

29 Maresfield Gardens
NW3 5SD

Basement Impact Assessment
Audit

For
London Borough of Camden

Project Number: 13398-34
Revision: F1

August 2020

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Document Details

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1.0 NON-TECHNICAL SUMMARY

- 1.1. CampbellReith was instructed by London Borough of Camden, (LBC) to carry out an audit on the Basement Impact Assessment submitted as part of the Planning Submission documentation for 29 Maresfield Gardens (planning reference 2020/1418/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 site is currently occupied by a four storey semi-detached Victorian building. A narrow front light well is present as well as a sunken patio at the rear, set at a lower ground level. Steps lead up to the rear garden that lies approximately 1.5m higher than the lower ground floor level. An external staircase leads from the garden to the balcony rear door on the upper ground floor.
- 1.5. The LBC Instruction to proceed with the audit identified that the applicant's property is not listed and that basement proposal does not involve neighbouring listed buildings.
- 1.6. The qualifications of the individuals involved in the preparation of the BIA are in accordance with LBC guidance.
- 1.7. Screening and scoping assessments are presented, supported by desk study information.
- 1.8. A site investigation comprising several trial pits has been undertaken and the ground investigation report (GIR) has been provided in supplementary correspondence. The investigation indicates the proposed basement will be founded in the London Clay
- 1.9. An outline construction scheme is provided.
- 1.10. Detail on the proposed construction methodology has been provided and retaining walls will be constructed in a hit and miss sequence.
- 1.11. It is accepted that there are no slope stability concerns regarding the proposed development.
- 1.12. It is also accepted that the basement will likely not impact on surface water flows and is not in an area subject to flooding, though a SUDS proposal has been provided to further mitigate any effect.
- 1.13. It is accepted that the development will not impact on the local or wider hydrogeology of the area.
- 1.14. A tree is to be removed as part of the proposed basement construction. The BIA advises that, in accordance with NHBC guidelines, the new foundations will be below the zone of influence of the tree. Existing shallow foundations are sufficiently remote to not be affected by the tree removal.

- 1.15. Ground movements are anticipated to be small and the risk of damaging adjacent properties is expected to be low, resulting in no worse than Burland Category 1 (very slight).
- 1.16. The BIA does not mention whether structural monitoring will be undertaken. This is required and may be agreed as part of the party wall award.
- 1.17. Considering the supplementary information provided, the BIA meets the requirements of CPG: Basements.

2.0 INTRODUCTION

- 2.1. CampbellReith was instructed by London Borough of Camden (LBC) on 19/06/2020 to carry out a Category B audit on the Basement Impact Assessment (BIA) submitted as part of the Planning Submission documentation for 29 Maresfield Gardens, NW3 5SD, reference 2020/1418/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
- Camden Local Plan 2017 - Policy A5 Basements.
 - Camden Planning Guidance: Basements. March 2018
 - Guidance for Subterranean Development (GSD). Issue 01. November 2010. Ove Arup & Partners.
- 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 *"Erection of single storey lower ground rear extension with external roof terrace above together with new external patio with new stepped access to rear garden, external alterations to property including replacement of ground floor rear window with french doors, installation of new window and enlarged window to ground floor side elevation and installation of new entrance door off front porch to provide access to upper floor flats."*

The Audit Instruction confirmed 29 Maresfield Gardens does not involve, and is not a neighbour to, listed buildings.

- 2.6. CampbellReith accessed LBC's Planning Portal on 10th July 2020 and gained access to the following relevant documents for audit purposes:
- Design Study & Basement Impact Assessment Report (ref LBH4599 – March 2020)
 - Aboricultural Report (ref 29MFL/29MFD/AIA – November 2019)

- SUDS strategy (ref 29MFL/29MFD/AIA – March 2020)
- Planning Application Drawings consisting of
Location Plan (ref LP-01 rev P-00)

Existing Plans ref:

EX-01 rev P-03
EX-02 rev P-02
Ex-03 rev P-03
Ex-04 rev P-02
Ex-05 rev P-02

Proposed Plans

PP-01 rev P-03
PP-02 rev P-01
PP-03 rev P-03
PP-04 rev P-02
PP-05 rev P-03

- Planning Comments and Response

2.7. The following revised information was provided to CampbellReith by email on 7th of August 2020 and are included in Appendix C:

- BIA Audit email response, LBHGEO 0708/2020
- 4599 Maresfield Gardens TP records

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	
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	Architect's plans included. BIA references ARUP figures.
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	Section 4.1 BIA.
Hydrogeology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Section 4.1 BIA.
Hydrology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Section 4.1 BIA.
Is a conceptual model presented?	Yes	Section 5 BIA.
Land Stability Scoping Provided? Is scoping consistent with screening outcome?	Yes	Section 4.2 BIA.

