

80 Charlotte Street & 65 Whitfield Street:

Minor Material Amendment –

Façade Retention and Basement Proposals

Date

December 2015



CHARLOTTE
STREET.
W1

West London & Suburban Property
Investments Ltd

**80 Charlotte Street and 65
Whitfield Street**

Facade Retention and Basement
Proposals

207329

Issue 3 | 9 December 2015

This report takes into account the particular
instructions and requirements of our client.

It is not intended for and should not be relied
upon by any third party and no responsibility
is undertaken to any third party.

Job number 207329

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1 Introduction

Arup has been appointed by West London & Suburban Property Investments Ltd (WLSPIIL) to provide engineering advice for the approved redevelopment of 80 Charlotte Street and 65 Whitfield Street (the Site), in Fitzrovia, Camden. Planning permission (reference 2010/6873/P) was granted for the redevelopment of the Site on 16 March 2012 and was subsequently implemented. At that time, the report 'Façade Retention and Basement Proposals, Issue, December 2010' was submitted in support of the application. A subsequent addendum was prepared in April 2014 in support of a minor material amendment (Section 73) application, which was also granted.

This report has been prepared in support of a further minor material amendment (Section 73) application to cover the following alterations to the approved scheme:

- At the 80 Charlotte Street part of the Site only - further demolition of buildings and deepening of the existing basement by approximately 2m.
- At the 71-81 Whitfield Street retained façade elevation - retaining the concrete lintel part (supporting brickwork) of the façade, which has previously been approved from removal under a minor material amendment application (Reference 2014/2518/P).

This report supersedes the December 2010 report and April 2014 Addendum, though it should be noted:

- The content in relation to 65 and 67-69 Whitfield Street is unchanged from the earlier reports.
- The basement considerations to the 80 Charlotte Street part of the Site are now covered in the Basement Impact Assessment, submitted separately.

2 Facade Retention

2.1 Introduction

The buildings within this development, both previously approved and now amended, have different façade solutions, reflecting their particular architectural and structural requirements. Figure 1 below outlines the different buildings within the 80 Charlotte Street part of the site, showing where the façade will be replaced and where retained. The following sections summarise façade solutions for each building within the development.

