53 Achilles Road, London, NW6 1DZ
Structural & Civil Considerations

Inertia
STRUCTURES LTD

1.0 Introduction

Inertia Structures Ltd, a firm of Chartered Civil and Structural engineers, have been appointed by the Client to advise on the structural implications of the proposed development at 53 Achilles Road, London, NW6 1DZ in support of a planning application London Borough of Camden. The structural work includes an extension to the rear and new access stairs to the basement.

This report has been prepared to address the comments relating to structure during the pre-planning process.

This report forms the Structural Method Statement (SMS) in support of the planning application as prepared by Studio McLeod Architects.

Report prepared by: [redacted] Adrian Heard BEng(Hons) CEng MICE

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1.0 Background

The existing building is a two storey Victorian terrace house which has been historically converted into separate flats. The property is typical for its period and the street, with a two storey rear wing and a number of original features. The levels across the site vary and the front ground floor level is above that of the rear garden level.

2.0 Engineering Geology & Geotechnics

To understand the design constraints of the proposed works the following investigations were carried out:-

2.1 Ground Water

Camden geological, hydrogeological and hydrological study maps do not put the site within the catchment of the pond chains on Hampstead Heath or near Camden Surface Water Feature.

2.2 Drainage & Surface Water Flow Appraisal

Ground water & surface water flow will not be affected by the increased basement size. Trial holes were undertaken and ground water was not encountered. No signs of dampness within the existing basement or signs of ground water penetration were observed.
The current small inspection chamber will need to be relocated as the new stairs will clash with this but this will not change discharge rates in to the sewer.

2.3 Local Geology

Trial holes have been dug to the rear of the site. The results show organic soil over stiff brown/yellow London Clay. These are consistent with historic bore logs of the area and it can be concluded that there is homogeneous clay in the area of construction.

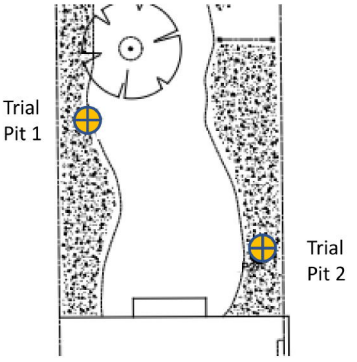

Figure 1: Location of Trial Pits As Dug 25th April 2017

3.0 Design Proposals

3.1 Alterations to the Existing Buildings

In addition to forming a "Framed" extension to the rear, it is proposed to remove existing loadbearing walls and lower floor levels. From a structural view point these works can be split into two distinct elements:

3.2 Ground works

Depending on the depth of Adjoining foundations, it maybe necessary to underpin the Party Wall and flank wall locally, to ensure the Party Wall and other foundations are not undermined when floor levels are lowered. It is also proposed to construct the new basement stair at this stage. Refer to figure 2:

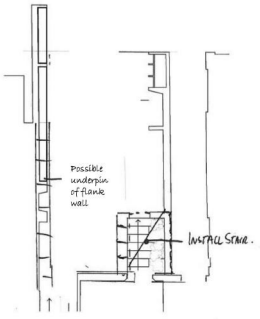

Figure 2: *Proposed Underpin Locations*

3.2.1 Proposed Stair \ Basement Access

The new basement access is to be formed in reinforced concrete on traditional foundations. The new subterranean structure will be designed to resist earth, surcharge and hydraulic loadings.

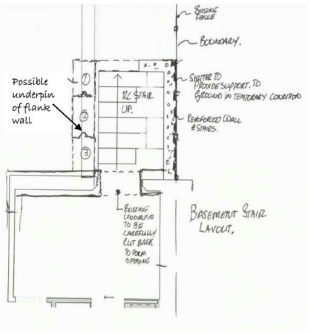

Figure 3: *Proposed Basement Extension*

3.2.2 Basement Stability

The new concrete basement access comprises of a new stair access. The basement is to be constructed with reinforced concrete (RC). The RC liner wall will be designed to resist the lateral earth pressures from the surrounding ground.

3.2.3 Flotation and Uplift

With basement construction, it is possible for clay heave and water buoyancy forces to create a net uplift pressure on the basement slab. Assessment of the site found that the foundation at the proposed depth will not be susceptible to heave, and the self weight of the structure will counteract floatation.

3.3 Above Ground Works

Once the foundations have been installed the building should be temporarily propped and steels installed to support the structure with the new columns bearing on the underpinned foundation. The floor can then be lowered and the walls removed - Refer to figure 4

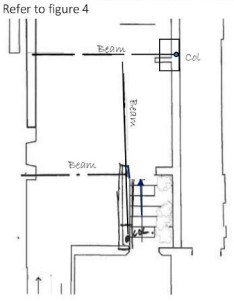

Figure 4*:Existing Walls Supported on New Steel*

4.0 Temporary Works

To maintain stability during construction of the new stair well, temporary works will be required to provide lateral support during excavation and construction of the new basement, and to support existing boundaries.

The design and installation of temporary works is to be entirely the responsibility of the main contractor, who is to appoint a suitably qualified and experienced temporary works co-ordinator in accordance with BS 5975 'Code of practice for temporary works procedures and the permissible stress design of falsework'.

Construction Sequence and Monitoring

The following construction sequence has been assumed for the purposes of planning to indicate the proposed structure can be constructed using familiar construction methods.

All construction is to be carried out in accordance with any specification or drawings issued by Inertia Structures following the completion of detailed design, and under the direction of a Chartered Structural or Civil engineer experienced in basement design and construction.

Constructed elements are to be made available for inspection by a Chartered Engineer as requested by Inertia Structures during construction.

The contractor is to carry out the works following all required statutory legislation applicable to construction.

All reasonable measures are to be taken by the contractor to minimise noise, dust and general disturbance to occupants in surrounding buildings. The contractor's proposals are to be included within their method statements, but expected measures may include:

i) Limitations to hours of operation.
ii) Avoidance of vibrating tools and plant, replacing methods with cutting and removal by hand to limit noise.
iii) Use of dust suppression methods such as wetting down and extraction.
iv) Maintaining cleanliness of areas and streets surrounding the site.

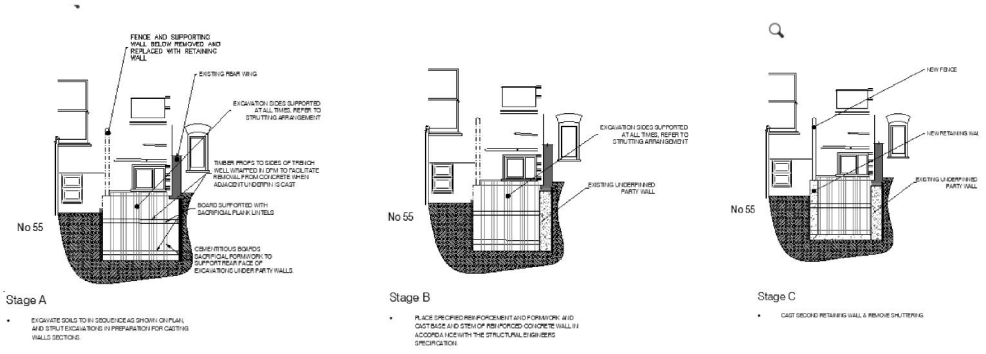

Figure 5: Proposed Construction Sequence