

10 Agamemnon Road,  
London, NW6 1DY

Basement Impact Assessment  
Audit

For

London Borough of Camden

Project Number: 12466-02  
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September 2016

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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 10 Agamemnon Road, London, NW6 1DY (planning reference 2015/6064/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 BIA was undertaken by Chelmer Consultancy Services. The author's qualifications are in accordance with CPG4 requirements.
- 1.5. The proposal includes increasing the depth of the existing basement and extending to cover the entire building footprint. An underpinning sequence and sketches to illustrate construction sequence are not included and these are requested. The information provided should also include indicative structural calculations for the proposed basement.
- 1.6. It is requested that the figures representing the relevant map extracts are revisited to ensure the correct site location is presented.
- 1.7. It is generally considered that hand shear vane test results over-estimate the strength of the ground. However, it is accepted that they are adequate for the purposes of this impact assessment. Some further discussion of soil parameters is requested.
- 1.8. Whilst the full input and output from the Pdisp analysis has not been presented, it is accepted that the predicted ground movements and building damage are reasonable, assuming good workmanship and that the affected structures are in sound condition.
- 1.9. Mitigation measures are discussed within the BIA, but the effects and residual impacts have not been included. Consideration to these should be given in the BIA.
- 1.10. It is identified that SuDS measures are required to address the increase in flows off site. Outline details of any proposed drainage/SuDS should be included within the BIA.
- 1.11. Flood risk has been identified as a potential risk. This requires further consideration and assessment as part of the BIA.

- 1.12. An outline works programmed is requested with a detailed programme to be provided by the appointed contractor.
- 1.13. It is accepted that the surrounding slopes to the development site are stable and that there are no other surface or groundwater considerations regarding the proposed development.
- 1.14. Queries and requests for clarification are discussed in Section 4 and summarised in Appendix 2.

## 2.0 INTRODUCTION

2.1. CampbellReith was instructed by London Borough of Camden (LBC) on 24 August 2016 to carry out a Category B Audit on the Basement Impact Assessment (BIA) submitted as part of the Planning Submission documentation for 10 Agamemnon Road, London, NW6 1DY, planning reference 2015/6064/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;

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 *"Change of use from 7 individual studio flats and 2 bedsits, to 4 x 2 bedroom flats, extension to existing basement, including new lightwells to the front and rear. Extension of ground floor extensions, new front bin storage unit and boundary fence."*

The Audit Instruction also confirmed 10 Agamemnon Road is not listed, nor is it neighbour to a listed building.

2.6. CampbellReith accessed LBC's Planning Portal on 19 September 2016 and gained access to the following relevant documents for audit purposes:

- Basement Impact Assessment Report (BIA)
- Planning Application Drawings consisting of
  - Location Plan
  - Existing Plans
  - Proposed Plans
  - Existing Elevations and Sections
  - Proposed Elevations and Sections
- Design & Access Statement
- Geo-environmental Interpretative Report

### 3.0 BASEMENT IMPACT ASSESSMENT AUDIT CHECK LIST

Item	Yes/No/NA	Comment
Are BIA Author(s) credentials satisfactory?	Yes	See BIA Section 1.2
Is data required by Cl.233 of the GSD presented?	No	See Audit paragraph 4.2
Does the description of the proposed development include all aspects of temporary and permanent works which might impact upon geology, hydrogeology and hydrology?	Yes	See BIA Sections 2 to 6
Are suitable plan/maps included?	No	See Audit paragraph 4.3
Do the plans/maps show the whole of the relevant area of study and do they show it in sufficient detail?	Yes	See BIA Section 5
Land Stability Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	See BIA Section 7.3
Hydrogeology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	See BIA Section 7.2
Hydrology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	See BIA Section 7.4
Is a conceptual model presented?	No	Further detail required, see Audit paragraph 4.5
Land Stability Scoping Provided? Is scoping consistent with screening outcome?	Yes	See BIA Section 8.3