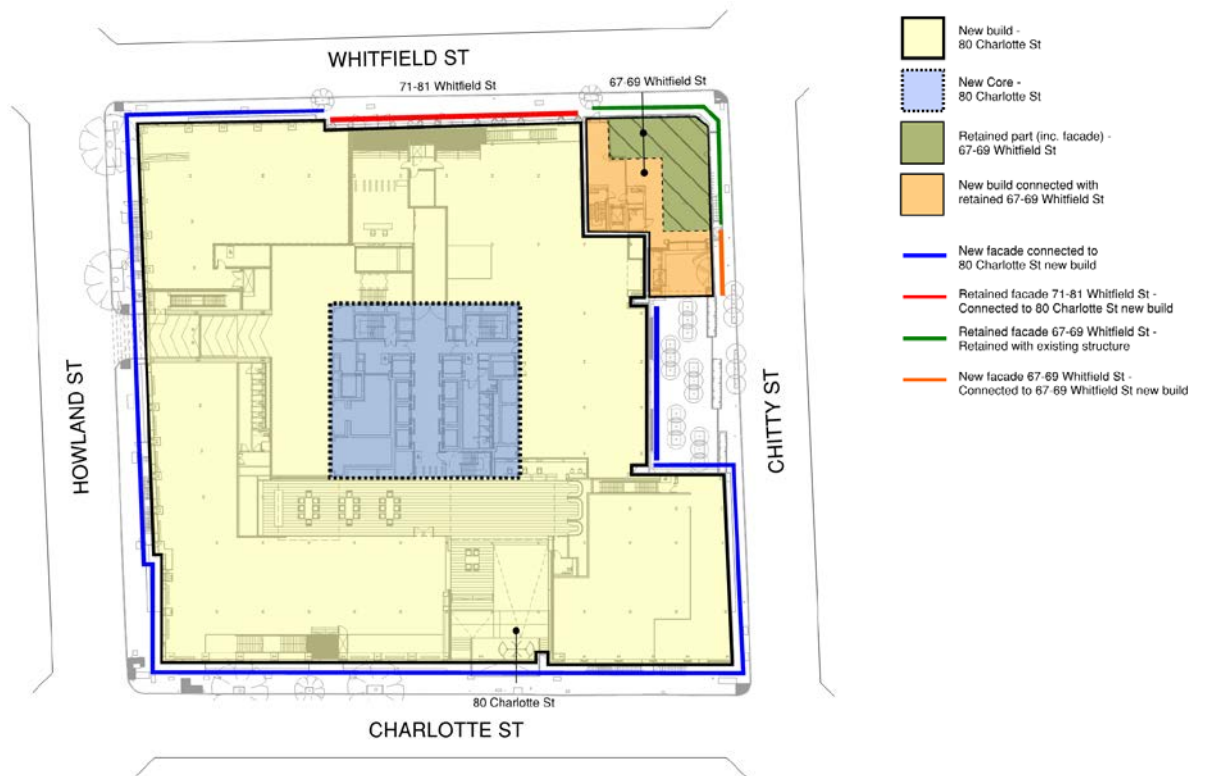


Figure 1 - 80 Charlotte Street Development

2.2 71-81 Whitfield Street Façade

The 71-81 Whitfield Street structure will be demolished, while the existing façade will be retained (Figure 2). The retained façade will be supported during the construction phase, requiring temporary support works. Once the new structure is constructed, temporary support works will be removed and the existing façade will be connected to the new structure.

The connection of new structure to the existing façade will provide restraint to the façade in the horizontal direction only. The connection will be detailed to ensure that no additional vertical load from the new development will be added to the existing façade.

The following subsections describe the existing façade structure, the proposed construction sequence and typical connection details between new structure and existing façade.



Figure 2 - 71-81 Whitfield Street existing façade

2.2.1 Information on existing façade

A dimensional survey has been carried out. General arrangement drawings at every level for this building and elevation of the façade to be retained are available.

An intrusive survey has been carried out on the 71-81 Whitfield Street structural frame which supports the facade. Material checks and core samples have been taken from beam and column sections at a number of locations and levels. The results of this survey show that the frame is constructed in two parts. Zone 1 is a steel frame structure encased in concrete and Zone 2 is a hybrid construction comprising steel columns encased in concrete supporting reinforced concrete beam elements.

The samples taken from the beam have been tested for strength and petrographics. The concrete petrographic testing showed no sign of deterioration. The compressive strength of the samples varied from 15-29N/mm² with a majority below 20N/mm². Visual inspection showed no signs of deterioration of the concrete structure.

Steel sampling for the encased elements confirmed that the steel grade was in the range of S235 strength.

A further brickwork survey has also been completed. Refer to architects information for further details.

2.2.2 Proposed sequence of works

It is envisaged that existing façade will be supported at the locations of existing perimeter columns (Figure 3). It is noted that this system has the potential for some flexibility in plan setting out and therefore can be arranged to avoid existing trees as required.



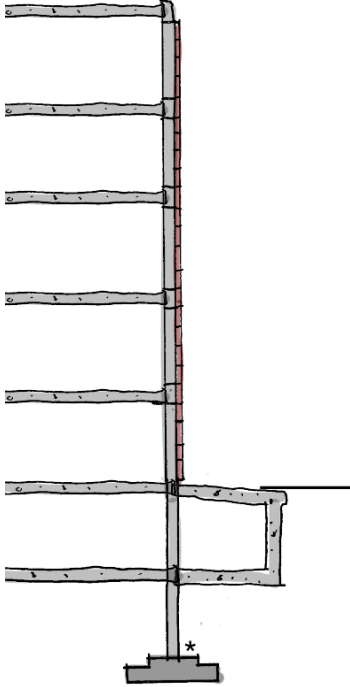
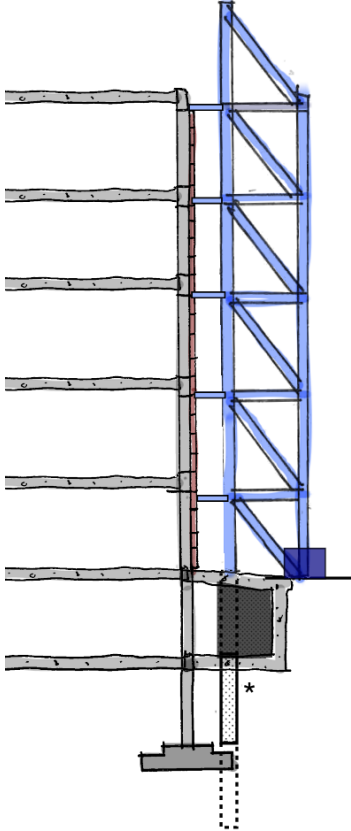
Figure 3 - Envisaged 71-81 Whitfield Street façade support arrangement

