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62 Parliament Hill
London NW3 2TJ

Basement Impact Assessment Audit

For

London Borough of Camden

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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 62 Parliament Hill, London NW3 2TJ (planning reference 2021/2777/P). On the basis of information provided by the structural engineer, the basement was 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 qualifications of the individuals involved in the BIA are in accordance with LBC guidance.

1.5. Screening and scoping assessments are presented, supported by desk study information. The hydrogeological assessment is presented in the revised BIA.

1.6. The site investigation indicates the proposed basement will be founded in the London Clay which is considered to be a suitable founding stratum.

1.7. The site is at very low risk from flooding from all the sources and is not within a critical drainage area. Although there will be a net increase in the hard landscaping, sustainable Drainage (SUDs) measures will be adopted to ensure the surface water run-off will not increase. The detailed drainage design will require approval by Thames Water and the local authority.

1.8. A Construction Method Statement (CMS) and preliminary structural calculations are presented. Geotechnical parameters to inform the impact assessment and design calculations have been presented in the Ground Movement Assessment (GMA) and are accepted.

1.9. The GMA confirms that the anticipated damage from the basement excavation will be within LBC's policy criteria (not worse than Burland Category 1). The revised BIA confirms that the removal of two trees will have no impact on the foundations of any nearby structures.

1.10. The BIA presented an outline monitoring strategy to ensure movements are limited to those predicted.

1.11. Considering the additional information presented, it can be confirmed that the BIA complies with the requirements of Camden Planning Guidance: Basements.

2.0 INTRODUCTION

2.1. CampbellReith was instructed by London Borough of Camden (LBC) on 24 August 2021 to carry out a Category C audit on the Basement Impact Assessment (BIA) submitted as part of the Planning Submission documentation for 62 Parliament Hill, London NW3 2TJ, planning reference 2021/2777/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

- Camden Local Plan 2017 - Policy A5 Basements.
- Camden Planning Guidance (CPG): Basements. January 2021.
- Guidance for Subterranean Development (GSD). Issue 01. November 2010. Ove Arup & Partners.

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 enlargement of existing basement with lower ground floor front extension, erection of single storey rear extension with terraces above at ground and first floor level with spiral staircase and installation of garden room with parking space above."*

2.6. CampbellReith accessed LBC's Planning Portal on 22 September 2021 and gained access to the following relevant documents for audit purposes:

- Basement Impact Assessment by Michael Alexander Consulting Engineers (ref.:P5003, Issue 1.1) dated July 2021

- Ground Movement Assessment by Jomas Associates Ltd (ref.:P3481J2251, Rev.1) dated July 2021
- Arboricultural Impact Assessment by Landmark Trees (ref.: DMFK/62PH/AIA/01a, Rev 01a), dated May 2021
- Geotechnical Desk Study and Ground Investigation Report by Jomas Associates Ltd (ref.:P3481J2251/SC, Final v1.0), dated June 2021.
- Planning Application Drawings consisting of:
  - Location Plan dated May 2021 by Sher and White Ltd
  - Existing Plans Sections and Elevations dated April 2021 by Sher and White Ltd
  - Proposed Plans Sections and Elevations dated April 2021 by Sher and White Ltd

2.7. Subsequent to the initial audit report, CampbellReith gained access to the following relevant documents:

- Basement Impact Assessment by Michael Alexander Consulting Engineers (ref.:P5003, Issue 1.2) dated November 2021
- Geotechnical Desk Study and Ground Investigation Report by Jomas Associates Ltd (ref.:P3481J2251/SC, Final v1.1), dated November 2021.

3.0 BASEMENT IMPACT ASSESSMENT AUDIT CHECK LIST

Item	Yes/No/NA	Comment
Are BIA Author(s) credentials satisfactory?	Yes	Updated information confirms suitable qualifications for both surface water and flooding and land stability assessment.
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	Section 2, 3, 4 and 5 of the revised BIA.
Are suitable plan/maps included?	Yes	All plans and maps to support screening exercise are included in the BIA, such as the Arup GSD map extracts.
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	Section 4 of the BIA.
Hydrogeology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Section 3 of the BIA.
Hydrology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Section 5 of the BIA.
Is a conceptual model presented?	Yes	Section 3.3 of the Ground Movement Assessment and Section 5 of the Geotechnical Desk Study and Ground Investigation Report by Jomas.

