125 Shaftesbury Avenue

Structural Statement

Prepared by AKT II

Submitted on behalf of VREF Shaftesbury SCS

November 2024

5577 125 Shaftesbury Avenue

Structural Statement

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Appendices

Revision	Date	Status
P04	27.11.2024	Planning

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1 Introduction

This structural statement has been produced by AKT II on behalf of VREF Shaftesbury SCS for the proposed redevelopment of 125 Shaftesbury Avenue, London.

This document outlines the structural approach to the refurbishment and extension of the existing building at 125 Shaftesbury Avenue and serves to be a supporting document for the development's planning application and for the purpose of public consultation.

In summary, it sets out the structural and civil design options considered, the approach to existing structure alterations and provide recommendations on the form of structure to be adopted for each of the main elements of the structure.

The proposed alterations include a staggered central atrium to improve interrelationship of the lower floors and increase natural light levels, a new entrance lobby, additional floor structures to improve building efficiency and a new building envelope to improve the overall energy performance of the building. These will result in an overall enhancement of the existing floorspace to provide up to 33297 square meters of commercial office and new retail units.

This report includes a series of structural drawings and sketches which summarises the proposals for the building.

2 The Site

2.1 Site location

The proposed site is located at 125 Shaftesbury Avenue, London, WC2H with an approximate grid reference E529955 N181103.

The site covers an area of approximately 61m by 52m and is bounded by Charing Cross Road to the south-west; Shaftesbury Avenue to the south-east; Stacey Street to the north-east; and Phoenix Street to the north-west.

The location of the site is indicated in the adjacent figures.

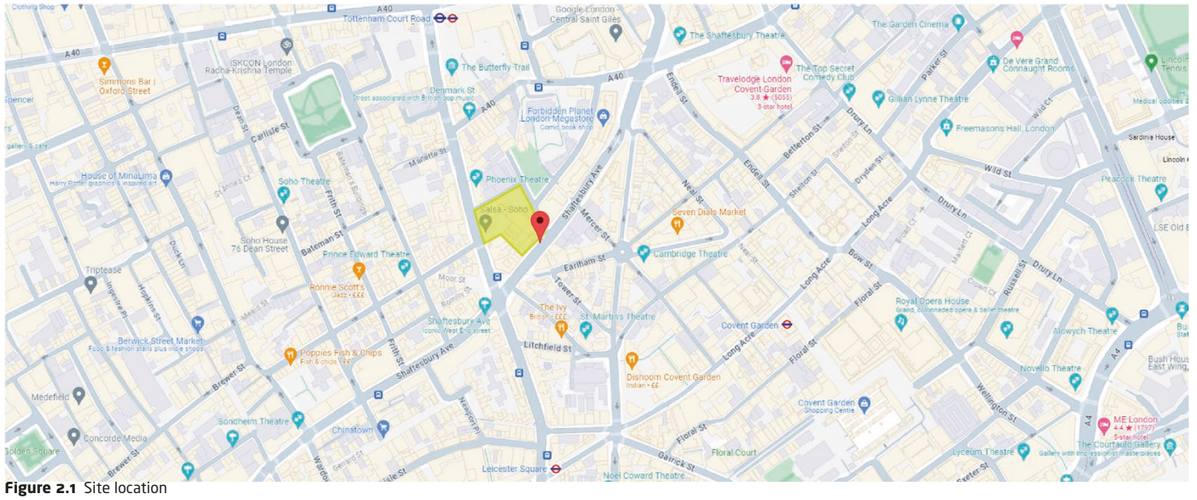

Figure 2.1 Site location

2.2 Site description

The 0.359ha site lies within the London Borough of Camden and sits between the distinct character areas of Soho, Covent Garden, Seven Dials and Bloomsbury. It is not located within a Conservation Area but is part of a small urban pocket surrounded by the Soho, Denmark Street and Seven Dials Conservation Areas.

