CampbellReith
consulting engineers

15 Ranulf Road
London
NW2 2BT

Basement Impact Assessment
Audit

For

London Borough of Camden

Project Number: 12066-57
Revision: F1

January 2016

Campbell Reith Hill LLP
Friars Bridge Court
41-45 Blackfriars Road
London
SE1 8NZ

T:+44 (0)20 7340 1700
F:+44 (0)20 7340 1777
E:london@campbellreith.com
W:www.campbellreith.com

Document History and Status

Revision	Date	Purpose/Status	File Ref	Author	Check	Review
D1	December 2015	Comment	FMemb-12066-FM12066-57-301115-15 Ranulf Road-D1.doc	F Moghaddam	E Brown	E Brown
F1	January 2016	For Planners	FMemb12066-57-150116-15 Ranulf Road-F1.doc	F Moghaddam	E Brown	E Brown

Document Details

Last saved	20/01/2016 11:09
Path	FMemb12066-57-301115-15 Ranulf Road-F1.doc
Author	F. Moghaddam, BSc MSc
Project Partner	E. Brown, BSc MSc C.Geol FGS
Project Number	12066-57
Project Name	15 Ranulf Road, London, NW2 2BT
Planning Reference	2015/3594/P

Contents

Appendix

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 15 Ranulf Road, London NW2 2BT (planning reference 2015/3594/P). The basement is considered to fall within Category B as defined by the Terms of Reference.

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

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

1.4. The BIA and impact assessments have been prepared by well-known firms of engineering consultants using individuals who possess suitable qualifications.

1.5. The proposals include the deepening and lateral extension of an existing basement supported by means of underpinning and contiguous piles. The basement will be founded in the London Clay.

1.6. A single monitoring visit has indicated the ground water may be encountered during basement foundation excavation. However, the proposed mitigation measures in case of water flow into the excavation are accepted. However, water proofing is recommended for the basement walls.

1.7. It is accepted that there is no significant adverse impact on subterranean and surface water flows and the risk of flooding is low. There is increase in the area of hardstanding at the site and the scheme will incorporate attenuation measures with low flow control systems.

1.8. It is accepted that the surrounding slopes to the development site are stable. Additionally there are no impacts to tunnels or the other infrastructure.

1.9. It is noted that it is necessary to remove some conifers to permit the construction of the basement. It is justified that the tree removal would not have any considerable impact on the neighbouring foundations.

1.10. The initial BIA and appended documents only provided outline details of the proposals for the retaining walls, foundations and floor slabs. The design proposal and the method of construction was clarified in the updated BIA v1.3 and further discussions with the consultant engineers.

1.11. Supplementary information provided by the structural engineer has confirmed the intention to prop the piled retaining walls and underpins in the temporary and permanent cases in order to minimise potential ground movements.

1.12. Although there are some discrepancies in the Ground Movement Assessment, it is accepted that the level of damage to affected buildings should not exceed Category 2 on the Burland Scale assuming good control of workmanship and that the buildings are in sound condition.

1.13. It is recommended that condition surveys and movement monitoring is carried out for potentially affected buildings. These may be agreed as part of the Party Wall award.

1.14. A summary of the queries raised by the initial audit for further information is presented in Appendix 2. It is accepted that the revised BIA and supporting documents adequately identify the potential impacts from the basement proposals and provide sufficient mitigation.

2.0 INTRODUCTION

2.1. CampbellReith was instructed by London Borough of Camden (LBC) on 25 September 2015 to carry out a Category B Audit on the Basement Impact Assessment (BIA) submitted as part of the Planning Submission documentation for 15 Ranulf Road, London NW2 2BT. However, the audit was delayed until a full BIA and supporting documents were submitted on 9 November 2015.

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 deepening of an existing single storey basement under the footprint of the existing building extended partially into the rear garden.

