



59 Redington Road
London NW3 7RP

Basement Impact Assessment
Audit

For
London Borough of Camden

Project Number: 12336-55

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May 2016

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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 59 Redington Road, London, NW3 7RP (planning reference 2015/5882/P). The basement is considered to fall within Category A 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 BIA has been carried out by firms of engineering consultants using individuals who we are satisfied that possess the necessary and suitable qualifications.
- 1.5. The BIA has confirmed that the proposed basement will be, most likely, founded within a 5.0m thick layer of Glaygate stratum.
- 1.6. It is likely that the ground water table will be encountered during basement foundation excavation. Groundwater might be present at approximately 1.0 mbgl.
- 1.7. The BIA indicates that the proposed development is close to a tributary of the "lost" River Westbourne. No Structural Strategy Report (SSR) has been prepared to discuss proposals on how to construct the basement including potential groundwater ingress into excavations and the temporary works which will be necessary to form the proposed structure. An outline construction and temporary works sequence is required.
- 1.8. It is recommended that further investigation of the below ground soils and neighbouring foundations is carried out, together with groundwater monitoring to allow a decision to be taken on the construction methodology. The absence of the 'hidden' river should be confirmed.
- 1.9. It is accepted that the surrounding slopes to the development site are stable.
- 1.10. It is accepted that the development will not impact on the wider hydrogeology of the area and is not in an area subject to flooding.
- 1.11. Queries and requests for clarification are described in Section 4 and summarised in Appendix 2.

2.0 INTRODUCTION

2.1. CampbellReith was instructed by London Borough of Camden (LBC) on 08.04.16 to carry out a Category A Audit on the Basement Impact Assessment (BIA) submitted as part of the Planning Submission documentation for 59 Redington Road, London, NW3 7RP (planning reference 2015/5882/P).

2.2. The Audit was carried out in accordance with the Terms of Reference set by LBC. It reviewed the Basement Impact Assessment for potential impact on land stability and local ground and surface water conditions arising from basement development.

2.3. A BIA is required for all planning applications with basements in Camden in general accordance with policies and technical procedures contained within

- Guidance for Subterranean Development (GSD). Issue 01. November 2010. Ove Arup & Partners.
- Camden Planning Guidance (CPG) 4: Basements and Lightwells.
- Camden Development Policy (DP) 27: Basements and Lightwells.
- Camden Development Policy (DP) 23: Water.

2.4. The BIA should demonstrate that schemes:

- a) maintain the structural stability of the building and neighbouring properties;
- b) avoid adversely affecting drainage and run off or causing other damage to the water environment; and,
- c) avoid cumulative impacts upon structural stability or the water environment in the local area

and evaluate the impacts of the proposed basement considering the issues of hydrology, hydrogeology and land stability via the process described by the GSD and to make recommendations for the detailed design.

2.5. LBC's Audit Instruction described the planning proposal as *"The excavation of a new swimming pool and erection of associated pitched roof single-storey enclosure with dressing room within the rear garden area and a pergola connecting the main house with the pool."*

2.6. CampbellReith accessed LBC's Planning Portal on 23.05.16 and gained access to the following relevant documents for audit purposes:

- Basement Impact Assessment Report (BIA) for Surface Water and Groundwater
(ESI Ltd., report ref: 64538R1, report status: Final, April 2016)
- Basement Screening and Scoping – Land stability
(Key GeoSolutions Ltd., report ref: 16-065-R-002, report status: Final, February 2016)
- Planning Application Drawings consisting of
 - Location Plan – (SIAW drawing RR23-59 Redington Road-A-00, rev: -)
 - Existing Plans – (SIAW drawing RR23-59 Redington Road-A-02, rev: -)
 - Proposed Plans – (SIAW drawing RR23-59 Redington Road-A-00, rev: -)
- Design & Access Statement
- Arboricultural Report (Geoffrey Bunyan Associates, May 2009) and Addendum Note
(Marcus Foster Arboricultural Design & Consultancy, December 2015)
- Preliminary calculations on proposed attenuation tank required

3.0 BASEMENT IMPACT ASSESSMENT AUDIT CHECK LIST

Item	Yes/No/NA	Comment
Are BIA Author(s) credentials satisfactory?	Yes	We are satisfied that the authors of both reports have broadly suitable credentials.
Is data required by Cl.233 of the GSD presented?	Yes	- Boundary line information is unclear in the proposed drawings. As such, existing drawings should be revised to reflect this. - Proposed construction method and work programme for construction, operation and commissioning phases to be developed. - Information on design and construction mitigation measures needs to be considered following site investigation report results.
Does the description of the proposed development include all aspects of temporary and permanent works which might impact upon geology, hydrogeology and hydrology?	Yes	The site is within 100m of a hidden watercourse. Further investigation suggests it is 25m from the proposed excavation. Its absence should be confirmed.
Are suitable plan/maps included?	Yes	Refer to ESI and KGS BIA documents.
Do the plans/maps show the whole of the relevant area of study and do they show it in sufficient detail?	No	Boundary lines to be added to proposed drawings.
Land Stability Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Refer to Section 3.0 of KGS "Basement Screening and Scoping-Land Stability" February 2016 document.
Hydrogeology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Refer to Section 2.2 of ESI "Basement Impact Assessment: 59 Redington Road, London NW3 7RP (Surface Water and Groundwater)" April 2016 document.
Hydrology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Refer to Section 2.1 of ESI "Basement Impact Assessment: 59 Redington Road, London NW3 7RP (Surface Water and Groundwater)" April 2016 document.
Is a conceptual model presented?	Yes	Information provided is fairly generalised. Needs to be revised as soil investigation information is obtained.

