CampbellReith
consulting engineers

207 Sumatra Road
NW6 1PF

Basement Impact Assessment
Audit

For

London Borough of Camden

Project Number: 12727-96
Revision: F1

April 2019

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Document History and Status

Revision	Date	Purpose/Status	File Ref	Author	Check	Review
D1	August 2018	Comment	Vprm12727-96-100818-207 Sumatra Road-D1.doc	V. Pseneac	R. Morley	R. Morley
F1	March 2019	Planning	Vprm12727-96-030419-207 Sumatra Road-F1.doc	V. Pseneac	E M Brown	E M Brown

Document Details

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Project Partner	E M Brown, BSc MSc CGeol FGS
Project Number	12727-96
Project Name	207 Sumatra Road, NW6 1PF
Planning Reference	2018/0029/P

Contents

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 207 Sumatra Road, London (planning reference 2018/0029/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 has been prepared by Soarboand Ltd and the author's qualifications generally conform with Camden requirements.

1.5. The structural proposals comprise underpinning of existing Party Wall foundations and the construction of front and rear lightwells, using the same methodology.

1.6. A site specific investigation was not undertaken initially. This was requested and carried out at a later time confirming the soil stratigraphy and levels of existing foundations.

1.7. The BIA reports that any damage that may occur due to development proposals is anticipated to be no worse than Category 1 (very slight). However, this has not been substantiated with a quantitative assessment.

1.8. Whilst monitoring of significant cracks in Party Walls is suggested in the BIA, a more robust movement monitoring strategy will need to be implemented before construction.

1.9. Evidence of consultation with Network Rail has been provided demonstrating that they do not have an interest in the area.

1.10. It is accepted that the development proposals will not impact on the wider water environment of the area and there are no slope stability concerns at the site.

1.11. Given the above, it cannot currently be confirmed that this BIA meets the requirements of CPG Basements.

2.0 INTRODUCTION

2.1. CampbellReith was instructed by London Borough of Camden (LBC) on 18 May 2018 to carry out a Category B Audit on the Basement Impact Assessment (BIA) submitted as part of the Planning Submission documentation for 207 Sumatra Road, London NW6 1PF, 2018/0029/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.
- 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;

d) 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 to provide depth to basement floor level beneath footprint of existing dwelling". The Audit Instruction also confirmed that the development neither involved nor was a neighbour to listed buildings.

2.6. CampbellReith accessed LBC's Planning Portal on 3rd August 2018 and gained access to the following relevant documents for audit purposes:

- Basement Impact Assessment Report (BIA)
- Construction Method Statement
- Planning Application Drawings consisting of:

  Location Plan

  Existing Plans

  Proposed Plans

- Design & Access Statement
- Detailed Specification for Basement Extension

Supplementary information has been received in response to queries raised by CampbellReith.

- Structural Calculations rev. A dated September 2018
- Soils Report dated October 2018 and December 2018
- Revised BIA (dated October 2018)

3.0 BASEMENT IMPACT ASSESSMENT AUDIT CHECK LIST

Item	Yes/No/NA	Comment
Are BIA Author(s) credentials satisfactory?	Yes	Although the author appears to be a Chartered Engineer with ICE, no evidence of his experience in engineering geology has 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?	No	Maps found Camden SFRA and GSD by Arup do not appear to have been consulted. Reference has not been made to the "Lost Rivers of London" map by Burton.
Do the plans/maps show the whole of the relevant area of study and do they show it in sufficient detail?	Yes	Only applicable to those maps that have been included in the BIA.
Land Stability Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	No	GSD maps not consulted.
Hydrogeology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	No	
Hydrology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Although Camden SFRA and GSD maps have not been consulted, maps available on Geological Society's online resource have been included.
Is a conceptual model presented?	Yes	Historic borehole data relating to nearby sites has been referenced. Subsequent SI carried out and soil interpretation provided.

Item	Yes/No/NA	Comment
Land Stability Scoping Provided? Is scoping consistent with screening outcome?	Yes	BIA Ch. 3.3.
Hydrogeology Scoping Provided? Is scoping consistent with screening outcome?	Yes	BIA Ch. 3.2
Hydrology Scoping Provided? Is scoping consistent with screening outcome?	Yes	BIA Ch. 3.2
Is factual ground investigation data provided?	Yes	Limited information based on data relating to historic boreholes undertaken in the vicinity to site. Site specific investigation subsequently carried out with limited geotechnical interpretation.
Is monitoring data presented?	Yes	Site specific investigation carried out – see Soils Report.
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?	No	No information relating to neighbouring basements has been included in the BIA.
Is a geotechnical interpretation presented?	Yes	Limited interpretation presented (see Soils Report).
Does the geotechnical interpretation include information on retaining wall design?	Yes	See calculations.
Are reports on other investigations required by screening and scoping presented?	No	
Are the baseline conditions described, based on the GSD?	Yes	
Do the base line conditions consider adjacent or nearby basements?	No	No information on adjacent/nearby basements presented.

Item	Yes/No/NA	Comment
Is an Impact Assessment provided?	Yes	
Are estimates of ground movement and structural impact presented?	No	Estimated settlements presented in the calculations. No strain calculations have been presented to demonstrate that damage will not exceed Burland Category 1.
Is the Impact Assessment appropriate to the matters identified by screen and scoping?	Yes	
Has the need for mitigation been considered and are appropriate mitigation methods incorporated in the scheme?	No	
Has the need for monitoring during construction been considered?	Yes	Monitoring mentioned in BIA Ch. 10. Additional details relating to the monitoring strategy will be required as outline in Section 4.
Have the residual (after mitigation) impacts been clearly identified?	N/A	
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 report state that damage to surrounding buildings will be no worse than Burland Category 1?	Yes	BIA Ch. 4.5. However, the statement is not substantiated by any strain calculations.