2.6. In addition to the information provided by email on 9 November 2015, CampbellReith accessed LBC's Planning Portal on 30 November 2015 to gain access to other relevant documents. The following documents were reviewed for audit purposes:

- Basement Impact Assessment Report - v1.2
- Desk study and ground investigation report (DSGIR) - BIA - Part 1
- Ground movement assessment report (GMA) - Issue No 1
- Aboricultural report (V2) - (Contained in Development Site Report)
- Planning Application Drawings consisting of:

  - 15 Ranulf Rd_A2-00-01 - Existing Basement Plan
  - 15 Ranulf Rd_A2-00-02 - Existing Ground Floor Plan
  - 15 Ranulf Rd_A2-00-03 - Existing First Floor Plan
  - 15 Ranulf Rd_A2-00-04 - Existing Second Floor Plan
  - 15 Ranulf Rd_A2-00-05 - Existing Roof Plan
  - 15 Ranulf Rd_A2-01-01 - Proposed Basement Plan
  - 15 Ranulf Rd_A2-01-02 - Proposed Ground Floor Plan
  - 15 Ranulf Rd_A2-01-03 - Proposed First Floor Plan
  - 15 Ranulf Rd_A3-00-01 - Existing South Elevation
  - 15 Ranulf Rd_A2-01-04 - Proposed Second Floor Plan
  - 15 Ranulf Rd_A2-01-05 - Proposed Mezzanine Level
  - 15 Ranulf Rd_A2-01-06 - Proposed Roof Plan
  - 15 Ranulf Rd_A3-00-02 - Existing North Elevation
  - 15 Ranulf Rd_A3-00-03 - Existing West Elevation
  - 15 Ranulf Rd_A3-00-04 - Existing East Elevation
  - 15 Ranulf Rd_A3-00-05 - Existing Section A
  - 15 Ranulf Rd_A3-00-06 - Existing Section B
  - 15 Ranulf Rd_A3-01-01 - Proposed South Elevation
  - 15 Ranulf Rd_A3-01-02 - Proposed North Elevation
  - 15 Ranulf Rd_A3-01-03 - Proposed West Elevation
  - 15 Ranulf Rd_A3-01-04 - Proposed East Elevation
  - 15 Ranulf Rd_A3-01-05 - Proposed Section A
  - 15 Ranulf Rd_A3-01-06 - Proposed Section B

2.7. Subsequent to the initial audit; the following further information was received:

- Basement Impact Assessment Report - v1.3

3.0 BASEMENT IMPACT ASSESSMENT AUDIT CHECK LIST

Item	Yes/No/NA	Comment
Are BIA Author(s) credentials satisfactory?	Yes	
Is data required by Cl.233 of the GSD presented?	Yes	BIA report, desk study and ground investigation report, and arboricultural report
Does the description of the proposed development include all aspects of temporary and permanent works which might impact upon geology, hydrogeology and hydrology?	Yes	Desk study and ground investigation report
Are suitable plan/maps included?	Yes	BIA report; Appendix B, C, and D
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	BIA report, section 4, states that only a dead tree will be removed. The arboricultural report refers to the need to remove a number of live trees. However, the updated BIA report confirms that only a 5m tall ornamental tree will be felled which is already dead.
Hydrogeology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	BIA report; section 3
Hydrology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	BIA report; section 5, and appendix A
Is a conceptual model presented?	Yes	Desk study and ground investigation report; section 6
Land Stability Scoping Provided? Is scoping consistent with screening outcome?	Yes	BIA report; section 4.02

Item	Yes/No/NA	Comment
Hydrogeology Scoping Provided? Is scoping consistent with screening outcome?	Yes	BIA report; section 3.02
Hydrology Scoping Provided? Is scoping consistent with screening outcome?	Yes	BIA report; section 5.02
Is factual ground investigation data provided?	Yes	Desk study and ground investigation report
Is monitoring data presented?	Yes	Monitoring of the ground water levels has been carried out only once; however, further monitoring is recommended in the DSGIR.
Is the ground investigation informed by a desk study?	Yes	Desk study and ground investigation report; section 2.0
Has a site walkover been undertaken?	No	It is unclear whether a site walkover has been carried out or not.
Is the presence/absence of adjacent or nearby basements confirmed?	No	Desk study and Site investigation report; section 7.7.9 The existence of basements to the neighbouring properties has not been investigated although Section 4.04.9 of the updated BIA v1.3 speaks of the presence of an undercroft partial basement for No.13A Ranulf Road. The worst case scenario was adopted in the assessment of structural stability.
Is a geotechnical interpretation presented?	Yes	Desk study and ground investigation report; section 7.0
Does the geotechnical interpretation include information on retaining wall design?	Yes	Desk study and ground investigation report; section 7.1.2
Are reports on other investigations required by screening and scoping presented?	Yes	Aboricultural report and ground movement assessment
Are baseline conditions described, based on the GSD?	Yes	BIA report
Do the base line conditions consider adjacent or nearby basements?	Yes	Ground movement assessment and impact of the basement

