CampbellReith
consulting engineers

Boncara, 35 Templewood Avenue
London, NW3 7UY

Basement Impact Assessment
Audit

For

London Borough of Camden

Project Number: 13398-20
Revision: F1

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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 Boncara 35 Templewood Avenue, London, NW3 7UY (planning reference 2020/1025/P). The basement is considered to fall within Category C as 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 checklist.

1.4. The site contains a four-storey building which includes a lower ground floor level. An atrium style Grade II listed structure housing a swimming pool is also present.

1.5. The proposed development involves demolition of the existing house and construction of a new four-storey dwelling house including a basement level. A deeper - second basement level is proposed locally to accommodate a plant room. The Grade II listed swimming pool will be retained.

1.6. The BIA was undertaken by individuals that possess suitable qualifications according to Camden Planning Guidance (CPG) Basements.

1.7. The basement construction is proposed to be undertaken using an underpinning technique.

1.8. A screening and scoping assessment has been presented.

1.9. Assessment with respect to changes in impermeable areas, proposed mitigation measures and any impacts of those measures on surface water and groundwater has been discussed in the BIA reports.

1.10. An outline drainage plan has been presented.

1.11. A number of contradictory references in the Geotechnical and the Structural Reports have been clarified / amended and previous queries have been closed out.

1.12. The ground movement and damage assessment indicated that potential damage in surrounding structures will be kept within the CPG Basements acceptable limits.

1.13. An outline monitoring strategy and contingency measures have been presented.

1.14. Additional ground investigation and assessment is required and could be carried out in the context of a Basement Construction Plan (BCP) stage. During the BCP, the adopted ground model and groundwater conditions shall be confirmed, details of the design and construction methodology shall be provided, including sequencing and monitoring to be implemented in accordance with CPG Basements (Sections 4.38 to 4.42).

1.15. The previous queries have been closed out and it can be confirmed that the proposal adheres to the requirements of CPG Basements.

2.0 INTRODUCTION

2.1. CampbellReith was instructed by London Borough of Camden (LBC) on 23 April 2020 to carry out a Category C Audit on the Basement Impact Assessment (BIA) submitted as part of the Planning Submission documentation for Boncara, 35 Templewood Avenue, London, NW3 7UY (Camden planning reference 2020/1025/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: Basements (CPG Basements). March 2018.
- Guidance for Subterranean Development (GSD). Issue 01. November 2010. Ove Arup & Partners.

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 detailed design.

2.5. LBC's Audit Instruction described the planning proposal as *"Demolition of existing dwelling house and erection of new 3 storey single dwelling house with basement. Refurbishment of retained listed swimming pool. Creation of a new vehicular access to proposed basement level via West Heath Road. Associated landscaping including reinstatement of earth mound around retained swimming pool building".*

2.6. The Audit Instruction confirmed the presence of a listed building. From available information, the on-site swimming pool and boundary walls related to Schreiber House to the west, are Grade II listed structures. Schreiber House is also a Grade II listed building.

2.7. CampellReith had previously audited BIA reports for the same site but for different schemes. This audit considers newly prepared reports submitted for the current proposal.

2.8. CampbellReith accessed LBC's Planning Portal on 29 April 2020 and gained access to the following relevant documents for audit purposes:

- "Desk Study, Ground Investigation, Basement Impact Assessment & Ground Movement Assessment Report" (Geotechnical Report), 14 April 2020, job ref. no. P1019J1129, version 3.3, Jomas Associates Ltd;
- "Structural Engineering Planning Report" (Structural Report), February 2020, Revision 0, job ref. no. 28585, Price & Myers;
- "Planning Statement, 35 Templewood Avenue, NW3", undated document, savills;
- "Design and Access Statement", February 2020, version 1.1, Lyndon Goode Architects;
- "Arboricultural Impact Assessment Report", 26 February 2020, ref. no. LGA/35TPW/AIA/01b;
- Planning application drawings, dated 25/02/20, Rev. P01, Lyndon Goode Architects, consisting of:
  - "Location Plan", drawing no.0100;
  - "Existing site plan", drawing no. 0101;
  - "Existing lower ground floor GA plan", drawing no. 0120;
  - "Existing upper floor GA plan", drawing no. 0110;
  - "Existing sections", drawings no. 0160 to no. 0163;
  - "Existing elevations", drawings no. 0170 to 0177;
  - "Proposed site plan", drawing no. P01;
  - "Proposed basement GA plan", drawing no. 0222;
  - "Proposed lower ground floor GA plans", drawings no. 0220 to 0221;
  - "Proposed upper ground floor GA plan", drawing no. 0210;
  - "Proposed sections", drawings no. 0600 to 0604;
  - "Proposed elevations", drawings no. 0700 to 0707.
- Planning Comments and Responses.

