CampbellReith
consulting engineers

Basement Impact Assessment Audit

4 The Grove, London N6 6JU

For
London Borough of Camden

Project No.
14006-27

Date
October 2024

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APPENDICES

1.0 NON-TECHNICAL SUMMARY

1.1 CampbellReith was instructed by London Borough of Camden, (LBC) to carry out an audit on the Basement Impact Assessment submitted as part of the Planning Submission documentation for 4 The Grove, London, N6 6JU (planning reference 2023/2876/P & 2023/2939/L). The basement is considered to fall within Category B as defined by the Terms of Reference.

1.2 The Audit reviewed the Basement Impact Assessment for potential impact on land stability and local ground and surface water conditions arising from basement development in accordance with LBC's policies and technical procedures.

1.3 CampbellReith was able to access LBC's Planning Portal and gain access to the latest revision of submitted documentation and reviewed it against an agreed audit check list.

1.4 The Basement Impact Assessment (BIA) has been carried out by engineering consultants Tier Consult (TC). The individuals concerned in its production have suitable qualifications for the land stability and surface flow and flooding assessments. Evidence of suitable qualification and experience for the subterranean flow assessment has not been provided however, on this occasion, it is accepted that sufficient assessment has been provided.

1.5 The proposed basement comprises a single storey extension of the existing basement. The extension is situated beneath the front garden and will be 'roughly 4m' in depth.

1.6 A Ground Investigation Report (GIR) confirms the ground comprises Made Ground of up to 2.7m bgl over interbedded firm clays and sands of the Bagshot Formation.

1.7 Groundwater was not encountered in any of the exploratory hole locations within the front garden. Localised perched groundwater was recorded in the rear garden at depths of 3.7m and 5.0m.

1.8 The Ground Investigation Report provides geotechnical parameters for the retaining wall design.

1.9 Screening and scoping assessments are provided, supported by desk study information.

1.10 The screening highlights that the basement will be within 5m of a highway or pedestrian right of way; the pavement adjacent site will need to be partially blocked off during construction. It is therefore assumed an approval in principle will be required as part of the scheme.

1.11 It is accepted that there will be no impact to the surface water and flooding.

1.12 An outline underpinning construction sequence and retaining wall calculations have been provided for the original basement proposal.

1.13 Additional information confirms the sheet piles are sacrificial and will remain in-situ following basement construciton.

1.14 It is noted that the updated GMA does not consider the potential for the basement footprint to be reduced, however, the GMA is considered to be sufficiently conservative and thus no additional assessment is required.

1.15 The results of the GMA have been used in a damage assessment for the host building. It is accepted that the revised assessment shows the impact to the host building can be limited to a maximum damage category of Burland Category 1 (Very Slight) for the proposed development.

1.16 Considering the additional information presented, it is confirmed that the BIA complies with the requirements of CPG: Basements and the Principles for Audit set out in the Basement Impact Assessment (BIA) Audit Service Terms of Reference & Audit Process.

2.0 INTRODUCTION

2.1 CampbellReith was instructed by London Borough of Camden (LBC) on 15/08/2023 to carry out a Category B audit on the Basement Impact Assessment (BIA) submitted as part of the Planning Submission documentation for 4 The Grove, London, N6 6JU and Planning Reference No. 2023/2876/P & 2023/2939/L.

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 (CPG): Basements. January 2021.
- Guidance for Subterranean Development (GSD). Issue 01. November 2010. Ove Arup & Partners.
- Highgate Neighbourhood Plan

2.4 The BIA should demonstrate that schemes:

a) maintain the structural stability of the building and neighbouring properties;

b) avoid adversely affecting drainage and run off or causing other damage to the water environment;

c) avoid cumulative impacts upon structural stability or the water environment in the local area;

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

2.5 LBC's Audit Instruction described the planning proposal as *"Excavation of basement under front garden; landscaping works in front garden; associated works."*

2.6 The Audit Instruction confirmed 4 The Grove is a Grade II listed building.

2.7 CampbellReith accessed LBC's Planning Portal on 29/08/2023 and gained access to the following relevant documents for audit purposes:

- Ground Investigation Report, by Tier Consult Group, TE1723-TE-00-XX-RP-GE-001-V02, revision 2.0, issued 15th June 2023.
- Flood Risk Assessment, by Tier Consult Group, TE1723-TE-00-XX-RP-GE-002-V02, revision 2.0, issued 15th June 2023.
- Design and Access Statement, by SODA Studio
- Heritage Statement, by Jon Lowe Heritage, 00411 V.1, issued in June 2023