Item	Yes/No/NA	Comment
Are non-technical summaries provided?	No	

4.0 DISCUSSION

4.1. The Basement Impact Assessment (BIA) has been carried out by Soarboand Ltd. The author's credentials indicate that he is Chartered Engineer and is a member of the Institution of Civil Engineers. Whilst no evidence, demonstrating the author's experience in hydrogeology, has been provided in the BIA, it is accepted that the site hydrogeology is unlikely to be affected by the proposals as the site is not underlain by an aquifer.

4.2. The LBC Instruction to proceed with the audit identified that the basement proposal neither involves nor neighbours a listed building.

4.3. The redevelopment proposals include plans to extend and lower the existing single storey basement and the construction of front and rear lightwells.

4.4. It is noted that the proposals were initially informed by a desktop study, with no site investigation undertaken. The BIA includes historic borehole data available on the British Geological Survey online portal. The historic ground investigations, referenced in the BIA, were carried out at sites located approximately 300m from the proposed development in 1950s. The BIA does not interpret the historic borehole data in sufficient detail and does not identify the thickness of the Made Ground. However, it discusses the likely formation encountered, based on this data, and confirms that London Clay is the main formation likely to be encountered on site. It also states that no lenses of silt or gravel were documented in the top 8m.

4.5. A site specific investigation was subsequently carried out and the soil, groundwater and levels of existing foundations confirmed. The investigation concluded that the basement would be founded within London Clay, which underlies an approximately 1m deep layer of made ground.

4.6. The BIA discusses groundwater and concludes "the difficulties of working in ground that could be subject to excessive water penetration, soil instability and, thus weakening the platform for construction is completely absent here". Considering the findings of the site investigation, it is accepted that groundwater is unlikely to be an issue during construction. However, it may be prudent to make an allowance for temporary dewatering should any perched water within the be encountered Made Ground.

4.7. The BIA recommends that a safe bearing pressure of 170kPa is used at 4.0m bgl, based on Standard Penetration Testing (SPT) values recorded during the SI. It is noted that the results of the SPTs are not clearly presented in the BIA.

4.8. The ground investigation presented the borehole stratigraphy, which identifies very stiff clay at 1.0m bgl. This would suggest that the maximum anticipated characteristic bearing stress of

110kPa, as indicated in the structural calculations, is unlikely to exceed the allowable bearing capacity.

4.9. The engineering proposals involve the "excavation to provide additional depth to basement floor level beneath footprint of existing dwelling" and construction of front and rear lightwells. "Hit and miss" underpinning, approximately 1.4m deep, is proposed to be adopted throughout. It is noted that the sequence of underpinning is described in the Construction Method Statement. The engineering drawings indicated a new basement slab, 250mm in thickness, and the BIA confirmed that the underpins would be designed as "reinforced concrete cantilevers" with a minimum thickness of 200mm. The basement construction assumes appropriate propping of walls and excavated sections at all times during construction and this should be implemented. It is recommended that the drawings are amended to indicate underpins numbered according to the "hit and miss" sequence described in the method statement and not sequentially. Outline calculations demonstrating the structural feasibility of the main retaining elements were not originally provided. However, these were later presented upon request and are accepted.

4.10. The BIA has not included a detailed assessment of the subterranean flow. However, the screening stage identified that there will be no impact on the site hydrogeology, due to geology conditions at the site, and this is accepted.

4.11. A quantitative assessment demonstrating anticipated ground movement during construction had not been initially carried out. Calculations were subsequently received which presented estimated settlements of the proposed underpins. It is noted that the values presented are very small and accepted as theoretical only. During the construction of the underpins, larger settlements may be expected to occur.

4.12. A numerical assessment establishing likely material strains generated during construction, which could be used to demonstrate structural damage no worse than Burland Category 1, has not been undertaken. Despite the nominal depth of underpinning proposed and relatively small scale of redevelopment plans, this is a requirement by CPG Basements that has not been addressed.

4.13. Whilst the groundwater levels have been identified to be below the basement level, it may be prudent to consider any possible hydrostatic pressure when designing the raft slab.

4.14. The BIA discusses the additional area of hardstanding due to development proposals. The report confirmed that there would be a 4% increase in area of hardstanding at the rear garden and approx. 50% at the front garden. However, the additional impermeable due to front lightwell construction amounts to approximately $3m^2$, according to the BIA. Therefore, it is accepted that the increase in surface water runoff due to additional impermeable area is insignificant; however, approval from Thames Water or other stakeholders may be required.

4.15. The BIA discusses movement monitoring of neighbouring structures and indicates that significant cracks with a width greater than 3mm should be assessed. However, it is unclear whether the BIA refers to existing or new cracks that may form. Additional information referring to movement of neighbouring structures, trigger levels, and frequency of recording should be included in the monitoring strategy. This is to be submitted to CampbellReith.

4.16. The assessment confirmed that the site is not located in an area subject to risk of flooding. This conclusion is supported by maps showing the site in context of flood risk due to rivers, surface water and reservoirs. Although Camden SFRA and GSD have not been consulted by the BIA, it is accepted that the development has a low risk of flooding.

4.17. The BIA discusses slopes on and around the site. It states in ch. 1.2 that "the site has a pronounced slope down from the front of the property towards the west" but also confirms in ch. 3.3 that the site does not include slopes greater than 7°. With reference to slope angle maps, available in GSD, it is accepted that there are no slopes greater than 7°.

4.18. It is noted that the rail line, located in close proximity to site, has not been considered by the BIA initially. Following a request by CampbellReith, evidence of correspondence with Network Rail (NR) was provided. This confirmed that the proposed redevelopment plans had no impact on NR infrastructure.

5.0 CONCLUSIONS

5.1. The BIA has been carried out by Soarboand Ltd. The author's credentials are considered to be satisfactory for the purposes of this BIA.

