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43 Croftdown Road
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Basement Impact Assessment
Audit

For

London Borough of Camden

Project Number: 12727-45
Revision: D1

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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 43 Croftdown Road, London, NW5 1EL (planning reference 2016/5697/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 review it against an agreed audit check list.

1.4. The Basement Impact Assessment (BIA) has been carried out by Geotechnical and Environmental Associates (GEA) with supporting documents prepared by Price & Myers and Frank Parsons Arboriculturalist. All firms have provided information to show that their authors possess suitable qualifications and relevant experience.

1.5. The BIA describes the proposal as "*Extension and lowering of existing basement, installation of front lightwell; replacement of rear door with window*."

1.6. The BIA has confirmed that the proposed basement level will be founded within London Clay, utilising underpinning with a reinforced concrete basement slab, liner walls and ground floor to form a reinforced concrete box.

1.7. It is accepted that the basement construction will not impact the hydrogeological environment. However, there is potential for groundwater ingress during the excavation works which should be suitably controlled.

1.8. It is accepted that the proposed development will not impact the hydrological environment. Standard flood risk mitigation measures should be incorporated into the final construction.

1.9. It is accepted there are no slope stability considerations due to the proposed basement.

1.10. Site investigation data and interpretative geotechnical information, including retaining wall design parameters, are presented.

1.11. Temporary and permanent works have been described although no structural drawings are presented. Considering the modest depth of the works and the proven underlying ground conditions, the descriptions provided are accepted.

1.12. An outline works programme should be presented with any update of the BIA.

1.13. An acceptable Ground Movement and Damage Assessment has been carried out which indicates Category 0 (Negligible) impact to neighbours and negligible impact to the highway. A suitable structural movement monitoring strategy should be adopted to adequately control the construction works and ensure damage impacts remain within the limits predicted.

1.14. The BIA meets the requirements of CPG4.

2.0 INTRODUCTION

2.1. CampbellReith was instructed by London Borough of Camden (LBC) in February 2018 to carry out a Category B Audit on the Basement Impact Assessment (BIA) submitted as part of the Planning Submission documentation for 43 Croftdown Road, London, NW5 1EL.

2.2. The Audit was carried out in accordance with the Terms of Reference set by LBC. It reviewed the Basement Impact Assessment for the 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.

2.5. LBC's Audit Instruction described the planning proposal as *"Extension and lowering of existing basement, installation of front lightwell; replacement of rear door with window."*

2.6. CampbellReith accessed LBC's Planning Portal on 14th February 2018 and gained access to the following relevant documents for audit purposes:

- Basement Impact Assessment Report (BIA) by Geotechnical and Environmental Associates (GEA), (Ref J17124, Issue no 2), December 2017.
- Scoping and Screening Study, by Price and Myers, (Issue no 1), February 2016.
- Planning Application Drawings consisting of:

  Location Plan;

  Existing Plans;

  Proposed Plans.
- Tree report by Frank Parsons Arboriculturalist, 25th January 2016.
- Design & Access Statement by Walker + Martin Architecture + Interior Design, October 2016.

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	The required information is generally provided within the BIA. Outline construction programme should be provided.
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?	Yes	
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?	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	Lower ground floors to neighbours identified. Reasonable assumed foundation depths have been used for assessment purposes.
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?	Yes	Ground movement assessment, tree report.
Are the baseline conditions described, based on the GSD?	Yes	
Do the base line conditions consider adjacent or nearby basements?	Yes	Lower ground floors to neighbours identified. Reasonable assumed foundation depths have been used for assessment purposes.
Is an Impact Assessment provided?	Yes	

Item	Yes/No/NA	Comment
Are estimates of ground movement and structural impact presented?	Yes	
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?	Yes	
Has the need for monitoring during construction been considered?	Yes	Detailed strategy should be designed and adopted during the detailed design and construction phases.
Have the residual (after mitigation) impacts been clearly identified?	Yes	
Has the scheme demonstrated that the structural stability of the building and neighbouring properties and infrastructure will be maintained?	Yes	.
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?	Yes	
Does report state that damage to surrounding buildings will be no worse than Burland Category 1?	Yes	
Are non-technical summaries provided?	Yes	Executive Summary

4.0 DISCUSSION

4.1. The Basement Impact Assessment (BIA) has been prepared by a well-known firm of engineering consultants, Geotechnical and Environmental Associates (GEA), with supporting documents prepared by Price & Myers and Frank Parsons Arboriculturalist. The individuals concerned in their production hold suitable qualifications.

