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73-75 Avenue Road, London NW8 6JD

Basement Impact Assessment Audit

For

London Borough of Camden

Project Number: 12985-73

Revision: D1

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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 (BIA) submitted as part of the Planning Submission documentation for 73-75 Avenue Road, London NW8 6JD, Camden Reference 2019/1366/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. It is noted that Basement Impact Assessments (BIA) have previously been audited for this site, under planning applications 1025/1928/P and 2016/1808/P, and that broadly the applications reflect similar proposals. The current BIA submission includes reports from previous planning applications that are no longer consistent with current proposals. As detailed in Section 2, the most recently dated documents / drawings for each section of the assessment have been accepted as superseding previous drawings and assessments.

1.5. The BIA authors possess suitable qualifications in accordance with LBC guidance.

1.6. The proposed development comprises the demolition of the existing dwelling and the construction of a three storey property with a two-storey basement. Retaining walls are to be formed by contiguous, bored piles, propped in the temporary and permanent case.

1.7. A site investigation indicates the site to be underlain by Made Ground overlying the London Clay Formation.

1.8. An historic tributary of the River Tyburn may have been present on site, subsequently culverted and running beneath the carriageway. A perimeter drainage system would ensure continuity of flow around the development, if the channel is present. The London Clay is designated Unproductive Strata and there will be no impact to the wider hydrogeological environment.

1.9. A proposed construction methodology is presented, including a piling schedule. Interpretative geotechnical information, including retaining wall design parameters, should be presented.

1.10. A ground movement assessment (GMA) is presented which considers the movements and resultant impacts to neighbouring buildings. A maximum of Category 1 (Very Slight) damage in accordance with the Burland Scale is predicted.

1.11. Utilities and infrastructure information within the zone of influence of the proposed development should be presented, and impacts to the assets assessed, as applicable.

1.12. An outline monitoring strategy and specification has been provided which should be confirmed and agreed under the Party Wall Act.

1.13. The BIA notes that Avenue Road was subject to surface water flooding in 2002. The Environment Agency indicates the rear garden of the site to be at a medium risk of surface water flooding with a low risk of flooding on the front driveway. Flood risk mitigation measures are reportedly discussed within a Flood Risk Assessment, which should be provided for review.

1.14. The site is within a critical drainage area. The impermeable site area will increase as a result of the proposed development. An outline attenuation SUDs strategy is presented. The final scheme design will need to be agreed with LBC and Thames Water.

1.15. Non-technical summaries should be provided in any revised BIA presented.

1.16. Discussion and requests for further information are presented in Section 4 and summarised in Appendix 2. Until the 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 1 August 2019 to carry out a Category C Audit on the Basement Impact Assessment (BIA) submitted as part of the Planning Submission documentation for 73-75 Avenue Road, London NW8 6JD, Camden Reference 2019/1366/P. It is noted that Basement Impact Assessments (BIA) have previously been audited for this site, under planning applications 1025/1928/P and 2016/1808/P, and that broadly the applications reflect similar proposals.

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): Basements.
- Camden Development Policy (DP) 27: Basements and Lightwells.
- Camden Development Policy (DP) 23: Water.
- The 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; and,

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 planning portal describes the proposal as: "*Variation of condition 1 (approved plans) of planning permission 2011/2388/P dated 28/03/2012 (for erection of single-family dwellinghouse*

comprising basement, lower ground, ground, first and second floor level, erection of a new boundary wall, hard and soft landscaping and associated works (following demolition of existing building)), namely changes to detailed design and materials on all elevations including stone balustrade at roof level, portico and stone finish to central bay and replacement of sash window with garage door (all to front elevation) including relocation of car lift; replacement of 2 storey bay on Queen's Grove elevation with single storey structure with terrace above; alterations to footprint and location of basement including additional lightwell and relocation of garden lightwell; replacement of orangery with contemporary pavilion with flat roof; new French doors to side elevation (north elevation); and erection of pergola in rear garden.".

