

B.

Borehole Logs

30a Shepherds Hill

London

N6 5AH

Basement – Structural Methodology & Impact Statement - New
Residence

Job
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1. Introduction

The site of 30a, Shepherds Hill, N6 5AH is located in the London borough of Haringey in north London. The client has developed proposals to construct an additional property which directly adjoins No. 30.

The purpose of this report is to outline the structural alterations required to facilitate the construction of the lower ground floor level and how the site constraints have been considered within the design. This includes a description of the recommended construction methodology and how construction impacts on the surrounding area have been minimised through the selection of appropriate processes.

This report has been produced in support of the planning application submitted by Aura Architecture for this site and should not be relied upon or used for any other purpose or by any other third party without the express permission of the engineer.

2. Existing site and property

30a, Shepherds Hill is located to the east of Highgate and to the south of Queens Woods. The site is accessed off Shepherds Hill to the North and is bounded by residential sites to the East and West. A large rear garden is located to the south of the property. The site is heavily sloped from North to South (downhill) with a lesser incline from West to East (downhill)

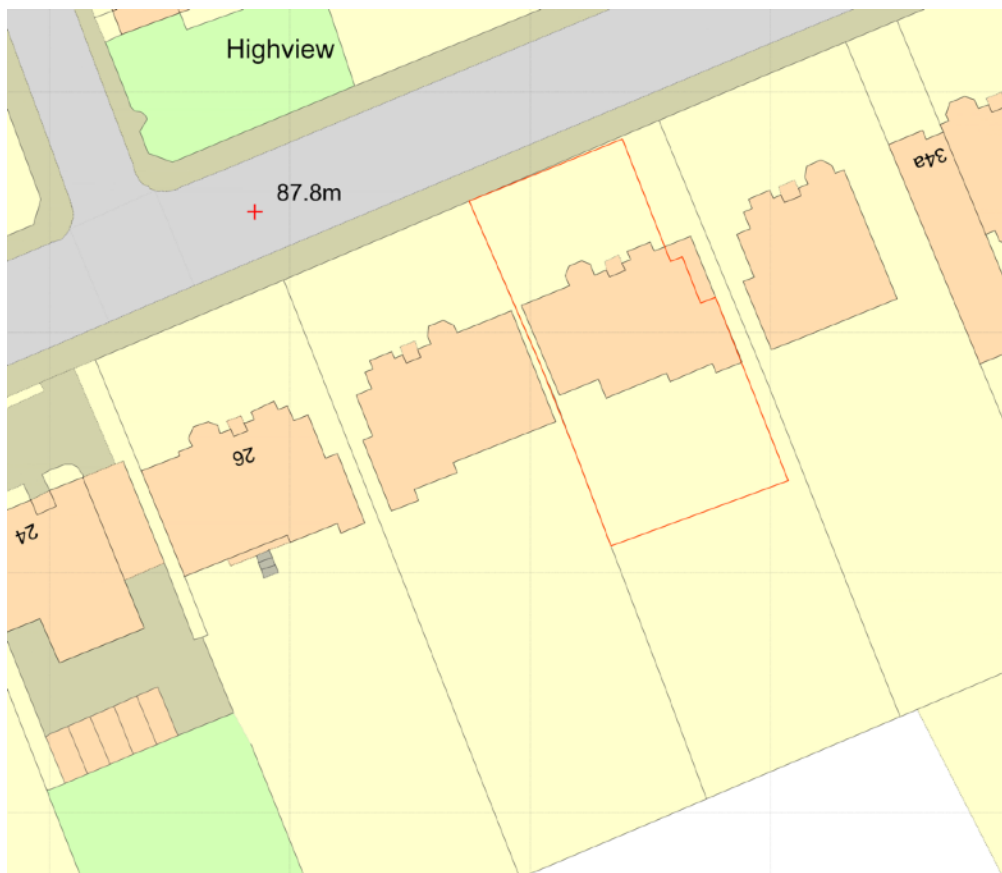


Fig. 1: Site Plan

The neighbouring properties, 28 and 32 Shepherds Hill are also detached residences, built in a similar style with clear separation from No. 30.



Fig. 2: side elevation illustrating level change from front to rear (North to South)

No. 30 consists of 5 storeys, traditionally constructed with load bearing masonry walls supporting timber floor and roof structure. The foundations typically consist of corbelled brickwork, or mass concrete strip footings. (Refer to Section 4 for further details).

No. 30 has historically been converted into flats with 30a located on the lower ground and ground floor, 30b located on 1st floor and 30c located on 2nd and 3rd floor (roof space). 30b and 30c are both accessed externally from a new side extension containing a non-original stairwell. 30a is accessed through the original front entrance of the property. The layout of the lower



Fig. 3: No. 30 Shepherds Hill, front elevation

ground floor has been historically altered and there is evidence of steel beams installed to facilitate the removal of load bearing walls. Only the rear half of the lower ground floor is currently in use as habitable living space with the front front half of the property used as a cellar due to the restricted floor to ceiling height. Within the cellar it is possible to see the existing corbelled masonry foundations which support the perimeter masonry walls. The formation level of the foundations tend to follow the natural slope of the site and therefore get deeper from the front to the rear.

The existing garage lean-to on the Western elevation is within the demise of No. 30a and appears to have been historically rebuilt as evidenced by the different style of brickwork. The lean-to garage (and the garden directly behind the garage) are where the majority of the works proposed in this application are located.



Fig. 4 : Garage side extension - Front



Fig.5: Garage side extension - Front

3. Desk study

3.1. British geological Survey (BGS) records

BGS records indicate that ground conditions within the site are consistent throughout and consist of a small amount of topsoil/made ground overlying London Clay to depth.

Borehole logs from in the near vicinity of the works prove London Clay to depth with no ground water tables noted due to the presence of the impermeable London Clay. Any groundwater is therefore expected to consist of perched water running within the thin layer of

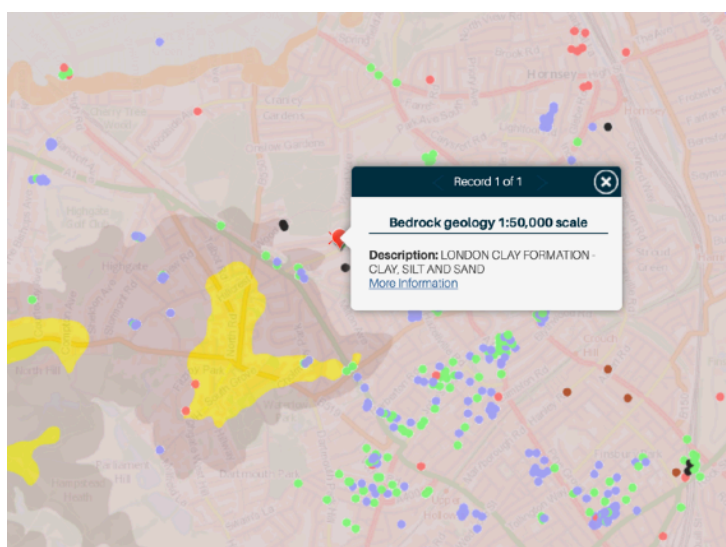


Fig.6 : Bedrock geology in the vicinity of the site.

topsoil over the top of the clay rather than any standing water table. Borehole logs are included within Appendix B.

