CampbellReith
consulting engineers

# 9 Nassington Road, London, NW3 2TX

## Basement Impact Assessment Audit

For

London Borough of Camden

Project Number: 12985-57
Revision: D1

Date: July 2019

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## Document History and Status

| Revision | Date | Purpose/Status | File Ref | Author | Check | Review |
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| D1 | July 2019 | Comment | ARgk-12985-57-120719-9 Nassington Road-D1.doc | A Ross | G Kite | G Kite |
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## Document Details

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| Path | ARgk-12985-57-120719-9 Nassington Road-D1.doc |
| Author | A J Ross, MEng CEng MIStructE |
| Project Partner | E M Brown, BSc MSc CGeol FGS |
| Project Number | 12985/57 |
| Project Name | 9 Nassington Road, NW3 2TX |
| Planning Reference | 2019/2316/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 9 Nassington Road (planning reference 2019/2316/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. Further information was supplied in correspondence with LBH Wembley Engineering which is included within Appendix 3.

1.4. The Basement Impact Assessment (BIA) has been prepared by appropriately qualified authors.

1.5. The proposal consists of extending the existing basement to the full footprint of the ground floor plan to the front of the property, plus a lightwell, and extending beyond the rear of the property.

1.6. A limited site investigation has been completed indicating the development will be founded within the London Clay. Whilst it is accepted that the design parameters adopted are reasonably conservative, the contractor should confirm the insitu shear strength at founding level prior to construction.

1.7. It is accepted that there will be no impact to the wider hydrogeological environment.

1.8. SUDS strategies are proposed to mitigate the impact to the wider hydrological environment.

1.9. A construction methodology is presented, including outline sequencing and propping arrangements. An outline construction programme should be provided to LBC.

1.10. A ground movement assessment (GMA) is presented indicating damage to neighbouring structures will be a maximum of Burland Category 1 (Very Slight).

1.11. Movements impacting the highway have been assessed as negligible. Whilst some utility information is provided, a full utilities search should be undertaken prior to development. Asset owners should be consulted with regard to asset protection agreements, as applicable.

1.12. A non-technical summary has been presented.

1.13. Queries and requests for information are summarised in Appendix 2. The BIA meets the requirements of Camden Planning Guidance: Basements.

## 2.0 INTRODUCTION

2.1. CampbellReith was instructed by London Borough of Camden (LBC) on 9th May 2019 to carry out a Category B Audit on the Basement Impact Assessment (BIA) submitted as part of the Planning Submission documentation for 9 Nassington Road (planning reference 2019/2316/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 (2017): 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 *"Erection of single storey rear extension at lower ground floor level including formation of a roof terrace. Alteration of 2 ground floor rear windows to form doors. Excavation and enlargement of existing lower ground floor level including formation of front lightwell and new external side access steps. Erection of former roof extensions to side and rear roof slopes. Alterations to side facing fenestration."*

2.6. The Audit Instruction also confirmed 9 Nassington Road and neighbouring buildings reside within a Conservation Area.

2.7. CampbellReith accessed LBC's Planning Portal on 23rd May 2019 and gained access to the following relevant documents for audit purposes:

- Planning Application letter submitted by Mr William McGuinness (Reference PP-07449141 dated 3rd December 2018).
- Basement Impact Assessment Report (BIA) by LBH Wembley Engineering dated April 2019.
- Temporary Works Sketches Set (4811-SM01 & 4811-SM03) and Structural Methodology (RT/SMS/4811) by Richard Tant Associates Consulting Engineers dated March and April 2019 respectively.
- Structural Calculations by Richard Tant Consulting Engineers dated April 2019 (4811-P1 to 4811-P2).
- Design Statement by Ultra Violet Designers, Architects Ltd (21st April 2019).
- Tree Survey, Arboricultural Impact Assessment, Tree Constraints Plan, Arboricultural Method Statement and Tree Protection Plan by Advanced Tree Services (November 2018)
- Ultra Violet Designers, Architects Ltd and Richard Tant Associates Structural Engineer's Planning Application Drawings consisting of:

  Site Location Plan (EX(00)000).

  Existing GAs, Sections & Elevations (EX(00)001-004 and EX(00)010, 020 & 021).

  Proposed GAs, Sections & Elevations (AL(00)001-004 and AL(00)010-011, 020 & 021).

2.8. CampbellReith received further information directly from LBH Wembley Engineering on 11th June 2019 which comprised the following relevant documents, presented in Appendix 3:

- Trial Hole & Opening Up Locations (4811-SK01-SK05 & SK01B) by Richard Tant Associates.
- SUDS Strategy by LBH Wembley Engineering dated March 2019.