- Archaeological Desk Based Assessment, by Abrams Archaeology, 00295, revision 1.1, issued February 2023.
- Arboricultural Impact Assessment, by SJ Stephens Associates, 2057, issued 5th July 2023
- Letter from History England providing recommended archaeology conditions, dated 19th June 2023.
- Drawing by Tier Consults of the construction sequence, 073-TCE-XX-ZZ-D-S-216, P1
- Drawings by SODA issued in June 2023 including:
  - A site location plan, A482 001 P01
  - Existing lower ground floor plan, A482 01B P01
  - Proposed layout ground floor plan, A482 02B P01
  - Cross sections of the existing layout, A482 drawings 080-083 P01
  - Cross sections of the strip out and demolition, A482 drawings 090-093 P01
- Planning consultation comments.

2.8 Additional documents were provided in March and August 2024 to address the queries raised in the D1 audit and include the following:

- Basement Impact Assessment Report (BIA) by Tier Consult, SE/23/0073, rev A dated 27 October 2023.
- Heave calculation sheet, by Tier Consult, SE/23/0073, dated June 2023.
- BIA audit query tracker, by Tier Consult, dated 29th May 2024
- Drawing 073-TCE-XX-LG-D-S-098 (Heave profile and construction settlements), revision P2, dated June 2024
- Revised Basement Comparison by Tier Consult, ref. SE/23/0073-RBC, revision A, dated 23rd July 2024 which includes:
  - Revised basement extent comparison with original plan, 073-TCE-XX-LG-D-S-250 P1, dated July 2024
- Drawings by SODA Studio including:
  - Proposed GA Plans Lower Ground Floor, A482 02B P03, dated June 2024
  - Proposed GA Plans Ground Floor, A482 020 P02, dated November 2023
  - Proposed Section AA, A482 080 P02, dated November 2023
  - Proposed Section BB, A482 081 P03, dated June 2024
  - Proposed Section CC, A482 082 P03, dated June 2024
  - Demolition Plans Lower Ground Floor, A482 03B P03, dated June 2024
  - Demolition Plans Ground Floor, A482 030 P02, dated November 2023

- Demolition External Elevations, A482 061 P02, dated November 2023
- Demolition Section AA, A482 090 P02, dated November 2023
- Demolition Section AA, A482 091 P03, dated June 2024

  Demolition Section AA, A482 092 P03, dated June 2024

2.9 It was highlighted in September 2024 that the as built boundary of the neighbouring basement was larger than the assumed layout included in the initial assessment. Tier Consult subsequently provided a response outlining the anticipated changes to any impacts based on the as built basement layout of the neighbouring property. A copy of this response is included in Appendix 3.

3.0 BASEMENT IMPACT ASSESSMENT AUDIT CHECK LIST

Item	Yes/No/NA	Comment
Are BIA Author(s) credentials satisfactory?	No	Input from an individual holding the CGeol qualification has not been provided.
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	
Are suitable plan/maps included?	Yes	
Do the plans/maps show the whole of the relevant area of study, and do they show it in sufficient detail?	Yes	
Land Stability Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	
Hydrogeology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	
Hydrology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	
Is a conceptual model presented?	Yes	
Land Stability Scoping Provided? Is scoping consistent with screening outcome?	Yes	

Item	Yes/No/NA	Comment
Hydrogeology Scoping Provided? Is scoping consistent with screening outcome?	Yes	
Hydrology Scoping Provided? Is scoping consistent with screening outcome?	Yes	
Is factual ground investigation data provided?	Yes	Ground Investigation Report provided under a separate cover.
Is monitoring data presented?	Yes	
Is the ground investigation informed by a desk study?	Yes	
Has a site walkover been undertaken?	Yes	
Is the presence/absence of adjacent or nearby basements confirmed?	Yes	Additional drawings provided.
Is a geotechnical interpretation presented?	Yes	
Does the geotechnical interpretation include information on retaining wall design?	Yes	Included in Table 9.1 of the Ground Investigation Report.
Are reports on other investigations required by screening and scoping presented?	Yes	Ground Investigation Report, Flood Risk Assessment and Arboricultural Impact Assessment reports provided.
Are the baseline conditions described, based on the GSD?	Yes	
Do the base line conditions consider adjacent or nearby basements?	Yes	
Is an Impact Assessment provided?	Yes	