3.2. Flood Risk

Flood risk maps obtained from the government Flood Risk service show the site to have no flood risk from rivers and watercourses. The site also has a very low risk of surface water flooding with no other areas of risk noted within 200mm of the site.

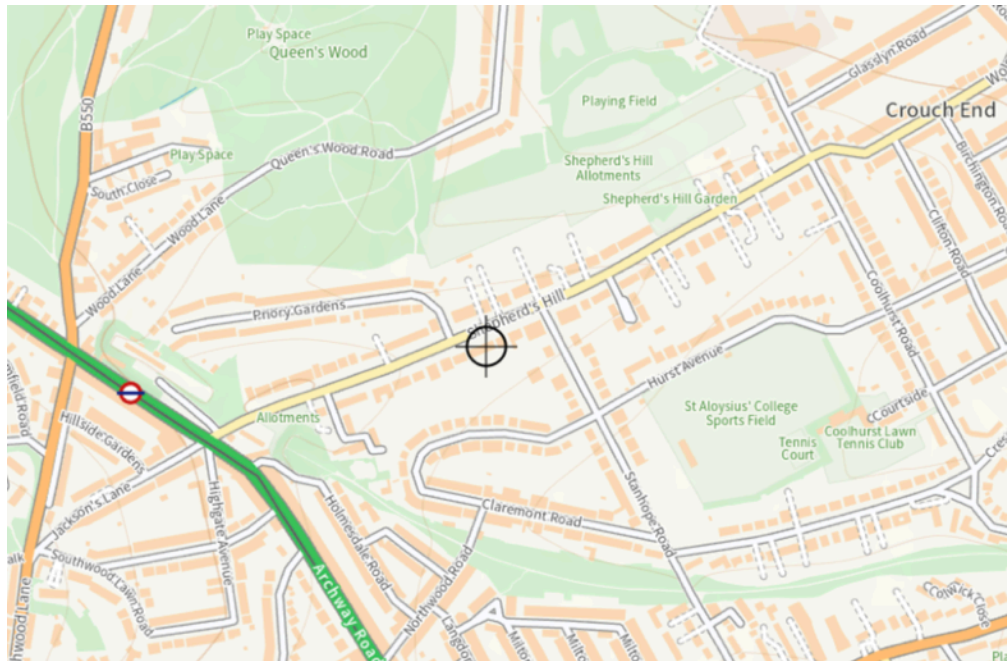


Fig.7 : Flood risk from rivers and watercourses

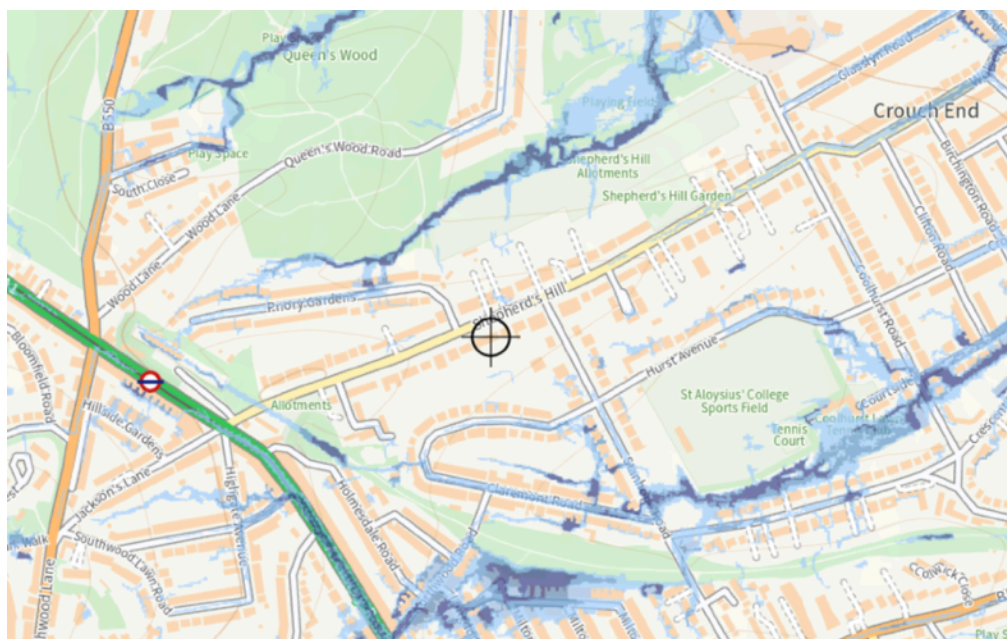


Fig.8 : Flood risk from surface water

3.3. Infrastructure

The site is not in the presence of any overground or underground rail transport links or stations. The nearest LUL underground asset is Highgate station located more than 300m away from the site.

Shepherds Hill is the only road adjacent the site and is classified as a C road and is approximately 12m away from the proposed building line.

The drainage to the site serves only No. 30 and is therefore classified as private drainage which connect to a Thames Water sewer under Shepherds Hill.

3.4. Trees

No trees with Tree Preservation Orders (TPOs) are understood to be located either on the site or in the near vicinity. Some mature trees were noted within the rear garden area and these have been taken into account in the design of the foundations for the new extension.

4. Site investigation & ground conditions

Excavations within the garden area and borehole records in the vicinity of the site have confirmed the underlying ground to be a thin layer of topsoil overlying London clay to depth.

As noted in Section 2, the foundations to the existing building of No. 30 were visible within the existing cellar/lower ground floor and therefore no trial pits were required during this phase of the design.

No significant perched water flows were noted in the rear garden area which is currently at the same level as the proposed lower ground floor.

5. Basement proposals & structural design philosophy

The development consists of the construction of a new residential property which directly adjoins No. 30 on the Western (side) elevation. The new residence will occupy the footprint of the existing garage which will be demolished, and will extend out into the rear garden of No. 30a at lower ground floor level.

The new residence will consist of 3 above ground storeys and a single storey lower ground floor. A reinforced concrete retaining wall will be required along the full length of the lower ground floor adjacent to the boundary with No. 28 Shepherds Hill. Due to the natural slope of the site the retaining walls will be stepped in height along the length of the boundary, getting shorter as the building extends further into the garden. The retaining wall will need to be constructed in a 5-stage sequence to avoid continuously

undermining the neighbouring building and garden. Details of how the construction is to be sequenced are shown on the drawings in appendix A and discussed further in Section 12 below. All retaining walls have been designed to resist soil, hydrostatic and surcharge pressures from neighbouring structures.

Within the rear garden area no retaining wall will be required on the rear elevation and only a short retaining wall approximately 0.7m in height will be required where the property adjoins the existing patio of No. 30a.

The lower ground floor level will extend below the existing lower ground floor level of No. 30a by approximately 0.5m. Consequently the Western (side) elevation of No. 30 will require underpinning. The underpinning will be undertaken in a carefully controlled sequence to ensure the structural integrity is retained during the works. This is discussed further in Section 12.