5.2. It has been confirmed that the development does not involve any listed buildings.

5.3. The redevelopment proposals include plans to extend and lower the existing single storey basement and construction of front and rear lightwells.

5.4. A site specific investigation has been carried out which established the soil and ground conditions, and level of existing foundations.

5.5. Outline calculations demonstrating design feasibility of the main retaining elements have been requested following initial audit. These were subsequently received and are accepted.

5.6. Although the BIA reports that groundwater inflows are not anticipated during basement construction, it may be prudent that contingency measures are allowed for to deal with these.

5.7. Estimates of settlements of underpinned walls have been included in the BIA, which are very small. The Burland Damage Category has not been demonstrated using numerical assessment of material strains caused by the excavation for and construction of the underpins.

5.8. It is recommended that the proposed basement drawings are amended to show the underpins numbered in line with the order of construction and not sequentially.

5.9. The BIA confirmed that the increase in surface water discharge due to development proposals is anticipated to be insignificant and this is accepted.

5.10. A movement monitoring strategy, indicating frequency of recordings and trigger levels compatible with the ground movement assessment, has not been presented.

5.11. It is accepted that the development is unlikely to impact on the wider hydrogeology of the area and is not in an area subject to flooding.

5.12. It is accepted that there no site slope stability concerns.

5.13. Evidence of correspondence with Network Rail have been provided confirming that their infrastructure would be unaffected by the proposals.

Appendix 1: Residents' Consultation Comments

None

Appendix 2: Audit Query Tracker

Audit Query Tracker

Query No	Subject	Query	Status	Date closed out
1	Stability	Calculations relating to the design of the main retaining elements will be required (e.g. retaining wall design, estimated horizontal movements demonstrating stability of public highway and any buried services).	Open – calculations relating to retaining wall design and settlements have been provided. However, no calculations have been presented relating to material strains to substantiate the Burland Damage Category advised in the report.	
2	Stability	Appropriate site specific investigation will be required to ascertain thickness of made ground, general site conditions and level of Party Wall foundations.	Closed – site investigation carried out	22.11.2018
3	Stability	Evidence of correspondence will be required to demonstrate whether or not Network Rail have an interest in the development proposals.	Closed – evidence of correspondence provided	22.11.2018
4	Stability	A movement strategy detailing the frequency of recording and trigger levels, which are compatible with the ground movement assessment, should be implemented before the commencement of construction activities on site.	Note	N/A
5	Stability	Foundation drawings to be amended such that the numbering of the underpins reflect the construction sequence.	Open.	

Appendix 3: Supplementary Supporting Documents

Note: Refer to LBC online planning portal for revised BIA documentation. E-mail correspondence relating to queries raised by CampbellReith and response provided by the applicant's Engineer have been appended only.

2018/0029/NEW.

SOARBOND LTD.

Consulting Engineers

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W.K.J.Zablocki BSc. C.Eng. MICE
T. Zablocka MSc. Chem Eng.

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The Head of Planning,
Planning Department,
London Borough of Camden,
5, Pancras Square,
London N1C 4AG.

Job No. 1381
file1381lbc111217

11th. December 2017,

Dear Sir,

Planning Consent Application for an extended basement at 207 Sumatra Road, London, NW6 1PF. Householder Application.

We enclose four copies of your completed Householder Planning Application Form for an extension at basement level for a house in a " Non Conservation " Area in West Hampstead.

Attached are four copies of our up to date drawings 1381 / 01 to 09 for the existing details and / 11 to 17 indicating the proposed works etc. as well as /31 and /32 showing two proposed sections through the house. Each application form has a design and access statement attached to it and these combined documents form a booklet for your easier reading.
A cheque for £172.00p, being the fee that we understand is the current fee for such householder applications, is enclosed.

A CIL completed form is also attached for your use. We have not completed a Basement Impact Assess as the basement is only being increased in existing size, the area has a greatly reduced level where the train lines occur on the other side of the rear boundary line and, so, the area is **not subject** to flooding, ground water problems, perched water table or the like.

As the site cannot be viewed adequately from the footpath, we ask that the planner contacts us and arranges a site visit.

We look forward to an early contact with your department.

Yours faithfully,

WKJ Zablocki,
Director. Copies : File 1381lbc111217 - Client; Prof. Kerry Hamilton..

Network Rail

Kerry Hamilton
207 Sumatra Rod
London
Greater London
NW6 1PF

Tel:
Fax:
Mob: 07961 389 522

Our ref: WB40665
Date: 16/11/2018

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Asset Protection(LNE/EM)
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Mob: 077 0948 3135
Fax: 020 75579090
Jakeer.Mohammad@networkrail.co.uk

Initial Meeting Review

Location: 207 Sumatra Road, London

Work type: Basement Extension

Dear Kerry,

I refer to your initial site received on 02/11/18 In respect of the following work:

Basement Extension

I confirm that following on from your initial meeting with both Jakeer Mohammad and Kudzai Makuku and based on both the plans submitted to us as well as what was agreed at the meeting, Network Rail Asset Protection requires no further involvement in this scheme as there is no impact on our infrastructure.

This acceptance does not constitute acceptance of liability of Network rail for any accident, incident or breach of statute, which might arise from the planned method of works adopted.

Any subsequent variation to the proposed work package plan must be accepted by the nominated representative of the Senior Programme Manager (Asset Management), Network rail. This will normally be the appropriate Construction Manager.

Any such variations must be formally recorded and signed by both parties. Any significant variations will require a fully revised Method Statement, which must be accepted 10 days before the commencement of work.

Yours sincerely

On behalf of
Jakeer Mohammad
Construction manager
Asset management, Network rail

SOARBOND LTD.