## 3.0 BASEMENT IMPACT ASSESSMENT AUDIT CHECK LIST

| Item | Yes/No/NA | Comment |
|---|---|---|
| Are BIA Author(s) credentials satisfactory? | Yes | See Audit paragraph 4.1. |
| Is data required by Cl.233 of the GSD presented? | No | Outline programme to be provided. |
| Does the description of the proposed development include all aspects of temporary and permanent works which might impact upon geology, hydrogeology and hydrology? | Yes | BIA and supporting documents. |
| Are suitable plan/maps included? | Yes | Extracts of CGHHS maps with site located within BIA Section 3. |
| Do the plans/maps show the whole of the relevant area of study and do they show it in sufficient detail? | Yes | Extracts of CGHHS maps including the wider area are provided in BIA Section 3. |
| Land Stability Screening:<br>Have appropriate data sources been consulted?<br>Is justification provided for 'No' answers? | Yes | BIA Section 4.1.3. |
| Hydrogeology Screening:<br>Have appropriate data sources been consulted?<br>Is justification provided for 'No' answers? | Yes | Not all map references included in BIA, but conclusions accepted in BIA Section 4.1.1. |
| Hydrology Screening:<br>Have appropriate data sources been consulted?<br>Is justification provided for 'No' answers? | Yes | Not all references provided but conclusions accepted in BIA Section 4.1.2. |
| Is a conceptual model presented? | Yes | BIA Section 4.2. |
| Land Stability Scoping Provided?<br>Is scoping consistent with screening outcome? | Yes | BIA Section 4.2.3 |

| Item | Yes/No/NA | Comment |
|---|---|---|
| Hydrogeology Scoping Provided?<br>Is scoping consistent with screening outcome? | Yes | BIA Section 4.2.1 |
| Hydrology Scoping Provided?<br>Is scoping consistent with screening outcome? | Yes | BIA Section 4.2.2 |
| Is factual ground investigation data provided? | Yes | Trial pit records. Contractor to confirm insitu shear strength at founding level meets minimum design requirements in advance of the works. |
| Is monitoring data presented? | No | See Audit paragraph 4.5. |
| Is the ground investigation informed by a desk study? | Yes | See Audit paragraph 4.3. |
| Has a site walkover been undertaken? | Yes | BIA Section 5. |
| Is the presence/absence of adjacent or nearby basements confirmed? | Yes | See Audit paragraph 4.7. |
| Is a geotechnical interpretation presented? | Yes | Reasonably conservative parameters adopted. To be confirmed in advance of the works. |
| Does the geotechnical interpretation include information on retaining wall design? | Yes | Reasonably conservative parameters adopted. To be confirmed in advance of the works. |
| Are reports on other investigations required by screening and scoping presented? | Yes | Tree investigation report. |
| Are the baseline conditions described, based on the GSD? | Yes | See Audit paragraph 4.7 |
| Do the base line conditions consider adjacent or nearby basements? | Yes | See Audit paragraph 4.7 |
| Is an Impact Assessment provided? | Yes | Impact assessment for all noted issues in screening and scoping assessment. |

| Item | Yes/No/NA | Comment |
|---|---|---|
| Are estimates of ground movement and structural impact presented? | Yes | See Audit paragraph 4.6 and 4.9. |
| Is the Impact Assessment appropriate to the matters identified by screening and scoping? | Yes | |
| Has the need for mitigation been considered and are appropriate mitigation methods incorporated in the scheme? | Yes | SUDS strategies; temporary works strategy. |
| Has the need for monitoring during construction been considered? | Yes | See Audit paragraph 4.11. |
| Have the residual (after mitigation) impacts been clearly identified? | Yes | |
| Has the scheme demonstrated that the structural stability of the building and neighbouring properties and infrastructure will be maintained? | Yes | |
| Has the scheme avoided adversely affecting drainage and run-off or causing other damage to the water environment? | Yes | SUDS strategies presented. |
| 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 | |
| Are non-technical summaries provided? | Yes | |

## 4.0 DISCUSSION

4.1. The Basement Impact Assessment (BIA) has been prepared by a firm of engineering consultants, LBH Wembley Engineering. The qualifications of the reviewer has both CEng MICE and CGeol which meets CPG Basements 2018 requirements.

4.2. The LBC Instruction to proceed with the audit identified that the basement proposal involves a building which resides within a Conservation Area, and therefore requires a construction management plan to be issued. This is identified within the Design and Access Statement.

4.3. The existing property is discussed in Section 2 of the BIA. It is a four storey semi-detached Victorian house, with a lower ground floor across the majority of the property. A slope runs from the front of the site towards the rear of the property, where the lower ground floor backs onto the garden. The house is typically composed or load bearing masonry walls and assumed timber flooring, typical construction of the building's age of the 1800s, with further site history discussed in Section 3.1.

4.4. The proposed basement is discussed in Section 2.4 of the BIA, and consists of a extending the single storey basement construction by extending the lower ground floor to provide a light-well to the front of the property and an extension to the rear of the property. The proposed development requires excavation and construction of variable depths, but at a maximum within the north corner of the property, to approximately 4.0m below ground level (bgl), which is adjacent to the Party Wall with 11 Nassington Road. The Party Wall has existing underpinned foundations to a partial depth of the proposed construction.

4.5. A limited site investigation has been completed and is discussed in Section 5 of the BIA. It consists of a number of trial pits investigating the strip footings around the property and the neighbouring properties. The ground conditions comprise Made Ground over the London Clay formation. Groundwater was not encountered. It is accepted that the London Clay is non-productive although some perched water within Made ground should be allowed for during construction.

4.6. Interpretative geotechnical information is presented, including bearing capacity and retaining wall design parameters. There is no laboratory test or site testing information provided, although the values adopted are reasonably conservative for shallow foundations within London Clay. The contractor should confirm the insitu shear strength of the London Clay at formation level meets the minimum design requirements in advance if the works. It is also recommended that if any perched water is observed, it is monitored and appropriate mitigation is adopted during construction to maintain stability.