Most of the new property will be founded on a new raft slab which will tie in directly to the retaining walls to provide restraint against lateral forces. The raft slab has been designed to distribute the building loads and lateral forces across the full building footprint, ensuring bearing pressures (and resultant ground movements and settlements) are minimised. The raft slab will also be designed for heave and hydrostatic forces associated with the underlying London Clays.

Within the rear garden the proximity of mature trees and the presence of underlying clays means there is a risk of clay heave and seasonal movements. To limit the impacts of these ground movements on the new structure it is proposed to support the rear kitchen area on piled foundations. The piles will be sleeved through the top layer of underlying soil to remove the risk of heave and the lower ground floor slab will be designed as suspended, spanning between the piles and cast on a layer of collapsible heave

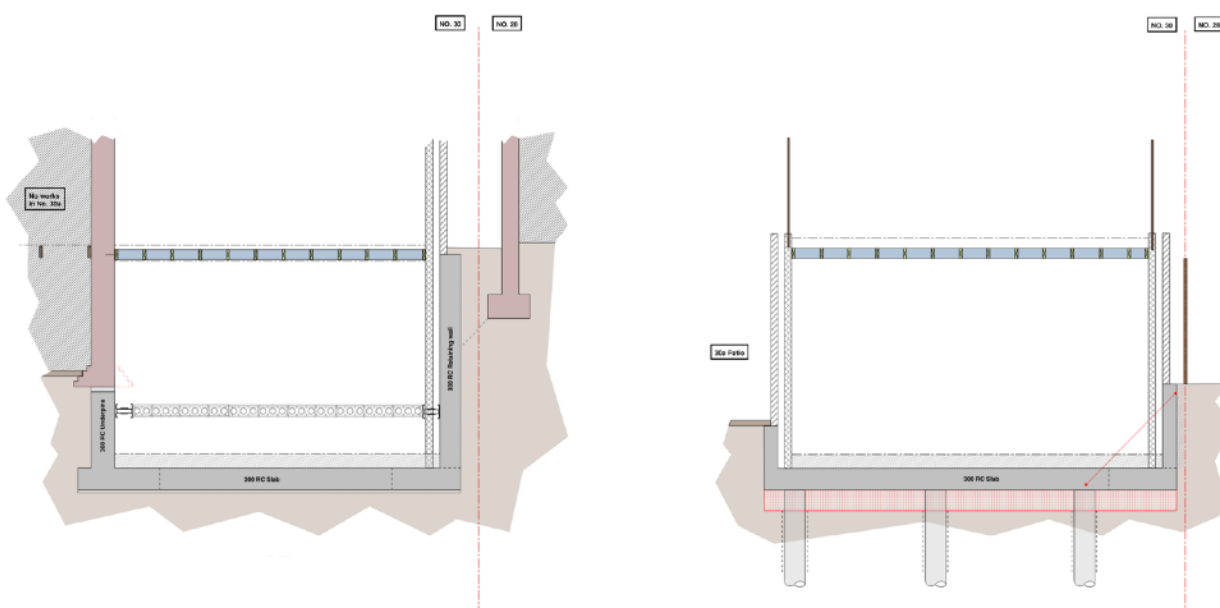


Fig.9 : Basement sections to front (Left) and rear (right) of property showing different retaining wall conditions and foundations solutions.

protection/void former. The use of piles will also mitigate the risk of damaging roots of mature trees due to the reduced amount of excavation required.

The proposed structure for the basement is further illustrated in the drawings provided in Appendix A.

6. Drainage

The existing below ground drainage network serving the property drains out to Thames Water sewers located under Shepherds Hill. The proposals will not change the existing drainage principles for above ground foul water discharge which will continue to drain via gravity to the Thames Water sewer.

The proposed drainage serving the lower ground floor will be below the level of the Thames Water outfall and will therefore need to be pumped via rising mains. The pumped system will also protect the proposed basement against any potential surcharges from the Thames Water sewer.

7. Basement waterproofing

The proposed basement will be designed to achieve a Grade 3 level of waterproofing protection as outlined in BS 8102:2009.

This will typically consist of a primary tanking barrier applied to the internal face of the structure (masonry, mass concrete and reinforced concrete) followed by a secondary barrier in the form of a cavity drainage system with associated pump systems connecting to the public sewer network.

The final waterproofing system will be dependent on the chosen supplier/designer.

8. Party wall matters

The proposed development works fall within the scope of the Party Walls Act 1996. Procedures under the Act will be dealt with in full by the Employer's Party Wall Surveyor. The Party Wall Surveyor will prepare and serve necessary Notices under the provisions of the Act and agree on Party Wall awards in the event of disputes. The Contractor will be required to provide the Party Wall Surveyor with appropriate drawings, method statements and other relevant information covering the works that are notable under the Act. The resolution of matters under the Act and provisions of the Party Wall Awards will protect the interests of all owners.

The designs for 30a Shepherds Hill will be developed so as not to preclude or inhibit similar, or indeed any, works on the adjoining properties. This will be verified by the Surveyors as part of the process under the Act.

9. Hydrogeological Impacts

The existing building at 30a Shepherds Hill is founded within London Clays in which no stationary ground water table was identified in the site investigations. Due to the extremely low permeability of the London Clay, the construction of a property adjoining No. 30 which effectively extends the footprint of the existing lower ground floor level (with a minor increase in depth) will not have a material effect on the local groundwater flows or upper aquifer. In addition, the impact of subterranean development, particularly on standalone sites such as this, is recognised to be negligible as the groundwater will typically travel around the sides of the basement.

10. Ground movements

The proposed structural works have been designed and sequenced to ensure that the movement of existing structures, both on and adjacent to the site, are mitigated and limited to generally accepted values.

Underpinning works to the existing building, if executed correctly in a controlled sequence, will cause limited movement to the retained structure above. The works as a whole will not exceed Damage Category 1 on the Burland damage scale which is a generally accepted limit by Party Wall surveyors and will be written into the relevant Awards.

The RC underpins and retaining walls have been designed to limit any potential lateral movement to less than 10mm.

11. Construction methodology

11.1. Construction generally

The measures and assumed sequence of works described below demonstrate that the works can be undertaken safely and practically, whilst mitigating risk to neighbouring buildings and structures.

Detailed method statements and calculations for the enabling and temporary works will need to be prepared by the Contractor for comment by all relevant parties including Party Wall Surveyors and their Engineers.

The client team will ensure that the contractor has adequate supervision and monitoring provided throughout the works particularly during the excavation and demolition stages. To this end, inspections will be carried out at key stages by the appointed structural engineer to monitor that the works are being carried out generally in accordance with the structural engineering design and specification. A written site report will be provided to the design team, Contractor and Party Wall Surveyor.

Access onto the site will likely be from Shepherds Hill and must be coordinated in a sensible manner to minimise disruption to the adjoining residents and provide a safe working environment.

11.2. Construction sequence

A written summary of the assumed sequence of construction is included below.

It should be noted that the final construction sequence will be determined by the appointed contractor.