The site is currently occupied by a basement, ground plus 10-storey building designed by Ian Fraser, John Roberts and Partners and completed in 1982. When the building was first completed, a retail arcade occupied much of the ground floor, providing a pedestrian route through the building.

The site adjoins Trentishoe Mansions on Caxton Walk/Charing Cross Road and 119 Shaftesbury Avenue. The site also shares a light well with 24 Cambridge Circus and 84-86 Charing Cross Road. Tenants of these adjoining buildings currently enjoy rights of escape through the basement of 125 Shaftesbury Avenue.

The Underground stations at Leicester Square, Tottenham Court Road and Covent Garden are a 5 minute walk from the site. Additionally, Charing Cross and Waterloo mainline railway station are within few minutes walk and numerous bus routes also operate in this area.

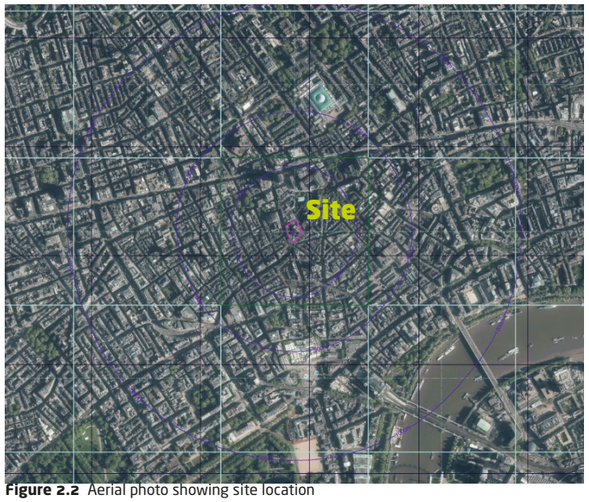

Figure 2.2 Aerial photo showing site location

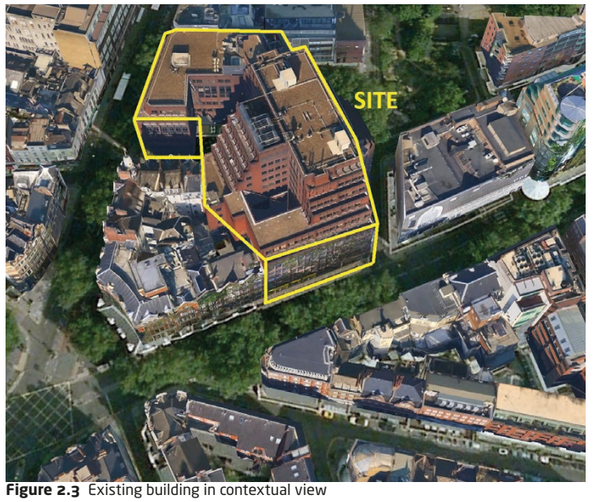

Figure 2.3 Existing building in contextual view

2.3 Site constraints

A site constraints plan has been produced and is included in the appendices of this report. It identifies the main constraints surrounding the site including utilities, below ground structures, trees, Thames Water and London Underground assets.

It should be noted that the identified site constraints do not constitute an exhaustive list of existing constraints. These have been gathered from publicly available information and Envirocheck report ordered by AKT II.

While reasonable duty of care has been exercised in identifying potential project issues, there may be additional unknown site constraints which may come to light as a product of further investigations and general project development.

