CampbellReith
consulting engineers

# 71 Avenue Road
# London
# NW8 6HP

## Basement Impact Assessment
## Audit

For

London Borough of Camden

Project Number: 13693-86
Revision: D1

December 2022

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## Document Details

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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 71 Avenue Road, London, NW8 6HP (planning reference 2022/2529/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 Basement Impact Assessment (BIA) has been carried out by Adkins Consultants and with input from GeoSmart Information Ltd. and the individuals concerned in its production have not demonstrated qualifications in accordance with CPG Basements.

1.5. The proposal involves the demolition of the existing property and construction of a new dwelling of three storeys and a basement over the building footprint to 3.60m below ground level (bgl). It is likely the basement will be founded within the London Clay.

1.6. Desk Study does not reference relevant figures/maps from Arup GSD and other guidance documents to support responses to screening questions.

1.7. Hydrogeology, hydrology and land stability screening and scoping sections should be revised as detailed in Section 4. As a consequence, the impact assessment requires revision.

1.8. A Flood Risk Assessment is submitted along with SuDS proposal to mitigate the increase in runoff by the provision of rainwater harvesting system and attenuation tank.

1.9. A ground investigation is recommended to confirm ground conditions, groundwater levels, existing foundations, and allow the derivation of geotechnical parameters for retaining wall design and subsequent impact assessment.

1.10. A Structural Method Statement (SMS) should be provided to inform the structural proposal, load takedown and propping. A Ground Movement Assessment should be provided and informed by the SMS. It should ensure that damage to neighbouring properties are within the limits set by the CPG for basements.

1.11. No proposals are provided for a movement monitoring strategy during excavation and construction.

1.12. It cannot be confirmed that the BIA complies with the requirements of CPG: Basements until the queries raised in Section 4 and Appendix 2 are addressed.

## 2.0 INTRODUCTION

2.1. CampbellReith was instructed by London Borough of Camden (LBC) on 09/11/2022 to carry out a Category B audit on the Basement Impact Assessment (BIA) submitted as part of the Planning Submission documentation for 71 Avenue Road, London, NW8 6HP and Planning Reference No - 2022/2529/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.
- Neighbourhood Plan if relevant – Not Applicable

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 *"Erection of a two storey, single family dwellinghouse (Class C3) with basement and accommodation in the roof space, following the demolition of existing".*

2.6. The Audit Instruction confirmed 71 Avenue Road did not involve, nor was a neighbour to, listed buildings.

2.7. CampbellReith accessed LBC's Planning Portal on 22/11/22 and gained access to the following relevant documents for audit purposes:

- Basement Impact Assessment Report (BIA) by Adkins Consultant Ltd dated 14th April 2022, Rev A
- Arboricultural Impact Assessment & Method Statement dated 1st June 2022, Ref- jwmb/rpt1/71avenuerd/AIAAMS
- Planning Application Drawings by Patrick Urbanski Architect dated 19th July 2019, Ref – P_19_245 consisting of:

  Location Plan, Rev A;

  Existing Plans, Rev I;

  Proposed Plans, Rev J.

- Demolition Plan by Adkins Consultants Ltd. Dated 10th May 2022 Rev 00, Dwg No. - AR-MP-A1-C-01
- Site Visit Report by Adkins Consultant Ltd dated 4th January 2022, Rev A
- Flood Risk Assessment by GeoSmart Information, dated 29th March 2022, Ref No. - 75438R1
- Sustainable Draiange Assessment by GeoSmart Information, dated 14th April 2022, Ref No. - 75438R1
- Design & Access Statement by Patrick Urbanski Architect dated 18th April 2022, Rev A, Ref – P_19_245

## 3.0 BASEMENT IMPACT ASSESSMENT AUDIT CHECK LIST

| Item | Yes/No/NA | Comment |
|---|---|---|
| Are BIA Author(s) credentials satisfactory? | No | |
| Is data required by Cl.233 of the GSD presented? | No | No ground investigation undertaken to confirm ground and groundwater conditions. |
| Does the description of the proposed development include all aspects of temporary and permanent works which might impact upon geology, hydrogeology and hydrology? | No | No ground investigation undertaken, and no structural methodology provided. |
| Are suitable plan/maps included? | No | Arup map from the GSD should be presented/referenced to inform the impact assessment process. Desktop study information should be presented and supported by suitable maps/plans. |
| Do the plans/maps show the whole of the relevant area of study and do they show it in sufficient detail? | No | As above. |
| Land Stability Screening:<br>Have appropriate data sources been consulted?<br>Is justification provided for 'No' answers? | No | Section 9.2 of BIA. |
| Hydrogeology Screening:<br>Have appropriate data sources been consulted?<br>Is justification provided for 'No' answers? | No | Section 9.1 of BIA. Question 5 should be reviewed to remain consistent with SuDS report. In absence of Gi data Question 1b should be brought forward to scoping. |
| Hydrology Screening:<br>Have appropriate data sources been consulted?<br>Is justification provided for 'No' answers? | No | Section 9.3 of BIA. Question 4 is not correctly taken from the guidance. Question 5 is not presented in the screening. Answer for Question 3 will need to be consistent with SuDS report. |
| Is a conceptual model presented? | No | It should be informed by site specific ground investigation information. |