Consulting Engineers

Directors:
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Mr. V. Psenaec,
Campbell Reith Hill LLP,
Friars Bridge Court,
41 - 45 Blackfriars Road,
LONDON SE 1 8 NZ.

Job No. 1381
file1381lbc211018

20th. October 2018,

Dear Mr. Psenaec,

Planning Consent Application for an extended basement at 207 Sumatra Road, London, NW6 1PF. Householder Application reference Camden's Reference 2018 / 0029 / NEW. Your Reference : 12727 -96

I refer to the Basement Impact Assessment Audit that you carried out in August for the above basement redevelopment at 207 Sumatra Road, NW6.

Your Audit requested three further actions that we, as Agents for the Planning Applicant, Professor Kerry Hamilton, should carry out. The three actions were to:-

a/ carry out a basement structure design and show that the settlement of the whole new raft foundation would be within acceptable limits.

b/ issue to you and London Borough of Camden (LBC) a site specific soil survey with a covering report to show that the sub strata material is monolithic brown and blue London Clay. We consider that the sub strata will be easily excavated and removed from site whilst the formation of the new foundation raft will be easily carried out with low risk.

c/ a letter from Network Rail that the construction of an extension to an existing basement under a terraced house some 25 metres from their railway line asset will have no detrimental effect on their operations etc.

One copy of the paperwork for both a/ and b/ listed above is attached to this package. A letter from Network Rail is outstanding and will be sent once it is to hand. The two documents have been sent to LBC DIRECTLY for their information and use for the attention of Mr. Gideon Whittingham.

Yours sincerely,

WKJ Zablocki,
Director.

Copies : File; 1381lbc100718
Client; Prof. Kerry Hamilton.
LBC; Mr. G. Whittingham.

RE: 2018/0029/P 207 Sumatra Road

Whittingham, Gideon to: ValeriuPseneac@campbellreith.com 25/02/2019 13:41

History: This message has been replied to.

Val,

Please see attached.

Regards

Gideon Whittingham
Senior Planner

Telephone: 020 7974 5180

From: ValeriuPseneac@campbellreith.com <ValeriuPseneac@campbellreith.com>
Sent: 12 February 2019 17:00
To: Whittingham, Gideon <Gideon.Whittingham@camden.gov.uk>
Cc: camdenaudit@campbellreith.com
Subject: RE: 2018/0029/P 207 Sumatra Road

Hi Gideon,

We have not seen a response to our most recent queries, as listed below. Has the applicant seen these?

Kind regards,
Val

Valeriu Pseneac
Senior Engineer

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From: "Whittingham, Gideon" <Gideon.Whittingham@camden.gov.uk>
To: "ValeriuPseneac@campbellreith.com" <ValeriuPseneac@campbellreith.com>
Cc: "camdenaudit@campbellreith.com" <camdenaudit@campbellreith.com>
Date: 12/02/2019 15:36
Subject: RE: 2018/0029/P 207 Sumatra Road

Hello Val,

What's the likelihood a final audit could be provided before 26th February?

Regards

Gideon Whittingham
Senior Planner

Telephone: 020 7974 5180

From: ValeriuPseneac@campbellreith.com <ValeriuPseneac@campbellreith.com>
Sent: 22 January 2019 12:12
To: Whittingham, Gideon <Gideon.Whittingham@camden.gov.uk>
Cc: camdenaudit@campbellreith.com
Subject: RE: 2018/0029/P 207 Sumatra Road

Hi Gideon,

Thanks for your e-mail.

Further to our telephone conversation before Christmas, I note that some of the responses are convoluted and unclear. However, we have accepted a number of these but we also have minor further queries in relation to some of the items, which we are hoping to close. This will then enable us to amend and issue the final audit report.

With reference to the responses provided by Soarbond (see attached), please see our comments below:

1. Response noted. No further comments.
2. We note that our query relates to concerns about the movement of cross-walls/spine walls within the neighbouring property. As the party wall is underpinned, settlement of the walls during construction and of subsequent underpins may cause movement in the walls running orthogonally to the party walls. Whilst we acknowledge that the settlement of the underpins may not be large, subject to good workmanship, this is likely to exceed the suggested settlement values of 2.38mm and 0.8mm respectively. Therefore, please confirm that this movement is unlikely to impact on the neighbouring properties' walls.
3. Response noted. No further comments.
4. Response noted. No further comments
5. Response noted. Please confirm that there are no trees planned for removal that may impact on the clay behaviour. I also note that a response was not provided to explain how the Dynamic Probe (DP) results and Perth Penetrometer results to be interpreted.
6. We understand that the screening is correct and the SI report may be inaccurate.
7. We understand that an allowable bearing capacity of 110kPa has been assumed for calculation purposes. Whilst this is not an unreasonable assumption for stiff clays, "N" values are discussed both in the calculations and in the responses provided. This suggest that a Standard Penetration Test has been carried out as part of the in-situ testing. Can it please be confirmed if this is the case and what N values have been recorded.
8. We note that your response will be included in the audit report. It will then be up to the Party Wall Surveyor to approve final design/calculations.

Feel free to give me a call if you with to discuss any of the above.

Kind regards,
Val

Valeriu Pseneac
Senior Engineer

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From: "Whittingham, Gideon" <Gideon.Whittingham@camden.gov.uk>
To: "ValeriuPseneac@campbellreith.com" <ValeriuPseneac@campbellreith.com>
Cc: "camdenaudit@campbellreith.com" <camdenaudit@campbellreith.com>
Date: 12/12/2018 15:06
Subject: RE: 2018/0029/P 207 Sumatra Road

Val,

Please see attached email response from agent.

