CampbellReith
consulting engineers

11 Park Village West, London, NW1 4AE

Basement Impact Assessment Audit

For
London Borough of Camden

Project No.
14006-22

Date
December 2023

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APPENDICES

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 11 Park Village West (planning reference 2023/2061/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 proposed development comprises the extension of the existing lower ground floor below the garages and the hall. The BIA has been updated to provide a consistent description of the scheme and technical details.

1.5 The BIA has confirmed that the proposed basement will be founded within the London Clay and minor groundwater management may be required during the excavation as recommended in the BIA.

1.6 The hydrogeological assessment included in the BIA has now been reviewed by authors with the required qualifications as per the CPG for basements.

1.7 The land stability screening confirms that no tree removal is proposed.

1.8 It is accepted that the hydrology screening has identified no potential impacts to surface water and flooding.

1.9 A Ground Movement Assessment has been presented, which demonstrates that damage can be limited to Burland Category 1 for the neighbouring properties and applicant's building.

1.10 Outline proposals are provided for a movement monitoring strategy during construction.

1.11 Considering the additional information required it can be confirmed that the BIA complies with the requirements of CPG: Basements.

2.0 INTRODUCTION

2.1 CampbellReith was instructed by London Borough of Camden (LBC) on 11/07/2023 to carry out a Category B audit on the Basement Impact Assessment (BIA) submitted as part of the Planning Submission documentation for 11 Park Village West, London, NW1 4AE and Planning Reference No. 2023/2061/P.

2.2 CampbellReith previously submitted an audit report (ref. KBcb-13398-29-131020-F1 11 Park Village West) for an earlier proposal including the construction of a new basement under a section of the existing property and encroaching on the rear garden (planning reference 2019/5484/P). The BIA was accepted as compliant with the relevant policies.

2.3 This current audit considers the revised scheme submitted in 2023 and 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.

2.4 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.

2.5 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.

2.6 LBC's Audit Instruction described the planning proposal as "Excavation of basement; erection of replacement single storey rear extension with terrace above; replacement of windows; installation of rooflights and other associated works."

2.7 The Audit Instruction confirmed 11 Park Village West and the neighbouring properties are Grade II* listed buildings.

2.8 CampbellReith accessed LBC's Planning Portal on 09/08/2023 and gained access to the following relevant documents for audit purposes:

- Basement Impact Assessment including Construction Method Statement (CMS) by QED Structures Ltd, Ref No. 19-167-RV2, dated May 2023.

- Factual Report by Soiltechnics Ltd, ref. STR4808, dated July 2019.
- Arboricultural and Impact Assessment Report by Crown Tree Consultancy Ltd, ref. 10347, dated October 2019.
- Planning Application Drawings by Belsize Architects:
  - Existing Plans, Sections and Elevations and Proposed Sections, Plans and Elevations dated April 2023.

2.9 CampbellReith issued an initial audit (Rev. D1) of the BIA in August 2023. This report has been updated to consider the most recent revision of the BIA (Ref No. 19-167-RV2, dated June 2023) and received in September 2023.

2.10 After issuing Rev. D2 of this audit in September 2023, CampbellReith received the following documents:

- Basement Impact Assessment by QED Structures Ltd, Ref No. 19-167-RV4, dated November 2023
- Category of damage determination for the applicant's property and covering email by Soiltechnics Ltd (presented in Appendix 3)

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	Desktop study and ground investigation are undertaken.
Does the description of the proposed development include all aspects of temporary and permanent works which might impact upon geology, hydrogeology and hydrology?	Yes	Clarification on the maximum proposed excavation depth presented.
Are suitable plan/maps included?	Yes	Section 3 of the BIA and architectural 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	Section 4.2 of BIA.
Hydrogeology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Section 4.1 of BIA.
Hydrology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Section 4.3 of BIA.
Is a conceptual model presented?	Yes	Section 6 of BIA.
Land Stability Scoping Provided?	Yes	Section 5 of BIA.