The planning portal also confirmed the site does not lie within a Conservation Area (although Elsworthy Conservation Area lies approximately 25m east of the site and St Johns Conservation Area lies approximately 25m south of the site) and that the site is not listed and neither are the adjacent buildings.

2.6. CampbellReith accessed LBC's Planning Portal on 6th August 2019 and gained access to the following relevant documents for audit purposes. The most recent documents are considered to supersede the older documents:

- Subterranean Construction Methodology (KB365) dated 11 December 2018 by Knight Build Ltd.
- Existing and Proposed Plans, Elevations and Section drawings (ref 3680) dated 8 February 2019 by Studio Indigo Ltd.
- Proposed sub-structure sections (Sheet 2 only) and proposed ground floor drainage plan (ref 1942) dated February 2018 and July 2019 (respectively) by Heyne Tillett Steel.
- Ground Movement Assessment and Damage Impact Assessment dated June 2019 by A-Squared Studio Engineers Ltd.
- Basement Impact Assessment (no reference or date) by Price & Myers including:
    - Ground Movement Report dated September 2011 by Geotechnical Consulting Group (which is considered superseded by the A-Squared Studio Engineers Ltd assessment).
    - Desk Study and Factual Ground Investigation Report (ref J10229a) dated February 2011 by Geotechnical & Environmental Associates.
    - Hydrogeological Review dated September 2011 by Geotechnical Consulting Group.

- Preliminary surface water drainage options by Price & Myers (considered superseded by the Heyne Tillet Steel drainage plan).
- Structural Engineers Report (ref 19544) dated March 2011 by Price & Myers (considered superseded by the Kinght Build and Heyne Tillet Steel submissions).

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	Utility and infrastructure information to 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 plans/maps included?	Yes	Historical maps are referred to in the GEA Desk Study and Factual Ground Investigation Report (Feb 2011).
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	However, Flood Risk Assessment referred to but not provided for review.
Is a conceptual model presented?	Yes	Hydrogeological and stability models referred to. GMA should consider impacts to utilities / infrastructure.

Item	Yes/No/NA	Comment
Land Stability Scoping Provided? Is scoping consistent with screening outcome?	Yes	Refer to GMA. GMA should consider impacts to utilities / infrastructure.
Hydrogeology Scoping Provided? Is scoping consistent with screening outcome?	Yes	Refer to GCG hydrogeological assessment.
Hydrology Scoping Provided? Is scoping consistent with screening outcome?	No	FRA should be provided for review, including mitigation proposals. Drainage plan presented.
Is factual ground investigation data provided?	Yes	
Is monitoring data presented?	Yes	Records are from 2011. Recommended that the contractor confirms groundwater conditions prior to works commencing.
Is the ground investigation informed by a desk study?	Yes	
Has a site walkover been undertaken?	Yes	Given the date of the BIA report, it should be confirmed that there have been no material changes to the site.
Is the presence/absence of adjacent or nearby basements confirmed?	Yes	The Knight Build report confirms that they will also be involved with the demolition of 77 Avenue Road. The updated GMA assumes shallow foundations for neighbouring structures.
Is a geotechnical interpretation presented?	No	Stiffness values provided within GMA. Geotechnical parameters for foundation / retaining wall design to be provided as GSD G3.
Does the geotechnical interpretation include information on retaining wall design?	No	
Are reports on other investigations required by screening and scoping presented?	No	FRA should be presented.

