

72 Maresfield Gardens, London
NW3 5TD

Basement Impact Assessment
Audit

For
London Borough of Camden

Project Number: 12727-72
Revision: D1

May 2018

Campbell Reith Hill LLP
Friars Bridge Court
41-45 Blackfriars Road
London
SE1 8NZ

T: +44 (0)20 7340 1700
E: london@campbellreith.com
W: www.campbellreith.com

Document History and Status

Revision	Date	Purpose/Status	File Ref	Author	Check	Review
D1	May 2018	Comment	RMso-12727-72-210518-72 Maresfield Gardens-D1.doc	RM	SO	SO

This document has been prepared in accordance with the scope of Campbell Reith Hill LLP’s (CampbellReith) appointment with its client and is subject to the terms of the appointment. It is addressed to and for the sole use and reliance of CampbellReith’s client. CampbellReith accepts no liability for any use of this document other than by its client and only for the purposes, stated in the document, for which it was prepared and provided. No person other than the client may copy (in whole or in part) use or rely on the contents of this document, without the prior written permission of Campbell Reith Hill LLP. Any advice, opinions, or recommendations within this document should be read and relied upon only in the context of the document as a whole. The contents of this document are not to be construed as providing legal, business or tax advice or opinion.

© Campbell Reith Hill LLP 2015

Document Details

Last saved	21/05/2018 11:07
Path	RMso-12727-72-210518-72 Maresfield Gardens-D1.doc
Author	R Morley MEng (Hons)
Project Partner	E M Brown, BSc MSc CGeol FGS
Project Number	12727-72
Project Name	72 Maresfield Gardens, London, NW3 5TD
Planning Reference	2018/0669/P

Contents

1.0 Non-technical summary 1
2.0 Introduction 1
3.0 Basement Impact Assessment Audit Check List..... 5
4.0 Discussion 8
5.0 Conclusions 11

Appendix

- Appendix 1: Residents’ Consultation Comments
- Appendix 2: Audit Query Tracker
- Appendix 3: Supplementary Supporting Documents

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 72 Maresfield Gardens, London, NW3 5TD (planning reference 2018/0669/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 checklist.
- 1.4. The Basement Impact Assessment (BIA) and desk study and ground investigation report have been carried out by an established firm of structural engineering consultants respectively. However further evidence of appropriate qualifications is required.
- 1.5. A Grade II listed building is located in the adjacent parallel road, however 72 Maresfield Gardens is itself not listed.
- 1.6. The existing property is described as being a detached three storey detached house plus an existing basement level.
- 1.7. The proposal involves a modest lowering of the full extent of the existing basement level 0.4m.
- 1.8. An appropriate site specific ground investigation has been carried out to identify the existing foundations and geological conditions.
- 1.9. It is not anticipated that underpinning of the existing foundations will be required.
- 1.10. A new basement slab is proposed to be constructed on piled foundations.
- 1.11. The geology was identified made ground overlaying sandy clay. However further details of the ground investigation is required.
- 1.12. A ground movement assessment has been produced which identified the impact on the surrounding properties as being Burland category 0 (negligible).
- 1.13. Appropriate outline construction method statement and temporary works details have been provided to demonstrate the feasibility of the proposal.

- 1.14. A outline movement monitoring strategy has been provided which describes monitoring to the applicants own building.
- 1.15. A London Overground tunnel has been identified as being located 22m North of the property. Evidence of consultation with TFL, and any other nearby public asset holders, is required in order to determine their safeguarding interest in the proposal.
- 1.16. It is accepted the proposal will not significantly adversely impact on the existing surface water drainage.
- 1.17. It is stated the ground water will not be impacted by the proposal and is below the proposed basement level. However further details of the ground water monitoring is required.
- 1.18. It is accepted that the site is not within an area known to be at risk of flooding, and that there are no ground stability issues associates with slopes.
- 1.19. It cannot currently be confirmed that the proposal adheres to the requirements of CPG Basements. A schedule of queries for further information is summarised in Appendix 2 of this audit.

2.0 INTRODUCTION

- 2.1. CampbellReith was instructed by London Borough of Camden (LBC) on 12th March 2018 to carry out a Category B Audit on the Basement Impact Assessment (BIA) submitted as part of the Planning Submission documentation for 72 Maresfield Gardens, NW3 5TD, reference 2018/0669/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 Basements.
 - Camden Development Policy (DP) 27: Basements and Lightwells.
 - Camden Development Policy (DP) 23: Water.
 - Local Plan 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;
 - 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 *"Excavation of existing basement to lower internal floor height by 600mm"*
- The Audit Instruction also confirmed that 72 Maresfield Gardens was not, or was not a neighbour to, listed buildings.