Item	Yes/No/NA	Comment
Hydrogeology Scoping Provided? Is scoping consistent with screening outcome?	Yes	Section 4.2 BIA.
Hydrology Scoping Provided? Is scoping consistent with screening outcome?	Yes	Section 4.2 BIA.
Is factual ground investigation data provided?	Yes	Provided through supplementary correspondence, ref 4599 Maresfield Gardens TP records.
Is monitoring data presented?	No	
Is the ground investigation informed by a desk study?	Yes	Section 3 BIA.
Has a site walkover been undertaken?	Yes	Section 5 BIA.
Is the presence/absence of adjacent or nearby basements confirmed?	Yes	The BIA notes that the neighbouring properties have patios at lower level.
Is a geotechnical interpretation presented?	Yes	
Does the geotechnical interpretation include information on retaining wall design?	Yes	
Are reports on other investigations required by screening and scoping presented?	Yes	Arboricultural survey.
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	Subsequent to initial audit, a statement on horizontal ground movements due to yielding of the sides of the excavation has been provided.
Is the Impact Assessment appropriate to the matters identified by screening and scoping?	Yes	Confirmation of the limited impact of trees on shallow foundations provided.
Has the need for mitigation been considered and are appropriate mitigation methods incorporated in the scheme?	Yes	SuDS and suitable foundation depth to mitigate impact of tree removal.
Has the need for monitoring during construction been considered?	No	While not considered in the BIA, monitoring may be required to satisfy Camden's requirements and any party wall award.
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	Limited impact of ground movements due to excavation confirmed through supplementary correspondence.
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	Structural calculations required.
Does report state that damage to surrounding buildings will be no worse than Burland Category 1?	Yes	Building damage predicted to be negligible.
Are non-technical summaries provided?	Yes	Page 5 BIA.

4.0 DISCUSSION

- 4.1. The Basement Impact Assessment (BIA) has been carried out by engineering consultants LBH Geo and the individuals concerned in its production have suitable qualifications.
- 4.2. The LBC Instruction to proceed with the audit identified that the basement proposal does not involve a listed building and is not adjacent to listed buildings.
- 4.3. It is proposed to extend the existing lower ground floor at the property partly 4m, partly 6m rearwards to create a single storey extension at lower ground floor with a small external patio area beyond. Existing boundary walls where in a structurally poor condition are anticipated to be replaced. A patio at low level already exists over part of this area. The level of the patio is being maintained and excavations up to 1.5m are anticipated beyond, with locally deeper excavations to accommodate the foundations and to mitigate the influence of trees. A mature tree is to be removed, and the basement will encroach on the root protection zone (RPZ) of a mature located within the garden of No. 27.
- 4.4. The property is a terraced house. The BIA notes that both adjoining properties have patios that extend beyond the existing patio at No. 29 and are at a similar level.
- 4.5. Screening and scoping assessments are presented, supported by desk study information. The relevant figures/maps from the Arup GSD and other guidance documents are referenced within the BIA to support responses to the screening questions.
- 4.6. A site investigation has been undertaken comprising a number of trial pits. A supplementary ground investigation report has been provided and is included in Appendix C of this BIA audit. It is understood that the basement will found within the London Clay.
- 4.7. The London Clay has been identified as unproductive strata and it is accepted that there is no local or wider impact on subterranean flows from the basement proposals.
- 4.8. The BIA confirmed the proposed basement scheme will not significantly alter the amount of hardstanding. Nevertheless mitigation methods are provided in the SUDS report to limit any adverse impact on the hydrology of the area.
- 4.9. The proposed construction methodology has been described as retaining walls constructed in a hit and miss sequence.
- 4.10. The screening section of the BIA indicates the area to be prone to seasonal shrink-swell which can result in foundation movements. The Arboricultural Impact Assessment indicates a Holly tree will be felled as part of the proposed development and a mature Crab Apple tree will remain, located 1m away from the proposed excavations. LBHGEO in supplementary correspondence confirm that neighbouring shallow foundations will not be affected by the removal of and excavation adjacent to the trees identified in the arboricultural report. The BIA notes that the new foundations will be constructed sufficiently deep to mitigate the effects of future shrinking and swelling of the clay due to tree removal and/or continued growth.

- 4.11. A design value for the undrained shear strength of the London Clay of 77kN/m^2 is provided increasing at 8kN/m^2 per m depth in Section 7.2 of the BIA.
- 4.12. An analysis has been undertaken of vertical ground movements due to excavation and construction in Section 7.3 of the BIA. Horizontal movements have been clarified through supplementary correspondence and some yielding of the excavation sides is expected. Given the excavation is of limited depth (c. 1.5m) and is removed from neighbouring properties, if the works are well controlled then the combined movements are anticipated to be small. The predicted damage is reasonably anticipated to be no worse than Burland Category 1.
- 4.13. The BIA does not mention whether structural monitoring will be undertaken. It is noted that LBC requires Construction Management Plans to include provisions for monitoring of the surrounding structures to ensure that building damage will be within the limits determined in the BIA. This may be agreed as part of the party wall award.

5.0 CONCLUSIONS

- 5.1. The qualifications of the individuals involved in the BIA are in accordance with LBC guidance.
- 5.2. Screening and scoping assessments are presented, supported by desk study information.
- 5.3. The site investigation indicates the proposed basement will be founded in the London Clay.
- 5.4. The ground investigation report (GIR) has been provided.
- 5.5. An outline construction scheme is provided.
- 5.6. Detail on the proposed construction methodology has been provided.
- 5.7. It is accepted that there are no slope stability concerns regarding the proposed development.
- 5.8. It is also accepted that the basement will likely not impact on surface water flows and is not in an area subject to flooding, though a SUDS proposal has been provided to further mitigate any effect.
- 5.9. It is accepted that the development will not impact on the local or wider hydrogeology of the area.
- 5.10. A tree is to be removed as part of the proposed basement construction. The BIA advises that neither the proposed foundations nor the existing foundations will be affected by the tree removal.
- 5.11. Ground movements are anticipated to be small and the risk of damaging adjacent properties is expected to be low, no worse than Burland Category 1 (very slight).
- 5.12. The BIA does not mention whether structural monitoring will be undertaken. This is required and may be agreed as part of the party wall award.
- 5.13. Considering the supplementary information provided, the BIA meets the requirements of CPG: Basements.

