Concept Consultancy
Chartered Civil & Structural Consulting Engineers

Construction Method Statement

15 Lyndhurst Terrace, London, NW3 5QA

Job No.: 3317
Client: Richard and Penelope Murley
Date: July 2023

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1.0 EXECUTIVE SUMMARY

Concept Consultancy has been commissioned by Richard and Penelope Murley to prepare a Structural Method Statement for the proposed new basement at 15 Lyndhurst Terrace, London NW3.

This report forms part of the planning application and describes the design of the structural solution for the proposed basement and structural alterations.

The proposals are to demolish the existing house and construct a new house with a larger footprint and a basement over the full footprint of the house.

A thorough desk study of the site has been carried out which indicates that the site is underlain by the London Clay formation. In addition, a site investigation was carried out by Site Analytical services Ltd. which has confirmed the existing ground is grey, brown silty sandy CLAY to a depth of at least 9m overlaying a stiff London CLAY.

There are no London Underground Tunnels or Overground Rail lines within 0.5km of the site, however this is a network rail tunnel 25m to the South of the site.

The site is located in within a 'Very Low Risk' flood area as defined by the Environment Agency.

The temporary works will be required to limit any movements in the neighboring buildings.

This report demonstrates how all the relevant design issues have been addressed and where any constraints has impacted on the construction of the basement.

2.0 INTRODUCTION

Concept Consultancy has been commissioned by Richard & Penelope Murley to prepare a Structural Method Statement for the proposed new basement at 15 Lyndhurst Terrace, London NW3.

Regarding my qualifications and credentials, I am a chartered member of the institution of structural engineers with more than twenty-five years' experience. My qualifications and affiliations are as follows in abbreviated form BEng, CEng, MIStructE, MIEI.

2.1 Site Location

The site is located at 15 Lyndhurst Terrace, in the Borough of Camden, London NW3. It is approximately centered at National Grid Reference TQ2663285316.

The site is rectangular in shape and measures approximately 25m x 9.5m. The site presently contains a two-story detached residential building just off Lyndhurst Terrace.

2.2 Site History

The contains an existing house which was built in the 1930's. It is proposed to extend the existing house and construct a new single-story basement below the full foot print of the extended house.

2.3 Existing Building & Site Conditions

The existing property is a detached two-story building. It is situated just of Lyndhurst Terrace near the junction with Thurlow Road.

There are no trees within the property boundary, however there are 3 No. tress within adjacent properties:

- Horse Chestnut tree 3m from the Northern boundary of the site to the North East of the existing house.
- Yew tree 7, from the Western boundary of the site.
- Bay tree 11m from the Western boundary of the site.

A desktop review of Geological maps indicates the ground to be underlain by CLAYGATE MEMBER – Clay, Silt & Sand.

A site investigation was carried out by Site Analytical Services Ltd. This comprised of 3 No. borehole in the (2 No. at the front and 1 No. at the rear of the existing house) and 1 No. trial pits (to the rear). The boreholes indicated made ground up to 1.2m overlaying a sandy, silty CLAY to a depth of 9.4m below ground level (BEGL). This overlays a stiff London Clay to depths of at least 15m BEGL.

Trail hole No. 2, to the rear indicated top of existing foundations at 380mm BEGL. The foundation comprises of a 160mm mass concrete projection beyond the wall founded at a level of 550mm BEGL. No ground water was encountered in any of the hole/pits. A copy of the Site Investigation report are contained in appendix B.

The 3 No. boreholes were subsequently monitored for ground water between July 2015 and Feb 2021. No ground water was recorded during this time.

The nearest surface water is the Hampstead No. 1 Pond approximately 750m North East of the site. The underground rivers Westbourne & Tyburn run to the South West of the site. It is a considerable distance from the site and unlikely to have an influence on this development.

The building is currently in a good condition for its age and the original building fabric is in good condition.

2.4 Proposed Works

It is proposed to extend the existing dwelling house at the rear and construct a new basement under the majority of the existing building footprint of the house including a front and rear light well.

The new basement walls shall be reinforced concrete retaining walls which will also underpin the existing house structure where they coincide. The front light well shall also be formed with reinforced concrete walls. The proposed basement excavations shall be approximately 3.2m to formation level below existing ground level.

A drained cavity shall be constructed inside the perimeter basement walls to capture any seepage of ground water. This water shall be drained to a new sump and pumped back up to the surface water drainage network at ground level.

The existing drainage layout will be surveyed to determine the layout and depth of the existing drainage network. The existing drainage around the perimeter of the building will most likely need to be rerouted in part to allow the construction of the new ground floor extension. Foul drainage from the new basement will be pumped back up the foul network.

3.0 Party Wall Maters

The proposed development falls within the scope of the Party Wall Act 1996. Procedures under the act will be dealt with in full by the Employers Party Wall Surveyor. The contractor will provide the Party Wall Surveyor with a detailed method statement and temporary works drawings.

The works shall be carried out so as not to preclude of inhibit future works on the adjoining property.