Item	Yes/No/NA	Comment
Land Stability Scoping Provided? Is scoping consistent with screening outcome?	Yes	Section 4.02 of the BIA.
Hydrogeology Scoping Provided? Is scoping consistent with screening outcome?	Yes	Section 3.02 of the BIA.
Hydrology Scoping Provided? Is scoping consistent with screening outcome?	Yes	Section 5.02 of the BIA.
Is factual ground investigation data provided?	Yes	Geotechnical Desk Study and Ground Investigation Report by Jomas.
Is monitoring data presented?	Yes	As above.
Is the ground investigation informed by a desk study?	Yes	As above.
Has a site walkover been undertaken?	Yes	
Is the presence/absence of adjacent or nearby basements confirmed?	Yes	It is confirmed that No. 64 Parliament Hill has a basement.
Is a geotechnical interpretation presented?	Yes	Section 3.3 of the Ground Movement Assessment and Section 5 of the Geotechnical Desk Study and Ground Investigation Report by Jomas.
Does the geotechnical interpretation include information on retaining wall design?	Yes	As above
Are reports on other investigations required by screening and scoping presented?	Yes	GMA, Arboricultural Impact Assessment
Are the baseline conditions described, based on the GSD?	Yes	

Item	Yes/No/NA	Comment
Do the baseline conditions consider adjacent or nearby basements?	Yes	It is confirmed that No. 64 Parliament Hill has a basement.
Is an Impact Assessment provided?	Yes	Sections 3.04, 4.04 and 5.04 of the revised BIA.
Are estimates of ground movement and structural impact presented?	Yes	In the GMA.
Is the Impact Assessment appropriate to the matters identified by screening and scoping?	Yes	Hydrogeological assessment presented in section 6 of the revised Geotechnical Desk Study and Ground Investigation Report. Impact of tree removal on neighbouring properties addressed in the revised BIA.
Has the need for mitigation been considered and are appropriate mitigation methods incorporated in the scheme?	Yes	Section 4.04 & 5.04 of the revised BIA.
Has the need for monitoring during construction been considered?	Yes	Section 4.04 of the BIA.
Have the residual (after mitigation) impacts been clearly identified?	Yes	Considered to be negligible.
Has the scheme demonstrated that the structural stability of the building and neighbouring properties and infrastructure will be maintained?	Yes	An assessment on the impact of trees removal on neighbouring properties is presented in section 4.04.7 of the revised BIA.
Has the scheme avoided adversely affecting drainage and run-off or causing other damage to the water environment?	Yes	Section 5.04 of the updated BIA.
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 BIA was undertaken by Michael Alexander Consulting Engineers with contributions from Jomas Associates Ltd. The revised Basement Impact Assessment confirms that the individuals concerned in its production have suitable qualifications in line with those requested by LBC guidance.

4.2. The site is occupied by a semi-detached house which has historically been converted into flats and now provides accommodation over three floors plus the loft space. The property has an existing lower ground level with an existing cellar/half height basement below. It is proposed to lower the floor of the existing cellar space to create a full a basement level and extend the lower ground floor to the front of the property.

4.3. The existing property is located within the South Hill Park Conservation Area, but it is not listed. The house is attached to 64 Parliament Hill to the north, which is understood to have an existing basement level at the rear of the property. The site is bounded by Parliament Hill to the west, Tanza Road to the south and 39 Tanza Road to the east. It is understood that neighbouring properties are not listed.

4.4. Screening and scoping assessments are presented and informed by desktop study information. Most of the relevant figures/maps from the Arup GSD and other guidance documents are referenced within the BIA to support responses to the screening questions. The hydrogeological assessment is included in the revised Geotechnical Desk Study and Ground Investigation Report by Jomas Associates.

4.5. A site investigation was undertaken in January 2020 to inform the basement design. A total of one window sample borehole (WS1) and four foundation inspection pits (TPA-TPD) were completed. The ground investigation encountered Made Ground to a depth of 1.40m bgl in WS1, at the front of the property. The Made Ground is underlain by the London Clay which was proven to the base of the borehole, to a depth of 10.00m bgl. The foundation inspection pits indicate the base of existing foundations to be between c. 0.30 and 0.70m bgl. TPD was undertaken within the existing lower ground floor and indicates some evidence of former underpinning to the rear section of the party wall.

4.6. Groundwater was not encountered during the investigations nor the subsequent groundwater monitoring. The BIA states that any perched groundwater found during the excavation will be collected in sumps and pumped. The BIA conclusion that there will be no impact on the local and wider hydrogeological environment is accepted, based on the hydrogeological assessment presented in the revised Geotechnical Desk Study and Ground Investigation Report.

4.7. The site is at very low risk from flooding from all the sources. The site is not within a critical drainage area. The BIA states that there will be a net increase in the footprint of hard landscaping in the garden, primarily due to the addition of a rear terrace. SUDs measures will be adopted to ensure that the surface water run-off will not increase as part of the development.

4.8. A Construction Method Statement (CMS) and preliminary structural calculations are presented in Appendix E and F of the BIA, respectively. It is proposed to deepen the existing basement using traditional reinforced concrete underpinning following a typical 'hit and miss' sequence. The CMS confirmed that temporary propping is proposed in the short term and that the new retaining walls will not be cantilevered at any stage.

4.9. Geotechnical parameters to inform settlement, retaining wall calculations and foundation design have been presented in the Ground Movement Assessment (GMA) and are accepted. The GMA indicates an allowable bearing capacity of 130kPa for the London Clay at c. 5.00m bgl, and this has been used in the outline retaining wall calculations.

4.10. The GMA has been undertaken to demonstrate that ground movements and consequential damage to neighbouring properties will be within LBC's policy requirements. From the GMA, it is understood that ground movements due to underpinning and consequent excavation have been modelled by applying the CIRIA C760 curves. Ground movements due to underpin installation have been estimated by using CIRIA C760 estimates for the installation of a planar diaphragm wall. Ground movements caused by heave and the application of the new building loads at the new formation level have been also considered in the analysis.