Item	Yes/No/NA	Comment
Are estimates of ground movement and structural impact presented?	Yes	Clarification on the impact to neighbouring properties provided and impact to the host building considered in the GMA.
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	
Have the residual (after mitigation) impacts been clearly identified?	Yes	
Has the scheme demonstrated that the structural stability of the building and neighbouring properties and infrastructure will be maintained?	Yes	
Has the scheme avoided adversely affecting drainage and run-off or causing other damage to the water environment?	Yes	
Has the scheme avoided cumulative impacts upon structural stability or the water environment in the local area?	Yes	
Does the report state that damage to surrounding buildings will be no worse than Burland Category 1?	Yes	
Are non-technical summaries provided?	Yes	

4.0 DISCUSSION

4.1 The Basement Impact Assessment (BIA) has been carried out by engineering consultants Tier Consult (TC). The individuals concerned in its production do not hold qualifications that are fully in accordance with the CPG Basements, as input from an individual holding the CGeol qualification has not been shown.

4.2 The LBC Instruction to proceed with the audit identified that 4 The Grove is a grade II listed building. The BIA confirms the site is within the Highgate Tier 2 Archaeological Priority Area.

4.3 The proposed basement comprises a single storey extension of the existing basement. The extension is situated beneath the front garden, measuring approximately 10m by 6m and connects to the existing wine cellar. The BIA suggests the proposed extension will be 'roughly 4m' in depth.

4.4 A Ground Investigation Report (GIR) confirms the ground conditions at the front of the house comprise, Made Ground of up to 2.7m bgl over interbedded firm clays and sands of the Bagshot Formation, extending to the base of the investigation.

4.5 Groundwater was not encountered in any of the exploratory hole locations within the front garden however, water was struck in two locations within the rear garden at depths of 3.7m and 5.0m.

4.6 A single groundwater monitoring visit recorded groundwater in one borehole situated in the rear garden. No groundwater was recorded in the two installations within the front garden area. The groundwater present in the rear garden installation is thought to be perched groundwater within a confined granular Bagshot Formation layer.

4.7 The Ground Investigation Report provides geotechnical parameters for the retaining wall design. The bearing capacity of the ground at the proposed depth of the basement foundation is presented within the calculation sheet included in the additional information submitted. A bearing capacity and geotechnical parameters have been provided and are accepted.

4.8 The subterranean and slope stability screening have identified that the site is underlain by the Bagshot Formation which is classified as a secondary A aquifer. The scoping includes the GIR information that suggests the proposed basement will not extend below the water table, with the highest perched water recorded some 7.6m below the base of the extension floor. Based on these findings dewatering is unlikely to be required. It is accepted that the proposed basement will not have a significant impact on the hydrogeology of the area.

4.9 The slope stability screening assessment highlighted that two category C trees will be removed as part of the works and the proposed extension will encroach within 3% of the root protection area of a retained tree. An Arboricultural Impact Assessment report has been carried out. The trees to be removed are less than 3m in height and are not considered to have a significant impact on neighbouring properties or infrastructure.

4.10 The screening has also highlighted that the basement will be within 5m from a highway or pedestrian right of way. This has been brought through to scoping, which states an application will be made to use part of the pavement for construction activity. The BIA therefore assumes an approval in principle will be required as part of the scheme.

4.11 The slope stability screening responses state the proposed basement will not significantly increase the differential depth of foundations relative to neighbouring properties. Drawings provided as part of the revised submission show the proposed basement in relation to the neighbouring properties and highlights the foundation levels. The drawings confirm that the neighbouring properties have existing basements that extend to depths within 1m of the proposed basement foundation level.

4.12 Screening for the surface water and flooding did not identify any issues to be brought through to scoping. The responses within the screening are accepted to be sufficiently justified.

4.13 The construction methodology and sequence section provided within the original BIA outlines that the proposed works are to be carried out in multiple stages. The first stage is to deconstruct the front garden wall and relocate any underground services. A sheet piled wall will then be installed along two sides of the basement (with the existing property/ wine cellar being along the other two sides). Once the sheet piles are installed the area will be partially excavated down to the base of the existing lightwell foundations. The ground will be battered back until suitable support is installed against the sheet piled wall. Once this has been completed the partial excavation will be levelled. Excavation of two pits, to below new formation level, will be carried out to allow construction of new pad foundations for the temporary lightwell supports. Following the lightwell being propped and supported on the new pads, the area will be excavated to the base of the existing basement foundations. These foundations will then be underpinned.