2.9. CampbellReith issued a BIA audit report (rev. D1) on 21/05/2020 raising a number of queries on the above relevant documents.

2.10. In response to the queries raised in the D1 BIA audit report, the following reports and additional information were received from applicant's engineers, via LBC, on 24/06/2020:

- "Desk Study, Ground Investigation, Basement Impact Assessment & Ground Movement Assessment Report" (Geotechnical Report), 22 June 2020, job ref. no. P1019J1129, version 3.4, Jomas Associates Ltd;
- "Structural Engineering Planning Report" (Structural Report), June 2020, Revision 1, job ref. no. 28585, Price & Myers;
- Comments/responses on the D1 BIA audit report queries - email dated 24/06/2020, attached in Appendix 3.

2.11. In response to further queries raised by CampbellReith via emails, the following revised reports and additional information were received from applicant's engineers, via LBC, on 14/08/2020:

- "Desk Study, Ground Investigation, Basement Impact Assessment & Ground Movement Assessment Report" (Geotechnical Report), 12 August 2020, job ref. no. P1019J1129, version 3.5, Jomas Associates Ltd;
- Comments/responses on the updated audit queries - email dated 14/08/2020 attached in Appendix 3.

3.0 BASEMENT IMPACT ASSESSMENT AUDIT CHECK LIST

Item	Yes/No/NA	Comment
Are BIA Author(s) credentials satisfactory?	Yes	Refer to comment in audit paragraph 4.1.
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	However, additional ground investigation and assessment will be required to confirm assumptions of the BIA, as discussed in Section 4 of this audit.
Are suitable plan/maps included?	Yes	Suitable plans and maps have been included in the Geotechnical and Structural Reports.
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	Land stability screening is presented in Section 7.1 of the Geotechnical Report.
Hydrogeology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Hydrogeology screening is presented in Section 7.1 of the Geotechnical Report.
Hydrology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Hydrology screening is presented in Section 7.1 of the Geotechnical Report.
Is a conceptual model presented?	Yes	Refer to Sections 9 and 14 of the Geotechnical Report. The ground model should be confirmed by additional investigation information as discussed in Section 4 of this audit.

Item	Yes/No/NA	Comment
Land Stability Scoping Provided? Is scoping consistent with screening outcome?	Yes	Land stability scoping is presented in Section 7.2 of the Geotechnical Report.
Hydrogeology Scoping Provided? Is scoping consistent with screening outcome?	Yes	Hydrogeology scoping is presented in Section 7.2 of the Geotechnical Report.
Hydrology Scoping Provided? Is scoping consistent with screening outcome?	Yes	Hydrology scoping is presented in Section 7.2 of the Geotechnical Report.
Is factual ground investigation data provided?	Yes	Refer to Sections 8, 9 and Appendices 5 to 7 of the Geotechnical Report. Additional ground investigation will be required to confirm assumptions of the BIA, as discussed in Section 4 of this audit.
Is groundwater monitoring data presented?	Yes	Refer to Section 9.2 of the Geotechnical Report. However, additional ground investigation will be required to confirm groundwater assumptions, as discussed in Section 4 of this audit.
Is the ground investigation informed by a desk study?	Yes	Refer to Sections 2 to 4 and Appendices 2 and 3 of the Geotechnical Report.
Has a site walkover been undertaken?	Yes	The outcome of the site walkover is discussed in Section 2.2 of the Geotechnical Report.
Is the presence/absence of adjacent or nearby basements confirmed?	No	However, assumptions were made for the neighbouring properties. See Section 7.2.8 of the Geotechnical Report and Structural Drawing no 28585/3100.
Is a geotechnical interpretation presented?	Yes	Refer to Section 14 of the Geotechnical Report. However, the geotechnical investigation should be confirmed by additional investigation information as discussed in Section 4 of this audit.
Does the geotechnical interpretation include information on retaining wall design?	Yes	The ground model and parameters are presented in Table 16.2 of the Geotechnical Report. These data should be further informed by additional investigation.