Item	Yes/No/NA	Comment
Hydrogeology Scoping Provided? Is scoping consistent with screening outcome?	Yes	See BIA Section 8.2
Hydrology Scoping Provided? Is scoping consistent with screening outcome?	Yes	See BIA Section 8.4
Is factual ground investigation data provided?	Yes	Included within BIA Appendix C and in separate Geoenvironmental Interpretative Report (GIR)
Is monitoring data presented?	Yes	Included within separate GIR and discussed in BIA Section 9.8
Is the ground investigation informed by a desk study?	Yes	See BIA Section 2 – 6
Has a site walkover been undertaken?	Yes	
Is the presence/absence of adjacent or nearby basements confirmed?	Yes	See BIA Section 10.2
Is a geotechnical interpretation presented?	Yes	See BIA Section 10.1 and separate GIR
Does the geotechnical interpretation include information on retaining wall design?	Yes	See BIA Audit paragraph 4.5
Are reports on other investigations required by screening and scoping presented?	No	See Audit paragraph 4.13
Are the baseline conditions described, based on the GSD?	Yes	See BIA Sections 2.0 to 6.0
Do the base line conditions consider adjacent or nearby basements?	Yes	See BIA Section 10.2.3
Is an Impact Assessment provided?	Yes	See BIA Section 10
Are estimates of ground movement and structural impact presented?	Yes	See BIA Section 10.5 and 10.6

Item	Yes/No/NA	Comment
		However there are comments on the approach used, see BIA Audit paragraph 4.7 to 4.10
Is the Impact Assessment appropriate to the matters identified by screen and scoping?	Yes	See BIA Section 10
Has the need for mitigation been considered and are appropriate mitigation methods incorporated in the scheme?	Yes	See BIA Section 10.9 for summary
Has the need for monitoring during construction been considered?	Yes	See BIA Section 10.7
Have the residual (after mitigation) impacts been clearly identified?	No	See Audit paragraph 4.11
Has the scheme demonstrated that the structural stability of the building and neighbouring properties and infrastructure will be maintained?	Yes	See BIA Section 10 and Audit paragraphs 4.7 to 4.9
Has the scheme avoided adversely affecting drainage and run-off or causing other damage to the water environment?	Yes	See BIA Section 10.8
Has the scheme avoided cumulative impacts upon structural stability or the water environment in the local area?	Yes	See BIA Section 10
Does report state that damage to surrounding buildings will be no worse than Burland Category 2?	Yes	Category 1 (Very Slight) damage has been predicted for the two neighbouring properties, however there are queries on the GMA.
Are non-technical summaries provided?	Yes	See BIA sections 7, 8, 9 and 11

## 4.0 DISCUSSION

- 4.1. The Basement Impact Assessment (BIA) has been carried out by a firm of engineering consultants, Chelmer Consultancy Services and the individuals concerned in its production have suitable qualifications.
- 4.2. The proposed basement consists of a single storey construction formed by lowering an existing lower ground floor area and extending it to cover the entire building footprint. It is stated in the BIA that the walls will be formed by underpinning the existing foundations although a construction sequence, works programme or underpinning methodology have not been included. No structural details of the proposed basement have been provided. Drawings or sketches and outline structural calculations are required with all design assumptions clearly stated to confirm the feasibility of the proposals.
- 4.3. Whilst relevant map extracts have been included within Sections 2 to 6 of the BIA, a number of figures appear to show the location of the site in the wrong place.
- 4.4. The BIA has identified that ground conditions comprise thin layer of Made Ground over London Clay to the front of the property and Made Ground, over, Head Deposits, and London Clay in turn to the rear of the house. Whilst groundwater was not encountered during the site investigation, two subsequent monitoring visits recorded water at 2.53mbgl and 1.70mbgl in boreholes BH1 and BH2 respectively. The BIA has recommended a design groundwater level equivalent to ground level for design.
- 4.5. The BIA includes Section 10.1 titled 'Conceptual Ground Model'. Whilst this section discusses the strata encountered, a ground model with strata design depths is not presented. Suggested geotechnical design parameters are included in BIA Sections 10.4 and 10.5. The BIA provides retaining wall parameters and stiffness values are provided for London Clay in section 10.5 for use in the PDisp analyses. There are no suggested stiffness parameters for Made Ground or Head Deposits.
- 4.6. It is noted that undrained shear strength parameters have been derived from the in-situ hand shear vane tests undertaken within the boreholes. Whilst it is generally considered that these can over-estimate the strength of the soils, it is accepted that they are adequate for the purposes of this impact assessment.
- 4.7. The BIA presents a ground movement assessment which considers settlement/heave due to the excavation using the computer program Pdisp by Oasys and horizontal movements due to excavation and wall installation, based on the method by Burland in CIRIA SP200.

