provided?	Yes	Section 7.1 of BIA.
Is monitoring data presented?	N/A	No ground water on site. Section 6.4 of BIA.
Is the ground investigation informed by a desk study?	Yes	Section 3 of BIA.
Has a site walkover been undertaken?	Yes	Section 4.3 Q7 of BIA and Section 1.4 of CMS.
Is the presence/absence of adjacent or nearby basements confirmed?	Yes	Basement under construction at No 9. No basement at No 13.
Is a geotechnical interpretation presented?	Yes	Section 7 of BIA.
Does the geotechnical interpretation include information on retaining wall design?	Yes	Section 9.1 of BIA.
Are reports on other investigations required by screening and scoping presented?	Yes	FRA, Boreholes and Ground Water Monitoring.
Are the baseline conditions described, based on the GSD?	Yes	Section 9 of BIA.
Do the base line conditions consider adjacent or nearby basements?	Yes	Section 9 of BIA.
Is an Impact Assessment provided?	Yes	Section 9 of BIA.
Are estimates of ground movement and structural impact presented?	Yes	Section 9 of BIA.



Item	Yes/No/NA	Comment
Is the Impact Assessment appropriate to the matters identified by screen and scoping?	Yes	Section 9.1 of BIA (Impact on neighbouring structures).
Has the need for mitigation been considered and are appropriate mitigation methods incorporated in the scheme?	Yes	However, also see point below on monitoring and sections in the discussion.
Has the need for monitoring during construction been considered?	Yes	Section 8.3 of BIA.
Have the residual (after mitigation) impacts been clearly identified?	Yes	Section 5 of CMS.
Has the scheme demonstrated that the structural stability of the building and neighbouring properties and infrastructure will be maintained?	Yes	
Has the scheme avoided adversely affecting drainage and run-off or causing other damage to the water environment?	Yes	
Has the scheme avoided cumulative impacts upon structural stability or the water environment in the local area?	Yes	
Does report state that damage to surrounding buildings will be no worse than Burland Category 2?	Yes	However, as per section 3.30 on page 20 of the CPG4 2015, further mitigation measures are required if the Burland Category is 1 or higher.
Are non-technical summaries provided?	No	However, the information is clearly laid out and easy to follow.

## 4.0 DISCUSSION

- 4.1. The Basement Impact Assessment (BIA) has been carried out by a well-known firm of engineering consultants, LBH Wembley and the individuals concerned in its production have suitable qualifications.
- 4.2. The Construction Method Statement (CMS) has similarly been carried out by a well-known firm of engineering consultants, Blue Engineering. The reviewer is a chartered structural engineer.
- 4.3. All documents, BIA, GMA, CMS, Drawings and Applications have all been produced within a six month time frame. There does not appear to be any significant design changes/assumptions between the documents. Initial proposals were presented for application 2016/5782/P. The proposed basement was subsequently amended and submitted as part of this application (2017/1263/P).
- 4.4. The LBC Instruction to proceed with the audit identified that the basement proposal is not part of, or neighbours, a listed building.
- 4.5. The proposed basement consists of a single-storey (approximately 3.5m deep) formed beneath the entire building footprint (including the one-storey rear extension) and extending into the garden. A new light well will also be constructed to the front and one side (adjacent to No 9). At the rear of the property the basement will extend under an area that is currently landscaped. Plans and sections are provided by both the Architect and Structural Engineer.
- 4.6. The BIA and CMS have identified that the reinforced concrete basement slab will be founded within the London Clay. The pressure from heave is identified and preliminary calculations are provided to justify the design. Where the weight of the proposed structure does not overcome the resulting heave, tension piles have been designed to resist uplift of the structure.
- 4.7. The CMS gives a clear identifiable structural solution that encompasses the various situations and sections of the design. Cross sections are provided at all the main design scenarios and tension piles have been included where the self-weight of the structure is insufficient to resist the heave forces that could be applied to the new structure. Suitable design and loading assumptions have been made by the Structural Engineer, where not confirmed by the BIA and Ground Investigation. The assumptions of propping positions in the design of the underpin walls is in agreement with the construction sequence proposed. A conservative assumption on ground water level has been made for the design of the underpin walls.
- 4.8. The Ground Investigation, included within the GMA, shows approximately 0.4m to 1.1m of made ground over London Clay to depth of borehole. The ground investigation carried out would appear suitable for the construction proposed.