Item	Yes/No/NA	Comment
Is scoping consistent with screening outcome?		
Hydrogeology Scoping Provided? Is scoping consistent with screening outcome?	NA	No items brought forward to scoping.
Hydrology Scoping Provided? Is scoping consistent with screening outcome?	NA	No items brought forward to scoping.
Is factual ground investigation data provided?	Yes	
Is monitoring data presented?	Yes	Section 6 of BIA and factual report.
Is the ground investigation informed by a desk study?	Yes	Section 3 of BIA.
Has a site walkover been undertaken?	Yes	Section 2.2.1 of the BIA.
Is the presence/absence of adjacent or nearby basements confirmed?	No	However, assumptions in this regard made in the Impact Assessment are conservative and accepted.
Is a geotechnical interpretation presented?	Yes	Section 7 of BIA and Ground Investigation (GI) factual report.
Does the geotechnical interpretation include information on retaining wall design?	Yes	As above.
Are reports on other investigations required by screening and scoping presented?	NA	
Are the baseline conditions described, based on the GSD?	Yes	

Item	Yes/No/NA	Comment
Do the base line conditions consider adjacent or nearby basements?	No	However, assumptions in this regard made in the Impact Assessment are conservative and accepted.
Is an Impact Assessment provided?	Yes	Section 8 of BIA.
Are estimates of ground movement and structural impact presented?	Yes	
Is the Impact Assessment appropriate to the matters identified by screening and scoping?	Yes	
Has the need for mitigation been considered and are appropriate mitigation methods incorporated in the scheme?	Yes	The need for temporary works is presented in structural drawings.
Has the need for monitoring during construction been considered?	Yes	Section 7.4 of the Rev. 2 BIA and executive summary.
Have the residual (after mitigation) impacts been clearly identified?	Yes	Residual impact considered negligible.
Has the scheme demonstrated that the structural stability of the building and neighbouring properties and infrastructure will be maintained?	Yes	GMA has been revised to include applicant's building.
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	As above.

Item	Yes/No/NA	Comment
Does report state that damage to surrounding buildings will be no worse than Burland Category 1?	Yes	
Are non-technical summaries provided?	Yes	

4.0 DISCUSSION

4.1 The Basement Impact Assessment (BIA) has been carried out by QED Structures and Soiltechnics and the qualifications of the individuals concerned in its production are in line with the CPG for basements requirements.

4.2 The site comprises a three-storey detached residential property with a lower ground floor below most of the building footprint. The site is sloping down to the north at a gradient >7°. The elevation of the ground floor at the front of the property is c. 3m higher than the elevation of the lower ground floor at the back of the property. No. 10 Park Village West to the east is the closest neighbouring property. Both applicant site and neighbouring properties are Grade II* listed buildings.

4.3 The proposed development comprises the extension of the lower ground floor below the ground floor garages and hall on the southeast of the property, adjacent to No 10 Park Village West. The BIA indicates a proposed excavation formation level of c. 2.25m bgl (Section 7.3) and it is now consistent with the GMA and architectural drawings.

4.4 Screening and scoping assessments are presented and informed by desk study information. Most relevant figures/maps from the ARUP GSD and other guidance documents are referenced within the BIA to support responses to screening questions.

4.5 Q4 of the stability screening exercise is answered incorrectly but is carried forward to scoping and identifies that there is no impact to be assessed.

4.6 The BIA confirms that no trees are going to be removed as part of the development. Q5 and Q7 of the land stability screening have been brought forward to scoping which confirmed no detailed impact assessment is required.

4.7 A ground investigation was undertaken in September 2019 by Soiltechnics which identified the site to be underlain by Made Ground typically to depth of between 0.10 and 1.50m bgl. Deeper Made Ground was found to be in excess of 3.40m bgl in the rear garden which has been terraced historically. Below the Made Ground, London Clay was found to the base of the exploratory holes (to a maximum depth of 20m bgl). The lower ground floor extension will be founded within the London Clay.

4.8 Groundwater was not encountered during drilling but monitored at c. 7.30m bgl, which is below the proposed lower ground floor. The BIA states there is the potential for minor groundwater ingress during excavation and the BIA recommends the use of sump pumping to collect any water infiltration.

4.9 It is accepted the site is at very low or low risk of flooding from all the sources. No change in hardstanding areas is proposed and the surface water rates will be generally unchanged from the existing. A Flood Risk Assessment and Drainage Statement have been presented in the BIA identifying that small scale SuDS tank storage systems should be considered for attenuation and recommends the flood resistance and resilient measures should be implemented due to the nature of the site.