| Item | Yes/No/NA | Comment |
|---|---|---|
| Land Stability Scoping Provided?<br>Is scoping consistent with screening outcome? | No | Question 1, 4, 6, 7, 8, 11 of the screening has been answered as 'Yes' but not brought forward to scoping. |
| Hydrogeology Scoping Provided?<br>Is scoping consistent with screening outcome? | No | Question 1b and 2 should be brought forward to scoping. |
| Hydrology Scoping Provided?<br>Is scoping consistent with screening outcome? | No | Section 9.4 of BIA. Subject to screening review. |
| Is factual ground investigation data provided? | No | No ground investigation undertaken |
| Is monitoring data presented? | No | As above |
| Is the ground investigation informed by a desk study? | No | |
| Has a site walkover been undertaken? | Yes | In Site Inspection Report |
| Is the presence/absence of adjacent or nearby basements confirmed? | No | |
| Is a geotechnical interpretation presented? | No | |
| Does the geotechnical interpretation include information on retaining wall design? | No | |
| Are reports on other investigations required by screening and scoping presented? | No | A flood risk assessment, SuDS system and Demolition Method Statement is provided. However, ground investigation report, ground movement assessment and Structural Method Statement are not provided. |
| Are the baseline conditions described, based on the GSD? | No | Groundwater regime and approximate location of Lost River Tyburn require clarification. |
| Do the base line conditions consider adjacent or nearby basements? | No | |

| Item | Yes/No/NA | Comment |
|---|---|---|
| | | |
| Is an Impact Assessment provided? | Yes | Section 10 of the BIA. |
| Are estimates of ground movement and structural impact presented? | No | GI, GMA and structural proposal are not presented. |
| Is the Impact Assessment appropriate to the matters identified by screening and scoping? | No | Impact Assessment to be reviewed after other reports/investigations required by the screening/scoping exercise have been undertaken. |
| Has the need for mitigation been considered and are appropriate mitigation methods incorporated in the scheme? | No | FRA and SuDS proposed to mitigate surface water flood risk. However, mitigations on Land Stability and hydrogeology are subject to ground investigation and structural proposal presented and impact assessment reviewed. |
| Has the need for monitoring during construction been considered? | No | As above. |
| Have the residual (after mitigation) impacts been clearly identified? | No | As above. |
| Has the scheme demonstrated that the structural stability of the building and neighbouring properties and infrastructure will be maintained? | No | No GMA undertaken. |
| Has the scheme avoided adversely affecting drainage and run-off or causing other damage to the water environment? | Yes | SuDs proposed to mitigate effects of increased surface water flows. |
| Has the scheme avoided cumulative impacts upon structural stability or the water environment in the local area? | No | As above. |
| Does report state that damage to surrounding buildings will be no worse than Burland Category 1? | No | No GMA undertaken. Further assessment is required. |
| Are non-technical summaries provided? | No | |

## 4.0 DISCUSSION

4.1. The Basement Impact Assessment (BIA) has been carried out by Adkins Consultants and with input from GeoSmart Information Ltd. The individuals concerned in its production have not demonstrated that they hold appropriate qualifications in accordance with CPG Basements.

4.2. The LBC Instruction to proceed with the audit identified that the basement proposal did not involve, nor was a neighbour to, listed buildings. The proposal involves the complete demolition of the existing detached property to enable the construction of new dwelling with three storeys and a basement to a depth of 3.60m below ground level (bgl) covering the entire building footprint.

4.3. Desk Study information should be presented clearly with relevant figures/maps from the ARUP GSD and other guidance documents to support responses to screening questions and assessments should be reviewed by qualified professionals as per CPG Basements.

4.4. The screening for hydrology omits a question regarding a change in proportion of hard surfaced areas on site and Question 4 is slightly modified to consider quantity rather than quality of surface water being received by adjacent properties. This should be revised.

4.5. The screening exercise has identified the presence of the Lost River Tyburn to flow within proximity of the site but gives no indication of location and is not carried over to scoping. The river should be clearly located in respect to the proposed development, and any impact assessed, if needed.

4.6. The Land Stability screening exercise must be reviewed, and 'Yes' answers must be brought forward into scoping to consider potential impacts and further assessments needed to mitigate these impacts. Question 1b of the hydrogeology screening should be brought forward to scoping.

4.7. Flood Risk Assessment (FRA) and Arboricultural Survey are presented. However, the scoping assessment identified the need for additional investigation to be undertaken to assess the impact of the proposed development.

4.8. The Impact Assessment provided in Section 10 will have to be revised with respect to Land Stability and Hydrogeology. The following information is required to inform the revised assessment:

- Ground Investigation Report,
- Ground Movement Assessment,
- Outline Structural Method Statement.