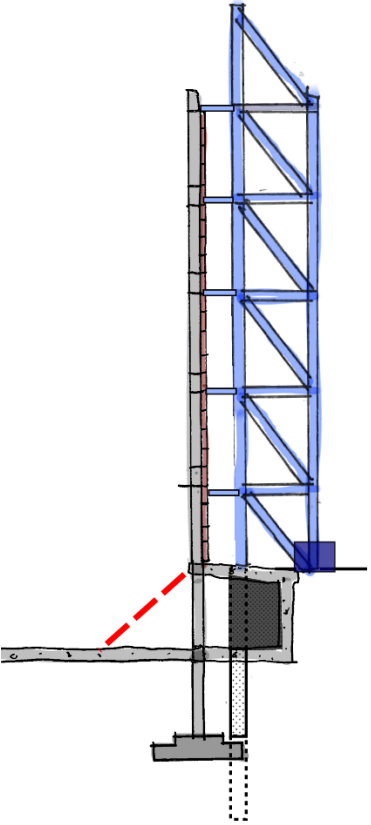
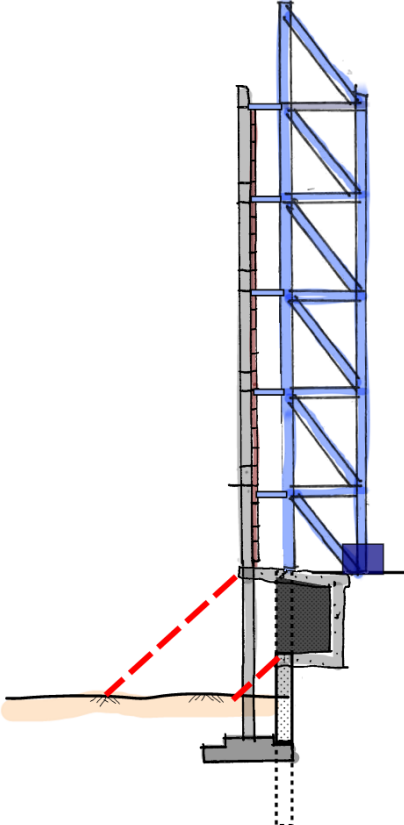
Where possible the connection between the existing façade and the temporary support system should be via façade openings to eliminate the need for penetration into the existing façade. Figure 4 shows some typical details for the façade connection through openings.