4.7. Adjacent basements are discussed within the BIA Section 2.2 and 6.1, with 11 Nassington Road reported as having a basement extended in the same manner as the proposed basement to 9 Nassington Road. Further discussion is presented for 7 Nassington Road, which is the adjacent detached property. Its lower ground floor is approximately 1.2m above the current lower ground level of No. 9, with a cellar below.

4.8. Conventional strip foundations will be adopted at the rear of the property, with underpinning and temporary trench sheeted, propped excavations required for the front lightwell construction. A structural methodology and sequence with accompanying sketches is included within Richard Tant's Structural Methodology, Method of Works Sketches and structural calculations. Richard Tant's basement plan also indicates underpinning sections layout to match the proposed methodology.

4.9. A ground movement assessment (GMA) has been undertaken which considers the impacts from the proposed works to the neighbouring properties and the highway. The magnitudes of movements predicted are within the expected range, considering the construction methodology proposed, the scale and depths of the excavations and the neighbouring properties' foundation depths. The GMA indicates that impacts will be a maximum of Burland Category 1 (Very Slight).

4.10. The highway / footpath is within 5m from the proposed light-well. Its ground movement has been considered in Section 7.6.1 in the BIA. Whilst only partial utilities information is presented and a full search should be undertaken prior to works commencing, the magnitude of movements to the highway are low and the impacts are stated as negligible. Asset owners should be consulted with regard to asset protection agreements, as applicable.

4.11. An outline structural monitoring strategy has been provided within BIA Section 9. Structural monitoring and consequential actions have been proposed with regards to various levels of movement limits predicted by the GMA. The contractor should adopt the monitoring strategy to ensure construction is appropriately controlled and impacts to neighbours are maintained within predicted limits.

4.12. Section 3 of the BIA reviews the Geological, Hydrogeological and Flood Risk information of the site. Use of the Camden Geological, Hydrogeological and Hydrological Study has been referenced in Section 3 and several relevant map extracts have been provided to locate the property and confirm the BIA's findings.

4.13. The screening assessment in section 4.1.2 indicates that historical flooding has not occurred on Nassington Road. The EA flood map is provided and comments within the justification table are accepted.

4.14. It is accepted that the change in impermeable site area is increased and that there will be a potential impact to the wider hydrological environment. This is discussed further in a referenced report. A number of SUDS strategies are proposed and should be adopted within the scheme to mitigate the impact of the extension to the property.

4.15. It is accepted that considering the underlying London Clay, there will be no impact to the wider hydrogeological environment.

4.16. It is accepted that although the slope of the site is over 7$^{o}$, the proposed development will not adversely impact stability.

## 5.0 CONCLUSIONS

5.1. The Basement Impact Assessment (BIA) has been prepared by appropriately qualified authors.

5.2. A site investigation has been completed which consists of trial pits. The contractor should confirm insitu shear strength of soils at proposed formation level meet the minimum design requirements.

5.3. It is accepted that there will be no impact to the wider hydrogeological environments.

5.4. A SUDS strategy is proposed to mitigate impacts to the hydrological environment.

5.5. A construction methodology is presented, including outline sequencing and propping arrangements. An outline construction programme should be provided to LBC.

5.6. A ground movement assessment (GMA) is presented indicating damage to neighbouring structures will be a maximum of Burland Category 1 (Very Slight).

5.7. Movements impacting the highway have been assessed as negligible. Whilst some utility information is provided, a full utilities search should be undertaken prior to development. Asset owners should be consulted with regard to asset protection agreements, as applicable.

5.8. A non-technical summary has been presented.

5.9. Queries and requests for information are summarised in Appendix 2. The BIA meets the requirements of Camden Planning Guidance: Basements.

# Appendix 1: Residents' Consultation Comments

Residents' Consultation Comments

| Surname | Address | Date | Issue raised | Response |
|---|---|---|---|---|
| N/A | N/A | 29/5/19 | No trial pit records presented. | Section 4; records provided. |
| N/A | N/A | 6/6/19 | Impact from construction works | Section 4; GMA provided. |