2.6. CampbellReith accessed LBC's Planning Portal on 15th December 2017 and gained access to the following relevant documents for audit purposes:

- 0158-GA-006 - Location Plan
- 158_001 - Existing Basement Floor Plan
- 158_002 - Existing Section
- 158_101 - Proposed Basement Floor Plan
- 158_102 - Proposed Section
- 16016 - Structural Report BIA
- Appendix A - Part 1 (GI and BIA) (Redacted)
- Appendix A - Part 2 - 1 to 9
- Appendix B - GMA and Basement Wall Stability Assessment (Redacted)
- Appendix C - Architectural Drawings
- Appendix D - Proposed Structural Drawings
- Appendix E - 158 Neighbour Consultation Letter (Redacted)
- Application Form (No Personal Data)
- Design & access statement

3.0 BASEMENT IMPACT ASSESSMENT AUDIT CHECK LIST

Item	Yes/No/NA	Comment
Are BIA Author(s) credentials satisfactory?	Yes	Refer first page of BIA and Ground Investigation Report.
Is data required by Cl.233 of the GSD presented?	No	Construction Programme absent.
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 plan/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	A justification statement is generally provided for 'no' answers
Hydrogeology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	A justification statement is generally provided for 'no' answers
Hydrology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	A justification statement is generally provided for 'no' answers
Is a conceptual model presented?	Yes	
Land Stability Scoping Provided? Is scoping consistent with screening outcome?	Yes	Ground Investigation and Basement Impact assessment.
Hydrogeology Scoping Provided? Is scoping consistent with screening outcome?	Yes	Ground Investigation and Basement Impact assessment.

Item	Yes/No/NA	Comment
Hydrology Scoping Provided? Is scoping consistent with screening outcome?	Yes	Ground Investigation and Basement Impact assessment.
Is factual ground investigation data provided?	Yes	BIA and appendix A
Is monitoring data presented?	Yes	Two repeat monitoring visit were carried out
Is the ground investigation informed by a desk study?	Yes	Ground Investigation and Basement Impact assessment prepared by ground&water.
Has a site walkover been undertaken?	Yes	BIA
Is the presence/absence of adjacent or nearby basements confirmed?	Yes	Site is stand alone.
Is a geotechnical interpretation presented?	Yes	Ground Investigation and Basement Impact assessment.
Does the geotechnical interpretation include information on retaining wall design?	Yes	Section 14 of the Jomas report.
Are reports on other investigations required by screening and scoping presented?	Yes	Ground Movement Assessment.
Are the baseline conditions described, based on the GSD?	Yes	
Do the base line conditions consider adjacent or nearby basements?	N/A	The presence of neighbouring basements is not discussed.
Is an Impact Assessment provided?	Yes	
Are estimates of ground movement and structural impact presented?	Yes	Ground movement assessment
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	Heave protection, lateral propping consideration in design of temporary works

Item	Yes/No/NA	Comment
Has the need for monitoring during construction been considered?	Yes	Movement monitoring to 72 Maresfield Gardens itself has been proposed.
Have the residual (after mitigation) impacts been clearly identified?	No	
Has the scheme demonstrated that the structural stability of the building and neighbouring properties and infrastructure will be maintained?	Yes	
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 1?	Yes	Ground Investigation and Basement Impact assessment prepared by Jomas indicates damage category 0 to the surrounding properties.
Are non-technical summaries provided?	Yes	