Item	Yes/No/NA	Comment
Are reports on other investigations required by screening and scoping presented?	Yes	An arboricultural report is presented separately. An outline drainage plan including the use of SuDS is attached in Appendix 4 of the Structural Report.
Are the baseline conditions described, based on the GSD?	Yes	However, additional deeper ground investigation information is required to confirm the assumptions prior to construction as discussed in Section 4 of this audit.
Do the base line conditions consider adjacent or nearby basements?	Yes	
Is an Impact Assessment provided?	Yes	An impact assessment is presented in Section 15 of the Geotechnical Report. However, more information and assessment will be required to confirm BIA assumptions as discussed in this audit.
Are estimates of ground movement and structural impact presented?	Yes	To be further confirmed and refined during a Basement Construction Plan stage subject to LBC's approval.
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	
Has the need for monitoring during construction been considered?	Yes	Refer to Section 16.10.11 of the Geotechnical Report and Section 7 of the Structural Report. The monitoring scheme and action plan will be refined prior to construction.
Have the residual (after mitigation) impacts been clearly identified?	Yes	

Item	Yes/No/NA	Comment
Has the scheme demonstrated that the structural stability of the building and neighbouring properties and infrastructure will be maintained?	Yes	However, more information and assessment will be required to confirm BIA assumptions as discussed in this audit.
Has the scheme avoided adversely affecting drainage and run-off or causing other damage to the water environment?	Yes	As above.
Has the scheme avoided cumulative impacts upon structural stability or the water environment in the local area?	Yes	As above.
Does report state that damage to surrounding buildings will be no worse than Burland Category 1?	Yes	However, additional investigation and assessment is required as discussed in Section 4 of this audit, in order to confirm matters.
Are non-technical summaries provided?	Yes	Refer to the 'Executive Summary' Section of the Geotechnical Report.

4.0 DISCUSSION

4.1. A Basement Impact Assessment (BIA) Geotechnical Report was carried out by engineering consultants Jomas Associates Ltd. A separate Structural Engineering Planning Report (Structural Report) was prepared by Price & Myers. The individuals concerned in the production of those reports have suitable qualifications, which are in accordance with Camden Planning Guidance (CPG) Basements requirements.

4.2. The site currently contains a four-storey building which includes a lower ground floor level at approximately +111m to +112m OD. An atrium style Grade II listed structure exists on-site, housing a swimming pool which was originally part of the neighbouring Grade II listed Schreiber House to the west. The site is located within the Redington and Frognal Conservation Areas.

4.3. The proposed development involves demolition of the existing house and construction of a new four-storey dwelling house including a basement level. An indoor swimming pool and a deeper - second basement level is proposed locally to accommodate a plant room. Part of the new basement to the southwest, will be used as a car park connected to West Heath Road to the north via a new access ramp, which will run along the western boundary wall. An underground terrace room is also proposed to the north of the new swimming pool connecting the latter with garden level. A new plant/condenser room is also proposed below ground level near the northern boundary and to the immediate east of the proposed car park access ramp. The Grade II listed swimming pool is proposed to be retained.

4.4. The existing ground level is at approximately +113.50m OD. The structural slab level of the proposed basement will be located at between +108.87m and +109.87m OD. The structural slab level of the indoor swimming pool and the locally proposed deeper second basement will be at +108.00m and +106.87m OD, respectively. A maximum excavation circa 5m deep will be required to form the majority of the proposed basement. Excavations up to approximately 6-7m below existing ground level (bgl) will be required locally for the deeper second basement level. The basement construction is proposed to be undertaken using a 'hit-and-miss' single-stage or two-stages (in the deeper sections) underpinning technique, with two and three levels of temporary propping. The proposed floor slabs will act as permanent props in the long term.

4.5. Assumptions have been made for the presence or absence of basements in neighbouring properties, as discussed in Section 7.2.9 of the Geotechnical Report and shown in the Structural Drawing 28585/3100.

4.6. A screening and scoping assessment has been undertaken in accordance with CPG Basements and included in Sections 7.1 and 7.2 of the Geotechnical Report. Queries previously raised for the screening and scoping sections were taken into account in the latest Geotechnical Report and have been closed out as per the updated query table attached in Appendix 2 of this audit.

4.7. The screening and scoping have indicated that there will be an increase in impermeable areas and SUDS will be required for the proposed development.

4.8. Further, in Section 10 of the Structural Report, reference is made to the extent of change in impermeable areas due to the proposed development and a SUDS assessment is undertaken. An outline drainage plan including SUDS comprising an attenuation tank, a pump and a hydrobrake, is presented in Appendix 4 of the Structural Report, thus satisfying Section 4.54 of CPG Basements and closing out a previous query.

4.9. According to the Geotechnical Report (Section 8.5.1.) due to access restrictions, a limited ground investigation was undertaken in 2017, which included two window sampler boreholes to 4.95m and 5.45m bgl, and a foundation inspection pit. The boreholes encountered a relatively thin layer of Made Ground (c.1m thick) over the Bagshot Formation at depth, the latter comprising interbedded sand and clay. Groundwater was not encountered at the time of the fieldwork or during the limited post-drilling monitoring. The Bagshot Formation is classified as a Secondary-A aquifer.

