

17 Dartmouth Park Avenue, NW5
Basement Impact Assessment – Scoping Report

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1.0 Non-Technical Summary

This document has been prepared by Float Structures to support the planning application for the development at 17 Dartmouth Park Avenue, London, NW5 1JL. The report has been carried out with respect to the refurbishment and reconfiguration of the existing property, including the addition of a new lightwell at the front of the existing building, as well as lowering some areas of the lower-ground floor slab. The report includes information required to comply with the relevant parts of London Borough of Camden (LBC) Planning Guidance relating to subterranean development, as advised during pre-planning application liaison.

The existing site contains a detached late-Victorian, four-storey home, of which the lower ground floor is partially subterranean, with the site sloping downwards from the front to the rear. The site is accessed from Dartmouth Park Avenue through a small entrance gate at the front, with the front bounded by a lower-level brickwork garden wall. The existing building is set back approximately 6m from the front of the site boundary. The building is traditionally built with loadbearing masonry external walls, timber suspended floors and roof, and internal walls in timber and masonry. The foundations comprise stepped brick footings on a clinker base, founded in London Clay, with the front walls acting as retaining walls for the higher external levels to the front of the building. There have been minor alterations made in recent history, including the removal of an internal spine wall at lower-ground and ground floor.

The majority of the proposals involve alterations to the superstructure, such as removing or relocating internal loadbearing walls and adding new extensions at the side and rear of the building. It’s proposed to introduce new double-height spaces throughout the property which will require re-support of the existing floor structures. A new feature stair is proposed in the central hallway. In the rear garden, a new out-building is proposed to the rear.

The proposals also include some alterations to the substructure. A new lightwell to match the depth of the existing lower-ground floor is proposed along half of the front of the building, while the levels of the existing northern access side passage will be adjusted to tie in with the lightwell. Internally, the existing lower-ground floor slab will be partially lowered in the front half of the building, although as per the architectural drawings this has been offset from the existing foundations of the front wall to avoid underpinning directly. The new lightwell and floor slabs are to be constructed in tradition reinforced concrete, with the walls constructed in an underpin sequence.

This scoping report includes the following:

- Desk Study
- Screening
- Scoping
- Conclusions & Recommendations

Float Structures have been appointed as sub-consultant to the architect, Unknown Works, to provide structural engineering consultancy services for the design stages pre- and post-planning, with the intention that Float Structures would also be retained to undertake site inspections at regular intervals on behalf of the client during construction of the structural works.

A review of the British Geological Survey maps indicate the site is underlain by the London Clay Formation, comprising clay, silt and sand. Nearby record borehole logs have been reviewed and support the map information.

No risks have been identified in relation to land/slope stability, nor are there any significant hydrological or hydrogeological impacts. The site has a risk of flooding from reservoirs in the area, a low risk of flooding from surface water and a very low risk of flooding from rivers and sea. Flooding from groundwater is unlikely. The proposed development does not change the flooding characteristics of the site, and therefore these risks remain unchanged.

This report has assessed the stability of both this building and the neighbouring structures. Due to the scale of the proposed works, distance from nearby buildings and through the adoption of good construction practice and a suitable temporary works sequence, the impact on neighbouring structures is expected to be ‘Negligible’ to ‘Very slight’ in accordance with the Burland Scale. We have recommended the use of a structural monitoring strategy in order to monitor and control the impact of the works on the neighbouring structures.



Rear Elevation of 17 Dartmouth Park Avenue

2.0 Introduction

This document has been prepared by Float Structures to support the planning application for the development of 17 Dartmouth Park Avenue, London, NW5 1JL.

The purpose of this assessment is to consider the effects of the proposed lower ground works on the local hydrology, geology and hydrogeology, as well as the potential impacts to neighbours and the wider environment, and to determine if further investigation or assessment is required in order to safely and responsibly construct the proposals.

The site is located at National Grid Reference TQ 28846 86321 and indicated in the figure over.

The approach for this scoping report follows current planning guidance for basements and lightwells adopted by LBC, including:

- Guidance for Subterranean Development (November 2010) – Ove Arup & Partners
- Camden Planning Guidance (CPG): Basements (January 2021)
- Camden Local Plan 2017: Policy A5 Basements and Policy CC3 Water and flooding.

In accordance with the scale and nature of the proposals, and in response to advice received during pre-planning application liaison, this assessment comprises the following elements:

- Desk Study
- Screening
- Scoping
- Conclusions & Recommendations

The report is not intended for, and should not be relied upon by, any third party, and no responsibility is undertaken to any third party.

2.1 Authors

The directors at Float Structures are experienced chartered structural engineers who have worked on basement projects in the London area for over ten years at several award-winning engineering firms. Past-projects range from multi-storey hotel mega-basements in central London to single-storey residential basements. The firm's structural design ethos is to use creative and considered engineering and analysis alongside rigorous checking and quality assurance to address the challenges of basement construction.

The author of this report is Fred Miles MEng (Hons) CEng MStructE. It has been further reviewed by Conor O'Sullivan BEng (Hons) CEng MIEI. Both are directors of Float Structures Ltd. and are chartered engineers with appropriate experience in the design of basements.

A supporting technical note has been prepared by A-squared to support this BIA Scoping Report. The note has been prepared by Paola Ianniello Dott. Ing., checked by Hamed Shariff MEng (Hons) CEng MICE and approved by Alex Nikolic BEng (Hons) MSc DIC CEng MICE MSt (Cantab). Refer to Appendix C for further details.

2.2 Sources of Information

The following baseline data has been referenced to complete this assessment in relation to the proposed development:

- Visual site inspection on 19/12/2022 and 03/02/2023, including inspection of trial pits at ground and lower-ground floor. Refer to Section 3.1.1 and Appendix A.
- Existing and proposed drawings, produced by Unknown Works
- Historical mapping information was found from the British History at www.british-history.ac.uk
- Geological mapping information from the British Geological Survey at www.bgs.ac.uk
- Floor risk mapping information from www.gov.uk
- Unexploded Ordnance (UXO) maps are from www.bombsight.org
- TFL Property Asset Register Public Web Map
- Camden Geological, Hydrogeological and Hydrological Study

3.0 Description of Proposals



17 Dartmouth Park Avenue, NW5. Google Satellite View



Site Location (bounded in red)

3.1 Existing and Proposed Development

The site location is 17 Dartmouth Park Avenue, NW5 1JL, within the Highgate Ward of the London Borough of Camden. The site is bounded by neighbouring properties on Dartmouth Park Avenue to the South and North, and neighbouring properties on Croftdown Road to the West of the site, i.e. the rear of the garden. The site is accessed from Dartmouth Park Avenue. The existing building is not listed. However, it is within the Dartmouth Park Conservation Area.

3.1.1 Condition of Existing Structure and Site

The site is within a wider hillside setting and lies approximately 60m above sea level. The overall slope angle of the site is less than 7 degrees, with local increases to approximately 9 degrees across the extent of the existing property. Refer to Appendix A for an explanatory section drawing. In general, the site levels are consistent with the surrounding topography rising towards the north-east.

The existing building is a detached late-Victorian, four-storey home, of which the lower ground floor is partially subterranean. The building is traditionally built with loadbearing masonry external walls, timber suspended floors and roof, and internal walls in timber and masonry. The foundations comprise stepped brick footings on a clinker base, founded in London Clay, with the front walls acting as retaining walls for the higher external levels to the front of the building. There have been minor alterations made in recent history, including the removal of an internal spine wall at lower-ground and ground floor.

The site is bounded by a low-level brick garden wall at the front of the property, and a brick boundary wall approximately 1.5m–2m high at each side. While the boundary walls were generally noted to be in good condition, the front wall was noted to be leaning towards the road, likely due to the vegetation immediately behind the wall. The existing building is set back approximately 6m from the front of the site boundary.

A trial pit investigation has been undertaken which has confirmed the existing building foundations, comprising stepped brick footings on a clinker base, are constructed on firm clay, generally founded 800-2000mm below the existing lower-ground finished floor levels. The foundation of the front wall appears to be founded higher, approximately 250mm below the existing lower-ground finished floor level. Refer to Appendix A for the trial pit investigation record.

Full details of the existing internal arrangement are shown in the architectural drawings.

3.1.2 Proposed Works

The majority of the proposals involve alterations to the superstructure, such as removing or relocating internal loadbearing walls and adding new extensions at the side and rear of the building. It's proposed to introduce new double-height spaces throughout the property which will require re-support of the existing floor structures. A new feature stair is proposed in the central hallway. In the rear garden, a new out-building is proposed to the rear.

The proposals also include some alterations to the substructure. A new lightwell to match the depth of the existing lower-ground floor is proposed along half of the front of the building, while the levels of the existing northern access side passage will be adjusted to tie in with the lightwell. Internally, the existing lower-ground floor slab will be partially lowered in the front half of the building, although as per the architectural drawings this has been offset from the existing foundations of the front wall to avoid underpinning directly. The new lightwell and floor slabs are to be constructed in tradition reinforced concrete, with the walls constructed in an underpin sequence.

3.0 Description of Proposals

3.1.3 Impact on Adjacent Structures & Services

The property shares party fence walls with 15 and 21 Dartmouth Park Avenue to the sides, and a boundary fence with 74 Croftdown Road to the rear.

Due to the existing site topography and distance on plan, it is clear by inspection that the depth of the proposed excavation works does not pose a risk to the neighbouring structures of 15 Dartmouth Park Avenue or Croftdown Road, both of which are constructed as a lower level relative to 17 Dartmouth Park Avenue.

The boundary with 21 Dartmouth Park Avenue is located much closer to the proposed excavation works, and the property appears to have been constructed at a slightly higher level originally. Detailed consideration has therefore been given to the design of excavation works in the vicinity of this boundary and mitigate of ground movement risk.

The excavation works comprise the new lightwell to the front of the property (approx. 2m from the boundary), a new stairwell to access the proposed northern entrance to the lower ground floor (approx. 1m from the boundary) and re-profiling of the external levels along the passage to the north of the building.

The design of the latter element has been developed such that in no location will the proposed levels along the boundary be lower than those of the adjacent property. Planters have been incorporated into the design to allow the lower proposed floor levels to be offset from the boundary wall, avoiding undermining of the existing foundations and mitigating the risk of ground movement due to these works.

As shown on the plan (refer to S199 Appendix B) the lightwell and stairwell are relatively narrow in length relative to the boundary, and have been offset by at least 1m to minimise their impact on the original structure. As shown in the sections of S101 in Appendix B, vertical loads of the neighbouring structures will not exert load directly onto the new retaining structure in the permanent case, and therefore there will be no impact on long-term ground stability.

In the short-term during construction, the risk of ground movement will be mitigated by the adoption of sequential construction in an underpin sequence to control ground movements. Therefore, the impact on neighbouring structures is expected to be 'Negligible' to 'Very slight' in accordance with the Burland Scale.

We would expect the works to trigger the Party Wall etc. Act 1996 (PWA). The appointed party wall surveyor should be consulted in this regard.

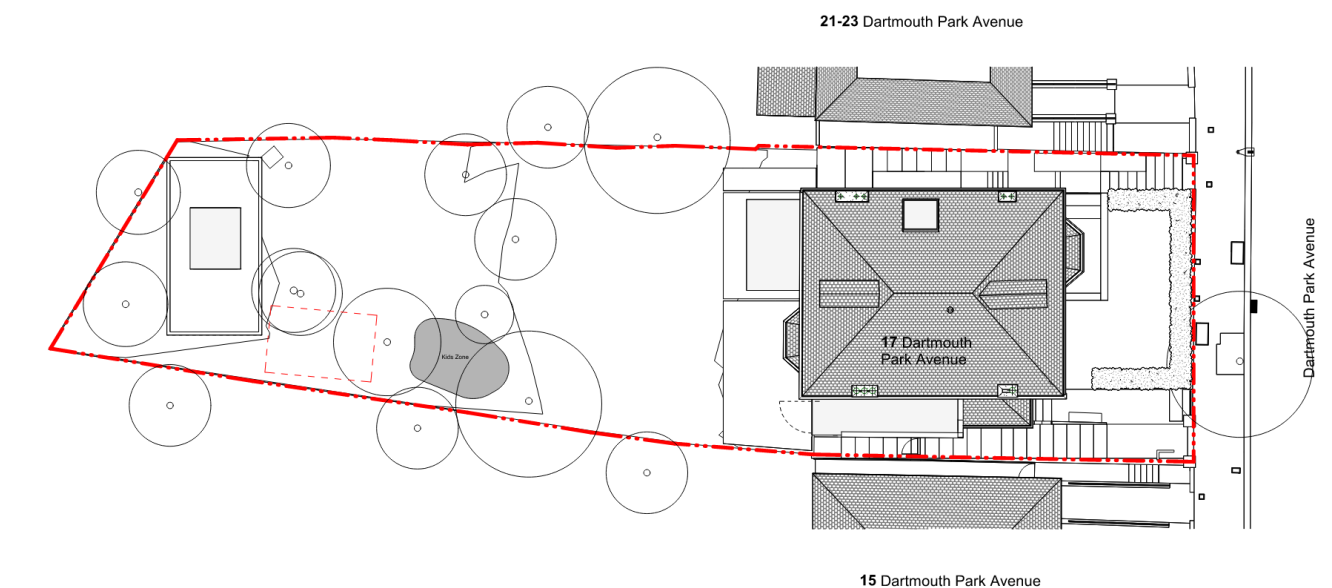
The TFL register confirmed that there is no infrastructure adjacent to or below the site. There are no known mains services or utilities within the site boundary, but detailed searches into the locations of any mains services will be carried out in due course. In addition to local asset searches, as per standard good practice for ground works, the contractor will be required to undertake ground penetrating radar scanning prior to commencing any excavations.

3.1.4 Outline Construction Methods

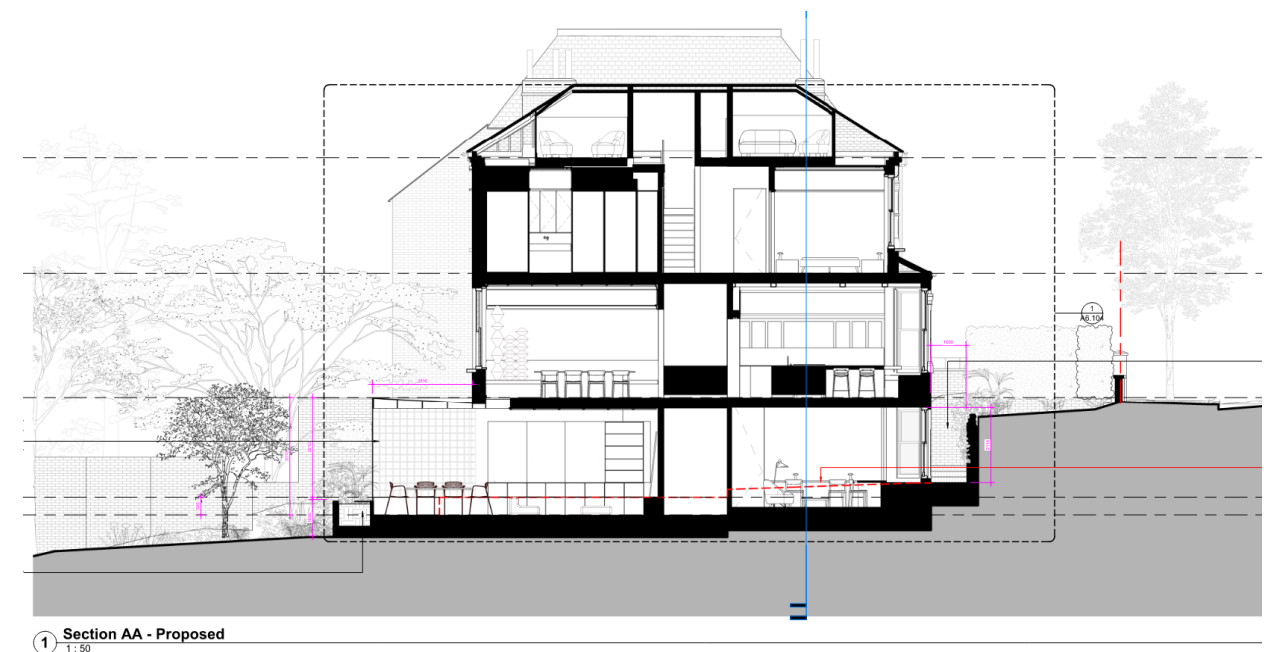
The proposed works will utilise the following construction techniques:

- Lightwell retaining walls formed in reinforced concrete constructed sequentially in an underpin sequence. Due to the relatively small size of the lightwell, the walls are designed to resist lateral forces through a combination of cantilever action from the base and spanning horizontally between perpendicular walls, with couplers installed to permit continuity of reinforcement.
- Reinforced concrete, ground-bearing slab for lowered floor slab construction. Where the slab steps up approximately 500mm to tie in with the existing slab levels adjacent to the external front wall, the change in level will be formed by folding the slab. This area will be constructed in an underpin sequence to control lateral ground movement beneath the existing foundations.

- Lowering of ground levels along the northern side of the building will be carried out sequentially as a precautionary measure, but as noted in 3.1.3 it is understood that the existing party wall foundations are founded below the proposed excavation levels.

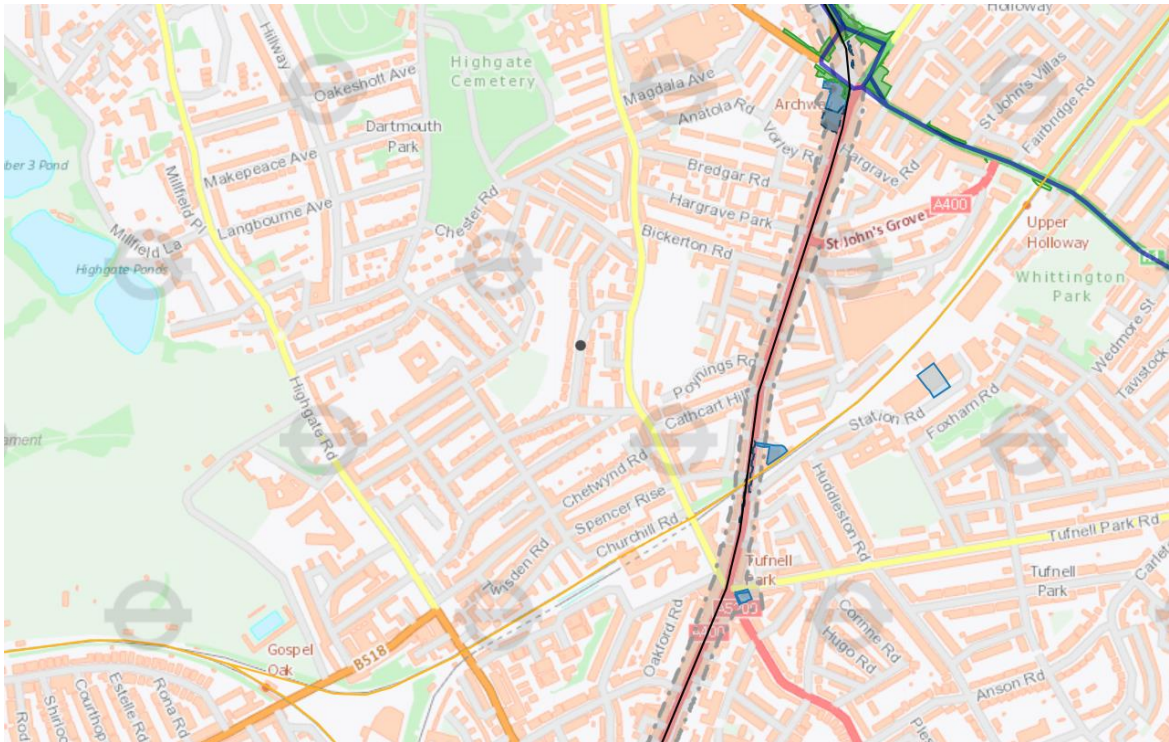


Proposed Site Plan

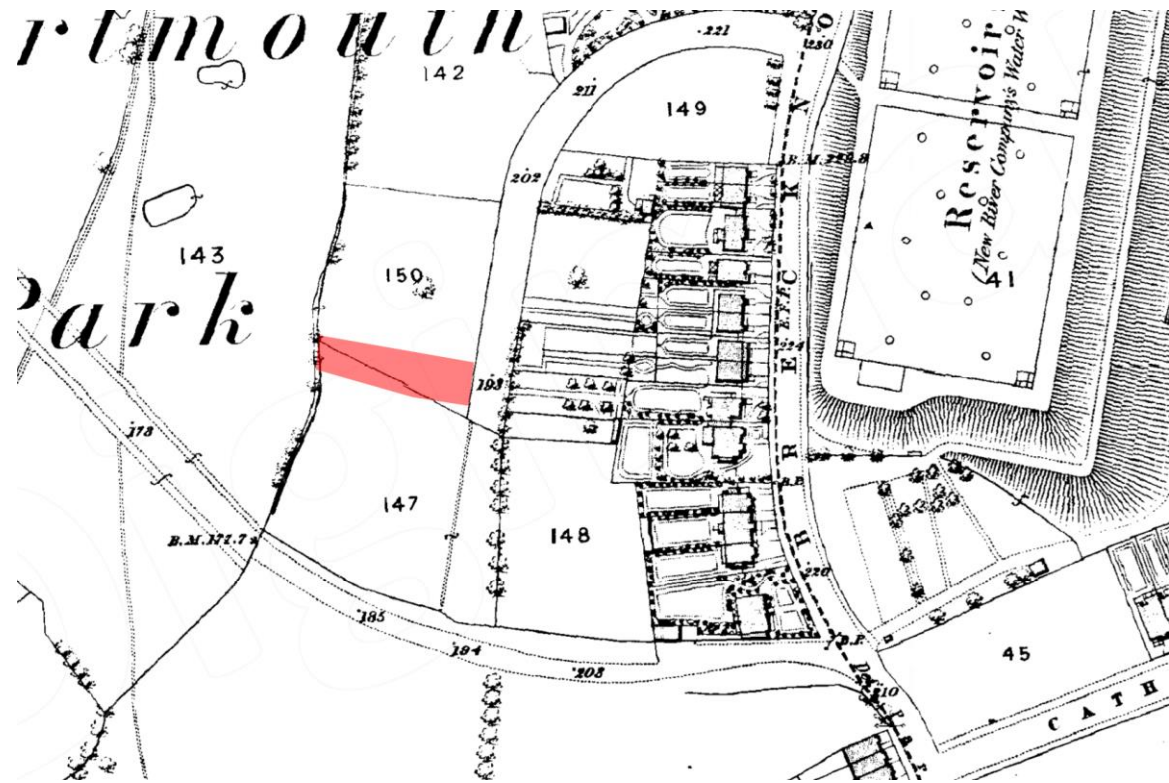


Proposed Section

4.0 Desk Study



TFL Asset Map, site approximately 350m from LUL tunnel



Ordnance Survey, Southampton, 1869-1880

In preparation for the screening and scoping assessments to be undertaken, a thorough understanding of the existing site and building has been developed to inform development of the design. This section provides a summary of the information that has been obtained.

4.1 Site Description

The site is located within the Highgate Ward of the London Borough of Camden, approximately 500m east of Hamstead Heath and 500m northwest of Tufnell Park London Underground station. The site is bounded by neighbouring properties on Dartmouth Park Avenue to the south and north, and properties on Croftdown Road to the west of the site. The site is accessed from Dartmouth Park Avenue. The existing building is not listed. However, it is within the Dartmouth Park Conservation Area.

A visual survey of the site was completed on 19th December 2022, with a subsequent visit on 3rd February 2023 to inspect intrusive investigations and trial pits that were undertaken to expose underlying structure in strategic locations. The site is roughly rectangular, measuring approximately 50m from east to west and 14m north to south. The site comprises a large rear garden which occupies over half of the site and a smaller front garden. Trees and soft planting are present throughout both gardens, with the rear garden housing several larger trees.

The site slopes down from front to back, with an overall slope of approximately 7 degrees, with local increases to approximately 9 degrees across the extent of the existing property.

