Contractor's Method Statement

Project Address: 60 Goldhurst Terrace, London NW6 3HT

Method Statement – New Basement Construction

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Revision:

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Checked By: TH

Introduction

- This method statement should be read in conjunction with the Structural Engineer's Drawings and calculations and the Architect's layout drawings
- We have assessed the likely impact on the neighbouring properties from a structural stability point of view. We are satisfied that the method of construction is the most appropriate design to cause minimum disruption to the neighbouring properties.
- Please also refer to the Structural engineer's drawings. These drawings detail the construction method to be adopted, based on the assumed ground conditions at the property comprising London clay to depth (Refer to section B below).
- The key stages are as follows:
    - Establish access, hoarding, conveyor and part front lightwell
    - Investigatory works
    - Reinforced concrete underpinning
    - Steel frame installation
    - Completion of front and rear lightwells
    - Excavation, drainage and basement slab construction
    - Internal waterproofing membrane and screed

Temporary Support to Excavated Faces

- Ground conditions will be continuously assessed by a competent person to determine the means and method of supporting any face of any excavation, necessary shoring equipment will be available for use on site, however given the changing nature of the ground conditions, encountered below an existing property and the difficulties in battering back, stepping or "benching" the to reduce the risk of collapse, the most likely method adopted will be the introduction of plywood sheets supported by acrow props in accordance with any temporary works design prepared by the structural engineer.
- Our highly trained, experienced and competent foreman (holding the 2 Day Site Managers Safety Training Scheme accreditation) shall ensure that every part of every excavation is inspected at the start of each shift (and at intervals as specified in law) and will record the findings of any such inspection in a register held on site.

A. Establish access, hoarding and conveyor

- The hoarding and conveyor win be positioned at the front of the property, which will be subject to any restrictions imposed by the local authority.
- Carefully protect and/or remove any internal or external fixtures and fittings affected by the works.
- Erect plywood hoarding with vertical standards, anchored to the ground. The hoarding will be fully secure with a lockable door for access.
- Provide protection to public where conveyor extends over footpath. Depending on the requirements of the local authority, construct a plywood bulkhead onto the pavement. Hoarding to have a plywood roof covering, night-lights and safety notices.
- Install conveyor at basement level. Ensure that the conveyor is adequately supported and secured to the hoarding using a temporary scaffold structure. A local excavation will be dug down to allow the installation of the conveyor belt. The conveyor will then extend up to the position of the skip at ground level.
- Install temporary electrical and water supplies from Client's permanent connections.
- Spoil will be wheel barrowed from the excavation faces to the base of the conveyor belt.
- Spoil will be removed via the conveyor belt and deposited into the skip. The skip will be emptied using a grab lorry when it is full, or alternatively the skip will be exchanged.

B. Investigatory works

- The ground conditions are London clay. This information has been relayed to the structural engineer for incorporation into the detailed design.
- On commencement of construction the contractor will determine the foundation type, width and depth. Any discrepancies will be reported to the structural engineer in order that the detailed design may be modified as necessary.
- Prior to installation of new structural beams in the superstructure, the contractor may undertake the local exploration of specific areas in the superstructure. This will confirm the exact form and location of the temporary works that are required. The permanent structural work can then be undertaken whilst ensuring that the full integrity of the structure above is maintained.

C. Reinforced concrete underpinning

- This stage comprises the construction of the reinforced concrete underpinning.
- The sequence of construction of the underpinning is shown on the structural engineer's drawing. The sequence of the underpinning will be such that any given underpin will be completed, drypacked, and a minimum period of 48 hours lapsed before an adjacent excavation commenced to form another underpin.
- The sacrificial cement boards (as required) are installed at the back of the excavation. The method adopted to prevent localised collapse of the soil is to install these progressively one at a time.

- In the event that the existing foundations to the wall are found to be unstable, sacrificial steel jacks will be installed underneath the foundation to prop the bottom few courses of bricks. These steel jacks will be left in place and will be incorporated into the concrete stem.

- Once the toe section is cast, the lower level propping to the trench sheets can be removed, prior to casting the stem section. This method ensures that at all times the excavation is controlled, and indeed the integrity of the surrounding soil and structure above is maintained, to enable permanent works construction.

- The access trench is first excavated, directly underneath the wall to be underpinned. The width of any base is individually assessed on site with due regard to the type and condition of the foundation and structural geometry above. The maximum width of any underpinning base will be 1000mm.

- Break off projecting brick or concrete footing back to internal face of brick wall. Excavate using hand and compressed air tools removing spoil until the design depth is reached, and removed to muck away conveyor.

- Soils, where unstable in the temporary condition, will be shored. For clays or dense sands exhibiting effective cohesion, shoring may not be necessary. Shoring system design will be undertaken by the contractor if required.

- Once the excavation is completed to the design depth and length. The stratum at the proposed founding depth is confirmed as being appropriate by the structural engineer and/or building control.

- The concrete reinforcement will be fixed in the toe section of the underpinning base. This will be checked by the building control inspector prior to concreting. Excavation for an underpin section will be dug in a day, and the concrete to the base poured by the end of the same day.

