
30a Shepherds Hill

London

N6 5AH

Structural Methodology & Impact Statement - Existing cellar
enlargement & new lightwells

Job
number: 2404

Revision: 01

Status: Final

Date: 19/02/2024

Document Control

		Remarks:	For Planning
Revision:	01	Prepared by:	Justin Gathercole MEng CEng MStructE
Date:	19/02/2024	Signature:	

Engineer's Details:

Justin Gathercole – Director, JGS Design Ltd – CEng MEng MStructE

Email: justin@jgsdesign.co.uk

Tel: 07795184417

Contents

1. Introduction.....	1
2. Existing site and property	1
3. Desk study	3
4. Site investigation & ground conditions	5
5. Basement proposals & structural design philosophy.....	5
6. Drainage.....	7
7. Basement waterproofing	8
8. Party wall matters.....	8
9. Hydrogeological Impacts	8
10. Ground movements.....	9
11. Construction methodology.....	9
11.1. Construction generally	9
11.2. Construction sequence.....	10
11.3. Mitigating noise dust and vibration	14
11.4. Monitoring during works	16
12. Conclusion.....	17

Appendices

- A. Proposed Structural Drawings 19
- B. Borehole Logs 20

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 extend the habitable space of the existing lower ground floor into the remaining cellar area.

The purpose of this report is to outline the structural alterations required to facilitate the deepening of the existing lower ground floor level in the front half of the building and the construction of two new lightwells to the front of the property. The report outlines the site constraints and how the design takes these into consideration. 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 new



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

stairwell. 30a is accessed through the original front entrance of the property. The lower ground floor has previously had alterations to the layout and steel beams have replaced load bearing walls which have been removed. Only the rear half of the lower ground floor is currently habitable living space with the front half of the property used as a storage 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.



Fig.4 : Existing cellar to front of property - low headroom



Fig.5: Existing cellar - front elevation with corbelled footings exposed

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.

3. Desk study

3.1. British geological Survey (BGS) records

BGS records indicate that ground conditions within 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 topsoil over the top of the clay rather than any

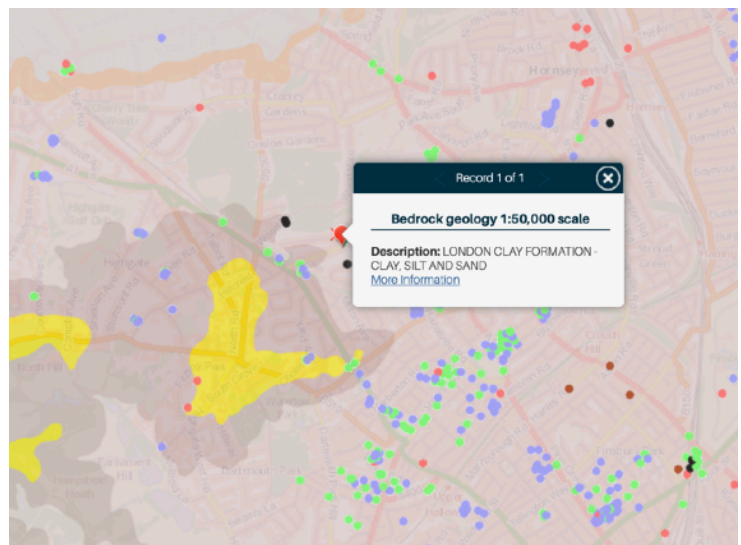


Fig.6 : Bedrock geology in the vicinity of the site.

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.