Minor internal alterations were noted in the property, with some walls removed at ground and lower-ground floor level. The lower-ground floor slab at the rear of the property was noted to appear more recently constructed and at a slightly lower level than the front of the property, and so it's anticipated that this formed part of the alterations.

4.2 Site History

A review of the website www.british-history.ac.uk shows that 17 Dartmouth Park Avenue originally lay across two sites, located off an access road from Brecknock Road (now Dartmouth Park Hill). It appears to have been constructed between 1880 and 1890, first appearing in the 1890 Ordnance Survey. Historical Ordnance Survey maps suggest that the site was farmland prior to this.

The UXO maps, from www.bombsight.org, indicate that the site was not impacted by World War 2 bombing. Refer to Appendix A for details.

4.3 Geology

From a review of the British Geological Survey maps, the soil in the area is understood to be London Clay immediately beneath the usual made ground or topsoil, which is quite common for the area. Borehole records in the vicinity confirm this understanding.

The site is also located in an area where there are numerous preceding basement developments from which an initial understanding of the ground conditions and geology has been developed, and this would indicate the site is suitable for the proposed excavations.

Trial pits undertaken on site have exposed firm clay directly beneath the existing foundations, which comprise stepped brick footings on a clinker base.

4.0 Desk Study

4.4 Hydrogeology

The precedent ground investigations from nearby projects that are referred to above did not generally detect groundwater, either during initial drilling of boreholes or at subsequent monitoring visits.

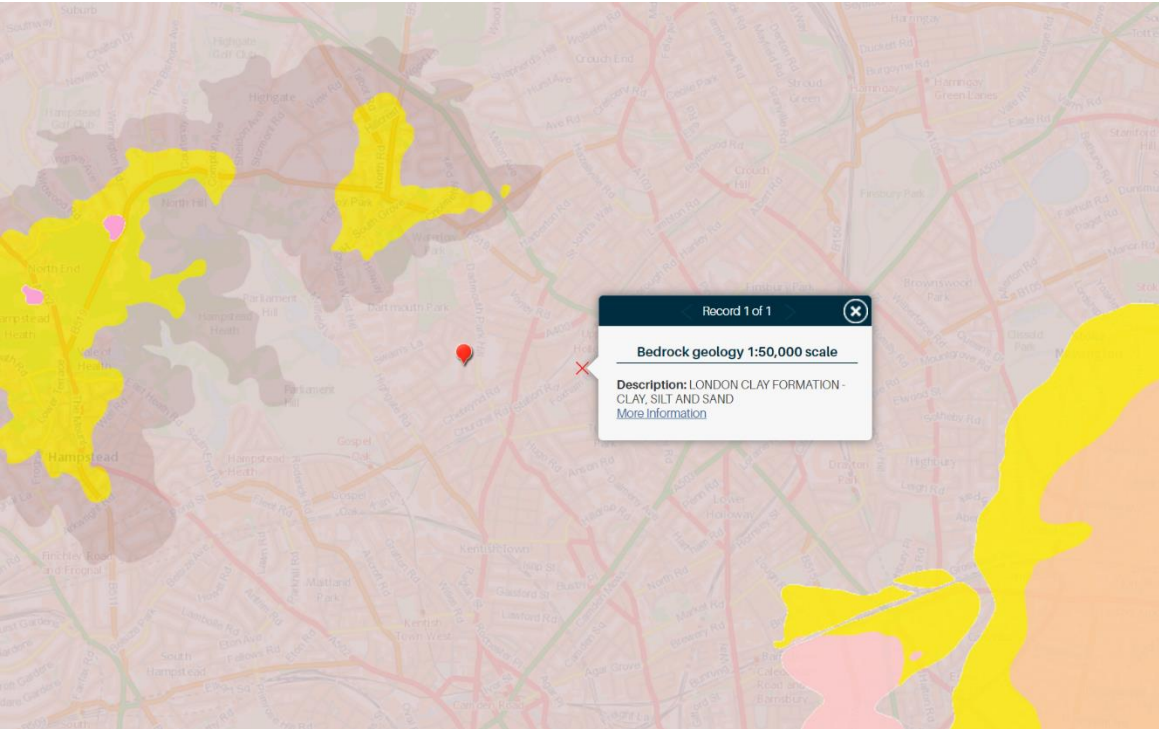
Given the proposed excavations will not extend beyond the external ground level of the existing rear patio, and that there’s no record of any flooding of the lower-ground floor, it is assumed that no groundwater will be encountered during construction works or in the permanent case for this location.

4.5 Hydrology & Flood Risk

The site location has been checked for risk of flooding using the Environment Agency maps and has been confirmed as an area within Flood Zone 1, which means there is a low probability of flooding from rivers and the sea.

The site has a risk of flooding from reservoirs in the area, a low risk of flooding from surface water and a very low risk of flooding from rivers and sea. Flooding from groundwater is unlikely. Due to the existing lower-ground floor, the proposed development does not change the flooding characteristics of the site, and therefore these risks remain unchanged.

The site is located in excess of 1km from the historic routes of both the River Fleet and its tributaries, and therefore will not influence, or be influenced by, these hydrological features.



BGS Maps Bedrock Record



Extent of flooding from surface water

High Medium Low Very low Location you selected

Flood Risk Map – Surface Water Flood Risk

5.0 Screening

As per LBC planning guidance, a screening process has been undertaken and the findings are described below.

5.1 Groundwater

Question	Response	Details
1a. Is the site located directly above an aquifer?	No	The site is underlain by London Clay Formation, which as an Unproductive Strata, will have negligible significance for water supply or river base flow.
1b. Will the proposed basement extend beneath the water table surface?	No	By inspection areas of the existing lower ground floor already extend to the same depth as this newly proposed element. They were not subject to issues surrounding the water table or groundwater during construction.
2. Is the site within 100m of a watercourse, well (used / disused) or potential spring line?	No	Site location reviewed on Figures 11 & 12 of Camden GHHS. Not within 100m.
3. Is the site within the catchment of the pond chains on Hampstead Heath?	No	Site location reviewed on Figure 14 of Camden GHHS. Not within catchment area.
4. Will the proposed basement development result in a change in the proportion of hard surfaced / paved areas?	Yes	A small increase in hard surfacing to the front of the property will occur by creating the lightwell. This is considered acceptable.
5. As part of site drainage, will more surface water (e.g. rainfall and run-off) than at present be discharged to the ground (e.g. via soakaways and/or SUDS)?	Yes	<p>The hard surfacing of the lightwell area will drain to the existing combined sewer, representing a 3-4% increase in discharge, which is considered acceptable. Note that the figure above does not account for any surface water drainage from existing hard landscaping, which would further reduce the percentage.</p> <p>Soakaways are not typically suitable for clay soils.</p>
6. Is the lowest point of the proposed excavation (allowing for any drainage and foundation space under the basement floor) close to, or lower than, the mean water level in any local pond (not just the pond chains on Hampstead Heath) or spring line?	No.	Site location reviewed on Figures 12 of Camden GHHS. No ponds or springs in the local area.

5.2 Slope Stability

Question	Response	Details
1. Does the existing site include slopes, natural or man-made greater than 7 degrees (approximately 1 in 8)?	Yes.	Review of measured site topography survey spot levels indicates overall slope angle of the site is less than 7 degrees, with local increases to approximately 9 degrees across the extent of the existing property. However, the proposed excavations do not materially alter the site slope, or the structural interventions to that slope. There will be no impact to slope stability.
2. Will the proposed re-profiling of landscaping at the site change slopes at the property boundary to more than 7 degrees (approximately 1 in 8)?	No.	The slope at the boundaries will remain the same as the existing, however offset from the boundary there are localised areas where the levels are being reduced. However, these areas are intended to be formed in an underpin sequence to minimise the effect on adjacent structure. Refer to drawing S101 in Appendix
3. Does the development neighbour land, including railway cuttings and the like, with a slope greater than 7 degrees (approximately 1 in 8)?	Yes	Adjacent sites of 15 & 21 Dartmouth Park Avenue contain localised slopes exceeding 7 degrees.
4. Is the site within a wider hillside setting in which the general slope is greater than 7 degrees (approximately 1 in 8)?	No	Site location reviewed on Figure 16 of Camden GHHS and a wider hillside setting is observed. However, general hillside slopes are less than 7 degrees within the vicinity of the site.
5. Is the London Clay the shallowest strata at the site?	Yes.	Search undertaken of BGS geological maps.
6. Will any trees be felled as part of the development and/or are any works proposed within any tree protection zones where trees are to be retained?	No.	No trees will be felled as part of the development.
7. Is there a history of seasonal shrink-swell subsidence in the local area and/or evidence of such effects at the site?	No.	The existing building shows no sign of historic or current defects due to shrinkage effects of the London Clay soils. The local area is not considered to have a greater history of such effects than elsewhere in areas of London Clay.
8. Is the site within 100m of a watercourse or a potential spring line?	No	Site location reviewed on Figures 11 & 12 of Camden GHHS. Not within 100m.

5.0 Screening

9. Is the site within an area of previously worked ground?	No.	Historical ordnance survey maps suggest that the site was farmland prior to construction of the existing building.
10. Is the site within an aquifer. If so, will the proposed basement extend beneath the water table such that dewatering may be required during construction?	No	The site is underlain by London Clay Formation, which as an Unproductive Strata, will have negligible significance for water supply or river base flow. Proposed excavations are not expected to be sufficiently deep to encounter groundwater.
11. Is the site within 50m of the Hampstead Heath Ponds?	No.	Site location reviewed on Figure 14 of Camden GHHS. Not within 50m.
12. Is the site within 5m of a highway or pedestrian right of way?	Yes.	The front boundary of the site adjoins the footpath of Dartmouth Park Avenue.
13. Will the proposed basement significantly increase the differential depth of foundations relative to neighbouring properties?	No.	Depth of proposed foundations is similar to that of existing building, which in turn are similar to those of 15 and 21 Dartmouth Park Avenue, and therefore will not increase the differential depth of the foundations.
14. Is the site over (or within the exclusion zone of) any tunnels, e.g. railway lines?	No.	TFL Asset search undertaken. Refer to map extract in Section 2.3.3.

5.3 Surface Water and Flooding

Question	Response	Details
1. Is the site within the catchment of the ponds chains on Hampstead Heath?	No	Site location reviewed on Figure 14 of Camden GHHS. Not within catchment area.
2. As part of the proposed site drainage, will surface water flows (e.g. volume of rainfall and peak run-off) be materially changed from the existing route?	No.	Surface water drainage from the lightwell will increase flows by 3-4% compared to the existing building, which is considered acceptable. Note that the figure above does not account for any surface water drainage from existing hard landscaping, which would further reduce the percentage.
3. Will the proposed basement development result in a change in the proportion of hard surfaced / paved external areas?	Yes	A small increase in hard surfacing to the front of the property will occur by creating the lightwell. This is considered acceptable.

4. Will the proposed basement result in changes to the profile of the inflows (instantaneous and long-term) of surface water being received by adjacent properties or downstream watercourses?	No.	The additional lightwell volume will not materially change surface or groundwater flows.
5. Will the proposed basement result in changes to the quality of surface water being received by adjacent properties or downstream watercourses?	No.	The additional lightwell volume will not materially change surface or groundwater flows.
6. Is the site in an area identified to have surface water flood risk according to either the Local Flood Risk Management Strategy or the Strategic Flood Risk Assessment or is it at risk from flooding, for example because the proposed basement is below the static water level of nearby surface water feature.	No.	The addition of the proposed lightwell will not change the site characteristics with respect to flooding.

5.4 Non-Technical Summary of Screening Process

The screening process has confirmed that:

- The site does not lay in the vicinity of any nearby watercourses or productive aquifers, nor does it pose any risk to them or the general groundwater.
- The proposals will not have a material impact on surface water run off or similar, nor will it have any impact on below ground drainage.
- The existing site slopes generally from east to west, and there are no proposed plans to change this. In the context of the existing site-specific topography, ground conditions and proposed works, we would consider there is a low risk with regards to slope stability. However, due to the proximity of neighbouring properties we have also engaged an experienced geotechnical consultant to undertake a further screening and scoping exercise in relation to slope stability.
- The risk of flooding is low, or negligible, and the proposals do not change the existing site characteristics.

Other than those noted below, all potential concerns considered within the screening process have been demonstrated to be not applicable or not significant when considered in the context of the proposed development.

Outstanding risks to be considered in scoping:

- Impact of trees on works, or vice versa.
- Below ground services & utilities
- Slope stability

6.0 Scoping

The Scoping process addresses any outstanding risks that have been identified as requiring mitigation in the Screening process by developing an assessment methodology for each risk, along with a wider discussion of how any impacts may be mitigated in full or reduced to an acceptable level.

As noted in the preceding section, the screening process has generally demonstrated that potential risks due to subterranean development are either not applicable or are not significant for works of the scale and type proposed. Any outstanding risks are addressed below.

6.1 Potential Impact of Tree Removal on New and Existing Structures

Due to the nature of the clay soils on site, if trees or shrubs are proposed to be removed as part of the proposals, even if scheduled for replacement, this could lead to short- to medium-term changes in soil moisture content and consequentially in soil volume. The impact of this can include excessive foundation settlement, resulting in cracking to existing buildings and structures.

An arboricultural report has been commissioned to confirm the type, location and health of all trees and shrubs on site. The results of this report will be used to inform development of the landscape proposals. Where trees are proposed for removal, whether for maintenance or design reasons, the potential impacts to the surrounding existing buildings and structures will be assessed and where necessary the landscape proposals will be adjusted to mitigate the risk of foundation settlement.

All new structures forming part of the proposals will be designed in accordance with NHBC guidance to mitigate changes in soil volume.

6.2 Potential Impact of New Substructure on Existing Trees

Where new foundations or substructure are proposed in the vicinity of existing trees, it is important to ensure that the works will not damage or cut the tree roots, which can lead to instability and collapse of the trees.

An arboricultural report has been commissioned and confirmed that the new lightwell to the front of the building will not encroach on the root protection zone of the tree located to the front of the property in Dartmouth Park Avenue.

6.3 Below Ground Services & Utilities

Based on surveys carried out to date, there are no known buried services or utilities located on the site. This will be corroborated during the next design stage by the acquisition of record information from the statutory authorities relevant to the local area.

In addition to these preliminary actions, the contractor will be required to undertake ground penetrating radar scanning prior to commencing any excavations on site.

6.4 Slope Stability

Float Structures have engaged A-squared to undertake an additional screening and scoping exercise with respect to Slope Stability. Please refer to Appendix C for a technical note summarising the considerations and conclusions of that study, which are generally in accordance with the conclusions of the screening exercise carried out in Section 5.2 above.

No further action or assessment is currently proposed by the design team in relation to slope stability. However, it is recognised that further assessment may be required if requested by the owners of nearby buried utility assets or the local highway authority.

7.0 Scoping Stage Conclusions & Recommendations

In accordance with London Borough of Camden planning policy, this Basement Impact Assessment – Scoping Report has considered the potential risks to the site and surrounding environment that result from subterranean construction with respect to hydrology, hydrogeology and land stability. The intent of this process is to:

- Maintain the structural stability of the building and neighbouring properties.
- Avoid adversely affecting drainage and run off or causing other damage to the water environment.
- Avoid cumulative impacts upon structural stability or the water environment in the local area.

Where risks are shown to exist, this scoping report has identified the necessary further assessment or investigation to mitigate the risks to a level appropriate to the scale and context of the project specific proposals.

7.1 Conclusions

The proposed lightwell represents a relatively modest extension to an existing subterranean structure, and thus any potential impacts are considered as localised and will not adversely affect the existing building or surrounding environment when constructed in accordance with the principles identified in this report.

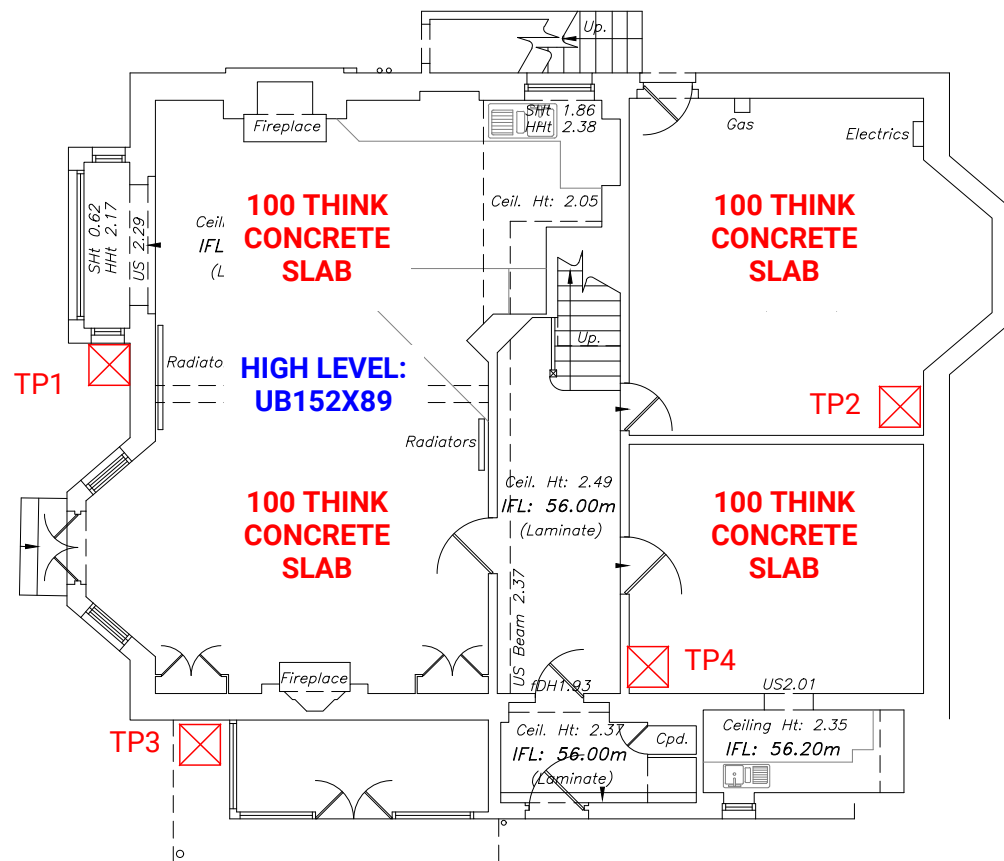
Similarly, no significant risk has been identified in relation to lowering of the existing lower-ground floor slab, or of the external levels to the north of the building due to the levels of the existing foundations, which will not be undermined.

Generally, potential risks identified in the screening process have been discounted or are not considered to be significant. Therefore no further investigation or assessment is considered necessary beyond the proposals outlined in Section 6.

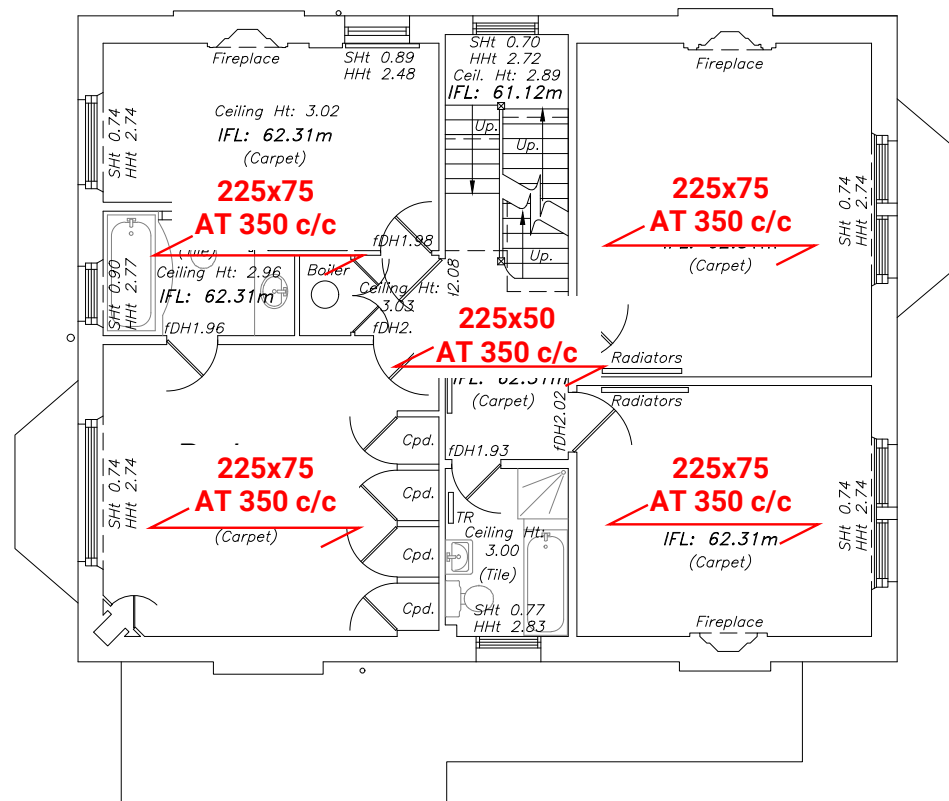
7.2 Recommendations

The additional surveys or actions identified by the scoping process, in this case statutory authority searches, should be implemented as soon as practicably possible and the results used to inform design development during the next stage.