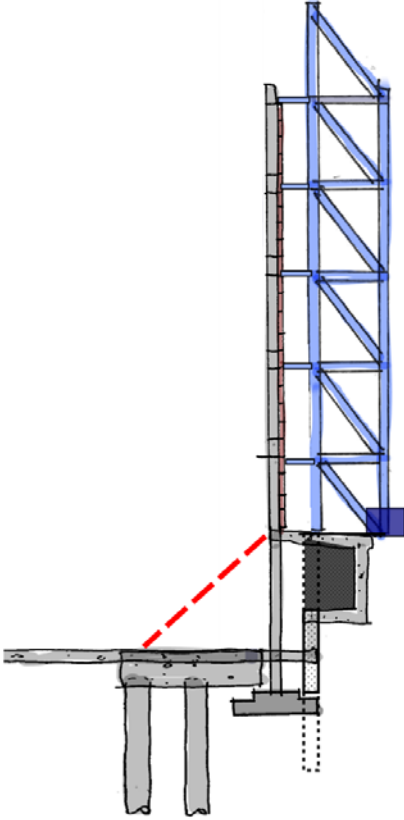
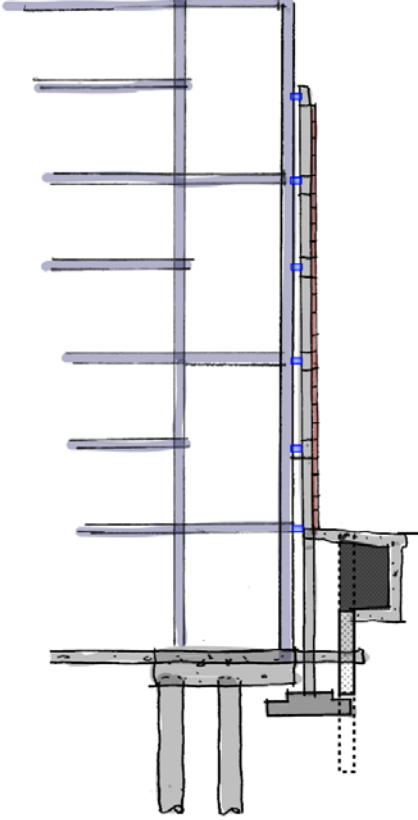


Figure 4 Typical connection detail via façade opening:
External view (left). Internal view (right).

The following pages provide the proposed sequence of works for the retention of the existing façade on 71-81 Whitfield Street.

Existing building and façade system	Stage 1
 <p style="text-align: center;">Section A-A</p>	 <p style="text-align: center;">Section A-A</p>
<ul style="list-style-type: none"> (*) Survey required to determine level and plan extent of existing foundations supporting existing façade. Localised GI may be required beneath the vaults. 	<ul style="list-style-type: none"> (*) Install line of retaining structure to enable lowering of existing basement level at Stage 3. Stabilise Whitfield Street existing below ground vaults as required for construction by structural infill or providing propping. Install mass concrete foundations for temporary support structure (piled foundations may be required depending on ground conditions); Install temporary lateral façade restraint system to the outer elevation. Install façade movement monitoring equipment and agree all hold point and acceptable movement criteria with the construction team.

Stage 2	Stage 3
 <p style="text-align: center;">Section A-A</p>	 <p style="text-align: center;">Section A-A</p>
<ul style="list-style-type: none"> • Demolish the existing structure of 71-81 Street building. • Provide temporary propping as required (shown indicatively). 	<ul style="list-style-type: none"> • Remove existing slab and excavate down to new basement level. • Provide temporary propping to retaining wall as required (shown indicatively).

Stage 4	Stage 5
 <p style="text-align: center;">Section A-A</p>	 <p style="text-align: center;">Section A-A</p>
<ul style="list-style-type: none"> • Install new foundations. (Foundation arrangement to be determined noting minimum dimension clearance from the existing façade foundations) • Construct new basement 	<ul style="list-style-type: none"> • Install permanent steel frame and retention columns. • Tie existing façade columns back to new steel frame. • Remove façade temporary support.

2.2.3 Permanent Retention Details

The connection between existing façade and new structure framing is proposed above and below the new floor plates, at column locations. Refer to indicative detail below (Figure 5 and Figure 6).

This connection will be detailed to allow vertical movement in the connection, whilst transferring horizontal loads from the existing façade into the new structure. The connection detail will require a robust connection into the existing materials. If at the connection locations the existing materials crumble or are found to be insufficient in depth to maintain an adequate connection a degree of breakout and replacement will need to be allowed for.

