

Boncara, 35 Templewood Avenue
London, NW3 7UY

Basement Impact Assessment
Audit

For
London Borough of Camden

Project Number: 13398-20
Revision: 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 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 Basement Impact Assessment was undertaken by individuals that possess suitable qualifications according to Camden Planning Guidance: Basements (CPG Basements).
- 1.7. The basement construction is proposed to be undertaken using an underpinning technique.
- 1.8. The screening and scoping assessment should be updated as per the comments of this audit.
- 1.9. A clear assessment with respect to changes in impermeable areas, proposed mitigation measures and any impacts of those measures on surface water and groundwater are requested.
- 1.10. An outline drainage plan is requested.
- 1.11. Due to access and time restrictions, a 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. It is requested that mitigation measures be discussed in the BIA reports should ground and groundwater conditions prove to be different from the assumed.
- 1.12. Additional ground investigation and assessment could be carried out in the context of a Basement Construction Plan stage, subject to LBC's approval, as discussed in this audit.

- 1.13. The open and unsupported excavations to the north of the site proposed during construction should be reconsidered as they will likely be unstable.
- 1.14. A number of references in the Geotechnical and the Structural Reports should be clarified / amended in accordance with the comments of this audit.
- 1.15. The ground movement assessment 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.
- 1.16. Thames Water should be consulted with regards to any assessments may be required for their nearby assets.
- 1.17. The monitoring strategy should be informed by the GMA. Contingency measures should be included.
- 1.18. A number of queries has been raised as summarised in Appendix 2. It cannot currently be confirmed that the proposal adheres to the requirements of the 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:

- Guidance for Subterranean Development (GSD). Issue 01. November 2010. Ove Arup & Partners;
- Camden Planning Guidance: Basements (March 2018) (CPG 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 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. CampbellReith 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.

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?	No	Reference to this audit should be made with regard to additional information required for the assessment of potential impact.
Are suitable plan/maps included?	Yes	Suitable plans and maps were 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?	No	Land stability screening is presented in Section 7.1 of the Geotechnical Report. However, amendments are required as per the comments of this audit.
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?	No	Hydrology screening is presented in Section 7.1 of the Geotechnical Report. However, amendments are required as per the comments of this audit.
Is a conceptual model presented?	Yes	Refer to Sections 9 and 14 of the Geotechnical Report. The ground model should be further informed by additional investigation information as discussed in this audit.

Item	Yes/No/NA	Comment
Land Stability Scoping Provided? Is scoping consistent with screening outcome?	No	Land stability scoping is presented in Section 7.2 of the Geotechnical Report. However, it should be updated in accordance with the comments of this audit for the relevant screening section.
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?	No	Hydrology scoping is presented in Section 7.2 of the Geotechnical Report. However, it should be updated in accordance with the comments of this audit for the relevant screening section.
Is factual ground investigation data provided?	Yes	Refer to Sections 8, 9 and Appendices 5 to 7 of the Geotechnical Report. However, the ground investigation data provided do not cover the full depth of the proposed development as discussed in this audit.
Is groundwater monitoring data presented?	Yes	Refer to Section 9.2 of the Geotechnical Report. However, additional deeper investigation information with ground water monitoring data are required as discussed in 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, it should be informed by additional investigation.

Item	Yes/No/NA	Comment
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.
Are reports on other investigations required by screening and scoping presented?	No	Screening and scoping Sections of the Geotechnical Report should be revised in accordance with the comments of this audit. An arboricultural report is presented separately. An outline drainage plan including the use of SuDS is required.
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.
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 is required by this audit with regard to the anticipated impact.
Are estimates of ground movement and structural impact presented?	Yes	However, additional analysis is required as per the comments of this audit.
Is the Impact Assessment appropriate to the matters identified by screening and scoping?	No	The screening and scoping and impact assessment shall be revised in accordance with the comments of this audit.
Has the need for mitigation been considered and are appropriate mitigation methods incorporated in the scheme?	No	The BIA reports need to be updated as discussed in Section 4 of this audit.
Has the need for monitoring during construction been considered?	Yes	Refer to Section 16.9.9 of the Geotechnical Report and Section 7 of the Structural Report. However, additional information with regard to the proposed monitoring strategy is requested.

Item	Yes/No/NA	Comment
Have the residual (after mitigation) impacts been clearly identified?	No	The BIA documentation will need to be revised and any residual impacts identified in accordance with the comments of this audit.
Has the scheme demonstrated that the structural stability of the building and neighbouring properties and infrastructure will be maintained?	No	Additional information is requested as discussed in Section 4 of this audit.
Has the scheme avoided adversely affecting drainage and run-off or causing other damage to the water environment?	No	As above.
Has the scheme avoided cumulative impacts upon structural stability or the water environment in the local area?	No	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.
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 Frogna Conservation Area.
- 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 the 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 will 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 new 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 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 were made for the presence or absence of basements in neighbouring properties, as discussed in Section 7.2.8 of the Geotechnical Report and shown in the Structural Drawing no 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. However, both sections need to be updated as per the comments in the following paragraphs.

