

**8 St. Cuthbert's Road, Fortune Green,  
NW2 3QL**

**Basement Impact Assessment  
Audit**

For

London Borough of Camden

Project Number: 12066-44  
Revision: D1

March 2018

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**Document History and Status**

Revision	Date	Purpose/Status	File Ref	Author	Check	Review
D1	March 2018	Comment	AFLgk 12727-44-200218-8 St Cuthberts Road-D1.doc	AFL	GK	GK

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**Document Details**

Last saved	28/03/2018 08:02
Path	AFLgk 12727-44-200218-8 St Cuthberts Road-D1.doc
Author	Amabel Laurie
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Project Number	12727-44
Project Name	8 St Cuthbert's Road
Planning Reference	2017/6924/P

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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 8 St. Cuthberts Road, Fortune Green NW2 3QL (planning reference 2017/6924/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) has been prepared by engineering consultants Michael Alexander Consulting Engineers using individuals who possess suitable qualifications in accordance with LBC guidance.
- 1.5. The Screening and Scoping assessments presented are generally accepted.
- 1.6. The site investigation indicates that the proposed basement will be founded within the London Clay formation. At detailed design stage the ground conditions should be proven to below the full depth of the proposed piling to 10.5m below ground level (bgl).
- 1.7. Borehole records and groundwater monitoring indicate the presence of perched water at the base of the Made Ground with the potential for seepages within the London Clay. It is concluded that sump pumping may be required during excavation, with trial excavations to be undertaken in advance of the main works to finalise groundwater control requirements.
- 1.8. The basement construction involves installation of a contiguous piled wall on the north, east and southern boundaries, with installation of mass concrete underpins on the western boundary and a suspended RC basement raft slab, with temporary propping required. In the permanent condition a RC ground floor slab will prop the retaining walls.
- 1.9. It is stated that trees are to be felled as part of the proposal. Given the proposed piled retaining walls, suspended basement slab and depth of proposed underpinning, it is accepted that that foundations should not be subject to potential shrink / swell movements.
- 1.10. A Ground Movement Assessment (GMA) is presented. Whilst the methodology adopted appears to be rigorous, reference is made to modifying the standard guidance, and the full inputs and outputs of the analysis should be presented for review. The GMA concludes that a maximum of

Category 1 (Very Slight) damage will be sustained to neighbouring properties, on the basis that horizontal movements will be restricted to a maximum of 5mm.

- 1.11. Further to 1.19, temporary works proposals and a structural movement monitoring plan sufficient to demonstrate that construction can be adequately controlled to within the proposed movement limits should be presented.
- 1.12. Thames Water assets are indicated within the highway adjacent to the site. The GMA should confirm whether there are potential stability impacts to utility assets and the structure of the highway. Any potential impacts should be suitably mitigated.
- 1.13. It is accepted that there are no impacts to slopes from the proposed development.
- 1.14. It is accepted that there are no impacts to the wider hydrological and hydrogeological environments.
- 1.15. It is accepted that the site is at low risk of flooding.
- 1.16. Non-technical summaries to be provided with any update of the BIA.
- 1.17. Queries and requests for information are discussed in Section 4 and summarised in Appendix 2. Until the additional information requested has been presented, the BIA does not meet the criteria of CPG4.

## 2.0 INTRODUCTION

- 2.1. CampbellReith was instructed by London Borough of Camden (LBC) on 26 January 2018 to carry out a Category B Audit on the Basement Impact Assessment (BIA) submitted as part of the Planning Submission documentation for 8 St. Cuthbert's Road, Fortune Green NW2 3QL and 2017/6924/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.
  - Local Plan 2017: Policy A5 (Basements).
- 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.

LBC's Audit Instruction described the planning proposal as "*Demolition of existing residential (2 x 4 bed units) building and erection of a 4 storey building including excavation of a basement level to provide 2x 2 bed units, 1 x 1 bed and 1 x 3 bed units (Use Class C3).*"

The Audit Instruction also confirmed 8 St. Cuthbert's Road is not involved, or a neighbour to, listed buildings.

2.5. CampbellReith accessed LBC's Planning Portal on 20 February 2018 and gained access to the following relevant documents for audit purposes:

- Basement Impact Assessment Report (BIA) issue 1.1, reference project number P3897 by Michael Alexander Consulting Engineers and reviewed by Jomas Associates Limited, dated 12 December 2017.
- Geotechnical Assessment (Ground Investigation) Report version v2.0, reference P1118J1218 by Jomas Associated Limited, dated 22 November 2017.
- Ground Movement Assessment (GMA) by Jomas Associates Limited, reference P1118J1218/rs, dated 20 November 2017.
- Planning Application Drawings consisting of:
  - Location Block Map by Ordnance Survey, not dated.
  - Site Plan by A.D.A. Architectural Design Limited, dated August 2017.
  - Existing Plans and sections numbered PL/02 – PL/09, by A.D.A. Architectural Design Limited, dated August 2017.
  - Proposed Plans and sections numbered BIA01 rev. P1, BIA02 rev. P1 and BIA10 rev. P1 dated October 2017 and PL10-PL21 dated April and August 2017.
- 4 images of the proposed building as .jpg files, no author or date given.
- Design & Access Statement for 8-8b St. Cuthbert's Road by ADA Architectural Design Limited, dated September 2017.
- Sustainability Statement and SAP Input Statement by Darren Evans Building Energy Efficiency, first issue, dated September 2017.
- Water Efficiency Calculations by Darren Evans Building Energy Efficiency for Flat A, Flat B, Flat C and Flat D, dated September 2017.
- It should be noted that no residents' comments had been received at the time of BIA audit.