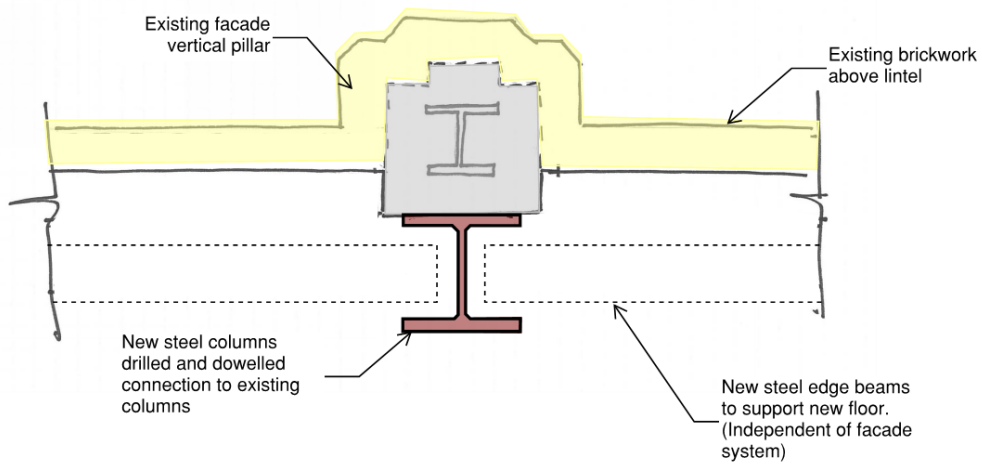


Figure 5 - Plan showing new façade retention structure

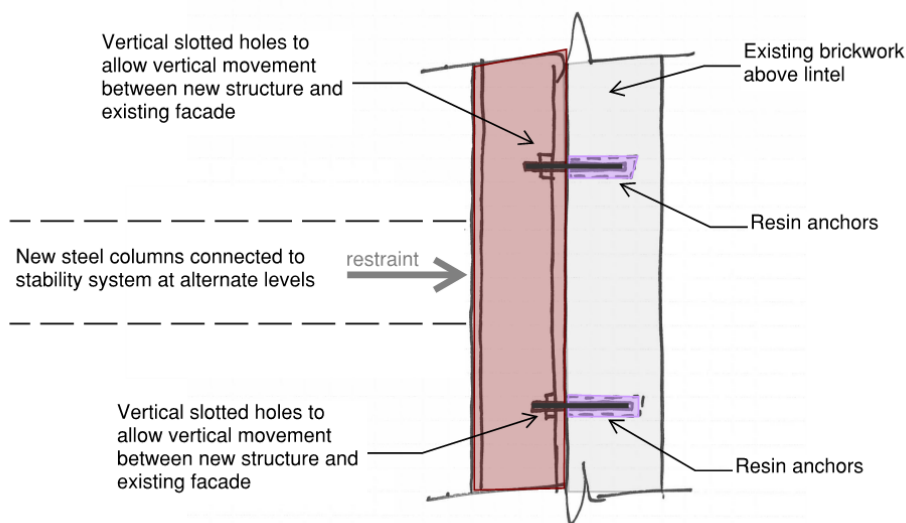


Figure 6- Typical connection between existing façade and new structure

2.3 67-69 Whitfield Street Façade

The façade of 67-69 Whitfield Street (Figure 7) will be retained together with part of the structure behind. The façade will be continuously connected to the retained part of the structure, which will minimise any temporary works requirements (Figure 8). Permanent stability will be provided with the construction of the new reinforced concrete core and the subsequent connection of the retained floor plate to the new floor plate.



Figure 7 - 67-69 Whitfield Street existing façade

2.3.1 Proposed sequence of works

The intention is to integrate any temporary stability works within the retained structural zone (Figure 8). It is proposed that the existing façade is supported using bracing that will connect perimeter columns to the retained structure.