Item	Yes/No/NA	Comment
Are baseline conditions described, based on the GSD?	No	Utility and infrastructure information to be provided.
Do the base line conditions consider adjacent or nearby basements?	Yes	
Is an Impact Assessment provided?	Yes	Refer to GCG and A-Squared Reports.
Are estimates of ground movement and structural impact presented?	Yes	GMA to include impacts to utilities / infrastructure.
Is the Impact Assessment appropriate to the matters identified by screen and scoping?	Yes	However FRA should be submitted for confirmation.
Has the need for mitigation been considered and are appropriate mitigation methods incorporated in the scheme?	Yes	Propping during construction. Flood risk mitigation measures to be confirmed and FRA presented.
Has the need for monitoring during construction been considered?	Yes	Knight Build Ltd Construction Methodology report, Appendix A.
Have the residual (after mitigation) impacts been clearly identified?	No	Impacts to utilities / infrastructure.
Has the scheme demonstrated that the structural stability of the building and neighbouring properties and infrastructure will be maintained?	Yes	Subject to confirmation of the geotechnical parameters.
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	Subject to confirmation of the geotechnical parameters.
Does report state that damage to surrounding buildings will be no worse than Burland Category 1?	Yes	

Item	Yes/No/NA	Comment
Are non-technical summaries provided?	No	To be provided in any update to the BIA

4.0 DISCUSSION

4.1. A Basement Impact Assessment has been provided for review, prepared by Price and Myers, with supporting documents by Studio Indigo, Geotechnical & Environmental Associates, Geotechnical Consulting Group, Heyne Tillet Steel, Knight Build and A-Squared Studio.

4.2. It is noted that Basement Impact Assessments (BIA) have previously been audited for this site, under planning applications 1025/1928/P and 2016/1808/P, and that broadly the applications reflect similar proposals. The current BIA submission includes reports from previous planning applications that are no longer consistent with current proposals. As detailed in Section 2, the most recently dated documents / drawings for each section of the assessment have been accepted as superseding previous drawings and assessments.

4.3. For clarity, it is recommended that a non-technical summary of the proposal is prepared, describing the scheme and confirming which documents are pertinent to the current application.

4.4. The BIA authors possess suitable qualifications in accordance with LBC guidance.

4.5. The proposed development comprises the demolition of the existing dwelling and the construction of a three storey property with a two-storey basement. Retaining walls are to be formed by contiguous, bored piles, propped in the temporary and permanent case. The proposed formation level is approximately 8.00m below ground level (bgl) with the pile wall extending to typically 13.00m to 14.00m bgl.

4.6. A site investigation was undertaken by Geotechnical & Environmental Associates in 2011 comprising two boreholes formed to 25.45m bgl. The investigation identified Made Ground underlain by the London Clay Formation. Reworked material, possibly relating to an historic river channel, was observed at the top of the London Clay (see 4.8). Groundwater was not encountered during the site investigation but monitoring standpipes were installed to 8.0m bgl in both boreholes with one return monitoring visit 4 weeks after the investigation. Groundwater was observed in BH1 at 7.70m bgl, which may be indicate slight seepage from the London Clay or infiltration of surface water into the installation.

4.7. The hydrogeological assessment indicates that slow seepages may occur from more permeable zones within the London Clay or the upper reworked material during excavation but these should be dealt with by pumping from a sump if necessary.

4.8. A tributary of the River Tyburn has been identified following the line of the current Avenue Road, and potentially passing through the site. This is reported as having been culverted and running beneath the carriageway. The silty, sandy gravelly clay (reworked material) identified at the top of the London Clay may indicate that channel infill material is present on site, which may act as

a preferential flow path for any subsurface flow. A perimeter drainage system is proposed which would ensure continuity of flow around the development, if the channel is present. The London Clay is designated Unproductive Strata and there will be no impact to the wider hydrogeological environment.

4.9. The site investigation and BIA have been informed by a desk study broadly in accordance with the GSD Appendix G1, although no utility or underground infrastructure records have been presented. This information should be obtained and impacts assessed, and mitigated, as required (see 4.14).

4.10. The proposed construction methodology is provided, including a piling schedule. Interpretative geotechnical information, including retaining wall design parameters, should be presented, based on the site specific investigation data, in accordance with the GSD, Appendix G3.

4.11. An outline construction programme is presented.

4.12. The Knight Build report confirms that 77 Avenue Road is to be demolished. There is currently a Planning Application in progress for a new residential property including 2 levels of basement.