Appendix 1: Residents' Consultation Comments

Residents' Consultation Comments

Surname	Address	Date	Issue raised	Response
Redacted	No. 27 Maresfield Gardens	Not provided	Structural Drawings not provided	Drawings provided are adequate considering the development proposal.
			No details on excavation next to building.	Section 6 and 7 of BIA. Excavation is to be sufficiently far away from neighbouring properties, so as to not affect them unacceptably.
			Excavation for the foundation will have an impact on trees, roots, groundwater leading to future structural problems.	Refer to arboricultural report and Section 6.3 of the BIA.
Redacted	Netherhall Neighbourhood	06/05/2020	<p>The application report indicated the felling of a cherry tree. The extension is close to two apple trees.</p> <p>Construction work will result in root damage and the resultant danger of losing these two trees.</p> <p>Risk of structural damage.</p>	Refer to arboricultural report and Section 6.3 of the BIA.
			Danger of surface water flooding when introducing the raise terrace and other hard landscaping in the rear garden.	Refer to SUDS assessment.
Redacted	Not provided	05/05/2020	The construction is likely to have an unexpected impact on the underground springs which are a feature of these gardens.	<p>Refer to Section 3 of the BIA. Underground springs are not anticipated to be present.</p> <p>Refer to BIA Section 6.2. Basement will be designed to accommodate ground water.</p>

Appendix 2: Audit Query Tracker

Audit Query Tracker

Query No	Subject	Query	Status	Date closed out
1	Stability	Ground Investigation Report should be provided.	Closed	06/08/2020
2	Stability	Statement on lateral ground movements due to excavation should be provided.	Closed	06/08/2020

Appendix 3: Supplementary Supporting Documents



29 Maresfield Gardens NW3 5SD - 2020/1418/P - BIA AUDIT

Seamus Lefroy-Brooks to: JaimeBrown@campbellreith.com 06/08/2020 16:42

Cc: "Joshua.Ogunleye@camden.gov.uk", "camdenaudit@campbellreith.com", "Darcy Kitson-Boyce"

1 Attachment



4599 Maresfield Gardens TP records.pdf

Hi Jaime,

Thanks for your email.

GROUND INVESTIGATION REPORT :

As set out in section 3 of the BIA, a series of trial pits were hand-excavated to expose the existing foundations and an inspection was undertaken by ourselves to confirm that London Clay had indeed been exposed.

Please find attached records.

TREE:

I confirm that in line with the discussion in section 6.3, neighbouring shallow foundations will not be affected by the removal of and excavation adjacent to the trees identified in the arboricultural report.

DAMAGE CATEGORY:

As per section 7.4, we confirm that no appreciable movements to the neighbouring properties is expected as a result of yielding of the sides of the basement excavation and that the predicted category of damage is Burland Category 0.

Best Regards

Seamus Lefroy-Brooks

BSc(hons) MSc CEng MICE CGeol FGS CEnv MEnvSc FRGS
RoGEP UK Registered Ground Engineering Adviser
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max. email attachment size <10MB

LBHGEO

From: JaimeBrown@campbellreith.com

Sent: 21 July 2020 17:09

To: [Darcy Kitson-Boyce](#)

Cc: Joshua.Ogunleye@camden.gov.uk; camdenaudit@campbellreith.com

Subject: 29 Maresfield Gardens NW3 5SD - 2020/1418/P

Hi Darcy,

We have reviewed the BIA provided for 29 Maresfield Gardens reference LBH4599 dated 2nd March 2020 and we have the following comments we wish to resolve before we can close out the audit.

We request the Ground Investigation Report be provided to confirm the basement will be founding in competent London Clay and to confirm the undrained shear strength design value used in the BIA.

Can you confirm that neighbouring shallow foundations will not be affected by the removal of and excavation adjacent to the trees identified in the arboricultural report?

Finally, we consider that horizontal movements associated with yielding of the sides of the basement excavation can be expected. Given the limited depth of excavation and the distance from the neighbouring properties, can LBH Geo confirm the predicted category of damage will remain no worse than Burland Category 1?

To close out the remaining comments we can accept a confirmation of the above by means of reply to this email alongside the provision of the Ground Investigation Report.

