

29 Ulysses Road,
London NW6 1ED

Basement Impact Assessment
Audit

For
London Borough of Camden

Project Number: 13693-37

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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 29 Ulysses Road, London NW6 1ED (planning reference 2021/5814/P). The basement is considered to fall within Category B defined by the Terms of Reference.
- 1.2. The Audit reviewed the Basement Impact Assessment (BIA) 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 has been prepared by Croft Structural Engineers and Maund Geo-Consulting. The qualifications of the authors are in accordance with LBC guidance.
- 1.5. The proposed development will deepen the existing cellar to provide a full height basement and lightwell to the property, with formation level at approximately 3.0m below ground level (bgl).
- 1.6. The BIA includes the majority of the information required from a desk study in line with LBC guidance.
- 1.7. Screening and scoping assessments have been completed. Clarification is sought on the increase in impermeable site area.
- 1.8. A site investigation indicates that the ground conditions comprise Made Ground overlying the London Clay Formation. Groundwater was not encountered during the site investigation nor the subsequent monitoring of the borehole (depth 5.45m bgl).
- 1.9. Geotechnical interpretative information is provided.
- 1.10. The BIA includes outline temporary works information including sequencing, propping and indicative retaining wall design.
- 1.11. A Ground Movement Assessment (GMA) has been undertaken and the maximum damage category for the adjacent properties has been calculated to be within Category 1 (Very slight) in accordance with the Burland Scale.
- 1.12. An outline methodology and guidance for monitoring structural movements during construction has been provided including proposed trigger values and contingency actions. This should be further clarified to be consistent with the GMA.

- 1.13. The site is not within a Local Flood Risk Zone. The site is at very low risk of flooding from rivers and sea and at no risk of reservoir flooding. The flood mitigation measures are outlined within the Flood Risk Assessment.
- 1.14. Ulysses Road is within Critical Drainage Area (Group 3-010). The proposed basement development will result in an increase in impermeable site area, which should be clarified, including sufficient assessment to demonstrate there will be no significant increase in off-site drainage flows. Drainage proposals should be agreed with LBC and Thames Water.
- 1.15. An outline programme of works has been presented.
- 1.16. Queries and matters requiring further clarification are discussed in Section 4 and summarised in Appendix 2. Until the clarifications requested are 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 26th January 2022 to carry out a Category B Audit on the Basement Impact Assessment (BIA) submitted as part of the Planning Submission documentation for 29 Ulysses Road, London NW6 1ED, Camden Reference 2021/5814/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): Basements. January 2021.
 - 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: *"Conversion of dwelling into three flats, extension to existing basement with front lightwell, infill side and rear extension at lower ground floor, rear roof dormer with Juliet balcony and terrace, two rooflights on front slope."*

The planning portal also confirmed the site is not a listed building nor does the site lie within a Conservation Area.

2.6. CampbellReith accessed LBC's Planning Portal on 20th February 2022 and gained access to the following relevant documents for audit purposes:

- Basement Impact Assessment for Surface Water and flooding (ref 210925) (including Structural Calculations, Construction Programme Utilities Searches, Structural Drawings and Temporary Works Sequence) dated October 2021 by Croft Structural Engineers.
- Basement Impact Assessment for Land Stability and Hydrogeology, Geotechnical Interpretative Report and Ground Movement Assessment (ref MGC-GMA-21-47-V2) (including Ground Investigation Factual Report) dated November 2021 by Maund Geo-Consulting.
- Flood Risk Assessment (ref 210925) dated 22nd November 2021 by Croft Structural Engineers.
- Existing and proposed plans and sections dated 25th November 2021 by Proficiency Design & Build.
- Design Statement dated 17th January 2022 by Proficiency Design & Build.
- Planning consultation comments.