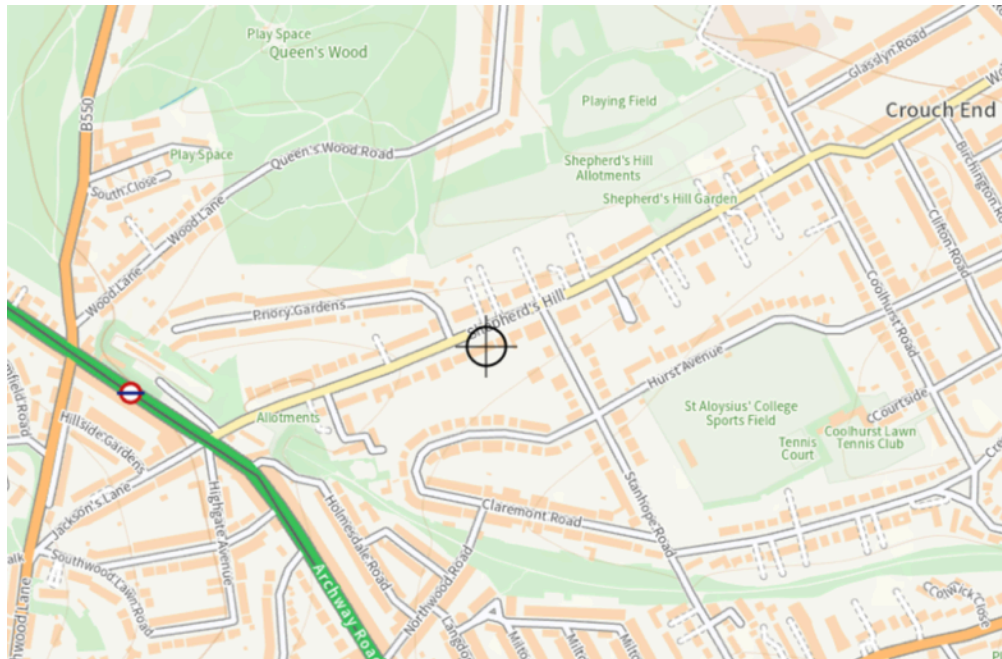


Fig.7 : Flood risk from rivers and watercourses

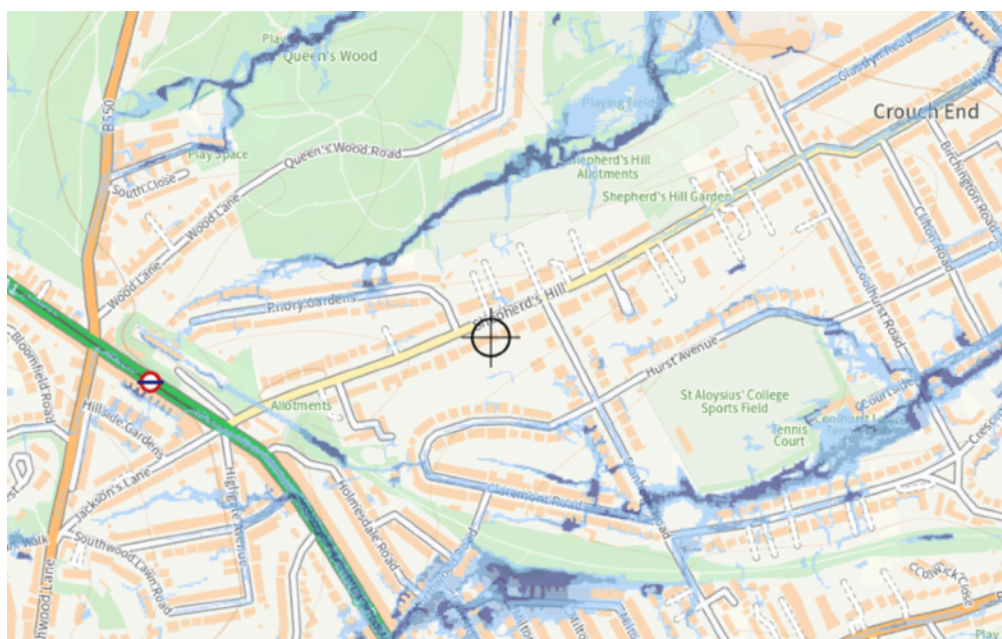


Fig.8 : Flood risk from surface water

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 drains 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. Some mature trees were noted within the rear garden area (where no works are occurring) and on the pavement adjoining Shepherds Hill but these are located approximately 12m way from the main house and the works are considered to be outside of their zone of influence.

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 London clay to depth with a thin layer of topsoil over.

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 to investigate these further.

No significant perched water flows on top of the clay 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 enlargement of the existing cellar in the front half of the building. The floor level of the cellar will be lowered to create habitable space, linking with the existing lower ground floor living areas to the rear of the building.

The works will require reinforced underpinning of all load bearing walls within and surrounding the footprint of the lowered basement area. The underpins will be designed to resist soil, hydrostatic and surcharge loadings wherever they are retaining ground.

A new reinforced concrete slab will be cast across the footprint of the lowered area to form the new floor structure. The slab will tie all the underpins together and resist sliding and overturning forces from retained ground.