4.14 Drawings provided in the revised submission confirm underpinning along the side of the host building will reach depths of up to 1.50m. Once underpinning is complete the excavation will continue down to the new basement level and a reinforced concrete raft slab can be constructed. The reinforced concrete walls will then be formed along with the new permanent support structure for the retained lightwell. Finally, the basement roof slab will be cast, completing the "basement box". The additional information provided confirms that the sheet piles will be sacrificial and will remain in-situ after basement construction.

4.15 An underpinning construction sequence is provided in the updated drawing 073-TCE-XX-LG-D-S-250 P1.

4.16 Outline retaining wall calculations have been provided in the calculation sheet included in the additional information submitted.

4.17 The updated Ground Movement Assessment (GMA) includes consideration of the underpinning along the eastern edge of the host building. Whilst the calculations provided are not completely clear, due to the impact being limited to the host building and the limited depth of underpinning, it is accepted that the assessment provides sufficient information to show that the proposed basement can be constructed in a way that limits any impacts to Burland Category 1 (Very Slight). Limiting values for horizontal and vertical movements of 5mm have been used in the assessment.

4.18 Following the submission of the updated information it was highlighted that the footprint of the neighbouring basement was larger than initially considered. Tier Consult provided a response (included in Appendix 3) to confirm that the as built footprint will not result in changes to the anticipated impacts caused by the proposed basement.

4.19 It is noted that the GMA only considers the larger basement footprint. A Revised Basement Comparison has been provided (included in Appendix 3), which considers the impact that reducing the basement footprint may have on the conclusions of the revised BIA submission. Although the document refers to the offsetting of vertical movement using heave, which is not accepted as being appropriately conservative, the document also shows that the zone of influence will be reduced such that the resulting impacts will not exceed those stated in the GMA for the larger basement footprint.

4.20 The BIA report confirms monitoring will be included as part of the construction management plan.

5.0 CONCLUSIONS

5.1 The Basement Impact Assessment (BIA) has been carried out by engineering consultants Tier Consult (TC). The individuals concerned in its production do not hold suitable qualifications in accordance with the CPG however, the assessments provided are sufficient for the proposed basement.

5.2 The proposed basement comprises a single storey extension of the existing basement. The extension is situated beneath the front garden. The BIA suggests the proposed extension will be 'roughly 4m' in depth.

5.3 A Ground Investigation Report (GIR) confirms the ground comprises, Made Ground of up to 2.7m bgl over interbedded firm clays and sands of the Bagshot Formation. The BIA suggests the proposed extension will be 'roughly 4m' in depth.

5.4 Groundwater was not encountered in any of the exploratory hole locations within the front garden. Localised perched groundwater was recorded in the rear garden at depths of 3.7m and 5.0m.

5.5 The Ground Investigation Report provides geotechnical parameters for the retaining wall design.

5.6 Screening and scoping assessments are provided, supported by desk study information.

5.7 The screening highlighted that the basement will be within 5m of a highway or pedestrian right of way; the pavement adjacent to site will need to be partially blocked off during construction. It is therefore assumed an approval in principle will be required as part of the scheme.

5.8 Further information regarding the neighbouring basements has been provided and confirms that they include basements with foundations within 1m of the proposed basement foundation depth.

5.9 It is accepted that there will be no impact to the surface water and flooding.

5.10 The proposed basement will be constructed in phases. These include the installation of a sheet piled wall, multiple stages of excavation to allow temporary support of the existing lightwell and underpinning of the existing foundations and, construction of the reinforced 'basement box'. Additional information confirms the sheet piles are sacrificial and will remain in-situ.

5.11 The outline underpinning construction sequence of the host listed building has been provided.

5.12 Outline retaining wall calculations have been provided.

5.13 Fully dimensioned drawings with levels have been provided in the additional information.

5.14 It is noted that the updated GMA does not consider the potential for the basement footprint to be reduced, however, the GMA is considered to be sufficiently conservative and thus no additional assessment is required.

5.15 The results of the GMA have been used in a damage assessment for the host building. It is accepted that the assessment provided sufficiently shows impact to the host building can be limited to a maximum damage category of Burland Category 1 (Very Slight) for the proposed development.

5.16 Considering the additional information presented, it is confirmed that the BIA complies with the requirements of CPG: Basements and the Principles for Audit set out in the Basement Impact Assessment (BIA) Audit Service Terms of Reference & Audit Process.

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Appendix 1

Consultation Responses

Residents' Consultation Comments

Surname	Address	Date	Issue raised	Response
Lewis	Unknown	12/08/2023	Removal of trees and lack of proposed landscaping details.	Outside the scope of this report.

