

114 Prince of Wales Road
London, NW5 3NE

Basement Impact Assessment
Audit

For

London Borough of Camden

Project Number: 12466-01
Revision: D1

September 2016

Campbell Reith Hill LLP
Friars Bridge Court
41-45 Blackfriars Road
London
SE1 8NZ

T: +44 (0)20 7340 1700
F: +44 (0)20 7340 1777
E: london@campbellreith.com
W: www.campbellreith.com

Document History and Status

Revision	Date	Purpose/Status	File Ref	Author	Check	Review
D1	September 2016	Comment	IMjw-12466-01-280916-114 Prince of Wales Road-D1.doc	I MacDonald	E Brown	E Brown

This document has been prepared in accordance with the scope of Campbell Reith Hill LLP’s (CampbellReith) appointment with its client and is subject to the terms of the appointment. It is addressed to and for the sole use and reliance of CampbellReith’s client. CampbellReith accepts no liability for any use of this document other than by its client and only for the purposes, stated in the document, for which it was prepared and provided. No person other than the client may copy (in whole or in part) use or rely on the contents of this document, without the prior written permission of Campbell Reith Hill LLP. Any advice, opinions, or recommendations within this document should be read and relied upon only in the context of the document as a whole. The contents of this document are not to be construed as providing legal, business or tax advice or opinion.

© Campbell Reith Hill LLP 2015

Document Details

Last saved	28/09/2016 09:52
Path	IMjw-12466-01-280916-114 Prince of Wales Road-D1.doc
Author	I MacDonald BEng
Project Partner	E M Brown, BSc MSc CGeol FGS
Project Number	12466-01
Project Name	114 Prince of Wales Road
Planning Reference	2015/7293/P

Contents

1.0	Non-technical summary	1
2.0	Introduction	3
3.0	Basement Impact Assessment Audit Check List.....	5
4.0	Discussion	8
5.0	Conclusions	11

Appendix

- Appendix 1: Residents' Consultation Comments
- Appendix 2: Audit Query Tracker
- Appendix 3: Supplementary Supporting Documents

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 114 Prince of Wales Road, London, NW5 3NE (planning reference 2015/7293/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 Ashton Bennet with input from LIM Engineering providing structural input. The author's qualifications do not fully meet the requirements of CPG4.
- 1.5. The proposal includes the extension of an existing basement into the rear garden to enable the construction of a lightwell. The extension is to be constructed using underpinning techniques for a retaining wall founded upon the London Clay.
- 1.6. The screening process has not been fully undertaken. It is recommended that the BIA be updated in accordance with CPG4 and Arup GSD requirements and re-submitted. This should comprise a full description of the baseline conditions which includes the neighbouring properties; full screening undertaken as per GSD screening questions; scoping for all issues identified by the screening and any potential impacts. This will inform the need for further assessment and/or mitigation.
- 1.7. The BIA noted that the site flooded in 2002 and lies in a Critical Drainage Area. The BIA should be updated to consider this potential impact.
- 1.8. The BIA does not identify if the proposal will effect existing drainage and states that the developer is to provide details of proposed drainage. It is noted that the proposals are modest and do not increase the impermeable area, however, an outline of the drainage proposals should be included with the BIA.
- 1.9. The BIA does not present a conceptual ground model and engineering parameters. The lightwell requires the construction of retaining walls 2.50m high. It is therefore recommended that the BIA is updated to include conceptual model to include strata details, assumed groundwater conditions and soil parameters to be adopted for design.

- 1.10. No analyses have been undertaken assessing the heave or bearing capacity characteristics of the proposed works. No calculations to justify the proposals for the retaining walls have been submitted. These should be presented together with temporary and permanent works details to demonstrate that stability will be maintained.
- 1.11. The BIA states that mitigation measures should be employed to ensure no impact on adjacent properties but does not discuss what these measures should be. The BIA should be updated to include all mitigation measures and their effect on the construction and adjacent properties.
- 1.12. No proposals are provided for a movement monitoring strategy during excavation and construction; this may be carried out as part of the party wall award process.
- 1.13. A works programme is not included. An outline works programme is requested with a detailed programme to be provided by the appointed Contractor.
- 1.14. It is accepted that there are no slope stability concerns regarding the proposed development and that it does not impact the wider hydrogeology.
- 1.15. Queries and requests for clarification are described in Section 4 and summarised in Appendix 2.

2.0 INTRODUCTION

- 2.1. CampbellReith was instructed by London Borough of Camden (LBC) on 23 August 2016 to carry out a Category B Audit on the Basement Impact Assessment (BIA) submitted as part of the Planning Submission documentation for 114 Prince of Wales Road, London (Camden Planning reference 2015/7293/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 *"Erection of a replacement single storey rear extension and enlargement of existing basement with rear lightwells."*
- 2.6. The Audit Instruction also confirmed 114 Prince of Wales Road is not listed, nor is it a neighbour to a listed building.