4.10. The window sampler boreholes were terminated at +107.80m AOD and +108.50m AOD which are at higher levels than the maximum proposed excavation. Hence, the depth of the existing investigation does not cover the foundation conditions of the proposed structures and does not allow for a full impact assessment with regard to the stability or the hydrogeology of the site and neighbouring areas. Additionally, the conceptual model relies on limited groundwater monitoring carried out in the summer of 2017.

4.11. Despite recommendations of previous BIAs and audit reports for past schemes no additional ground investigation was carried out. The need for additional deeper investigation has been discussed in a number of Sections (5.3.3, 14.4.9, 14.7.5, 14.10.5, 15.3.3, 15.4.7) in the Geotechnical Report. The additional ground investigation should provide information to sufficient depth to confirm the nature and adequacy of the bearing stratum and demonstrate the feasibility of constructing two-stage underpins in close proximity to the site boundaries and confirm the groundwater conditions present at the site. Mitigation measures have been proposed such as a cut-off secant pile wall in Section 14.10.4 in the Geotechnical Report, if ground and groundwater conditions are proved to be different than the assumed.

4.12. It is recommended that further investigation and assessment are undertaken after demolition of the existing building, when site access is available, and prior to construction. This should be reported in a Basement Construction Plan (BCP) stage given also that listed buildings are involved on-site and in proximity to the site. The BCP should include the confirmed ground model and groundwater conditions, and details of the design and construction methodology, including sequencing and monitoring to be implemented in accordance with CPG Basements (Sections 4.38 to 4.42).

4.13. Once groundwater levels relative to the proposed basement levels are defined, the impact to subterranean flows assumed in the BIA reports should be confirmed. Further, an assessment of the ground infiltration drainage and the likelihood of groundwater moving between the site and the Hampstead Heath ponds should be undertaken, as recommended in Section 7.2.5 of the Geotechnical Report. Again, this should be reported in a Basement Construction Plan.

4.14. A number of additional queries previously raised in our D1 audit report have been closed out as discussed in the following paragraphs.

4.15. The title of Section 14.1 of the Geotechnical Report has been amended to match its contents.

4.16. It has been clarified by the BIA that the construction of the terrace room to the north and the plant room to the side of the access ramp will not be formed in an open excavation but will follow a typical underpinning sequence as for other parts of the site. Hence, a previous query about the feasibility of an open excavation for constructing these structures has been closed out.

4.17. Previous references in the Geotechnical Report for proposed cantilever retaining walls, required checks of sliding failure, sheet pile walls, a basement box construction, the presence of a property above the basement, the proposed structural loads and piling works, that were contradictory to the contents of the Structural Report, have been amended to match the structural proposal. Therefore, a previous relevant query has been closed out.

4.18. A ground movement assessment (GMA) was undertaken and presented in Section 16 of the Geotechnical Report using proprietary software (PDisp, XDisp) and CIRIA C760 methodology. Whilst the CIRIA approach is intended for embedded retaining walls, it is accepted that the predicted ground movements are within the range typically anticipated for underpinning techniques carried out with good control of workmanship.

4.19. The GMA included all the facades of the neighbouring buildings, the boundary walls, the on-site listed swimming pool, the northern section of the access ramp, the proposed terrace room and the plant/condenser room, some of which were missing in the previous version of the Geotechnical Report. Also, the GMA incorporated the proposed structural loads assuming 1m wide strips in the absence of structural details at this stage, such as connections between underpins and proposed basement slabs, which when considered, would be expected to redistribute the wall loads into wider areas thus reducing the design load within the recommended allowable bearing capacity values. Further, the unloading assumed in the GMA due to the proposed demolition and basement excavation has been clarified. Previous relevant queries have now been closed out.

4.20. It is understood that the CIRIA C760 excavation curve has been reduced during the GMA by 15%, to 85% of its full value, in order to define the level of deflection that is tolerable for the

earth retention system that keeps adjacent facades within no greater than Category 1 – 'Very Slight' damage of Burland scale. This is further discussed below with regard to design requirements and monitoring needs during construction.

4.21. The GMA and the building damage assessment resulted in 'Negligible' (Category 0) damage according to the Burland scale, for the majority of the facades of the neighbouring buildings located at 33 Templewood Avenue and Schreiber House and the associated boundary walls. 'Very Slight' (Category 1) damage has been predicted for 3 No. facades of the on-site listed swimming pool walls. This level of damage is acceptable by CPG Basements.

4.22. 'Low' impact has been indicated by the GMA for the adjacent highways of West Heath Road and Templewood Avenue. It is recommended by the Geotechnical Report (Section 16.7.5) that some allowance should be made for making good any minor damage might develop on the pavement surface of these highways during construction.

4.23. 'Negligible' impact has been indicated by the GMA for Thames Water assets surrounding the site. Thames Water should be consulted with regards to any additional assessments may be required by their asset protection team.