Regards,

Jaime Brown
Senior Geotechnical Engineer

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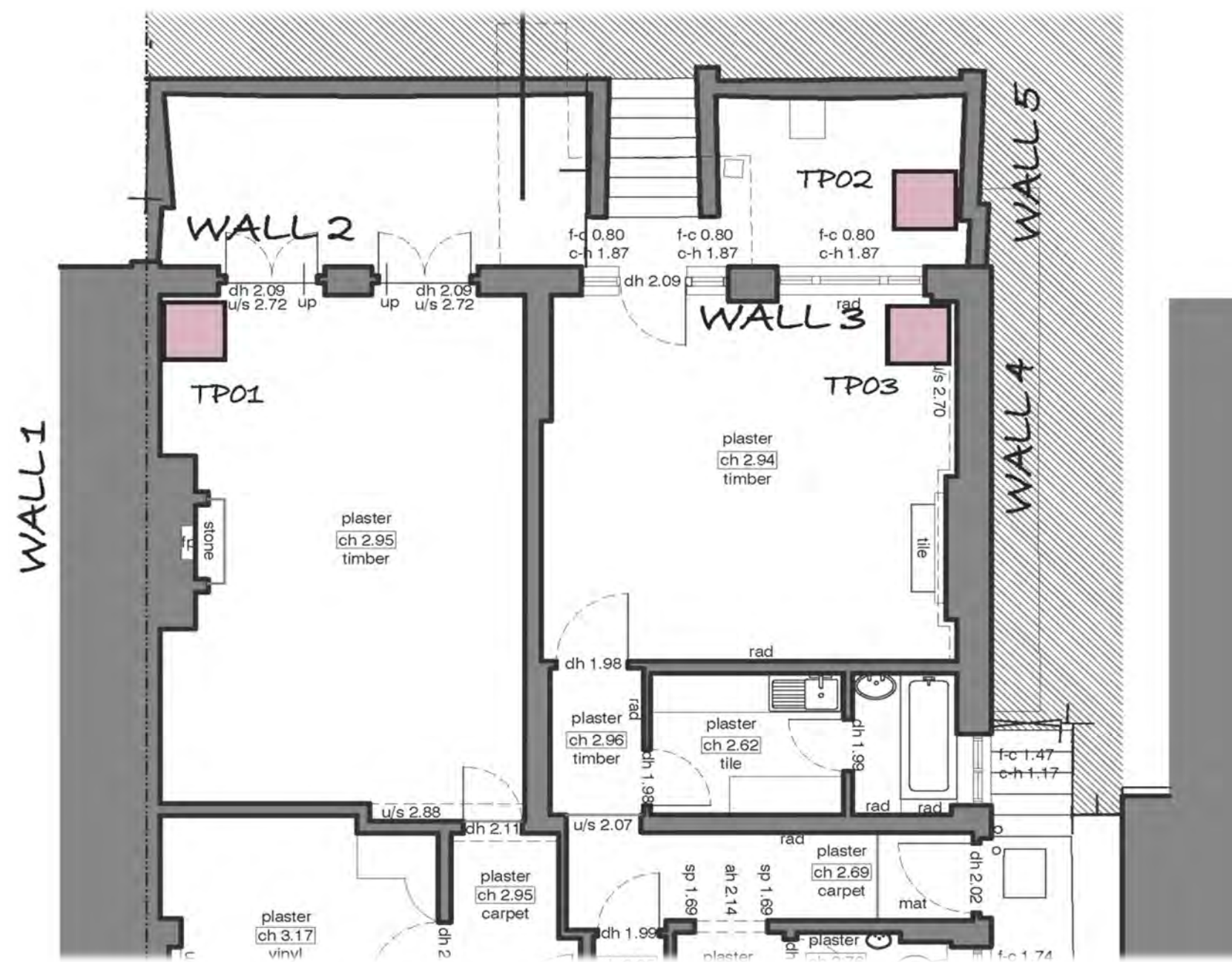
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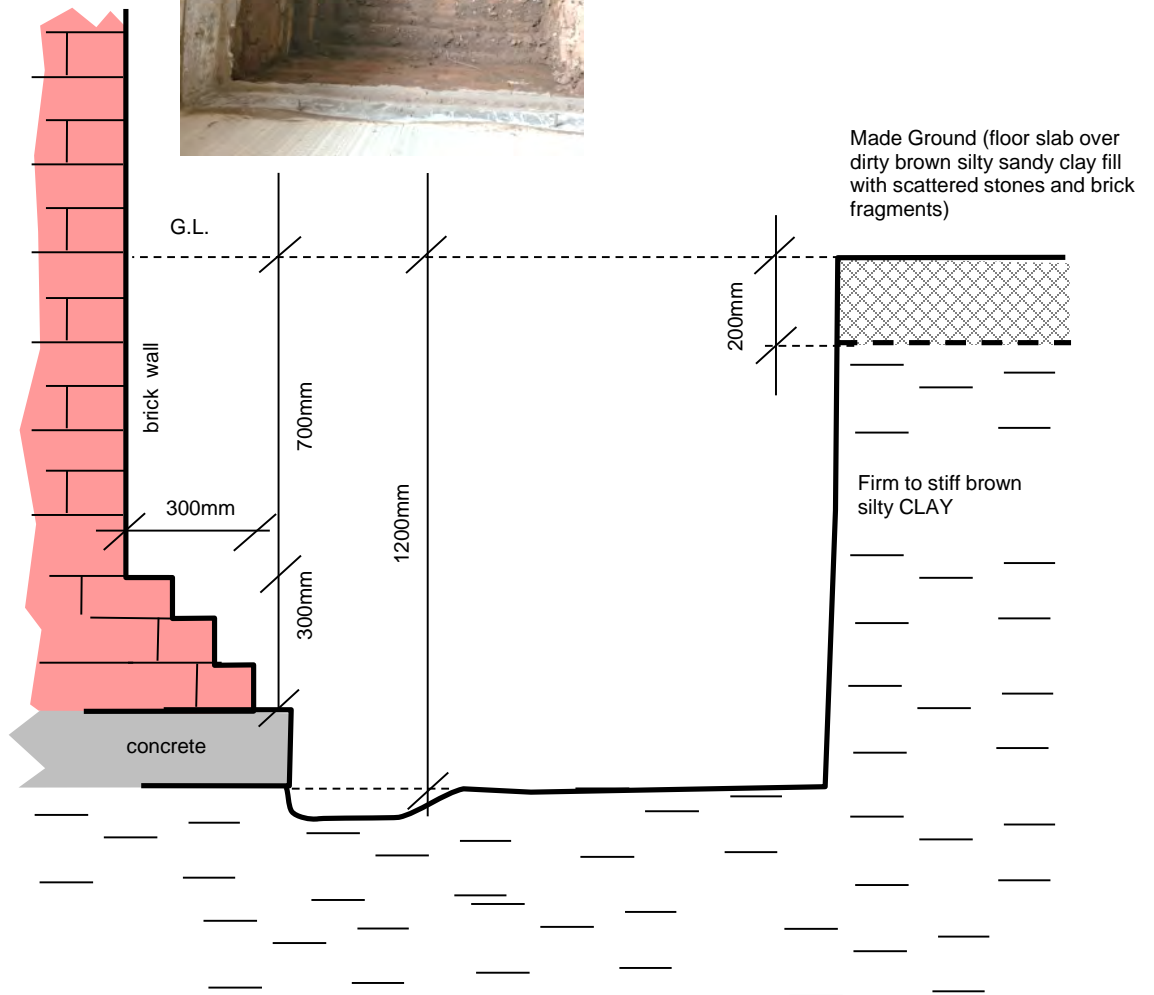
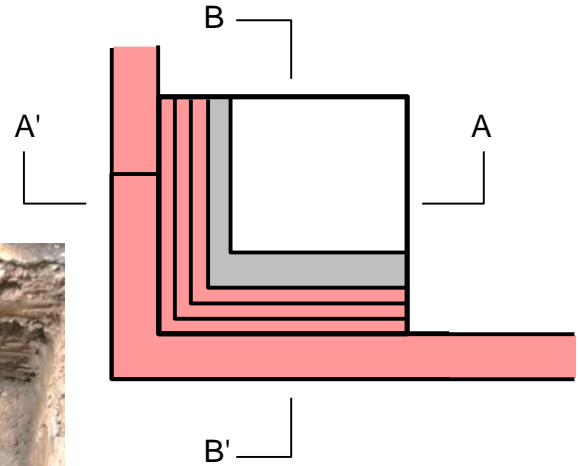
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SITE: 29 Maresfield Gardens