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Appendix 2

Audit Query Tracker

Audit Query Tracker

Query No	Subject	Query	Status	Date closed out
1	Qualifications	Provide evidence of suitable qualifications/ experience, as set out in the CPG, for the subterranean (groundwater) flow assessment.	Closed	March 2024
2	Construction	Confirm the depth and distance of the foundations of the existing property and neighbouring houses in relation to the proposed basement extension.	Closed	February 2024
3	Construction	Provide an outline construction sequence of the underpinning of the host listed building. Clarify how the basement walls will be cast against the sheet piles to prevent damage occurring during the removal of the sheet piles.	Closed	February 2024
4	GMA	Provide fully dimensioned drawings with levels to confirm the maximum depth of underpinning to be carried out beneath the existing foundations.	Closed	February 2024
5	GMA	Include consideration of settlement from underpinning the host listed building within the GMA. Provide clarification of potential movements resulting from the removal of the sheet piles and associated impacts.	Closed	August 2024
6	Ground Investigation Report	Confirm the bearing capacity for the proposed basement foundations.	Closed	March 2024
7	Land Stability	Provide the proposed loading of the new foundations.	Closed	March 2024
8	Land Stability	Provide outline retaining wall calculations to show the design is suitable for the ground conditions at the site.	Closed	March 2024

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Appendix 3

Supplementary Supporting Documents

Revised basement layout

Response from Tier Consult on the as built layout of the neighbouring basement

[redacted]

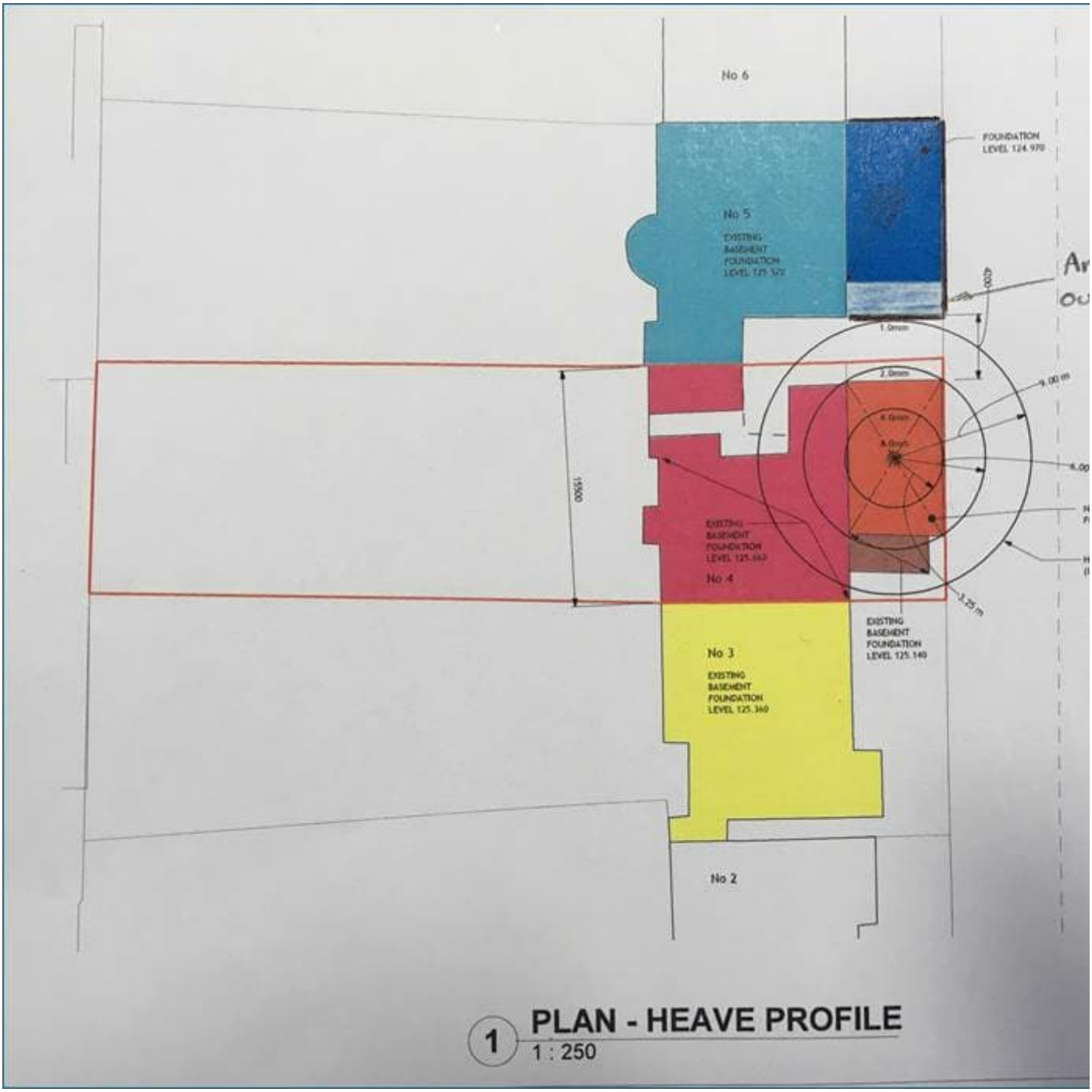
From: [redacted]
Sent: 27 September 2024 10:27
To: [redacted]
Cc: CamdenAudit
Subject: 4, The Grove, Basement Documents. (2023/2876/P)

