

WE ARE SYMMETRYS

807 HIGH ROAD

LONDON

N17 8ER

PLANNING STAGE STRUCTURAL REPORT

22139

30.11.2023

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REVISION HISTORY

Revision	Description	Date	By	Checked
P1	Initial Issue	20.12.2023	JS	EB
P2	Design review	07.03.2024	JS	EB

1.0 Introduction

- 1.1 Symmetrys have been appointed by F3 Architecture + Interiors to provide a Stage 2 structural scheme and report to accompany the planning submission for the proposed demolition and reconstruction of the property at 807 High Road, Tottenham, London, N17 8ER.
- 1.2 The purpose of this report is to summarise a conceptual structural approach to the proposed development.

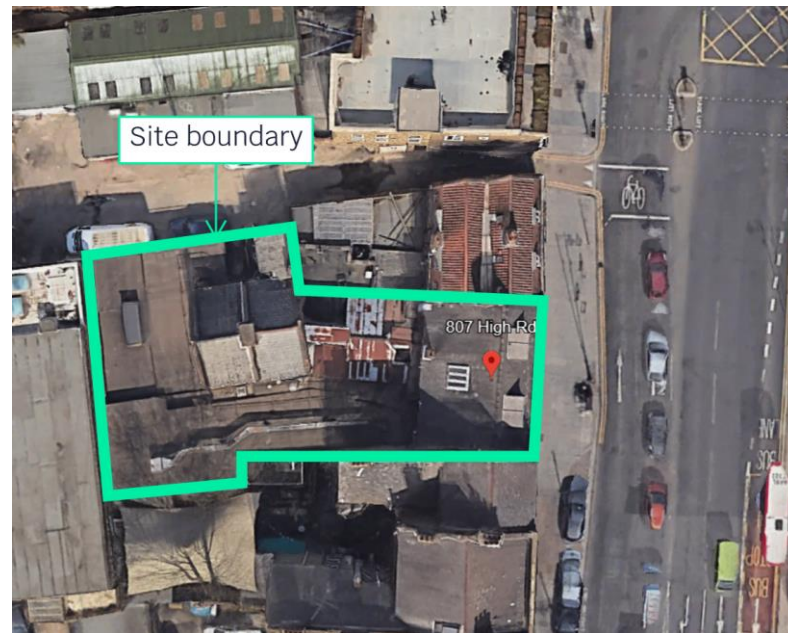


Figure 1.1 – Aerial view of site (Google Earth 2023)

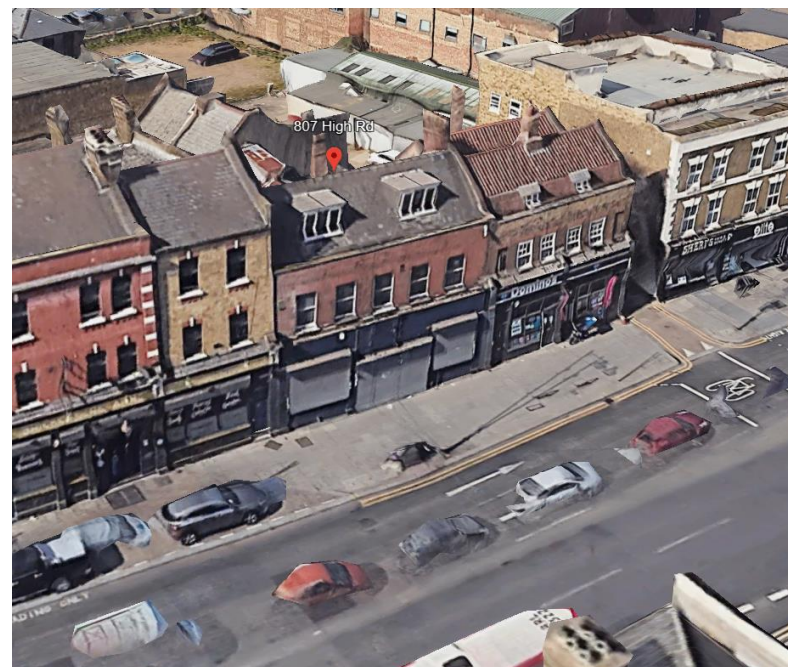


Figure 1.2 – Front elevation (Google Earth 2023)

2.0 Existing Site & Structure

- 2.1 Investigations
 - 2.1.1 A visual inspection of the building was carried out by Symmetrys on 08.08.2022 to establish the general construction of the existing building and what the overriding structural principles are.
 - 2.1.2 Trial pits have been dug and site investigations have been conducted. The results are detailed in the section 2.4 below.
- 2.2 Site History & existing Structure
 - 2.2.1 The property lies within the North Tottenham High Road Conservation Area and is in an Area of Archaeological importance, although it is not listed.
 - 2.2.2 Currently, the ground floor of the property is used as commercial premises and is made up of several buildings and extensions that have been combined over time to provide a single space across the site. This includes the original 3-storey building adjacent to High Road and 2-storey building accessible from Percival Court.

