Martin Redston Associates

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STRUCTURAL DESIGN SHEETS

(CALCULATIONS)

Structural Engineer | Emil Ibrahimov

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General Specification

For

Underpinning

To

17.480 - 39 Hollycroft Avenue

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Method Statement: **Basement Construction**
Project: **17.480 - 39 Hollycroft Avenue, London NW3 7QJ**

Date: 16.10.2017

General

1. This project aims to create a basement at 39 Hollycroft Avenue. It is intended to underpin the existing foundations to the building to a level of approximately 2.7m finished floor to ceiling.

2. It is assumed the existing ground floor is constructed with timber floor joists to the rear of the property and concrete floors to the front. The extent is to be ascertained on site, removed, and replaced with a timber to utilize the existing concrete floor.

3. Excavation will be completed with hand tools powered by compressed air and by a mini-digger, if and where appropriate.

4. A conveyor belt will be installed at the front of the property. A local excavation will be implemented from the existing lower ground floor down to the new basement level. The conveyor will then be installed up to the street level. The conveyor will extend out to the position of the skip. A temporary hoarding will be installed to secure the conveyor belt. The exact position of the conveyor will be confirmed when works commence on site. Spoil will be wheel barrowed from the face of the excavation to the base of the conveyor belt.

5. Spoil will be removed via the conveyor belt and deposited into a skip placed on the road directly in front of the property. The skip will be exchanged when it is full, or alternately a grab lorry will be used to remove the spoil from the skip.

Underpinning – General

6. Underpinning bases will be excavated in short sections not exceeding 1200mm in width, in the 1 to 6 underpinning sequence. Each section will be constructed from its base to allow for stability during the construction.

7. When the existing foundation to the party wall is exposed, any stepped brick footings protruding into our site will be carefully trimmed back using hand tools to avoid causing any damage to the foundation. The stepped brick footings will be trimmed back to be flush in-line with the party wall above.

8. The sequence of the underpinning will be as shown on sequence drawings. Underpins will be sequenced such that any given underpin will be completed, drypacked, and a

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minimum period of 24 hours will have lapsed before an adjacent excavation commences to form another underpin. The exact sequence will be developed by Martin Redston Associates when the existing ground conditions and the quality of the existing foundations become known as works progress. All underpins will be constructed in accordance with the underpinning specification.

9. If the existing foundations to the party 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.

10. If the ground is unstable, lateral propping will be provided as required to the rear and sides of the excavation using trench sheeting or plywood, timber and 'Acrow' props as appropriate. Should the rear face of the excavation (i.e. underneath the party wall) require support, sacrificial back-shutters will be used.

11. Concrete will be chuted into a 'bath' within the excavated basement and placed by wheelbarrow and / or bucket. The exact arrangement will be finalised when works commence on site.

12. 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.

13. The concrete to the stem of the underpin will be poured the following day. This will be poured up to within 50 – 75mm of the underside of the existing party wall foundations.

14. On the following day, the gap between the concrete and the underside of the existing foundation will be drypacked with a mixture of sharp sand and cement (ration 3:1), rammed tight.

15. A day will be allowed before adjacent sections will be excavated to form a new underpin.

Monitoring

1. Targets A resection which shoots a minimum of two points records the angles by a module built into the instrument. The instrument then will display any error on the screen, the targets placed on the building will then be shot using the EDM and the results recorded both on the system and manually. Then 3D target monitoring provides results with ±1mm accuracy.

2. FREQUENCY AND DURATION OF READINGS: The monitoring frequency is set to: - weekly – during excavation and basement works (up to and including casting of the ground floor slab) *; Monthly – after completion of the ground works and basement construction for up to three visits * During the critical excavation and basement works monitoring readings shall be taken twice weekly if Amber trigger alarm reached

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3. TRIGGER VALUES: Trigger values for Vertical movement have been set as follows:

Underpinning
Amber 5mm
Red 10mm

Underpinning to Party Walls:
Amber 5mm
Red 10mm

Post – Structural Works

1. On completion of all structural works, a drained cavity layer will be laid on top of the new internal basement slab and lined to the retaining wall faces.

2. A layer of insulation will be placed on top of the drained cavity layer to the basement slab.

3. A fibre mesh reinforced screed will be laid on top of the insulation to form the finished basement floor.

RESPONSIBILITIES

1. The Contractor shall be completely responsible for the safety of the existing structure during the underpinning operations and he shall design, supply, and erect all the temporary supports that may be required or prove necessary during the course of the work.

2. The details of such supports shall be agreed with the Engineer and other interested parties prior to their erection.

SURVEY AND CONDITION OF BUILDING

Before commencing work, the Contractor shall carry out an inspection and produce a Schedule of Conditions for the building to be underpinned. This shall be agreed with the Architects before commencing work. Where necessary repairs shall be affected to enable the underpinning to be carried out.

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PROGRAMME AND SEQUENCE

The contractor shall follow the current method statement and methodology sequencing as per drawing No. 10. Any variation from the method statement must be agreed with the Engineer and other interested parties prior to work commencing.

PROTECTION

1. The Contractor shall protect the area in which the work is being carried out by the provision of suitable hoarding, fences etc.

2. Unless otherwise instructed by the Architect all work shall be carried out from within the site.

PINNING UP

1. A semi-dry 1.3 mix with 10mm aggregate shall be thoroughly rammed into position between the concrete stool and the underside of the existing foundation. A suitable tool shall be used to ensure that no voids are left in the dry pack zone.

2. A non-shrinking grout agent may be employed in the mix with the Engineer's approval.

BACKFILL

1. After completion of underpinning and curing, backfill with lean mix 15N / mm² min or alternative material to be agreed with the Engineer. Under no circumstances shall the Contractor replace with existing excavated material without permission of the Engineer.

2. The Contractor shall consider all necessary carting away of existing material during the tender/pricing period.

RECORDS

The Contractor shall keep an accurate record of the progress of underpinning operations which shall be available for reference at any time.