Item	Yes/No/NA	Comment
		construction on the water flow regime is investigated through the scoping and impact assessment stages.
Is an Impact Assessment provided?	Yes	• Ground stability: Ground movement assessment report, • Hydrological and hydrogeological Impact: BIA report; section 3.04, and 5.04; and section 2.5, and 7.7 of the desk study and ground investigation report
Are estimates of ground movement and structural impact presented?	Yes	
Is the Impact Assessment appropriate to the matters identified by screen and scoping?	Yes	Hydrological and hydrogeological impact assessment, and ground movement assessment are provided
Has the need for mitigation been considered and are appropriate mitigation methods incorporated in the scheme?	Yes	• Tree removal; the updated BIA v1.3 confirms the presence of partial basement for the neighbouring property. Therefore, the removal of a 5m tall tree which is found to be already dead will not affect the surrounding basements which lie below the effective root depth. • Change in pavement area; hydro-brake and enlarged sewage pipes are recommended. • Groundwater level close to the proposed excavation depth; sump pumping is suggested.
Has the need for monitoring during construction been considered?	Yes	Ground movement assessment report; section 6.2 (Monitoring of ground movements on the neighbouring structures is going to be carried out before, during, and after construction).
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	Ground movement assessment report; section 6.1, and the appendices. Damage to neighbouring structures is estimated to be negligible to slight according to Burland scale.

Item	Yes/No/NA	Comment
Has the scheme avoided adversely affecting drainage and run-off or causing other damage to the water environment?	Yes	BIA report; section 5.04.1; SUDS measures will be employed in form of attenuation such as: • Lined permeable paving • Enlarged pipe-network
Has the scheme avoided cumulative impacts upon structural stability or the water environment in the local area?	Yes	
Does report state that damage to surrounding buildings will be no worse than Burland Category 2?	Yes	Ground movement assessment report; section 6.1, and 7.0
Are non-technical summaries provided?	Yes	• Construction method statement; Appendix E • Development proposal; BIA introduction

4.0 DISCUSSION

4.1. The Basement Impact Assessment (BIA) has been carried out by Michael Alexander Consulting Engineers and the individuals concerned in its production have suitable qualifications. The scoping and impact assessment stages referred to the desk study and ground investigation report were prepared by Geotechnical and Environmental Associates Limited (GEA) who also undertook the ground movement assessment. The authors have the necessary qualification and experience.

4.2. The property is a semi-detached house, linked to its neighbour by a garage. The proposed basement consists of deepening an existing single storey basement under the footprint of the property, and extending the basement beneath the rear garden. It is understood to be proposed that the majority of the basement will be formed through underpinning of the existing foundations, whilst a contiguous bored piled wall is the favoured option for supporting the new area of basement construction that extends beneath the existing patio in of the rear garden. It is not intended to extend the basement beneath the garage, hence the basement is approximately 2m from No 17 Ranulf Road. It is also around 2m from No. 13b Ranulf Road to the east of the site.

4.3. There is no specific mention of a site walkover in the documentation, but the nature of the site description suggests one was carried out. However, there is no description of nature and condition of neighbouring properties included, nor any information with respect to neighbouring foundations or basements. In the absence of significant groundwater flows, the assumption of shallow foundations is conservative.

4.4. It is noted that the groundwater has only once been measured during the site investigation, and that the desk study and ground investigation report recommends that monitoring continues. The BIA has confirmed that the proposed basement will be founded within Head Deposits, and it may or may not encounter the groundwater level. It is considered water inflows into the basement excavation should be slow and can be collected in sumps and pumped. The desk study and ground investigation report also states that the contractor should have contingency measures in place to deal with more groundwater flows. This is accepted.

4.5. The BIA screening and scoping have confirmed that the development will not impact on the wider hydrogeology and hydrology of the area, and is not in an area subject to flooding. Thames Water was contacted and confirmed that no history of sewer flooding was recorded on the site.

4.6. There will be a small increase in the paved area which may affect the surface runoff. It is proposed that this will be mitigated by the attenuation SUDS measures, such as lined permeable paving or an enlarged pipe-network.

4.7. The BIA screening has indicated no potential risk of slope instability due to the natural slope of the site or its surroundings. Also, no tunnels have been identified in the vicinity of the site.

