

**Clifford Pugh House
5-7 Lancaster Grove
London NW3 4HE**

**Basement Impact Assessment
Audit**

For
London Borough of Camden

Project Number: 12066-21

Rev: D1

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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 Clifford Pugh House, 5-7 Lancaster Grove, London NW3 4HE (planning reference 2015/2366/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 review it against an agreed audit check list.
- 1.4. It has been confirmed that the development site does not involve a listed building, nor is it in the neighbourhood of listed buildings.
- 1.5. The BIA has confirmed that the proposed basement will be located within the London Clay and that the surrounding slopes are stable.
- 1.6. The basement will be located above the main groundwater level and the sides require the use of a contiguous pile wall, or similar, to permit excavation of the basement. Water seepages were encountered as isolated pockets and need to be addressed during construction.
- 1.7. The proposed basement will be excavated and constructed utilising established techniques.
- 1.8. It is accepted that the risk of surface water flooding the buildings is low, despite nearby areas to the east and north having a medium risk of flooding.
- 1.9. The BIA indicates that SUDS will be provided within the hard landscaping of the new development. It is accepted that the basement will not significantly alter the existing surface water drainage conditions.
- 1.10. The ground movement assessment provided indicates that damage to the adjacent properties will be Burland Category 1 or less. The ground movement assessment is deemed to be incomplete and it does not consider the adjacent road or services. However, the proposed scheme is such that it should be possible to limit damage to no worse than Category 2 using standard construction techniques. It is accepted that this may be confirmed under the Party Wall Act.

2.0 INTRODUCTION

- 2.1. CampbellReith was instructed by London Borough of Camden (LBC) on 26th May 2015 to carry out a Category B Audit on the Basement Impact Assessment (BIA) submitted as part of the Planning Submission documentation for 5-7 Lancaster Grove, Camden Reference 2015/2366/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
- 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 Audit Instruction described the planning proposal as the "Erection of six storey building including basement to provide 15 flats following demolition of existing student accommodation."
- The Audit Instruction also confirmed that the basement proposals did not involve a listed building nor the site neighboured listed buildings.
- 2.6. CampbellReith accessed LBC's Planning Portal on 3rd August 2015 and gained access to the following relevant documents for audit purposes:
- Basement Impact Assessment

- Ground conditions and desk study report
- Ground investigation report
- Flood risk assessment report
- Drawings;
 - Existing elevations
 - Existing floor plans
 - Location plan and topographical survey
 - Proposed demolition and block plan
 - Proposed basement and lower ground floor plans
 - Proposed detail elevation
 - Proposed elevations sheet 01
 - Proposed elevations sheet 02
 - Proposed site sections

3.0 BASEMENT IMPACT ASSESSMENT AUDIT CHECK LIST

Item	Yes/No/NA	Comment
Are BIA Author(s) credentials satisfactory?	Yes	The authors of the BIA, Flood Risk Assessment and the Ground Investigation report all have suitable credentials.
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	BIA Sections 3, 4, 7.1.1 and 8.2.
Are suitable plan/maps included?	Yes	BIA and drawings.
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	BIA Section 3
Hydrogeology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	BIA Section 3
Hydrology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	BIA Section 3
Is a conceptual model presented?	Yes	Ground conditions desk study report Section 3
Land Stability Scoping Provided? Is scoping consistent with screening outcome?	Yes	BIA Section 4

Item	Yes/No/NA	Comment
Hydrogeology Scoping Provided? Is scoping consistent with screening outcome?	Yes	BIA Section 4
Hydrology Scoping Provided? Is scoping consistent with screening outcome?	Yes	BIA Section 4
Is factual ground investigation data provided?	Yes	Ground investigation report
Is monitoring data presented?	No	
Is the ground investigation informed by a desk study?	Yes	Ground conditions desk study report
Has a site walkover been undertaken?	Yes	Ground conditions desk study report Sections 1.3, 2.2 and Appendix B
Is the presence/absence of adjacent or nearby basements confirmed?	No	No discussion on any other basements in the vicinity being present or not
Is a geotechnical interpretation presented?	Yes	Ground investigation report Section 6
Does the geotechnical interpretation include information on retaining wall design?	Yes	Ground investigation report Section 6.5
Are reports on other investigations required by screening and scoping presented?	Yes	Flood Risk Assessment
Are baseline conditions described, based on the GSD?	Yes	
Do the base line conditions consider adjacent or nearby basements?	No	No discussion on any other basements
Is an Impact Assessment provided?	Yes	BIA Section 8.1
Are estimates of ground movement and structural impact presented?	Yes	BIA Section 8.1, 9 and Appendix E. Only considers movements from pile wall settlement and deflection during excavation. Does not consider unloading from demolition and excavation, and reloading

Item	Yes/No/NA	Comment
		from construction of the new building. BIA Section 7.2 states that these additional analyses will be carried out.
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	SUDS within hard landscaping
Has the need for monitoring during construction been considered?	Yes	BIA Sections 7.2, 8.3 and 8.5
Have the residual (after mitigation) impacts been clearly identified?	Yes	
Has the scheme demonstrated that the structural stability of the building and neighbouring properties and infrastructure been maintained?	Yes	But the demonstration is incomplete due to not yet having considered all the causes of ground movement.
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 2?	Yes	Estimated to be Burland Category 1 or less. However the ground movement assessment is deemed to be incomplete and should be updated at the next design stage.
Are non-technical summaries provided?	No	But BIA is written so as to be understandable