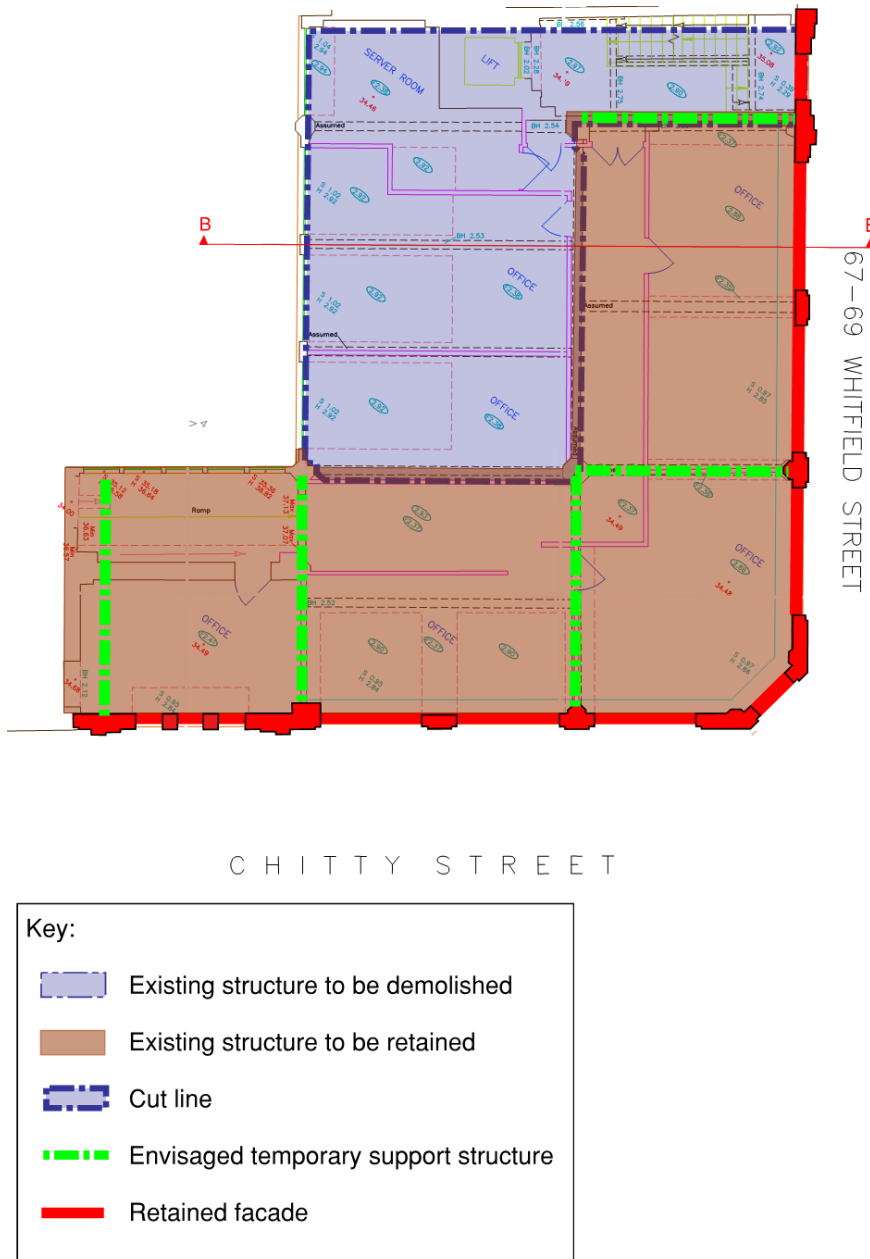
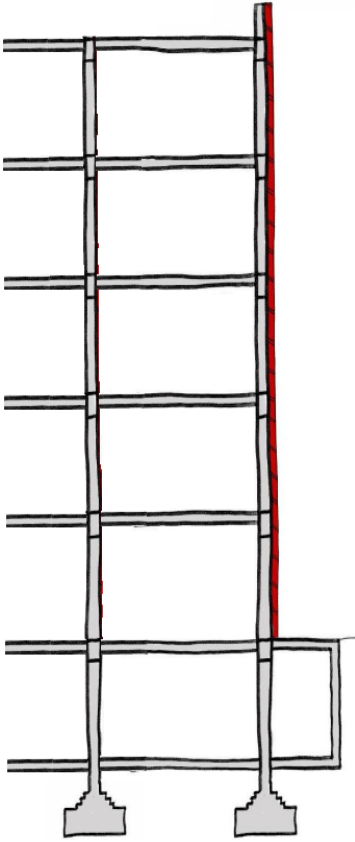
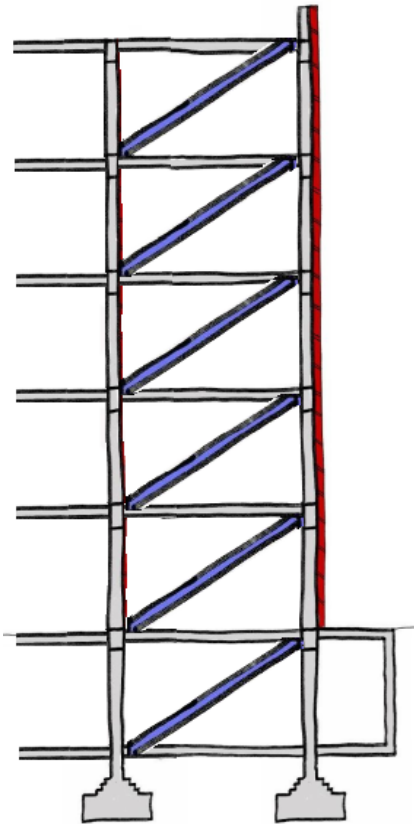