Regards

Gideon Whittingham
Senior Planner

Telephone: 020 7974 5180

From: ValeriuPseneac@campbellreith.com<ValeriuPseneac@campbellreith.com>
Sent: 06 December 2018 10:17
To: Whittingham, Gideon <Gideon.Whittingham@camden.gov.uk>
Cc: camdenaudit@campbellreith.com
Subject: RE: 2018/0029/P 207 Sumatra Road

Good morning Gideon,

We have reviewed the supplementary information submitted by the applicant and noted the following :

1. It appears that the underpinning will be deeper than stated in the BIA - approx. 2m and not 1.4m.

Can it be confirmed whether the original design and construction methodology is still applicable. The BIA will need to be amended to reflect this.
2. Whilst it is unlikely that there will be appreciable horizontal movement of the underpins, there will be settlement that may affect the cross walls tying into the underpinned walls. Does the applicant have experience to confirm the likely magntitude of any such settlement and how that might affect the underpinned walls or neighbouring cross walls to justify his assumption of anticipated damage Burland Category 0?
3. Page no. 5 of the SI report ("Discussion of Site Conditions") appears to indicate a foundation depth of 4m. Can the applicant please confirm where this applies? This would imply that the underpinning will be deeper than 2m, An assessment of the likely horizontal movement and confirmation of structural damage and impact on highway will likely be required, should this be the case.
4. The procedure described as cable percussion boreholes, with undisturbed samples and SPTs. That is not what has been presented. Ashdown SI have undertaken windowless sampler holes with no undisturbed samples or SPTs. Can the report be amended accordingly?
5. It is noted that in-situ testing comprises hand shear vane, pocket penetrometer and "Perth Probe" dynamic probing. The report indicates that vane and penetrometer results are for undrained shear strength in kPa. In this case, these would suggest severe desiccation to the base of the exploratory hole. How are the Dynamic Probe (DP) results and Perth Penetrometer results to be interpreted? If DP results can be related to SPT N values, they suggest firm clay at best.
6. The "Description of Site Conditions" in the SI records "Kempton park Formation" overlying the London Clay, which contradicts the screening assessment. The report also states that the results indicate cohesive materials to have low to medium Plasticity Index (PI) and therefore not critical to the preparation of the foundation data. This is not the case - the results show very high plasticity and high volume change potential, which needs to be assessed and given consideration by the design.
7. Clarification is required on the following statement - "safe working N values should be considered as 130kN/m2 at 1m depth and 170kN/m2 at 4m depth".
8. With regards to the retaining wall calculations, it is noted that an active earth pressure coefficient(ka) of 0.35 has been used, suggesting an angle of shearing resistance (phi) of circa 30 deg. The PI results suggest that phi is likely to be close to 20-22 deg resulting in ka of circa 0.5. The calculations will need to consider this.

I look forward to receiving responses to the queries raised above.

Thanks and regards,
Val

Valeriu Pseneac
Senior Engineer

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consulting engineers

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From: "Whittingham, Gideon" <Gideon.Whittingham@camden.gov.uk>
To: "LizBrown@campbellreith.com" <LizBrown@campbellreith.com>
Cc: "camdenaudit@campbellreith.com" <camdenaudit@campbellreith.com>, "ValeriuPseneac@campbellreith.com" <ValeriuPseneac@campbellreith.com>
Date: 21/11/2018 16:52
Subject: RE: 2018/0029/P 207 Sumatra Road

Liz,

Please see Network Rail comments attached.

Regards

Gideon Whittingham
Senior Planner

Telephone: 020 7974 5180

From: Whittingham, Gideon
Sent: 30 October 2018 16:52
To: 'LizBrown@campbellreith.com' <LizBrown@campbellreith.com>
Cc: camdenaudit@campbellreith.com; ValeriuPseneac@campbellreith.com
Subject: RE: 2018/0029/P 207 Sumatra Road

Thank you Liz,

I hope you received the Paper copy of the attached.

All are now online.

Regards

Gideon Whittingham
Senior Planner

Telephone: 020 7974 5180

From: LizBrown@campbellreith.com<LizBrown@campbellreith.com>
Sent: 29 October 2018 16:02
To: Whittingham, Gideon <Gideon.Whittingham@camden.gov.uk>
Cc: camdenaudit@campbellreith.com; ValeriuPseneac@campbellreith.com
Subject: RE: 2018/0029/P 207 Sumatra Road

Gideon

We are currently reviewing additional information submitted to support this BIA and expect to be able to report on our findings by 21 November.

Regards
Liz Brown
Partner

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

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Click hereto report this email as spam.[attachment "WB40665-NWR No Objection Letter for Basement Works.pdf" deleted by Valeriu Pseneac/CRH]

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----- Message from Witold Zablocki <soarbond@yahoo.co.uk> on Wed, 12 Dec 2018 14:41:10 +0000 -----

To: "Whittingham, Gideon" <Gideon.Whittingham@camden.gov.uk>, Kerry Hamilton <london@campbellreith.com>, Piotrszycik <piotrszycik@yahoo.co.uk>

Subject: CRH further comments concerning the formation of a basement at 207 Sumatra Roa

Greetings,

Further to receipt of additional comments concerning the enlargement of the existing basement at 207 Sumatra Road, I attach the following documents that have been checked and amended to suit
the comments / replies etc.

1/ Reply to CRH further comments.
2/ The amended Soils Report revision A. This is the bulk of the soils report without the appendices which do not change.

3/ The soils report fly sheet etc.

I will copy all of these documents documents and issue them in the post today.

Very Best Regards,

Konstanty Zablocki.
Soarbond Ltd.,

[attachment "1381 CRH comments 111218.doc" deleted by Valeriu Pseneac/CRH] [attachment "1381 SoilsReport 121218.doc" deleted by Valeriu Pseneac/CRH] [attachment "1381A frontsheets207 Sumatra Rd. NW6.doc" deleted by Valeriu Pseneac/CRH]

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----- Message from Witold Zablocki <soarbond@yahoo.co.uk> on Fri, 22 Feb 2019 14:15:08 +0000 -----

To: "Whittingham, Gideon" <Gideon.Whittingham@camden.gov.uk>, Kerry Hamilton <k.hamilton@uel.ac.uk>

Subject: Re: 207 Sumatra Road, London NW6

Dear Gideon,

Please pass on our FINAL comments to the checking engineers who are advising you.