Item	Yes/No/NA	Comment
Land Stability Scoping Provided? Is scoping consistent with screening outcome?	Yes	Refer to Section 5.0 of KGS "Basement Screening and Scoping-Land Stability" February 2016 document.
Hydrogeology Scoping Provided? Is scoping consistent with screening outcome?	Yes	Refer to Section 3.2 of ESI "Basement Impact Assessment: 59 Redington Road, London NW3 7RP (Surface Water and Groundwater)" April 2016 document; but also: - Provide site specific ground investigation report to cover existing and past uses of the site and ground conditions; covering also groundwater monitoring.
Hydrology Scoping Provided? Is scoping consistent with screening outcome?	Yes	Refer to Section 3.1 of ESI "Basement Impact Assessment: 59 Redington Road, London NW3 7RP (Surface Water and Groundwater)" April 2016 document.
Is factual ground investigation data provided?	No	To be covered within site specific ground investigation report.
Is monitoring data presented?	No	The site is within 100m of a hidden watercourse. Site Investigation Report brief to allow for this to be investigated further.
Is the ground investigation informed by a desk study?	No	Preliminary site information provided (with reference to BGS maps and information extracted from exploratory investigation works undertaken in a neighbouring property) with no recommendations for site specific exploratory investigation works (window sample and trial pit locations). Issue to be covered within site specific ground investigation report.
Has a site walkover been undertaken?	No	Issue to be covered within site specific ground investigation report.
Is the presence/absence of adjacent or nearby basements confirmed?	NA	The proposed development has an average excavation depth of 1.65m and is located more than 20m from the neighbouring properties. It is considered that the proposed development will not cause any damage/movement to the adjacent or nearby basements. However appropriate support will be required to be

Item	Yes/No/NA	Comment
		provided in order to maintain the stability of boundaries to the adjacent properties.
Is a geotechnical interpretation presented?	No	No site specific ground investigation report submitted.
Does the geotechnical interpretation include information on retaining wall design?	No	No site specific ground investigation and structural engineering calculations submitted.
Are reports on other investigations required by screening and scoping presented?	No	Section 5.1 of KGS "Basement Screening and Scoping-Land Stability" recommends that the route of an existing watercourse (located close to the site boundary) should be further investigated.
Are the baseline conditions described, based on the GSD?	Yes	
Do the base line conditions consider adjacent or nearby basements?	NA	The proposed development is located more than 20m from the neighbouring properties. It is considered that the proposed development will not cause any damage/movement to the adjacent or nearby properties and/or basements.
Is an Impact Assessment provided?	NA	
Are estimates of ground movement and structural impact presented?	NA	The proposed development has an average excavation depth of 1.65m. Above ground, the proposed building will be single storey, constructed in timber, and will not exceed 4.5m in height. It is unlikely that the proposed scheme will cause significant ground movement. However, a robust temporary works solution will be required. Contractor to be responsible for the design, erection and maintenance of all temporary works in accordance with the relevant British Standards.
Is the Impact Assessment appropriate to the matters identified by screen and scoping?	NA	
Has the need for mitigation been considered and are appropriate mitigation methods incorporated in the scheme?		-Mitigation methods incorporated in the design: Attenuation tank and soakaway system

Item	Yes/No/NA	Comment
		Groundwater flow encountered during excavation to be controlled by traditional construction techniques -Mitigation methods to be considered for: Level of existing water table and impact of hidden watercourse Waterproofing.
Has the need for monitoring during construction been considered?	NA	As above.
Have the residual (after mitigation) impacts been clearly identified?	No	Site specific ground investigation report to be provided. Existing level of water table and impact of hidden watercourse to be primarily confirmed.
Has the scheme demonstrated that the structural stability of the building and neighbouring properties and infrastructure will be maintained?	No	Structural design TBC. Construction works to be carried out by an experienced contractor.
Has the scheme avoided adversely affecting drainage and run-off or causing other damage to the water environment?	Yes	With attenuation tank.
Has the scheme avoided cumulative impacts upon structural stability or the water environment in the local area?	NA	Subject to site specific ground investigation results and proposed basement works construction sequence.
Does report state that damage to surrounding buildings will be no worse than Burland Category 2?	NA	As above. It is unlikely that the proposed development will cause any damage to the adjacent properties; however appropriate support will be required to be provided so as to maintain the stability of boundaries to the adjacent properties.
Are non-technical summaries provided?	Yes	Provided in ESI Ltd report. Refer to Conclusions section in Key GeoSolutions report.