2.7. CampbellReith accessed LBC's Planning Portal on 12 September 2016 and gained access to the following relevant documents for audit purposes:

- Basement Impact Assessment Report (BIA): Ashton Bennet, dated July 2016
- Planning Application Drawings consisting of
 - Location Plan
 - Existing Plans
 - Proposed Plans
 - Existing Sections
 - Proposed Sections
 - Existing Elevations
 - Proposed Elevation
- Planning and Heritage Statement

3.0 BASEMENT IMPACT ASSESSMENT AUDIT CHECK LIST

Item	Yes/No/NA	Comment
Are BIA Author(s) credentials satisfactory?	No	See Audit Paragraphs 4.1 & 4.2
Is data required by Cl.233 of the GSD presented?	No	See Audit Paragraphs 4.4 & 4.5.
Does the description of the proposed development include all aspects of temporary and permanent works which might impact upon geology, hydrogeology and hydrology?	No	Proposal not sufficiently detailed.
Are suitable plan/maps included?	No	See Audit Paragraph 4.6.
Do the plans/maps show the whole of the relevant area of study and do they show it in sufficient detail?	No	See Audit Paragraph 4.6.
Land Stability Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	See BIA Section 5.
Hydrogeology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	No	See Audit Paragraphs 4.6 & 4.10.
Hydrology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	See BIA Section 7 and 8.
Is a conceptual model presented?	No	See Audit Paragraph 4.4.
Land Stability Scoping Provided? Is scoping consistent with screening outcome?	No	See Audit Paragraphs 4.11 to 4.14.

Item	Yes/No/NA	Comment
Hydrogeology Scoping Provided? Is scoping consistent with screening outcome?	N/A	No issues identified.
Hydrology Scoping Provided? Is scoping consistent with screening outcome?	No	See Audit Paragraph 4.8.
Is factual ground investigation data provided?	Yes	See BIA Appendix C.
Is monitoring data presented?	Yes	See Audit Paragraph 4.11.
Is the ground investigation informed by a desk study?	Yes	See BIA Sections 2 to 10.
Has a site walkover been undertaken?	No	No evidence of a walkover having been undertaken.
Is the presence/absence of adjacent or nearby basements confirmed?	No	See Audit Paragraph 4.12.
Is a geotechnical interpretation presented?	No	See Audit Paragraph 4.4.
Does the geotechnical interpretation include information on retaining wall design?	No	See Audit Paragraph 4.4.
Are reports on other investigations required by screening and scoping presented?	N/A	No such reports identified.
Are the baseline conditions described, based on the GSD?	No	See Audit Paragraph 4.12
Do the base line conditions consider adjacent or nearby basements?	No	See Audit Paragraph 4.5.
Is an Impact Assessment provided?	Yes	See BIA Section 13. Not all aspects have been considered, see Audit Paragraph 4.13.
Are estimates of ground movement and structural impact presented?	No	See Audit Paragraph 4.13.

Item	Yes/No/NA	Comment
Is the Impact Assessment appropriate to the matters identified by screen and scoping?	No	See Audit Paragraph 4.13.
Has the need for mitigation been considered and are appropriate mitigation methods incorporated in the scheme?	No	See Audit Paragraph 4.14.
Has the need for monitoring during construction been considered?	No	See Audit Paragraph 4.14.
Have the residual (after mitigation) impacts been clearly identified?	No	See Audit Paragraph 4.14.
Has the scheme demonstrated that the structural stability of the building and neighbouring properties and infrastructure will be maintained?	No	See Audit Paragraphs 4.12 to 4.15.
Has the scheme avoided adversely affecting drainage and run-off or causing other damage to the water environment?	No	No specific measures stated.
Has the scheme avoided cumulative impacts upon structural stability or the water environment in the local area?	No	Not demonstrated.
Does report state that damage to surrounding buildings will be no worse than Burland Category 2?	Yes	Report states Damage Category 1 however mitigation measures not discussed as required.
Are non-technical summaries provided?	No	Although an executive summary has been included at the start.