4.0 DISCUSSION

- 4.1. The BIA has been carried out by an established firm of structural engineers, Lyons O'Neill, who have employed the services of other organisations to supplement the work needed to form the BIA. The authors from all of these organisations have suitable qualifications.
- 4.2. The proposed basement will generally be excavated with the sides supported by a propped contiguous pile wall. This is an acceptable methodology using established techniques.
- 4.3. The BIA does not mention any nearby basements that may be affected, however, the site is not underlain by an aquifer and there is no potential impact on groundwater flow. An investigation of the presence of other nearby basements is required for an updated Ground Movement Assessment.
- 4.4. It is acknowledged that the basement is founded within the London Clay and that the basement will be located above the groundwater level. There may be some seepages from the ground during excavation and appropriate mitigation control measures may be required to maintain stability around the site.
- 4.5. The BIA has shown that the surrounding slopes to the development are stable.
- 4.6. The BIA indicates that the new foundations will be deeper than any neighbouring foundations. It has been stated that the stability of the neighbouring foundations will be managed through the Party Wall process. A condition survey will be undertaken of the neighbouring properties.
- 4.7. The BIA indicates that SUDS will be provided within the new hard landscaping for the development. It is accepted the development will not significantly alter the existing surface water drainage conditions.
- 4.8. The BIA includes an assessment of whether the development is likely to be affected by surface water flooding, and even though other nearby streets have a much higher risk, the risk is accepted as being low for this development.
- 4.9. The Ground Movement Assessment concludes that any damage to the neighbouring properties will be Burland Category 1 or less. However, it is not possible to validate these results because;
 - Vertical settlements and horizontal deflections of the pile wall have been considered.
 - The additional vertical ground movements from unloading due to demolition, unloading due to excavation of the basement, and the subsequent reloading when the new building is built have not yet been considered. These additional movements may reduce or increase the building damage assessment; it is not possible to conclude without undertaking the additional analyses.

- No assessment has been made on the nearby road or any utilities within the vicinity of the development.
- 4.10. A movement monitoring regime on the adjacent properties during construction is discussed and this should be provided.

5.0 CONCLUSIONS

- 5.1. The BIA has been carried out by established organisations. The authors from all of these organisations have suitable qualifications.
- 5.2. The proposed basement will generally be excavated with the sides supported by a propped contiguous pile wall. This is an acceptable methodology using established techniques.
- 5.3. The BIA does not mention any nearby basements that may be affected. An investigation of the presence of other nearby basements is required for an updated Ground Movement Assessment.
- 5.4. It is acknowledged that the basement is founded within the London Clay and that the basement will be located above the groundwater level. There may be some seepages from the ground during excavation and appropriate mitigation control measures may be required to maintain stability around the site. It is accepted that the development will not impact groundwater flow.
- 5.5. The BIA has shown that the surrounding slopes to the development are stable.
- 5.6. The BIA indicates that the new foundations will be deeper than any neighbouring foundations. The stability of these foundations will be managed through the Party Wall process.
- 5.7. The BIA indicates that SUDS will be provided above within the new hard landscaping for the development. It is accepted that will not significantly alter the existing surface water drainage conditions.
- 5.8. The BIA includes an assessment of whether the development is likely to be affected by surface water flooding, and the risk is accepted as being low for this development.
- 5.9. The Ground Movement Assessment concludes that any damage to the neighbouring properties will be Burland Category 1 or less. It has not been possible to validate these results, however the proposals are such that it should be possible to limit damage to no greater than Category 2 using standard construction techniques. It is accepted that this can be controlled under the Party Wall Act.
- 5.10. A movement monitoring regime on the adjacent properties during construction is discussed and this should be provided.

Appendix 1: Residents' Consultation Comments

Residents' Consultation Comments

Surname	Address	Date	Issue raised	Response
O'Hare	1-3 Lancaster Grove	25/05/15	Concerns regarding damage to Gabrielle Court Requested monitoring	See Sections 4.6, 4.9, 4.10 and 5.9.
Beveridge	1-3 Lancaster Grove		Concerns regarding damage to Gabrielle Court Requested a structural survey	See Sections 4.6, 4.9, 4.10 and 5.9.
Green	1 Lancaster Grove	01/06/15	Concerns regarding damage to Gabrielle Court	See Sections 4.6, 4.9, 4.10 and 5.9.
Hamdorff	6 Belsize Square	10/06/15	Concerns regarding impact from the excavation works	See Sections 4.6, 4.9, 4.10 and 5.9.

Appendix 2: Audit Query Tracker

Audit Query Tracker

Query No	Subject	Query	Status	Date closed out
1	Stability	Ground movement assessment to be revised.	To be agreed under Party Wall Act	N/A
2	Stability	Outline movement monitoring regime to be provided.	To be agreed under Party Wall Act	N/A

Appendix 3: Supplementary Supporting Documents

None

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