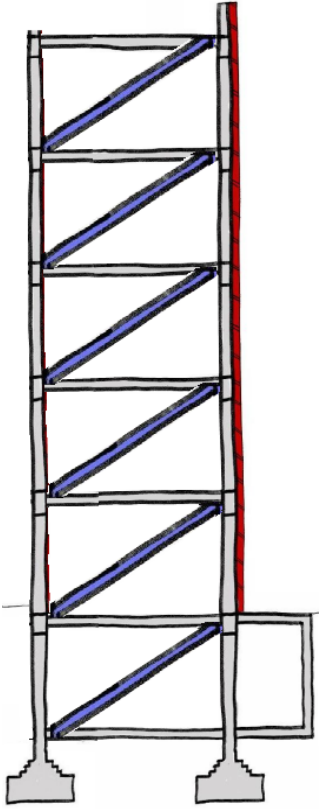
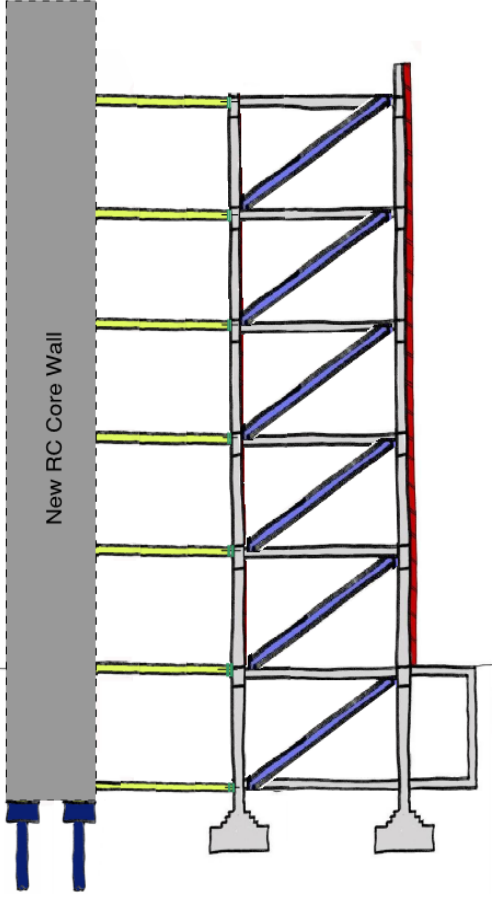
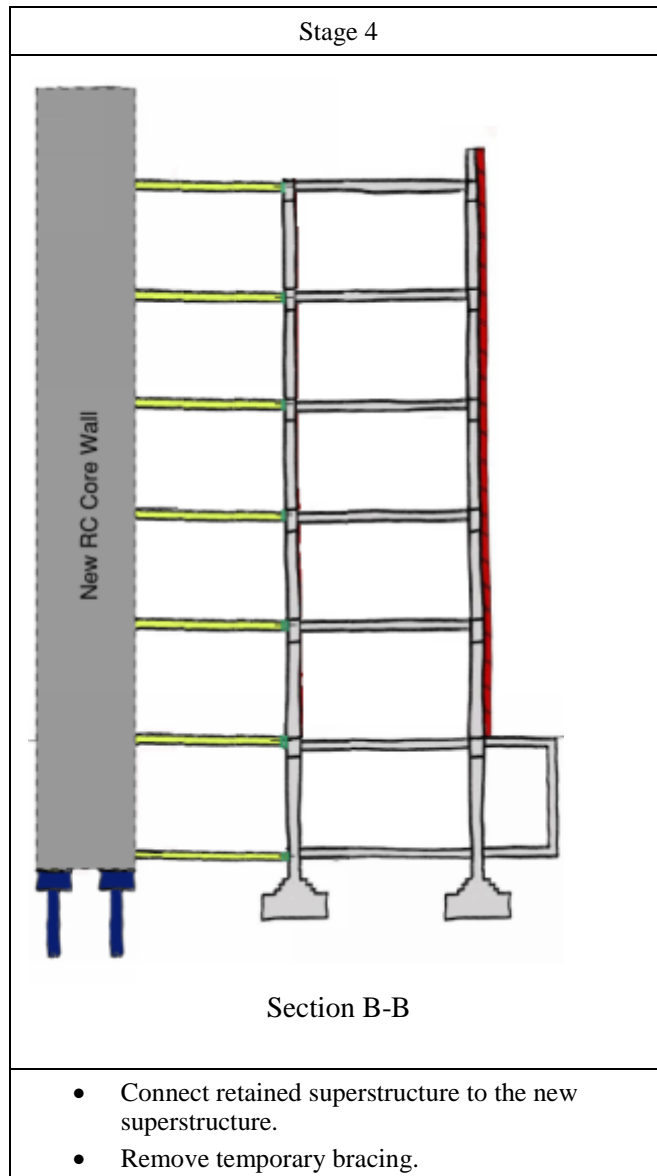