4.0 DISCUSSION

- 4.1. The Basement Impact Assessment (BIA) has been carried out by Ashton Bennet with input on structural elements by LIM Engineering. The land stability screening and scoping appear to have been completed by Ashton Bennet, the author having the required CGeol and C.WEM qualification, however there is no evidence that the author has the relevant CEng qualification as required by CPG4.
- 4.2. The Structural Drawings, Construction Method Statement and Ground Movement Assessment (GMA) included in BIA Appendix E, have been carried out by LIM Engineering. The author is a chartered structural engineer but no proof of expertise in engineering geology has been provided as required by CPG4.
- 4.3. The BIA screening is included within Section 11 and it is noted that the author has rewritten some of the questions. A question in relation to hydrology has been expanded to include a reference to Critical Drainage Areas. Two other questions have been omitted, although it is recognised that one of these is answered elsewhere.
- 4.4. Ground conditions are reported in Section 12 of the BIA as comprising made ground (up to 0.7m) over London Clay. Groundwater was not encountered during the investigation, but subsequent monitoring visits identified groundwater at between 0.24 and 0.27m below ground level in one exploratory hole and between 1.7m and 3.0m in the other. It is understood the holes were sunk from basement level. The BIA does not present a conceptual ground model or engineering parameters to be taken forward in analyses or assessments.
- 4.5. The proposal consists of the extension of an existing basement to the rear of 114 Prince of Wales Road, to enable the construction of a new lightwell to the rear of the house. The basement does not extend beneath the garden. The lightwell will be excavated through an area of hardstanding to the same level as the existing basement. Construction methodology is discussed and sketches provided which show the retaining walls will be formed using underpinning techniques. An underpinning bay sequence has not been provided, but the Construction Method Statement Section 8 states that the underpinning will occur in hit and miss sequencing of no more than 900mm wide sections.
- 4.6. Some relevant map extracts from the Arup GSD, Camden SFRA and the Environment Agency (EA) have been included within the BIA with the location shown. The Environment Agency Flood risk map relating to surface water presents the site towards the southern edge of the figure, and in doing so does not present the risk to the south of the site. It is however noted the EA flood risk map presents a low risk along Prince of Wales Road and to the south of the site.

- 4.7. The response to Question 2 of the hydrology screening which relates to whether or not the site drainage will affect the existing drainage route is given as 'No' with the comment "Developer to provide proposed drainage details." These details are not included within the BIA so it is assumed that at present are unknown. The response to this question should be 'unknown' with the issue being appropriately addressed in scoping.
- 4.8. A 'No' response was given to Question 6 of the hydrology screening which relates to whether or not the site is in an area at risk of flooding, yet reports that Prince of Wales Road flooded in the 2002 floods. This response should therefore be 'Yes' given there is a history of flooding and the matter taken forward for scoping and assessment.
- 4.9. Question 6 of the hydrology screening has been expanded to include whether or not the site lies within a Critical Drainage Area. The response notes that the site is in such an area, however, this is not addressed any further.
- 4.10. A 'No' response was given to Question 2 of the hydrogeology screening (Question 9 of BIA) which relates to whether or not the site is located within 100m of a watercourse. Reference to Figure 13 of the BIA indicates a tributary of the River Fleet running in the vicinity of the site to the east. Although these 'lost' rivers are now culverted and form part of the sewer network, the response to this question should have been 'Yes' with the issue appropriately addressed in the scoping.
- 4.11. Groundwater monitoring results are presented within the BIA Section 12.5 but it is unclear which level the results refer to; it is assumed that these levels refer to 'below existing basement level' but this is not stated. There appears to be a large difference in water levels monitored between the two boreholes despite being relatively close to each other, but no consideration has been given to this further. Whilst it is stated that this is below proposed floor level, no consideration has been given to the risk of these levels rising, particular with regards to the results of WS1, or to the potential for perched water above the London Clay. The assumptions made with respect to hydrostatic pressures in design and the need for dewatering should be stated.
- 4.12. Neither the BIA or the construction drawings and methodology discuss the presence or otherwise of basements in neighbouring or nearby properties. The response to Question 13 of the slope stability screening, which relates to the whether the proposal will change differential depth of the foundations when compared with neighbouring properties is answered "Unknown". It is accepted that in the absence of significant groundwater flows, this is relevant only to the construction methodology and damage assessment.
- 4.13. Section 13 of the BIA assesses the impacts resulting out of the screening and scoping process. Included within Appendix E of the BIA are the construction drawings, construction method

statement and a ground movement assessment. There is no discussion or determination of bearing capacity under the footings or a heave assessment. No retaining wall or slab calculations have been provided to verify the proposals.

- 4.14. Section 13.7 of the BIA states that “the development of the lightwell is unlikely to impact on adjacent properties providing mitigating measures and appropriate temporary and permanent design are undertaken.” There is no discussion within the BIA of what the mitigating measures should be or the need for any monitoring required during construction.
- 4.15. There does not appear to be a structural stability report (SSR) for the scheme, nor any evidence of structural inspections of nearby and neighbouring houses. A condition survey of the host and neighbouring properties should be undertaken to determine the extent of any damage, although this may be carried out as part of the party wall award process.
- 4.16. A GMA has been undertaken which reports the damage category as Category 1 for neighbouring buildings. This is accepted, assuming good control of workmanship. It is reported in the screening process that the proposed works are greater than 5m from any pedestrian rights of way.
- 4.17. A works programme has not been submitted as required by Cl.233 of the GSD.
- 4.18. It is stated in the BIA that there will be no increase in impermeable area therefore the surface water flow regime and volume will be unchanged.
- 4.19. It is accepted that there are no slope stability concerns or any other surface water considerations regarding the proposed development. It is also accepted that the proposals will not impact the wider hydrogeology.