4.10 A Construction Method Statement (CMS) is provided outlining sequential construction methodology. The scheme will use underpinning techniques following a 'hit and miss' sequence to construct reinforced concrete L shaped retaining walls around the perimeter of the proposed lower ground floor extension. It is reported that the walls will be propped by the ground floor slab in the permanent case. It is accepted detailed temporary works design will be the responsibility of the specialist contractor. Structural calculations presented in Section 10.5 of the BIA have been updated.

4.11 Geotechnical parameters, including those for retaining walls, are presented in the BIA and factual report. The BIA indicates a value for the allowable bearing capacity of 320kPa while the ground investigation report indicates values of between 275 and 380kPa, however the structural calculations adopt a presumed bearing capacity of 80kPa.

4.12 A Ground Movement Assessment (GMA) is presented in Appendix 10.4 of the BIA and Section 7.5.3 of the Soiltechnics report, and it has been updated to consider the new scheme. A maximum dig of 2.25m bgl has been considered in the GMA in accordance with the BIA.

4.13 Ground movements anticipated in the GMA (5-7mm) are generally considered to be in line with those anticipated for this type of construction. The applicant's building is listed and it has also been included in the GMA. Damage not exceeding Burland Category 1 is anticipated for the neighbouring buildings and the applicant's property.

4.14 A movement monitoring proposal including preliminary trigger values has been included in the original BIA but not in the updated BIA. However, the need for monitoring is discussed in the executive summary of the BIA. A detailed monitoring strategy may be produced as part of the Party Wall Award negotiations.

5.0 CONCLUSIONS

5.1 The hydrogeology screening, scoping and impact assessment has been now reviewed by authors with the required qualifications as per CPG for basements.

5.2 The BIA has been updated to clarify on the proposed maximum excavation depth and it is now consistent with architectural drawings and GMA.

5.3 The BIA confirms no tree removal is proposed. And no impact to neighbouring foundations is needed on this regard.

5.4 It is accepted the site is at very low or low risk of flooding from all the sources. A Flood Risk Assessment and Drainage Statement has been presented which concludes the development will not increase the flood risk. It is accepted that the hydrology screening has identified no potential impacts to surface water and flooding.

5.5 The basement will be formed mainly by mass reinforced concrete underpinning in a typical 'hit and miss' sequence.

5.6 A GMA is presented which demonstrates that damage to the host property and neighbouring structure can be limited to Category 1.

5.7 The updated BIA discusses the need for structural monitoring in the executive summary. A detailed monitoring strategy may be produced as part of the Party Wall Award negotiations.

5.8 Considering the additional information presented, the BIA complies with the requirements of CPG: Basements.

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Appendix 1

Consultation Responses

None

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Appendix 2

Audit Query Tracker

Audit Query Tracker

Query No	Subject	Query	Status	Date closed out
1	BIA	The BIA presents inconsistent information in respect of the scheme (e.g maximum excavation depth) and requires to be updated.	Closed – See Section 4.3.	December 2023
2	Hydrogeology	The hydrogeology screening, scoping and impact assessment should be reviewed by authors with the required qualifications as per CPG for Basements.	Closed	September 2023
3	Land Stability	The land stability screening, scoping and assessment sections should be revised.	Closed – See Section 4.6.	December 2023
4	Land Stability	Structural drawings and calculations and geotechnical interpretation should be updated to reflect the new proposal.	Closed	September 2023
5	Land Stability	Further information required to support Ground Movement Assessment as detailed in Section 4. Confirmation of excavation depth and inclusion of all the structural walls of No.11 in the analysis.	Closed – See Section 4.12- 4.13.	December 2023
6	Land Stability	Mitigation required to limit predicted damage to Burland category 1	Closed	September 2023
7	Land Stability	Impact due to tree removal to be assessed.	Closed - See Section 4.6.	December 2023

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Appendix 3

Supplementary Supporting Documents

GMA additional analysis

Nicola Simonini

From: Scott Hull <ScottH@qedstructures.co.uk>
Sent: 28 November 2023 14:18
To: Nicola Simonini
Subject: FW: Park Village West; 23.10.30_Communications
Attachments: Burland Movement Assessment - Line 8.pdf

Hi Nicola,

Please find the attached calculations as requested and email below.