Stage 1: Site set-up, Internal soft strip & demolition

- Erect a fully enclosed painted plywood site hoarding along the site perimeter, this should not impede on the neighbouring properties.
- The services within the site should be identified and isolated as necessary.
- All below ground obstructions should also be removed to allow the works to progress.
- The principles for the removal of spoil shall be agreed. Given the scope of the works, it is likely that mini excavators will be used to move the spoil to a holding skip located in the front of the site in the large driveway. Grab lorries will be used to remove the material from the skip.
- The demolition of the existing garage building, and the clearance of the construction area of any vegetation is to be completed to allow a full detailed review of ground levels and adjacent structures. Access to install movement monitoring points will be possible at this stage.
- Monitoring points should be installed to all neighbouring structures and a base reading should be taken prior to any construction works starting on the site.

Stage 2a: Underpinning of existing structures and installation of retaining walls.

- A first stage of excavation may be carried out to lower the ground level to the bottom of the existing cellar foundations to No. 30a. This will provide easier access to carry out the underpinning works to this elevation. A berm should be left in place against the neighbours boundary to ensure the ground stability in this area (Fig. 10).

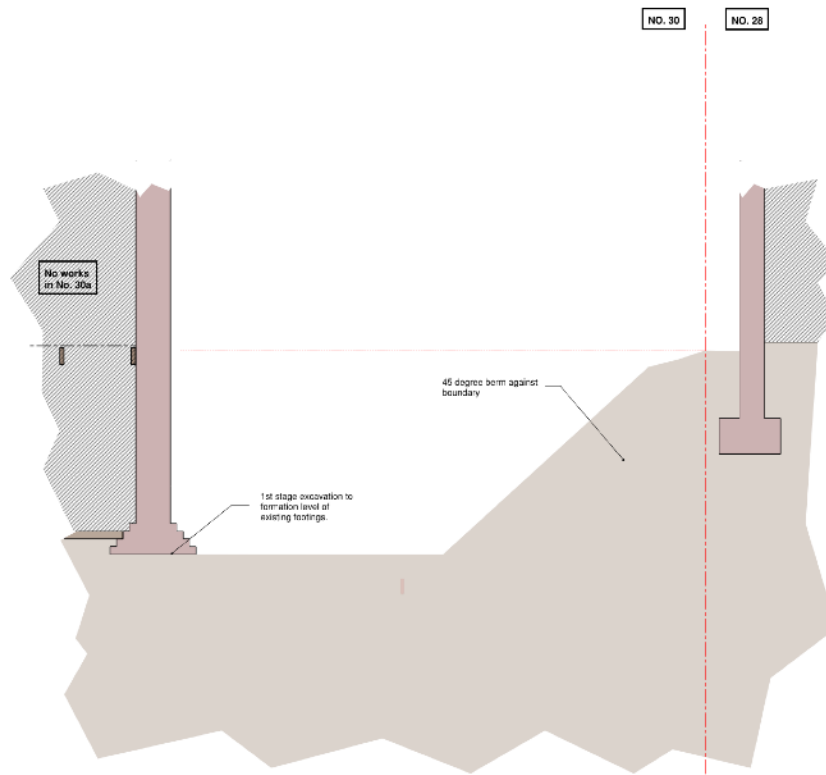


Fig.10 : first stage excavations

- Underpinning of the flank wall and construction of the retaining wall on the boundary to No. 28 should be undertaken in a carefully controlled 5-stage sequence as indicated on the drawings. Once each section of underpinning is completed, the excavation should be backfilled prior to moving onto adjacent sections (Fig.11).
- Underpinning should be carried out using the following methodology.
 - o The Contractor shall be responsible for ensuring that their operations do not in any way impair the safety or condition of the existing structure or the adjacent properties. They shall provide any temporary supports required for this purpose, and shall carefully inspect the condition of the structure both before and during the execution of the work and immediately inform the Engineer and Architect if they consider that any more stringent procedure than that specified is necessary.

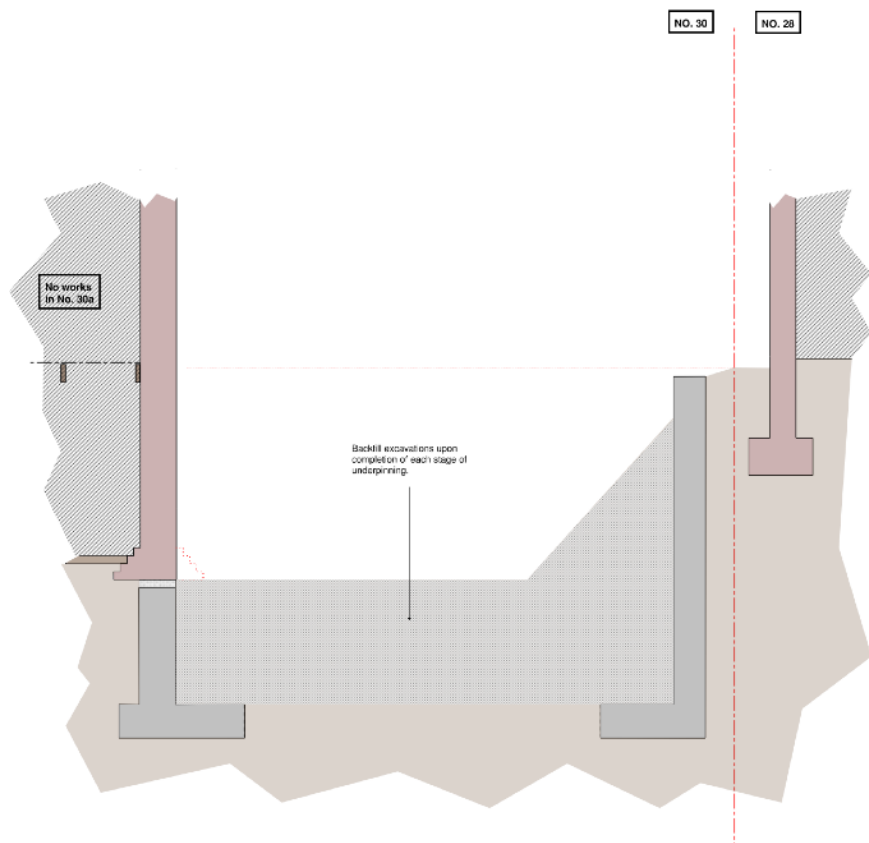


Fig.11 : Underpinning works

- o Before starting the work the Contractor is to check for any services that could be damaged by the work and shall provide for the maintenance of drainage services during the works and for the reinstatement of any services interrupted or disturbed by the excavations.
- o Underpinning and retaining wall installation is to be carried out in short sections not exceeding 1000mm in length, in the numbered sequence shown on the drawings.
- o Before underpinning, projecting portions of the existing footings are to be carefully cut off as detailed and the underside of the footings are to be cleaned and hacked free of any dirt, soil or loose material.
- o The Engineer and Building Control Officer shall be given the opportunity of examining all excavations, prior to any underpinning or retaining walls being cast.
- o Underpinning and retaining walls are to be cast to the widths and depths shown on the drawings. As far as practicable excavation and concreting of any section of underpinning or retaining wall shall be carried out on the same day. Un-concreted sections shall be kept covered to prevent the ingress of water.
- o Excavation to any section of underpinning shall not be commenced until at least 48 hours after completion of any adjacent section of the work.
- o The joint between adjacent sections of mass concrete underpinning is to be formed by creating a rough surface against which the first section is cast. Then, having thoroughly

cleaned the exposed concrete face, the adjacent section may be cast. The joint between adjacent sections of reinforced concrete underpins or retaining walls should be prepared as above, however reinforced concrete underpins are to be dowelled together in accordance with the reinforcement detail drawings.