# Appendix 2: Audit Query Tracker

Audit Query Tracker*

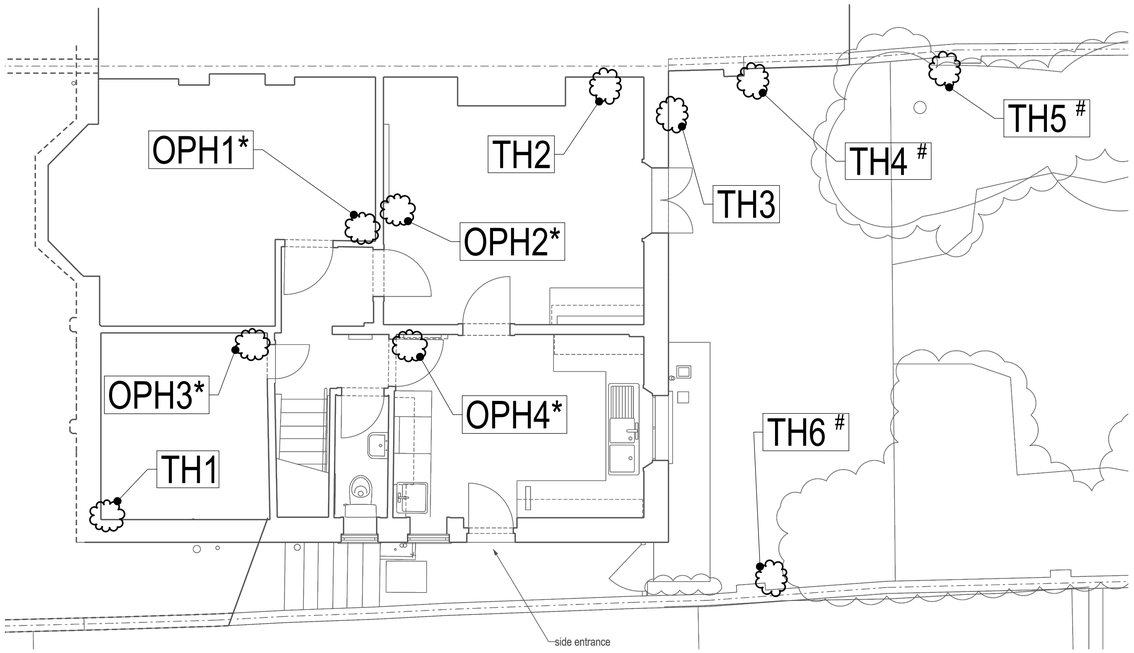
| Query No | Subject | Query | Status | Date closed out |
|---|---|---|---|---|
| 1 | BIA format | An indicative construction programme should be provided to LBC. | Note Only | N/A |
| 2 | Land Stability | The contractor should confirm the insitu shear strength of the London Clay at formation level meets the design requirements, prior to construction. | Note Only | N/A |
| 3 | Land Stability | Whilst some utility information is provided, a full utilities search should be undertaken prior to development. Asset owners should be consulted with regard to asset protection agreements, as applicable. | Note Only | N/A |

* Please provide complete and clear responses to the above queries which are discussed in detail in Section 4. Where any of the documents are updated, please indicate the updated sections in a covering email/letter.

# Appendix 3: Supplementary Supporting Documents

Trial Hole & Opening Up Locations (4811-SK01-SK05 & SK01B) by Richard Tant Associates

SUDS Strategy by LBH Wembley Engineering dated March 2019



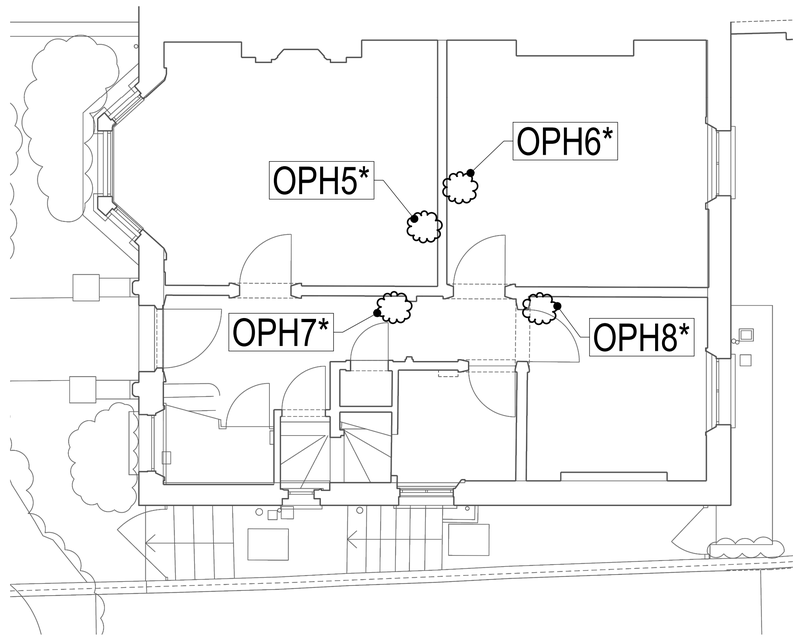

* :Not required if floors are to be removed/replaced.

# :Only required if wall is masonry.

Size of THs & OPHs to be such to enable structure to be measured.

## Existing Lower Ground Floor

Scale 1:50

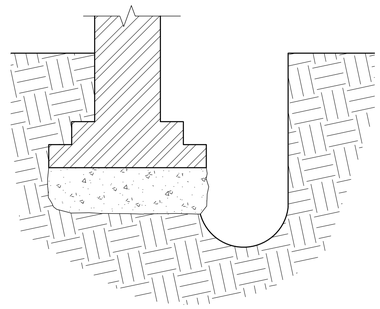



Size OPHs to be such to enable structure to be measured.

* :Not required if floors are to be removed/replaced.