4.8. The extension of the basement to the rear garden and creation of the light wells will necessitate the removal of conifer trees (Leyland Cypress) which are reported to exhibit signs of declining health. Further information was requested to ensure that the tree removal would not adversely affect the foundations of No 13b Ranulf Road. It was confirmed in the updated BIA v1.3 that the neighbouring property possesses an undercroft partial basement which lies below the active zone of the conifer roots, and hence no adverse impact is anticipated.

4.9. The site is located at about 4.5m from a public footpath. Ground movements at this distance are predicted to be negligible. This is accepted.

4.10. Underpinning with a 'hit and miss' approach is proposed for the deepening of the basement beneath the existing building. It is understood from the provided layout and structural drawings that the underpinning will extend to about 45.50m OD, where the underside of the new basement will be. It was further clarified in the updated BIA v1.3 and confirmed in the subsequent discussions with the consultant engineers that the excavation will be supported either by high stiffness props or by a 'top-down' construction method, as follows; "The sides of the front basement in the garden will be constructed from reinforced concrete piles bored from ground level. Temporary horizontal props will be installed at the top of the underpins, and permanent propping will be achieved in the form of steel beams spanning across the building. Alternatively, the ground floor concrete slab may be cast early and this area constructed top down".

4.11. Where the basement extends beyond the footprint of the current building, it will be constructed by reinforced contiguous piles bored from the ground level. A concrete capping beam will be constructed and propped at high levels across the corners of the excavation. Bulk excavation within the rear garden will be carried out within the perimeter formed by the reinforced concrete retaining walls, and the bottom surface will be immediately blinded. The basement raft slab will then be constructed and tied into the concrete underpins. It is suggested in the desk study and ground investigation report that the slab will need to be suspended to overcome potential heave and uplift forces. The Construction Method Statement notes that the basement slab beneath the existing house will be designed for heave and hydrostatic forces whilst drawing BIA 01 Rev B shows tension piles beneath the slab in the garden area. However, it was clarified in the updated BIA v1.3 report that the preferred method of construction would be a combination of a ground bearing slab with internal tension piles.

4.12. The depth of the piled walls is not indicated in the structural drawings. The assumed pile length in the ground movement assessment is 5m, whilst the desk study and ground investigation report suggests that piles will extend to 12m below the proposed basement. In addition to the

discrepancy over the pile length, the ground movement assessment is inconsistent with respect to sign convention in the evaluation of heave. However, it is accepted that predicted ground movements will be small. The ground movement assessment has predicted that damage to the site and its surrounding structures will not exceed Category 2 of Burland's damage scale. Heave movement resulting from excavation does not appear to have been included in the damage assessment. However, this is likely to offset settlement caused by the basement construction, consequently whilst the analysis is not consistent, the predicted damage category appears reasonable assuming good control of workmanship and that the affected properties are in sound condition.

4.13. In addition, a monitoring regime is proposed to be established and agreed through the Party Wall process to monitor the ground movements before, during, and after the basement construction. This will enable implementation of contingency plans such as further propping to ensure that acceptable movements are not exceeded.

5.0 CONCLUSIONS

5.1. The BIA and impact assessments have been carried out by well-known firms of engineering and geotechnical consultants using individuals who possess suitable qualifications.

5.2. The proposals include the deepening and lateral extension of an existing basement supported by means of underpinning and contiguous piles. The basement will be founded in the London Clay.

5.3. A single monitoring visit has indicated the ground water may be encountered during basement foundation excavation. However, the proposed mitigation measures in case of water flow into the excavation are accepted. However, water proofing is recommended for the basement walls.

5.4. It is accepted that there is no significant adverse impact on subterranean and surface water flows and the risk of flooding is low. There is increase in the area of hardstanding at the site and the scheme will incorporate attenuation measures with low flow control systems.

5.5. It is accepted that the surrounding slopes to the development site are stable. Additionally there are no impacts to tunnels or the other infrastructure.

5.6. It is noted that it is necessary to remove some conifers to permit the construction of the basement. It is justified in the updated BIA v1.3 report that the tree removal will not adversely impact the existing structures.

5.7. Supplementary information provided by the structural engineer has confirmed the intention to prop the piled retaining walls and underpins in the temporary and permanent cases in order to minimise potential ground movements.