4.13. A ground movement assessment (GMA) is presented which considers the movements relating to the proposed basement construction and the impacts on the adjacent properties at 77 Avenue Road and 38 Queen's Grove. A maximum of Category 1 (Very Slight) damage in accordance with the Burland Scale is indicated. Pending confirmation of the interpretative geotechnical parameters (see 4.10), the assessment is accepted.

4.14. Utilities and infrastructure information within the zone of influence of the proposed development should be presented (see 4.9) and impacts to the assets assessed, as applicable. Asset protection agreements should be entered into, as applicable.

4.15. An outline monitoring strategy and specification has been provided which should be confirmed and agreed under the Party Wall Act.

4.16. It is stated that a Flood Risk Assessment has been completed by Price and Myers but this has not been presented. The Flood Map within the Camden Geological, Hydrogeological and Hydrological Study confirms that Avenue Road was subject to surface water flooding in 2002. The Environment Agency indicates the rear garden of the site to be at a medium risk of surface water flooding with a low risk of flooding on the front driveway. Flood risk mitigation measures are reportedly discussed within the Flood Risk Assessment, which should be provided for review.

4.17. The site is within a critical drainage area. The Price and Myers BIA indicates that the impermeable site area will increase by 800m^2 as a result of the proposed development; although this figure should be confirmed for the current development proposals, its accepted that the proposals are

broadly similar in area. An outline attenuation SUDs strategy is presented, which indicates that off-site discharge flow rates will be limited by use of an attenuation tank with hydrobrake, in accordance with current best practice. The final scheme design will need to be agreed with LBC and Thames Water.

4.18. Non-technical summaries should be provided in any revised BIA presented.

5.0 CONCLUSIONS

5.1. The current BIA submission includes reports from previous planning applications that are no longer consistent with current proposals. Its recommended that a non-technical summary of the proposal is prepared, describing the scheme and confirming which documents are pertinent to the current application.

5.2. The BIA authors possess suitable qualifications in accordance with LBC guidance.

5.3. The proposed development includes the construction of a two-storey basement. Retaining walls are to be formed by contiguous, bored piles, propped in the temporary and permanent case.

5.4. A site investigation indicates the site to be underlain by Made Ground overlying the London Clay Formation.

5.5. There will be no impact to the wider hydrogeological environment. Perimeter drainage will be provided to allow any groundwater flow related to an historic river channel to continue, if present.

5.6. A proposed construction methodology is presented, including a piling schedule. Interpretative geotechnical information, including retaining wall design parameters, should be presented.

5.7. A ground movement assessment (GMA) is presented which considers the movements and resultant impacts to neighbouring buildings. A maximum of Category 1 (Very Slight) damage in accordance with the Burland Scale is predicted.

5.8. Utilities and infrastructure information within the zone of influence of the proposed development should be presented, and impacts to the assets assessed, as applicable.

5.9. An outline monitoring strategy and specification has been provided which should be confirmed and agreed under the Party Wall Act.

5.10. Flood risk mitigation measures are reportedly discussed within a Flood Risk Assessment, which should be provided for review.

5.11. The impermeable site area will increase as a result of the proposed development. An outline attenuation SUDs strategy is presented. The final scheme design will need to be agreed with LBC and Thames Water.

5.12. Non-technical summaries should be provided in any revised BIA presented.

5.13. Requests for further information are summarised in Appendix 2. Until the 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/Response	Date closed out
1	Land Stability	Interpretative geotechnical information, including retaining wall design parameters, should be presented.	Open	
2	Land Stability	Utilities and infrastructure information within the zone of influence of the proposed development should be presented, and impacts to the assets assessed, as applicable.	Open	
3	Hydrology	The Flood Risk Assessment, including proposed mitigation measures, should be provided for review.	Open	
4	BIA	Non-technical summaries should be presented in any revised submissions. Confirmation of the final scheme and which documents are pertinent to the current application is requested.	Open	

Appendix 3: Supplementary Supporting Documents

None

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