TRIAL PIT 1

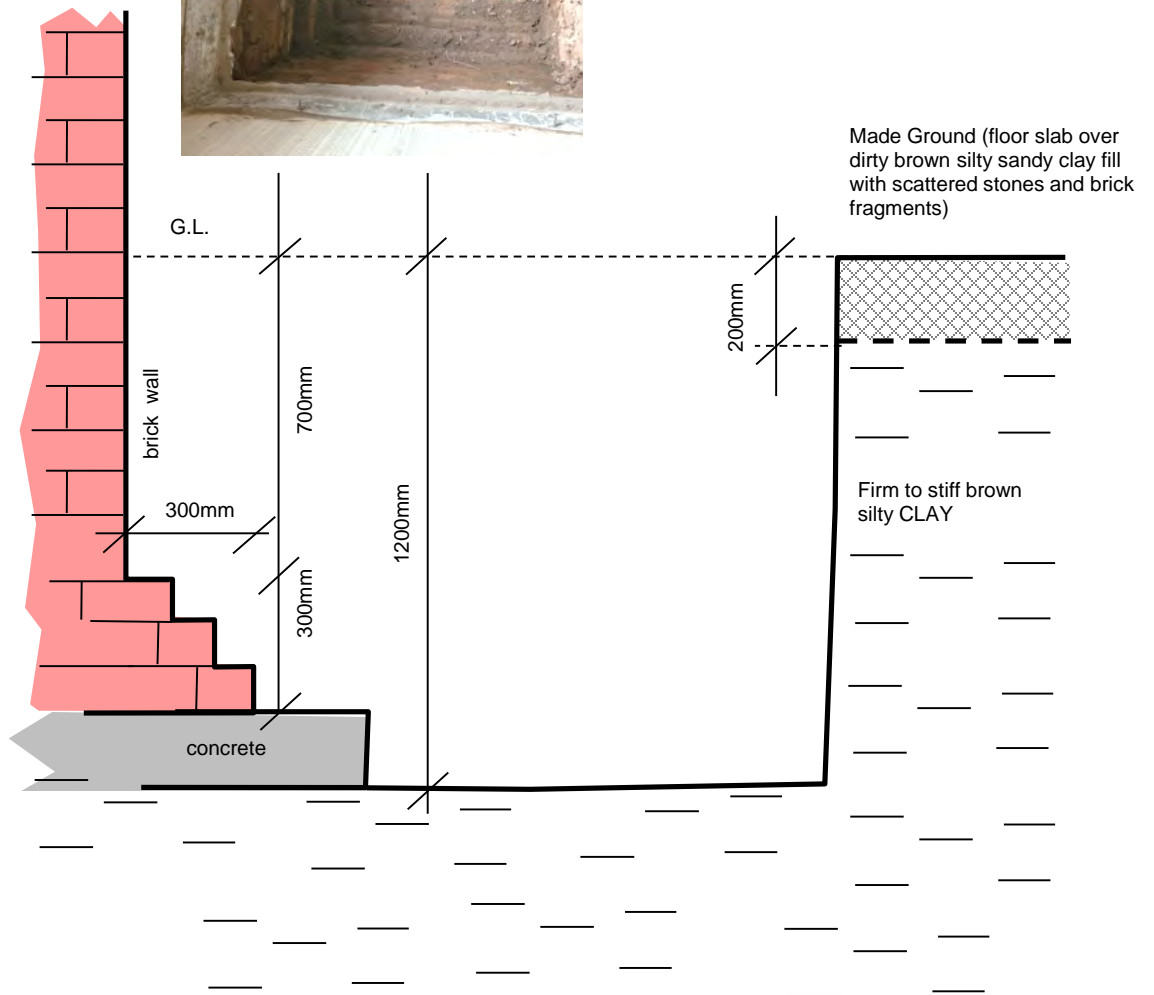
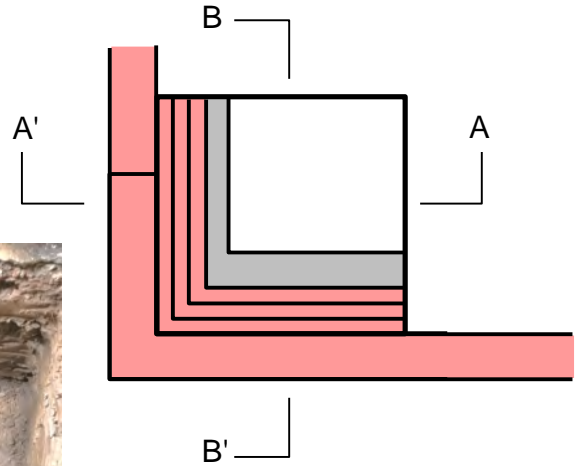