TP6

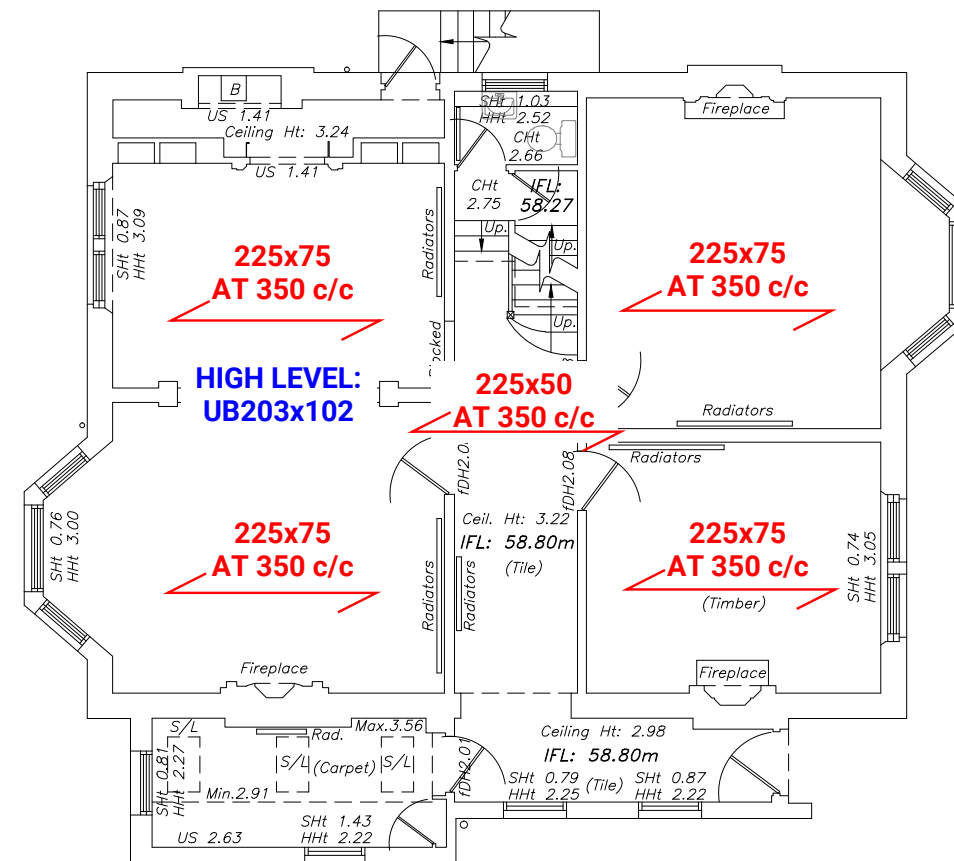


LOWER GROUND FLOOR PLAN

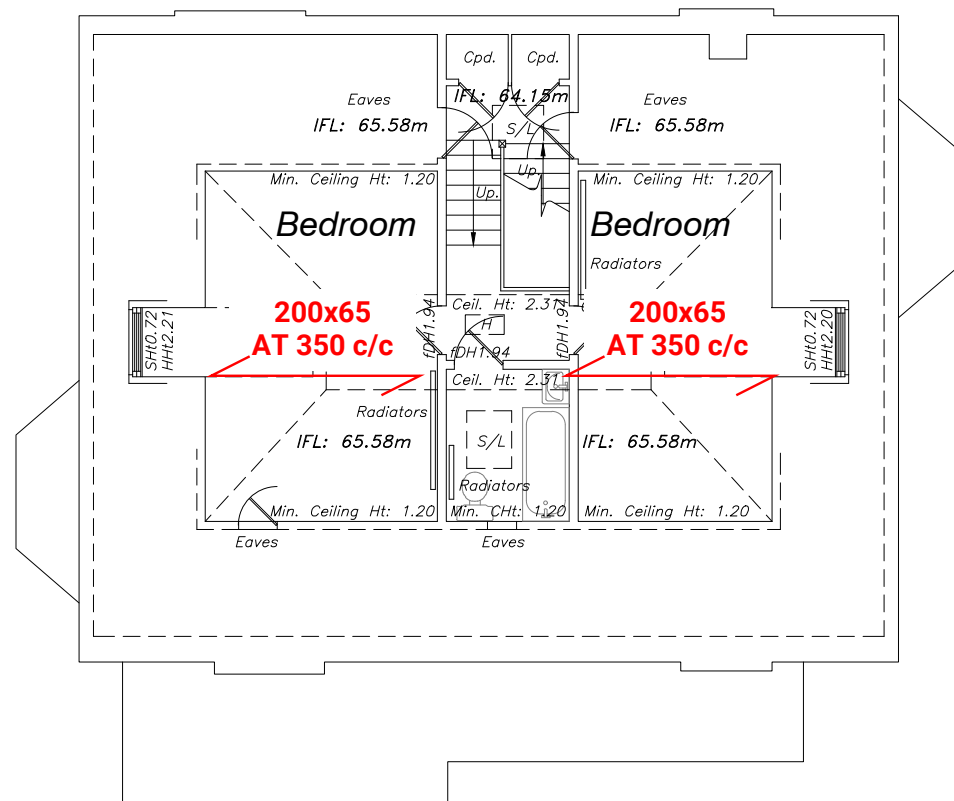


FIRST FLOOR PLAN

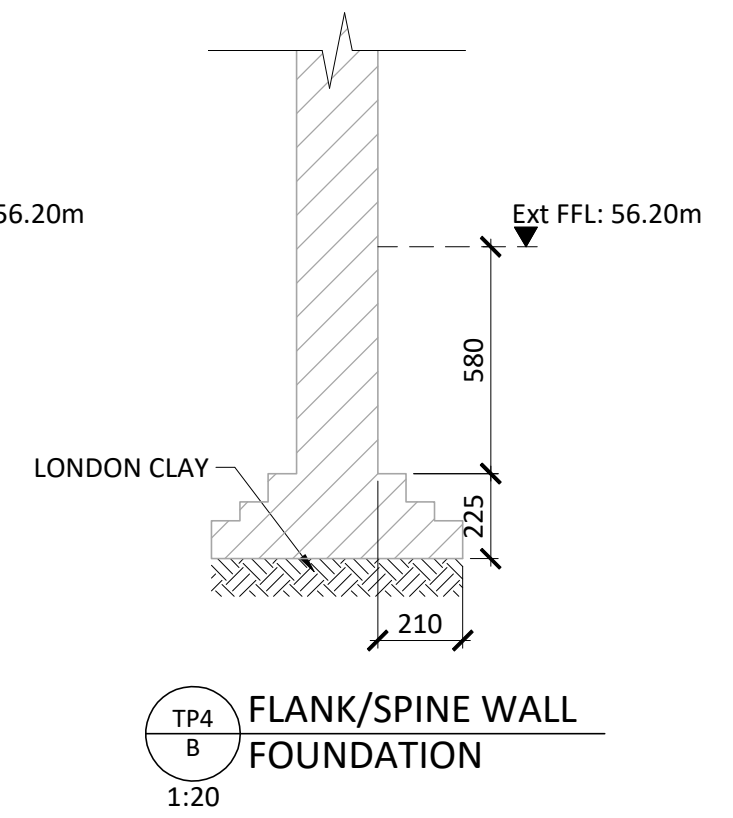
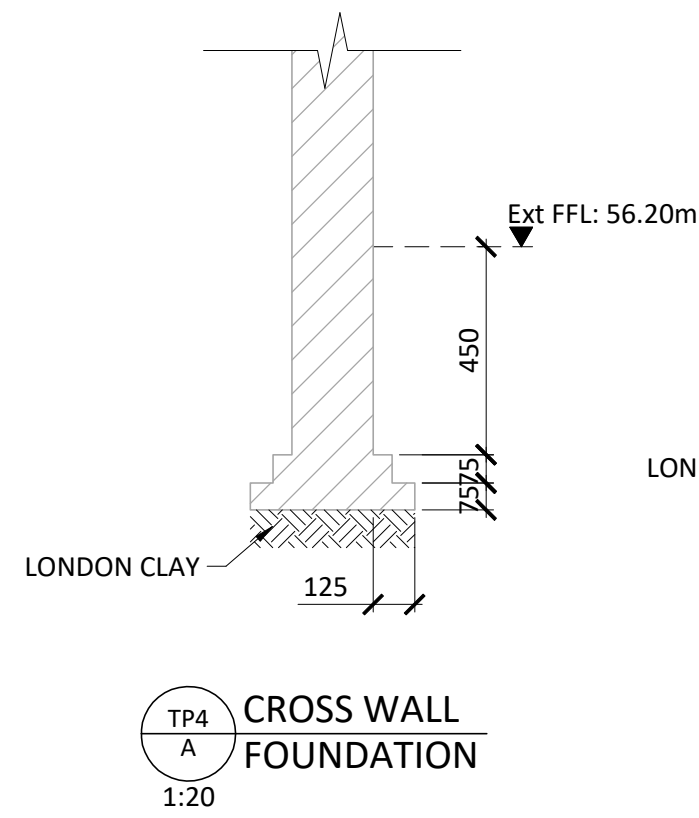
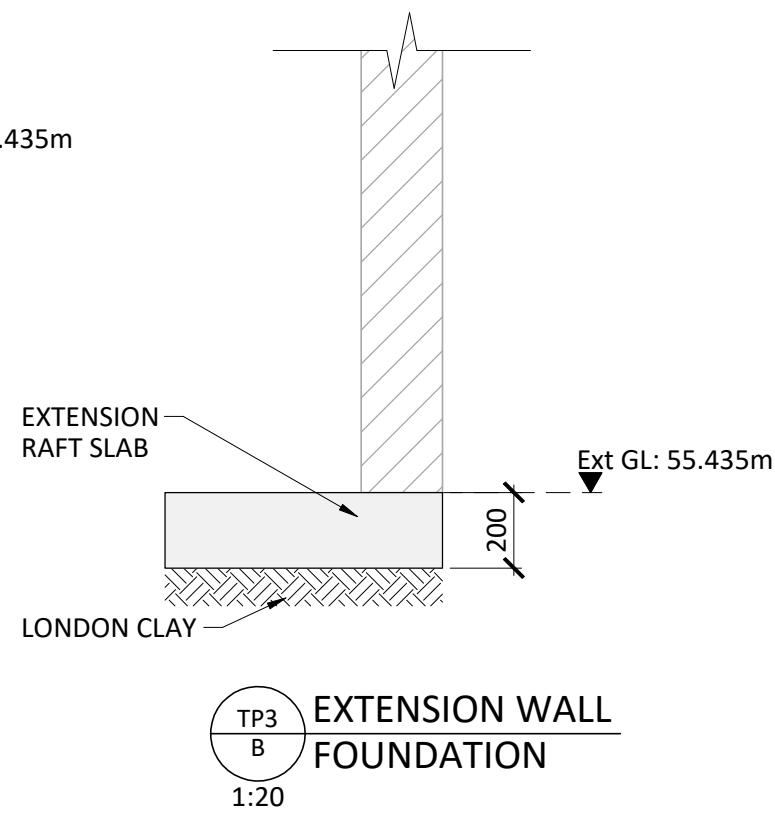
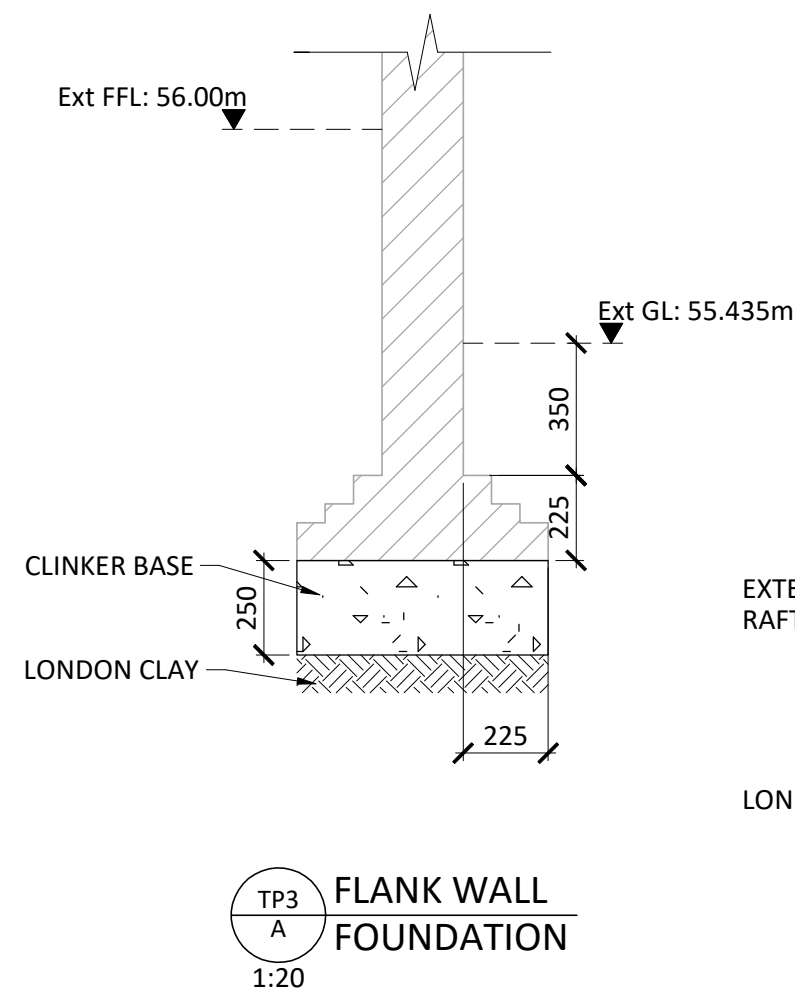
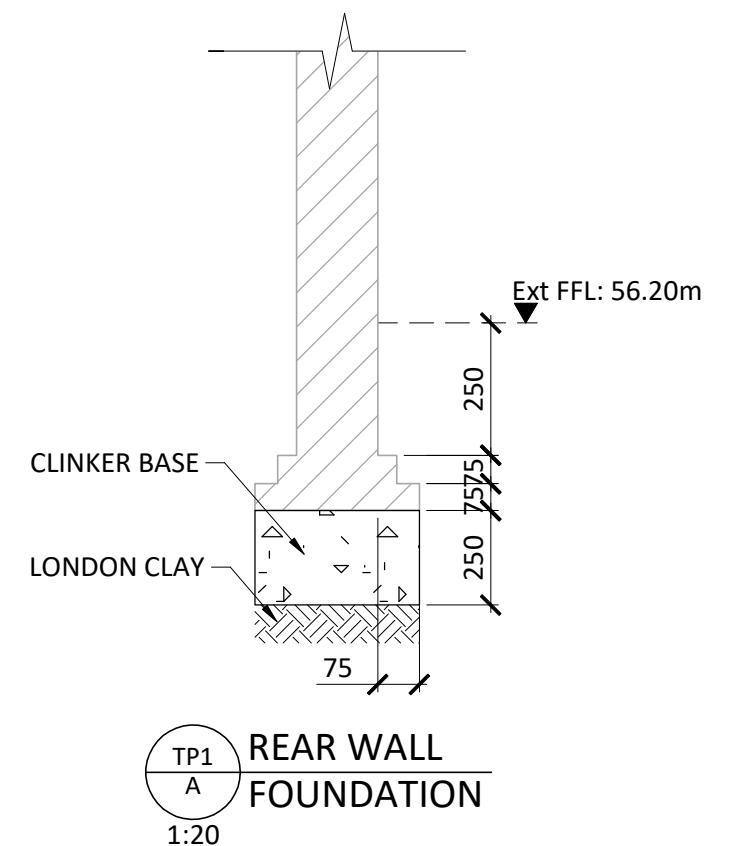
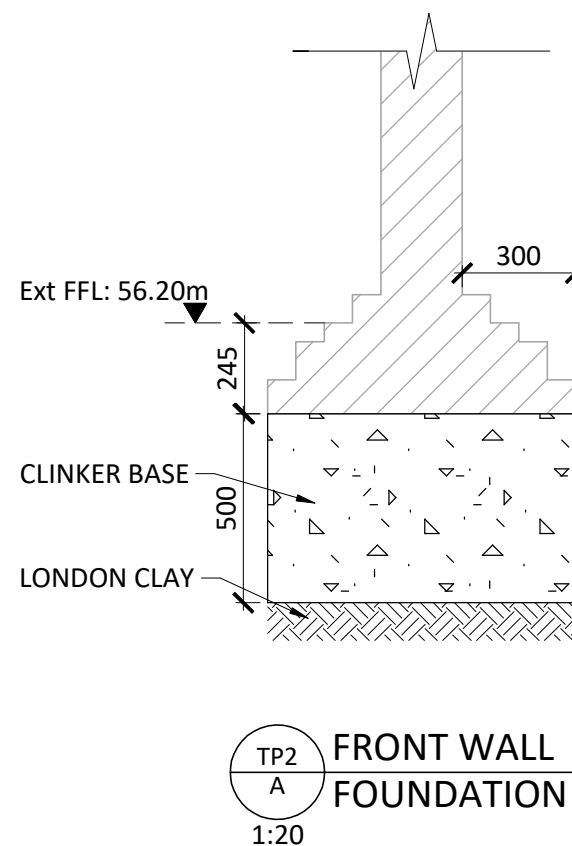
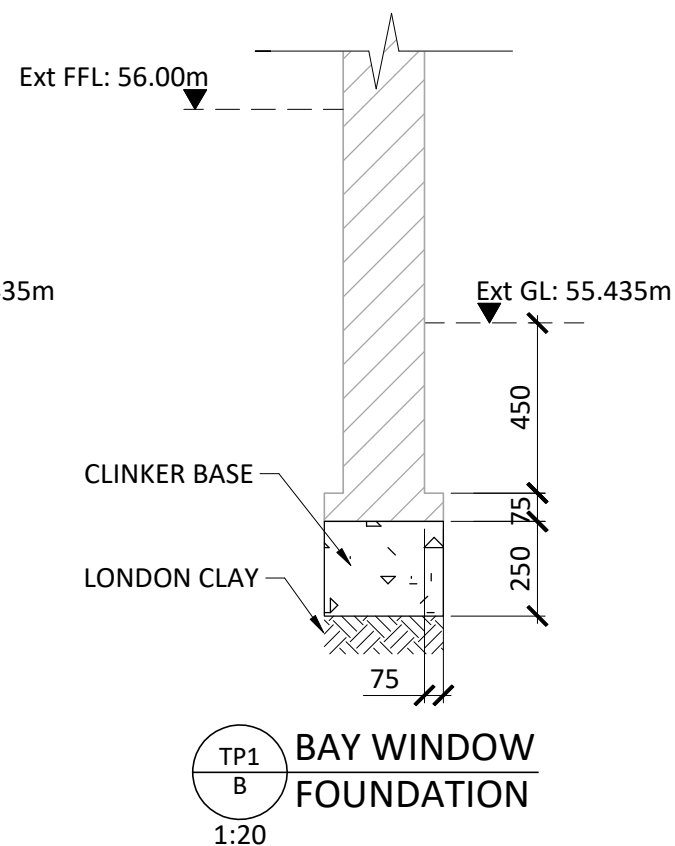
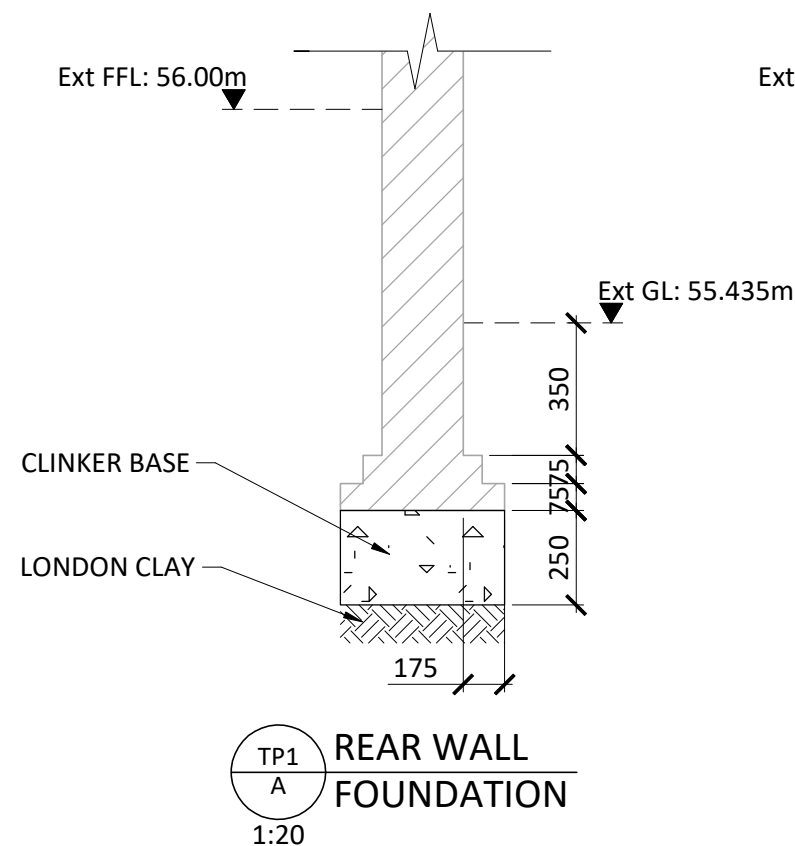
TP5