### 3.0 BASEMENT IMPACT ASSESSMENT AUDIT CHECK LIST

Item	Yes/No/NA	Comment
Are BIA Author(s) credentials satisfactory?	Yes	The combined authors' qualifications are as required in CPG4.
Is data required by Cl.233 of the GSD presented?	Yes	
Does the description of the proposed development include all aspects of temporary and permanent works which might impact upon geology, hydrogeology and hydrology?	Yes	
Are suitable plan/maps included?	Yes	Maps are included however historic maps are not provided - Desk Study report mentioned in GI report but not submitted for review.
Do the plans/maps show the whole of the relevant area of study and do they show it in sufficient detail?	Yes	See comment above on historic maps.
Land Stability Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	GI report submitted, Camden GSD maps referenced.
Hydrogeology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Camden GSD appendix maps referenced and findings of GI included.
Hydrology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Camden SFRA referenced.
Is a conceptual model presented?	Yes	Described in text and a geotechnical ground model is included in the GMA.

Item	Yes/No/NA	Comment
Land Stability Scoping Provided? Is scoping consistent with screening outcome?	Yes	Scoping outcomes investigated in Ground Investigation.
Hydrogeology Scoping Provided? Is scoping consistent with screening outcome?	Yes	
Hydrology Scoping Provided? Is scoping consistent with screening outcome?	Yes	
Is factual ground investigation data provided?	Yes	
Is monitoring data presented?	Yes	
Is the ground investigation informed by a desk study?	Yes	However, the Desk Study report mentioned in GI report has not been submitted for review.
Has a site walkover been undertaken?	Yes	
Is the presence/absence of adjacent or nearby basements confirmed?	No	The BIA states that the neighbouring properties are not anticipated to have lower ground floor or basement areas, however this is not confirmed.
Is a geotechnical interpretation presented?	Yes	
Does the geotechnical interpretation include information on retaining wall design?	Yes	Retaining wall calculation provided. Full inputs of GMA to be presented.
Are reports on other investigations required by screening and scoping presented?	No	The Ground Investigation report recommends drilling of a deeper borehole to obtain parameters to enable pile design.
Are the baseline conditions described, based on the GSD?	Yes	However, some ambiguity exists relating to neighbouring basements.

Item	Yes/No/NA	Comment
Do the base line conditions consider adjacent or nearby basements?	Yes	See above.
Is an Impact Assessment provided?	Yes	
Are estimates of ground movement and structural impact presented?	Yes	However, full inputs of GMA to be presented. Mitigation measures sufficient to demonstrate movements can be limited as stated should be presented.
Is the Impact Assessment appropriate to the matters identified by screen and scoping?	Yes	
Has the need for mitigation been considered and are appropriate mitigation methods incorporated in the scheme?	No	Full inputs of GMA to be presented. Mitigation measures sufficient to demonstrate movements can be limited as stated should be presented. Impacts to highways / utilities to be reviewed.
Has the need for monitoring during construction been considered?	Yes	However, as above further detail required sufficient to demonstrate movements can be limited as stated.
Have the residual (after mitigation) impacts been clearly identified?	Yes	The GMA states that damage category 1 or less on the Burland scale can be achieved if wall deflection is limited to 5mm. Feasibility still needs to be demonstrated, as above.
Has the scheme demonstrated that the structural stability of the building and neighbouring properties and infrastructure will be maintained?	No	Full inputs of GMA to be presented. Mitigation measures sufficient to demonstrate movements can be limited as stated should be presented. Impacts to highways / utilities to be reviewed.
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?	No	Full inputs of GMA to be presented. Mitigation measures sufficient to demonstrate movements can be limited as stated should be presented. Impacts to highways / utilities to be reviewed.

Item	Yes/No/NA	Comment
Does report state that damage to surrounding buildings will be no worse than Burland Category 2?	Yes	Full inputs of GMA to be presented. Mitigation measures sufficient to demonstrate movements can be limited as stated should be presented. Impacts to highways / utilities to be reviewed.
Are non-technical summaries provided?	No	Non-technical summaries should be presented as Policy A5.