- 4.7. Land stability screening: (i) the answer to question 6 should be informed by the available Arboricultural Report and be changed to 'yes'. (ii) The answer to question 13 should be changed to 'yes' with regard to the increased differential depth of foundations relative to neighbouring properties.
- 4.8. Hydrology screening: The answer to question 4 should be revised to 'yes' as surface water is anticipated to be impacted by the proposed significant increase of impermeable areas.
- 4.9. The screening and scoping have indicated that there will be an increase in impermeable areas and SUDS will be required. The Structural Report makes reference to SUDS that could be considered but the recommendations presented are generic and not site-specific. The statement of 'slight increase in impermeable area' discussed in Section 5.3.1 of the Geotechnical Report is incorrect as the proposed development appears to significantly increase the impermeable areas across the site compared to current status.
- 4.10. A clear assessment with respect to the extent of changes in impermeable areas, proposed mitigation measures and any impacts of those measures on surface water and groundwater are requested.
- 4.11. An outline drainage plan including SUDS should be presented as required by Section 4.54 of CPG Basements.
- 4.12. According to the Geotechnical Report (Section 8.5.1.) due to access and time restrictions, a limited ground investigation was undertaken in 2017, which included two window sampler boreholes to 4.95m and 5.45m bgl; 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. A foundation inspection pit was also carried out. 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.
- 4.13. 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.
- 4.14. It is noted that despite recommendations of previous BIAs and audit reports for past schemes no additional ground investigation was carried out. The need for deeper investigation is discussed in Section 5.3.3, 14.4.9, 14.7.5 and 15.3.3 of the Geotechnical Report. The 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 with regard to the groundwater conditions present at the site. 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.

- 4.15. Once groundwater levels relative to the proposed basement levels are confirmed, the impact to subterranean flows 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.
- 4.16. It is noted that the content presented in Section 14.1 of the Geotechnical Report is not in accordance with the title 'Ground Investigation Summary' of the same. An amendment is required.
- 4.17. In Section 14.1.6 of the Geotechnical Report an 'open excavation with stable slopes at the end of the proposed pool towards West Heath Road' is suggested. The same is proposed in Section 6 (refer to 'step 10') and in sketch SK03 of the Structural Report. The elevation difference between West Heath Road and the formation level of the proposed terrace room to the north of the swimming pool appears to be c.1.7m. The horizontal distance between the same seems to be less than 0.5m according to the architectural drawings. A similar or more adverse situation exists at the proposed plant/condenser room near the northern boundary. The construction methodology should be reviewed and justification presented to confirm that the open excavations will remain stable.
- 4.18. There are references in the Geotechnical Report (Sections 14.4.2, 14.4.11, 14.6.2 and page ix of the Executive Summary) for proposed 'cantilever retaining walls' which are contradictory to the reinforced concrete 'underpins' proposed by the Structural Report. The latter suggests the use of underpins which will be in the short and long term propped. Clarifications/amendments are required.
- 4.19. The statement that 'a retaining wall check against sliding failure may alter the recommendations' presented in the Geotechnical Report (Sections 14.4.10 and 14.8.3) needs to be clarified noting that the structural proposal allows for fully propped underpins.
- 4.20. There is contradictory information about the new swimming pool construction methodology; the Geotechnical Report (Section 14.8.6) indicates the use of sheet pile walls while the Structural Report indicates (Step 11, Section 6) the use of underpins. Clarification/amendment is required.
- 4.21. In the Geotechnical Report (refer to non-technical summary, page x) there is a reference for the 'property above' which should be clarified/amended as the proposal involves demolition of

the existing property and therefore there will be no 'property above' during the construction of the basement.

- 4.22. There is a reference in the Geotechnical Report (Section 15.5.3) that the site should be supported 'by suitably designed temporary support with a basement box construction inside the underpinning'. This recommendation is not in accordance with the structural proposal and needs to be clarified/amended.
- 4.23. A ground movement assessment (GMA) was undertaken and presented in Section 16 of the Geotechnical Report using proprietary software 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.
- 4.24. The GMA resulted in 'Negligible' (Category 0) to 'Very Slight' (Category 1) damage according to the Burland scale, for the buildings located at 33 Templewood Avenue, Schreiber House and for all the boundary walls. 'Low' to 'negligible' impact was indicated by the GMA for the adjacent roadways and Thames Water assets surrounding the site. It is recommended by the Geotechnical Report (Section 16.9.6) that some allowance should be made during construction for making good of any minor surface damage might develop during construction. However, the GMA should be revised to allow for the matters discussed in the following paragraphs.
- 4.25. The GMA should include the potential impact on the existing on-site swimming pool which is a Grade II listed structure.
- 4.26. The idealised long-term loading regime presented in Figure 16.7 of the GMA seems not to include the northernmost section of the access ramp, the terrace room to the north of the new swimming pool and the plant/condenser room towards the northern boundary. These elements should be added in the analysis. In the same Figure, loads in excess of the suggested (Section 14.4.6 of the Geotechnical Report) allowable bearing capacity of 150kPa are modelled, which could lead to excessive settlement and ground movements, additional to those predicted by the GMA. Further, in the same Figure, a white coloured area is presented towards the eastern part of the site; it is not clear what this area represents. Clarifications/amendments are required.
- 4.27. The title of Section 16.2 of the GMA refers to 'piling works', however, the structural proposal does not include any piling works. A clarification / amendment is required.
- 4.28. Thames Water should be consulted with regards to any assessments may be required for their nearby assets.
- 4.29. The assumed upward (unloading) uniformly distributed load values assumed in the GMA (10kPa to 80kPa) due to the proposed demolition and basement excavation should be justified. In

some cases the proposed excavations appear to exceed 5m which are likely to result in higher unload values than the stated figures above.

