CampbellReith
consulting engineers

93 Redington Road
London, NW3 7RR

Basement Impact Assessment Audit

For

London Borough of Camden

Project Number: 12727-06
Revision: D1

November 2017

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	November 2017	Comment	RNgw-12727-06-061117-93 Redington Road-D1.doc	R Nair	G Kite	G Kite

Document Details

Last saved	06/11/2017 16:20
Path	RNgw-12727-06-061117-93 Redington Road-D1.doc
Author	R Nair, Msc
Project Partner	E M Brown, BSc MSc CGeol FGS
Project Number	12727-06
Project Name	93 Redington Road
Planning Reference	2017/4902/P

Contents

Appendix

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 93 Redington Road (planning reference 2017/4902/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) was undertaken by RSA Geotechnics Ltd and the Structural Method Statement was prepared by Constructure Ltd. The authors' qualifications are in accordance with LBC guidance.

1.5. Reference material for the desk study and assessments has generally been presented in accordance with LBC guidance. An outline construction programme should be provided.

1.6. The RSA Geotechnical Investigation report and the accompanying BIA has confirmed that the proposed basement will be founded within the Bagshot Formation underlying the Made Ground.

1.7. Standing groundwater will not be encountered during construction of the proposed basement, although isolated seepages of perched water should be allowed for.

1.8. The basement construction is proposed to be carried out using underpinning beneath existing foundations with remaining walls to be constructed as reinforced concrete retaining walls formed in a hit and miss trench excavation sequence, with temporary propping.

1.9. Estimates of ground movement and damage impact are presented. Although not justified by calculation, due to the distance with the nearest neighbouring structure, the estimates are accepted as being representative of the scale, depth and methodology of construction. Damage to neighbours is predicted to be a maximum of Category 1 (Very Slight).

1.10. A monitoring proposal and trigger levels have been provided in the Structural Method Statement. The trigger levels are noted as being slightly elevated when compared to theoretical movement limits to ensure damage impacts to masonry structures of Category 1 or less, and should be reviewed.

1.11. It is accepted that the surrounding slopes to the development site are stable.

1.12. It is accepted that the development will not impact the wider hydrogeological environment.

1.13. The site is not in an area subject to flooding.

1.14. The proposed development will increase impermeable surface area by a stated 15m2. A SUDS assessment in accordance with LBC guidance should be presented to mitigate off-site discharge flow rates.

1.15. Queries and matters requiring further information or clarification are discussed in Section 4 and summarised in Appendix 2. Until the requested information and assessments are presented, the BIA does not meet the requirements of CPG4.

2.0 INTRODUCTION

2.1. CampbellReith was instructed by London Borough of Camden (LBC) on 20 September 2017 to carry out a Category B Audit on the Basement Impact Assessment (BIA) submitted as part of the Planning Submission documentation for 93 Redington Road, London NW3 7RR, Camden Reference 2017/4902/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.
- Camden Local Plan Adoption version dated June 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;

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 *"Extension to the existing basement, the addition of a skylight in the rear garden and the replacement of the existing UPVC windows with timber windows"*

2.6. CampbellReith accessed LBC's Planning Portal on 05 October 2017 and gained access to the following relevant documents for audit purposes:

- Ground Investigation Report Number 14826SI- RSA Geotechnics Ltd, dated August 2017, which includes as a part of the appendices
  - the Landmark Envirocheck Data search, dated 14 July 2017;
  - Landmark Ordnance Survey Map Extracts;
  - Flood screening report datasheet, dated 14 July 2017;
  - Basement Impact Assessment, dated August 2017;
  - and Basement Construction Phasing Plan.
- Structural Method Statement to accompany BIA, dated August 2017
- Planning Application Drawings- Formation Architects, consisting of
  - Existing Plans (Drawing No. 6610-D1100, 6610-D1101, 6610-D1102, 6610-D1103, 6610-D1050 and 6610-D1199);
  - Existing Elevations (Drawing No. 6610-D1701, 6610-D1702 and 6610-D1703);
  - Existing Sections (Drawing No. 6610-D1500-1, 6610-D1501-1, 6610-D1502-1);
  - Proposed Plans (Drawing No. 6610-D4050, 6610-D4100, 6610-D4101, 6610-D4102, 6610-D4103, 6610-D4199);
  - Proposed Elevations (Drawing No. 6610-D4700, 6610-D4701);
  - Proposed Sections (Drawing No. 6610-D4500, 6610-D4501, 6610-D4502);
  - Site Location Map (Drawing No. 6610-D1002).
- Design and Access statement- Formation Architects, dated August 2017
- Planning Comments and Online Response