Response to item 2/

The whole point of underpinning in a classical and traditional method is to ensure there

WILL BE NO NOTICEABLE SETTLEMENT and statements such as 2.38 mm settlement to each underpin is unsustainable. Stating that 0.8 mm settlement will occur on cross walls will also cause damage at higher levels and cause major fights in court etc.

If each pin settled by such an amount there would be chaos. Underpinning would not be encouraged or allowed. As calculated movements are often a factor of 3 greater than actual movements on site, I am happy to state and confirm that proper control of the works will be effected.

There will be no noticeable settlements IF works are carried out to the accepted method statement.

Only once in 50 years of engineering have I had a problem with underpinning where an inexperienced Contractor formed 36 underpins in 18 working days and damage occurred to the party walls but not the cross walls. I was away from the site for two weeks in which time he had opened up and concreted extensive lengths of underpin and not allowed the pins to develop their strength etc.

That will not happen here.

Response to item 5/

There are no trees in the back garden nor any trees proposed by the Local Authority in the footpath to the front.

We would ask you to accept that trees are not an issue for the construction of the basement.

The N values were not established directly and put onto the soils report as these can be inferred from the Cu values etc as item 7 below.

Furthermore, you question the interpretation of that standard Soil Mechanics item, namely the standard penetrometer testing which establishes the TEST RESULT i.e. the undrained shear strength of the clay at that particular level within the borehole. I would ask you refer to item 7 for a full explanation.

Response to item 6/

The soils report is based on the boreholes – a physical result. The screening mentions the Kempton Park Sands which also occur nearby. Also a fact. So both are correct whilst you say one (screening) is probably correct and the soils report may be inaccurate. We have stated that the Kempton Park Sands are nearby and we would leave it at that. They do not affect this particular site.

Response to item 7/

The soils report in reporting on TEST RESULTS (i.e. the undrained shear strength Cu) of the clay material at that precise level within the borehole will allow us to TRANSLATE this result into a safe bearing capacity by using the standard Soil Mechanics factors such as Cu which is related to N values as shown on attachment 3 and the ultimate bearing capacity of soil is found by using a formula given on scan 2.

This ultimate value is then factored down by 3 and even then reduced some more etc.

STANDARD PENETRATION TEST

Sands and Coarse Silts

No. of Blows per 0.30 m (N)	Relative Density	Angle of * Int. Fric.
0 - 4	Very loose	< 30°
4 - 10	Loose	30° - 35°
10 - 30	Med. dense	35° - 40°
30 - 50	Dense	40° - 45°
Over 50	Very dense	> 45°

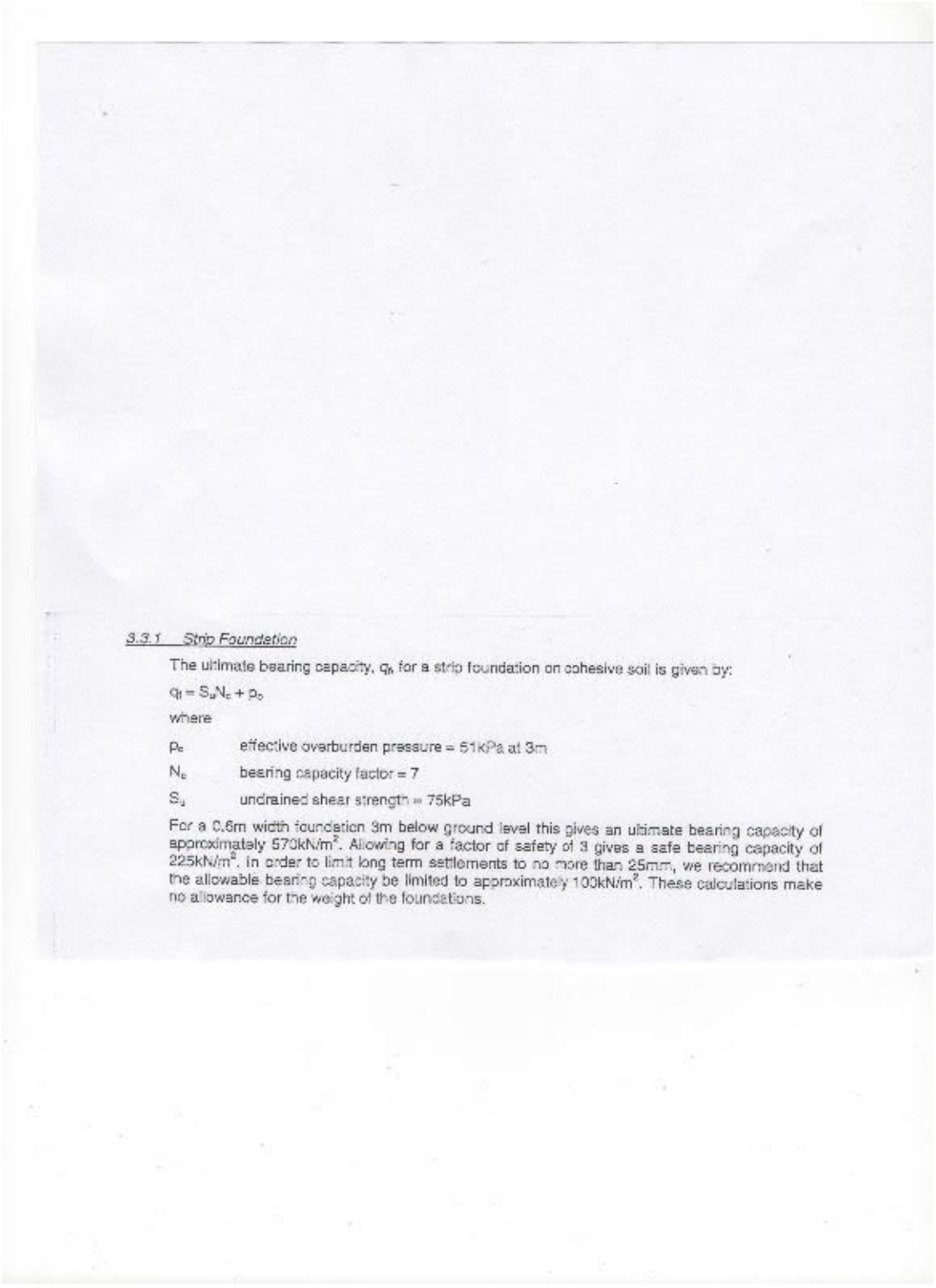
(* after Meyerhof)