- 4.30. An allowable bearing capacity of 125kPa is recommended by the Geotechnical Report (Section 14.4.7) for shallower foundations at +110.50m OD within Bagshot Formation. Hence, the reference of a capacity value of 150kPa in Section 4 of the Structural Report should be amended accordingly.
- 4.31. In Section 4 of the Structural report it is stated that the site is located in the vicinity of the initial branches of River Westbourne and it is therefore possible that localised perched water may be encountered during the ground works. However, according to GSD and associated maps the site is c.250m away from the closest tributary of River Westbourne. A clarification/ amendment is required.
- 4.32. In Section 5 of the Structural Report it is mentioned that the new basement wraps around the north side of the existing pool. According to architectural drawings it is the south side of the existing pool that will be next to the new basement. An amendment is required.
- 4.33. A monitoring strategy with trigger limits of ground movements is presented in Section 7 of the Structural Report. It is requested that the trigger limits are set in accordance with the results of the GMA in order to remain within Category 1 damage of the Burland scale and that contingency measures/proposed actions are included when 'amber' or 'red' limits are reached.
- 4.34. The retaining wall analysis presented in the Structural Report uses superseded versions of British Standards. Further, the groundwater level considered in the retaining wall section (page 1 of the calculations) analysed appears to be 1.5m bgl which is contradictory to the assumption of 1m bgl shown in Section 11. A warning message 'Shear reinforcement required' is shown in page 7 of the calculations. Amendments and clarifications are required.
- 4.35. As noted, additional ground investigation is required. This additional investigation will most likely occur post-planning, after demolition of the existing building and prior to construction, in the context of a Basement Construction Plan (BCP). The BCP should confirm the adopted ground model, the proposed construction methodology, sequencing and structural monitoring to be implemented in accordance with CPG Basements requirements. The BCP recommendation above could be controlled by way of a planning condition subject to LBC's approval.
- 4.36. However, before any planning approval, the BIA reports should address the comments of this audit, given that basic elements of the proposal have not yet been clear or have been missing or have not been assessed.

- 4.37. Based on the above comments, a number of queries has been raised as summarised in Appendix 2. It cannot currently be confirmed that the proposal adheres to the requirements of the CPG Basements.

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 should be updated as per the comments of this audit.
- 5.5. A clear assessment with respect to changes in impermeable areas, proposed mitigation measures and any impacts of those measures on surface water and groundwater are requested.
- 5.6. An outline drainage plan including SUDS is requested.
- 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. It is requested that mitigation measures be discussed in the BIA reports should groundwater conditions be proved to be different than the assumed.
- 5.9. Additional ground investigation and assessment could be carried out in the context of a Basement Construction Plan (BCP) stage, subject to LBC's approval, as discussed in this audit.
- 5.10. The open and unsupported excavations to the north of the site proposed during construction should be reconsidered as they will likely be unstable.
- 5.11. 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, should be clarified / amended.
- 5.12. 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.
- 5.13. Thames Water should be consulted with regards to any assessments may be required for their nearby assets.

- 5.14. 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, need to be further clarified.
- 5.15. The monitoring strategy should be informed by the GMA. Contingency measures should be included.
- 5.16. A number of queries has been raised as summarised in Appendix 2. It cannot currently be confirmed that the proposal adheres to the requirements of the 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.	Requests for additional information and assessment has been made in Section 4 of this audit for the proposed increase of impermeable areas and the potential impact on the hydrology and hydrogeology of the site.
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

Audit Query Tracker

Query No	Subject	Query	Status	Date closed out
1	Stability	Land stability screening: The answers to questions 6 and 13 should be revised.	Open	
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.	Open	
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.	Open	
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.	Open	
5	Stability	The white coloured area shown in Figure 6.17 of the GMA should be clarified.	Open	
6	Stability	The unloading values assumed in the GMA should be justified.	Open	
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.	Open	
8	Stability	Contingency measures should be included in the monitoring strategy. The trigger limits should be informed by the GMA.	Open	
9	Hydrology	Hydrology screening: The answer to question 4 should be revised.	Open	
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.	Open	

11	Hydrology	An outline drainage plan including SUDS should be presented.	Open	
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.	Open	
13	General	The title of Section 14.1 of the Geotechnical Report should be amended.	Open	
-	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	-

Appendix 3: Supplementary Supporting Documents

None

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