3.0 BASEMENT IMPACT ASSESSMENT AUDIT CHECK LIST

Item	Yes/No/NA	Comment
Are BIA Author(s) credentials satisfactory?	Yes	
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	
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	
Hydrogeology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	
Hydrology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	No	GI Report by RSA - Appendices, dated August 2017 – impermeable site area increases but has not been assessed.
Is a conceptual model presented?	Yes	
Land Stability Scoping Provided? Is scoping consistent with screening outcome?	Yes	

Item	Yes/No/NA	Comment
Hydrogeology Scoping Provided? Is scoping consistent with screening outcome?	Yes	
Hydrology Scoping Provided? Is scoping consistent with screening outcome?	No	Impermeable site area increases but has not been assessed.
Is factual ground investigation data provided?	Yes	
Is monitoring data presented?	Yes	
Is the ground investigation informed by a desk study?	Yes	
Has a site walkover been undertaken?	Yes	
Is the presence/absence of adjacent or nearby basements confirmed?	No	However, no cumulative hydrogeological impacts identified. Adjacent basement would improve stability assessment.
Is a geotechnical interpretation presented?	Yes	
Does the geotechnical interpretation include information on retaining wall design?	Yes	
Are reports on other investigations required by screening and scoping presented?	No	SUDS, structural monitoring strategy to be reviewed
Are the baseline conditions described, based on the GSD?	No	Neighbouring properties' foundation details are not presented.
Do the base line conditions consider adjacent or nearby basements?	No	However, no cumulative hydrogeological impacts identified. Adjacent basement would improve stability assessment.

Item	Yes/No/NA	Comment
Is an Impact Assessment provided?	Yes	SUDS assessment to mitigate hydrological impacts should be presented; structural monitoring strategy to be reviewed to ensure damage impacts to within Category 1.
Are estimates of ground movement and structural impact presented?	Yes	Details not provided.
Is the Impact Assessment appropriate to the matters identified by screen and scoping?	No	SUDS assessment to mitigate hydrological impacts should be presented; structural monitoring strategy to be reviewed to ensure damage impacts to within Category 1.
Has the need for mitigation been considered and are appropriate mitigation methods incorporated in the scheme?	Yes	However, SUDS assessment to mitigate hydrological impacts should be presented; structural monitoring strategy to be reviewed to ensure damage impacts to within Category 1.
Has the need for monitoring during construction been considered?	Yes	Structural Method Statement by Constructure (See Cl. 7.3) – to be reviewed.
Have the residual (after mitigation) impacts been clearly identified?	NA	
Has the scheme demonstrated that the structural stability of the building and neighbouring properties and infrastructure will be maintained?	No	Structural monitoring strategy to be reviewed to ensure damage impacts to within Category 1.
Has the scheme avoided adversely affecting drainage and run-off or causing other damage to the water environment?	No	SUDS assessment to mitigate hydrological impacts should be presented.
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, structural monitoring strategy to be reviewed to ensure damage impacts to within Category 1.
Are non-technical summaries provided?	Yes	

4.0 DISCUSSION

4.1. The Geotechnical Investigation was undertaken by RSA Geotechnics Ltd and the individuals involved are all Fellows of the Geological society, with one individual being a Chartered Geologist. The BIA for surface flow and flooding issues were undertaken by a consultant hydrogeologist who is a member of the British Hydrogeological Society and Chartered Institute of Water and Environmental Management.

4.2. The Structural Method Statement was prepared by Constructure Ltd, with the individual involved being a Chartered Engineer and a Member of the Institute of Structural Engineers.

4.3. It is noted that some responses are inconsistent between reports. In these instances, references to the planning drawings have been made and the current proposed basement layout has been considered representative.