Hi Sam,

Thank for your email. You are correct, we appear to have transcribed, onto our Heave Drawing, the new basement at Nº. 5, The Grove as somewhat smaller than it actually is. We shall comment below on what implications this may have in respect of the heave profile shown on our drawing, but prior to that, I wanted to confirm, what is implied in your email, that this basement is unaffected by ground movements associated with sheet pile installation and excavation. These all happen above the depth at which this basement is founded.

You have also asked us to comment on the "impact on the hydrology, subterranean flow, and land stability". In our BIA we note that "*the effect of the proposed basement on the hydrology, hydrogeology and land stability have been considered and found to be negligible*". We similarly note that the ground water is in excess of 7.5m below the level of the Nº. 4 basement and so this proposed basement cannot have an impact on subterranean flow(s). We can further confirm that the changed relationship between the basement at 5,The Grove and the proposed basement at 4, The Grove (illustrated below) will not change these conclusions.

In respect of heave, the sketch below shows that the amended basement outline brings it onto the theoretical 1mm heave contour. That in itself would have a negligible effect on the No. 5 basement. However, this basement has been formed within a contiguous pile wall and this will have the effect of anchoring this basement into deeper ground on which there is even less impact. With this additional anchoring, we believe that movement of the Nº. 5 basement, as a result of the formation of a new basement at 4, The Grove will be almost unmeasurable.



We hope this allays your concern.

Regards,

[redacted]

REVISED BASEMENT EXTENT.
COMPARISON WITH ORIGINAL.

4 THE GROVE,

HIGHGATE, LONDON

N6 6JU

ISSUE RECORD

Rev	Date	Prepared by	Checked by	Notes
-	**23.07.24**	**Jim Fraser** BEng CEng MIStructE	**Jim Fraser** BEng CEng MIStructE	**First Issue.**

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DOCUMENT / DRAWING LIST.

Tier Drawings.

073-TCE-XX-LG-D-S-098 (P2).

073-TCE-XX-LG-D-S-099 (P2).

073-TCE-XX-00-D-S-100 (P2).

073-TCE-XX-ZZ-D-S-200 (P2).

073-TCE-XX-ZZ-D-S-201 (P2).

073-TCE-XX-ZZ-D-S-215 (P2).

073-TCE-XX-ZZ-D-S-216 (P2).

073-TCE-XX-LG-D-S-250 (P1).

Tier Documents.

BIA Audit Query Tracker _ Tier _ Revision A _ Dated 29th May 2024.

Basement Impact Assessment _ Tier _ Revision A _ Dated 27th October 2023.

Ground Investigation Report _ Tier Environmental _ Reference TE1723-TE-00-XX-RP-GE-001 V01.

Flood Risk Assessment _ Tier Environmental _ Reference TE1723-TE-00-XX-RP-GE-002-V01 dated 22nd May 2023.

INTRODUCTION.

Tier Consult have been appointed to provide engineering services and prepare technical documents in support of No. 4 The Grove, London, N6 6JU Planning Application.

Comments were received from Campbell Reith, London Borough of Camden's (LBC) Auditors, in September 2023 and then later in May 2024, a document has been prepared to address those comments.

[BIA Audit Query Tracker _ Tier _ Revision A _ Dated 29th May 2024.]

Calculations, Reports and Engineering Drawings have been prepared in support of the (original) Application and these are listed above, in the first section of this document. The intention is that the Basement Impact Assessment (BIA) is agreed with Campbell Reith based on these documents.