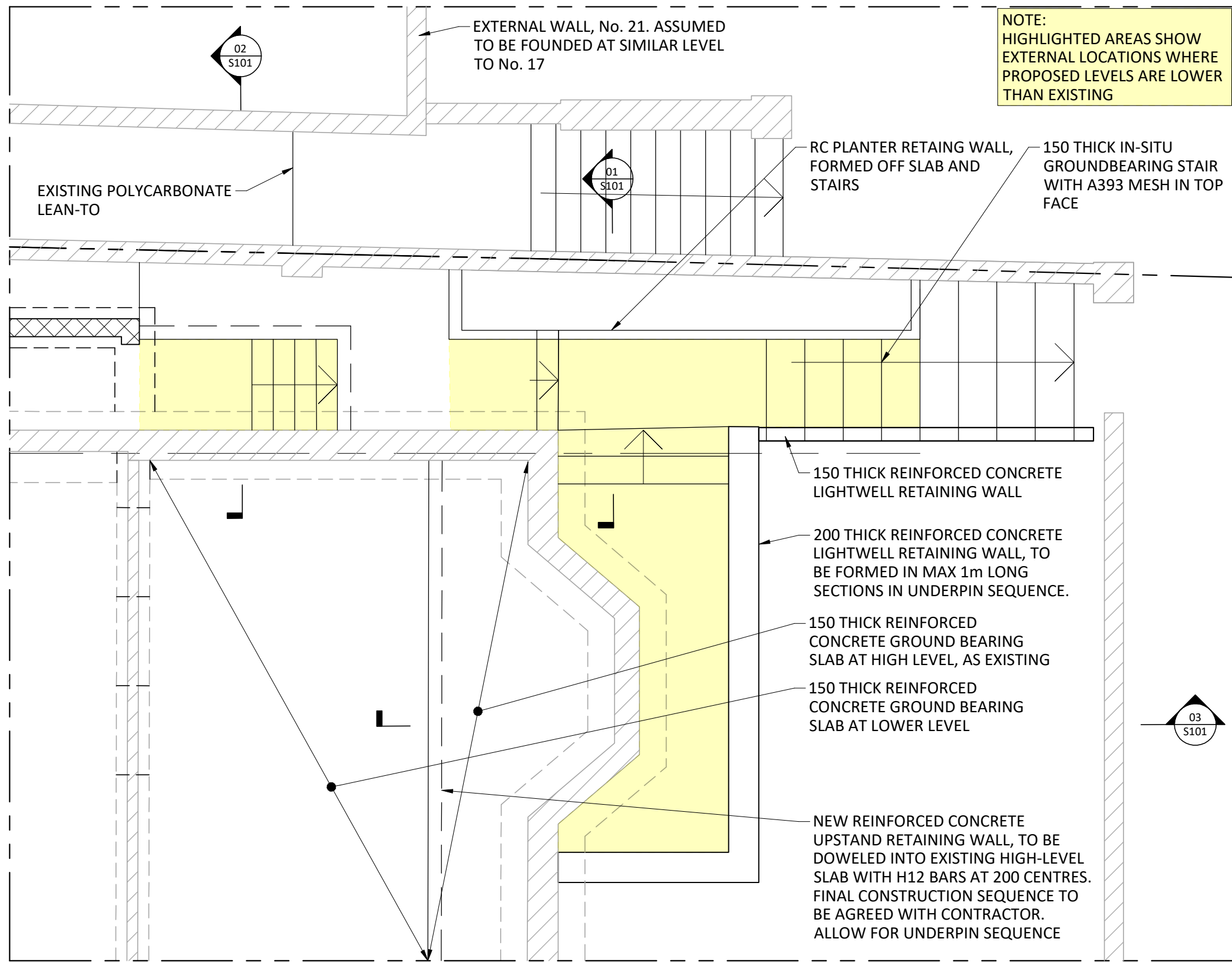


GROUND FLOOR PLAN

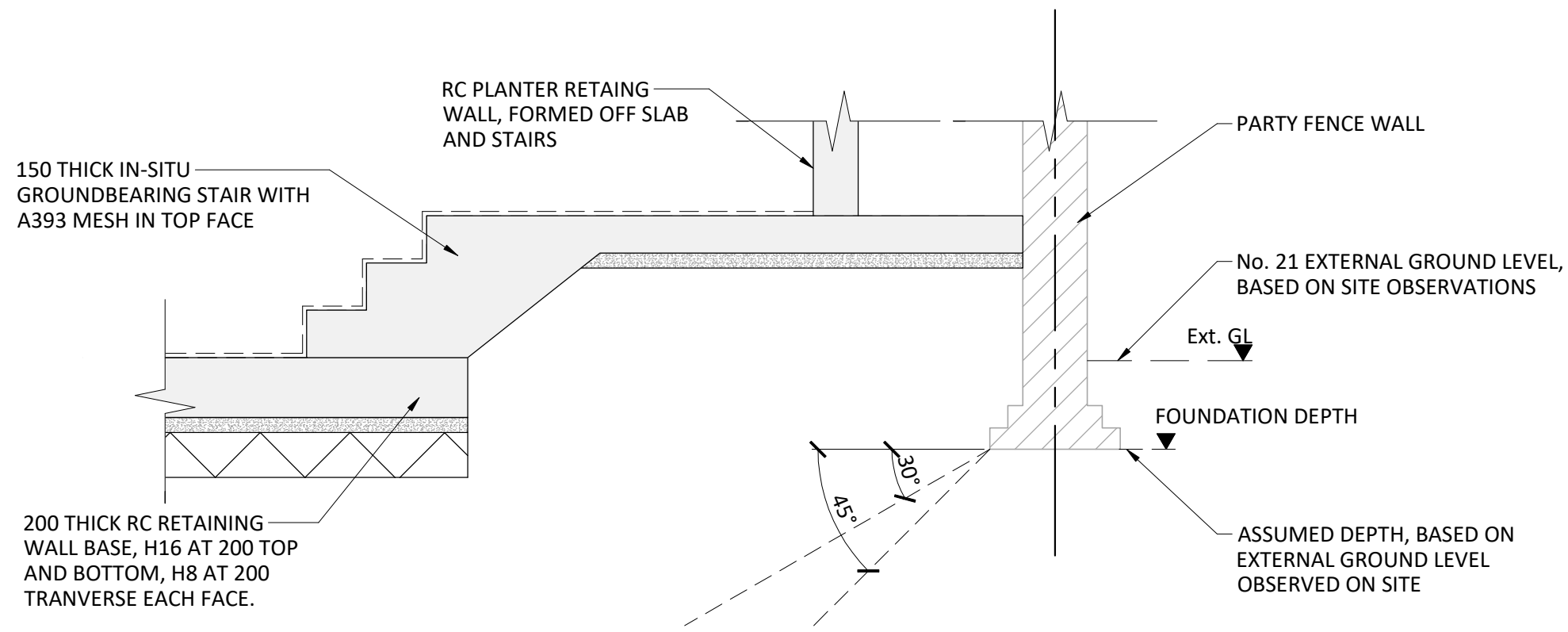


SECOND FLOOR PLAN

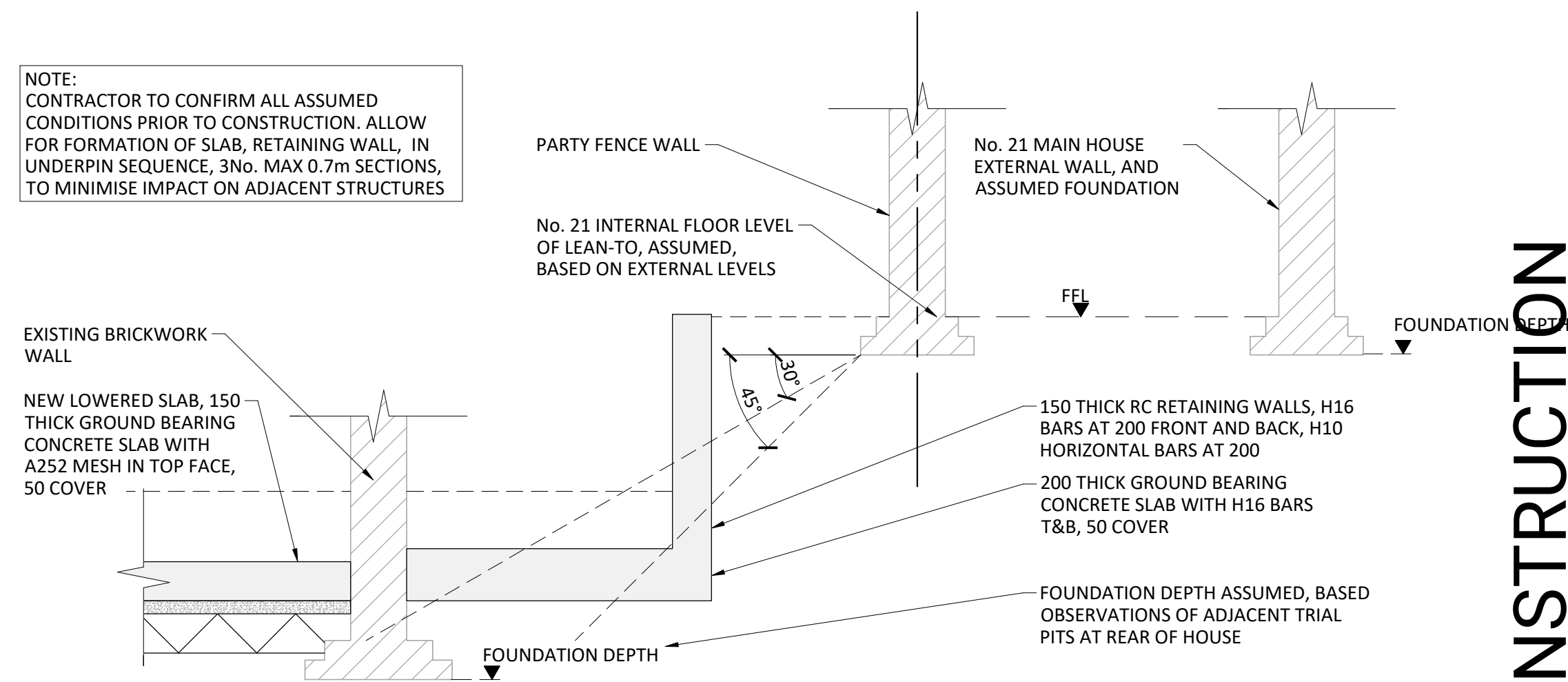




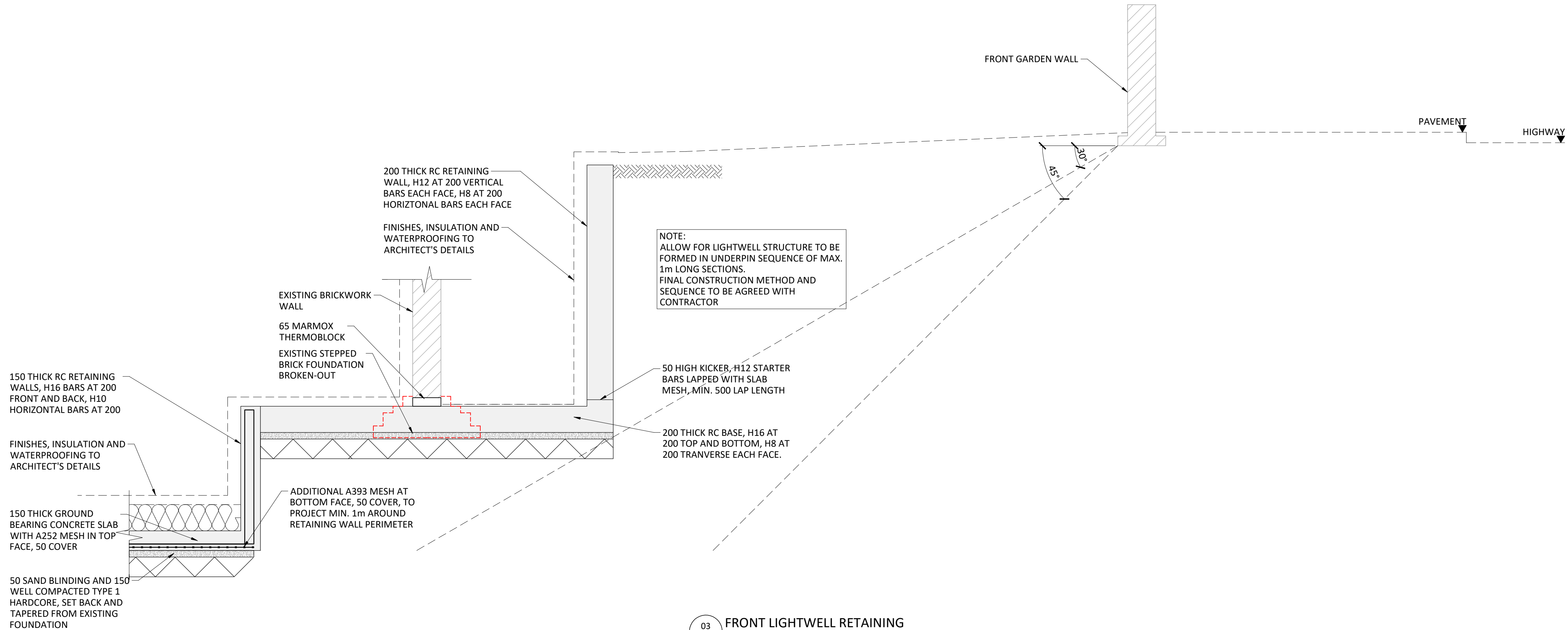
PART PLAN
1:50



01
S101
1:20
LIGHTWELL EXCAVATION
AND PARTY WALL DETAIL



02
S101
1:20
SLAB EXCAVATION AND
PARTY WALL DETAIL



03
S101
1:20
FRONT LIGHTWELL RETAINING
WALL AND HIGHWAY DETAIL

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P1	30 JUN 2023	ISSUED FOR INFORMATION	COS
Mark	Date	Revision	By



UNKNOWN WORKS

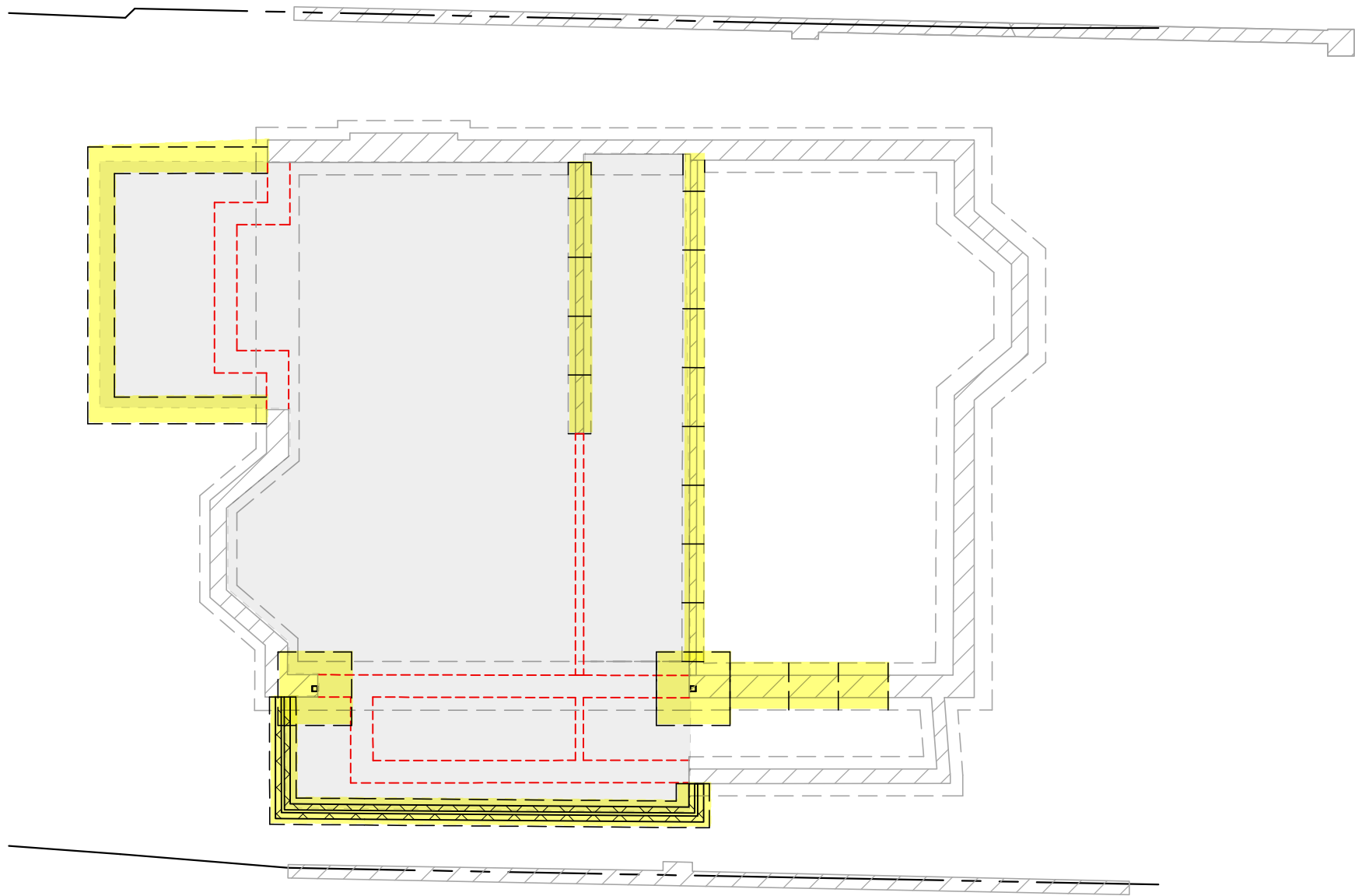
Project:
**17 DARTMOUTH
PARK AVENUE, NW5**

Title:
**INDICATIVE
BOUNDARY EXCAVATIONS
INFORMATION**

Design:	COS	Scale:	1:50 AT A1	Drawing No.
Drawn:	COS	Date:	30 JUN 2023	S101
Project No:	22-1050	Revision:	P1	

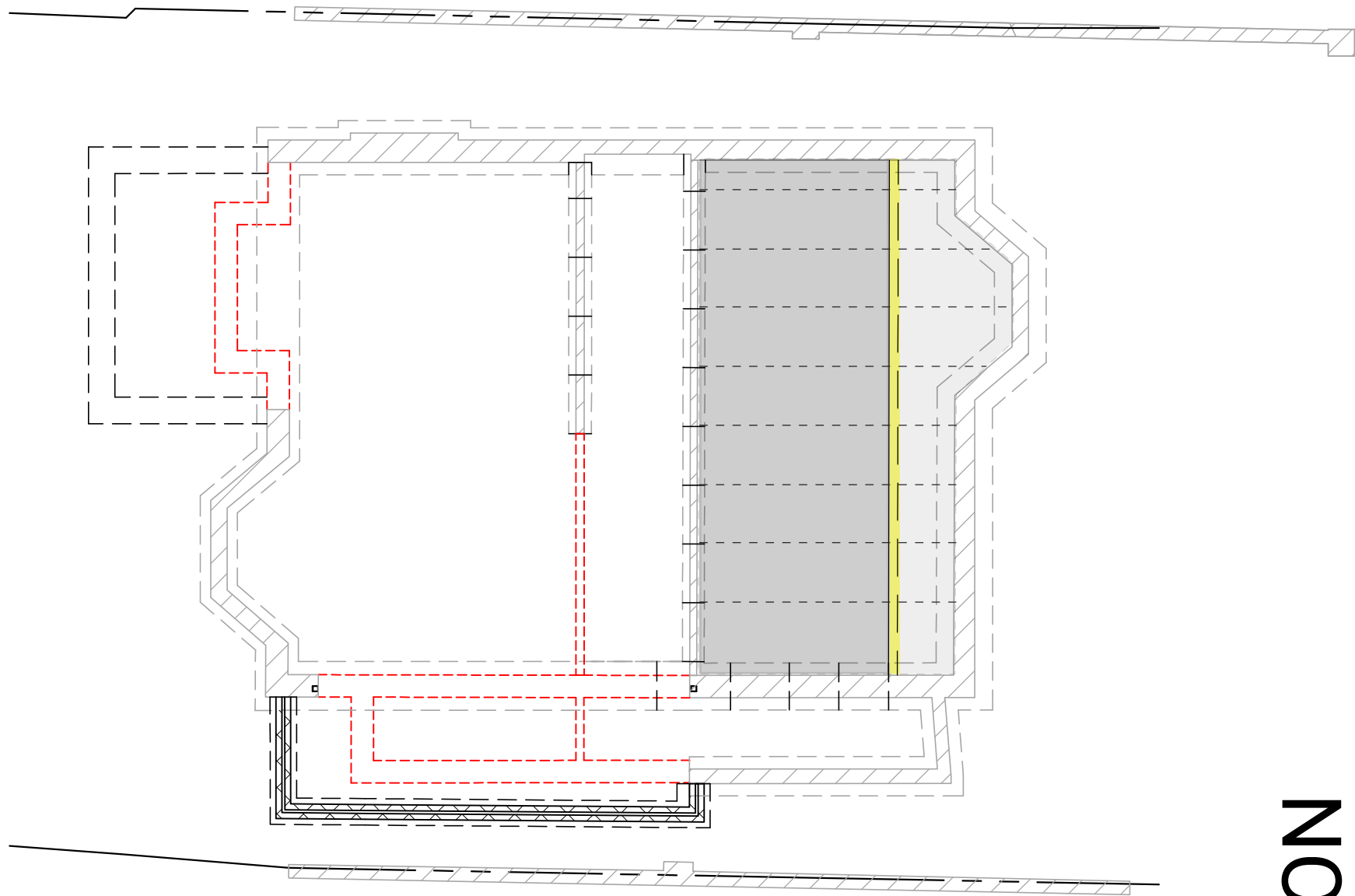
1

- A. INSTALL STRIPS FOUNDATIONS AROUND EXTENSION PERIMETER AND PAD FOUNDATIONS UNDER PROPOSED COLUMNS.
- B. INSTALL UNDERPIN FOUNDATIONS IN HIT AND MISS SEQUENCE BELOW INTERNAL WALLS AS SHOWN. UNDERPINS TO BE MAX 1m LONG AND CONSTRUCTED IN SEQUENTIAL SEQUENCE AS PER UNDERPIN NOTES.
- C. REMOVE EXISTING GROUND BEARING SLAB AT REAR AND CENTRE OF PROPERTY AND EXCAVATE TO NEW FORMATION DEPTH. CONSTRUCT NEW SLAB AT LOWER LEVEL.



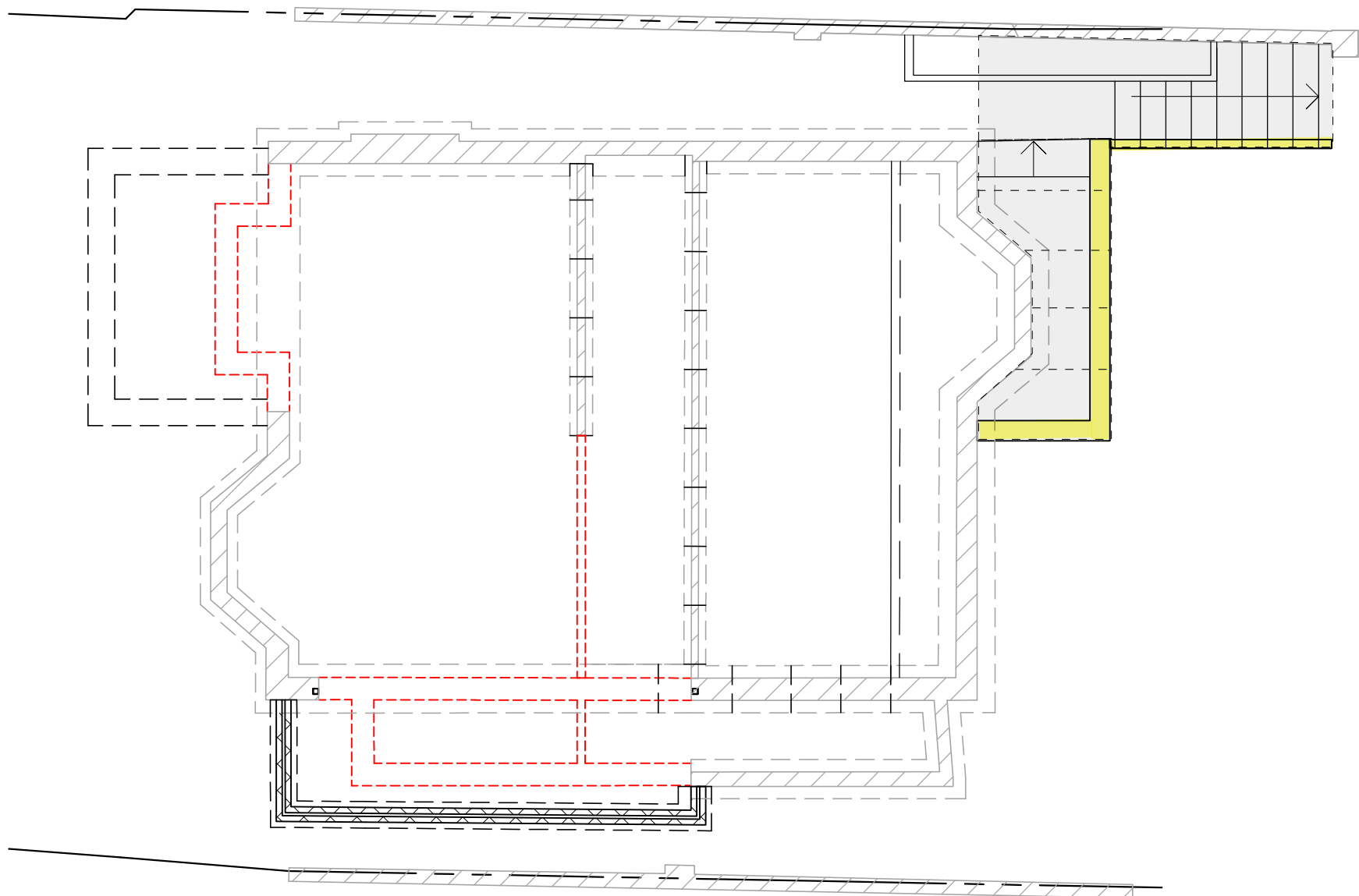
2

- A. IN MAX 1m WIDE HIT AND MISS UNDERPIN SEQUENCE, REMOVE EXISTING GROUND BEARING SLAB AND EXCAVATE TO NEW FORMATION DEPTH IN AREAS SHOWN. CONSTRUCT NEW SLAB AT LOWER LEVEL AND UPSTAND RETAINING WALL. INSTALL NEW INFILL SLAB AND PACK TIGHT BETWEEN BASE OF RETAINING WALL AND NEW UPSTAND RETAINING WALL.
- B. ALTERNATIVELY, PROP BASE OF FRONT RETAINING WALL BACK TO CENTRAL SLAB AND FORM NEW SLAB, UPSTAND RETAINING WALL MONOLITHICALLY. INSTALL NEW INFILL SLAB AND PACK TIGHT BETWEEN BASE OF RETAINING WALL AND NEW UPSTAND RETAINING WALL. REMOVE PROPS ONCE CONCRETE HAS CURED.



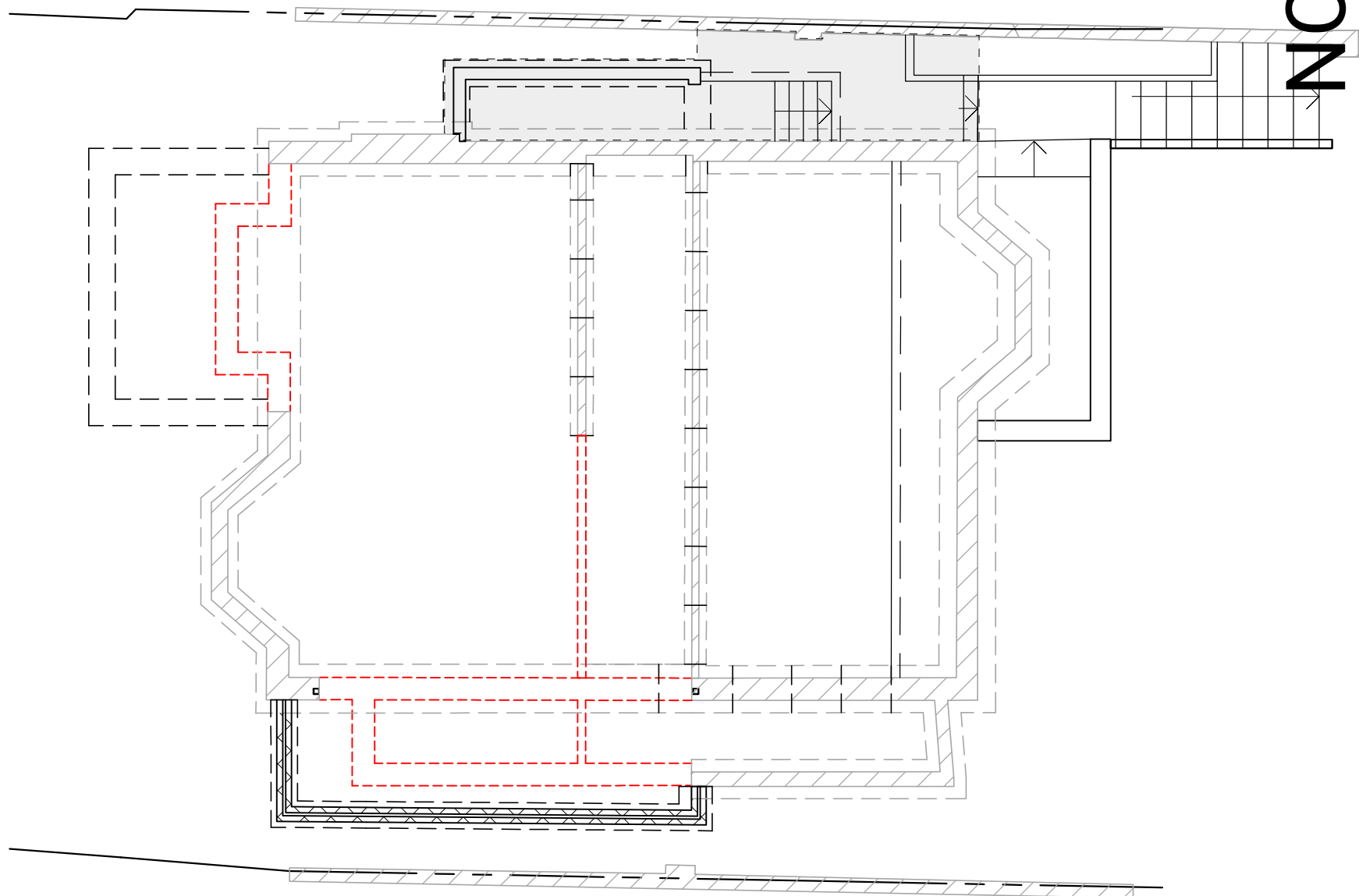
3

- A. EXCAVATE MAX 1m SECTION OF SOIL TO FORM NEW LIGHTWELL RETAINING WALL. ENSURE ALL EXCAVATED FACES ARE PROPPED OR BATTERED DURING CONSTRUCTION, FOLLOWING INSTALLATION OF RETAINING WALL SECTION, BACKFILL SOIL TO ORIGINAL LEVELS. CONTINUE SEQUENCE UNTIL LIGHTWELL STRUCTURE FULLY FORMED.
- B. BATTER SOIL IN FRONT GARDEN TOWARDS SOUTH OF THE SITE AS NEEDED FOR EXCAVATION TO FORM STAIRS. INSTALL NEW IN-SITU GROUND BEARING RC STAIR AT HIGH LEVEL ALONG BOUNDARY.
- C. CONSTRUCT NEW FLANK UPSTAND RETAINING WALL FROM STAIR AND NEW LIGHTWELL STAIR AND LANDING.