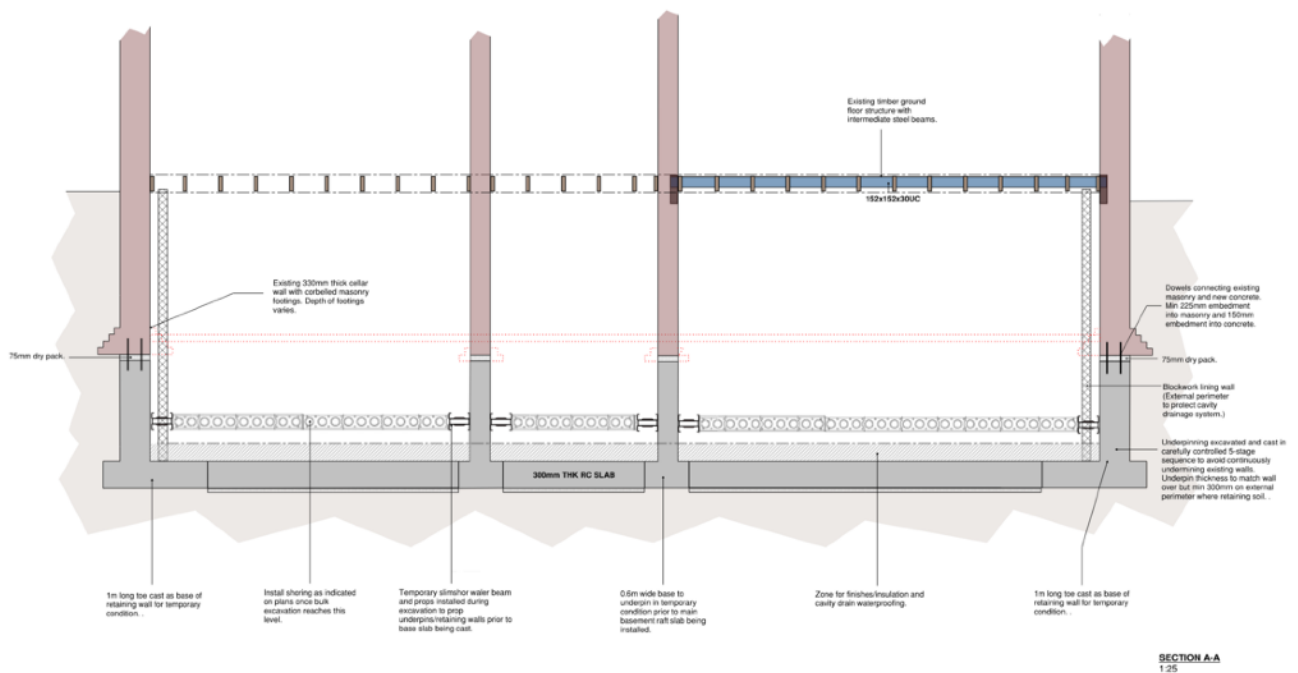


Fig.9 : Cellar extension - section

To the front of the property, two new lightwells will be formed to provide daylight and emergency access to the new habitable spaces. The relatively clear space in the front driveway allows for the lightwells to be formed by battering back the ground in this area and avoids the need for sequenced underpinning works. The existing bay windows will be extended down into the new lightwells with masonry walls constructed in a similar style.

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

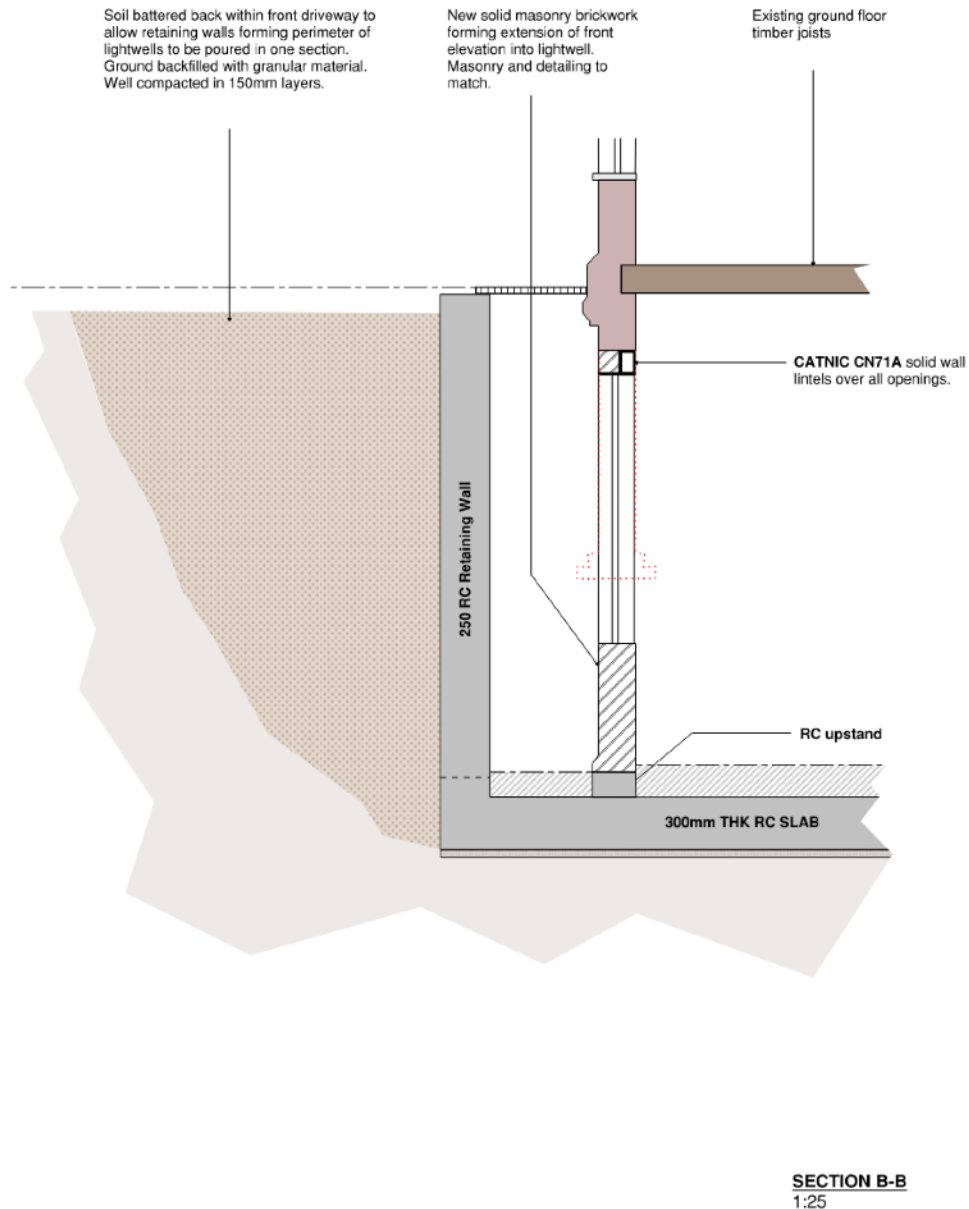


Fig.10 : New light well - Section

6. Drainage

The existing below ground drainage network serving the property drains out to Thames Water sewers located in 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, extending the basement down further into this layer will not have a material effect on the local groundwater flows or upper aquifer, particularly when the rear of the property is already formed at this lower floor level. In addition, the impact of subterranean development, particularly on standalone sites, is recognised to be negligible as the groundwater will typically travel around the sides of the basement.