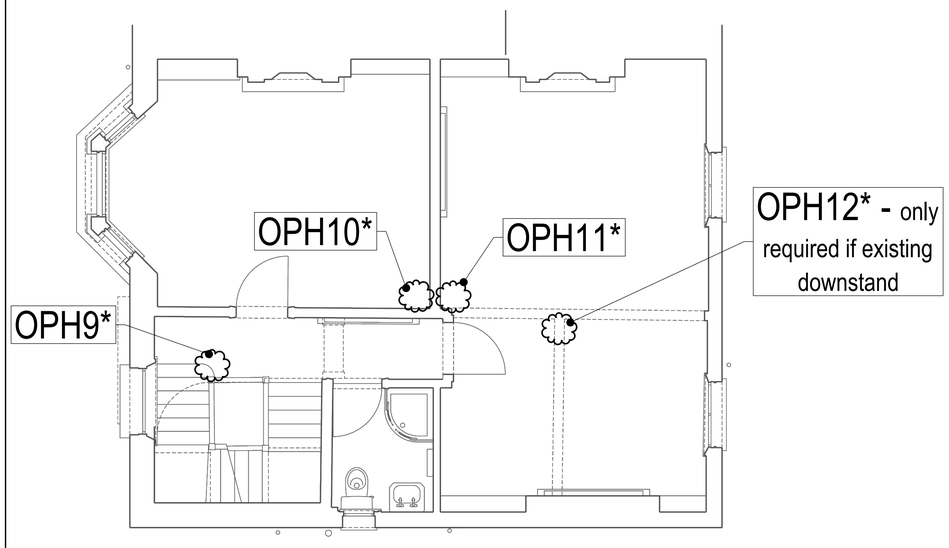
## Existing Upper Ground Floor

Scale 1:50



Typical Trial Hole (T.H.)

Trial hole to be dug to expose bottom of existing footing. Do not undermine existing footing. After inspection by Richard Tant Associates back fill with granular compacted material. Minimum depth to be 750mm.

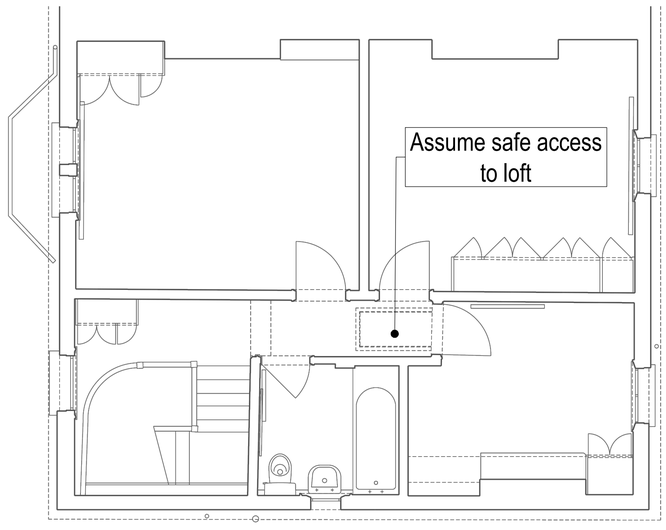



Size of OPHs to be such to enable structure to be measured.

* :Not required if floors are to be removed/replaced.

## Existing First Floor

Scale 1:50




## Existing Second Floor

Scale 1:50

OPH: Open up high level to expose structure above:

- To confirm floor construction above.
- To confirm wall construction.
- To identify any downstand beams.

Richard Tant Associates assume asbestos survey has been carried out at all trial hole & opening up locations.

Contractor to confirm with client if opening up is to be made good after inspection by Richard Tant Associates.

Note: Location of existing services not known. Care to be taken and prior to digging, sampling or opening up, areas are to be scanned.

## Notes.



| REV. | AMENDMENTS | BY | DATE | CHECKED |
|---|---|---|---|---|
| - | - | - | - | - |

PROJECT
Nassington Road

TITLE
Trial Hole & Opening up Locations

ARCHITECT
UV Architect

DRAWING No.
4811-SK01

| | |
|---|---|
| DATE | 06.02.2019 |
| SCALE | 1:50 @ A1 |
| DRAWN | AR |
| CHECKED | DW |
| REVIEWED | - |

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| Job No. | Sheet No. | Rev. |
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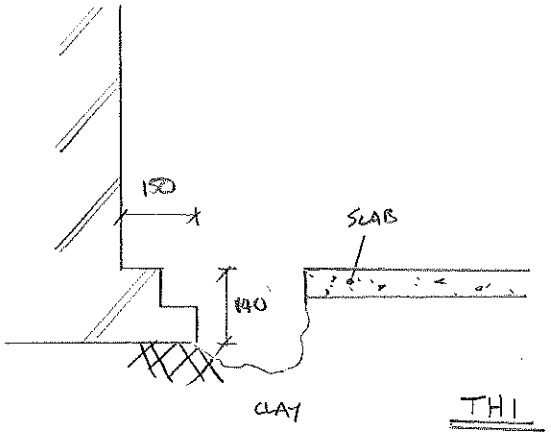
| 4811 | SK02 | |

Member/Location

Job Title: 9 NASSINGTON ROAD

Drg. Ref.

Made by DW Date 27/2/19 Chd.

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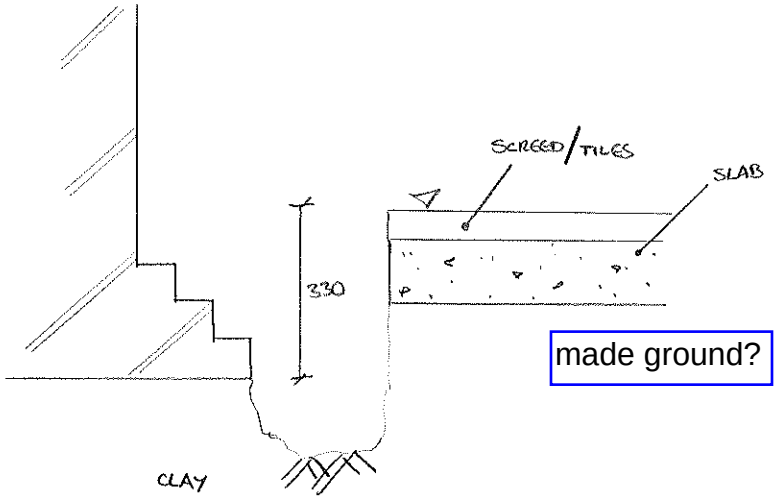


made ground?