4.2. The LBC Instruction to proceed with the audit identified that the basement proposal does not involve a listed building.

4.3. The site comprises of a four-storey, early-20th century residential property, with a single storey basement beneath half the footprint of the existing building.

4.4. The proposed scheme involves: a) a lateral extension of the existing basement to cover the full footprint of the property; and b) excavating the existing basement by approximately 400mm, including lightwells to the front and rear. The formation level of the proposed basement will be at circa 2.30m below streel level.

4.5. Site specific investigation indicates Made Ground (to between 1.20m and 3.40m below ground level (bgl)) underlain by London Clay to the full depth of the investigation, of 18.00m. The London Clay will be the founding strata, and proposed foundations may need to be locally lowered to ensure this.

4.6. A single groundwater monitoring visit recorded groundwater levels at a depth varying from 1.56m to 1.88m bgl. These levels lie approximately 0.74m and 0.42m above the proposed basement level.

4.7. The BIA did not confirm the foundation depths to the neighbouring properties but has 'assumed that any surrounding properties that do not clearly have a basement from observations made during the site walkover do not have basements beyond [the depth] of what is currently present on the site itself, and all structures are founded on shallow foundations'. This is accepted as a reasonably conservative approach when considering stability impacts to neighbours.

4.8. Interpretative geotechnical information, including retaining wall design parameters, are presented.

4.9. The proposed basement construction is to utilise conventional concrete underpins (to a depth of c. 2.3m bgl, lowered locally where required) and a reinforced concrete basement slab, liner walls and ground floor to form a reinforced concrete box.

4.10. The BIA states that the slab will be designed to resist ground heave. Temporary and permanent works have been described although no structural drawings are presented. Considering the modest depth of the works and the proven underlying ground conditions, the descriptions provided are accepted.

4.11. Noting the groundwater levels encountered during the monitoring, suitable temporary groundwater control measures should be allowed for during construction that will allow underpinning whilst maintaining stability.

4.12. An outline construction programme should be provided with any update of the BIA.

4.13. It is accepted that the basement construction will not impact the wider hydrogeological environment.

4.14. It is accepted that the proposed development will not change the impermeable site area nor impact the hydrological environment. Standard flood risk mitigation measures should be incorporated into the final construction.

4.15. A Ground Movement Analysis (GMA) has been carried out by GEA using geotechnical modelling software and default values within CIRIA report C760 to represent the installation of the underpinned foundations as a planar embedded wall. PDISP software has been utilised in order to calculate vertical ground movements based on the change in loading applied to the soils. Whilst recognised as not being directly applicable to the proposed construction method, the assessment is considered to provide a reasonable estimate of potential ground movements and damage impacts.

4.16. The GMA indicates Category 0 (Negligible) impact to neighbours and negligible impact to the highway. A suitable structural movement monitoring strategy should be adopted to adequately control the construction works and ensure damage impacts remain within the limits predicted. The BIA confirms that monitoring of the adjoining properties will be undertaken throughout the works.

4.17. It is accepted there is are no slope stability considerations due to the proposed basement.

5.0 CONCLUSIONS

5.1. The BIA authors possess suitable qualifications and relevant experience.

5.2. The proposed basement level will be founded within London Clay, utilising conventional concrete underpinning, a raft slab, liner walls and ground floor slab to form a reinforced concrete box.

5.3. It is likely that perched groundwater will be encountered during basement excavation. Suitable groundwater control should be implemented to maintain stability during construction.

5.4. It is accepted that the basement construction will not impact the hydrogeological environment.

5.5. It is accepted that the proposed development will not impact the hydrological environment.

5.6. It is accepted there are no slope stability considerations due to the proposed basement.

5.7. Site investigation data and interpretative geotechnical information, including retaining wall design parameters, are presented. Temporary and permanent works have been described.

5.8. An outline works programme should be presented with any update of the BIA.

5.9. An acceptable Ground Movement and Damage Assessment has been carried out which indicates Category 0 (Negligible) impact to neighbours and negligible impact to the highway.

5.10. A suitable structural movement monitoring strategy should be adopted to adequately control the construction works and ensure damage impacts remain within the limits predicted.

5.11. The BIA meets the requirements of CPG4.

Appendix 1: Residents' Consultation Comments

None

Appendix 2: Audit Query Tracker

None

Appendix 3: Supplementary Supporting Documents

None

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