## 4.0 DISCUSSION

- 4.1. The Basement Impact Assessment (BIA) has been prepared by engineering consultants Michael Alexander Consulting Engineers. Supporting documents are provided by Jomas Associates. The individuals concerned in the production of the BIA have suitable qualifications and experience in accordance with CPG4.
- 4.2. The LBC Instruction to proceed with the audit identified that the basement proposal did not involve nor was adjacent to listed buildings. The Design & Access Statement confirmed this.
- 4.3. The proposed basement consists of a single storey construction to be excavated once the existing building has been demolished. The proposed basement extends beyond the proposed new building footprint to the front and side.
- 4.4. The basement construction involves installation of a contiguous piled wall on the north, east and southern boundaries, with installation of mass concrete underpins on the western boundary and a suspended RC basement raft slab, with temporary propping required. In the permanent condition a RC ground floor slab will prop the retaining walls. The basement is planned to 3.5m below ground level (bgl) although the GMA refers to the full depth of excavation as 4.0m bgl.
- 4.5. The Screening and Scoping assessments presented are generally accepted. The Desk Study and historic mapping referenced in the BIA have not been provided for review.
- 4.6. The Ground Investigation has identified that the site is underlain by Made Ground to a depth of 1.20 metres below which lies the London Clay Formation, proven at site to a depth of 5.45m bgl. The BIA has confirmed that the proposed basement will be founded within the London Clay formation. At detailed design stage the ground conditions should be proven to below the full depth of the proposed piling to 10.5m bgl.
- 4.7. Borehole records and groundwater monitoring indicate the presence of perched water at the base of the Made Ground with the potential for seepages within the London Clay. It is concluded that sump pumping may be required during excavation, with trial excavations to be undertaken in advance of the main works to finalise groundwater control requirements. It is accepted that there are no impacts to the wider hydrogeological environment.
- 4.8. It is stated that trees are to be felled as part of the proposal. Given the proposed piled retaining walls, suspended basement slab and depth of proposed underpinning, it is accepted that that foundations should not be subject to potential shrink / swell movements.
- 4.9. The proposed development will not increase impermeable site area. It is accepted that the development will not impact the wider hydrological environment. It is recommended that a

drainage scheme is designed in accordance with best practise, to be agreed with LBC and Thames Water.

- 4.10. A Ground Movement Assessment (GMA) is presented. Whilst the methodology adopted appears to be rigorous, reference is made to modifying the standard guidance, and the full inputs and outputs of the analysis should be presented for review. The GMA concludes that a maximum of Category 1 (Very Slight) damage will be sustained to neighbouring properties, on the basis that horizontal movements will be restricted to a maximum of 5mm.
- 4.11. Further to 4.10, temporary works proposals and a structural movement monitoring plan sufficient to demonstrate that construction can be adequately controlled to within the proposed movement limits should be presented.
- 4.12. Thames Water assets are indicated within the highway adjacent to the site. The GMA should confirm whether there are potential stability impacts to utility assets and the structure of the highway. Any potential impacts should be suitably mitigated.
- 4.13. It is accepted that there are no impacts to slopes from the proposed development.
- 4.14. It is accepted that the site is at low risk of flooding. Notwithstanding this, flood risk mitigation measures should be incorporated into the final design in accordance with best practice.
- 4.15. LBC guidance requires that BIAs include non-technical summaries, and these should be provided in future revisions of the BIA.

## **5.0 CONCLUSIONS**

- 5.1. The BIA authors possess suitable qualifications.
- 5.2. The proposed basement will utilise piled retaining wall and underpinning.
- 5.3. The BIA indicates that the proposed basement will be founded within the London Clay formation. At detailed design stage the ground conditions should be proven to below the full depth of the proposed piling.
- 5.4. Sump pumping may be required during excavation. Trial excavations are to be undertaken in advance of the main works to finalise groundwater control requirements.
- 5.5. The proposed foundations should not be subject to shrink / swell movements.
- 5.6. The GMA concludes that a maximum of Category 1 (Very Slight) damage will be sustained to neighbouring properties, on the basis that horizontal movements will be restricted to a maximum of 5mm. The full GMA should be presented for review.
- 5.7. Temporary works proposals and a structural movement monitoring plan sufficient to demonstrate that construction can be adequately controlled should be presented.
- 5.8. The GMA should confirm whether there are potential stability impacts to utility assets and the structure of the highway.
- 5.9. It is accepted that there are no impacts to slopes from the proposed development.
- 5.10. It is accepted that there are no impacts to the wider hydrological and hydrogeological environments.
- 5.11. It is accepted that the site is at low risk of flooding.
- 5.12. Non-technical summaries to be provided with any update of the BIA.
- 5.13. Queries and requests for information are summarised in Appendix 2. Until the additional information requested has been presented, the BIA does not meet the criteria of CPG4.

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

None

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

Audit Query Tracker

Query No	Subject	Query	Status	Date closed out
1	Land Stability	Whilst the GMA methodology adopted appears to be rigorous, reference is made to modifying the standard guidance, and the full inputs and outputs of the analysis should be presented for review.	Open	
2	Land Stability	Temporary works proposals and a structural movement monitoring plan sufficient to demonstrate that construction can be adequately controlled to within the proposed movement limits (ie 5mm lateral, based on current GMA) should be presented for review.	Open	
3	Land Stability	Thames Water assets are indicated within the highway adjacent to the site. The GMA should confirm whether there are potential stability impacts to utility assets and the structure of the highway. Any potential impacts should be suitably mitigated.	Open	
4	BIA Format	Non-technical summaries in accordance with A5 / CPG4 to be presented.	Open	

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

None

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