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MANOR HOUSE, HAM STREET, TW10 7HA

Addendum to Structural Impact Assessment for Planning
August 2023

Status	Revision	Issued For	Date	Author
PRELIMINARY	P01	SIA addendum	29.08.23	LQ

CONTENTS

1 INTRODUCTION

This report presents Michael Barclay Project Ltd.'s ('MBP's') addendum to the existing Structural Impact Assessment in support of the planning application for the refurbishment of the Grade II* listed Manor House, Richmond TW10 7HA.

2 THE EXISTING BUILDING

The existing property is formed by a central three-storey Queen Anne house, extended to the North and the South during the Edwardian period with two wings at ground floor and part of the first floor. The property was extensively refurbished and remodelled in the 1970s. There is an existing basement underneath the original part of the house.

3 OVERVIEW OF THE PROPOSED WORKS

Alterations to the internal layouts are proposed to the existing main house to provide a more workable layout and the loft space to the south of the property is proposed to be converted into an attic bedroom with bathroom. This report focuses on revisions to these internal layouts since the last Structural Impact Assessment was produced.

Other proposed work includes: a single-storey extension to the north of the house, to form a new living room and a loggia. Also, the construction of a new basement pool and spa complex to the south of the existing building. This addendum does not put forward any further revisions to these proposed works already submitted for planning.

4 THE PROPOSED SCHEME

4.1 GROUND FLOOR

The proposed internal re-arrangement of rooms to the rear of the property includes the removal of non-structural walls that were previously installed as part of past remodelling works. At ground floor a non-structural wall is demolished that had created a corridor to the rear doors opening onto the garden. Internal doorways in nearby structural walls are moved slightly to create a better layout – precast concrete lintels are proposed for these openings.

4.2 FIRST FLOOR

Heavy masonry partition walls were added during past renovation work, we believe in the 1970s, to create multiple bedrooms and bathrooms. These walls are proposed to be removed to create a better layout with larger rooms at first floor. The heavy partition walls have caused the first-floor timber joist structure in the corridor area to sag excessively and so removing them will lessen the heavy loading on the floor joists and primary oak beams.

The existing timber joists in the corridor area have also been notched excessively for the addition of pipework serving the new bathrooms, adding to the sagging problem with the existing timber joists. It is proposed to add steel flitch plates to these joists to strengthen them to prevent further damage and movement. Some of the existing notching may be re-used for new services. This will need to be carefully coordinated with the M&E consultant and contractor to work through pipe layouts and existing notching. Using steel flitch plates allows for notching to the upper surface of the joists whilst still maintaining structural integrity.

All new walls proposed to be added to the first floor will be formed in a lightweight construction. Joists below the new walls will be strengthened with timber or steel flitches to support the additional loading.

A new stair is to be added to the first floor to connect to the new attic room at second floor – at the southernmost end of the building. The stair will require partial removal of the existing masonry below the original eaves level.

New openings in existing structural masonry walls are proposed to be formed using precast concrete lintels.

4.3 SECOND FLOOR

At second floor, the new staircase enters the existing attic space having passed beneath the existing historic timber wallplate and eaves – these bear onto what would have been an original external wall line.

The existing attic timberwork at the southernmost end of the building is of much later construction. The roof shape is formed using 3 large timber trusses and the attic floor is formed using deep timber joists.

The new stair void is proposed to be framed out using small steel beams spanning between structural masonry walls below. The existing attic joists are very deep, but since they span nearly 7m and the area is not used for occupancy or storage, they are not sufficient for domestic occupancy loading. We have therefore proposed to strengthen these joists using steel flitch plates. Partition walls are also to be added on top of the existing joists to create the perimeter walls of the bedroom and connected bathroom adding further load.

The existing trusses in the attic will need to be modified to enable removal of the diagonal struts that would hinder movement across the room. We have proposed small steel channel sections are added to the horizontals and verticals of the trusses to enable the central 'V' to be removed. These channels will be bolted through the existing timber so that the steel and timber work in unison. The channels are added to the 'back' face of the trusses, i.e., the face that is not visible from the middle of the room – this should reduce their visual impact.

5 DESIGN AND PERFORMANCE PARAMETERS

5.1 OCCUPANCY LOADS

The new structure elements will be designed in accordance with the Eurocodes and associated National Annexes. The general design imposed loads for the building is as follows (values highlighted in red):

Table 6.2 - Imposed loads on floors, balconies and stairs in buildings

Categories of loaded areas	q_k [kN/m^2]	Q_k [kN]
Category A		
- Floors	1,5 to2,0	2,0 to 3,0
- Stairs	2,0 to4,0	2,0 to 4,0
- Balconies	2,5 to 4,0	2,0 to 3,0
Category B	2,0 to 3,0	1,5 to 4,5
Category C		
- C1	2,0 to 3,0	3,0 to 4,0
- C2	3,0 to 4,0	2,5 to 7,0 (4,0)
- C3	3,0 to 5,0	4,0 to 7,0
- C4	4,5 to 5,0	3,5 to 7,0
- C5	5,0 to 7,5	3,5 to 4,5
category D		
- D1	4,0 to 5,0	3,5 to 7,0 (4,0)
- D2	4,0 to 5,0	3,5 to 7,0