5.8. Although there are some discrepancies in the Ground Movement Assessment, it is accepted that the level of damage to affected buildings should not exceed Category 2 on the Burland Scale assuming good control of workmanship and that the buildings are in sound condition.

5.9. It is recommended that condition surveys and movement monitoring is carried out for potentially affected buildings. These may be agreed as part of the Party Wall award.

5.10. It is accepted that the BIA and supporting documents adequately identify the likely impacts from the basement proposals and provide sufficient mitigation.

Appendix 1: Residents' Consultation Comments

None

Appendix 2: Audit Query Tracker

Audit Query Tracker

Query No	Subject	Query	Status	Date closed out
1	Stability	Structural design details of the proposed development are vaguely stated. Outline designs are to be provided for the piled walls, underpinning, floor slabs and propping with clearly stated assumptions with respect to soil and groundwater.	Closed. [Further information was provided in the updated BIA v1.3, and the proposed construction methodology was confirmed through the subsequent emails attached]	15/01/2015
2	Stability	The impact of tree removal on neighbouring properties should be assessed.	Closed. [Justification was provided in the updated BIA v1.3]	15/01/2015
3	Stability	Condition surveys and movement monitoring of potentially affected properties required.	To be agreed as part of Party Wall award	N/A

Appendix 3: Supplementary Supporting Documents

Dear Firoozeh,

Thank you for your e-mail yesterday. We further clarify our proposals as follows.

High stiffness propping is defined in CIRIA C580 (table 2.3) as either: -

‘Top down construction’; or

‘Temporary props installed before permanent props at high level’

As noted in clause E.05 of Appendix E,
“The sides of the basement in the garden will then be constructed from reinforced concrete piles bored from ground level. A concrete capping beam will be constructed on the piles and will be propped at high level across the corners of the excavation”

So the two options we have discussed are both ‘high stiffness propping’ as defined in CIRIA C580 designed to mitigate any ground movements.

We have designed and supervised many basement projects and always insist that the Contractor either props the piled walls via temporary props or constructs the basement top down. They do not have any other choice in the matter. We also make it clear that control against any movement is a prime concern and draw their attention to the principles we have set out in the BIA.

We have found that some contractors prefer to prop whereas others prefer top down construction, depending on site constraints and their experience. Top down is where the lid of the basement is cast early thereby providing the permanent (and temporary) propping to the structure.

We also insist via a Movement Monitoring Specification that the temporary props, retaining walls and adjacent buildings are regularly monitored as mentioned in BIA Clauses 4.04.8, E03 and E04.

Regards

Aidan Rivett-Carnac
BEng(Hons) CEng (MIStructE)

MichaelAlexander

Michael Alexander Consulting Engineers
Foundation House
4 Percy Road
London
N12 8BU

tel +44 (0)20 8445 9115
email aidan@maengineers.com
web www.maengineers.com

From: FiroozehMoghaddam@campbellreith.com [mailto:FiroozehMoghaddam@campbellreith.com]
Sent: 13 January 2016 16:48
To: Aidan Rivett-Carnac <Aidan@maengineers.com>
Cc: Fiona.Davies@camden.gov.uk; LizBrown@campbellreith.com
Subject: Re: P2985: Inquiries about 15 Ranulf Road BIA v1.3

Dear Aidan

Thanks for clarification on the construction methodology of the rear garden foundation. However, we are still concerned with your answer to our 2nd inquiry.

According to CPG4 section 3.30, it is the developer's responsibility to ensure adverse ground movement and/ or instability to neighbouring properties is guarded against through proper investigation and design of mitigation measures at planning stage if Burland category of '1' or higher is identified.

The provided ground movement assessment has already reported a damage category of '2' for No. 13 Ranulf Road, based on 'high-stiffness' excavation.

The BIA should contain a ground movement assessment that reflects the proposed construction methodology. Should the contractor be willing to opt out the 'permanent' propping option (i.e. high-stiffness), justification needs to be provided.

Kind Regards,
Firoozeh Moghaddam

Geotechnical Engineer

CampbellReith
consulting engineers

Friars Bridge Court,
41-45 Blackfriars Road,
London
SE1 8NZ

Tel +44 (0)20 7340 1700
www.campbellreith.com

From: Aidan Rivett-Carnac <Aidan@maengineers.com>
To: "FiroozehMoghaddam@campbellreith.com" <FiroozehMoghaddam@campbellreith.com>
Cc: Isaac Hudson <Hudson@maengineers.com>, Russell Craig <Craig@maengineers.com>
Date: 12/01/2016 17:15
Subject: P2985: Inquiries about 15 Ranulf Road BIA v1.3

Dear Firooze,

15 RANULF ROAD BIA V1.3

I refer to your e-mail below and respond as follows using your numbering.