Once this agreement is reached, based on the original documentation, this document will compare the original basement extent with the new proposal and compare the key "Impact Drivers" to demonstrate (qualitatively) that the basement proposal has an acceptable effect on its surroundings.

REVISED PROPOSALS – KEY DRIVERS.

Following discussions with the London Borough of Camden, a revised basement extent has been proposed. This is illustrated on Tier drawing 073-TCE-XX-LG-D-S-250 (P1). From this drawing it can be seen that the new basement extent is approximately half that previously proposed. The effect of that reduction on the Key Drivers included in the BIA are discussed below.

Construction Sequence.

The construction methodology and sequence are key drivers in the behaviour of the surroundings in the formation of a basement. These are unchanged for the revised basement extent. There is therefore no real change between the original and proposed other than size (reduced disturbance) effects

Heave.

The Newmark method used as part of the heave assessment illustrates quite well the vertical stress Influence Factor is a function of the length and breadth of the excavation. With the original excavation, the likely heave was acceptable, with significantly reduced area of dig the heave also will be significantly reduced.

Ground Movement Associated with Excavation.

Whilst largely a function of excavation depth, which is unchanged, the new basement area is now almost square and so “corner effects” will be even more significant. The zone of influence now covers a reduced ground area. The combination of these two factors will reduce the quantum of movement (both vertical and horizontal) and the area over which these occur.

Ground Movement Associated with Sheet Pile Installation.

Again, largely a function of excavation depth, which is unchanged. The new basement area is now almost square and so “corner effects” will be even more significant. The zone of influence now covers a reduced ground area. The combination of these two factors will reduce the quantum of movement (both vertical and horizontal) and the area over which these occur.

Underpinning.

The new proposals require a reduced length of underpinning. This is likely to lead to a somewhat stiffer response from the superstructure and so a marginal reduction of movement may be expected. However, largely the local effects of the underpinning are unchanged by the revised proposals.

Foundation Loading + Retaining Wall Design.

In terms of an area load (kN/m^2), for the reduced area of basement, this does not change. Similarly, the retaining wall design is unaffected.

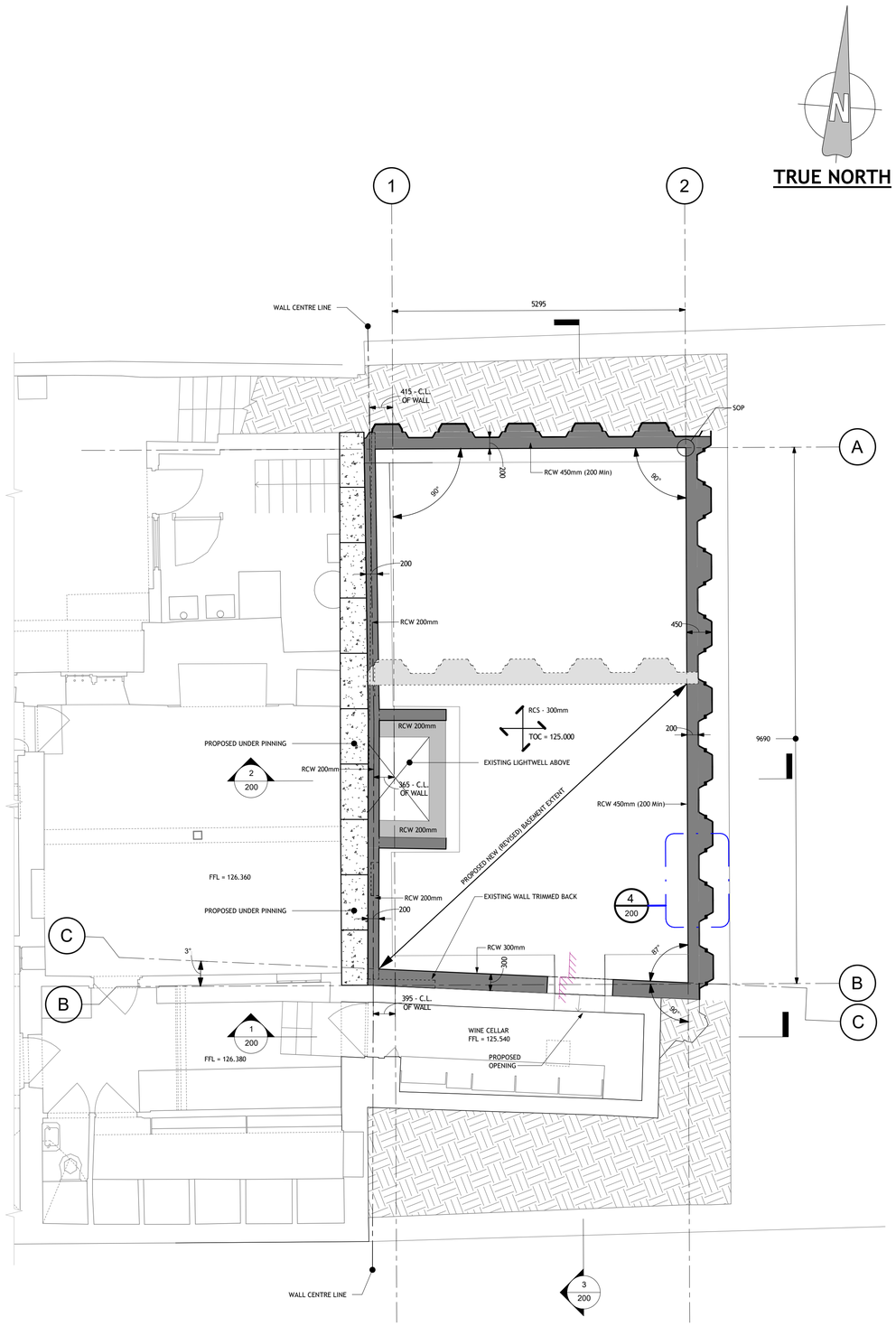
CONCLUSIONS.