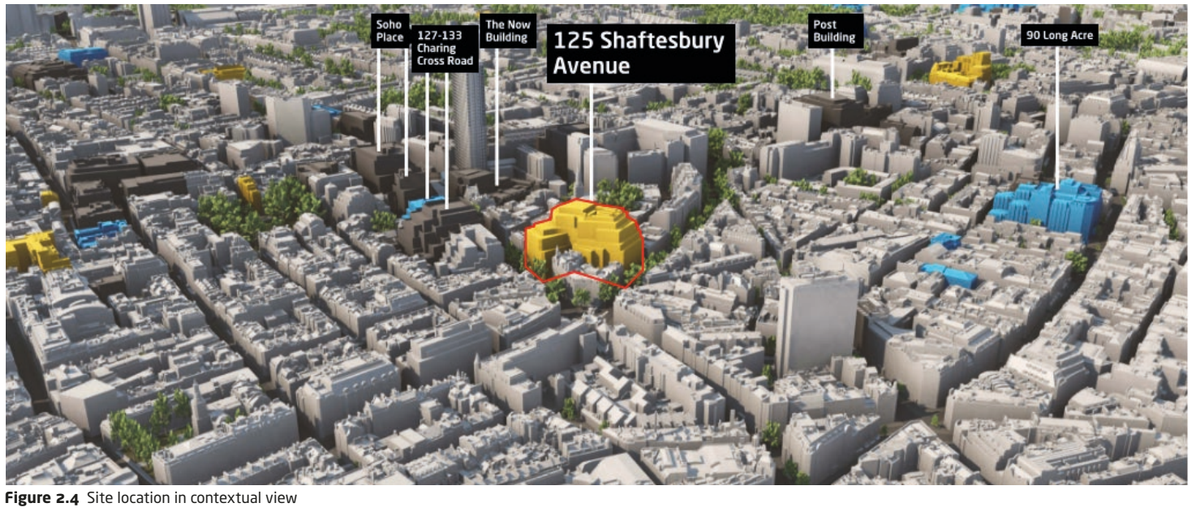

Figure 2.4 Site location in contextual view

3 Existing structure

3.1 Sub-structure

3.1.1 Basement

The substructure consists of a single storey basement covering the full footprint of the building. It is currently used for retail, car parking and plant areas. Access to the basement is via a ramp to the rear of the building on Stacey Street.

The lower part of the ramp slab bears onto backfill enclosed with RC walls, the other part of the ramp is suspended and supported on columns and perimeter retaining walls.

The basement slab is a 300mm thick reinforced with top and bottom mesh and appear to be ground bearing and supported also from the pile caps.

The vertical structure within the basement generally shares the same grid formation as the superstructure and there does not appear to be any transfer structure.

The perimeter basement walls are reinforced concrete retaining walls, typically 300mm thick supported on piled foundation.

The existing waterproofing system to the walls and basement slab is currently unknown but based on our experience with structure of similar age, the basement is likely to have been waterproofed with tanking.

3.1.2 Foundations

The building is founded on under-reamed piles with piles caps.

The pile diameters range from 600mm to 1600mm, the pile foot ranges from 2000mm to 4500mm.

Large pile caps have been positioned under the stability cores to support the core walls and accommodate lift pits. The core pile caps have been formed with a uniform top level, and the slabs outside the lift pit construction at an higher level via a fill between the pile cap and the underside of the slab.

This provides an opportunity to reuse the pilecap even in cases where the proposed lift shaft / pit has a different arrangement. To minimise the intervention to the existing foundation it is recommended that the pile caps are retained and only slabs and walls are subject to any eventual modification.