TH2

soil testing?

perched water?

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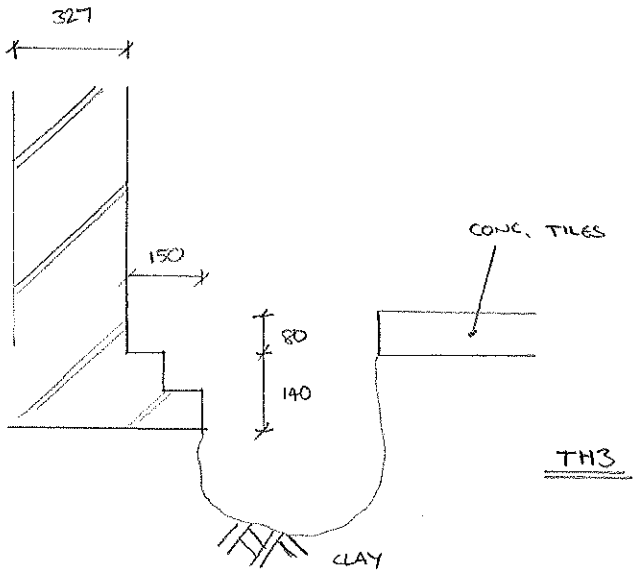
| Job No. | Sheet No. | Rev. |
|---|---|---|
| 4811 | SK03 | |

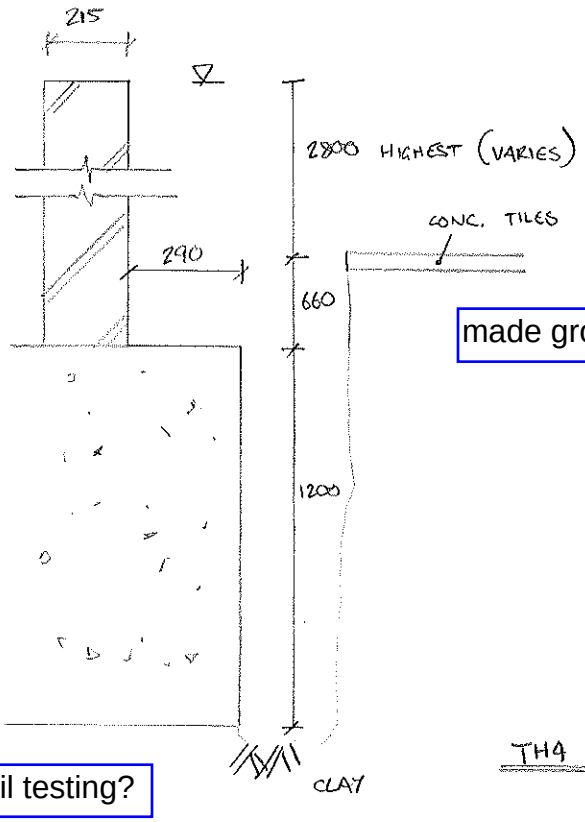
Member/Location

Job Title: 9 NASSINGTON ROAD

Drg. Ref.

Made by JW Date 27/2/19 Chd.




made ground?

soil testing?

perched water?

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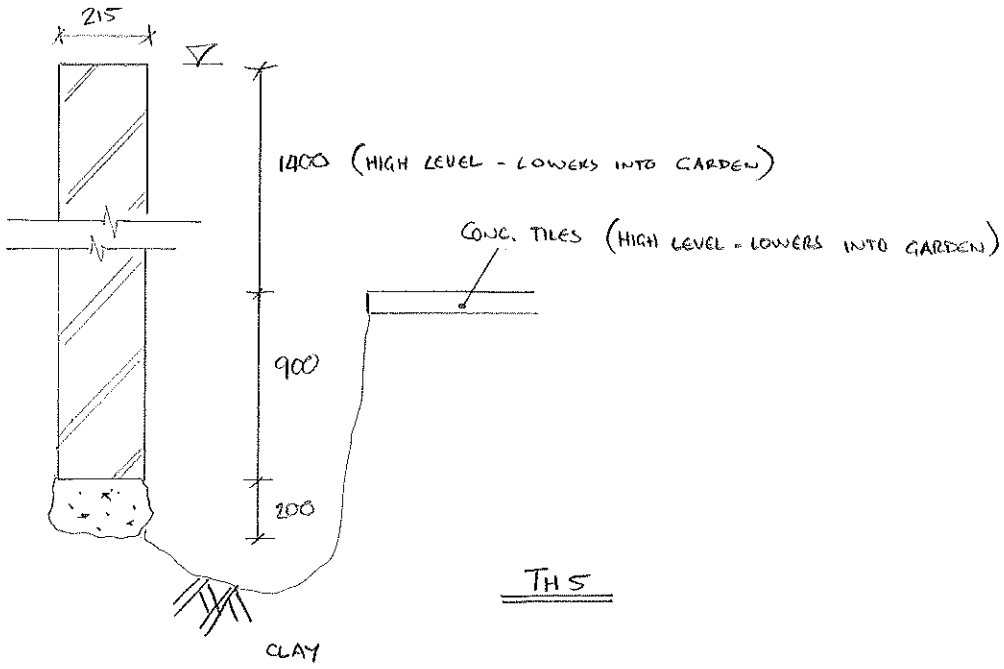
| Job No. | Sheet No. | Rev. |
|---|---|---|
| 4811 | SK04 | |