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 plans/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	Section 7.3 of the Maund Geo-Consulting BIA. The site is underlain by the London Clay and is within 5m of a pedestrian walkway. The proposed basement will increase the differential depth of foundations relative to neighbouring properties.
Hydrogeology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	No	Section 7.2 of the Maund Geo-Consulting BIA. Clarification on the change in impermeable site area is required.
Hydrology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Section 3 of the Croft Structural Engineers BIA. The site lies within a Critical Drainage Area and the proposed development will result in an increase in impermeable site area.
Is a conceptual model presented?	Yes	Clarification on change in impermeable site area required.

Item	Yes/No/NA	Comment
Land Stability Scoping Provided? Is scoping consistent with screening outcome?	Yes	Section 8.1 of the Maund Geo-Consulting BIA. The issues identified have been further assessed in a site investigation and ground movement assessment.
Hydrogeology Scoping Provided? Is scoping consistent with screening outcome?	No	Section 8.1 of the Maund Geo-Consulting BIA. No issues identified in Screening to take forward to Scoping however this should be updated to include consideration of the change in impermeable site area.
Hydrology Scoping Provided? Is scoping consistent with screening outcome?	No	Section 5 of Croft Structural Engineers BIA. Further investigated in the Flood Risk Assessment report. Clarification on change in impermeable site area required plus assessment on change to surface water discharge flows.
Is factual ground investigation data provided?	Yes	Section 4 and Appendix B of the Maund Geo-Consulting BIA.
Is monitoring data presented?	Yes	Section 4 and Appendix B of the Maund Geo-Consulting BIA.
Is the ground investigation informed by a desk study?	Yes	Section 3 of the Croft Structural Engineers BIA and Section 3 of the Maund Geo-Consulting BIA.
Has a site walkover been undertaken?	Yes	Croft Structural Engineers undertook a site walkover in October 2021.
Is the presence/absence of adjacent or nearby basements confirmed?	Yes	It is noted within the BIA's that No. 31 Ulysses Road has an existing basement the same depth as the proposed basement at No. 29 (understood to have been built in circa 2010) and that No. 27 has a partial depth basement.
Is a geotechnical interpretation presented?	Yes	Section 5 and 6 of the Maund Geo-Consulting BIA.
Does the geotechnical interpretation include information on retaining wall design?	Yes	Section 7 (Construction Methodology and Engineering Statements) and Appendix A (Structural Calculations) of the Croft Structural Engineers BIA references the geotechnical interpretation of the Maund Geo-Consulting BIA with retaining wall design included within Appendix A.

Item	Yes/No/NA	Comment
Are reports on other investigations required by screening and scoping presented?	Yes	Flood Risk Assessment and Ground Movement Assessment.
Are baseline conditions described, based on the GSD?	Yes	
Do the baseline conditions consider adjacent or nearby basements?	Yes	
Is an Impact Assessment provided?	Yes	Section 9 of the Maund Geo-Consulting BIA and Section 8 of the Croft Structural Engineers BIA.
Are estimates of ground movement and structural impact presented?	Yes	Section 10 and 11 of the Maund Geo-Consulting BIA.
Is the Impact Assessment appropriate to the matters identified by screen and scoping?	No	Clarification on change in impermeable site area required plus assessment on change to surface water discharge flows.
Has the need for mitigation been considered and are appropriate mitigation methods incorporated in the scheme?	Yes	Protection to the basement will be provided by a non-return valves and a pumping system. Further consideration to mitigate the impact of increasing hardstanding may be required.
Has the need for monitoring during construction been considered?	Yes	An outline methodology and guidance for monitoring structural movements during construction has been provided including proposed trigger values and contingency actions (Section 7.4.4 of the Croft Structural Engineers BIA). Further clarification requested, to be consistent with GMA.
Have the residual (after mitigation) impacts been clearly identified?	Yes	Section 6.3 of Maund Geo-Consulting BIA discussed long term heave. FRA outlines mitigation measures for the proposed basement with regards to a sump pump and non-return valves.
Has the scheme demonstrated that the structural stability of the building and neighbouring properties and infrastructure will be maintained?	Yes	Structural calculations and ground movement assessment provided.

