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18A Frognal Gardens
London
NW3 6XA

Basement Impact Assessment
Audit

For

London Borough of Camden

Project Number: 12985-86
Revision: D1

June 2020

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Document History and Status

Revision	Date	Purpose/Status	File Ref	Author	Check	Review
D1	June 2020	Comment	NSgk12985-86-050620-18A Frognal Gardens-D1	NS	KB	GK

Document Details

Last saved	05/06/2020 15:48
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Project Number	12985-86
Project Name	18A Frognal Gardens
Planning Reference	2019/5348/P

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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 18A Frognal Gardens, London NW3 6XA (planning reference 2019/5348/P). The basement is considered to fall within Category C 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 proposed development involves the demolition of the existing three-storey property and construction of a four-storey residential property including a basement, plus local deepening of the basement for inclusion of a plunge pool.

1.5. Moreton House, adjacent to the east, is a Grade II Listed building situated on Holly Walk. Furthermore the application site falls within the Hampstead Conservation Area.

1.6. The Basement Impact Assessment (BIA) has been compiled by Akera Engineers with supporting information and assessments by Soil Consultants, Stephen Buss Environmental Consultants, Evans Rivers and Coastal, and A-Squared Studio. The assessments have been undertaken by appropriately qualified authors.

1.7. A site investigation identifies the underlying ground conditions to comprise Made Ground over Bagshot Formation and the Claygate Member. Groundwater is present above formation level of the plunge pool.

1.8. The tree survey indicates 4 trees to be removed during the proposed development, although the locations are not identified. The BIA should identify these trees and their proximity to neighbouring structures and assess whether their removal will impact upon the existing foundations of the neighbouring structures.

1.9. Interpretative geotechnical information and outline structural information has been presented. However, the structural proposals are inconsistently presented and should be clarified.

1.10. A Ground Movement Assessment (GMA) is presented. However, as 1.9, the structural proposals should be clarified and the GMA reviewed to ensure it is consistent with the proposals.

1.11. The proposals and assessments in regards to hydrology and hydrogeology presented in the Stephen Buss and Evans reports are considered to supersede any other submissions commenting on these aspects. There will be no impact to the wider hydrological or hydrogeological environments.

1.12. It is accepted the site is at very low risk of flooding. Flood risk mitigation measures are proposed in regards to impacts from surcharged sewers. The proposed development will not increase the risk of flooding in the surrounding environment.

1.13. Requests for further information are discussed in Section 4 and summarised in Appendix 2. Until the additional information requested is presented, the BIA does not meet the criteria of CPG Basements.

2.0 INTRODUCTION

2.1. CampbellReith was instructed by London Borough of Camden (LBC) on 08/11/2019 to carry out a Category C Audit on the Basement Impact Assessment (BIA) submitted as part of the Planning Submission documentation for 18A Frognal Gardens, London, NW3 6XA, Camden Reference 2019/5348/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 Basements. March 2018.
- Camden Development Policy (DP) 27: Basements and Lightwells.
- Camden Development Policy (DP) 23: Water.
- Local Plan 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.

2.5. LBC's Audit Instruction described the planning proposal as *"Demolition of existing 3 storey dwellinghouse and replacement with 1 x 4 bed four storey single family dwellinghouse with basement excavation, landscaping and associated works."*

The property Moreton House, to the east, is a (Grade II*) listed building situated on Holly Walk.

2.6. CampbellReith accessed LBC's Planning Portal on 26/11/2019 and gained access to the following relevant documents for audit purposes:

- Basement Impact Assessment dated October 2019 by Akera Engineers Ltd.
- Ground Movement Assessment dated October 2019 by A-Squared Studio.
- Flood Risk Assessment dated September 2019 by Evans – River and Coastal.
- Existing and proposed drawings by Alison Brooks Architects.
- Design and Access Statements dated October 2019 by Alison Brooks Architects.
- Archaeological Desk Based Assessment dated August 2019 by Archaeology Collective.
- Drainage Report dated September 2019 by Environmental Engineering Partnership.
- Tree Report (in accordance with BS) dated August 2019 by CSG Usher's Ltd.
- Consultation responses (none relevant to stability, hydrology or hydrogeology).

