CampbellReith
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82 Compayne Gardens, NW6 3RU

Basement Impact Assessment Audit

For

London Borough of Camden

Project Number: 12727-09
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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 82 Compayne Gardens, London NW6 3RU (planning reference 2017/4519/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 and Ground Movement Assessment (GMA) have been prepared by Jomas Associates and reviewed by Barrett Mahoney Consulting Engineers, who have prepared supporting documents. The authors have demonstrated suitable expertise and experience, in accordance with LBC guidance.

1.5. In addition to review of the originally submitted documentation, discussion with BIA authors and review of additional submissions and correspondence has been undertaken, presented in Appendix 3.

1.6. The BIA has confirmed the ground conditions at the site to be a thin layer of Made Ground overlying London Clay. The proposed basement will be founded within London Clay. Details of existing and proposed foundation levels are provided.

1.7. The site investigation encountered perched water in the Made Ground. It is considered unlikely that significant ground water will be encountered during basement construction. The proposed development will not impact the wider hydrogeological environment.

1.8. Sufficient investigation of the below ground soils, existing foundations and groundwater monitoring has been carried out, the results of which have informed the construction methodology.

1.9. The proposed basement is to be constructed using underpinning techniques with suitable temporary propping arrangements. Outline retaining wall calculations and geotechnical design parameters are provided.

1.10. The GMA presents analysis of potential horizontal and vertical ground movements arising from the excavation works, and this is used to inform the potential damage impacts to buildings within the zone of influence. It is assessed that the damage category for the properties

adjacent to 82 Compayne Gardens will not exceed Category 1 (Very Slight). Impacts to nearby utilities have been considered; the assessment demonstrates that there should be no adverse impacts.

1.11. An outline structural monitoring strategy is proposed that should be implemented to control construction works and maintain damage impacts to within the predicted Category 1.

1.12. There will be no increase in impermeable site area due to the proposed development. The site is not subject to flooding. There will be no impact to the wider hydrological environment.

1.13. Discussion is presented in Section 4. The BIA meets the criteria of CPG4.

2.0 INTRODUCTION

2.1. CampbellReith was instructed by London Borough of Camden (LBC) on 16th October 2017 to carry out a Category B Audit on the Basement Impact Assessment (BIA) submitted as part of the Planning Submission documentation for 82 Compayne Gardens, London NW6 3RU Reference 2017/4519/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.

2.5. LBC's Audit Instruction described the planning proposal as "*External alterations including excavation works to create 3 x 2 bed residential units (C3) at lower ground floor level with associated lightwells to the front and side; restoration of architectural detailing on all elevations; addition of mezzanines to all first floor studio flats (C3); enlargement of existing crown roof and installation of rear dormer to create 2 bed residential unit (C3) at third floor level and reinstatement of turret to front with associated roof terrace.*"

2.6. CampbellReith accessed LBC's Planning Portal on 09 November 2017 and gained access to the following relevant documents for audit purposes:

- Desk Study, Ground Investigation & Basement Impact Assessment Report (BIA) by Jomas Associates Ltd dated 08 August 2017;
- GMA v2 Ground Movement Assessment by Jomas Associates Ltd., dated 08 September 2017;
- Arboricultural and Planning Integration Report ref: GHA/DS/13360:17 by GHA Trees, dated 08 August 2017;
- Tree Protection Plan by GHA Trees, dated August 2017;
- Planning Application Drawings author unknown, dated August 2017, consisting of:
  - Location Plan
  - Existing Plans and Sections
  - Proposed Plans and Sections
- Design & Access Statement, author unknown, dated August 2017;
- Assessment of Daylight and Sunlight Provision by Herrington Consulting Limited, dated August 2017;
- Planning Comments and Response.

2.7. CampbellReith again accessed LBC's Planning Portal on 20 November 2017 and gained access to the following relevant documents for audit purposes:

- BIA Appendices by Jomas Associates Limited, reference P9897J1130, dated August 2017.

2.8. The following supplementary information was provided directly to Campbell Reith in December 2017 and January 2018, and is presented in Appendix 3:

- Email 12th December 2017, Barrett Mahoney Consulting Engineers to Campbell Reith;
- Email 15th December 2017, Barrett Mahoney Consulting Engineers to Campbell Reith;
- Email 4th January 2018, Barrett Mahoney Consulting Engineers to Campbell Reith;
- Landmark Utilities Report;
- Structural Calculations (17769-CA-01, P2) dated 3 January 2018;
- Temporary Works Drawings (P1) dated 22 August 2017;
- GMA supporting documents.

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?	Yes	
Is a conceptual model presented?	Yes	Ground conditions and basis of assessments suitably described.
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	
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	
Are the baseline conditions described, based on the GSD?	Yes	
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	
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	Temporary propping, structural monitoring
Has the need for monitoring during construction been considered?	Yes	
Have the residual (after mitigation) impacts been clearly identified?	N/A	
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	

4.0 DISCUSSION

4.1. The Basement Impact Assessment (BIA) has prepared by Jomas Associates and reviewed by Barrett Mahoney Consulting Engineers, who have prepared supporting documents. The authors have demonstrated suitable expertise and experience, in accordance with LBC guidance. Whilst qualifications relating to hydrology have not been demonstrated strictly in accordance with CPG4, the hydrological assessment is accepted, based on the proposed development footprint and underlying impermeable ground conditions.