Item	Yes/No/NA	Comment
Has the scheme avoided adversely affecting drainage and run-off or causing other damage to the water environment?	No	Clarification on change in impermeable site area required plus assessment on change to surface water discharge flows. Final proposed drainage design will require approval from LBC and Thames Water.
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	The maximum damage category for the adjacent properties has been calculated to be within Category 1 (very slight damage).
Are non-technical summaries provided?	Yes	

4.0 DISCUSSION

- 4.1. The BIA has been prepared by Croft Structural Engineers and Maund Geo-Consulting. The qualifications of the authors meet the requirements of CPG Basements.
- 4.2. The site currently comprises a mid-terrace residential property over two storeys above ground level and a cellar occupying part of the building footprint at a depth of 1.75m below ground level (bgl) and a sub-ground floor void at a depth of 1.10m bgl. The proposed development will provide a full basement and lightwell to the property and it is understood the anticipated level of the basement excavation will be approximately 3.00m below existing ground level. It is noted that the existing rear extension is at a mid-level height between basement and ground floor levels, due to a lower rear garden level compared to street level. The rear extension will be marginally lowered by approximately 0.30m and extended into the rear garden and across the full width of the plot.
- 4.3. The BIA includes the majority of the information required from a desk study in line with the GSD Appendix G1. Utilities Searches are included within Appendix C of the Croft Structural Engineers BIA.
- 4.4. Screening and scoping assessments have been completed. The groundwater screening assessment does not acknowledge the change in impermeable site area; the surface water flow screening states there will be a change in impermeable site area and considers further in scoping and within the flood risk assessment (FRA). However, the changes in impermeable area should be quantified.
- 4.5. A site investigation was undertaken on 12th October 2021 by PM Sampling Ltd on behalf of Maund Geo-Consulting comprising one window sampler borehole to 5.45m bgl and two foundation observation pits. The ground conditions comprise Made Ground overlying the London Clay Formation. On completion of drilling the borehole it was found to be dry to 5.45m bgl. Subsequent groundwater monitoring in October and November 2021 indicated the borehole was dry to a depth of at least 5.00m bgl.
- 4.6. Ulysses Road is within Critical Drainage Area (Group 3-010). The proposed basement development will result in an increase in impermeable site area. As 4.4, the change in impermeable site area should be quantified. The FRA currently states that the use of attenuation SuDS is not considered necessary. However, appropriate assessment to demonstrate this should be presented, including allowances for climate change in accordance with best practice, noting that Thames Water have indicated the sequential assessment approach will be required (Appendix 1), and that final drainage proposals will need to be agreed with LBC and Thames Water.
- 4.7. The site is not within a Local Flood Risk Zone. The Flood Risk Assessment has identified that the site is at low risk from surface water flooding, at very low risk of flooding from rivers and the sea and at no risk of reservoir flooding. The carriageway of Ulysses Road is at low risk of flooding from

surface water. Ulysses Road did not flood in 1975 or 2002. Flood mitigation measures are outlined within the Flood Risk Assessment. The proposed works are stated to not increase the risk of flooding to the surrounding properties; however, this should be further clarified, as discussed above.