As the proposed basement footprint is fully under the existing building footprint or areas of existing hardstanding finishes, the risk of flooding will not be increased by this development.

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

It is assumed that the above measures and assumed sequence of works are taken into account in the eventual design and construction of the proposed works.

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 advising 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 in conjunction with conveyors will be used to move the spoil from within the building 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.
- 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

- Install reinforced and mass concrete underpinning in a carefully controlled five stage sequence as indicated on the drawings.
- 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.
 - 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.
- 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.

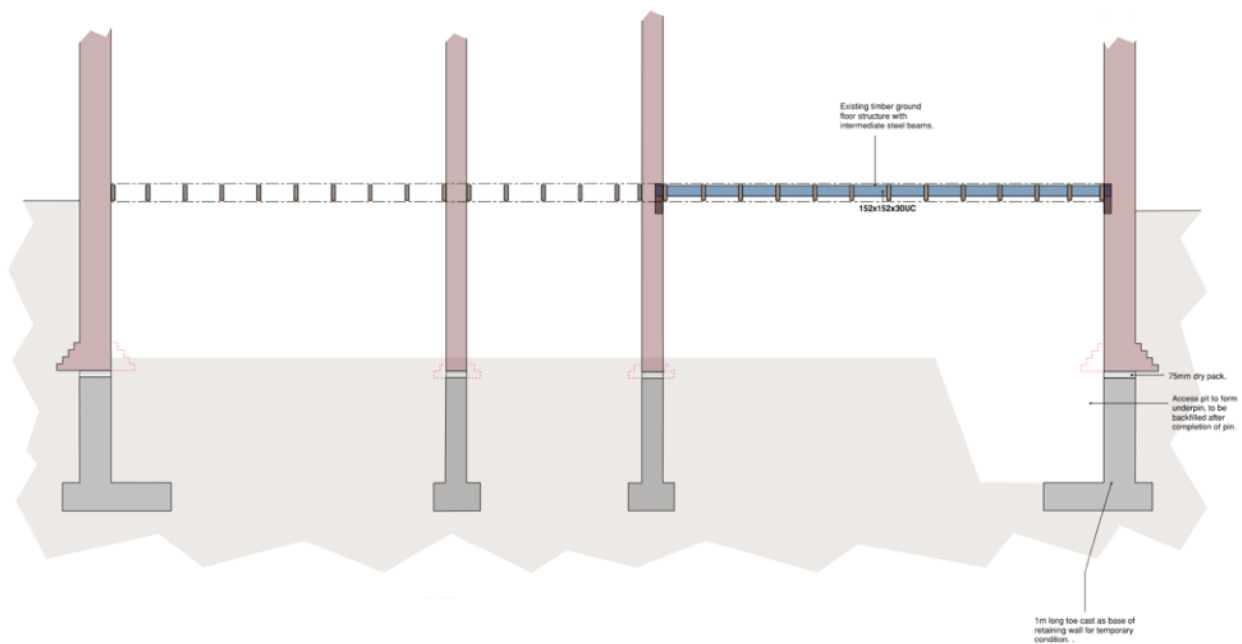


Fig.11: Underpinning works

Stage 2b: Superstructure works (simultaneous with Stage 2a).

- Install steel beams to support floor structure of ground floor where load bearing piers are to be removed.

Stage 3: Formation of front lightwell retaining walls

- Once the front elevation of No. 30 has been underpinned, construction of the front lightwells may commence.
- The existing front elevation and party wall should be needled at ground level and temporarily propped onto existing walls or temporary footings.
- To form the front lightwells 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 front and rear retaining walls to be shuttered and cast in continuous lengths which will reduce construction joints in the concrete and lateral propping temporary works. 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 4: Bulk Excavation

- Upon completion of all underpinning works, the bulk excavation may be commenced.
- 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.