4.24. References in the Structural Report regarding the allowable bearing capacity value for shallower foundations, the presence of branches of River Westbourne in the proximity, the location of the new basement relative to the existing pool, the proposed sequence of demolition/underpinning, the use of superseded BS for the retaining wall analysis, contradictory assumptions for the assumed groundwater level in structural calculations, that were previously queried, have now been amended/clarified and the respective queries were closed out.

A monitoring strategy with trigger limits of ground movements is presented in Section 7 of the Structural Report. The trigger limits have been set in accordance with the results of the GMA. Preliminary contingency measures/proposed actions are discussed when 'amber' or 'red' limits are reached. As discussed above, the full CIRIA C760 excavation curve has been reduced in the GMA by 15% in order to define the level of deflection that is tolerable for the earth retention system that keeps adjacent facades within no greater than Category 1 – 'Very Slight' damage of Burland scale. The required stiffness of the earth retention system in order to satisfy the provisions of the GMA, the trigger limits and the contingency measures should be further detailed during the Basement Construction Plan stage.

5.0 CONCLUSIONS

5.1. The Basement Impact Assessment was undertaken by individuals that possess suitable qualifications according to CPG Basements requirements.

5.2. The proposed development involves demolition of the existing house and construction of a new four-storey dwelling house including a basement level. A deeper, second basement level is proposed locally to accommodate a plant room.

5.3. The basement construction is proposed to be undertaken using a 'hit-and-miss' single-stage or two-stages underpinning technique, with two and three levels of temporary propping.

5.4. The screening and scoping assessment has been updated and previous queries have been closed out.

5.5. Proposed changes to impermeable areas, proposed mitigation measures and any impacts of those measures on surface water and groundwater have been clarified/amended and previous queries have been closed out.

5.6. An outline drainage plan including SUDS has been provided.

5.7. Only limited ground investigation was undertaken. The depth of the existing investigation does not cover the foundation conditions of the proposed structures and does not allow for a full impact assessment.

5.8. Mitigation measures have been discussed in the BIA reports should groundwater conditions be proved to be different than the assumed.

5.9. The open and unsupported excavations to the north of the site proposed during construction have been reconsidered. A typical underpinning sequence is now proposed for these areas.

5.10. A number of references in the Geotechnical Report with regard to proposed 'cantilever retaining walls', checks of sliding failure, the assumed upward loads, sheet pile walls and a basement box construction, have been clarified / amended.

5.11. The GMA included the potential impact on the existing on-site swimming pool, the northern section of the access ramp, the terrace room and the plant/condenser room. Assumed design loads in excess of the allowable bearing capacity have been clarified.

5.12. Thames Water should be consulted with regards to any assessments may be required for their nearby assets.

5.13. A number of references and assumptions presented in the Structural Report with regard to the adopted bearing capacity value, the presence of branches of River Westbourne in the vicinity, the location of the new basement relative to the existing pool, the retaining wall analysis and the proposed sequence of demolition/underpinning, especially near the site boundaries where neighbouring structures are present, have been clarified.

5.14. The monitoring strategy has been informed by the GMA. Outline contingency measures have been included.

5.15. Additional ground investigation and assessment could be carried out in the context of a Basement Construction Plan (BCP) stage. During the BCP, the adopted ground model and groundwater conditions shall be confirmed, details of the design and construction methodology shall be provided, including sequencing and monitoring to be implemented in accordance with CPG Basements (Sections 4.38 to 4.42).

5.16. The previous queries have been closed out and it can be confirmed that the proposal adheres to the requirements of CPG Basements.

Appendix 1: Residents' Consultation Comments

Residents' Consultation Comments

Surname	Address	Date	Issue raised	Response
Kirsch	Unknown	27/03/2020	Impact of underground works on local hydrology.	Relevant information has been provided in the revised BIA reports. The assumptions and assessment of the BIA will be confirmed during the Basement Construction Plan Stage.
Davis	18 Templewood Avenue	02/04/2020	Impact of the proposal on the 'sub ground drainage'.	
Slavin & Berman	Unknown	13/04/2020	Groundwater table disruption and increased risk of flooding.	