Stage 2b: Formation of front retaining walls

- Whilst the underpinning works described in Stage 2a are ongoing, works to construct the front lightwell retaining walls may be commenced. (Subject to stage 1 underpins being complete.)
- To form the front lightwell it is recommended that the adjacent ground be battered back to a safe angle to maintain stability of the excavation. Battering back the soil allows the retaining wall to be shuttered and cast in continuous lengths which will eliminate construction joints in the concrete, eliminate temporary works and reduce programme duration. The ground should be battered back in such a way so that the ground level adjacent to the boundaries is undisturbed, and a 45 degree line of load spread from existing foundations is maintained.

Stage 3: Bulk Excavation

- Upon completion of the perimeter retaining walls and underpinning, the bulk excavation may be commenced.

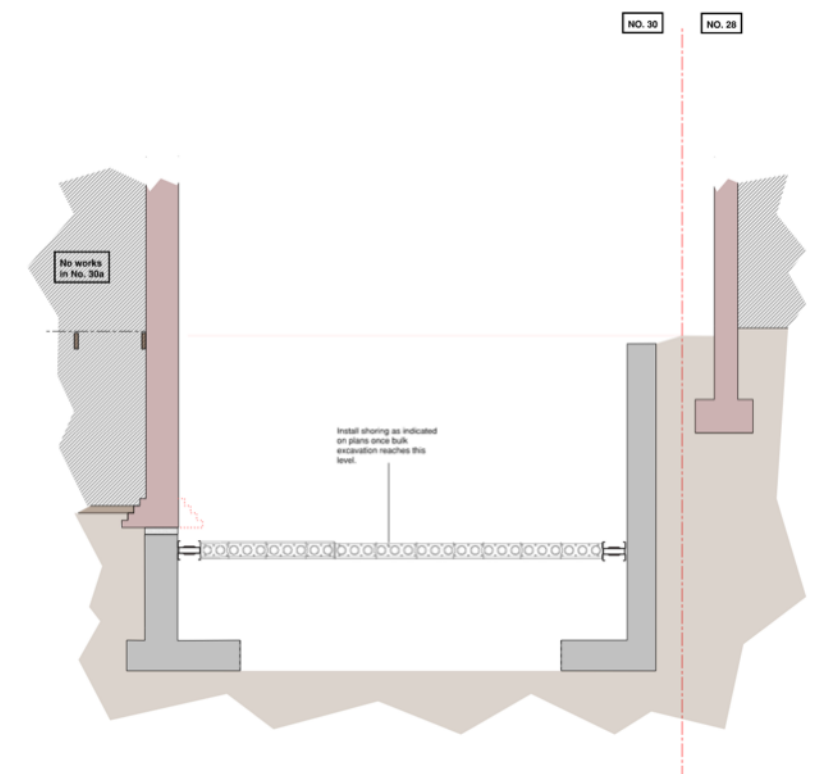


Fig.12 : Bulk excavation and installation of temporary propping.

- Temporary propping to the retaining walls on the side elevations (as indicated on the structural plans and sections) should be installed once the excavation reaches the specified level (Fig. 12).
- Excavation may be carried out by a mini excavator with spoil removed via conveyor as described in Stage 1.

Stage 4: Cast raft slab.

- Upon completion of the bulk excavation, the raft slab can be prepared.
- Install 50mm concrete or sand blinding.
- Install below ground drainage and associated pumping stations.
- Fix reinforcement, ensuring appropriate laps are achieved with the perimeter retaining wall and underpin toes and concrete covers are rigidly adhered to.
- Cast concrete raft and allow to cure to achieve appropriate design strength
- Remove temporary propping to the perimeter retaining walls and underpins

Stage 5: Backfill front excavations

- The battered back soil to the front of the site is to be backfilled to the appropriate level.
- Backfilling material should be granular and compacted regularly in 150mm layers.

Stage 6: Complete superstructure works.

11.3. Mitigating noise dust and vibration

The Haringey Development Management Plan states that any basement works should be completed in such a way to ensure that construction impacts such as noise, dust and vibration are minimised for the duration of the works.

The construction works will involve the demolition of the existing garage building including the removal of the masonry walls and cutting out the existing foundations. Those most likely to be affected by noise dust and vibration will be the immediate neighbours at No.30B, No.30C and No. 28 Shepherds Hill however the clear separation between the existing and neighbouring buildings in the form of side alleys will mean that any transfer of vibrations will be minimal. The large front driveway and the ability to contain material arisings within the site boundary will also assist in minimising impacts on users of Shepherds Hill.

The mitigation measures that are proposed to keep noise, dust and vibration to acceptable levels are described below:

Mitigation measures for demolition of existing façade and foundations;

- The amount of demolition of the external, perimeter structure of No. 30 has been limited to the cutting back of projecting portions of existing foundations and the removal of masonry walls forming the garage. The breaking out or cutting back of existing masonry or concrete structures shall be carried out by diamond saw cutting where possible to minimise noise and vibration to the adjacent properties. The use of percussive breaking techniques will be avoided where possible.
- Dust suppression equipment should be used during the demolition process to ensure that any airborne dust is kept to a minimum. Concrete and masonry should also be wetted down prior to and during breakout to further inhibit airborne dust.

Mitigation measures for bulk excavation

- Due to the limited size of the site, the use of mechanical plant will likely be limited to a small excavators and conveyors. These will be used in conjunction with manual digging. The contractor should ensure that any mechanical plant is switched off when not in use and is subject to regular maintenance checks and servicing.
- Holding skips will be located behind hoarding on the front driveway.
- The contractor will ensure that the adjacent pavement will be regularly washed down and kept free of any dust or muck away resulting from the works.

Mitigation measures for the construction of the concrete basement

- The contractor should ensure that any concrete pours are completed within the permitted hours for noise generating works.
- The contractor should allow for a contingency period to ensure that concrete pours can be completed within these hours regardless of unforeseen circumstances such as batching plant delays and traffic congestion.

- The fabrication and cutting of steelwork for the reinforced concrete columns and slabs shall take place off site. If any rebar needs to be trimmed on site this should be completed using hydraulic or pneumatic tools instead of angle grinders.

Dust control In order to reduce the amount of dust generated from the site

- The contractor should ensure that any cutting, grinding and sawing should be completed off site where practicable. If cutting, grinding and sawing is being carried out on site, surfaces are to be wetted down prior to and during these types of work whenever possible.
- Any equipment used on site should be fitted with dust suppression or a dust collection facility.
- The contractor will be responsible for ensuring good practice with regards to dust and should adopt regular sweeping, cleaning and washing down of the hoardings and scaffolding to ensure that the site is kept within good order.
- Contact details of the contractor who will be responsible for containing dust and emissions within the site will be displayed on the site boundary so that the local residents can contact the contractor to raise any concerns regarding noise and dust.
- The building will be enclosed within suitable hoarding and any stockpiles of sand or dust-generating materials will be covered. Cement, fine aggregates, sand and other fine powders will be sealed after use.