This document has demonstrated that the effect of the revised basement proposal is to lessen its impact on the surroundings.

In conjunction with the original documents, duly “signed-off” by LBC’s advisor(s), this report, along with other submitted documentation, demonstrates that the proposed basement extension complies with Camden’s Local Plan 2017 Policy A5 ‘Basements’.

APPENDIX A

Drawing – Revised Basement Extent. Comparison with Original Plan.	073-TCE-XX-LG-D-S-250 (P1).



1 PLAN AS PROPOSED
1 : 50

Notes:

1. THIS DRAWING IS THE COPYRIGHT OF TIER CONSULT LTD AND CANNOT BE REPRODUCED IN ANY FORM WITHOUT WRITTEN CONSENT FROM THE COMPANY.
2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT ARCHITECT'S, ENGINEER'S AND SPECIALIST'S DRAWINGS TOGETHER WITH THE APPROPRIATE SPECIFICATION.
3. ALL DIMENSIONS ARE IN MILLIMETRES UNO. FOR THE PURPOSES OF CONSTRUCTION THIS DRAWING MUST NOT BE SCALED AND ONLY WRITTEN DIMENSIONS USED. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CHECK ALL DIMENSIONS ON SITE PRIOR TO CONSTRUCTION AND ANY DISCREPANCIES TO BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ENGINEER IN WRITING.
4. ALL LEVELS ARE IN METRES UNO & TO OS DATUM.
5. GRIDLINES 2, A & B DEFINED BY INTERNAL FACE OF WALLS. GRIDLINE 1 DIMENSIONED OFF GRIDLINE 2.

ABBREVIATIONS:

RCB	= REINFORCED CONCRETE BEAM.
RCC	= REINFORCED CONCRETE COLUMN.
RCS	= REINFORCED CONCRETE SLAB.
RCW	= REINFORCED CONCRETE WALL.
RCP	= REINFORCED CONCRETE PILECAP
WP RCW	= WATERPROOF REINFORCED CONCRETE WALL.
WP RCC	= WATERPROOF REINFORCED CONCRETE COLUMN.
RCU	= REINFORCED CONCRETE UPSTAND BEAM.
SE	= SLAB EDGE

DENOTES STEP IN SLAB SURFACE.

DENOTES TWO WAY SPANNING SLAB.

DENOTES ONE WAY SPANNING SLAB.

M&E SERVICE PENETRATION

Rev	Date	By	Description	Appd
P1	23/07/24	SCL	ISSUED FOR INFORMATION	JF

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Project Title :

No 4 THE GROVE, HIGHGATE, LONDON.

Drawing Title :

REVISED BASEMENT EXTENT COMPARISON WITH ORIGINAL PLAN

Scale at A1 : As indicated	Drawn By : SCL	Start Date : 23/07/24
Project No : SE-23-0073	Drawing Status : FOR INFORMATION ONLY	

Drawing No :

073-TCE-XX-LG-D-S-250 **P1**

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