4.0 DISCUSSION

- 4.1. The Basement Impact Assessment (BIA) has been carried out by firms of engineering consultants, ESI Ltd. (ESI) and Key GeoSolutions Ltd. (KGS). The individuals possess suitable qualifications, broadly in accordance with the requirements of CPG4.
- 4.2. To date, there have been no Structural Strategy (SSR) or Soil Investigation (SI) Reports carried out.
- 4.3. The proposed development comprises constructing a covered swimming pool and associated single storey enclosure to the rear of the existing dwelling house at 59 Redington Road, London, NW3 7RP. To the North, South and West, the proposed site borders directly on gardens of properties of Redington Road and Ferncroft Avenue. The proposed poolhouse is to be lightweight, constructed in timber and will not exceed 4.5m in height. Planning permissions were granted in 2004 and 2009 but were never implemented.
- 4.4. With reference to the British Geological Survey maps and information extracted from exploratory investigation works undertaken in a neighbouring property, the existing site is underlain by Claygate Member extending to approx. 5.0mbgl. The extent of Made Ground overlying the Claygate stratum is yet to be identified.
- 4.5. The BIA refers to an average basement depth of construction of 1.65m and a total area of 70m². The proposed Architect's drawings received to date (SIAW drawing RR23-59 Redington Road-A-00, rev: -) have reduced depths of basement to approx. 1.1 metres. During this audit, an assumption has been made that the former BIA proposal is correct.
- 4.6. The BIA indicates that groundwater might be present at approximately 1.0 mbgl. No Structural Strategy Report (SSR) has been prepared to discuss proposals on how to construct the basement including the temporary works which will be necessary to form the proposed structure.
- 4.7. The BIA has shown that the development is close to a tributary of the "lost" River Westbourne. The conclusions reached within the BIA concerning the exact route of the existing, hidden watercourse; running approximately north/south through the rear gardens of the properties on Redington Road and Hollycroft Avenue, should be confirmed.
- 4.8. Irrespective of the route of the existing watercourse, a waterproofing proposal needs to be developed to relevant British Standard requirements.
- 4.9. To maintain the stability of boundaries to the adjacent properties, further investigation of the foundations to the surrounding boundaries is recommended.

- 4.10. A SI report should be commissioned to cover existing and past uses of the site and ground conditions; covering also groundwater monitoring and the likelihood of the proposed basement encountering the groundwater table.
- 4.11. No proposals are provided for a movement monitoring strategy during excavation and construction. The proposed development has an average excavation depth of 1.65m and is located more than 20m from the neighbouring properties. Above ground, the proposed building will be single storey, constructed in timber, and will not exceed 4.5m in height. It is considered that the proposed development will not cause any damage/movement to the adjacent or nearby properties and/or basements. However appropriate support will be required to be provided in order to maintain the stability of boundaries to the adjacent properties. A robust temporary works solution will be required and outline details are required; with the contractor being responsible for the design, erection and maintenance of all temporary works in accordance with the relevant British Standards/Eurocodes.
- 4.12. It is understood that the existing proposal will not adversely impact upon the amenities of the neighbouring properties. There would be some overhang from the roof of the proposed swimming pool which would be parallel to the boundary wall; but not against it.
- 4.13. It is accepted that there are no slope stability concerns regarding the proposed development and it is not in an area prone to flooding.

5.0 CONCLUSIONS

- 5.1. The BIA has been carried out by well-known firms of engineering consultants using individuals who we are satisfied that possess the necessary and suitable qualifications.
- 5.2. The BIA has confirmed that the proposed basement will be most likely founded within a 5.0m thick layer of Claygate stratum.
- 5.3. It is likely that the ground water table will be encountered during basement foundation excavation.
- 5.4. The BIA indicates that the proposed development is close to a tributary of the "lost" River Westbourne and groundwater might be present at approximately 1.0 mbgl. No Structural Strategy Report (SSR) has been prepared to discuss proposals on how to construct the basement including the temporary works which will be necessary to form the proposed structure and potential groundwater ingress into excavations.
- 5.5. It is recommended that further investigation of the below ground soils and neighbouring foundations is carried out, together with groundwater monitoring to allow a decision to be taken on construction methodology. An indicative construction and temporary works sequence is required.
- 5.6. It is accepted that the surrounding slopes to the development site are stable.
- 5.7. It is accepted that the development will not impact on the wider hydrogeology of the area and is not in an area subject to flooding. However, the absence at the site of the nearby hidden river is to be confirmed.

Appendix 1: Residents' Consultation Comments

None pertinent to BIA

Appendix 2: Audit Query Tracker

Audit Query Tracker

Query No	Subject	Query	Status	Date closed out
1	Stability	The absence of the hidden watercourse is to be confirmed No site specific ground investigation report submitted. Report to cover existing and past uses of the site and ground conditions; covering also groundwater monitoring.	Open	
2	Stability	Indicative construction and temporary works sequence to be provided.	Open	

Appendix 3: Supplementary Supporting Documents

None

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