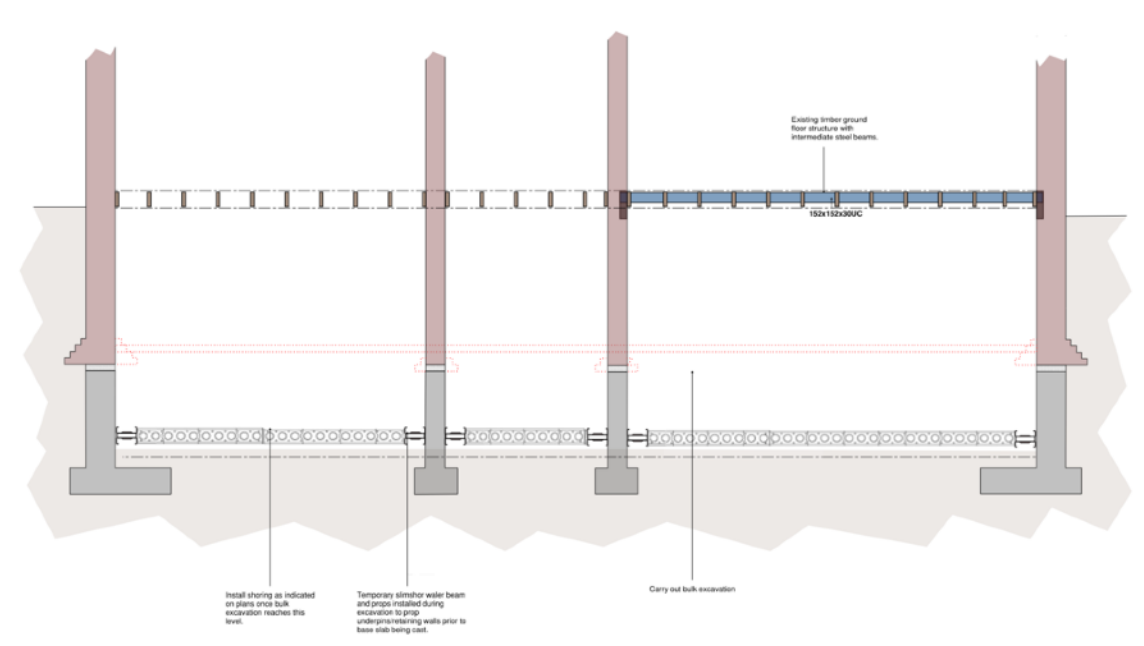


Fig.11: Underpinning works

- Excavation may be carried out by a mini excavator with spoil removed via conveyor as described in Stage 1.

Stage 5: 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

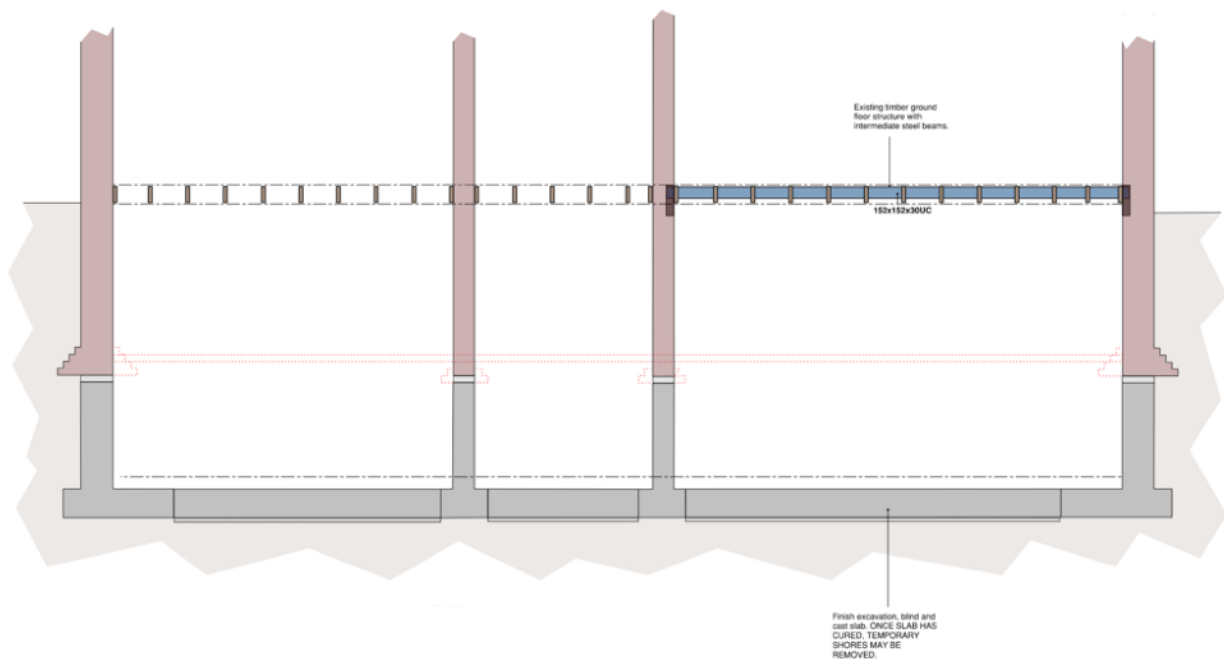


Fig.12: Cast raft slab

Stage 6: 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 a portion of the existing external walls, ground floor structure and cutting back the existing foundations. Those most likely to be affected by noise dust and vibration will be the immediate neighbours at 30B, 30C, No32 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 to the latter properties will be minimal. The large front driveway, with separate access to 30B and 30C, 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 has been limited to isolated sections of the facades and trimming of projecting portions of existing foundations. 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 excavator 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) Several months prior to any 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 3-month period following completion of the structural 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

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.

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

MONITORING:
Contractor should arrange for movement monitoring to all walls affected by basement works
- Front and side elevations of No. 30... 6 points each.