4

- A. EXCAVATE MAX 0.7m SECTION OF SOIL TO FORM NEW RETAINING WALL. ENSURE ALL EXCAVATED FACES ARE PROPPED OR BATTERED DURING CONSTRUCTION. FOLLOWING INSTALLATION OF RETAINING WALL SECTION, BACKFILL SOIL TO ORIGINAL LEVELS. CONTINUE SEQUENCE UNTIL RETAINING WALL STRUCTURE FULLY FORMED.
- B. CONSTRUCT NEW LANDSCAPING SUBSTRATE AND SLABS.



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P2	18 AUG 2023	TYPOGRAPHICAL CORRECTIONS	COS
P1	30 JUN 2023	ISSUED FOR INFORMATION	COS
Mark	Date	Revision	By

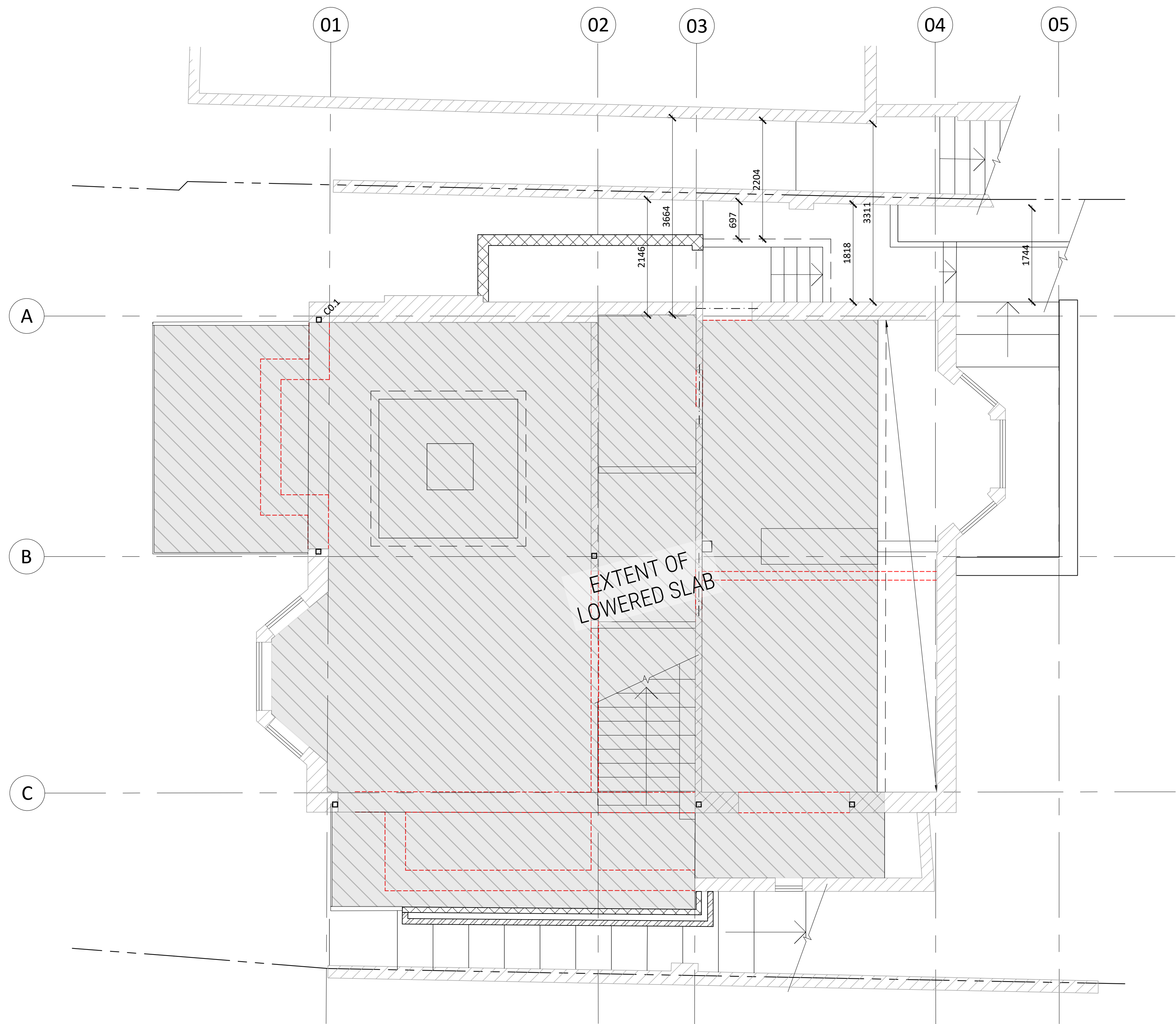
float
structures

UNKNOWN WORKS

Project: 17 DARTMOUTH PARK AVENUE, NW5

Title: INDICATIVE FOUNDATION CONSTRUCTION SEQUENCE INFORMATION

Status:	Design:	Scale:	Drawing No.
Drawn:	COS	1:100 AT A1	S102
Project No.:	22-1050	Date:	30 JUN 2023
Revision:	P2		



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P1	08 AUG 2023	ISSUED FOR INFORMATION	COS
Mark	Date	Revision	By
float structures			
UNKNOWN WORKS			
Project: 17 DARTMOUTH PARK AVENUE, NW5			
Title: SLAB LOWERING EXTENT			
Status: INFORMATION			
Design: COS	Scale: 1:100 AT A1	Drawing No. S103	
Drawn: COS	Date: 30 JUN 2023		
Project No.: 22-1050	Revision: P1		

- WALLS:
- EXISTING BRICKWORK WALL
 - NEW MASONRY CAVITY WALL, 102.5 THICK 20N BRICKWORK EXTERNAL LEAF, 100 THICK 7N BLOCKWORK INTERNAL LEAF
 - NEW MASONRY CAVITY WALL, 100 THICK 7N BLOCKWORK EXTERNAL AND INTERNAL LEAF
 - NEW 215/140 THICK 7N BLOCKWORK UPSTAND
 - EXISTING WALL DEMOUSHED

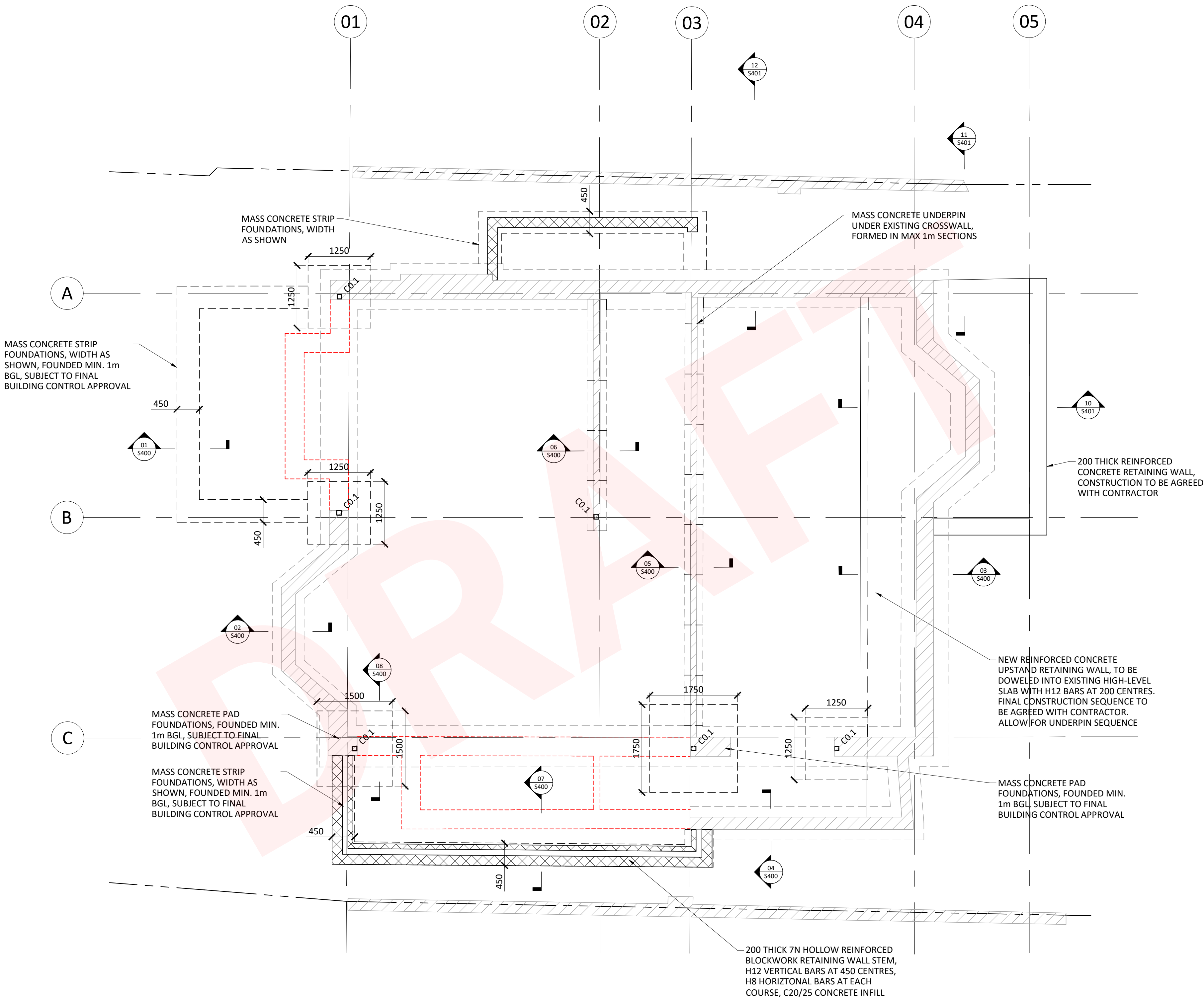
ALL CAVITY WALLS TIED WITH ANCON STAIFIX RT2 WALL TIES.

TIE NEW WALLS TO EXISTING WALLS WITH ANCON WALL STARTER SYSTEM AT 450 VERTICAL CENTRES.

ALL COLUMNS/WINDPOSTS TIED TO MASONRY WITH ANCON SDV FRAME CRAMPS AT MIN. 450 VERTICAL CENTRES. REAR FACADE PIERS TIED WITH 2N6. TIES AT MIN. 225 VERTICAL CENTRES.

ANY NOTED EXISTING CONDITION BASED ON LOCALISED TRIAL PIT AND OPENING INVESTGATIONS. SOME VARIATIONS MAY OCCUR.

ALL NOTED AND ASSUMED CONDITIONS TO BE CONFIRMED BY CONTRACTOR DURING STRIPOUT/DEMOLITION AND PRIOR TO CONSTRUCTION. ANY DISCREPANCIES TO BE NOTIFIED WITH ENGINEER IMMEDIATELY.



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T1	31 JUL 2023	ISSUED FOR INFORMATION	COS
Mark	Date	Revision	By



UNKNOWN WORKS

Project:
**17 DARTMOUTH
PARK AVENUE, NW5**

Title:
FOUNDATION PLAN

Status:
INFORMATION

Design:	COS	Scale:	1:50 AT A1	Drawing No.
Drawn:	COS	Date:	31 JUL 2023	S198
Project No.:	22-1050	Revision:	T1	

- WALLS:
- EXISTING BRICKWORK WALL
 - NEW MASONRY CAVITY WALL, 102.5 THICK 20N BRICKWORK EXTERNAL LEAF, 100 THICK 7N BLOCKWORK INTERNAL LEAF
 - NEW MASONRY CAVITY WALL, 100 THICK 7N BLOCKWORK EXTERNAL AND INTERNAL LEAF
 - NEW NON-STRUCTURAL, LIGHTWEIGHT PARTITION
 - SOLID BRICKWORK WALL BELOW
 - EXISTING WALL DEMOLISHED

ALL CAVITY WALLS TIED WITH ANCON STAIFIX RT2 WALL TIES.

TIE NEW WALLS TO EXISTING WALLS WITH ANCON WALL STARTER SYSTEM AT 450 VERTICAL CENTRES.

ALL COLUMNS/WINDPOSTS TIED TO MASONRY WITH ANCON SDV FRAME CRAMPS AT MIN. 450 VERTICAL CENTRES. REAR FACADE PIERS TIED WITH 2No. TIES AT MIN. 225 VERTICAL CENTRES.

- BEAMS:
- ALL STEEL TO BE GRADE S355 UNLESS NOTED OTHERWISE.
- L1.1: 2No. NAYLOR R6 LINTELS WITH CATNIC ANG LINTEL ON EXTERNAL FACE
- L1.2: NAYLOR R6 LINTELS
- L1.3: NAYLOR R9 LINTELS

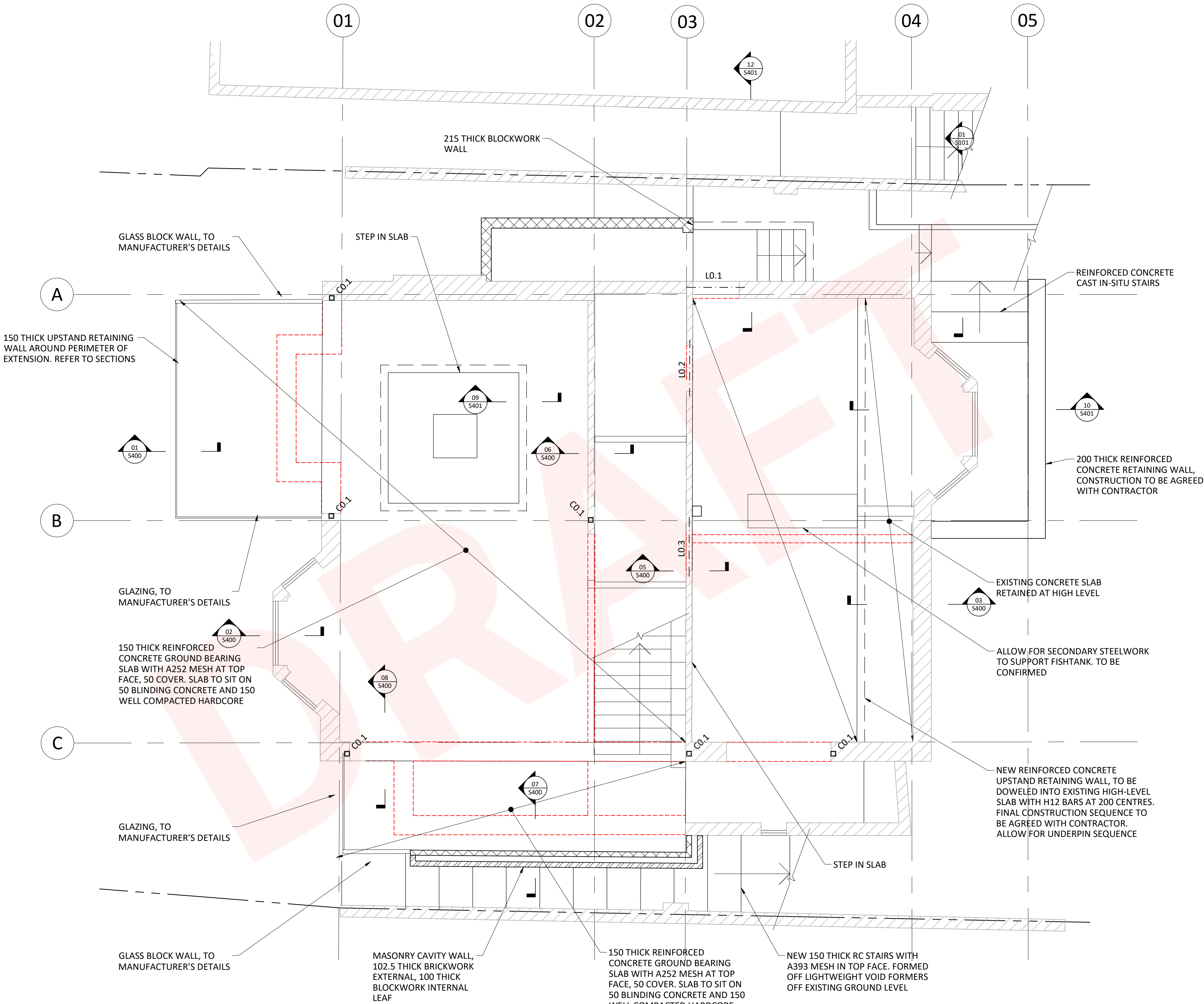
- COLUMNS:
- CO.1: 100x100x8 SHS
- WP1: 100x100x10 RSA STEEL ANGLE WINDPOST

NOTE: DESIGN OF GLAZING AND SECONDARY STEELWORK TO EXTENSIONS SUBJECT TO CHANGE, PENDING FINAL GLAZING PROPOSAL. REFER TO DETAILS FOR INDICATIVE PROPOSALS. FINAL DESIGN OF GLAZING AND STEELWORK SUPPORT TO BE CONFIRMED AND AGREED WITH ARCHITECT, CONTRACTOR AND GLAZING SUPPLIER.

- JOISTS:
- SEE GENERAL NOTES, S100, FOR STRAPPING AND BLOCKING REQUIREMENTS

ANY NOTED EXISTING CONDITION BASED ON LOCALISED TRIAL PIT AND OPENING INVESTGATIONS. SOME VARIATIONS MAY OCCUR.

ALL NOTED AND ASSUMED CONDITIONS TO BE CONFIRMED BY CONTRACTOR DURING STRIPOUT/DEMOLITION AND PRIOR TO CONSTRUCTION. ANY DISCREPANCIES TO BE NOTIFIED WITH ENGINEER IMMEDIATELY.



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NOT FOR CONSTRUCTION

T1	31 JUL 2023	ISSUED FOR INFORMATION	COS
Mark	Date	Revision	By



UNKNOWN WORKS

Project: 17 DARTMOUTH PARK AVENUE, NW5

Title: LOWER GROUND FLOOR PLAN

Status: INFORMATION

Design: COS	Scale: 1:50 AT A1	Drawing No. S199
Drawn: COS	Date: 31 JUL 2023	
Project No.: 22-1050	Revision: T1	

- WALLS:
- EXISTING BRICKWORK WALL
 - NEW MASONRY CAVITY WALL, 102.5 THICK 20N BRICKWORK EXTERNAL LEAF, 100 THICK 7N BLOCKWORK INTERNAL LEAF
 - NEW MASONRY CAVITY WALL, 100 THICK 7N BLOCKWORK EXTERNAL AND INTERNAL LEAF
 - NEW NON-STRUCTURAL, LIGHTWEIGHT PARTITION
 - SOLID BRICKWORK WALL BELOW
 - EXISTING WALL DEMOLISHED

ALL CAVITY WALLS TIED WITH ANCON STAIFIX RT2 WALL TIES.

TIE NEW WALLS TO EXISTING WALLS WITH ANCON WALL STARTER SYSTEM AT 450 VERTICAL CENTRES.

ALL COLUMNS/WINDPOSTS TIED TO MASONRY WITH ANCON SDV FRAME CRAMPS AT MIN. 450 VERTICAL CENTRES. REAR FACADE PIERS TIED WITH 2No. TIES AT MIN. 225 VERTICAL CENTRES.

- BEAMS:
- ALL STEEL TO BE GRADE S355 UNLESS NOTED OTHERWISE.
- B0.1: 300x200x12.5 RHS, 12 THICK BOTTOM PLATE WELDED TO UNDERSIDE WITH 6mm CFW ALL ROUND
B0.2: 200x75x23 PFC
B0.3: 200x100x16 RHS, CANTILEVER BEAM
B0.4: 200x100x16 RHS, CANTILEVER BEAM
B0.5: 203x133x30 UB
B0.6: 305x305x198 UC
B0.7: 200x100x10 RHS

- COLUMNS:
- CO.1: 100x100x8 SHS

WP1: 100x100x10 RSA STEEL ANGLE WINDPOST

NOTE: DESIGN OF GLAZING AND SECONDARY STEELWORK TO EXTENSIONS SUBJECT TO CHANGE, PENDING FINAL GLAZING PROPOSAL. REFER TO DETAILS FOR INDICATIVE PROPOSALS. FINAL DESIGN OF GLAZING AND STEELWORK SUPPORT TO BE CONFIRMED AND AGREED WITH ARCHITECT, CONTRACTOR AND GLAZING SUPPLIER.