SECTION A - A'

Pit Constructed 30/10/2019
G.L Approx. +68.6m OD
All Dimensions in mm
Do Not Scale

SITE: 29 Maresfield Gardens

TRIAL PIT 1

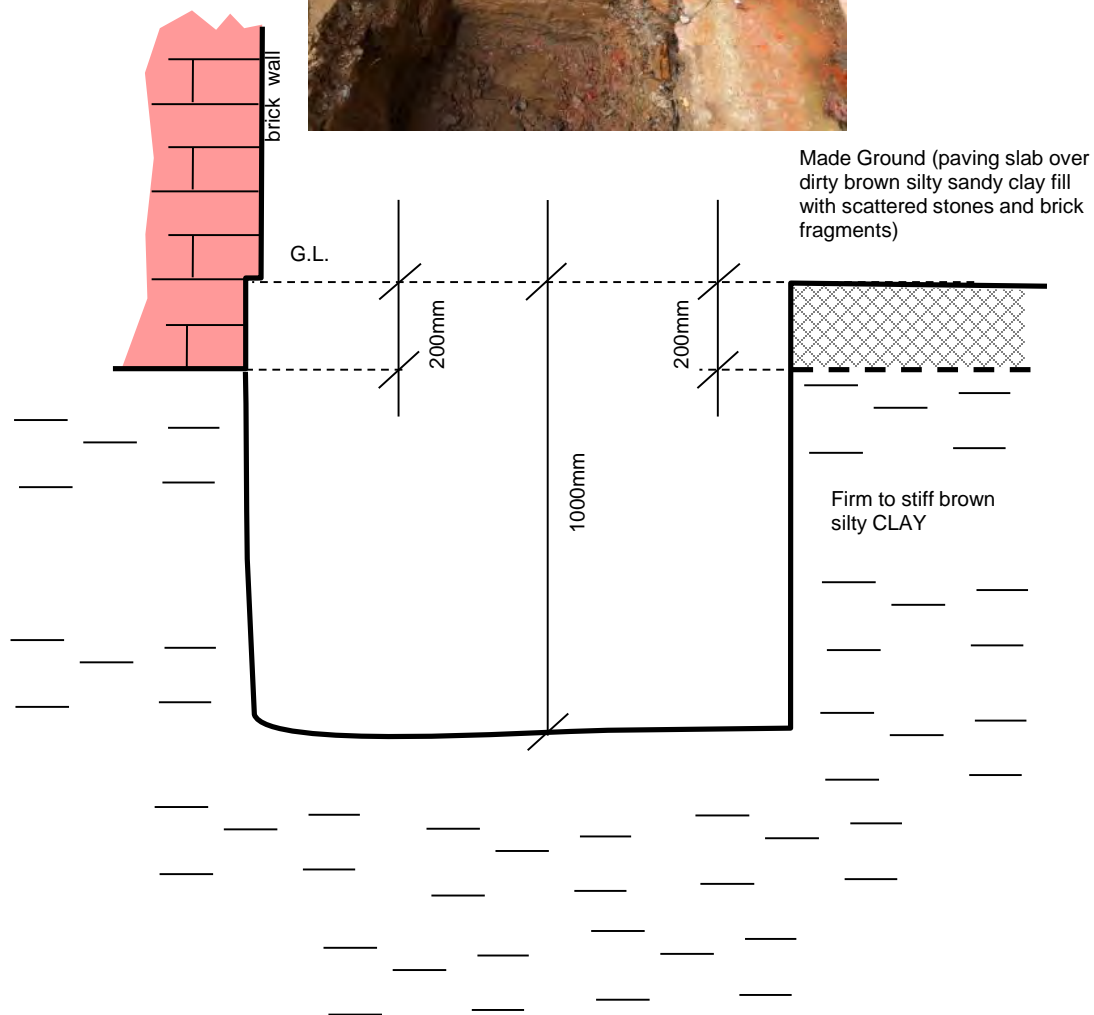
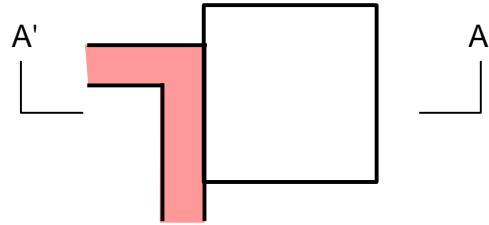