AN OUTLINE CONSTRUCTION SEQUENCE AND TEMPORARY WORKS STRATEGY (FOR BASEMENT RELATED WORKS ONLY) IS PROVIDED BELOW WITH KEY ELEMENTS INDICATED ON DRAWINGS IN RED. FINAL SEQUENCE & TEMPORARY WORKS DESIGN IS THE CONTRACTORS RESPONSIBILITY BASED ON THEIR PREFERRED LOGISTICS STRATEGY.

- Monitoring points should be installed to the existing elevations of No. 30 and a base reading should be taken prior to any construction works starting on the site.
- The soft strip of internal finishes within the building should be fully completed before commencing any structural works so that the arrangement and condition of the existing structure can be fully assessed against the current design.

- Install reinforced and mass concrete underpinning in a carefully controlled five stage sequence as indicated on the drawings. Refer to written specification for more detailed underpinning methodology.

- Install steel beams to support floor structure of ground floor where load bearing piers are to be removed.

- Once the front elevation of No. 30 has been underpinned, construction of the front lightwells may commence.
- The existing front elevation and party wall should be needled at ground level and temporarily propped onto existing walls or temporary footings.

• To form the front lightwells 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 front and rear retaining walls to be shuttered and cast in continuous lengths which will reduce construction joints in the concrete and lateral propping temporary works. 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.

- Upon completion of all underpinning works, the bulk excavation may be commenced.

- 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.
- Excavation may be carried out by a mini excavator with spoil removed via conveyor as described in Stage 1.

- 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

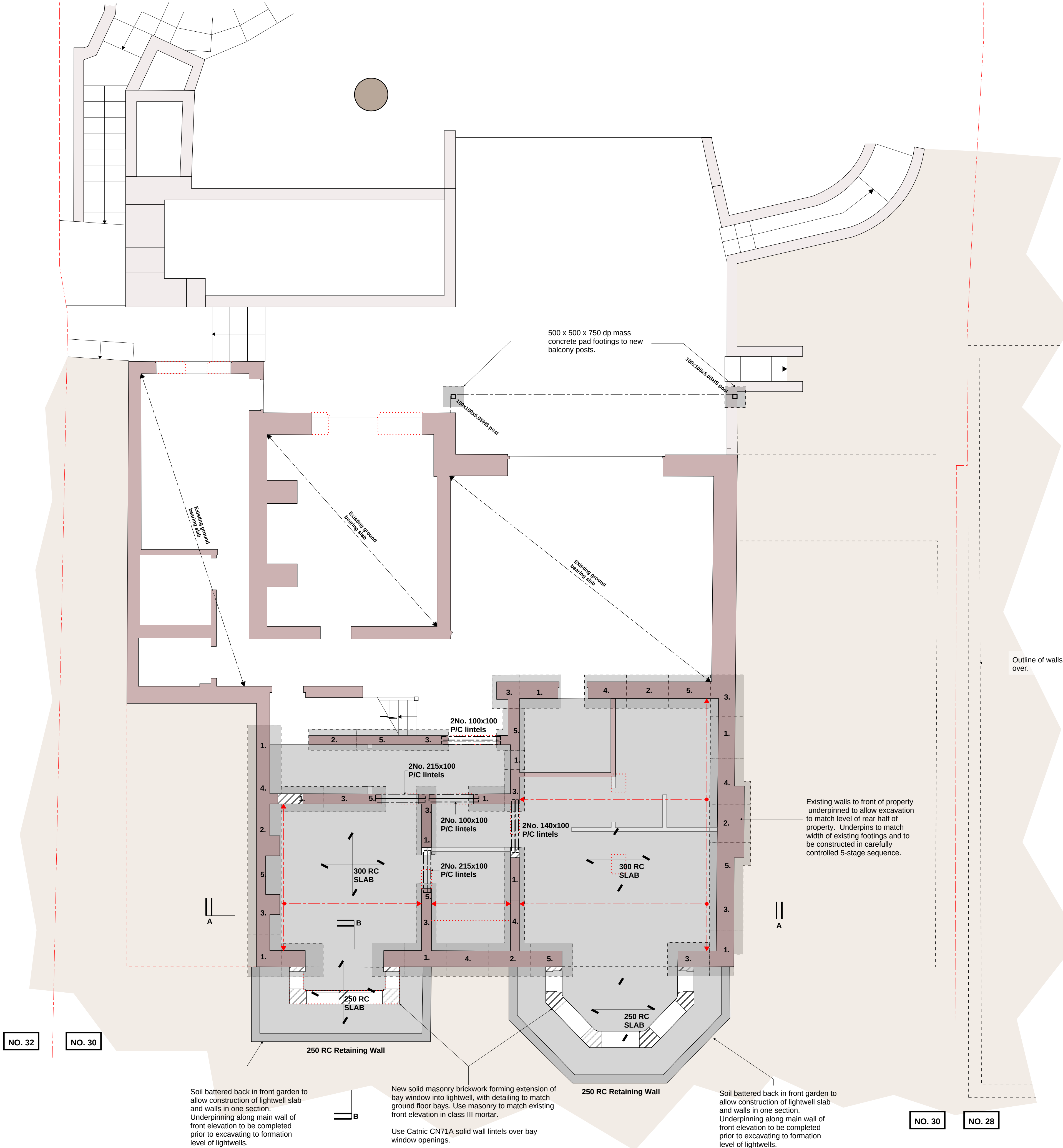
- The battered back soil to the front and rear of the site is to be backfilled to the appropriate level.