Member/Location

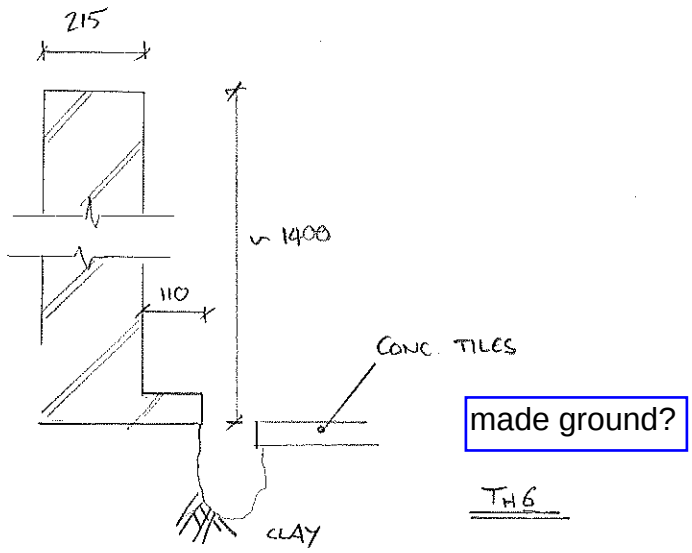
Job Title: 9 NASSINGTON ROAD

Drg. Ref.

Made by DW Date 27/2/19 Chd.




TH 5




made ground?

TH 6

soil testing?

perched water?

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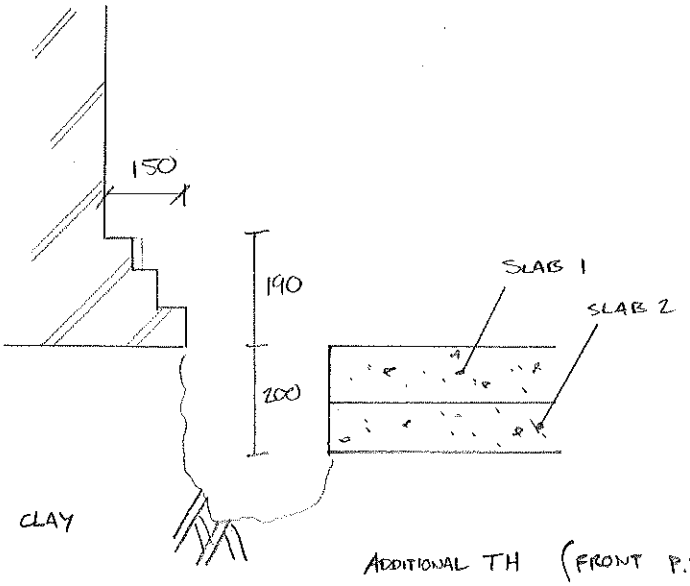
| Job No. | Sheet No. | Rev. |
|---|---|---|
| 4811 | SK5 | |

Member/Location

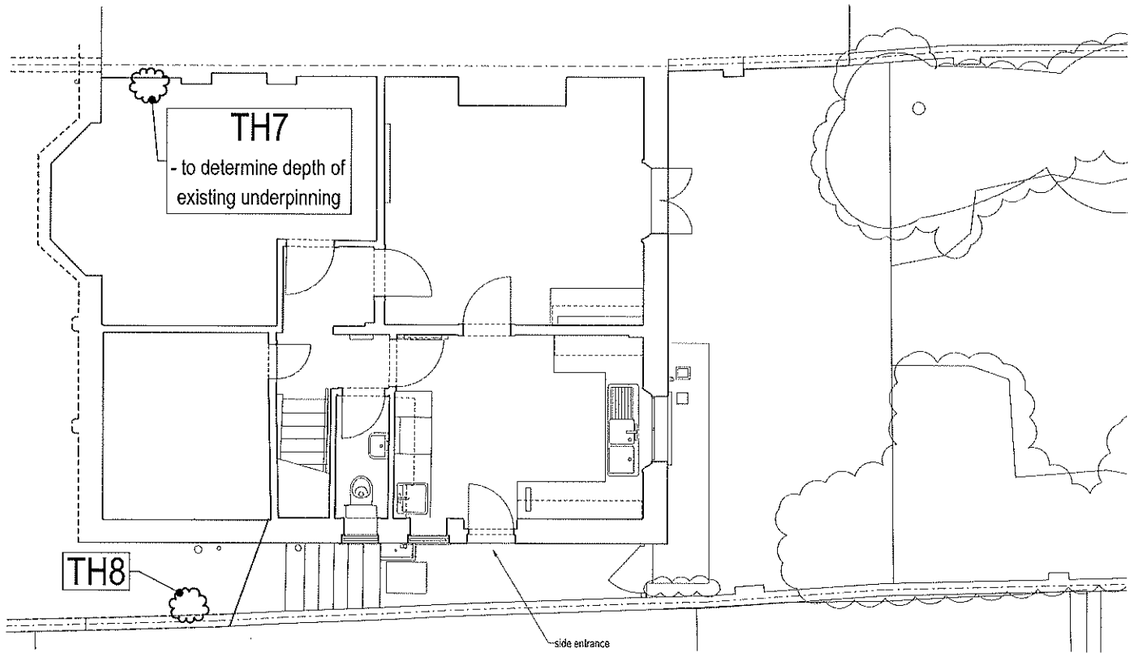
Job Title: 9 NASSINGTON ROAD

Drg. Ref.