4.0 DISCUSSION

- 4.1. The Basement Impact Assessment (BIA) has been carried out by an established firm of structural engineering consultants, MultiLateral, the qualifications of the authors have not been provided. The contents of this report primarily describes the structural and civil proposal, as well as containing a construction method statement.
- 4.2. A desk study and ground investigation report has been produced by Jomas Associates Ltd, who are a well-known site investigation contractor and geotechnical consultants. This report also contains a screening and scoping assessment. The qualifications of the authors of this report are appropriate for the hydrogeological assessment of the proposal.
- 4.3. A Grade II listed building is located in the adjacent parallel road, Fitzjohn's Avenue, however it is not backing directly onto the property and is separated from the property by some considerable length of garden.
- 4.4. The existing property is described as being a three storey detached house plus an existing basement level at 1.2m below ground. The constructed is described as load bearing masonry with a combination of concrete and timber floors. The property is set back from its boundary with the surrounding properties generally consisting of large detached residential properties set back from their boundaries.
- 4.5. The proposal involves the lowering of the full extent of the existing basement slab level by 400mm, along with structural alterations to the super structure.
- 4.6. A site specific ground investigation has been carried out which consisted of 4 window sample boreholes to 4.45m bgl, and 9 foundation inspection pits. Ground water monitoring was carried out with 4 return monitoring visits.
- 4.7. The foundations were found to generally be founding 0.7m bgl. The proposed lowing of the basement slab by 400mm therefore is not anticipated to undermine the existing foundation and underpinning it is stated that "minimal underpinning works to the existing foundations would be required". Similarly the structural drawings that have been provided do not indicate any underpinning works as being required, with the a new piled basement slab abutting the toes of the existing foundations. It is accepted that the applicant has carried out appropriate site investigations in order to demonstrate that underpinning is generally not required in order to form the lowered basement level.
- 4.8. The basement slab is indicated as being piled, with an indication that the piles are to be designed for both a tension and a bearing case. While it is not discussed within the submitted documentation it is assumed that the tension case is due to heave due to unloading of the Claygate Member due to the excavation. It is accepted that piling the basement slab is an

acceptable way to support the basement slab and to resist heave forces should this be necessary.

- 4.9. A light well to the front of the property is proposed as being formed from 250mm thick RC walls on a ground bearing basement slab. While the construction of this light well is not included within the construction method statement it is accepted that the potential adverse impact from the construction of the light well is minor given limited depth of excavation being carried out.
- 4.10. The geology was identified as up to 1m of made ground overlaying the Claygate Member. During ground water monitoring the highest recorded water level was identified at 2.7m bgl. An appropriate ground model has been presented which describes the geotechnical strata based on the site investigation data.
- 4.11. A ground movement assessment has been produced which has used XDisp and PDisp software suites to calculate ground movements for the proposal and the impact on the immediate neighbouring properties. The impact on all neighbouring building elements is identified as being Burland category 0 (negligible).
- 4.12. A 2D finite element analysis of the existing basement wall during construction case when the existing basement slab has been removed and the ground level lowered. It concludes that the wall is not stable without temporary propping in the construction case and that temporary lateral propping is required between the basement walls to resist lateral forces until the new basement slab has been constructed.
- 4.13. A construction method statement has been produced which indicates temporary propping installed prior to the existing basement slab demolition and excavation. Once the proposed basement slab is constructed it will provide a permanent prop to the foundations and the lateral propping is to be removed. It is accepted that adequate detail is provided which demonstrates the feasibility of the construction of the proposal.
- 4.14. An outline movement monitoring strategy has been proposed which describes that vertical movement will be monitored at the mid-point of the façade near ground level, and lateral movements at the top of the façade half way between return walls. Readings are to be taken during the works and for a 3 month period following the works. Reasonable trigger values have been proposed to be adopted within the monitoring. The outline monitoring proposed is accepted as being suitable in order to prevent excessive movements to the applicant's building, and is to be developed further during the detailed design.
- 4.15. A London Overground tunnel has been identified as being located 22m North of the property. Given the proposal involves the lowering of the basement level, along with the construction of piling, it is required that the applicant consults with TFL as to any safeguarding interest that

TFL may have of the proposal. Evidence of TFL correspondence is required to either confirm TFL interest or otherwise.

- 4.16. It is accepted that the surface water drainage is largely unchanged, with the basement staying within the footprint of the existing building. It is stated that the existing connection to the combined sewer will be reused.
- 4.17. The basement is located within the Claygate Member which is classed as a secondary A aquifer capable of bearing ground water flows. Ground water monitoring has identified the ground water level at a high level of 2.7m bgl. It is stated that the ground water is below the basement level and will not be impacted by the basement lowering. However it is not possible to determine the groundwater and soil strata in relation to the existing and proposed basement levels, due to not borehole location plan being provided, and the differing ground levels around the site. A borehole location plan is required.
- 4.18. It is accepted that the site is not within an area known to be at risk of flooding, and that there are no ground stability issues associates with slopes.
- 4.19. It cannot currently be confirmed that the proposal adheres to the requirements of CPG Basements. A schedule of queries for further information is summarised in Appendix 2 of this audit.