- 4.8. The BIA includes contour plots and summary of predicted displacements. However, the BIA does not contain the full input and output from the software analysis. Predicted movements have been included within the damage assessment.
- 4.9. The damage category to the two neighbouring properties, along with the associated ground movement assessment (GMA), has been presented in section 10.6. A damage category 1 has been determined for both No.8 and No.12 Agamemnon Road based on the results of the GMA. It is accepted that, on the basis of good control of workmanship, ground movements and resultant building damage should have limited impact.
- 4.10. Mitigation measures are discussed in BIA Section 10.9 with suggested monitoring and associated trigger levels being discussed in Section 10.7. The author has not included discussion on the effects of the mitigation measures or any remaining residual risk if implemented.
- 4.11. A works programme has not been submitted as required by Cl.233 of the GSD.
- 4.12. Both the hydrogeology and hydrology screening identified that the proposed basement is likely to increase the proportion of hard surfaced/paved areas. This has been carried through to scoping with the action to review appropriate types of SuDS for use as site-specific mitigation. Outline details of the proposed mitigation should be submitted.
- 4.13. The hydrology screening identified that part of Agamemnon Road flooded in 2002. This has been carried through to scoping where the BIA recommends further review of the flood risk and the provision of protection measures if deemed necessary. This impact assessment requires completion and inclusion within the BIA.
- 4.14. It is accepted that there are no slope stability concerns regarding the proposed development. In the absence of significant groundwater flows, it is accepted there are no potential impacts to the wider hydrogeology.

## **5.0 CONCLUSIONS**

- 5.1. The BIA was undertaken by Chelmer Consultancy Services. The author's qualifications are in accordance with CPG4 requirements.
- 5.2. The proposal includes increasing the depth of the existing basement and extending to cover the entire building footprint. An underpinning sequence and sketches to illustrate construction sequence are not included and these are requested. The information provided should also include indicative structural calculations for the proposed basement, including retaining walls, slabs and foundations which clearly state all the assumptions made.
- 5.3. It is requested that the figures representing the relevant map extracts are revisited to ensure the correct site location is presented.
- 5.4. Whilst the BIA has provides some geotechnical and retaining wall parameters, stiffness parameters for all relevant strata are required.
- 5.5. It is generally considered that hand shear vane test results over-estimate the strength of the ground. However, it is accepted that they are adequate for the purposes of this impact assessment.
- 5.6. Whilst the full input and output from the Pdisp analysis has not been presented, it is accepted that the predicted ground movements and building damage are reasonable, assuming good workmanship and that the affected structures are in sound condition.
- 5.7. Mitigation measures are discussed within the BIA, but the effects and residual impacts have not been included. Consideration to these should be given in the BIA.
- 5.8. It is identified that SuDS measures are required to address the increase in flows off site. Outline details of any proposed drainage/SuDS should be included within the BIA and this is requested.
- 5.9. Flood risk has been identified as a potential risk. This requires further consideration and assessment as part of the BIA.
- 5.10. A works programme has not been included. An outline works programmed is requested with a detailed programme to be provided by the appointed contractor.
- 5.11. It is accepted that the surrounding slopes to the development site are stable.
- 5.12. It is accepted there are no other surface or groundwater considerations regarding the proposed development.

## **Appendix 1: Residents' Consultation Comments**

None

## **Appendix 2: Audit Query Tracker**

Audit Query Tracker

Query No	Subject	Query	Status	Date closed out
1	BIA	Construction information not provided	Open – Construction Sequence, underpinning details and structural details of basement to be submitted with outline calculations for retaining wall and slab.	
2	BIA	Works programme not included	Open – outline duration to be provided with detailed programme submitted at a later date by appointed Contractor.	
3	BIA	Residual impacts following mitigation measures not included	Open – to be resubmitted confirming any residual impacts	
4	Hydrogeology	Probable increase in hard surfacing/pavement	Open – outline details of proposed mitigation to be included with BIA submission	
5	Hydrology	Review of Flood Risk included in scoping	Open – Flood risk assessment to be included as part of BIA submission	



## **Appendix 3: Supplementary Supporting Documents**

None

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