4.4. The proposed basement shall be an extension to the existing basement and will extend under the rear garden by 3m.

4.5. Reference material for the desk study and assessments has generally been presented in accordance with LBC guidance. An outline construction programme should be provided.

4.6. The Geotechnical Investigation conducted on the site has identified that the ground conditions comprise Made Ground of approximately 0.2m, underlain by the Bagshot Formation to approximately 11m below ground level (bgl), comprised of sand with interbedded clay. Groundwater was not encountered during the investigation or subsequent monitoring of the main borehole standpipe. Shallow, perched water may be encountered during excavations and seepages should be allowed for. On one occasion water was monitored within a shallow standpipe.

4.7. The BIA indicates that there may be the beginnings of a watercourse nearby, as indicated in the 'Lost Rivers of London' maps. But this has been shown not to lie within the site of the proposed basement and is likely to be downslope of the site. The construction will not have an impact on the wider hydrogeology of the area, any other watercourses, springs or the Hampstead Heath Pond Chain catchment area.

4.8. The basement construction is proposed to be carried out using underpinning beneath existing foundations with remaining walls to be constructed as reinforced concrete retaining walls formed in a hit and miss trench excavation sequence, with temporary propping.

4.9. Details are not provided regarding the neighbouring structures' depth of foundations or whether they have basements. However, as no hydrogeological impacts are predicted, it is accepted there can be no cumulative hydrogeological impacts, even if one of the neighbouring structures

contains a basement. It is also accepted that any stability impacts predicted for neighbours are likely to be improved if basements are present.

4.10. No detailed assessment of vertical and horizontal ground movements has been produced, but discussion and qualitative estimates are provided. Although not justified by calculation, due to the distance with the nearest neighbouring structure, the estimates are accepted as being representative of the scale, depth and methodology of construction. Damage to neighbours is predicted to be a maximum of Category 1 (Very Slight).

4.11. A monitoring proposal and trigger levels have been provided in the Structural Method Statement. The trigger levels are noted as being slightly elevated when compared to theoretical movement limits to ensure damage impacts to masonry structures of Category 1 or less, and should be reviewed.

4.12. It is accepted that there are no slope stability concerns regarding the proposed development and it is not in an area prone to flooding.

4.13. The proposed development will increase impermeable surface area by a stated $15m^2$. A SUDS assessment in accordance with CPG4 Section 3.51 should be presented to mitigate off-site discharge flow rates.

5.0 CONCLUSIONS

5.1. The BIA has been prepared by individuals who possess suitable qualifications.

5.2. The GI report has confirmed that the proposed basement will be founded within the Bagshot Formation and will not be below the level of standing groundwater.

5.3. The permanent and temporary works are described in appropriate detail. An outline construction programme should be provided.

5.4. Qualitative estimates of ground movement are presented, which are considered appropriate considering the distance to the nearest neighbouring structure. Damage to neighbours is predicted to be a maximum of Category 1 (Very Slight).

5.5. A monitoring proposal and trigger levels have been provided. The trigger levels should be reviewed in order to ensure impacts of Category 1 or less.

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 the wider hydrogeological environment.

5.8. The site is not in an area subject to flooding.

5.9. Due to an increase in impermeable site area, a SUDS assessment in accordance with LBC guidance should be presented to mitigate off-site discharge flow rates.

5.10. Queries and matters requiring further information or clarification are summarised in Appendix 2. Until the requested information and assessments are presented, the BIA does not meet the requirements of CPG4.

Appendix 1: Residents' Consultation Comments

Residents' Consultation Comments

Surname	Address	Date	Issue raised	Response
Lough, Janice	95 Redington Road NW3 7RR	16/09/2017	Objection to construction, due to the impact the water displaced from the excavation may have on the nearby garden and buildings.	The proposed development will not cause hydrogeological impacts.

Appendix 2: Audit Query Tracker

Audit Query Tracker

Query No	Subject	Query	Status	Date closed out
1	Structural Monitoring Strategy	The monitoring strategy trigger levels should be reviewed in order to ensure damage impacts of a maximum Burland Category 1 (Very Slight) to neighbours.	Open	
2	SUDS Assessment	A SUDS assessment in line with CPG4 3.51 should be presented.	Open	
3	Outline construction programme	An outline construction programme should be provided.	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