CONSISTENCY OF COHESIVE SOIL

Clays and Fine Silts

No of Blows per 0.30 m (N)	Consistency	Cohesion kN/m^2
0 - 4	Very soft	< 20
	Soft	20 - 35
4 - 8	Firm	35 - 75
8 - 30	Stiff	75 - 150
	Very stiff	150 - 200
Over 30	Hard	> 200

BRR/LH (6 05 77)



3.3.1 Strip Foundation

The ultimate bearing capacity, q_f for a strip foundation on cohesive soil is given by:

$q_f = S_u N_c + p_o$

where

p_o effective overburden pressure = 51kPa at 3m

N_c bearing capacity factor = 7

S_u undrained shear strength = 75kPa

For a 0.6m width foundation 3m below ground level this gives an ultimate bearing capacity of approximately 570kN/m^2. Allowing for a factor of safety of 3 gives a safe bearing capacity of 225kN/m^2. In order to limit long term settlements to no more than 25mm, we recommend that the allowable bearing capacity be limited to approximately 100kN/m^2. These calculations make no allowance for the weight of the foundations.

Very best regards,

Konstanty Zablocki.
Soarbond Ltd.,

From: "Whittingham, Gideon" <Gideon.Whittingham@camden.gov.uk>
To: Witold Zablocki <soarbond@yahoo.co.uk>

Cc: Kerry Hamilton <k.hamilton@uel.ac.uk>
Sent: Monday, 18 February 2019, 16:39
Subject: RE: 207 Sumatra Road, London NW6

Konstanty,

With regard to your attached comments, CR have a few matters for clarification we require.

With reference to the responses provided by Soarbond (see attached), please see our comments below:

1. Response noted. No further comments.
2. We note that our query relates to concerns about the movement of cross-walls/spine walls within the neighbouring property. As the party wall is underpinned, settlement of the walls during construction and of subsequent underpins may cause movement in the walls running orthogonally to the party walls. Whilst we acknowledge that the settlement of the underpins may not be large, subject to good workmanship, this is likely to exceed the suggested settlement values of 2.38mm and 0.8mm respectively. Therefore, please confirm that this movement is unlikely to impact on the neighbouring properties' walls.
3. Response noted. No further comments.
4. Response noted. No further comments
5. Response noted. Please confirm that there are no trees planned for removal that may impact on the clay behaviour. I also note that a response was not provided to explain how the Dynamic Probe (DP) results and Perth Penetrometer results to be interpreted.
6. We understand that the screening is correct and the SI report may be inaccurate.
7. We understand that an allowable bearing capacity of 110kPa has been assumed for calculation purposes. Whilst this is not an unreasonable assumption for stiff clays, "N" values are discussed both in the calculations and in the responses provided. This suggest that a Standard Penetration Test has been carried out as part of the in-situ testing. Can it please be confirmed if this is the case and what N values have been recorded.
8. We note that your response will be included in the audit report. It will then be up to the Party Wall Surveyor to approve final design/calculations.

Regards
--
Gideon Whittingham
Senior Planner

Telephone: 020 7974 5180

From: Witold Zablocki <soarbond@yahoo.co.uk>
Sent: 17 January 2019 15:46
To: Whittingham, Gideon <Gideon.Whittingham@camden.gov.uk>
Cc: Kerry Hamilton <k.hamilton@uel.ac.uk>
Subject: 207 Sumatra Road, London NW6

Dear Gideon,

Following our meeting on site last week, we have amended the drawings that you requested be completed and altered and enclose the pdfs with this email.
If you require hard copies, please send us an email to confirm this.
We hope this now completes the requirements for this planning application.

Regards,

Konstanty Zablocki

The following comments apply to the questions posed by the Basement Impact Assessment (BIA) Checking Engineer, Campbell Reith Hill, who also posed questions concerning the site specific Soils Report, soil sampling, basement design, and settlement.

Our reply comments are given below in the order they were posed by CRH.
12th. December2018. Project Number 1381.

1/ Question 13 in the BIA asks if the new basement will SIGNIFICANTLY increase the depth from existing foundations to the level of the new basement foundation. In this context, the levels from the underside of existing foundations (they vary from -0.9 metres to -2.5 metres to the existing basement level off the underside of the upper ground structural "slab" level) to the level of the new basement slab at -2.3 metres are a minimum of 1.4 metres. That the dig level may be slightly lower and the junction of underpin/retaining wall may have thickening / no thickening etc., is not important. The operating WORD is " significantly " and we claim that there is not a significant step down between the existing to the new.
Please note we have initially carried out a design for the underpins/ retaining walls at 2.5 metres height to ensure we are covered for any minor changes etc.