- 4.9. No ground water was encountered during the Ground Investigation. Groundwater standpipes were installed to enable future monitoring. The design of the basement construction has made conservative assumptions on the level of ground water.
- 4.10. The ground movement assessment has carried out a detailed analysis of the expected ground movements which are clearly stated. This has resulted in the construction type and method being identified as Burland Category 1. As per CPG4 (Basements and Lightwells) 2015, this recommends further mitigation measures to reduce or monitor movement of the existing and neighbouring properties.
- 4.11. Movement monitoring during the construction works is provided in the BIA and CMS. Monitoring points and trigger action values should be agreed under the Party Wall Act.
- 4.12. It is accepted that there will be a slight increase to the amount of hardstanding. This is carried forward to the GMA as part of the impact assessment.
- 4.13. The BIA has shown that the proposed development is within 100m of a nearby culverted River Tyburn. However, the lack of ground water has closed this item from the scoping stage.
- 4.14. It is accepted that there are no slope stability concerns regarding the proposed development and that it is not in an area prone to flooding from rivers or sea water. A flood risk assessment has been completed to assess the risk of surface water flooding.

## 5.0 CONCLUSIONS

- 5.1. The BIA, GMA, CMS and FRA have all been carried out by well-known firms of engineering consultants using individuals who possess suitable qualifications.
- 5.2. The BIA has confirmed that the proposed basement will be founded within London Clay and its foundations have been designed to accommodate suitable loadings for this construction.
- 5.3. Ground water was not found during investigation works and it is not expected to be discovered during the construction and excavation works.
- 5.4. The BIA, CMS, GMA and FRA provide a detailed assessment of the various impacts of the proposed basement construction. The proposed construction has been identified as Burland Category 1.
- 5.5. In accordance with CPG4, a Movement Monitoring Strategy (covering excavation and construction) is proposed to reduce the risk of damage to neighbouring properties.
- 5.6. It is accepted that the surrounding slopes to the development site are stable.
- 5.7. It is accepted that the development will not impact on the wider hydrogeology of the area and is not in an area subject to flooding.

## Appendix 1: Residents' Consultation Comments

Residents' Consultation Comments

Surname	Address	Date	Issue raised	Response
Stephen Williams for and on behalf of Netherhall Neighbourhood Association	Little House A, 16A Maresfield Gardens, London, NW3 5SU	17/03/17	<p>(2016/5782/P)</p> <p>There is currently an application submitted to Camden (2016/5782/P) to construct a basement below the current building and the approved rear extension. The NNA object to this application as overdevelopment and the structural risk to adjoin properties and ask that Camden refuse this earlier application.</p> <p>This fresh application seeks to create a new basement, which extends west beyond the current extent of the approved ground floor extension to within only a few metres of the rear of the garden and its boundary with 6 Maresfield Gardens. You will be aware that the property almost adjacent at 2 Maresfield Gardens has recently had permission to extend the building, basement and light wells out into its garden to such an extent that the garden is completely lost to excavation. If this application at 11 Fitzjohn's Avenue is permitted, there will be an excavation of the basement area to a line within a few metres of alignment with the eastern extent of the excavation of 2 Maresfield Gardens. This will form a barrier stretching from the Maresfield Gardens frontage to the Fitzjohn's Avenue frontage. This "trench" barrier will have a serious effect on ground water. The BIA for each property will not have taken into account the adjacent development and</p>	See response in Section 4.7, 4.9 to 4.11

			would have been wrongly considered in isolation.	
The Heath and Hampstead Society	PO Box 38214, London, NW3 1XD	22/03/16	We are also concerned that the excavation and construction process would be unacceptably intrusive to existing residents, both at No 11 and neighbouring premises.	See response in Section 4.10 to 4.11

Appendix 2: Audit Query Tracker

None



## Appendix 3: Supplementary Supporting Documents

None

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