- JOISTS:
- J1: 150x50 C24 TIMBER JOISTS AT 400 CENTRES

- EX1: 225x75 TIMBER JOISTS AT 350 CENTRES
EX2: 225x50 TIMBER JOISTS AT 350 CENTRES

TB1: 2No. 150x50 C24 TIMBER BEAMS, BOLTED TOGETHER WITH M8 COACH BOLTS AT 500 CENTRES

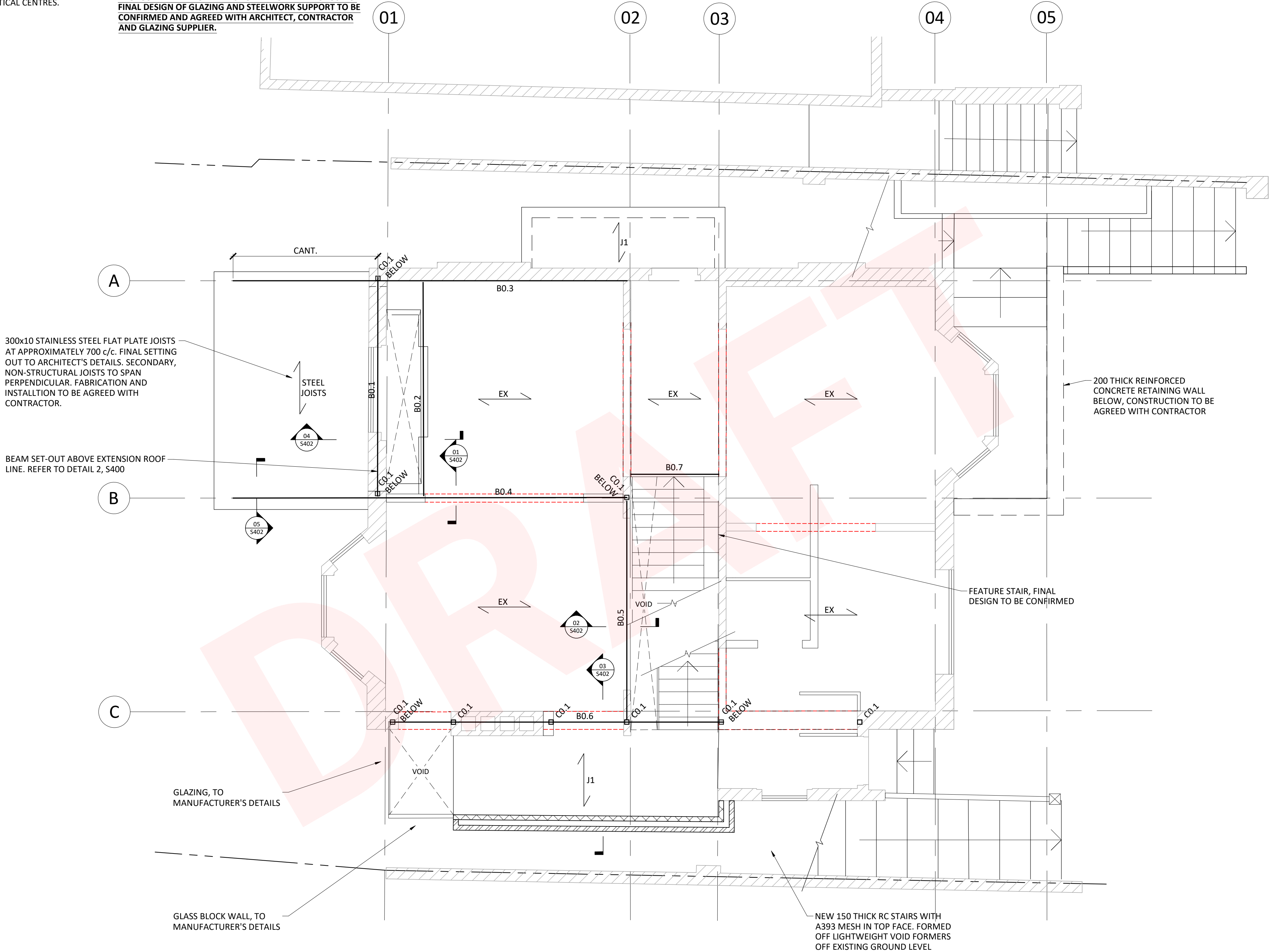
12 THICK OSB/3 SCREWED OVER ROOF JOISTS, AT 300 CENTRES.
18 THICK OSB/3 SCREWED OVER FLOORS JOISTS, AT 300 CENTRES.

DJ/TJ: DOUBLED/TRIPLED JOISTS, BOLTED TOGETHER WITH M8 COACH BOLTS AT 500 CENTRES.

SEE GENERAL NOTES, S100, FOR STRAPPING AND BLOCKING REQUIREMENTS

ANY NOTED EXISTING CONDITION BASED ON LOCALISED TRIAL PIT AND OPENING INVESTIGATIONS. SOME VARIATIONS MAY OCCUR.

ALL NOTED AND ASSUMED CONDITIONS TO BE CONFIRMED BY CONTRACTOR DURING STRIPOUT/DEMOLITION AND PRIOR TO CONSTRUCTION. ANY DISCREPANCIES TO BE NOTIFIED WITH ENGINEER IMMEDIATELY.



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Mark	Date	Revision	By



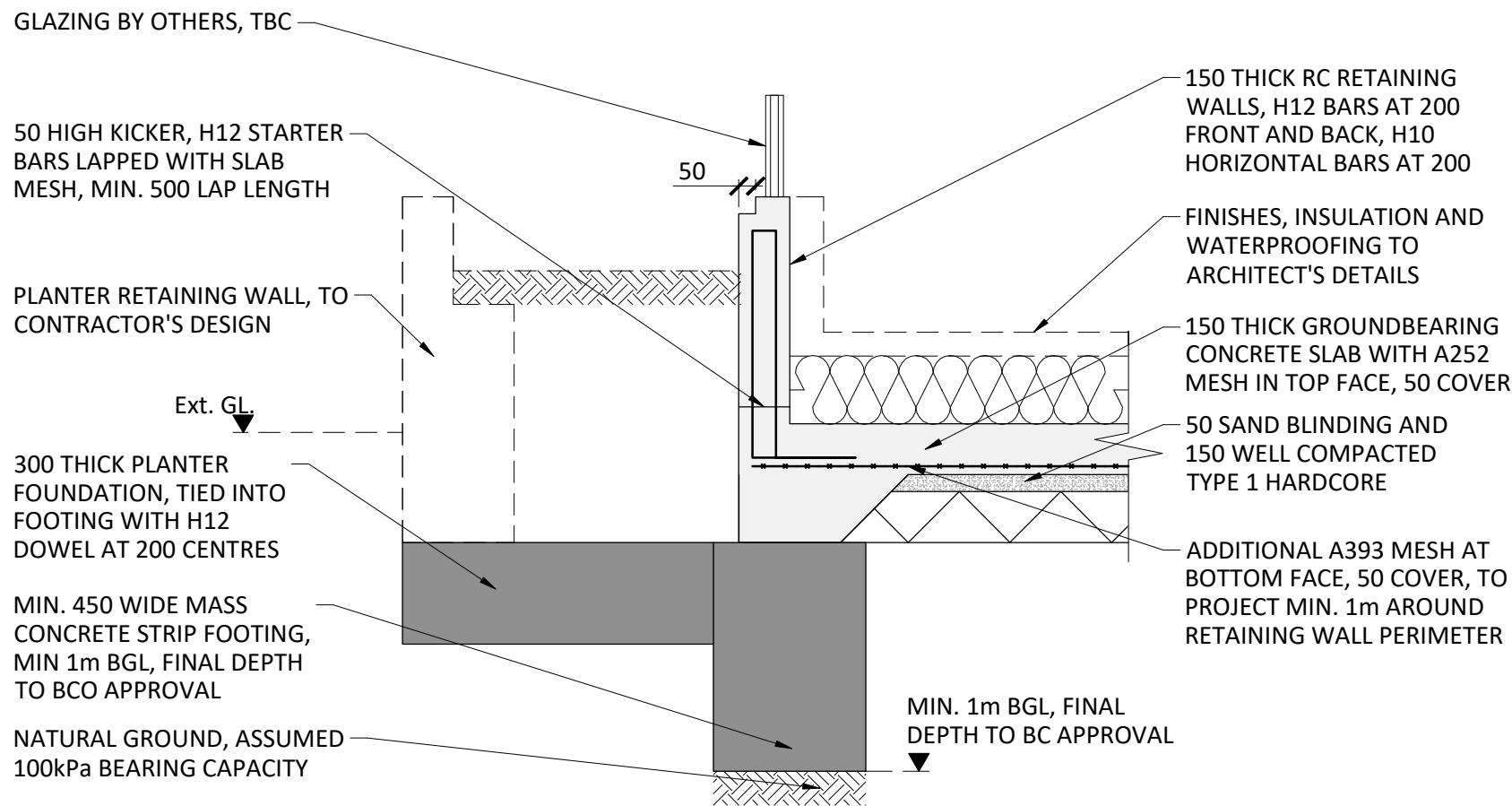
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Project: 17 DARTMOUTH PARK AVENUE, NW5

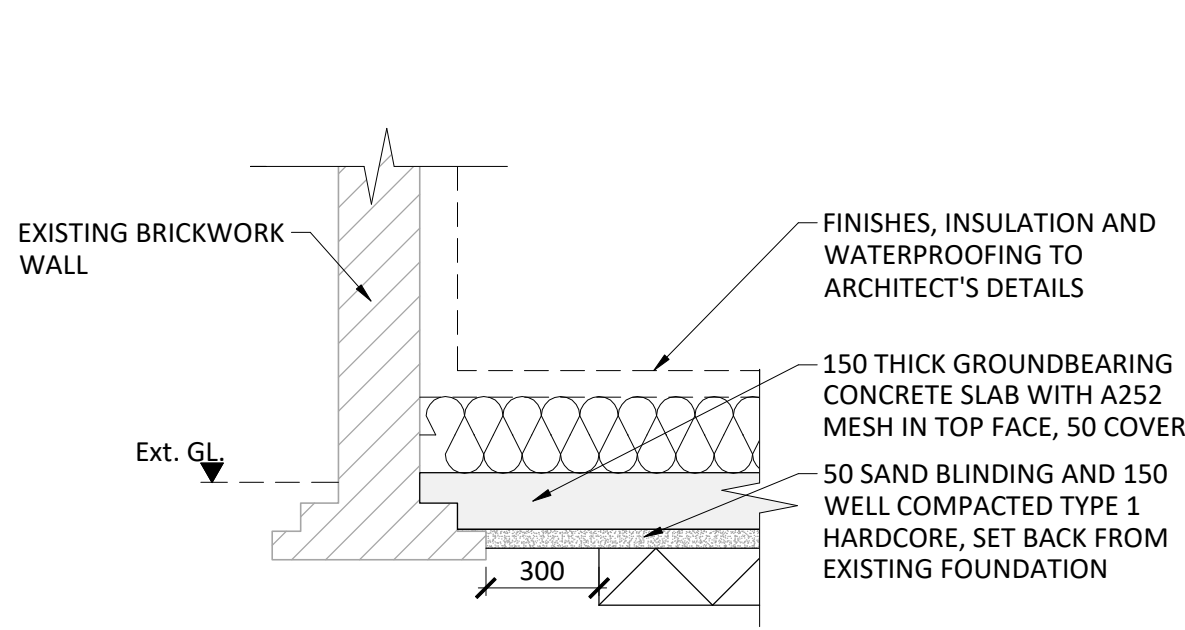
Title: GROUND FLOOR PLAN

Status: INFORMATION

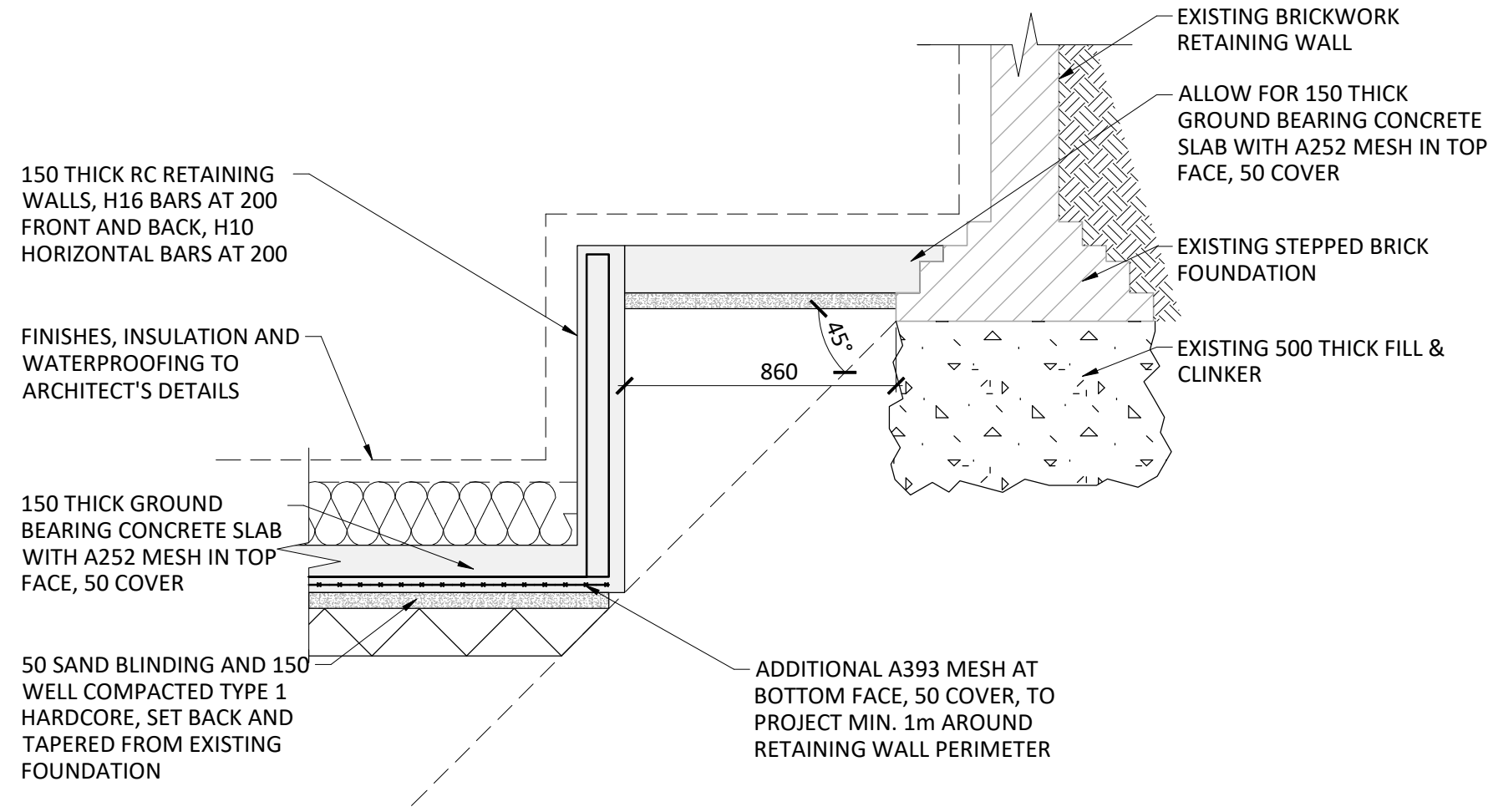
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Drawn: COS	Date: 31 JUL 2023	
Project No.: 22-1050	Revision: T1	



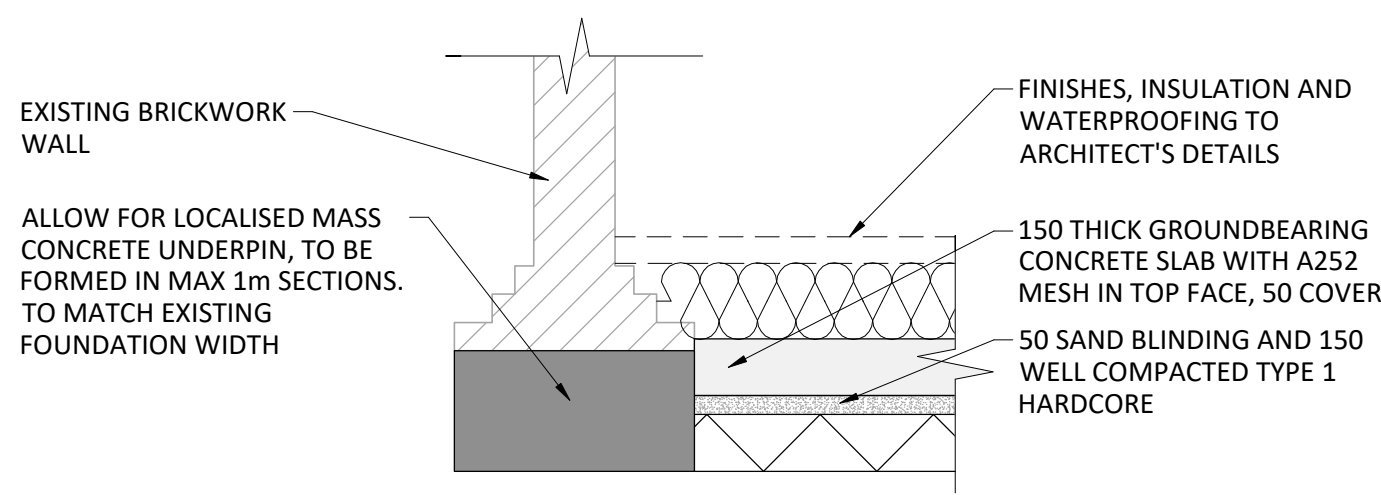
01
S400
1:20
REAR EXTENSION
PERIMETER DETAIL



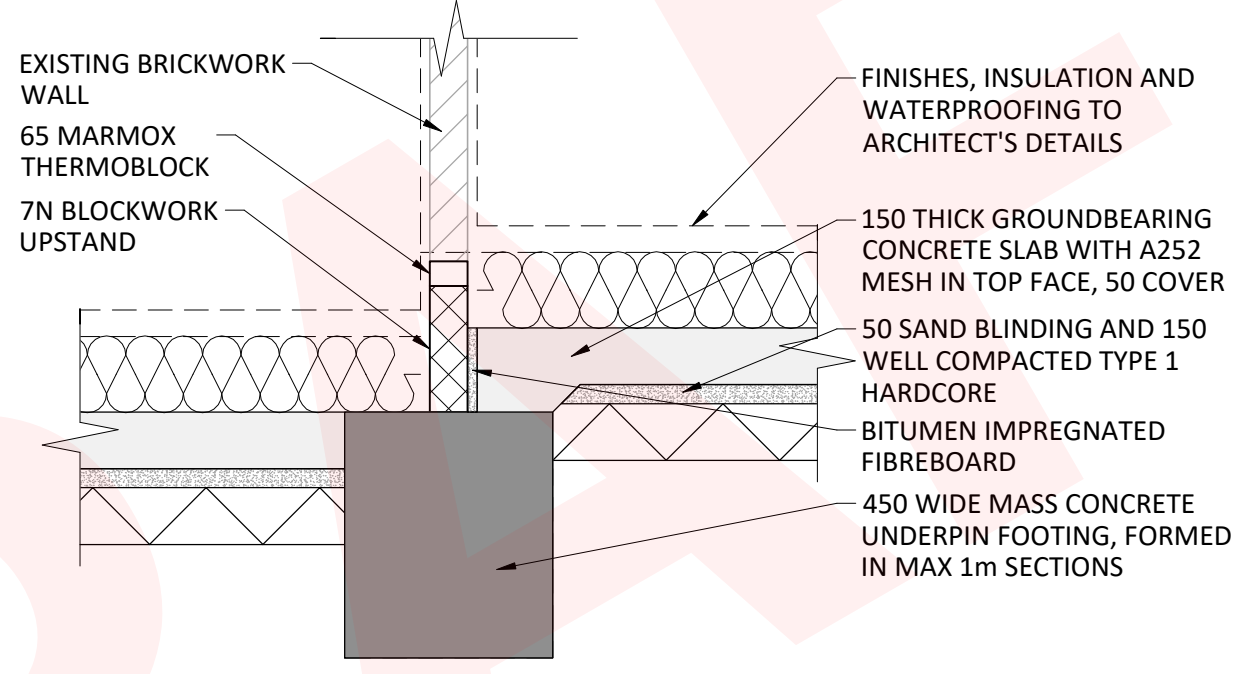
02
S400
1:20
REAR WALL SLAB
JUNCTION DETAIL



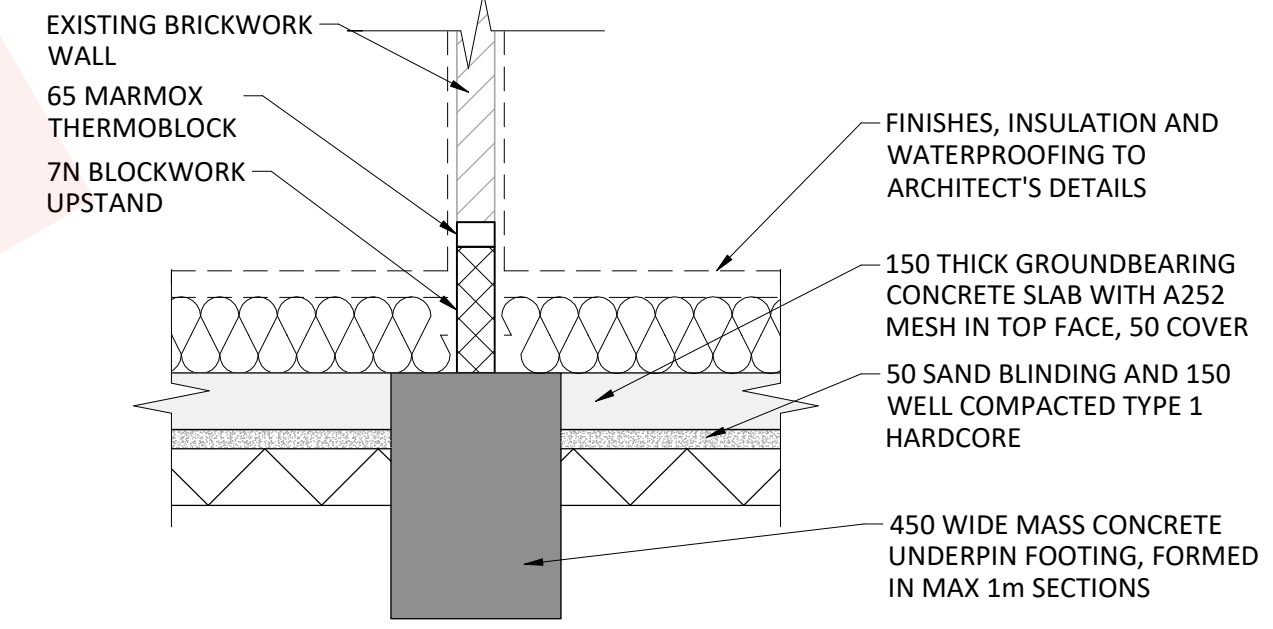
03
S400
1:20
FRONT STEPPED-SLAB
FOUNDATION DETAIL



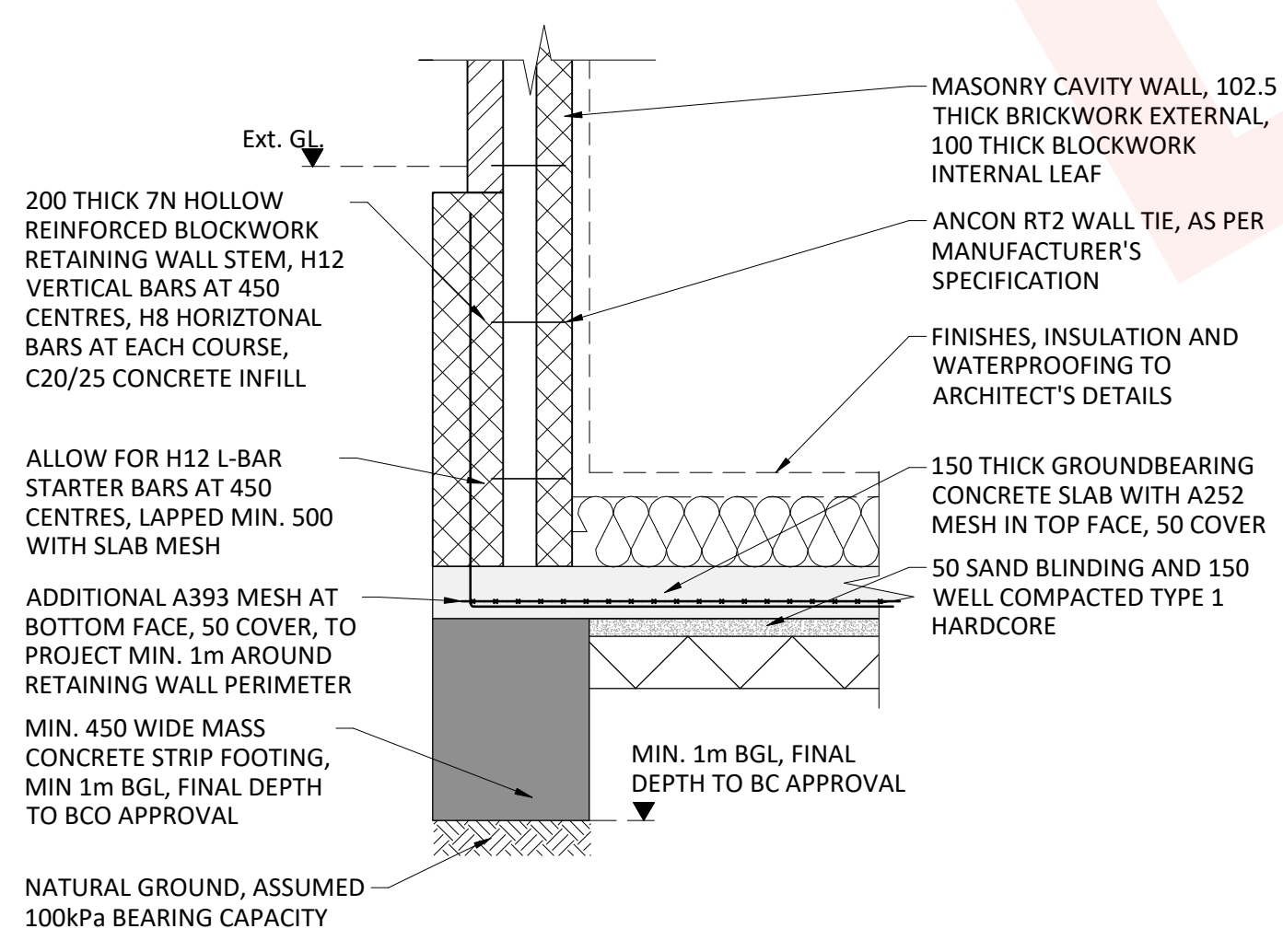
04
S400
1:20
FLANK WALL UNDERPIN
FOUNDATION DETAIL