- 4.8. Interpretative geotechnical information is presented, broadly in accordance with the GSD Appendix G3. Whilst it is noted that the stated allowable bearing capacity would allow up to 25mm of settlement, it is noted that ground movements due to loading have been calculated (as 4.10).
- 4.9. The Construction Method Statement (CMS) indicates that the new structure will consist of reinforced concrete retaining walls installed by underpinning techniques, with the floor structure comprising reinforced concrete slabs adjoining the bases of the retaining walls and the existing basement structure in the neighbouring property (No. 31).
- 4.10. A Ground Movement Assessment (GMA) has been undertaken by Maund Geo-Consulting to predict movements that may impact the adjacent properties at 27 and 31 Ulysses Road. The GMA considers that No. 31 Ulysses Road has an existing basement the same depth as the proposed basement at No. 29 (understood to have been built in circa 2010) and that No. 27 has a partial depth basement. The maximum damage category for the adjacent properties has been calculated to be within Category 1 (Very Slight) in accordance with the Burland Scale. Considering the relatively shallow depth of underpinning and bulk excavation required, and the existing depth of neighbouring foundations, it is accepted that the movements predicted are within the typical range anticipated. Subject to clarification on the monitoring strategy, as 4.11, the conclusions of the GMA are accepted.
- 4.11. An outline methodology and guidance for monitoring structural movements during construction has been provided including proposed trigger values and contingency actions (Section 7.4.4 of the Croft Structural Engineers BIA). It is noted that the existing trigger values proposed are in excess of the movements predicted in the GMA. The monitoring strategy should be reviewed and proposals revised to be consistent with the GMA. The monitoring scheme should be agreed under the Party Wall Act, as applicable.
- 4.12. An outline construction programme has been provided.
- 4.13. Non-technical summaries have been provided.

5.0 CONCLUSIONS

- 5.1. The authors' qualifications are in accordance with the requirements of CPG Basements.
- 5.2. Screening and scoping assessments have been completed. Clarification is sought on the increase in impermeable site area.
- 5.3. A site investigation indicates ground conditions of Made Ground overlying the London Clay Formation.
- 5.4. Geotechnical interpretative information is provided.
- 5.5. Outline structural works information is provided.
- 5.6. A Ground Movement Assessment (GMA) has been undertaken.
- 5.7. An outline methodology and guidance for monitoring structural movements has been provided. Further clarification is required.
- 5.8. The site is located within a Critical Drainage Area but is not within a Local Flood Risk Zone. The site is at very low risk of flooding. Flood mitigation measures are recommended.
- 5.9. The BIA indicates there will be an increase in impermeable site area. Clarification on the change in impermeable site area is required and an appropriate drainage assessment should be undertaken in accordance with best practice, noting the requirements of Thames Water and LBC Guidance.
- 5.10. An outline programme of works has been presented.
- 5.11. Non-technical summaries should be provided.
- 5.12. Queries and matters requiring further clarification are summarised in Appendix 2. Until the clarifications requested are presented, the BIA does not meet the criteria of CPG Basements.

Appendix 1: Residents' Consultation Comments

Residents' Consultation Comments

Surname	Address	Date	Issue raised	Response
LR	Not provided	28 January 2022	"Creating a full basement from the perhaps existing cellar and a front light well may also impact on the water table."	4.5
Thames Water	Not provided	1 February 2022	<p>Thames Water would advise with regard to surface water drainage that if the developer follows the sequential approach to the disposal of surface water they would not have any objections.</p> <p>Thames Water request that a positive pumped device is installed on the assumption that the sewerage network may surcharge to ground level during storm conditions.</p> <p>Thames Water would advise that with regard to waste water network and sewage treatment works infrastructure capacity, they would not have any objection to the above planning application, based on the information provided.</p>	4.6, 4.7
Bennett	Not provided	1 February 2022	"The construction of the proposed basement will produce lateral and horizontal movement to number 31 which need to be protected in any permissions."	4.10, 4.11
Rogers	Not provided	1 February 2022	"The excavation of a large cellar may affect underground water courses to the detriment of other houses down-stream from the property."	4.5

Appendix 2: Audit Query Tracker

Audit Query Tracker

Query No	Subject	Query	Status/Response	Date closed out
1	Surface Water Flow	The proposed basement development will result in an increase in impermeable site area, which should be clarified, including sufficient assessment to demonstrate there will be no significant increase in off-site drainage flows or, if required, appropriate attenuation SUDS to be proposed.	Open – to be demonstrated as 4.4, 4.6	
2	Land Stability	The monitoring strategy should be reviewed; proposed trigger values should be consistent with the GMA.	Open – to be demonstrated as 4.11	

Appendix 3: Supplementary Supporting Documents

None

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