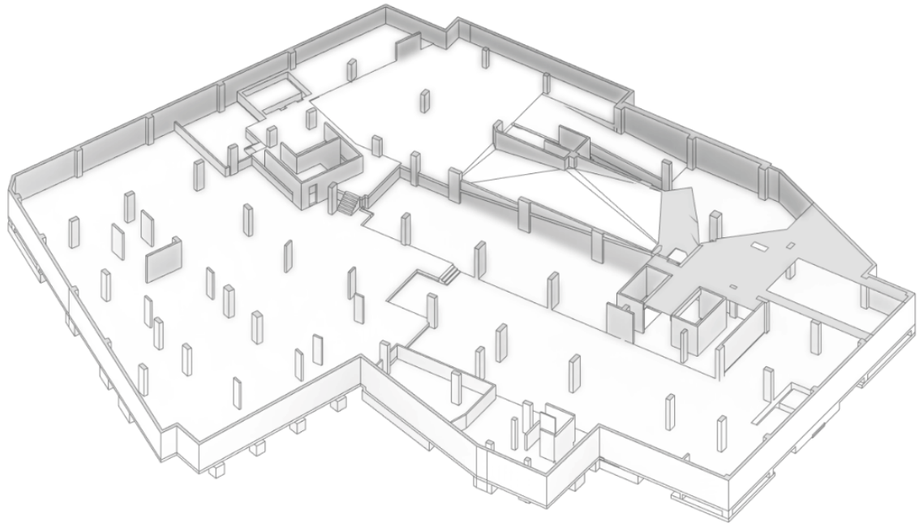

Figure 3.1 3D visualisation of existing basement structure

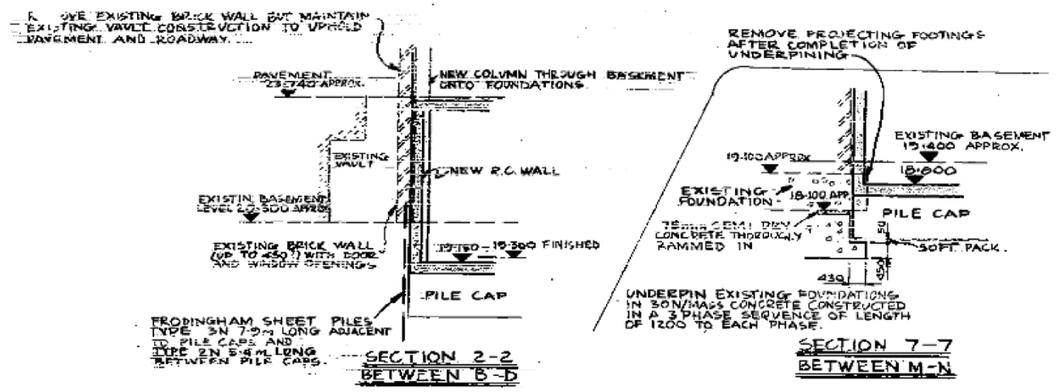

Figure 3.2 Retaining wall sections, archive drawings

3.2 Superstructure

3.2.1 Structural Frame

The primary structure consists of a reinforced concrete frame, with concrete slabs supported on reinforced concrete columns and walls.

Various slab constructions have been used to form the floor plates of the building. Solid slabs are used for ground, first, the tenth and roof levels, in the form of concrete flat slab or two-way slab supported on band beams.

The ground floor slab is generally 350mm thick with local thickenings up to 550mm thick positioned towards the rear of the building near to Stacey Street.

The structural slab level of the ground floor varies, with numerous steps across the floor plate. The record drawings indicate a central atrium within the ground floor slab to the west of the site, with a staircase leading to the basement level. The atrium is supported with blade columns around its perimeter. It is worth noting that the exact extent of the atrium will need to be ascertained through further surveys, as the as built condition observed on site significantly deviates from the record information. Part of the atrium as shown in the record information would be outside the building and is currently filled with floor pavement.

The first floor slab is typically 300mm thick with a thickening section of 525mm over the central light well area. The extent of the lightwell roof, as observed on site, is significantly different from the record information. It appears part of the lightwell roof may have not been built or demolished at some point.

The tenth floor and roof slabs are generally 350mm and 300mm respectively, which accommodate the plants serving the building. Several steel trimming frames to the underside of the roof slab have been noted during site visits. Very likely these were installed to form openings in the roof slab and to provide support to the roof plant.

The upper floors are typically 325mm thick ribbed infills supported on band beams spanning on to concrete columns. Localised solid slabs are also present within the upper floor plates. It has been noted that the as built ribbed slabs have a different rib profile from the record information and dimensional and intrusive survey is to be undertaken to confirm the details of that element.

Both square and rectangular concrete columns have been used in the framing system, with columns of smaller sizes used in the upper levels. The building steps back from level 6, where part of the floors act as transfer structures supporting the perimeter columns of the levels above.