- Backfilling material should be granular and compacted regularly in 150mm layers.

• Once the ground floor structure is fully installed and tied into the perimeter walls as per the details, the temporary supports to the perimeter retaining walls and underpinning may be removed.

- The remaining superstructure works may be completed.

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	15/02/24	JG	For Planning
rev	date	by	description

JGS DESIGN
STRUCTURAL ENGINEERING CONSULTANCY

Justin Gathercole MEng CEng MIStructE
Tel: 07795184417
Email: justin@jgsdesign.co.uk

project
30a, Shepherds Hill
Highgate
London
N6 5AH

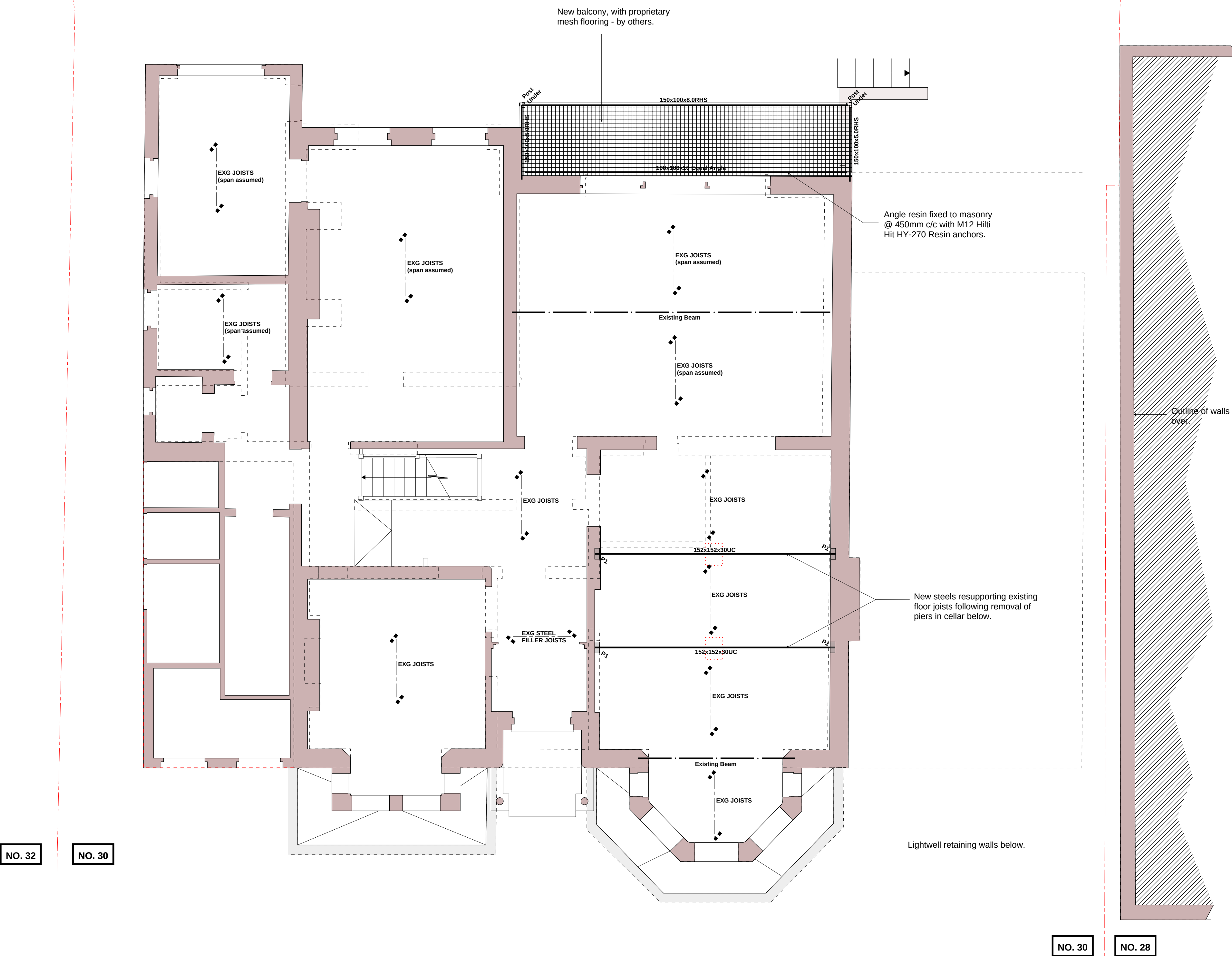
drawing title
No. 30a extension
Proposed Lower Ground Floor Plan

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

NOTES:
Steel:
- All steel Grade S355

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	15/02/24	JG	For Planning
rev	date	by	description