SECTION B - B'

Pit Constructed 30/10/2019
G.L. Approx. +68.6m OD
All Dimensions in mm
Do Not Scale

SITE: 29 Maresfield Gardens

TRIAL PIT 2



SECTION A - A'

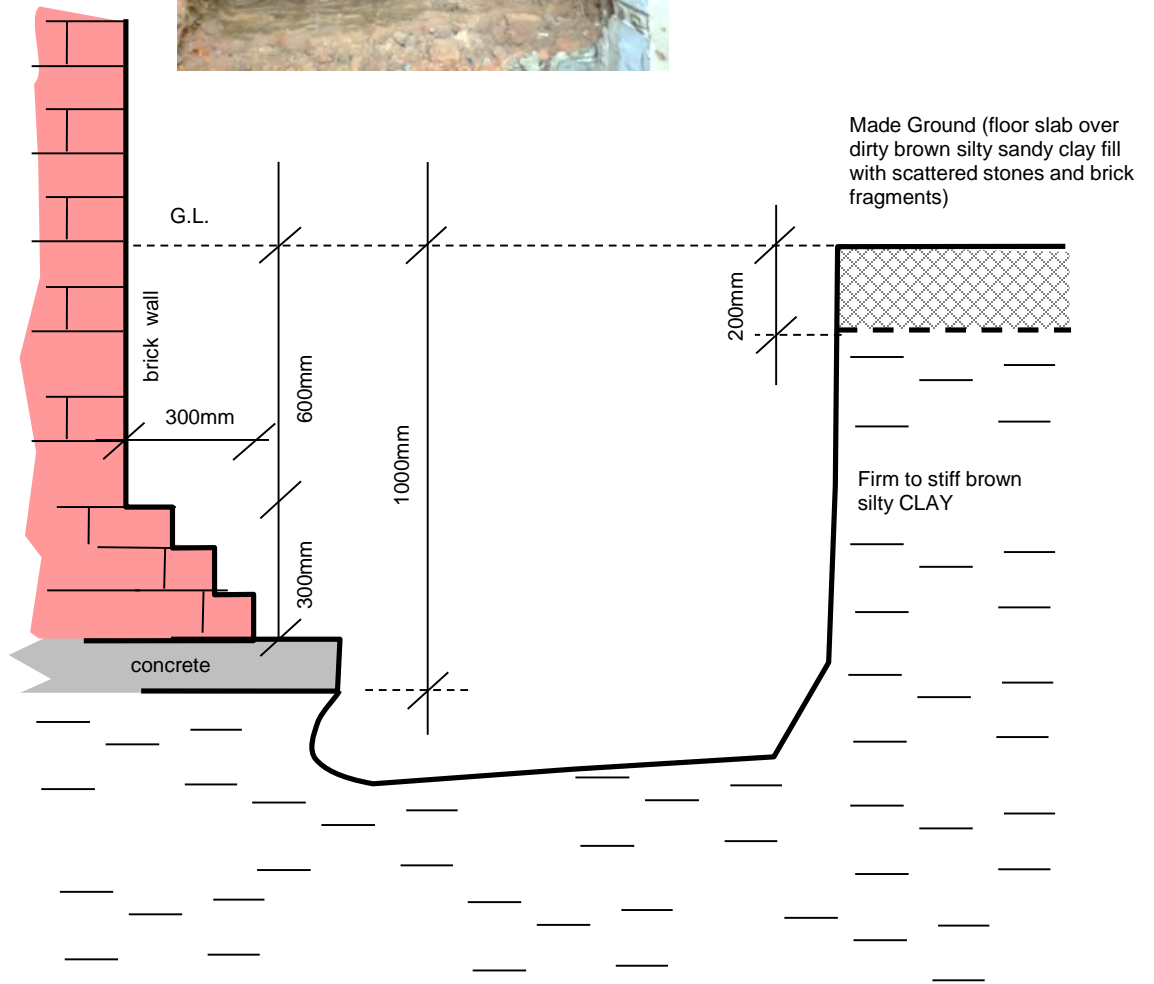
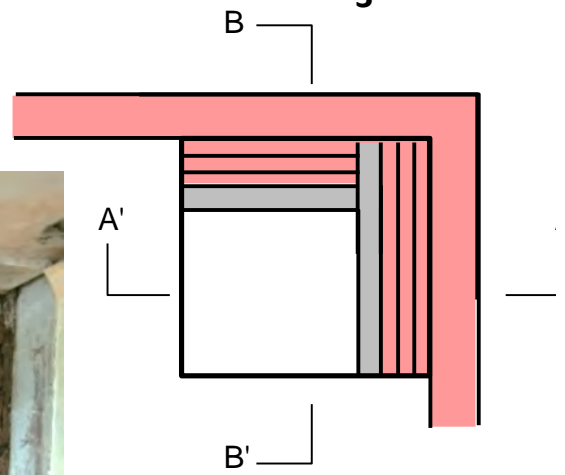
Pit Constructed 30/10/2019
G.L Approx. +68.7m OD
All Dimensions in mm
Do Not Scale