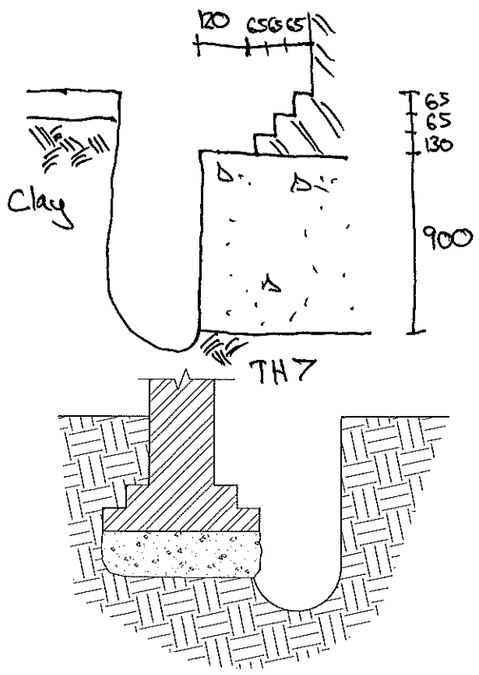
Made by DW Date 27/2/19 Chd.




ADDITIONAL TH (FRONT P.W. AS REQUESTED BY DARCY)



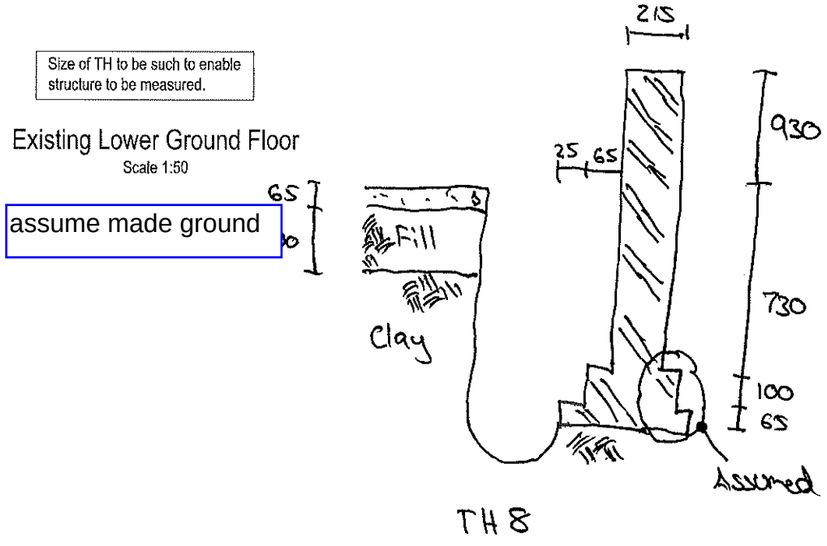

Existing Lower Ground Floor
Scale 1:50

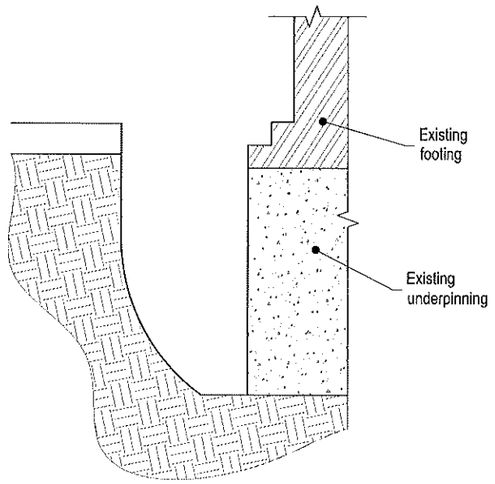



Typical Trial Hole (T.H.)

Trial hole to be dug to expose bottom of existing footing. Do not undermine existing footing. After inspection by Richard Tant Associates back fill with granular compacted material. Minimum depth to be 750mm.

Size of TH to be such to enable structure to be measured.




Assumed Trial Hole (TH7)

Trial hole to be dug to expose bottom of existing footing / underpinning. Do not undermine existing footing / underpinning. After inspection by Richard Tant Associates back fill with granular compacted material. Minimum depth to be 750mm.

Richard Tant Associates assume asbestos survey has been carried out at all trial hole & opening up locations.

Contractor to confirm with client if opening up is to be made good after inspection by Richard Tant Associates.

Note: Location of existing services not known. Care to be taken and prior to digging, sampling or opening up, areas are to be scanned.

Notes.



| REV. | AMENDMENTS | BY | DATE | CHECKED |
|---|---|---|---|---|
| B | THS added. | AR | 03.04.2019 | DW |
| A | THT added. Already done THs and OPHs removed from drawing for clarity. | AR | 01.04.2019 | DW |

PROJECT
Nassington Road

TITLE
Trial Hole & Opening up Locations

ARCHITECT
UV Architect

DRAWING No.
4811-SK01B

| | |
|---|---|
| DATE | 06.02.2019 |
| SCALE | 1:50 @ A1 |
| DRAWN | AR |
| CHECKED | DW |
| REVIEWED | - |

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