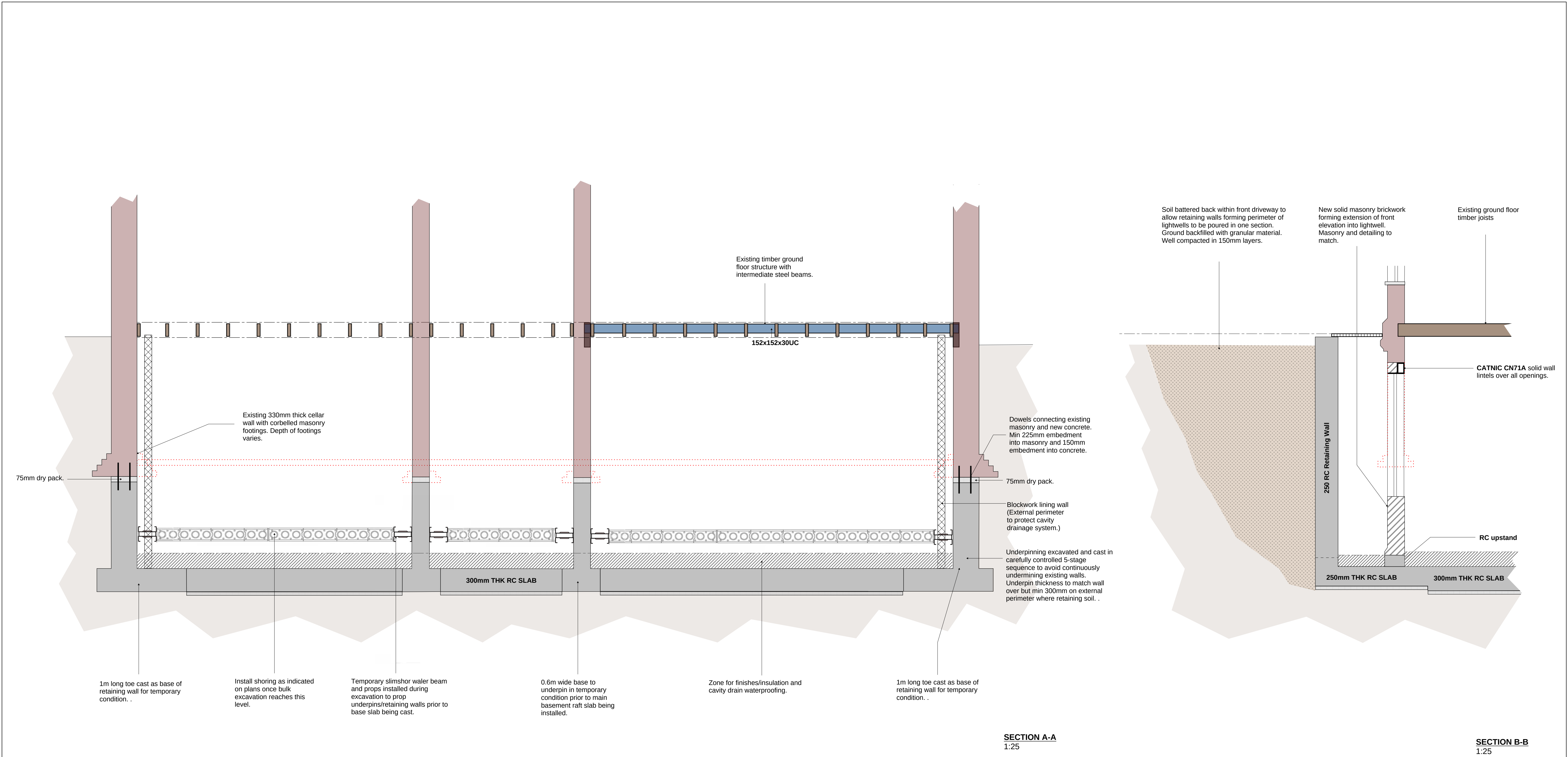
JGS DESIGN
STRUCTURAL ENGINEERING CONSULTANCY

Justin Gathercole MEng CEng MStructE
Tel: 07795184417
Email: justin@jgsdesign.co.uk

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

drawing title
**No. 30a extension
Proposed Ground Floor Plan**

project no. 2404	drawing status Preliminary	
scale (s) 1:50 @ A1	drg no. SK02/A	revision 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 No. 30a Extension 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="2">project no.</td><td colspan="2">drawing status</td></tr><tr><td colspan="2">2404</td><td colspan="2">Preliminary</td></tr><tr><td colspan="2"></td><td>drg no.</td><td>revision</td></tr><tr><td colspan="2"></td><td>SK10/A</td><td>01</td></tr></table>			project no.		drawing status		2404		Preliminary				drg no.	revision			SK10/A	01
																			project no.		drawing status													
2404		Preliminary																																
		drg no.	revision																															
		SK10/A	01																															
01	15/02/24	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		
				1'0"	+124.0	FILL (gravel and brick hardcore)	
	2'6"	D		3'6"	+121.5	Brown clayey TOPSOIL with roots	
	4'0" - 4'6" 4'6"	U(4) D					
17.7.61	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					Firm to stiff brown silty CLAY with some gypsum crystals (London Clay)
	24'0" - 25'6" 25'6"	U(4) D			23'6"	+101.5	
18.7.61	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 : 5/2803	
						FIG. 8	