5.0 CONCLUSIONS

- 5.1. The Basement Impact Assessment (BIA) has been carried out by an established firm of structural engineering consultants, MultiLateral. A desk study and ground investigation report has been produced by Jomas Associates Ltd, who are a well-known site investigation contractor and geotechnical consultants. Only the qualifications of the latter report are provided which are suitable for the hydrogeological assessment of the proposal.
- 5.2. A Grade II listed building is located in the adjacent parallel road, however 72 Maresfield Gardens is itself not listed.
- 5.3. The existing property is described as being a detached three storey detached house plus an existing basement level at 1.2m below ground.
- 5.4. The proposal involves the lowering of the full extent of the existing basement slab level by 400mm.
- 5.5. An appropriate site specific ground investigation has been carried out which consisted of 4 window sample boreholes, 9 foundation inspection pits, and Ground water monitoring.
- 5.6. The foundations were identified as being of sufficient depth to allow for the basement lowering, and are not anticipate as requiring underpinning.
- 5.7. A new basement slab is proposed which is to be piled for both bearing and tensions due to clay heave.
- 5.8. The geology was identified as a moderate depth of made ground overlaying the Claygate Member. However the position of boreholes was not provided in order to relate this to the existing and proposed basement.
- 5.9. A ground movement assessment has been produced which calculates ground movements for the proposal and the impact on the immediate neighbouring properties using industry standard software. The impact on all neighbouring building elements is identified as being Burland category 0 (negligible).
- 5.10. An analysis of the stability of the existing basement wall during construction has been carried out which determines that temporary lateral support should be provided. An appropriate outline construction method statement and temporary works details have been provided to demonstrate the feasibility of the proposal.
- 5.11. A outline movement monitoring strategy has been provided which describes monitoring to the applicants own building.

- 5.12. A London Overground tunnel has been identified as being located 22m North of the property. Evidence of consultation with TFL, and any other nearby public asset holders, is required in order to determine their safeguarding interest in the proposal.
- 5.13. It is accepted that the surface water drainage is largely unchanged and that the proposal will not significantly adversely impact on the existing surface water drainage.
- 5.14. It is stated that the ground water level is below the basement level and will not be impacted by the basement lowering. However details of borehole positions and levels has not been provided to allow for assessment of this conclusion. Borehole plans should be provided.
- 5.15. It is accepted that the site is not within an area known to be at risk of flooding, and that there are no ground stability issues associates with slopes.
- 5.16. It cannot currently be confirmed that the proposal adheres to the requirements of CPG Basements. A schedule of queries for further information is summarised in Appendix 2 of this audit.

Appendix 1: Residents' Consultation Comments

Residents' Consultation Comments

No comments pertinent to the scope of the audit were received.

Appendix 2: Audit Query Tracker

Audit Query Tracker

Query No	Subject	Query	Status	Date closed out
1	Hydrogeology	A borehole location plan is required	Open	
2	Stability	Evidence of consultation with public asset owners such as TFL in order to determine interest in the proposal.	Open	
3	Qualifications	The qualifications of the authors of the Basement Impact Assessment to be provided to demonstrate the suitability of assessing the stability and hydrological components of the assessment in accordance with CPG Basements.	Open	

London

Friars Bridge Court
41- 45 Blackfriars Road
London, SE1 8NZ

T: +44 (0)20 7340 1700
E: london@campbellreith.com

Birmingham

Chantry House
High Street, Coleshill
Birmingham B46 3BP

T: +44 (0)1675 467 484
E: birmingham@campbellreith.com

Surrey

Raven House
29 Linkfield Lane, Redhill
Surrey RH1 1SS

T: +44 (0)1737 784 500
E: surrey@campbellreith.com

Manchester

No. 1 Marsden Street
Manchester
M2 1HW

T: +44 (0)161 819 3060
E: manchester@campbellreith.com

Bristol

Wessex House
Pixash Lane, Keynsham
Bristol BS31 1TP

T: +44 (0)117 916 1066
E: bristol@campbellreith.com

UAE

Office 705, Warsan Building
Hessa Street (East)
PO Box 28064, Dubai, UAE

T: +971 4 453 4735
E: uae@campbellreith.com

Campbell Reith Hill LLP. Registered in England & Wales. Limited Liability Partnership No OC300082
A list of Members is available at our Registered Office at: Friars Bridge Court, 41- 45 Blackfriars Road, London SE1 8NZ
VAT No 974 8892 43

Appendix 3: Supplementary Supporting Documents

None