Figure 8 - Envisaged 67-69 Whitfield Street façade support arrangement

The following sequence of works is proposed for the retention of the existing façade on 67-69 Whitfield Street:

Existing building and façade system	Stage 1
 <p style="text-align: center;">Section B-B</p>	 <p style="text-align: center;">Section B-B</p>
<ul style="list-style-type: none"> • Complete detailed intrusive structural surveys, including extent of existing foundations and vaults. • Develop final façade retention methodology. 	<ul style="list-style-type: none"> • Install bracing to provide temporary stability to existing façade.

Stage 2	Stage 3
 <p data-bbox="432 1223 579 1256">Section B-B</p>	 <p data-bbox="962 1223 1109 1256">Section B-B</p>
<ul style="list-style-type: none"> • Install façade movement monitoring equipment and agree all hold point and acceptable movement criteria with the construction team. • Demolish the part of existing structure of the 67-69 Whitfield Street building, and retain structure adjacent to the existing façade. 	<ul style="list-style-type: none"> • Install piled foundations for the new building grid. • Locations to be selected noting the requirement for minimum dimension clearance from the existing façade foundations. • Construct new superstructure, including the new RC core.



3 Basement Proposals

3.1 80 Charlotte Street

Refer to the Basement Impact Assessment (BIA), submitted separately.

3.2 65 Whitfield Street

3.2.1 Overview

The structural philosophy for this part of the development can be summarised as follows:

- Demolition of existing 14 Charlotte Mews structure. Area used to extend the existing 65 Whitfield St floor plate at ground, first and second floor levels.
- Retention of the majority of the existing 65 Whitfield St structure, with strengthening to the columns and beams, as required. Some areas of existing slab to be removed and re-cast.
- Addition of two storeys over the existing 65 Whitfield St structure. New structure to be of lightweight construction to minimise/omit the requirement for foundation strengthening.
- Provision of a new structural stability system to 65 Whitfield St, in the form of a new core plus additional bracing.
- New piles and pile caps required at basement and ground floor levels for bracing and structural core construction.
- Alteration to the existing basement slab, and potentially foundations, to accommodate new lift in central vertical circulation core.

3.2.2 Basement and Foundations

It is not proposed to extend or deepen the existing basement of 65 Whitfield Street.

Where possible, existing foundations will be justified and re-used. It is possible that some structural alteration within the basement may be required in order to provide the new foundations for the new core/bracing. If required, it is proposed that the bracing/core will be supported on new pile caps and founded on new piles. Mini piles are likely to be used as the headroom is restricted, a low head room piling rig will be used.

Any foundations associated with new bracing will be positioned and designed so to minimise any impact the existing adjacent buildings. This may include the use of cantilevering pile caps in some locations.