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?	No	Structural proposals to be confirmed and be consistently presented between documents.
Does the description of the proposed development include all aspects of temporary and permanent works which might impact upon geology, hydrogeology and hydrology?	No	Structural proposals to be confirmed and be consistently presented between documents.
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?	No	Soil Consultants, Section 7.1, Q8 conflicts with Stephen Buss Report, Section 3, Q2. Stephen Report considered to be correct.
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?	Yes	
Is a conceptual model presented?	Yes	
Land Stability Scoping Provided? Is scoping consistent with screening outcome?	No	Soil Consultants, Section 7.2: no assessments of wells / spring lines (although assessed by Stephen Buss); no assessment of impacts from tree removal.

Item	Yes/No/NA	Comment
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	
Has a site walkover been undertaken?	Yes	
Is the presence/absence of adjacent or nearby basements confirmed?	Yes	
Is a geotechnical interpretation presented?	Yes	Geotechnical parameters within SI and GMA
Does the geotechnical interpretation include information on retaining wall design?	Yes	Structural proposals to be clarified.
Are reports on other investigations required by screening and scoping presented?	Yes	FRA, drainage, GMA, hydrology, hydrogeology
Are the baseline conditions described, based on the GSD?	No	Structural proposals to be clarified.
Do the base line conditions consider adjacent or nearby basements?	Yes	
Is an Impact Assessment provided?	Yes	

Item	Yes/No/NA	Comment
Are estimates of ground movement and structural impact presented?	Yes	GMA provided. However, structural proposals to be clarified.
Is the Impact Assessment appropriate to the matters identified by screen and scoping?	No	Structural proposals and impacts from trees to be clarified.
Has the need for mitigation been considered and are appropriate mitigation methods incorporated in the scheme?	No	Sewer flooding mitigation proposed; permeable paving and drainage proposals presented; ground movements and land stability to be clarified.
Has the need for monitoring during construction been considered?	Yes	
Have the residual (after mitigation) impacts been clearly identified?	No	Structural proposals and impacts from trees to be clarified.
Has the scheme demonstrated that the structural stability of the building and neighbouring properties and infrastructure will be maintained?	No	Structural proposals and impacts from trees to be clarified.
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	Structural proposals and impacts from trees to be clarified.
Does report state that damage to surrounding buildings will be no worse than Burland Category 1?	Yes	Structural proposals and impacts from trees to be clarified.
Are non-technical summaries provided?	Yes	

4.0 DISCUSSION

4.1. The existing structure occupying the site is a semi-detached, two to three-storey residence with a lowest level that cuts into the natural topography. This structure will be demolished, and a two to four-storey residence will be constructed in its place. The proposed development involves several excavations over a large portion of the site footprint to create the lower ground floor and underlying pool area.

4.2. Moreton House, adjacent to the east, is a Grade II Listed building situated on Holly Walk. The application site falls within the Hampstead Conservation Area.

4.3. The Basement Impact Assessment (BIA) has been compiled by Akera Engineers with supporting information and assessments by Soil Consultants, Stephen Buss Environmental Consultants, Evans Rivers and Coastal, and A-Squared Studio. The assessments have been undertaken by appropriately qualified authors.

4.4. A site investigation identifies the underlying ground conditions to comprise Made Ground over Bagshot Formation and the Claygate Member. Groundwater is present above formation level of the plunge pool.

4.5. The tree survey indicates 4 trees to be removed during the proposed development, although the locations are not identified. The BIA should identify these trees and their proximity to neighbouring structures and assess whether their removal will impact upon the existing foundations of the neighbouring structures (ie will removal lead to swelling movements that may damage neighbouring foundations).