Appendix 2: Audit Query Tracker

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Audit Query Tracker (as updated on 21/07/2020)

Query No	Subject	Query	Status	Date closed out
1	Stability	Land stability screening: The answers to questions 6 and 13 should be revised. The answer to question 6 is not in accordance with the latest available arboricultural report (Landmark Trees, 26/2/20). Please revise.	Closed	14/08/2020
2	Stability	The open excavation proposal to the north of the swimming pool should be amended/clarified. Clarification is required on the proposed methodology for the construction of the plant/condenser room to the north.	Closed	24/06/2020
3	Stability	A number of references in the Geotechnical Report with regard to proposed 'cantilever retaining walls', checks of sliding failure, sheet pile walls, a basement box construction, the presence of a 'property above' and 'piling works' should be clarified / amended.	Closed	24/06/2020
4	Stability	The GMA should include the potential impact on the existing on-site swimming pool, the northern section of the access ramp, the terrace room and the plant/condenser room. Assumed design loads in excess of the allowable bearing capacity should be clarified.	Closed	24/06/2020
5	Stability	The white coloured area shown in Figure 6.17 of the GMA should be clarified. Structural loads in this area seem to be shown in Appendix 11 of the Geotechnical Report but were not considered in the GMA. A clarification is needed.	Closed	14/08/2020
6	Stability	The unloading values assumed in the GMA should be justified.	Closed	24/06/2020
7	Stability	A number of references and assumptions presented in the Structural Report about the adopted bearing capacity value, the presence of branches of River Westbourne in the vicinity, the location of the new basement relative to the existing pool and the proposed sequence of demolition/underpinning, need to be further clarified. The retaining wall analysis should be amended/clarified due to the use of superseded BS, contradictory assumptions for the assumed groundwater level and a warning message.	Closed	24/06/2020

8	Stability	Contingency measures should be included in the monitoring strategy. The trigger limits should be informed by the GMA. Depends on clarifications/amendments needed for the GMA due to other open queries including the additional queries below.	Closed	14/08/2020
9	Hydrology	Hydrology screening: The answer to question 4 should be revised.	Closed	24/06/2020
10	Hydrology	Assessment of the change in impermeable areas, proposed mitigation measures and any impacts of those measures on surface water and groundwater are requested.	Closed	24/06/2020
11	Hydrology	An outline drainage plan including SUDS should be presented.	Closed	24/06/2020
12	Stability/Hydrogeology	It is requested that mitigation measures be discussed (e.g. a cut-off secant pile wall etc.) in the BIA reports if ground and groundwater conditions are proved to be different than the assumed.	Closed	24/06/2020
13	General	The title of Section 14.1 of the Geotechnical Report should be amended.	Closed	24/06/2020
-	Stability / Hydrogeology	Additional investigation and assessment could be carried out in the context of a Basement Construction Plan (BCP) stage, subject to LBC's approval.	Note	-
-	Stability	Thames Water should be consulted with regards to any assessments may be required for their nearby assets.	Note	-
		Additional queries for revised BIA documents received on 24/6/2020		
14	Stability	Figure 16.9 of the Geotechnical Report should be updated to include proposed excavations/structures within the northern area of the site (as per previous query no 4 above).	Closed	14/08/2020
15	Stability	Previously (refer to v.3.3 of the Geotechnical Report) a number of neighbouring building facades and boundary walls were within Category 1 damage of Burland scale which is not the case any more in the updated GMA (v.3.4) where all these structural elements are implied to be within Category 0. A clarification is required on how this change occurred.	Closed	14/08/2020
16	Stability	The content of Sections 16.9.1 & 16.10.7 should be clarified as it appears to affect the outcome of the GMA.	Closed	14/08/2020

17	Stability	The content of Section 16.9.2 should be clarified with regard to proposed lateral deflections limits given that the GMA has already assumed that stiff support will be in place.	Closed	14/08/2020

Appendix 3: Supplementary Supporting Documents

Email by applicant's engineers dated 24/06/2020 with responses to updated query tracker

Email by applicant's engineers dated 14/08/2020 with responses to updated query tracker

Boncara 35 Templewood Ave 2020/1025/P
David Whittington to: Hazelton, Laura 24/06/2020 15:09
Cc: "David Lyndon", "Michael Clarke", "mgalleno@pricemyers.com", "src@jomasassociates.com", "rs@jomasassociates.com", "Douglas Paskin (douglas@pksarchitects.com)", "ChristosBotsialas@campbellreith.com", "camdenaudit@campbellreith.com", "GraceWhite@campbellreith.com"

2 Attachments

P1017J1129 - Templewood Avenue - DS GI BIA GMA - CR Audit.pdf

CBemb-13398-20-210520-35 Templewood Avenue-D1.pdf

Dear Laura

Please see a **wetransfer** link to a range of supporting documents and information relating to the submitted BIA.

[Suspicious URL detected]

(link expires in 7 days)

I have also copied in consultants from Campbell Reith directly and our professional team in order to ensure that we can all have the same link to the documents.

Campbell Reith issued their BIA Audit in May 2020, issued via yourself to me via email on 21 May. I attach this again above for your ease of reference.

Appendix 2 of this document contained CR's "Audit Query Tracker" .

This documents has been used to set out the responses / documents that we submit to you today.