4.0 Adjacent Structures

The adjacent property to the South (No. 13 Lyndhurst Terrace) is a 4 storey building of brick construction including a lower ground floor. The building is approx. 3m (1.5m from the boundary) away from the proposed new basement walls. To the North there is a single storey detached garage (belonging to 'Elm Bank') of brick construction. The south wall of the garage is constructed on the property boundary and is approx. 1.5m from the existing house and from the proposed new basement walls.

To the North and adjacent to the rear garden of no. 15 Lyndhurst Terrace is 'Elm Bank' house (No. 17 Lyndhurst Terrace). The corner of the adjacent house is approximately 3m from the proposed new rear extension to No. 15 and the new basement walls. Elm Bank House is a 2 storey building with a single-story annex located being the closest to No. 15. It is not known if this property has an existing basement.

The adjacent building (and all other buildings within the immediate area) are Category 6 structures in accordance with table B.1 of BS ISO 4866:2010 which would be described as having a medium

resistance to vibration and therefore would require little or no protection against vibration for the type of works proposed. It is noted that:

- The basement floor construction will not be lower than the prevailing groundwater level in this area so will not interfere with the natural flow of the groundwater.
- The building will be formed off of stiff London Clay, which has a significant bearing capacity, and the foundations will be designed to reflect the recommended permissible pressures and ensure they will not be compressed by more than 5mm
- Removal of the existing soil will, ultimately generate little or no relief and consequent heave in the London Clay.
- The boundary walls can be retained safely and easily following industry-standard practices and, by following a pre-determined sequence will allow the basement wall to be constructed without detriment to the existing, surrounding construction.

Adopting a controlled and sequenced work process will limit any damage to surrounding buildings to Category 1 on The Burland Scale, Hairline or Very Slight cracks, easily repaired with filling & decoration.

The existing foundations of the adjacent property are expected to be stepped brick on a concrete strip footing.

4.1 Potential Impact on Adjacent Structures

The proposed works, if executed correctly and in accordance with the permanent and temporary works design requirements and procedures, will pose no significant threat to the structural stability of the adjoining properties.

The project will be monitored during the course of the works to record any movements which occur and will be regularly inspected throughout construction to ensure that the temporary works have been installed and the permanent works are carried out correctly.

The major risk of movement in projects like this is due to poor workmanship during the construction and a major component of the likely settlement can be eliminated by appointing an experienced contractor, who undertakes the works using good practice and in accordance with the structural design. The contractor must follow all agreed method statements, installing all necessary temporary vertical and lateral supports required. The contractor will be required to submit for approval prior to

construction, method statements and proposed temporary support details. All of these details will be made available and agreed with all relevant parties under the Party Wall Agreement prior to the start of any works.

5.0 Hydrogeological Impact

The Environment Agency information relating to the controlled waters is summarised below.

Ground Water Vulnerability

Superficial Deposits: The site is located above a secondary aquifer (refer to Basement Impact Assessment), however no groundwater was recorded in the stand pipes as noted in section 2.3

Bedrock London Clay is an unproductive stratum

Surface Water Features

The nearest surface water is the Hampstead Heath Pond No.1 which is approximately 760m north east east of the site.

Flood Risk

The Site is in Environment Agency Flood Risk Zone 1 – Low Probability

6.0 Underground Structures

There are no London Underground Tunnels or Overground Rail lines within 0.5km of the site, however this is a network rail tunnel 25m to the South of the site. Given the distance from the site therefore will not affect the design of the proposed basement.

7.0 Construction Methodology for New Basement Walls

The proposed sequence of works is expected to be as follows:

- Remove existing ground floor.
- Reduce ground level.
- Excavate for new RC retaining wall underpinning in a hit and miss fashion.
- Install basement wall propping.
- Reduce central ground level.
- Install basement slab

- Install new ground floor
- Construct internal liner walls.

7.1 Temporary Works

The construction of the new basement will require the following temporary works:

- Temporary propping to support the top of new perimeter retaining walls during the excavation of the basement.
- Temporary propping of the lower section of the perimeter underpinning/retaining walls until the basement slab is complete.

7.2 Noise & Vibration

The Contractor shall undertake the works in such a way as to minimise noise, dust and vibration when working close to adjoining buildings to protect the amenities of the nearby occupiers. All piling for the new basement will be constructed using a hit and miss underpinning of the existing structure and then an excavation of the remaining ground inside. Construction noise and vibration to adjacent properties will be minimised.

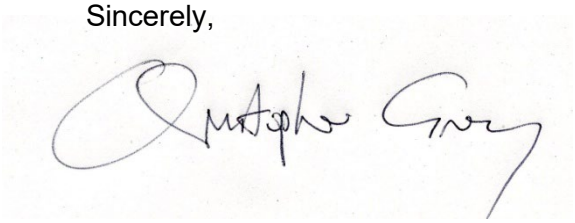
The breaking out of existing structure shall be carried out by saw cutting where possible to minimise vibration to the adjacent property and associated construction noise. All demolition and excavation work will be undertaken in a carefully controlled sequence, considering the requirement to minimise vibration and noise.

8.0 Conclusion

Based on this study we believe the basement could be constructed with little impact on the surrounding property and environment.

Nothing further occurs.

Sincerely,



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Appendix A – Draft Structural Scheme & Underpinning Construction Sequence

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Appendix B – Ground Investigation Report

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Appendix C – Structural Calculations

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