5.0 CONCLUSIONS

- 5.1. The BIA was undertaken by Ashton Bennet with input from LIM Engineering providing structural input. The author's qualifications do not fully meet the requirements of CPG4.
- 5.2. The proposal includes the extension of an existing basement into the rear garden to enable the construction of a lightwell. The extension is to be constructed using underpinning techniques for a retaining wall founded upon the London Clay.
- 5.3. The screening process has not been fully undertaken. It is recommended that the BIA be updated in accordance with CPG4 and Arup GSD requirements and re-submitted. This should comprise a full description of the baseline conditions which includes the neighbouring properties; full screening undertaken as per GSD screening questions; scoping for all issues identified by the screening and any potential impacts. This will inform the need for further assessment and/or mitigation.
- 5.4. The BIA noted that the site flooded in 2002 and lies in a Critical Drainage Area. The BIA should be updated to consider this potential impact.
- 5.5. The BIA does not identify if the proposal will effect existing drainage and states that the developer is to provide details of proposed drainage. It is noted that the proposals are modest and do not increase the impermeable area, however, an outline of the drainage proposals should be included with the BIA.
- 5.6. The BIA does not present a conceptual ground model and engineering parameters. The lightwell requires the construction of retaining walls 2.50m high. It is therefore recommended that the BIA is updated to include conceptual model to include strata details, assumed groundwater conditions and soil parameters to be adopted for design.
- 5.7. No analyses have been undertaken assessing the heave or bearing capacity characteristics of the proposed works. No calculations to justify the proposals for the retaining walls have been submitted. These should be presented together with temporary and permanent works details to demonstrate that stability will be maintained.
- 5.8. The BIA states that mitigation measures should be employed to ensure no impact on adjacent properties but does not discuss what these measures should be. The BIA should be updated to include all mitigation measures and their effect on the construction and adjacent properties.
- 5.9. No proposals are provided for a movement monitoring strategy during excavation and construction; this may be carried out as part of the party wall award process.

- 5.10. A works programme is not included. An outline works programme is requested with a detailed programme to be provided by the appointed Contractor.
- 5.11. It is accepted that there are no slope stability concerns regarding the proposed development and that it does not impact the wider hydrogeology.

Appendix 1: Residents' Consultation Comments

None

Appendix 2: Audit Query Tracker

Audit Query Tracker

Query No	Subject	Query	Status	Date closed out
1	BIA	As per requirements of CPG4, please provide evidence of the authors having the appropriate qualifications and experience.	Open	
2	BIA	All screening questions within the Arup GSD to be included within screening process. Any questions with identified potential concerns to be carried through to scoping.	Open	
3	BIA	Please provide additional information relating to construction methodology to include temporary works, mitigation measures and works programme. All assumptions concerning soil and groundwater properties, neighbouring foundations, dewatering and temporary and permanent propping to be stated.	Open	
4	Stability	Please update BIA to include conceptual ground model along with assumed groundwater conditions and retaining wall design parameters as required by CPG4	Open	
5	Stability	BIA to be updated to include bearing capacity and heave assessments and outline retaining wall calculations.	Open	
6	Hydrology	Outline/indicative details for proposed drainage to be submitted.	Open	

Appendix 3: Supplementary Supporting Documents

None

London

Friars Bridge Court
41- 45 Blackfriars Road
London, SE1 8NZ

T: +44 (0)20 7340 1700
E: london@campbellreith.com

Birmingham

Chantry House
High Street, Coleshill
Birmingham B46 3BP

T: +44 (0)1675 467 484
E: birmingham@campbellreith.com

Surrey

Raven House
29 Linkfield Lane, Redhill
Surrey RH1 1SS

T: +44 (0)1737 784 500
E: surrey@campbellreith.com

Manchester

No. 1 Marsden Street
Manchester
M2 1HW

T: +44 (0)161 819 3060
E: manchester@campbellreith.com

Bristol

Wessex House
Pixash Lane, Keynsham
Bristol BS31 1TP

T: +44 (0)117 916 1066
E: bristol@campbellreith.com

UAE

Office 705, Warsan Building
Hessa Street (East)
PO Box 28064, Dubai, UAE

T: +971 4 453 4735
E: uae@campbellreith.com

Campbell Reith Hill LLP. Registered in England & Wales. Limited Liability Partnership No OC300082
A list of Members is available at our Registered Office at: Friars Bridge Court, 41- 45 Blackfriars Road, London SE1 8NZ
VAT No 974 8892 43