4.9. The BIA consulted historic borehole records and maps from the British Geological Survey. The findings indicate no superficial deposits on site and the bedrock geology is London Clay Formation. No ground investigation is undertaken to inform the ground conditions, groundwater regime and existing foundations. It is recommended one is undertaken to inform the above and allow the derivation of geotechnical parameters to be adopted in the design, including retaining wall design.

4.10. Considering the anticipated geology and as the proposed basement will be detached from any nearby foundations, it is accepted in principle that the proposed development will not cause any adverse impact on the wider hydrogeological environment. However, this is subject to review of site specific ground investigation and evaluation of groundwater conditions.

4.11. The BIA properly identified a high risk of surface water flooding at the site, and Questions 5 and 3 of hydrogeology and hydrology respectively, state that a SuDS system cannot be implemented on-site. This statement contradicts the SuDS systems proposed in the GeoSmart SuDS report. The BIA should be revised.

4.12. The impacts due to surface water flooding and increase in impermeable surface area are mitigated through the provision of a SuDS system comprising rainwater harvesting along with an attenuation tank with control flow valves. The assessment made in GeoSmart Information report considers a 1 in 100 year flood event and accounts for 40% climate change.

4.13. A Demolition Method Statement is provided. However, no structural information regarding the proposed development is presented. A Structural Method Statement (SMS) should be provided detailing the sequence and method of construction, load take downs, temporary and permanent propping and should be supported by drawings. Groundwater ingress mitigation measures should also be presented.

4.14. The outline structural proposal as indicated above, should inform a Ground Movement Assessment (GMA). A GMA including horizontal and vertical movements in the temporary and permanent case should be provided to ensure damage to neighbouring properties and infrastructure is limited to Category 1 of the Burland Scale. An outline movement monitoring strategy during excavation and construction may need to be provided along with the GMA.

4.15. There may be trees that are going to be felled to facilitate the development. Depending on ground conditions and volume change potential of the soil on site, an assessment following the NHBC Standards guidance may be required to demonstrate the removal of trees will not adversely affect the stability of existing neighbouring foundations.

## 5.0 CONCLUSIONS

5.1. The Basement Impact Assessment (BIA) has been carried out by Adkins Consultants and with input from GeoSmart Information Ltd. and the individuals concerned in its production have not demonstrated to have qualifications in accordance with CPG Basements.

5.2. The proposed basement will extend to 3.60m bgl but no information is given to the method and sequence of construction. It is likely the basement will be founded within the London Clay.

5.3. Screening exercises for Land Stability, Hydrogeology and Hydrology need to be revised and should include relevant figures/maps from the ARUP GSD and other guidance documents to support responses to screening questions and assessments should be reviewed by qualified professionals as per CPG Basements.

5.4. The screening/scoping process should be revised as discussed in Section 4. The impact assessment should be revised consequently.

5.5. It is recommended that a ground investigation be undertaken to confirm ground conditions, groundwater levels, existing foundations, and allow the derivation of geotechnical parameters for retaining wall design and for use in subsequent impact assessment.

5.6. A Flood Risk Assessment is submitted along with SuDS proposal to mitigate the increase in runoff by the provision of rainwater harvesting system and attenuation tank.

5.7. A Structural Method Statement (SMS) should be provided to inform the structural proposal, load takedown and propping. A Ground Movement Assessment should be provided and informed by the SMS. It should ensure that damage to neighbouring properties are within the limits set by the CPG for basements.

5.8. No proposals are provided for a movement monitoring strategy during excavation and construction.

5.9. It cannot be confirmed that the BIA complies with the requirements of CPG: Basements until the queries raised in Section 4 and Appendix 2 are addressed.

# Appendix 1: Consultation Responses

None

# Appendix 2: Audit Query Tracker

Audit Query Tracker

| Query No | Subject | Query | Status | Date closed out |
|---|---|---|---|---|
| 1 | BIA format | Qualifications of BIA authors do not meet CPG Basements for hydrology, hydrogeology and land stability. | Open - Section 4.1. | |
| 2 | BIA format | Desk Study should reference relevant figures/maps from the ARUP GSD and other guidance documents to inform screening and scoping exercise. | Open –Section 4.3. | |
| 3 | BIA format | Screening/Scoping to be revised as detailed in Section 3 and 4. | Open –Section 4.4 to 4.6. | |
| 4 | Supporting information | A site-specific ground investigation should be presented. Geotechnical interpretation should be presented and informed by site specific ground investigation information. | Open – Section 4.8 – 4.9 | |
| 5 | Hydrology | Revision of the BIA regarding SuDS required. | Open – Section 4.11. | |
| 6 | Supporting information | A Structural Method Statement is required. | Open – Section 4.13. | |
| 7 | Supporting information | A GMA should be presented and should include an estimation of anticipated ground movements due to excavation and retaining wall installation. The GMA should demonstrate that damages quantified to be no more than Category 1 of the Burland Scale. | Open – Section 4.14 – 4.15. | |

# Appendix 3: Supplementary Supporting Documents

None

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