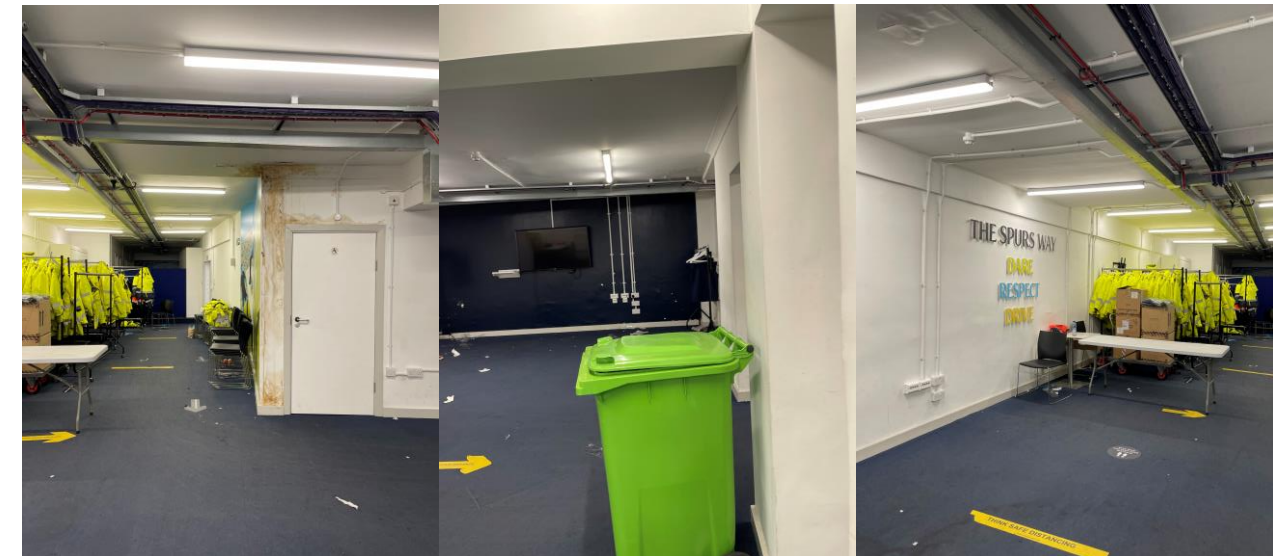


Figure 2.1 – Photos of the ground floor taken 08/08/2022

- 2.2.3 From High Road there are several internal and external stairs to access the building. To create a level threshold from the street level would require major work. Potential options could include a large internal ramp, which would impact the amount of useable space, or the lowering of the entire existing ground floor, which would require underpinning works.
- 2.2.4 There is evidence of previous structural works to create an open plan space with offices and meeting rooms accessible off of the main space.
- 2.2.5 The ground floor spaces have been heavily influenced by the original buildings to occupy the site. The structure comprises load bearing masonry and downstand beams supported on several piers. The piers are assumed to be masonry and the downstand beams are steel. Any future works to rationalise the spaces would likely require extensive structural works to comply with modern regulations due to the extent of previous alterations.
- 2.2.6 The first and second floors are currently unused and are only accessible through a locked door towards the front of the property. The upper floors are in extremely poor condition with many of the finishes damaged or missing. There is evidence of water ingress, which may mean that if intrusive investigations are carried out timber members in those areas may show evidence of rot.

2.2.7 The first floor structure is assumed to be primarily load bearing masonry with suspended timber floors. Significant changes to the structure have been carried out to alter the layout and create a larger open space. Like with the ground floor, this has been achieved by introducing a number of beams supported on piers, assumed to be steel and masonry. Any future works to rationalise the spaces would likely require extensive structural works to comply with modern regulations due to the extent of previous alterations.



Figure 2.2 - Photos of the first floor taken 08/08/2022

2.2.8 The second floor has had minimal structural alterations. (No photos available)

2.3 Existing substructure

- 2.3.1 Trial pits were dug in October and November 2022. The findings show that all the external walls have concrete foundations of various sizes in addition to the ground-bearing concrete floor. This is unexpected as similar properties in the area have shallow brick corbel foundations.
- 2.3.2 It is unknown if new foundations were provided to distribute the increased load from the new ground-level piers.
- 2.3.3 Further works to alter the superstructure would likely require new foundations and ground floor structure to justify alterations to the load or its path.