4.2. In addition to review of the originally submitted documentation, discussion with BIA authors and review of additional submissions and correspondence has been undertaken, presented in Appendix 3.

4.3. The proposed basement consists of a single storey construction formed by lowering an existing lower ground floor area at the front of the development site by 0.85 metres and excavating the rear and western portion of the site to the same level, by the removal of 3.3 metres of soil. The proposed basement is a single storey basement beneath the entire building footprint, comprising 3 x 2 bed residential units at lower ground floor level with associated lightwells to the front and side.

4.4. Screening and Scoping assessments have been undertaken which are accepted, informed by a Desk Study broadly in accordance with LBC guidance.

4.5. The site investigation has identified that the site is underlain by Made Ground to a depth of 0.40 – 0.87 metres below which lies London Clay, encountered to 4.0 metres below ground level (bgl), which is the full depth of exploration. The BIA assesses that the London Clay Formation extends to at least 30 metres bgl. Details of existing and proposed foundation levels are provided.

4.6. The site investigation encountered perched water in the Made Ground. It is considered unlikely that significant ground water will be encountered during basement foundation excavation. The London Clay is designated unproductive strata and the proposed development will not impact the wider hydrogeological environment.

4.7. Sufficient investigation of the below ground soils, existing foundations and groundwater monitoring has been carried out, the results of which have informed the construction methodology.

4.8. The proposed basement is to be constructed using underpinning techniques with appropriate stiff, temporary propping arrangements. It is noted that some of the basement retaining walls will be cantilevered in the permanent case, although these are typically retaining <2m of soil

and, due to their L-shape, reinforced concrete design, geometry and connection with adjacent retaining walls, have been considered to provide stiff support. Suitable retaining wall calculations and geotechnical design parameters are provided.

4.9. The Designer has confirmed a range of appropriate bearing capacities for foundations at different levels. The contractor is to confirm the insitu strength of the soils with the Designer prior to casting foundations, to ensure stability is maintained as per the design calculations and assessments presented within the BIA.

4.10. A ground movement assessment (GMA) presents analysis of potential horizontal and vertical ground movements arising from the construction works, and this is used to inform the potential damage impacts on buildings within the zone of influence. It is assessed in the GMA that the damage category for the properties adjacent to 82 Compayne Gardens will not exceed Category 1 (Very Slight). Impacts to nearby utilities have been considered; the assessment demonstrates that there should be no adverse impacts.

4.11. The GMA states that a project specific monitoring regime and action plan will be in place at the time of construction. An outline structural monitoring strategy is proposed that should be implemented to control construction works and maintain damage impacts to within the predicted Category 1.

4.12. There will be no increase in impermeable site area due to the proposed development. The site is not subject to flooding. There will be no impact to the wider hydrological environment.

5.0 CONCLUSIONS

5.1. The authors have demonstrated suitable expertise and experience, in accordance with LBC guidance.

5.2. Screening and Scoping assessments are accepted.

5.3. The site investigation has confirmed that the proposed basement will be founded within the London Clay. The contractor is to confirm the insitu strength of the soils with the Designer prior to casting foundations, to ensure stability is maintained as per the design calculations and assessments presented within the BIA.

5.4. It is considered unlikely that significant ground water will be encountered during basement construction. The proposed development will not impact the wider hydrogeological environment.

5.5. The proposed basement is to be constructed using underpinning techniques with suitable temporary propping arrangements. Outline retaining wall calculations and geotechnical design parameters are provided.

5.6. It is assessed in the GMA that the damage category for the properties adjacent to 82 Compayne Gardens will not exceed Category 1 (Very Slight).

5.7. An outline structural monitoring strategy is proposed that should be implemented to control construction works and maintain damage impacts to within the predicted Category 1.

5.8. There will be no increase in impermeable site area due to the proposed development. The site is not subject to flooding. There will be no impact to the wider hydrological environment.

5.9. The BIA meets the criteria of CPG4.

Appendix 1: Residents' Consultation Comments

Residents' Consultation Comments

Surname	Address	Date	Issue raised	Response
Fortune Green and West Hamstead Neighbourhood Development Forum	42 Sarre Road NW2 3SL	12/10/2017	Concerns on the technical aspects relating to the basement deepening and extension and its impact on neighbouring buildings. 'Technical aspects' not detailed.	Section 4 – appropriate assessment and temporary works design indicates the proposal is feasible and should maintain impacts within policy requirements.

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Appendix 2: Audit Query Tracker

None

Appendix 3: Supplementary Supporting Documents

Email 12th December 2017, Barrett Mahoney Consulting Engineers to Campbell Reith

Email 15th December 2017, Barrett Mahoney Consulting Engineers to Campbell Reith

Email 4th January 2018, Barrett Mahoney Consulting Engineers to Campbell Reith

Landmark Utilities Report

Structural Calculations (17769-CA-01, P2) dated 3 January 2018

Temporary Works Drawings (P1) dated 22 August 2017

GMA supporting documents