4.6. Interpretative geotechnical information and outline structural information has been presented. However, the structural proposals are inconsistently presented and should be clarified. Its also noted that the depth of formation varies between the documents presented. It has been assumed that 5.7m below ground level (bgl) represents the most onerous formation level, but this should be clarified and consistently presented between documents.

4.7. The Soils Consultants reports proposes the use of a secant piled wall to form the basement retaining walls. The Akera structural scheme proposes a combination of contiguous piling and underpinning to form the basement retaining walls, with underpinning along the Party Wall boundary. The underpinning is indicated to be undertaken in two stages.

4.8. A Ground Movement Assessment (GMA) is presented. However, as 4.6 and 4.7, the depth of formation level and structural proposals should be clarified and the GMA reviewed to ensure it is consistent with the proposals. Specifically the following should be clarified:

- the proposed construction methodology;

- if underpinning is being used, confirm that the GMA has made allowance for this to be undertaken in 2 stages.
- if dewatering need to be employed (e.g. for underpinning), what form will this take and what impact will it have on ground movements;
- pile depths and methodology to be adopted (e.g. secant or contiguous);
- Sufficient calculations and assessment should be presented to indicate that the responses and potential impacts from the above queries have been addressed.

4.9. The proposals and assessments in regards to hydrology and hydrogeology presented in the Stephen Buss and Evans reports are considered to supersede any other submissions commenting on these aspects. For instance, its noted that the Stephen Buss report indicates the presence of wells and spring lines within the vicinity of the development whilst the Soils Consultants report states that none are present.

4.10. Its accepted that, even though the proposed basement will intercept the standing groundwater level, there will be no impact to the wider hydrogeological environment. The assessment presented considers the ground and groundwater model and the proximity of surrounding structures and basements.

4.11. There will be no impact to the wider hydrological environment. The assessment considers the existing and proposed site arrangements, including SUDS proposals. The final drainage design will need to be approved by LBC and Thames Water.

4.12. It is accepted the site is at very low risk of flooding. Flood risk mitigation measures are proposed in regards to impacts from surcharged sewers. The proposed development will not increase the risk of flooding in the surrounding environment.

5.0 CONCLUSIONS

5.1. The Basement Impact Assessment (BIA) has been undertaken by appropriately qualified authors.

5.2. A site investigation identifies the underlying ground conditions to comprise Made Ground over Bagshot Formation and the Claygate Member. Groundwater is present above formation level of the plunge pool.

5.3. The BIA should identify trees that are proposed to be removed and assess whether their removal will impact upon the existing foundations of the neighbouring structures.

5.4. Interpretative geotechnical information and outline structural information has been presented. However, the structural proposals are inconsistently presented and should be clarified.

5.5. A Ground Movement Assessment (GMA) is presented. However, as 5.4, the structural proposals should be clarified and the GMA reviewed to ensure it is consistent with the proposals.

5.6. There will be no impact to the wider hydrological or hydrogeological environments.

5.7. It is accepted the site is at very low risk of flooding. Flood risk mitigation measures are proposed in regards to impacts from surcharged sewers. The proposed development will not increase the risk of flooding in the surrounding environment.

5.8. Requests for further information are summarised in Appendix 2. Until the additional information requested is presented, the BIA does not meet the criteria of CPG Basements.

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	The tree survey identifies 4 trees to be removed (although on the plan provided in the Tree Report these tree locations are not identified) - the BIA should identify these trees, their proximity to neighbouring structures and assess whether their removal will impact upon the existing foundations of the neighbouring structures (ie will removal lead to swelling movements that may damage neighbouring foundations).	Open	
2	Land Stability	The following should be confirmed: - the proposed construction methodology; - if underpinning is being used, confirm that the GMA has made allowance for this to be undertaken in 2 stages. - if dewatering need to be employed (e.g. for underpinning), what form will this take and what impact will it have on ground movements; - pile depths and methodology to be adopted (e.g. secant or contiguous); - Sufficient calculations and assessment should be presented to indicate that the responses and potential impacts from the above queries have been addressed.	Open	