11.4. Monitoring during works

The Contractor shall provide monitoring to all structures on site and directly adjacent to the basement excavation at the time of excavation and construction.

Monitoring shall be completed as follows:

- 1) 1 week prior to any excavation works being started to provide a base reading.
- 2) On a weekly basis during the excavation and until the basement construction is complete and the existing building loads have been transferred onto the permanent structure.
- 3) On a monthly basis thereafter for a 6-month period following completion of the notifiable works.

The allowable movement values will be agreed following the Party Wall agreement process but will typically be limited to 10mm lateral movement and 10mm settlement of existing structures.

The agreed limits will take account of the final construction methodology proposed by the Contractor.

The values will be set to ensure that the ground movement and associated damage category to the adjacent buildings is limited to Burland Damage category 1.

An example of an allowable movement specification is outlined below.

- Cumulative movement of survey points must not exceed:
 - a. Settlement
 - Code amber trigger values: +/-8mm
 - Code red trigger values: +/-11mm
 - b. Lateral displacement
 - Code amber trigger values: +/-8mm
 - Code red trigger values: +/-11mm
- Movement approaching critical values:
 - *Code amber trigger value:* All interested parties, including the Adjoining Owner's Surveyor and his Engineer, should be informed and an assessment should be undertaken to determine if the movements are reasonable when compared against the works undertaken to date. Any further actions required should be immediately agreed between the Surveyors and implemented by the Building Owner.

Notwithstanding the Party Wall requirements, the Contractor is to appoint a suitably qualified Structural Engineer who will be responsible for the reviewing of the movement monitoring results at appropriate stages and to provide immediate advice, remedial works and design as necessary in the event of adverse movement being noted.

If this trigger value is reached, the Contractor and his Engineer should provide all interested parties with their plan to implement any emergency remedial and supporting works deemed necessary.

The Contractor must be ready to carry out these works without delay if the movement continues and approaches the trigger value below.

- *Code red trigger value:* All interested parties including the Adjoining Owner's Surveyor and Engineer will be informed immediately. Works which could cause further movement will stop and if agreed necessary, should be reinforced using methods and equipment agreed at the above stage.

The Contractor is to ensure that the movement has stopped following the implementation of any remedial works designed and installed at this stage. The requirements of the Party Wall Act will also ensure that two of the three Surveyors and their advising Engineers shall then enter into an addendum Award, setting out whether or not the Building Owner's works can re-commence and when, and if so agree on additional precautions or modifications to the proposals prior to recommencement

The Contractor is to ensure that he has 24 hour / 7 days a week access to emergency support provision including but not limited to additional temporary props, needles, waling beams and concrete supply at the start of the excavation and prior to any likelihood of trigger values being reached.

12. Conclusion

This assessment has demonstrated that the proposed basement can be constructed without unacceptable adverse effects on:

- The local hydrogeology and flood risk of the site.
- The structural stability of the existing buildings on the site or neighbouring buildings.
- Trees of significance. (Noting that no TPOs are in the near vicinity of the works).
- Local infrastructure (Noting that no buried or overground public infrastructure is in the vicinity of the proposed basement.)

A viable construction methodology has been presented which demonstrates that the basement can be constructed in a safe manner which limits risk and movement to adjacent and existing structures.

The construction methodology has proposed viable techniques to minimise local environmental effects such as noise, vibration and dust.

A.

Proposed Structural Drawings

NOTES:

Ground Conditions:
- Thin layer of topsoil/made ground overlying London Clays to depth.
- No ground water expected to be present during excavations but allow for dewatering of perched water run-off over top surface of clay.

Notify engineer if conditions vary from the above.

Concrete:
Concrete Grade - C28/35

Cover to reinforcement:
- Slabs cast on ground - 75mm
- External face of slabs/walls cast against blinding, shuttering or cementitious board - 50mm
- Internal slab/wall faces - 25mm

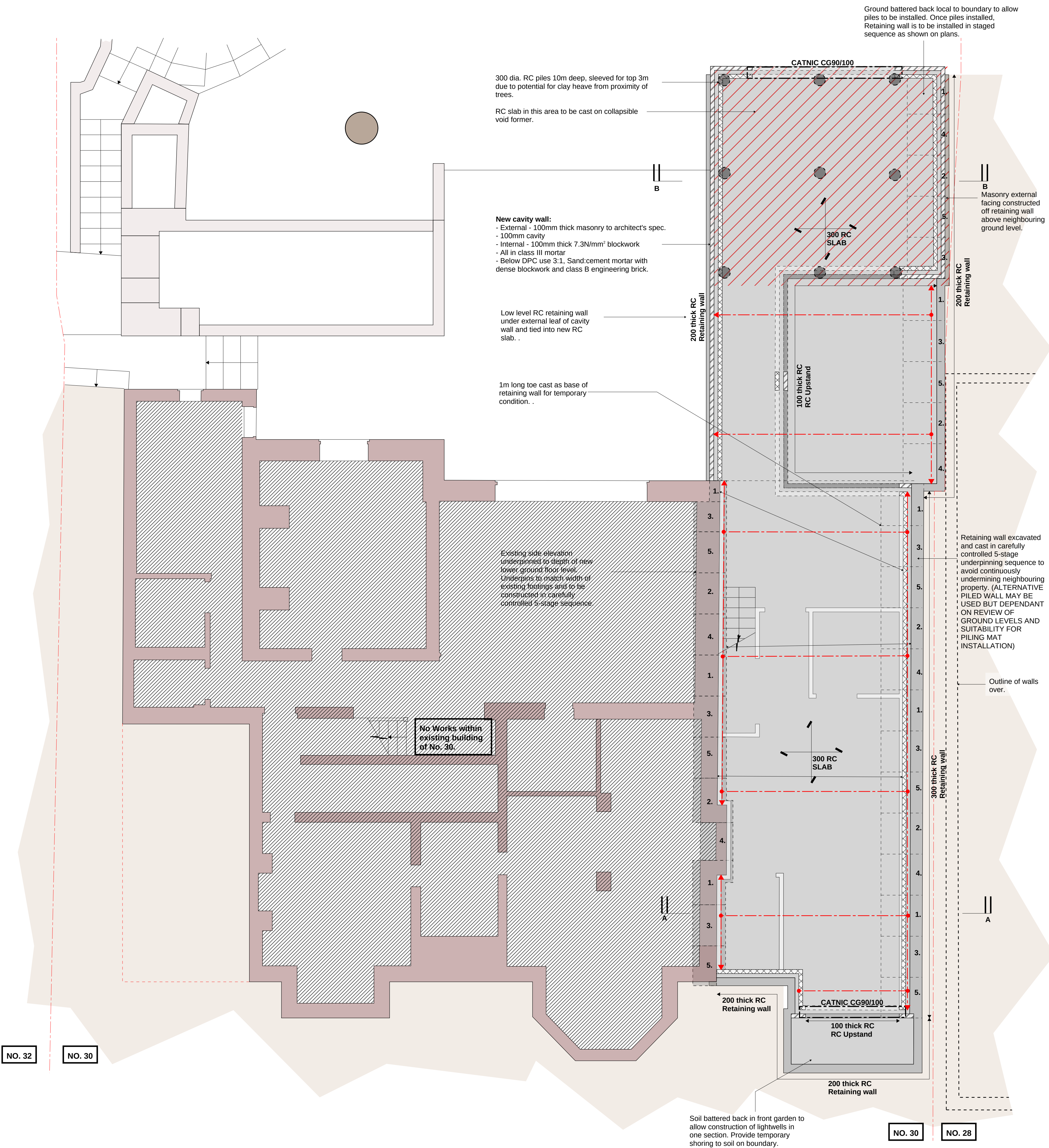
MASONRY:
- Below DPC use class B Engineering brick or dense blockwork in 3:1, sand:cement mortar.