- Following construction of the toe, the concrete reinforcement will be fixed in the stem (wall) section. This will be checked by the building control inspector prior to concreting.

- A single sided shutter is then erected and concrete poured to form the underpinning base up to a maximum of l00mm below the underside of the existing foundation.

- After 24 hours the temporary wall shutters are removed. The void between the top of the underpin base and underside the existing foundation will then be dry packed with a mixture of sharp sand and cement (ratio 3:1 sharp sand:cement).

- A further 48 hours is allowed before adjacent sections can be excavated.

- A record will be kept of the sequence of construction, which will be in strict accordance with recognised industry procedures. The as-built records will be updated as necessary and issued to involved parties on completion of the works.

D. Steel framework installation

- The new steel framework is to be installed to provide the new openings as per the architectural layouts. The framework will consist of a system of steel beams and columns that will bear at the new basement level.

- The new frame will be installed in a sequence to be determined by the contractor, in conjunction with building control.

- Temporary works design will be undertaken as the works proceeds to take into account site and ground conditions.

Supporting existing timber floors above basement excavation:

- The timber floor will remain in situ, and be supported by a series of steel beams that will support the floors, to provide the open areas in the basement.

- Position 100 x 100mm temporary timber beam lightly packed to underside of joists either side of existing sleeper wall and support with vertical acrow props @ 750 centres. Remove sleeper walls and insert steel beam as a replacement. Beams to bear onto concrete padstones built into the masonry walls (refer to Structural Engineer's details for padstone & beam sizes)

- Dismantle props and remove timber plates on completion of installation of permanent steel beams.

Supporting existing solid concrete floors above basement excavation:

- The support of the existing concrete floor will be undertaken in conjunction with the underpinning process. Two opposite pins are constructed and allowed to cure as described elsewhere. The pins will project proud of the above existing perimeter walls by approx l00mm. this will allow bearing for the steel joists/beams spanning across & supporting the area of solid floor above. The area of solid floor exposed will be the approx width of the pin and generally accepted to be self-supporting during this process. However if the underside is found be in poor condition then temporary boarding and props are to be introduced. This process is to continue one pin width at a time. Dry pack from the top of beam to the underside of solid slab as described elsewhere.

Supporting existing walls above basement excavation:

- Where steel beams need to be installed directly under load bearing walls, temporary works will be required to enable this work. Support comprises the installation of steel needle beams at high level, supported on vertical props, to enable safe removal of brickwork below, and installation of the new beams and columns.

- Once the props are fully tightened, the brickwork will be broken out carefully by hand. All necessary platforms and crash decks will be provided during this operation.

- Decking and support platforms to enable handling of steel beams and columns will be provided as required.

- Once full structural bearing is provided via beams and columns down to the new basement floor level. the temporary works will be redundant and can be safely removed.

- Any voids between the top of the permanent steel beams and the underside of the existing walls will be packed out as necessary. Voids will be drypacked with a 1:3 (cement: sharp sand) drypack layer, between the top of the steel and underside of brickwork above.

- Any voids in the brickwork left after removal of needle beams can at this point be repaired by bricking up and/or drypacking, to ensure continuity of the structural fabric.

E. Excavation, drainage and basement slab construction:

- Depending on the structural design it is a requirement to implement propping to resist sliding forces(In accordance with structural engineering requirements) at the base of the underpins, prior to construction of the new basement slab, and to allow for excavation to formation level. Generally, the underpinning works are completed around perimeter walls, with the central soil

moss (dumpling) left intact as detailed on the attached sheets. This enables the earth mass to act as a firm support for the underpinning stem single sided shutters. and also to provide a prop force at the base of the pins.

- Once the underpinning is complete to all walls, the bulk excavation can be completed. The excavation must be carried out in stages from the rear of the building working towards the front. At each meter or so of excavation down to base level the RMD Slimshores should be installed in accordance with drg 1766-03.

- The pump sump units and associated underground drainage will then be installed in conjunction with the mechanical and electrical details and architectural layouts.

- Once excavation to formation level has been completed, and the slab cast any temporary shoring can be safely removed.

- The concrete reinforcement will then be fixed in the slab. This will be checked by the engineer and building control prior to concreting.

F. Internal waterproofing membrane and screed:

- Generally the waterproofing membrane will be in accordance with the attached sketch.

- Once the basement slab is complete, the internal waterproofing cavity membrane win be installed as per the architectural layouts and manufacturers technical specification.

- The floor finishes which may include insulation and under floor heating, can be laid as per the final architectural details.

- A cement and sand screed will be applied on the slab surface.

- This completes the structural work by the contractor, in preparation for the fit out works.

G. Noise and vibration

- All works will be completed in accordance with Building Control's environmental policy

- Electric hand tools will be used for all or the great majority of the work, significantly reducing noise and vibration compared with compressed air tools. Compressed air tools will not be used as standard and will only be used if electric tools are not sufficiently powerful to deal with specific areas of work.

H. Sewage

- Foul drains will not be left open and sewage smells will be controlled.

I. Vermin

- Vermin are not expected to be encountered. However if vermin are found suitable traps will be laid. If vermin persist a suitable pest control contractor will be engaged. This work is not the responsibility of the contractor.