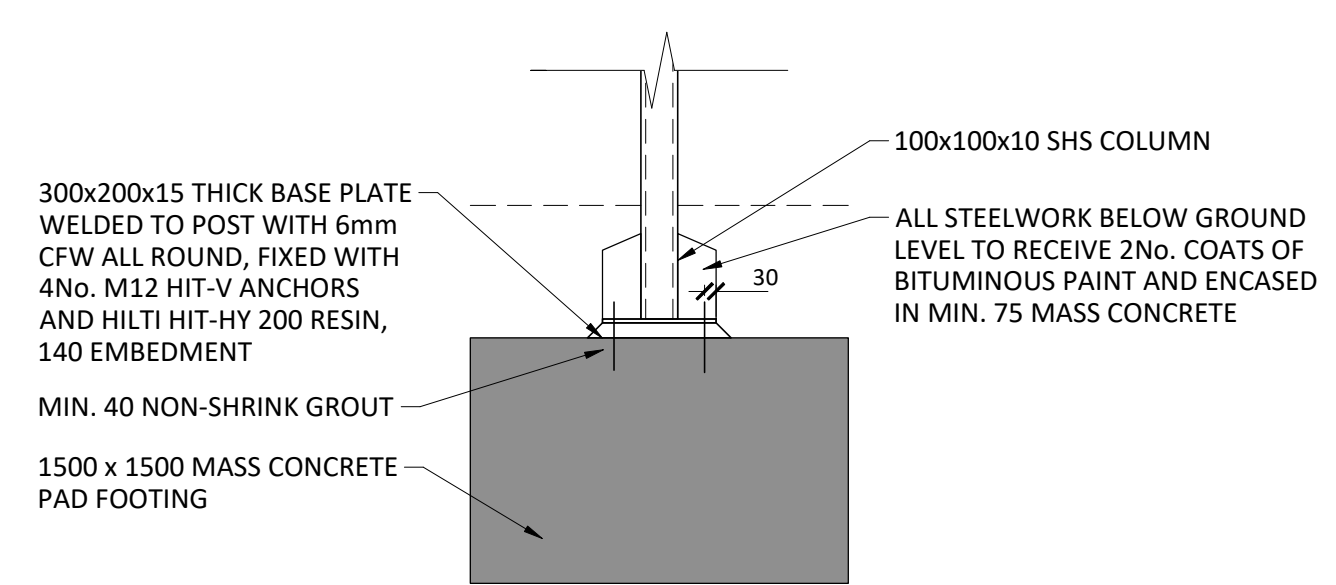
05
S400
1:20
INTERNAL STEPPED-SLAB
UNDERPIN DETAIL



06
S400
1:20
INTERNAL UNDERPIN
FOUNDATION DETAIL



07
S400
1:20
SIDE EXTENSION
FOUNDATION DETAIL



08
S400
1:20
TYPICAL POST
BASEPLATE DETAIL

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Mark	Date	Revision	By



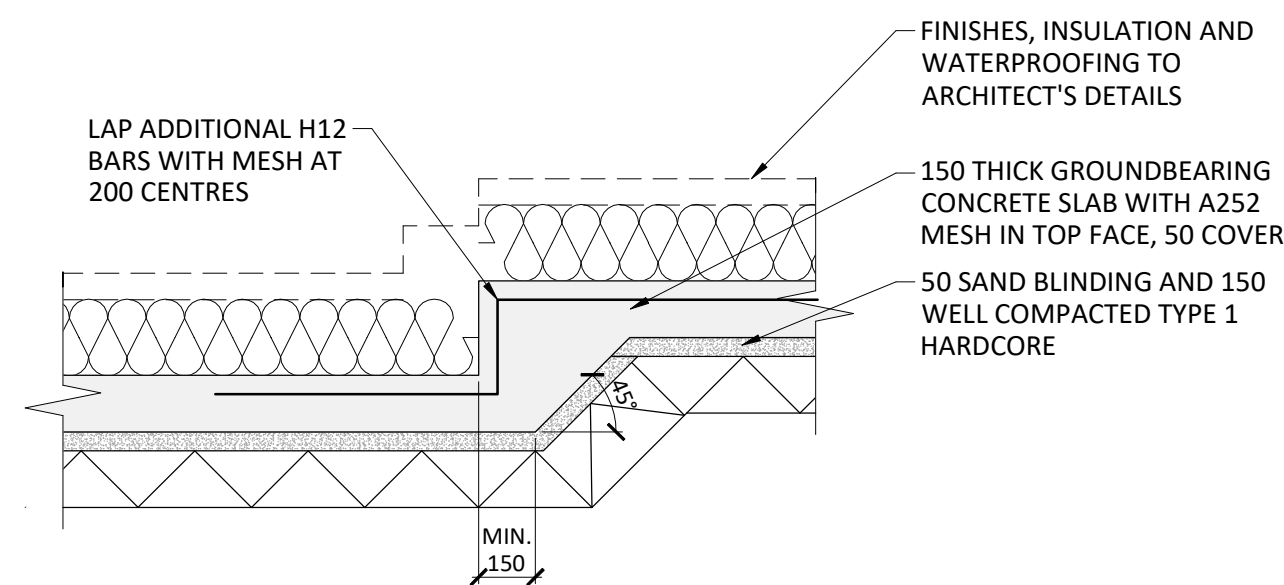
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Project: 17 DARTMOUTH PARK AVENUE, NW5

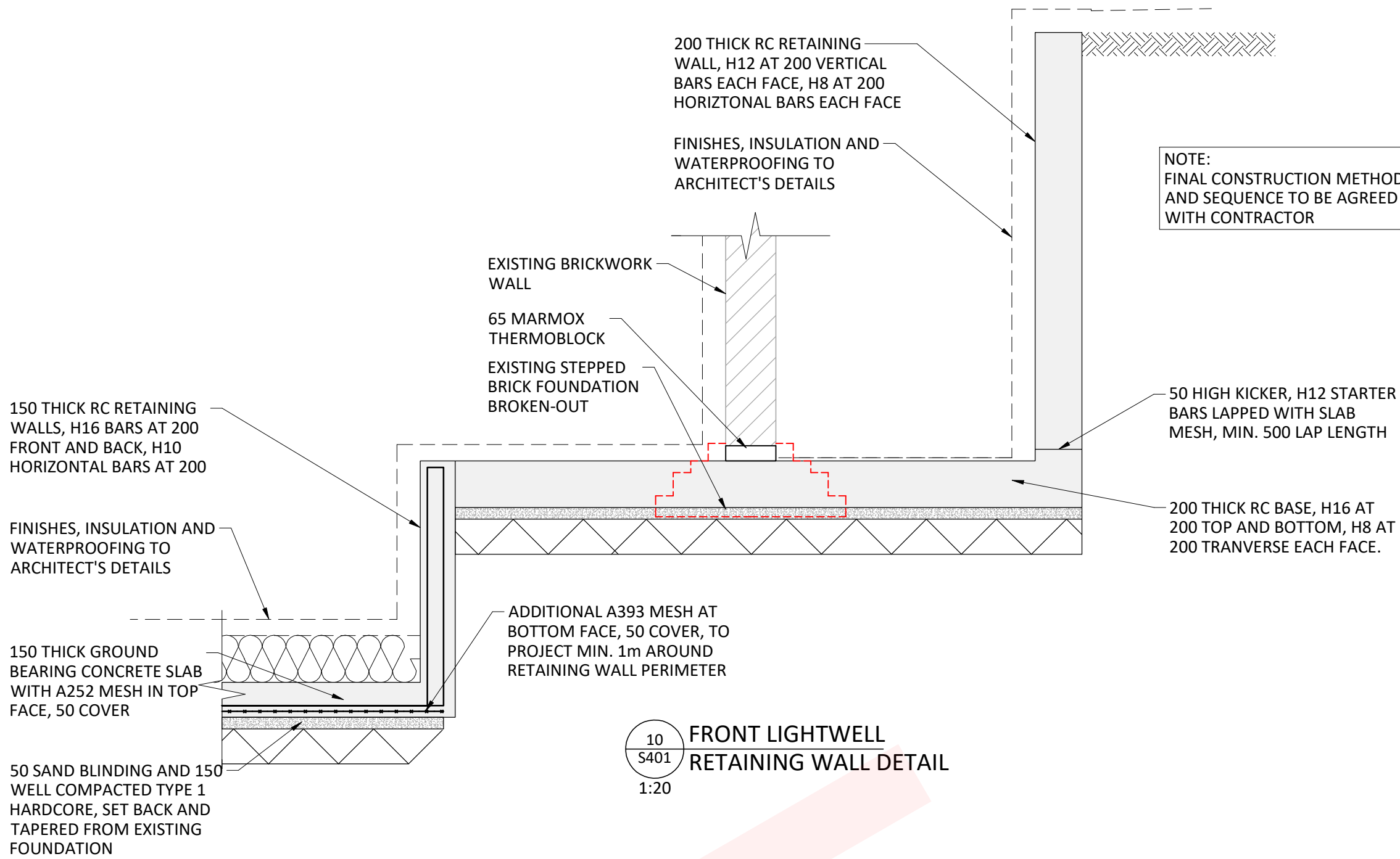
Title: FOUNDATION DETAILS

Status:	INFORMATION		
Design:	COS	Scale:	1:50 AT A1
Drawn:	COS	Date:	31 JUL 2023
Project No.:	22-1050	Revision:	T1

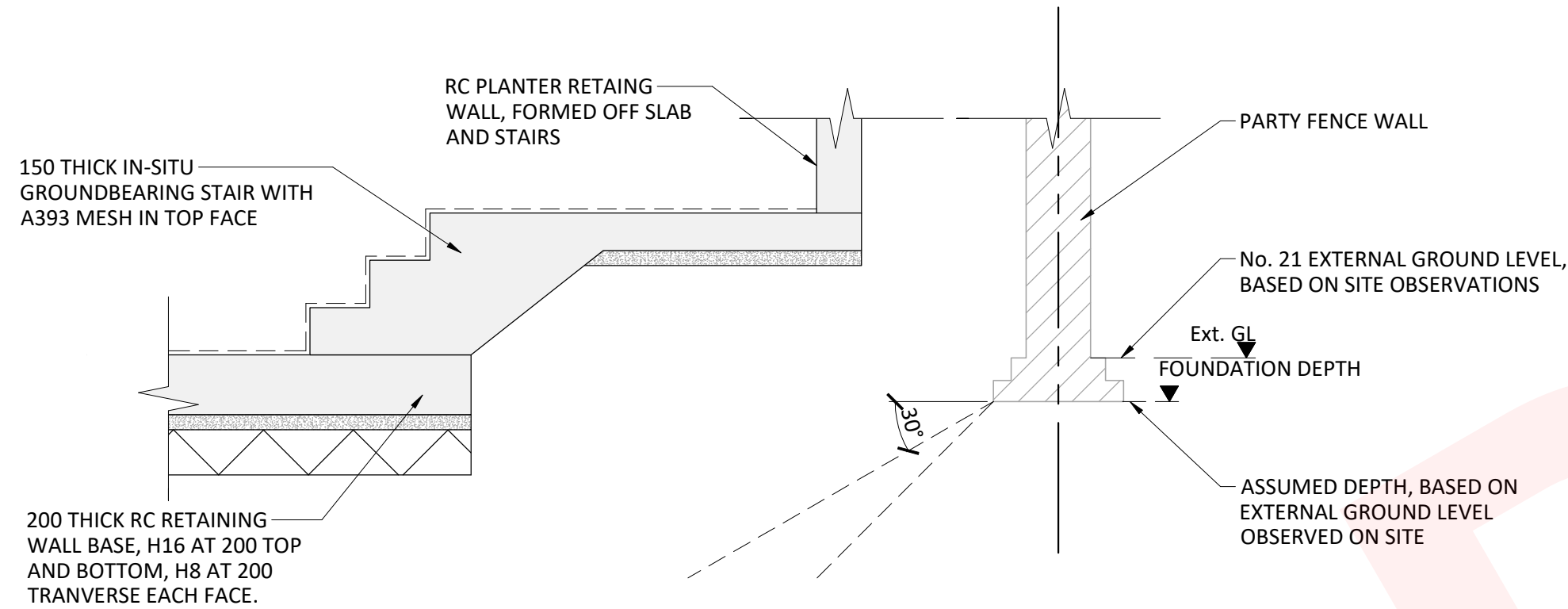
Drawing No. S400



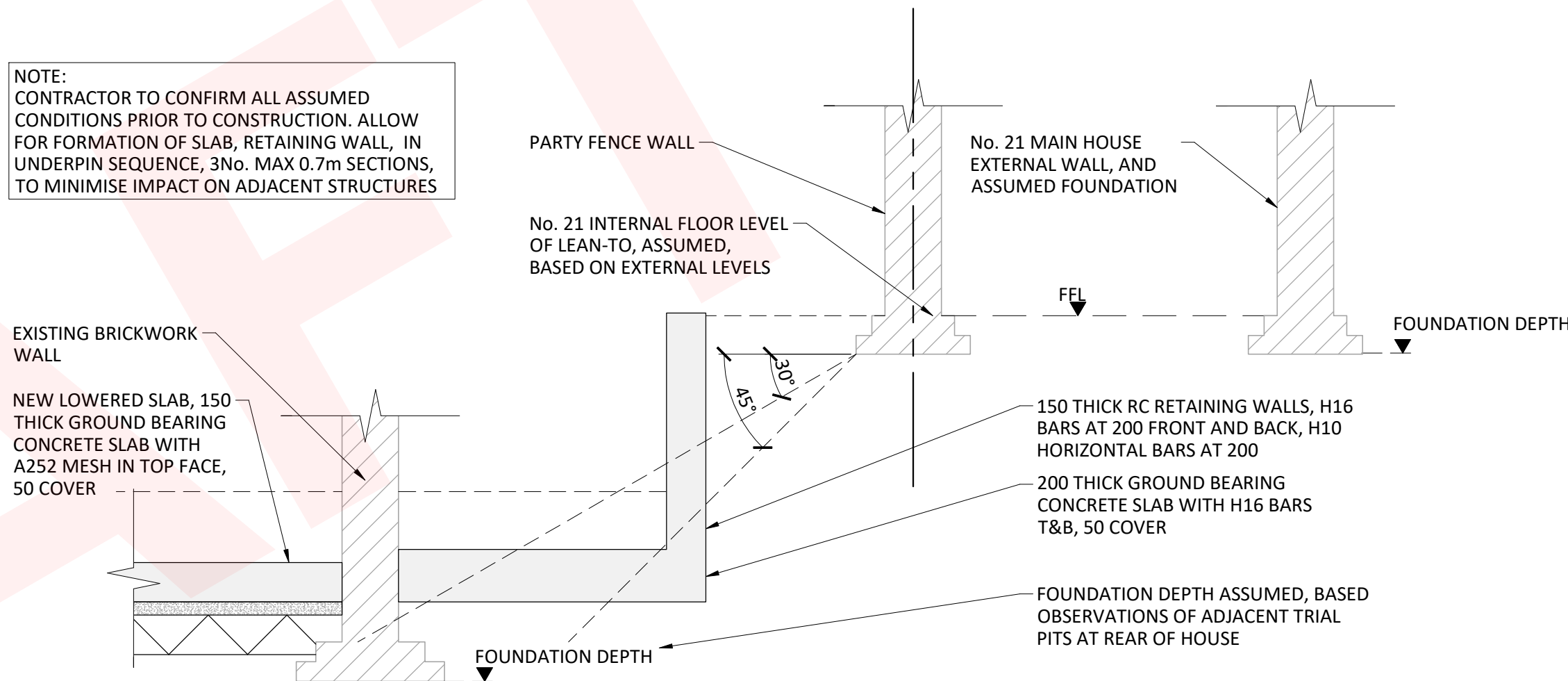
09
S401
1:20
INTERNAL STEPPED
PERIMETER DETAIL



10
S401
1:20
FRONT LIGHTWELL
RETAINING WALL DETAIL



11
S401
1:20
LIGHTWELL EXCAVATION
AND PARTY WALL DETAIL

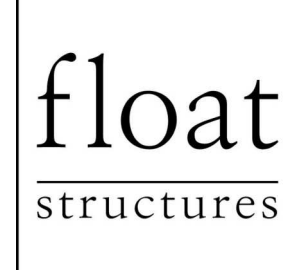


12
S401
1:20
SLAB EXCAVATION AND
PARTY WALL DETAIL

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T1	31 JUL 2023	ISSUED FOR INFORMATION	COS
Mark	Date	Revision	By



UNKNOWN WORKS

Project:
**17 DARTMOUTH
PARK AVENUE, NW5**

Title:
FOUNDATION DETAILS

Status:
INFORMATION

Design:	COS	Scale:	1:50 AT A1	Drawing No.	S401
Drawn:	COS	Date:	31 JUL 2023	Revision:	T1
Project No.:	22-1050				



Project 17 Dartmouth Park Avenue
Project No. 2986
Subject Stability Scoping and Screening
Client Float Structures Limited

Document Reference	Status	Revision	Issued	Checked	Approved	Date
2986-A2S-XX-XX-TN-Y-0001-00	First Issue	00	Paola Ianniello Dott. Ing. Graduate Engineer	Hamed Shariff MEng(Hons), CEng, MICE Associate	Alex Nikolic BEng(Hons), MSc, DIC, CEng MICE, MSt(Cantab) Director	18.08.2023
2986-A2S-XX-XX-TN-Y-0001-01	Second Issue	01	Paola Ianniello Dott. Ing. Graduate Engineer	Hamed Shariff MEng(Hons), CEng, MICE Associate	Alex Nikolic BEng(Hons), MSc, DIC, CEng MICE, MSt(Cantab) Director	01.09.2023

1. Introduction

A-squared Studio Engineers Limited (A-squared) has been appointed by Float Structures Limited (Float) to support the ground engineering scope related to the proposed redevelopment at 17 Dartmouth Park Avenue, London. This technical note has been prepared to provide the stability scoping and screening for the Basement Impact Assessment associated with the development site and required by the London Borough of Camden.

This technical note has been reviewed by Hamed Shariff. Hamed is a Chartered Member of the Institution of Civil Engineers (MICE) with several years of experience in geotechnical design, hydrogeological assessment and construction of basements. Hamed is an Associate at A-squared Studio Engineers Ltd (A-squared) and has a Master of Engineering from University College London. He also heads the hydrogeological division of A-squared and has experience in groundwater flow modelling and impact reviews.

This technical note has been approved by Alex Nikolic. Alex is a Chartered Member of the Institution of Civil Engineers (MICE) with more than 20 years of industry experience in geotechnical design and construction of ground engineering works. Alex has attained post-graduate qualifications, including a Master of Science in Soil Mechanics (MSc DIC) from the Imperial College London and a Master of Studies (MSt Cantab) in Sustainable Development from the University of Cambridge. Alex was formerly the Director of Ground Engineering at Buro Happold Ltd.

2. Stability Screening

Question	Response	Details
1. Does the existing site include slopes, natural or man-made, greater than 7 degrees (approximately 1 in 8)?	Yes	The topographic survey shows that, in the area of the development site, there is a slope angle that generally is less than 7 degrees, with occasional local increases exceeding 9 degrees.
2. Will the proposed re-profiling or landscaping at the site change slopes at	No	There are no re-profiling / landscaping works proposed that will increase the slopes existing on site to gradients greater than 7 degrees (or greater than the existing gradients).



Question	Response	Details
the property boundary to more than 7 degrees (approximately 1 in 8)?		
3. Does the development neighbour land, including railway cuttings and the like, with a slope greater than 7 degrees (approximately 1 in 8)?	Yes	No. 15 and 21 Dartmouth Park Avenue contain local zones with gradients exceeding 7 degrees.
4. Is the site within a wider hillside setting in which the general slope is greater than 7 degrees (approximately 1 in 8)?	No	Figures 16 of the Camden GHHS shows that the site is founded in a wider hillside setting. However, within the immediate vicinity of the site (approximately 100m in each direction), the hill has a general slope less than 7 degrees.
5. Is the London Clay the shallowest strata at the site?	Yes	The available information from the site-specific ground investigation and the British Geological Survey boreholes data reviewed prove that the London Clay Formation is present directly underneath the Made Ground.
6. Will any trees be felled as part of the development and/or are any works proposed within any tree protection zones where trees are to be retained?	No	No trees will be felled during the works. No works are proposed within tree protection zones.
7. Is there a history of seasonal shrink-swell subsidence in the local area and/or evidence of such effects at the site?	No	The London Clay strata is usually classified as having a high volume change potential and hence can lead to seasonal shrink-swell subsidence where buildings are founded in desiccated soils. However, there is no specific evidence of subsidence having been experienced on site or in the immediate surrounding area.
8. Is the site within 100m of a watercourse or a potential spring line?	No	Figures 11 and 12 of the Camden GHHS show that the nearest watercourses are a subterranean river of London, the River Fleet, and its tributaries, which are located more than 500m from the site. River Thames is present approximately 5.8km to the southeast of the site boundary.
9. Is the site within an area of previously worked ground?	No	BGS 1:50,000 geological mapping does not show the site to be located in an area of previously worked ground. Historical maps do not show any evidence of worked ground.
10. Is the site within an aquifer? If so, will the proposed basement extend beneath the water table such that dewatering may be required during construction?	No	The site is underlain by the London Clay Formation which is an unproductive stratum. Dewatering will likely not be required during construction, however nominal allowance for local pumping will be made.
11. Is the site within 50m of the Hampstead Heat Ponds?	No	Figures 13 and 14 of the Camden GHHS show that the nearest Hampstead Heath Pond is present approximately 830m to the northwest of the site boundary.
12. Is the site within 5m of a highway or pedestrian right of way?	Yes	The site is within 5m of a pedestrian sidewalk and road. The site is bounded by Dartmouth Park Avenue to the east.
13. Will the proposed basement significantly increase the differential depth of foundations relative to neighbouring properties?	No	The differential depth of the foundations of the existing development relative to neighbouring properties will not be significantly increased. Underpinning of selected foundations is proposed in order to facilitate deepening the lower ground floor, construction of a new lightwell in the front of the property, and deepening of the northern access side passage. The majority of underpinning will take place within the site footprint, with local areas of the site adjacent to No. 21 Dartmouth Park Avenue deepened



Question	Response	Details
		<p>and formed by new retaining walls. Refer to Appendix A for sketches of these areas.</p> <p>It is noted that all neighbouring properties are outside of the <i>active wedge</i> of the proposed underpinning and retaining walls. Where it is proposed to lower the level of the existing slab, there is a sufficient distance from the party fence wall and from No. 21 Dartmouth Park Avenue. The foundations of the adjacent structure are not within the zone of influence the main basement works, proposed lightwell and northern side passage deepening. The party fence wall will be impacted slightly by construction of new retaining walls for along the northern side passage.</p> <p>The north side passage retaining wall footprints have been set back to minimise their impact on No. 21 Dartmouth Park Avenue and will be founded at the same level as the existing foundations in that area.</p>
14. Is the site over (or within the exclusion zone of) any tunnels, e.g. railway lines?	No	There are no tunnels in close proximity to the site.