MONITORING:
Contractor should arrange for movement monitoring to all walls affected by basement works.
- Western Side elevation of No. 30. 6 points
- Eastern side elevation of No. 28. 6 points (locations to be agreed with party wall surveyor).

CONSTRUCTION SEQUENCE & TEMPORARY WORKS FOR BASEMENT:

AN OUTLINE CONSTRUCTION SEQUENCE AND TEMPORARY WORKS STRATEGY (FOR BASEMENT RELATED WORKS ONLY) IS PROVIDED AS PART OF THESE DRAWINGS AND WITHIN THE ACCOMPANYING REPORT. FINAL SEQUENCE & TEMPORARY WORKS DESIGN IS THE CONTRACTORS RESPONSIBILITY BASED ON THEIR PREFERRED LOGISTICS STRATEGY.

Indicates positions of slimshor walers and props. To be installed during bulk excavation following completion of retaining wall construction. Refer to sections for appropriate level of props which are to be installed as soon as excavation reaches this point.



This drawing is to be read in conjunction with all relevant architects, engineers and specialists drawings and specifications.

Do not scale from this drawing.

01 31/01/24 JG For Planning

rev date by description

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project
**30a, Shepherds Hill
Highgate
London
N6 5AH**

drawing title
**New residence
Proposed Lower Ground Floor Plan**

project no. 2404	drawing status Preliminary	
scale (s) 1:50 @ A1	drg no. SK01/B	revision 01

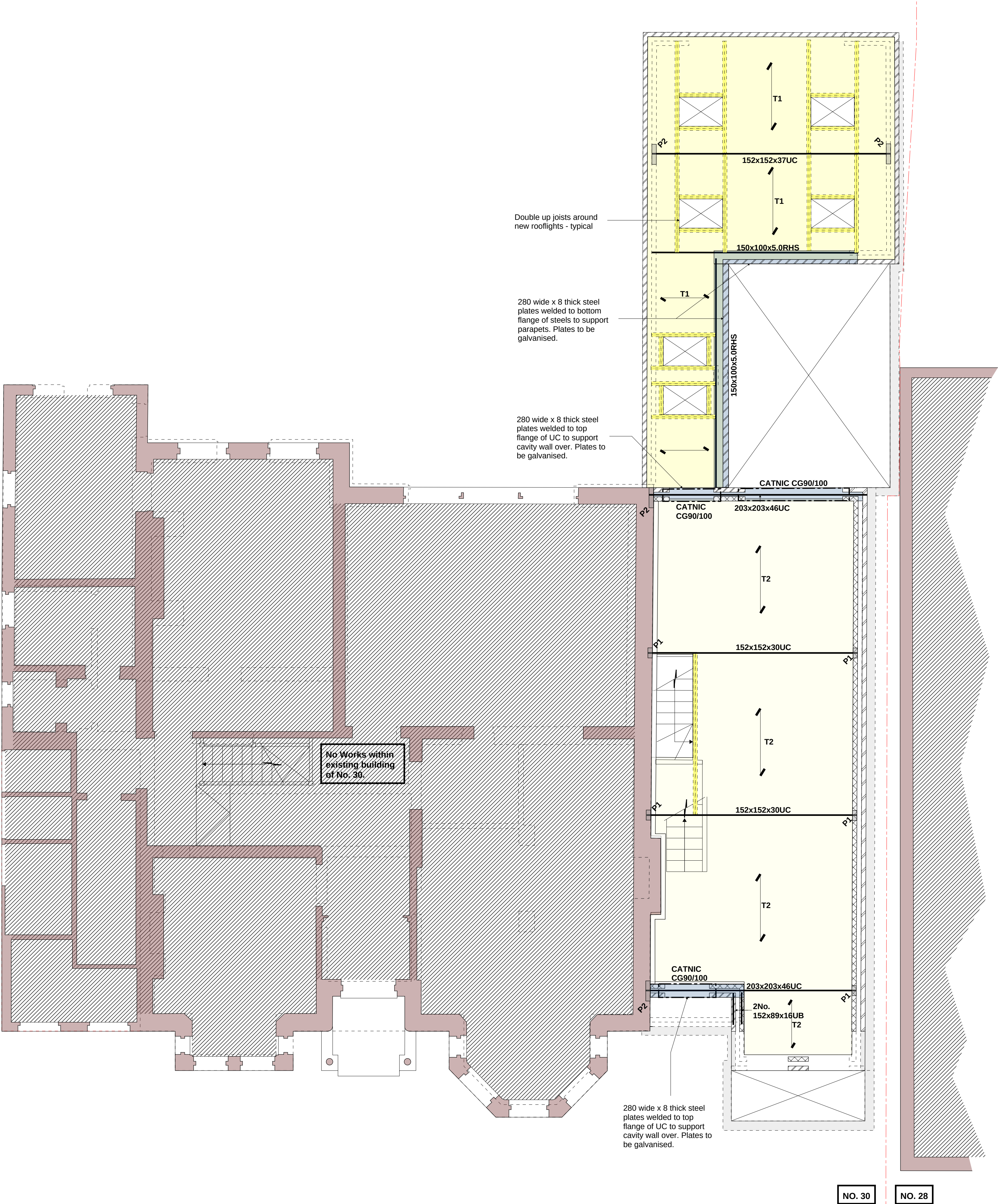
NOTES:

TIMBER:
T1 - 150 x 50 C24 JOISTS @ 400mm c/c w/ 18mm PLY DECK
T2 - 200 x 50 C24 JOISTS @ 400mm c/c w/ 18mm PLY DECK

ALL DOUBLED/TRIPLED UP TIMBERS TO BE BOLTED TOGETHER WITH M12 BOLTS @ 500mm C/C & W/ TOOTHPLATE CONNECTORS OR TIMBERLOK SCREWS @ 200mm c/c

STEEL:
ALL STEEL GRADE S355
ALL STEEL CONNECTIONS TO USE GR8.8 BOLTS (MIN 2 No. M16 PER CONNECTION)

PADSTONES:
P1 - 215 x 100 x 150DP MASS CONCRETE PADSTONE
P2 - 450 x 100 x 150DP MASS CONCRETE PADSTONE



This drawing is to be read in conjunction with all relevant architects, engineers and specialists drawings and specifications.

Do not scale from this drawing.