The original methodology, we would suggest, does not need to be altered and we do not feel that we have to change the answer given in Q13 as the additional information is just that. The answer we need to give is still - NO.

2/ We have nearly 50 years of structural design work behind us and 46 years of experience in working on sites and designing underpinning from 1972 onwards etc. when the writer worked on a double height underpinning scheme just off the law courts on Fleet Street for the new head office for the London Insurance Company.
Here, the SMALL, single storey basement will have a U shaped, substantial, concrete box as the principal structural element and, to tell us that the cross walls will suffer noticeable settlement or horizontal distortion within this box, is unacceptable.

The box, when checked as indicated by Peck and Bazaraa on calculation pages E35 to E37, indicated a pure design settlement value of 2.38 mm whilst we know that actual settlements will be in the order of 1/3 of these theoretical values, i.e. 0.8mm. In 46 years of finalising basements, underpinning to neighbours, temporary works and so on, WE HAVE NEVER MET an occasion where movement has occurred and been noticeable in substantial, properly formed, concreted frames in the ground nor to any spine walls needed to resist horizontal loading and, therefore, movement/ deflection. We have not observed substantial cracking caused by loading at these spines. We can assume that your worry is for slender walls and not 250 mm minimum thickness underpins / retaining walls.

The cross movement will be much less here as this is an 11.5 m x 5.75 m basement on plan, we would suggest. The value will probably be NEGLIGABLE and, so, we can state with confidence that the resultant movement will be below Burland Category 0.

3/ " The construction of a concrete box DOWN to 4.0 metres will not be affected by a water table at approximately - 6.0 metres " is the statement on page 5 of the Soils Report. The drawings, generally, give the basement level as - 2.3 metres BELOW the underside of the raised ground floor level BUT, in places, we have to take into account the possible formation of two drainage sumps where the dig level could drop to about - 3.2 metres level etc. So, at this level the safe bearing pressure on the underside of a sump could be taken as 170 kN/m2 etc., if needs be. This is why we have quoted lower levels than -2.3metres. The quoted figures will be interpreted in a linear range of the safe bearing pressure etc.
Your further comments under point 3 appear to us to be inapplicable if the above is understood.

We would ask you to note again that the underpinning and step down in the new basement will be as shown on the sketches in the calculations in your possession. You must accept that a maximum of 2.3m plus 0.25 m (structure) will give a basement to raised upper ground floor level dimension of 2.55 m. The outside ground level is approximately 600 mm below the upper ground floor level so the step down from ground to underside of underpins will be 1.95 metres. We can delete 900 mm for the existing underside level of founds to the underside level of the RAISED upper ground floor giving the 1.65 m underpins nominally to be founded at 2.2.metres below average soil level. This is generally shown on sketches C 19 to C 23 etc.

This is the worst case as much of the walling steps down to the level of the underside of the hall basement and party walls tend to follow these levels in Victorian houses.
So, once again, this is a nominal basement under a terraced house.....

4/ Yes. The soils report has been amended to include all of your observations etc. A revised copy to include changes to the above and to points raised below, is attached.

5/ It is noted that the soils classification summary shows the very stiff monolithic brown or blue LONDON CLAY to have a plasticity index of on average of 56 to 58 at the bearing levels. This is the Ip value and is not subject to modification (such as a modified Plasticity Index). Our report considered that the normal range of clay plasticity index in London should be 35 to 45. We have now been advised by Ashdown Investigation that our initial assessment will not be correct and that the material will be susceptible to swelling and shrinkage, as you say. BUT, we would ask you to note that the critical clay substrata is situated at -2.3 down to 3.2 metres level. At these levels the material would have to suffer severe exposure to high temperatures, massive water extraction and/ or violent water inflow. In monolithic London brown or blue clay at substantial depths, these actions will not take place if the clay is not exposed to LONG periods of underpinning digs left incomplete. The existing house has not suffered

significant damage in critical years such as 1976 and the period 2008 to 2018 when we have had drought summers!

But, we have to assume that there would be problems with such a soil if situated near original ground level for a raft. However, situated at such a low level, we must accept that our new basement will be founded at -2.2 to -3.2 metres level and soil not left exposed for long periods. As a raft, it will behave in a different way to a surface formed raft.

6/ The Kempton Park sand / gravel formation is shown on the Geological maps for nearby areas. This is why we have mentioned that the 4 metre deep very slight banding of sand gravels COULD come from the Kempton Park formation. We also state that this site COULD BE AT THE VERY EXTREMITY of the formation so we cannot understand your comment about screening as WE HAVE NOTED WE HAVE NEARLY 100 % MONOLITHIC CLAY AS SUB STRATA.

7/ We accepted and estimated from the soils report that the acceptable N values for the site will be 130 kN / m2 at 1.0 metre depth below original ground level going down to 170 kN / m2 at 4.0 metre depth. This is a reasonable statement and the values concur with our normal design strategy for London soils etc. In our design parameters shown on page A2, we accept a figure of 110 kN / m2 nett safe bearing capacity when the figure is generally quoted as an additional GROSS load put onto the existing sub strata.

When checking material at depth, we invariably start with the allowable safe bearing capacity at 900 mm down or1.2 metres or whatever, and add the overburden at 20kN/m2 here for saturated clay soil. This is shown on page E 44.
On this page and E45, we show clearly that the loading for the house is likely to be about 10% of capacity and not critical etc.

8/ We note your comment and will alter the calculations to suit and ISSUE to the Building Control Inspector in due course. This will show that the design is sensible for the conditions. We do not think that we have to revise and re-issue to you the design pages as these concern concrete thicknesses, reinforcement quantities and shear aspects of the design. You were more interested in settlements only.

Konstanty Zablocki B.Sc. (Hons.), C. Eng., MICE.
Director,
Soarbond Ltd.,
12th. December 2018.

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