SITE: 29 Maresfield Gardens



TRIAL PIT

3



SECTION A - A'

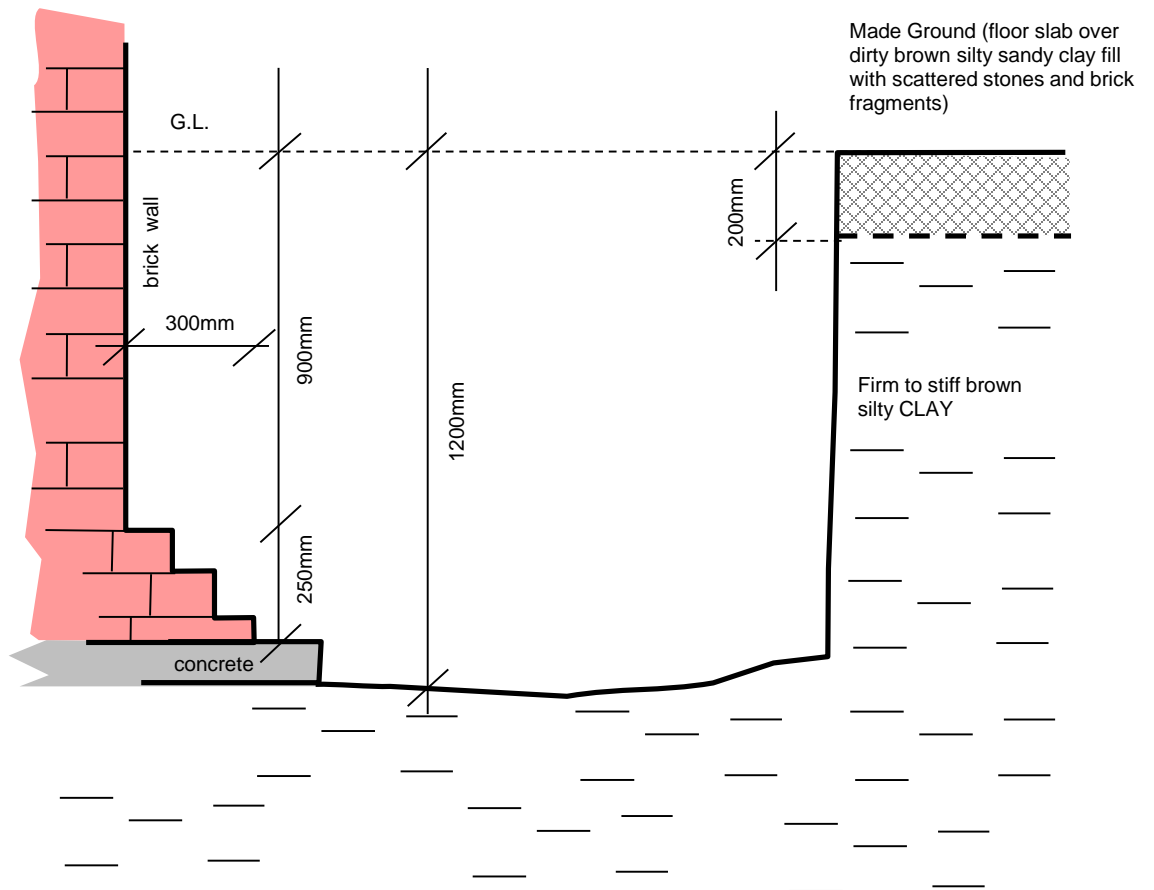
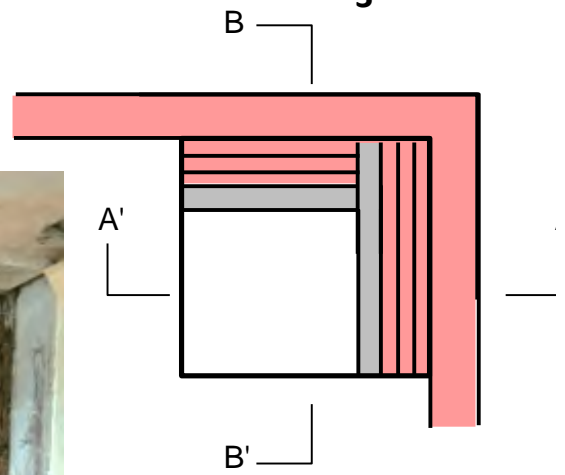
Pit Constructed 30/10/2019
G.L Approx. +68.6m OD
All Dimensions in mm
Do Not Scale

SITE: 29 Maresfield Gardens



TRIAL PIT

3



SECTION B - B'

Pit Constructed 30/10/2019
G.L Approx. +68.6m OD
All Dimensions in mm
Do Not Scale

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