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rev	date	by	description

JGS DESIGN

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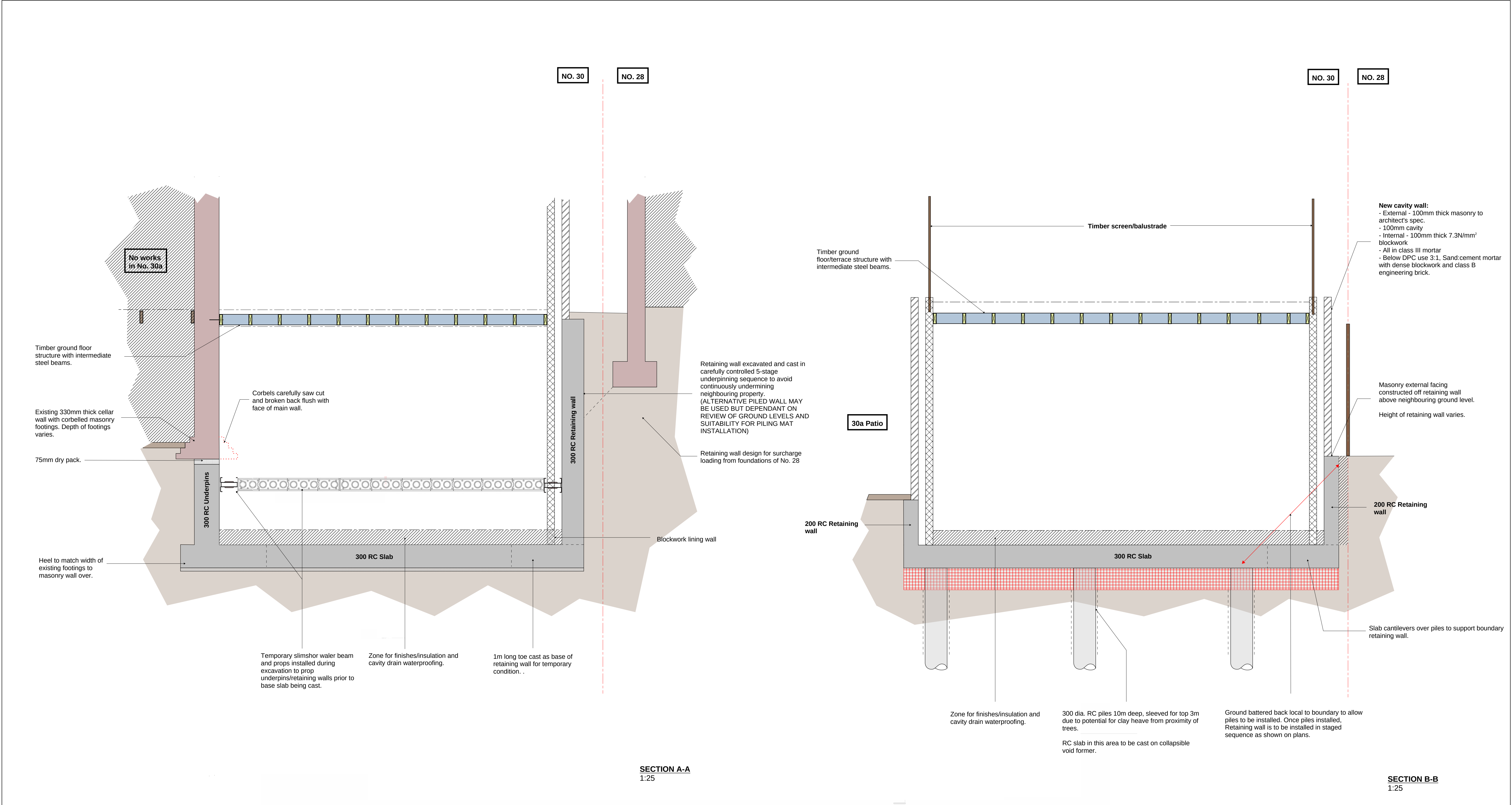
project

30a, Shepherds Hill
Highgate
London
N6 5AH

drawing title

New Residence
Proposed Ground Floor Plan

project no.	drawing status	
2404	Preliminary	
scale (s)	drg no.	revision
1:50 @ A1	SK02/B	01



This drawing is to be read in conjunction with all relevant architects, engineers and specialists drawings and specifications. Do not scale from this drawing.					drawing title New Residence Proposed Lower ground floor sections					JGS DESIGN STRUCTURAL ENGINEERING CONSULTANCY Justin Gathercole MEng CEng MStructE Tel: 07795184417 Email: justin@jgsdesign.co.uk					project 30a, Shepherds Hill Highgate London N6 5AH									
															<table><tr><td colspan="3">project no.</td><td colspan="2">drawing status</td></tr><tr><td colspan="3">2404</td><td colspan="2">Preliminary</td></tr><tr><td colspan="3"></td><td>drg no.</td><td>revision</td></tr><tr><td colspan="3"></td><td>SK10/B</td><td>01</td></tr></table>					project no.			drawing status	
project no.			drawing status																					
2404			Preliminary																					
			drg no.	revision																				
			SK10/B	01																				
01	31/01/24	JG	For Planning			scale (s)					date					drawn								
rev	date	by	chk	description		1:25 @ A1					Jan'24					JG								

B.

Borehole Logs



British
Geological
Survey

BGS ID: 590893 : BGS Reference: TQ28NE305
British National Grid (27700) : 529050,188230

RECORD OF BOREHOLE NO. 5

TQ28NE 305

Ground level : + 125.0ft. Arbitrary Datum Dia. of boring : 6in.
Type of boring : Shell and Auger Lining tubes : 6in. to 20ft.

Daily Progress	Samples		Change of Strata			Description of Strata
	Depth	Type	Legend	Depth	Datum Level	
17.7.61	2'6"	D		1'0"	+124.0	FILL (gravel and brick hardcore)
	4'0" - 4'6" 4'6"	U(4) D		3'6"	+121.5	Brown clayey TOPSOIL with roots
	7'0" - 10'6" 10'6"	U(4) D				Firm mottled brown and grey sandy CLAY with pockets of clayey sand
	12'0"	W				
	14'0" - 14'6" 15'6"	U(4) D				
17'0"	+102.0					
19'0" - 20'6" 20'6" 22'0"	U(4) D D					
18.7.61	24'0" - 25'6" 25'6"	U(4) D		23'6"	+101.5	Firm to stiff brown silty CLAY with some gypsum crystals (London Clay)
	29'0" - 30'6" 30'6"	U(4) D				Stiff to very stiff fissured grey silty CLAY with some gypsum crystals (London Clay)
	34'0" - 35'6" 35'6"	U(4) D				
19.7.61	38'6" - 40'0"	U(4)		40'0"	+89.0	
Key to type of sample :			Remarks : (Observations on ground-water, etc.)			
U (4) — 4 in. dia. undisturbed sample.			Ground-water was first encountered at depth of 12ft. below ground level			
U (1½) — 1½ in. dia.						
D — disturbed sample.						
BD — bulk disturbed sample.						
W — water sample.						
S () — standard penetration test.						
C () — dynamic cone penetration test.						
No. in brackets gives						
No. of blows/12 in. penetration.						
SHEPHERDS HILL						Soils No : 5/2883
						FIG. 8