2.1. Non-Technical Summary of Screening Process

The screening process identifies the following **Land Stability** issues to be carried forward to scoping for further assessment:

- The existing site and neighbouring land to the development site have a slope greater than 7 degrees ([1], [3]).
- London Clay is the shallowest stratum on site ([5]).
- The eastern site boundary is directly adjacent to the pedestrian right of way of Dartmouth Park Avenue ([12]).

The other potential concerns considered within the screening process have been demonstrated to be not applicable or not significant when applied to the proposed development.

3. Scoping

3.1. Stability: Existing slopes greater than 7 degrees within and directly adjacent to the site

3.1.1. Hazards

- The existing site and the neighbouring land contains areas with slope gradients greater than 7 degrees.

3.1.2. Potential Impacts

- Slope instability within the site footprint and neighbouring sites.
- Potential for larger slope failure mechanisms, including re-activation of pre-existing slides as a result of the proposed works.

3.1.3. Mitigation Factors

- The proposed underpins will be formed in the London Clay Formation, which is anticipated to be a competent deposit.
- The temporary propping measures adopted for any basement extension works will be designed to provide adequate restraint to any potential slope instability surrounding the site, as identified following the site walkover and intrusive investigation works.
- The majority of the sloping ground to the west of the site is covered by vegetation and trees. These will improve the stability of the ground as a result of direct and indirect action (root action and impact on pore water pressure conditions/moisture content respectively). However, any analyses of the stability of the slope will not include their effects.



3.1.4. Assessments and Further Actions

- A qualitative slope stability assessment has been carried out, reviewing the existing and proposed site stability conditions. As shown in Figure 1, the slope across the footprint can be divided into an eastern and western area due to the presence of the retaining wall that splits the site into two different levels. The eastern and western slopes have gradients of approximately 1V:6.5H (8°) and 1V:13.5H (4°) as per the topographic survey of the site prepared by Greenhatch Group Limited.

Figure 2 presents the proposed outbuilding in the western area, located at the toe of the slope. The construction of the outbuilding increases loading at the slope's toe, enhancing the stability condition of the existing slope. Additionally, the existing slope across the western area of the site is very gentle at 4° and is not subject to any stability issues.

The proposed works across the eastern slope comprise excavation of the lightwell and deepening of the northern side passage. Where the lightwell excavation is proposed, the preferential sliding surface of the slope would bypass the foundation of the existing building. Figure 3 shows that the existing building's formation level is deeper than that of the proposed lightwell, as such any slope stability risks induced as a result of the local excavation works are limited, subject to appropriate temporary works being implemented.

It is noted that deepening the northern passage is proposed across a limited area with a depth of approximately 1m. Given the size of the excavation and the hit and miss construction sequence that will be adopted during the underpinning process, it is anticipated that the impact of the works on the slope stability condition would be limited to negligible. The excavation will also be supported by temporary props to further enhance the stability of the retained ground during the temporary condition. The presence of existing footings at the formation level of the excavation is a further indicator that the existing slope has been stable in the past whilst carrying out works of similar scale.

Additionally it is noted that any surface water drainage and management proposal should take cognisance of the slope and ensure any surface run-off is appropriately managed.

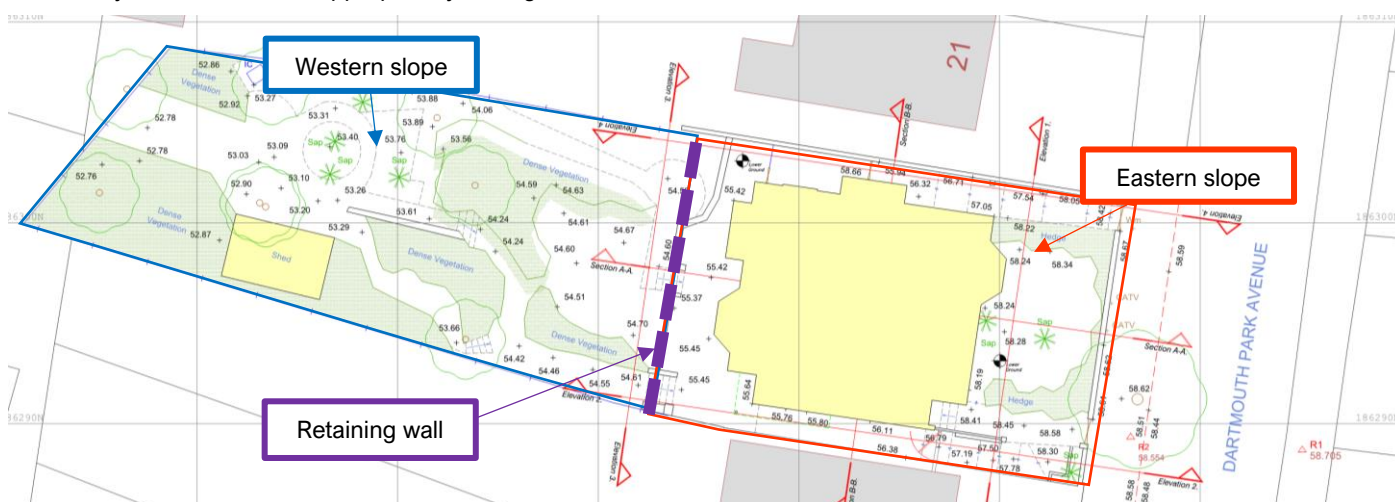


Figure 1 Slopes across the site

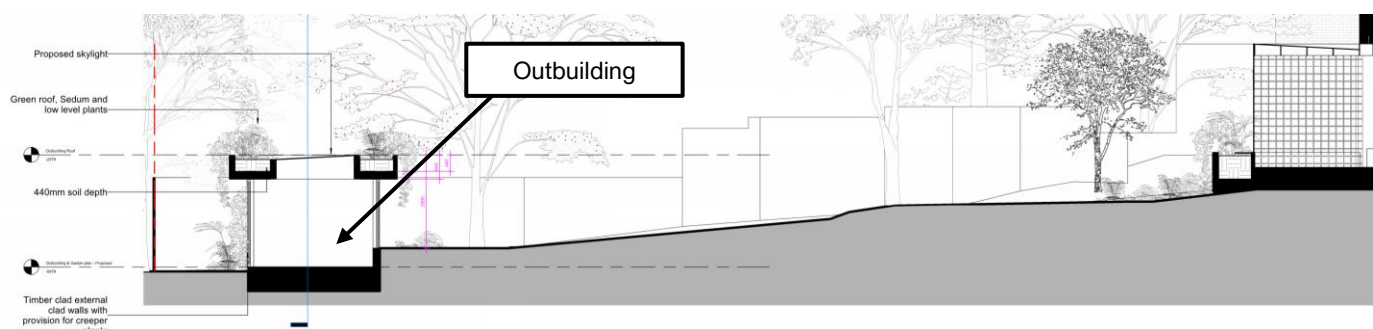
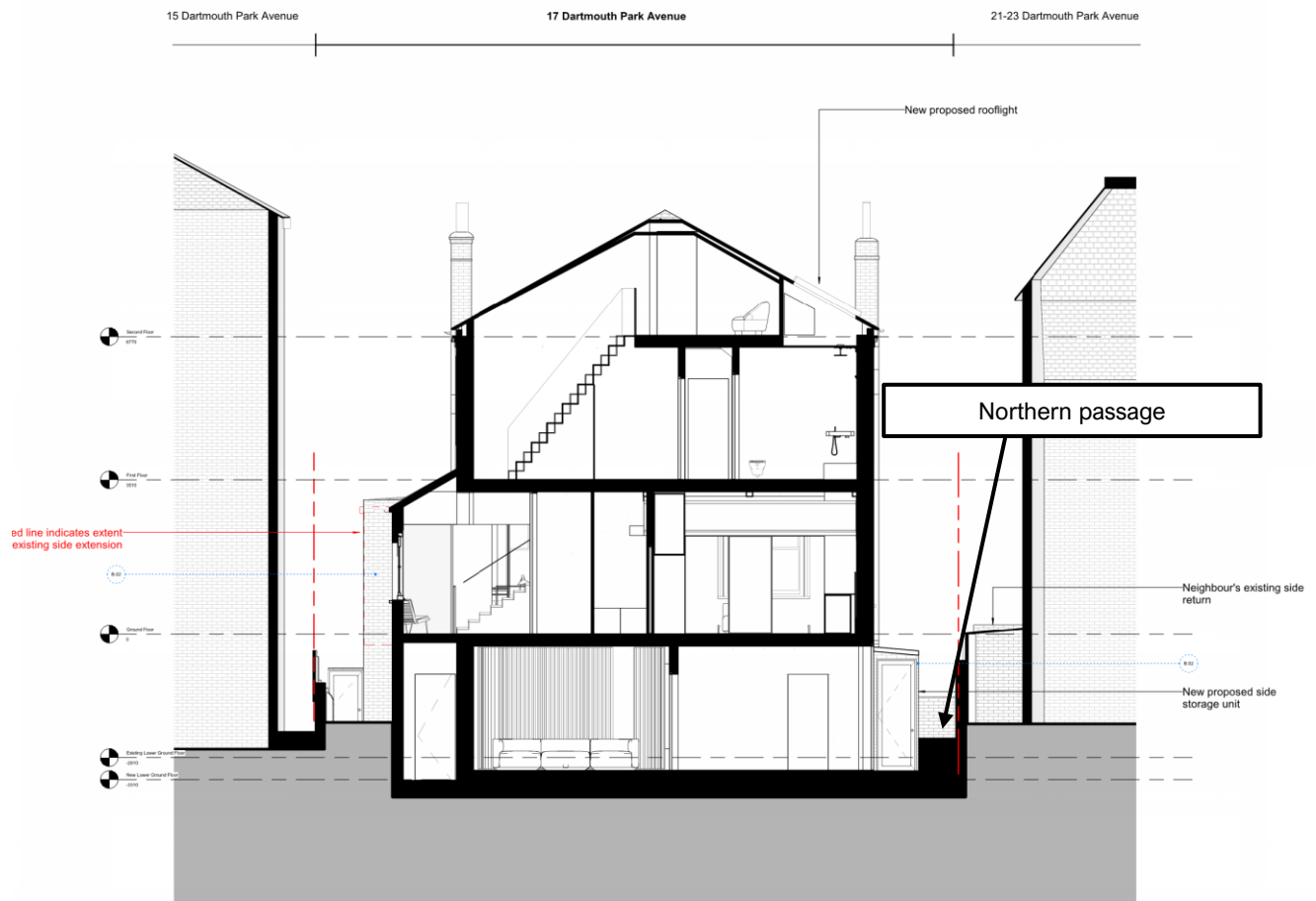


Figure 2 West-east section of the proposed outbuilding



Note: New lightwell excavation is proposed at the front of the building

Figure 3 West-east section of the existing building



Note: Northern access side passages deepening is proposed

Figure 4 South-north section of the proposed building



3.2. Stability: London Clay is the shallowest stratum on site

3.2.1. Hazards

- Seasonal shrinking and swelling (subsiding and heaving) of the London Clay Formation underneath the site.

3.2.2. Potential Impacts

- Damage to the proposed new foundation / retention systems and neighbouring properties.

3.2.3. Mitigation Factors

- The proposed underpins will be founded at depth, limiting the impact of shrink-swell subsidence on the development.

3.2.4. Assessments and Further Actions

- Seasonal shrink-swell of the London Clay Formation will be considered as part of the design of foundations.

3.3. Stability: The site is adjacent to a public road

3.3.1. Hazards

- The eastern part of the site boundary is immediately adjacent to “Dartmouth Park Avenue” which is a carriageway road with pedestrian sidewalks.

3.3.2. Potential Impacts

- Impact of ground movement to Dartmouth Park Avenue resulting in cracking, damage and/or collapse.
- Collapse of the excavation and associated impact on surrounding assets.

3.3.3. Mitigation Factors

- Deposits underlying the development are largely natural and anticipated to be relatively stable, i.e. London Clay.
- Several basements of similar depth and scale have been successfully constructed throughout London within similar geological conditions and urban settings.
- Temporary propping of the underpins will be proposed during construction works to ensure no significant movements or instability of the surrounding roads arise.

3.3.4. Assessments and Further Actions

- A ground movement assessment may be required to determine the impact of the works on surrounding buried utilities and other third-party assets surrounding the site. Liaison between the planning authority and the asset holders would determine whether any further ground movement assessments are required.
- Appropriate ground movement monitoring should be implemented during construction to assess the performance of the earth retention system (baseline monitoring pre-commencement of the works should be carried out to determine any potential existing movement trends).
- An assessment of the ground movements of the neighbouring road associated within the proposed works may be required as part of the detailed design to confirm that there is no significant impact during construction. The local authority would determine whether any ground movement assessments are required for the neighbouring roads.



Appendix A: Proposed Lightwell and Northern Side Passage

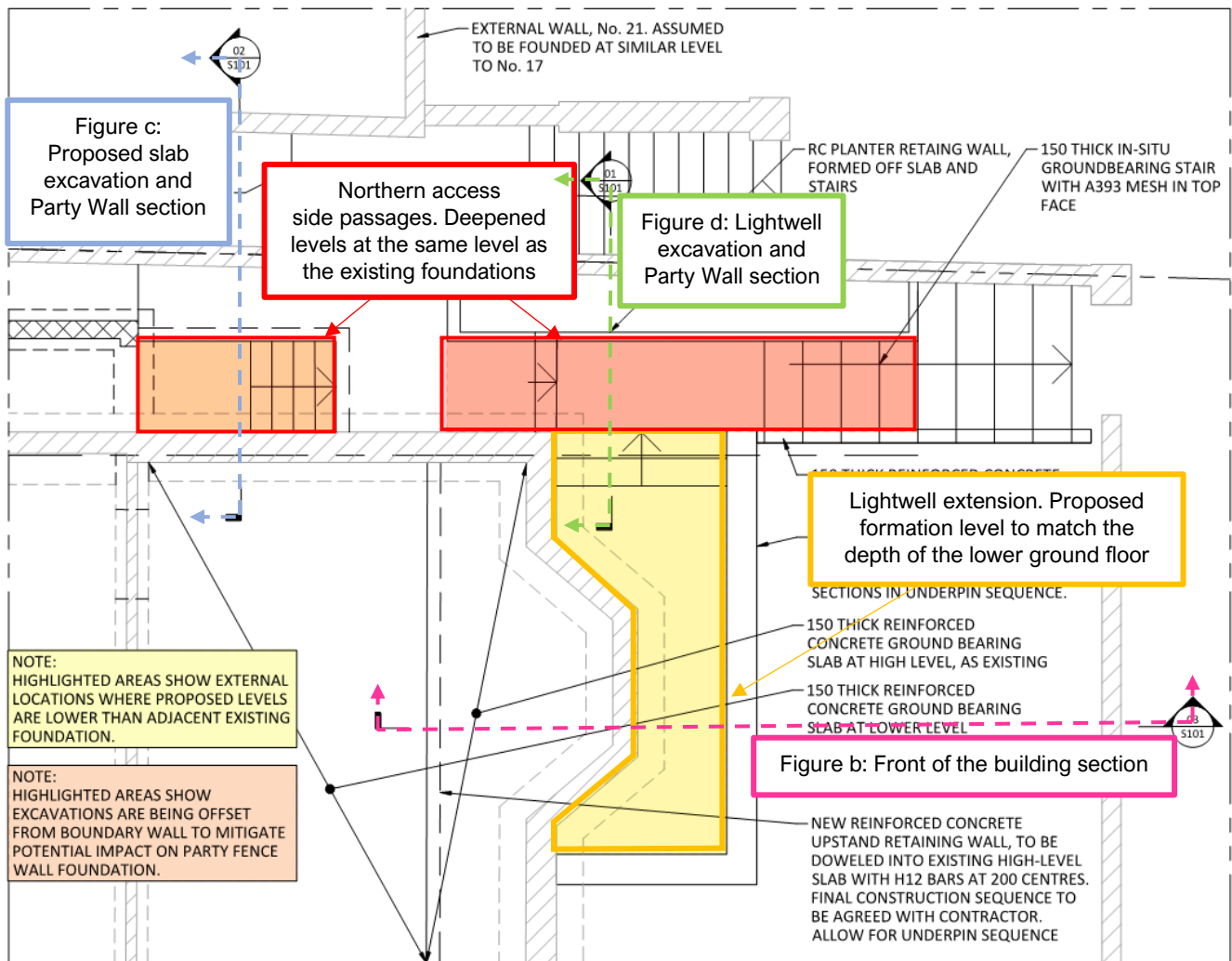
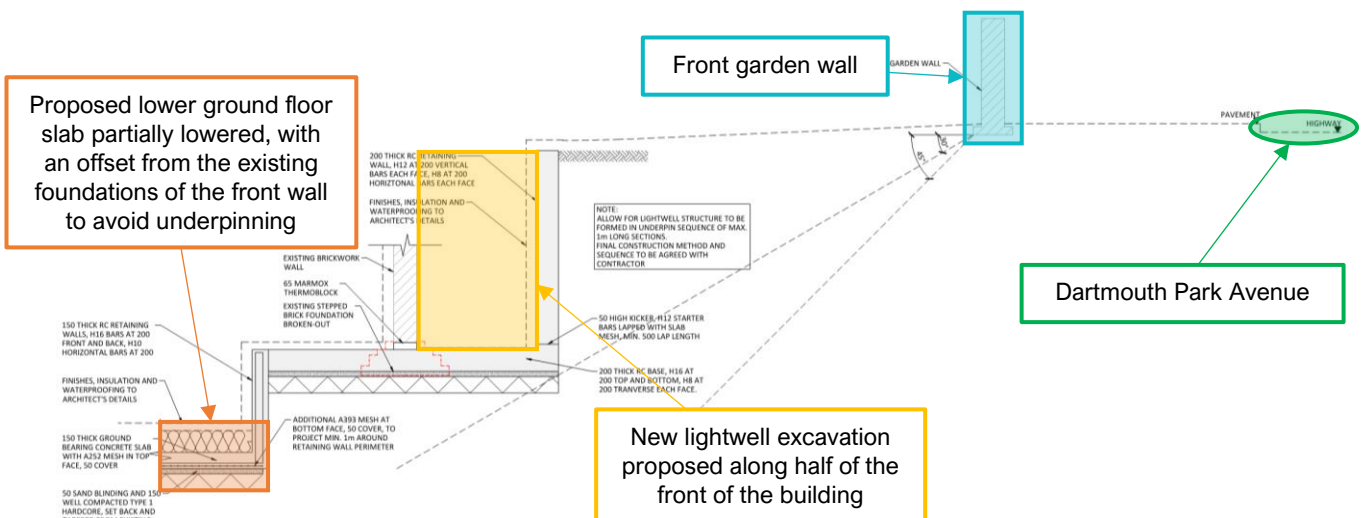
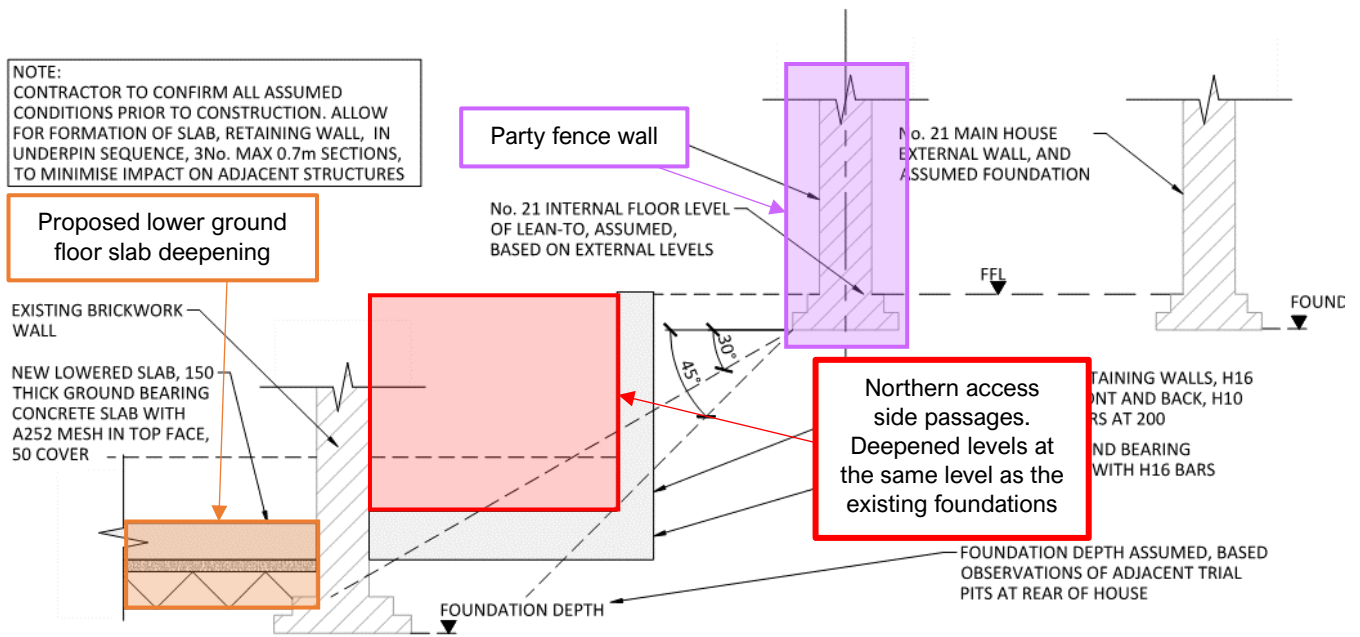


Figure e Part of the development site plan with indicative boundary excavations



Note: The existing foundations will be replaced by a reinforced concrete slab.

Figure f Front of the building section



Note: The lower proposed level of the northern access side passages and the lower ground floor slab will not change the level of the existing foundations.

Figure g Proposed slab excavation and party wall section

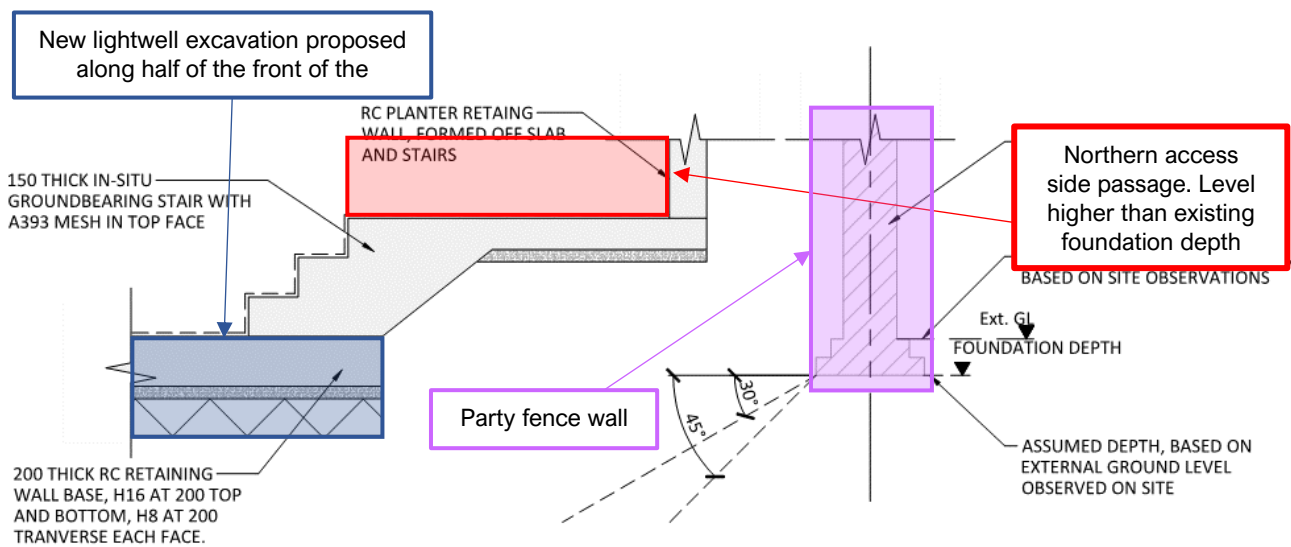


Figure h Lightwell excavation and party wall section



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