4.11. Whilst the CIRIA approach is intended for embedded retaining walls, it is accepted that the predicted ground movements, which dictate the likely damage, can be within the range typically anticipated for underpinning techniques carried out with good control of workmanship. The GMA states that damage is predicted to fall within Category 1 for all the neighbouring properties.

4.12. The BIA states that mitigation measures highlighted in the CMS will be followed to avoid any adverse impact also on the adjacent highways or buried services. It is understood that Thames Water assets run underneath both Parliament Hill and Tanza Road, which may require a detailed impact assessment.

4.13. The BIA indicates the London Clay to have a high volume change potential so that the area may be prone to seasonal shrink-swell which can result in foundation movements in the vicinity of trees. The revised BIA and Arboricultural Impact Assessment recommend the removal of two trees. An assessment based on NHBC guidance Chapter 4.2 'Building near Trees' has been undertaken to determine whether the removals will have any impact on the foundations of any

neighbouring properties. The assessment concludes that that all nearby properties are outside of the zone of influence of the trees to be removed and no impact is anticipated.

4.14. It is confirmed in the GMA that a ground movements monitoring regime will be implemented throughout construction of the basement, in accordance with current guidance.

5.0 CONCLUSIONS

5.1. In the revised BIA, the qualifications of the individuals involved are in accordance with LBC guidance.

5.2. Screening and scoping assessments are presented, supported by desk study information. The BIA is updated and the hydrogeological assessment is included.

5.3. The site investigation indicates the proposed basement will be founded in the London Clay which is considered to be a suitable founding stratum.

5.4. The site is at very low risk from flooding from all the sources. The site is not within a critical drainage area. The BIA states that there will be a net increase in the footprint of hard landscaping in the garden.

5.5. SUDs measures will be adopted to ensure that the surface water run-off will not increase as part of the development. It is noted that the detailed drainage design will require approval by the public sewer owner (Thames Water) and the local authority.

5.6. A Construction Method Statement (CMS) and preliminary structural calculations are presented. The CMS confirmed that temporary propping is proposed in the short term to limit ground movements.

5.7. Geotechnical parameters to inform settlement, retaining wall calculations and foundation design have been presented in the Ground Movement Assessment (GMA) and are accepted.

5.8. The GMA confirms that the anticipated damage from the basement excavation will be within LBC's policy criteria.

5.9. It is understood that Thames Water assets run underneath both Parliament Hill and Tanza Road, which may require a detailed impact assessment from the assets' owner.

5.10. The revised Basement Impact Assessment and Arboricultural Impact Assessment recommend the removal of two trees, and confirm that the removal of trees will have no impact on the foundations of any neighbouring properties based on NHBC guidance.

5.11. The BIA presented an outline monitoring strategy to ensure movements are limited to those predicted.

5.12. Considering the additional information presented, it can be confirmed that the BIA complies with the requirements of Camden Planning Guidance: Basements.

Appendix 1: Residents' Consultation Comments

Residents' Consultation Comments

Surname/Forum	Address	Date	Issue raised	Response
Hampstead Neighbourhood Forum	NA	Redacted	(i) Hydrogeological Assessment (ii) Surface water run-off assessment	(i) A complete hydrogeological assessment is not presented and is required. See 4.6. (ii) The detailed drainage design will need approval from Thames Water and local authority. See 4.7.
Wanner	62 Parliament Hill	29/08/21	Flooding risk	See 4.7.
O'Rourke	Unknown	16/08/21	(i) Land stability (ii) Flooding	(i) Additional assessment required from the GMA. See Section 4.10 - 4.14 (ii) See 4.7.
Bright	Redacted	29/08/21	Land stability	Additional assessment required from the GMA. See Section 4.10 - 4.14
Hirsch	64 Parliament Hill	17/08/21	(i) Land stability (ii) Flooding	(i) Additional assessment required from the GMA. See Section 4.10 - 4.14 (ii) See 4.7.

Appendix 2: Audit Query Tracker

Audit Query Tracker

Query No	Subject	Query	Status	Date closed out
1	BIA	The qualifications of the authors are not in line with those requested by LBC guidance.	Closed – See Section 4.1	12/01/22
2	BIA	A hydrogeological assessment is mentioned in the BIA but is not presented.	Closed – See Section 4.4 and 4.6	12/01/22
3	Land Stability	If any tree is to be removed, a shrink/swell assessment following NHBC guidance should be presented to determine any impact to neighbouring foundations.	Closed – See Section 4.13	12/01/22
4	Hydrology	There will be a net increase in the footprint of hard landscaping in the garden. It is noted that the detailed drainage design will require separate approval by the public sewer owner (Thames Water) and the local authority.	Note only	NA
5	Land Stability	It is understood that Thames Water assets run underneath both Parliament Hill and Tanza Road, which may require a detailed impact assessment.	Note only	NA

Appendix 3: Supplementary Supporting Documents

None

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