The second document attached above sets out how we have responded to each of the 14 items in the Audit Query Tracker and provides the Cross references within the update and additional documents prepared by Price and Myers and Jomas.

We also submit (for your ease of reference) the structural drawings that accompanied the original application submission

Please do come back to us if you have any further queries.

Many thanks and regards

David

David Whittington BA (Hons) DipTP
Director
Planning

Query No	Subject	Query	Comment
1	Stability	Land stability screening: The answers to questions 6 and 13 should be revised.	**Jomas** Table 7.1, questions 6 and 13 updated.
2	Stability	The open excavation proposal to the north of the swimming pool should be amended/clarified. Clarification is required on the proposed methodology for the construction of the plant/condenser room to the north.	**Price and Myers** The construction of the new lightwell as well as the plant room space to the side of the access ramp will not be formed in an open excavation but following the typical underpinning sequence. We have suggested that as part of the demolition works a general reduced dig could be carried out as a way of levelling the site as much as possible. This reduced dig would not undermine the neighbouring buildings or the existing retained Schreiber Pool.
3	Stability	A number of references in the Geotechnical Report with regard to proposed 'cantilever retaining walls', checks of sliding failure, sheet pile walls, a basement box construction, the presence of a 'property above' and 'piling works' should be clarified / amended.	**Jomas** These references throughout the report have been amended.
4	Stability	The GMA should include the potential impact on the existing on-site swimming pool, the northern section of the access ramp, the terrace room and the plant/condenser room. Assumed design loads in excess of the allowable bearing capacity should be clarified.	**Jomas** GMA updated to include the Schreiber Pool, access ramp, condenser room and terrace room. All underpin loads have been conservatively assumed to be applied on 1m wide strips in the absence of structural details (e.g. connections between underpins and proposed basement slabs) which would be expected to redistribute the wall loads into wider areas.

5	Stability	The white coloured area shown in Figure 6.17 of the GMA should be clarified.	**Jomas** Figure updated to include the Schreiber Pool, access ramp, condenser room and terrace room. Surface loads for the white area were not available.
6	Stability	The unloading values assumed in the GMA should be justified.	These are a function of the unit weight of the soil and the proposed excavation depth. (unload = unit weight of soil x excavation depth). Unloading pressures of 10-86kPa have been adopted to conservatively model the ground heave envisaged to take place as a result of overburden removal. Refer to Section 16.4 where reference is made to the modelling of overburden removal mechanisms.
7	Stability	A number of references and assumptions presented in the Structural Report about the adopted bearing capacity value, the presence of branches of River Westbourne in the vicinity, the location of the new basement relative to the existing pool and the proposed sequence of demolition/underpinning, need to be further clarified. The retaining wall analysis should be amended/clarified due to the use of superseded BS, contradictory assumptions for the assumed groundwater level and a warning message.	**Price and Myers** The text on the bearing capacity, the River Westbourne and the position of new basement relative to the existing pool has been clarified. The typical retaining wall calculations have also been amended

8	Stability	Contingency measures should be included in the monitoring strategy. The trigger limits should be informed by the GMA.	**Jomas** Updated movements in GMA (Figures 16.11-16.14 & 16.18) to inform trigger levels **Price and Myers** Trigger levels have been updated based on the revised GMA results.
9	Hydrology	Hydrology screening: The answer to question 4 should be revised.	**Jomas** SUDS report reviewed and question 4 in Table 7.1 updated.
10	Hydrology	Assessment of the change in impermeable areas, proposed mitigation measures and any impacts of those measures on surface water and groundwater are requested.	**Price and Myers** New SUDS section has been added to the Structural Report
11	Hydrology	An outline drainage plan including SUDS should be presented.	**Price and Myers** Please refer to 28585-SK601 for proposed drainage strategy
12	Stability/Hydrology	It is requested that mitigation measures be discussed (e.g. a cut-off secant pile wall etc.) in the BIA reports if ground and groundwater conditions are proved to be different than the assumed.	**Jomas** Added to paragraphs 14.7.6, 14.10.4 and 17.1.2
13	General	The title of Section 14.1 of the Geotechnical Report should be amended.	**Jomas** Changed to 'Introduction'.
-	Stability/Hydrology	Additional investigation and assessment could be carried out in the context of a Basement Construction Plan (BCP) stage, subject to LBC's approval.	**Jomas** Option added to paragraphs 14.4.9, 14.10.5, 15.6.5 and 17.1.1

-	Stability	Thames Water should be consulted with regards to any assessments may be required for their nearby assets.	**Jomas** GMA concluded that the proposed development will have a negligible impact on the Thames Water assets. Report should be provided to Thames Water for review by their asset protection team