1. The existing ground levels slope from front to rear. There is also an existing cellar beneath the existing house. Consequently there is not much uplift beneath the house as we will only be excavating in the order of 1 metre. We have therefore concluded that the ground bearing raft beneath the house can be economically designed without the need for tension piles in this area. The weight of the house overhead will also provide adequate ballast against uplift forces. The basement raft in the rear garden however is different in that it will be excavated to depth and the lid of the basement will be daylighting above the ground. Consequently we do not have any soil weight above the structure to provide ballast. The heave forces in the rear area have been calculated and we have assessed that the most economic design for the basement raft in this area will be to have a single row of tension piles centrally. See attached BIA01The perimeter contiguous piles will also be designed for tension.

2. The method of construction of the top slab in the rear garden will be to the Contractors choice. In the BIA Construction Method Statement Section E.06 we state:-

"Temporary Horizontal props may be installed between the piled walls in the rear garden. Alternatively and depending on the Contractors preference, the ground floor concrete slab may be cast early and this area constructed top down. The slab thereby providing the permanent and temporary horizontal propping required."

Whether in the temporary or permanent case the walls will be effectively propped either by temporary props or the basement lid slab so the piles and retaining walls will be designed as propped cantilevers. The calculation F3.6.1 was included to establish the order of magnitude of the horizontal prop force which had been requested earlier.

We trust this clarifies our proposals.

Regards

Aidan Rivett-Carnac

Michael Alexander Consulting Engineers
Foundation House
4 Percy Road
London
N12 8BU

tel +44 (0)20 8445 9115
email aidan@maengineers.com
web www.maengineers.com

From: FiroozehMoghaddam@campbellreith.com [mailto:FiroozehMoghaddam@campbellreith.com]
Sent: 11 January 2016 09:57
To: Aidan Rivett-Carnac
Subject: Inquiries about 15 Ranulf Road BIA v1.3

Dear Aidan

We have received the updated BIA v1.3 report for 15 Ranulf Road; however, there are still a few queries remaining;

1. With regard to the slab construction proposal, section 4.04.3 suggests that the ground bearing slab will be designed to overcome possible uplift, and F3 refers to the presence of tension piles. Could you please confirm whether any tension pile is intended to be designed.
2. The construction method suggests a top down construction with both permanent and temporary propping, whilst section F3.6.1 refers to design of 'cantilever' walls! Could you clarify the type of the wall?