3.2.2 Investigations

To ensure a thorough understanding of the existing structure, several investigations will be necessary to inform the design. A number of these investigations have been instructed or are in the process of being instructed, these include the following:

Site investigation

A site investigation (SI) will be required to determine the following:

the underlying soil profile; potential sources of contamination from the surrounding environs; design parameters for soil capacity; and composition, profile and depth of existing below ground structures and foundations

CCTV survey

As part of the proposed drainage plan, there is an ambition to reuse and tie into the existing drainage runs. To validate if this is practical, a full CCTV survey of the existing drainage is carried out.

The knowledge of the setting out of the existing structure is also essential where new structure connects to existing elements.

Structural fabric survey

A structural fabric survey is necessary to verify the as-built condition of the building to an appropriate level of certainty. The fabric survey should be undertaken so that the results of material testing and non-intrusive investigations can be incorporated into the design and to identify defects.

Other investigations include:

- Line and level survey of the sewer around the site (external CCTV)
- Topographic surveys
- Geometric survey of the existing structure
- Condition survey of party walls
- Asbestos survey

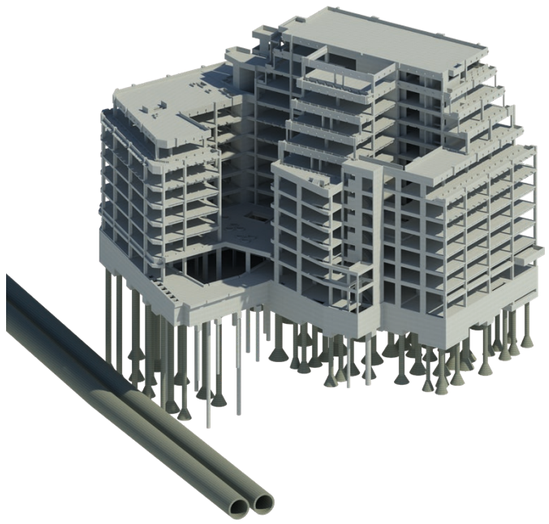

Figure 3.3 Indicative model of existing structures based on record drawings

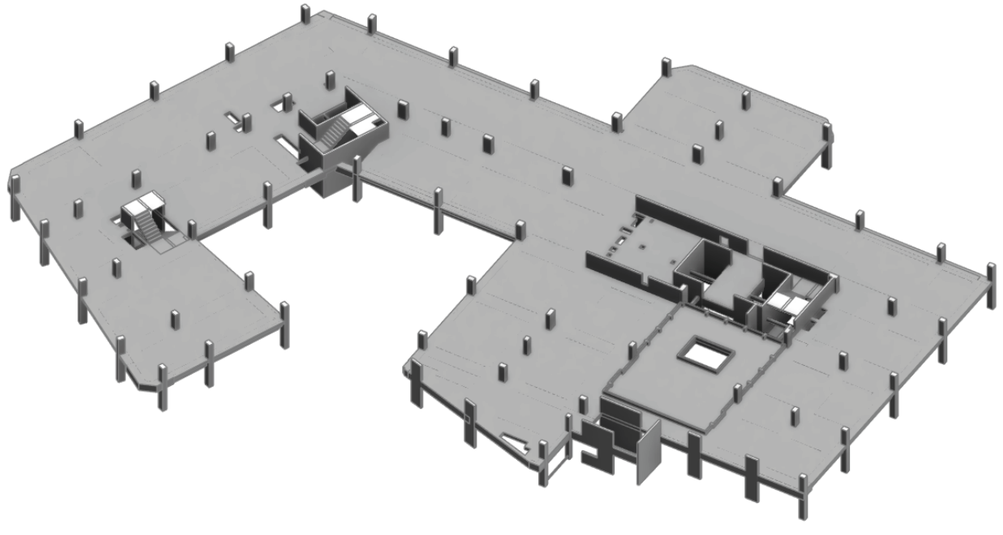

Figure 3.4 Indicative model of Level 3 floor structure