2.4 Ground Conditions

2.4.1 Ground investigations carried out in December 2022 showed the geology of the ground on site. The findings are summarised in the table below. The range on the made ground varies across the site.

Strata	Range of Depth to Top (m bgl)	Range of layer thickness (m)
Made Ground	0	1.2-2.2
Terrace Gravels	1.2-2.2	5.5
London Clay	5.5	15
Lambeth Group	18.7	Not proven

2.4.2 The Site investigation states that piled foundations would be the preferred foundation option for the proposed structures at the site due to the ground conditions and the proposed building loads.

3.0 Proposed Development

3.1 Proposals

- 3.1.1 The proposed development is to consist of the demolition of the existing buildings and the erection of a replacement building up to four storeys to include residential (C3), retail (Class E, a) and flexible medical / health (Class E, e) and office (Class E, g, i) uses; hard and soft landscaping works including a residential podium; and associated works.

Potential structural approaches to the construction of the development are as follows:

3.2 Substructure

- 3.2.1 The substructure is to be formed with a suspended RC slab with different levels to suit the architecture requirements supported by pile caps and ground beam which will be piled.
- 3.2.2 No basement formation is proposed in the architectural arrangement
- 3.2.3 Where the level proposed is below the adjoining properties' underpinning walls are proposed to the party wall
- 3.2.4 The shallow foundation option was discarded because of the anticipated loads and building type. Initial assessments indicated that foundation elements would need to be excessively large for this option. Furthermore, the site investigation revealed that 'made ground' could be present up to 2.2 meters below ground level

3.3 Ground floor level

- 3.3.1 The structure up to the third-floor level will be reinforced concrete given the relatively open nature of the development at the ground floor. A mixture of columns and walls will be positioned to suit the proposed layout.
- 3.3.2 External walls, assumed at this stage to be cavity walls, will be constructed off of the new substructure and restrained where required by the internal structure.
- 3.3.3 Non-load bearing partition walls at ground floor level will be formed using low-density blockwork, timber stud or cold-formed metal stud depending on stability, acoustic, thermal and fire requirements

3.4 First floor transfer structure

- 3.4.1 The proposed courtyard garden between the two upper floor blocks is to accommodate planting including some trees. The depth of growth medium required to facilitate the trees, as well as any rainwater attenuation required, will generate a localised area of high loading which will need to be considered during the design.
- 3.4.2 Due to the geometry of the façade some column loads will require transfer beams at the first floor slab.

3.5 Superstructure front block

- 3.5.1 The superstructure of the front block is to be constructed with a reinforced concrete frame structure with an integrated reinforced concrete slab.
- 3.5.2 Internal partitions are non-load bearing and can be formed using low-density blockwork, timber studs or metal studs depending on stability, acoustic, thermal and fire requirements.
- 3.5.3 The profile of the reinstated pitched roof and dormers to the front overlooking High Road are likely to be formed using steelwork with timber infill.

3.6 Superstructure rear block

- 3.6.1 The superstructure to the rear block between the first and third floor will be formed with an RC frame structure with an RC slab.
- 3.6.2 Internal partitions would be non-load bearing and can be formed using low-density blockwork, timber studs or cold-formed metal studs depending on stability, acoustic, thermal and fire requirements.
- 3.6.3 The set-back third-floor structure will likely be formed using a steel frame with timber or cold-formed metal profiles.

- 3.7Stability
- 3.7.1

Stability to both blocks would be provided by the diaphragm action of the floor structures transferring the lateral loads into the stair cores and external walls.
- 3.7.2

The stair cores will be constructed with RC shear walls.
- 3.7.3

Steel frame cross bracings are to be installed to the steel structure forming the third-floor roof of both buildings.
- 3.8Loading
- 3.8.1

The following imposed floor/roof loads would be considered as part of the technical design:
- 3.8.2

Commercial – 4.0 kN/m²
- 3.8.3

Domestic – 1.5 kN/m²
- 3.8.4

Communal/circulation space – 3.0 kN/m²
- 3.8.5

Roof – 0.6 kN/m²
- 3.8.6

Green Roof and planter loads – 13kN/m²
- 3.8.7

Wind load – 0.8kN/m²
- 3.8.8

Services – PV Loads – 0.25kN/m²
- 3.8.9

The following handrail loads would be considered as part of the technical design:
Communal/circulation space – 0.74 kN/m²
- 3.8.10

Piles Loading (approximate range)
Dead – 300 → 550kN
Imposed – 75 → 250kN
Subject to scheme confirmation

4.0Further work

The following work should be undertaken or commenced during the next stage:

- Further design of the structural elements.
- Further design of the foundations.
- Coordination with Architectural design
- Coordination with MEP design.



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APPENDIX A STAGE 2 DRAWINGS