Does this answer your queries?

Kind regards,
Scott

Scott Hull (He/Him)
Director

E: ScottH@qedstructures.co.uk
T: 0207 1830770 | Ext: 201
M: 07791 105107
W: www.qedstructures.com

302 Davina House, 137-149 Goswell Road
London, EC1V 7ET

From: Angus Wilson <Angus.Wilson@soiltechnics.net>
Sent: Tuesday, November 28, 2023 11:57 AM
To: Scott Hull <ScottH@qedstructures.co.uk>
Subject: RE: Park Village West; 23.10.30_Communications

Scott,

Please see attached calculation corresponding to Line 8 on the drawing plan. I've looked at our report and realised that we already cover Line 5 in the analysis – we essentially assumed a nominal offset from the excavation.

For Line D, the masonry panel is being underpinned entirely so the movement will theoretically be equal in magnitude across the length of the panel. Therefore the differential movement will be zero, thus the Burland Category will be Category 0.

This should answer all of Campbell Reith's queries.

Kind regards

Angus

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Burland Damage Assessment - Host property Line 8

L/H = 1

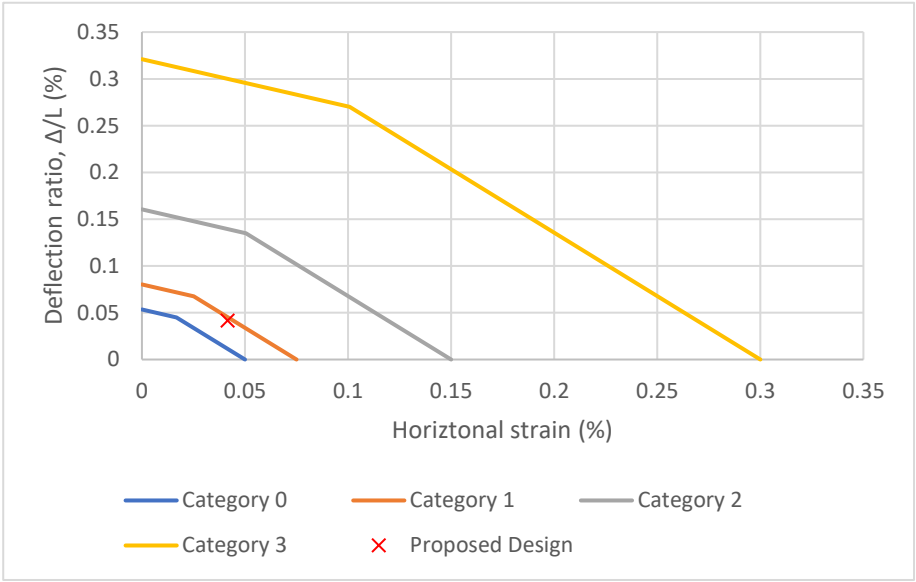
Vertical Movement			
Δ	2.5	mm	Estimated based on 5mm of movement over the underpin length
Length of building, L	6	m	reducing to 0mm at the garden end.
Δ / L	0.04167	(%)	

Horizontal Movement			
Δ	2.5	mm	
Length of building, L	6	m	
ε h (%)	0.04167	(%)	Assuming δvmax / δh = 1 (Fig 6.13 - CIRIA C760)

Fig 6.27b CIRIA C760	
Δ/L / ε lim	ε h / ε lim
1.07	0
0.9	0.336
0	1

Burland Damage Category							
Cat 0	0.05	Cat 1	0.075	Cat 2	0.15	Cat 3	0.3
Δ/L	ε h	Δ/L	ε h	Δ/L	ε h	Δ/L	ε h
0.0535	0	0.08025	0	0.1605	0	0.321	0
0.045	0.0168	0.0675	0.0252	0.135	0.0504	0.27	0.1008
0	0.05	0	0.075	0	0.15	0	0.3

Gradient of line	-1.3554		-1.3554		-1.3554		-1.3554
Intrcept of line	0.06777		0.10166		0.20331		0.40663
Pass / Fail	Fail		Pass		Pass		Pass



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