Thanks

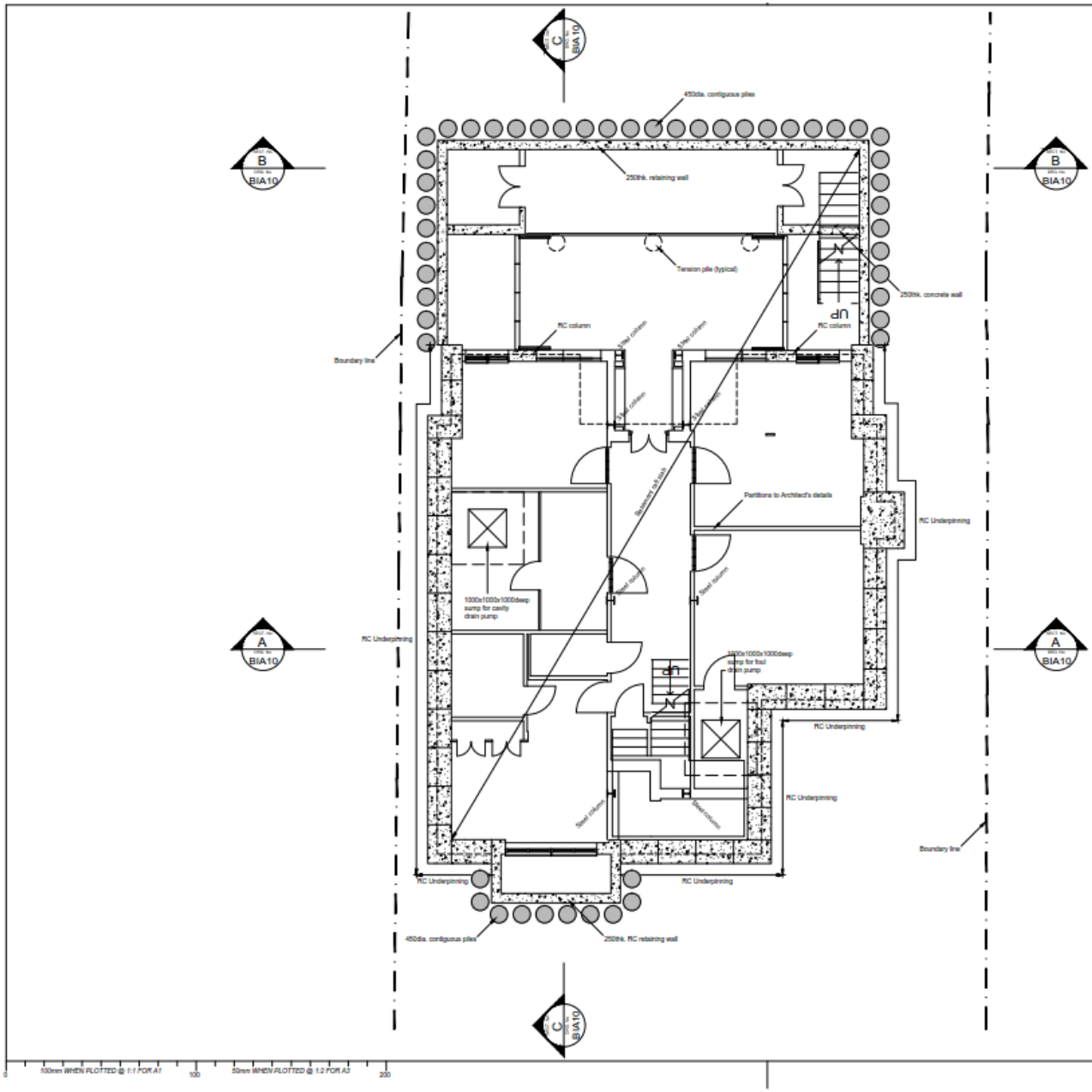
Kind Regards,
Firooze Moghaddam

Geotechnical Engineer

CampbellReith
consulting engineers

Friars Bridge Court,
41-45 Blackfriars Road,
London
SE1 8NZ

Tel +44 (0)20 7340 1700
www.campbellreith.com



0 100mm WHEN PLOTTED @ 1:1 FOR A1 100 50mm WHEN PLOTTED @ 1:2 FOR A3 200

NOTES

1. This drawing shall be read in conjunction with all relevant Architects & Engineers drawings and specifications.
2. Do not scale any dimensions. All dimensions are in millimetres and to be checked on site.

Rev.	Date	Description	By
A	12.06.15	For basement impact assessment	RJC

FOR BIA

Architect
ARCHIAL NORR

Project Title
15 RANULF ROAD
LONDON NW2

Drawing Title
BASEMENT
GENERAL ARRANGEMENT

[redacted]

Drawn	RJC June 15
Checked	ARC June 15
Scale	1:50 1:100
Size	A1 A3
Project No.	P2985
Drawing No.	BIA01
Rev.	A

London

Friars Bridge Court
41- 45 Blackfriars Road
London, SE1 8NZ

T: +44 (0)20 7340 1700
E: london@campbellreith.com

Birmingham

Chantry House
High Street, Coleshill
Birmingham B46 3BP

T: +44 (0)1675 467 484
E: birmingham@campbellreith.com

Surrey

Raven House
29 Linkfield Lane, Redhill
Surrey RH1 1SS

T: +44 (0)1737 784 500
E: surrey@campbellreith.com

Manchester

No. 1 Marsden Street
Manchester
M2 1HW

T: +44 (0)161 819 3060
E: manchester@campbellreith.com

Bristol

Wessex House
Pixash Lane, Keynsham
Bristol BS31 1TP

T: +44 (0)117 916 1066
E: bristol@campbellreith.com

UAE

Office 705, Warsan Building
Hessa Street (East)
PO Box 28064, Dubai, UAE

T: +971 4 453 4735
E: uae@campbellreith.com