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Date: 14/08/2020 08:56
Subject: RE: Boncara 35 Templewood Ave 2020/1025/P

Dear Laura

We now have our response to the further queries set out by Campbell Reith. (I have also copied Campbell Reith directly to this email)

These previous CR comments were issued in the email dated (in the chain below) 21 July

Accordingly please find attached the:

- *Audit Query Tracker with our comments*
- *Updated Report from Jomas Associates*

Please see the link to the various appendices below:

https://we.tl/t-bWnUjOiUVX

David Whittington BA (Hons) DipTP
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From: Hazelton, Laura [mailto:Laura.Hazelton@camden.gov.uk]
Sent: 21 July 2020 17:34
To: David Whittington <DWhittington@savills.com>
Subject: FW: Boncara 35 Templewood Ave 2020/1025/P

David,

Please see the attached from Campbell Reith.

Kind regards,

Laura Hazelton
Senior Planning Officer

Boncara, 35 Templewood Avenue, London, NW3 7UY
BIA – Audit

CampbellReith consulting engineers

Audit Query Tracker (updated 21/7/2020)

Query No	Subject	Query	Status	Date closed out	**Comments**
1	Stability	Land stability screening: The answers to questions 6 and 13 should be revised. The answer to question 6 is not in accordance with the latest available arboricultural report (Landmark Trees, 26/2/20). Please revise.	Open		The latest available arboricultural report has now been reviewed (Landmark Trees, 26/2/20) and report updated accordingly. (Table 5.1).
2	Stability		Closed	24/6/2020	
3	Stability		Closed	24/6/2020	
4	Stability		Closed	24/6/2020	
5	Stability	The white coloured area shown in Figure 6.17 of the GMA should be clarified. Structural loads in this area seem to be shown in Appendix 11 of the Geotechnical Report but were not considered in the GMA. A clarification is needed.	Open		The proposed loads were provided in the form of hand sketches by the structural engineers. In order to undertake the GMA analysis we have applied simplifications to these. However, we are confident that the current results are conservative and any amendment to this loading area will not result in any change to the presented results. If Campbell Reith can accept this judgement then this item could be signed off. In our opinion there is little to be gained from further revision of the analyses and the results will not be worsened.
6	Stability		Closed	24/6/2020	

7	Stability		Closed	24/6/2020	
8	Stability	Contingency measures should be included in the monitoring strategy. The trigger limits should be informed by the GMA. Depends on clarifications/amendments needed for the GMA due to other open queries including the additional queries below.	Open		The suggested trigger levels in the CMS were informed by the results of the GMA. The GMA has not undergone any significant update that would impact these trigger levels so they remain the same.
9	Hydrology		Closed	24/6/2020	
10	Hydrology		Closed	24/6/2020	
11	Hydrology		Closed	24/6/2020	
12	Stability/Hydrogeology		Closed	24/6/2020	
13	General		Closed	24/6/2020	
-	Stability / Hydrogeology		Note	-	
-	Stability		Note	-	
		Additional Queries on revised BIA documents received 24/6/2020			

14	Stability	Figure 16.9 of the Geotechnical Report should be updated to include proposed excavations/structures within the northern area of the site (as per previous query no 4 above).	Open		Figure 16.9 has been updated.
15	Stability	Previously (refer to v.3.3 of the Geotechnical Report) a number of neighbouring building facades and boundary walls were within Category 1 damage of Burland scale which is not the case any more in the updated GMA (v.3.4) where all these structural elements are implied to be within Category 0. A clarification is required on how this change occurred.	Open		The previous revision had no CIRIA C760 curve scaling applied. The latest report and analysis adopted scaling back the excavation curve by 15% - as required to keep results within CAT1 and define the new section 7 'excavation performance criteria'. As a result of this scaling some of the results are now CAT0 instead that were previously CAT1.
16	Stability	The content of Sections 16.9.1 & 16.10.7 should be clarified as it appears to affect the outcome of the GMA.	Open		16.9.1 – the full CIRIA high stiffness wall curve has been reduced by 15%, to 85% of its full value. In order to demonstrate the level of deflection that is tolerable for the earth retention system that keeps adjacent facades within no greater than CAT1 – Very Slight damage. The design team are then taking this forward into the works / detailed design specifications and monitoring proposals to ensure it is all coordinated and the earth retention system design is suitably detailed to prevent movement more than the stipulated limit. 16.10.7 – as above.
17	Stability	The content of Section 16.9.2 should be clarified with regard to proposed lateral deflections limits given that the GMA has already assumed that stiff support will be in place.	Open		We believe this is answered by the above response. The contractor / detailed designer / temp works designers will need to coordinate their designs with this deflection limit information to ensure the works progress in a manner which safeguards the adjacent assets and keeps movements within tolerable limits.

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