Category	Specific Use	Example
A	Areas for domestic and residential activities	Rooms in residential buildings and houses; bedrooms and wards in hospitals; bedrooms in hotels and hostels kitchens and toilets.
B	Office areas	
C	Areas where people may congregate (with the exception of areas defined under category A, B, and D[1])	**C1**: Areas with tables, etc. e.g. areas in schools, cafés, restaurants, dining halls, reading rooms, receptions. **C2**: Areas with fixed seats, e.g. areas in churches, theatres or cinemas, conference rooms, lecture halls, assembly halls, waiting rooms, railway waiting rooms. **C3:** Areas without obstacles for moving people, e.g. areas in museums, exhibition rooms, etc. and access areas in public and administration buildings, hotels, hospitals, railway station forecourts. **C4**: Areas with possible physical activities, e.g. dance halls, gymnastic rooms, stages. **C5**: Areas susceptible to large crowds, e.g. in buildings for public events like concert halls, sports halls including stands, terraces and access areas and railway platforms.
D	Shopping areas	**D1:** Areas in general retail shops **D2**: Areas in department stores
[1] Attention is drawn to 6.3.1.1(2), in particular for C4 and C5. See EN 1990 when dynamic effects need to be considered. For Category E, see Table 6.3		
NOTE 1 Depending on their anticipated uses, areas likely to be categorised as C2, C3, C4 may be categorised as C5 by decision of the client and/or National annex. NOTE 2 The National annex may provide sub categories to A, B, C1 to C5, D1 and D2 NOTE 3 See 6.3.2 for storage or industrial activity		

* defined by BS EN 1991-1-1:2002

5.2 ENVIRONMENTAL LOADS

All new structure will be designed to support loads from the wind in combination with the occupancy loads scheduled above in accordance with EN1991-1-4:2005 + A1:2010 and the UK national annex.

5.3 PERMISSIBLE DEFLECTIONS

The design of new constructional steel and reinforced concrete elements will limit deflection and displacement in accordance with the following criteria:

Structural Elements	Limit – under full load	Limit- under full load for stone finishes	Limit- under full load where supporting walls
Simple Beams	Span / 360	Span/750	Span/500
Cantilever Beams	Span / 360	Span/750	Span/500

The above criteria must be read in conjunction with any performance specifications produced by MBP for individual works packages.

5.4 DURABILITY

The design life of the new building is taken as a minimum period of 60 years. This is in accordance with BS EN 1992-1-1:2002 Section 4 and corresponds to the standard durability used for buildings in this category, which includes new housing and high-quality refurbishment of public buildings.

5.5 DESIGN CODE AND STANDARDS

The following design codes will be used for the design of the proposed new dwelling:

- BS EN 1990:2002 + A1:2005, Eurocode 0, Basis of structural design
- BS EN 1991-1-1:2002, Eurocode 1: Actions on structures, Part 1-1; General Actions -Densities, self-weight, imposed load for buildings.
- BS EN 1991-1-3:2003 + A1: 2015 Eurocode1: Actions on structures, Part 1-3: General Actions-Snow loads, including the UK National Annex
- BS EN 1991-1-4:2005 + A1:2010, Eurocode 1: Actions on structures, Part 1-4: General Actions-Wind action, including the UK National Annex
- BS EN 1992-1-1:2004 + A1:2014, Eurocode 2: Design of concrete structures, Part 1-1: General rules and rules for building, including the UK National Annex.
- BS EN 1993-1-1: 2005 + A1:2014, Eurocode 3: design of steel structures, Part 1-1: General rules and rules for buildings, including the UK National Annex
- BS EN 1995-1-1:2004 + A1:2014, Eurocode 5: Design of timber structures, Part 1-1: General - Common rules and rules for buildings, including the UK National Annex
- BS EN 1996-1-1:2005 + A1:2012, Eurocode 6: Design of masonry structures, Part 1-1: General rules for reinforced and unreinforced masonry structures, including the UK National Annex
- BS EN 1997-1-1:2004, Eurocode 7: Geotechnical design -Part1: General rules
- The Building Regulations 1991- Approved Documents A, B, C, E, H, K & N

6 CONSTRUCTION HAZARDS

The proposed construction has standard materials and components and is of common form within the construction industry. Nevertheless, MBP will produce a separate document that will be developed as the detailed design proceeds.

7 SPECIFICATION

The proposed construction materials, components, workmanship etc. will be specified using the National Building Specification documents and a separate performance specification. Those sections that MBP will schedule for planning stage are:

Excavating and Filling	D20
Embedded Retaining Walls	D40
Underpinning	D50
In situ concrete construction generally	E05
In situ concrete mixes, casting and curing	E10
Formwork for in situ concrete	E20
Reinforcement for in-situ concrete	E30
Worked finishes to in situ concrete	E41
Brick/block walling	F10
Structural steel framing	G10
Carpentry / timber framing/ first fixing	G20
Intumescent coatings for fire protection of steelwork	M61
Holes/chases/covers/supports for services	P31

It is Michael Barclay Partnership's practice to specify materials and construction-practices that do not cause undue harm to the environment. For example, timber used in temporary and permanent works must be

obtained from a certified sustainable source, and be identified as such. The paint specification will avoid red lead, zinc chromate or coal-tar content and have a low solvent (VOC) content and offer manufacturers with an Environmental Policy in operation. The Contractor will be encouraged to use Portland cement replacement materials for the reinforced concrete elements.

8 RECYCLING

MBP would intend to re-use and recycle as much of the existing construction materials as possible, re-using any timber or steel removed as part of the proposed remodelling works. Any new concrete will use cement substitutes and recycled aggregates and reinforcement bars made from recycled steel. Concrete and masonry arisings can be re-used as hardcore fill beneath new slabs.

9 APPENDED DOCUMENTS

The following documents are appended to this report:
A - Michael Barclay Partnership Drawings

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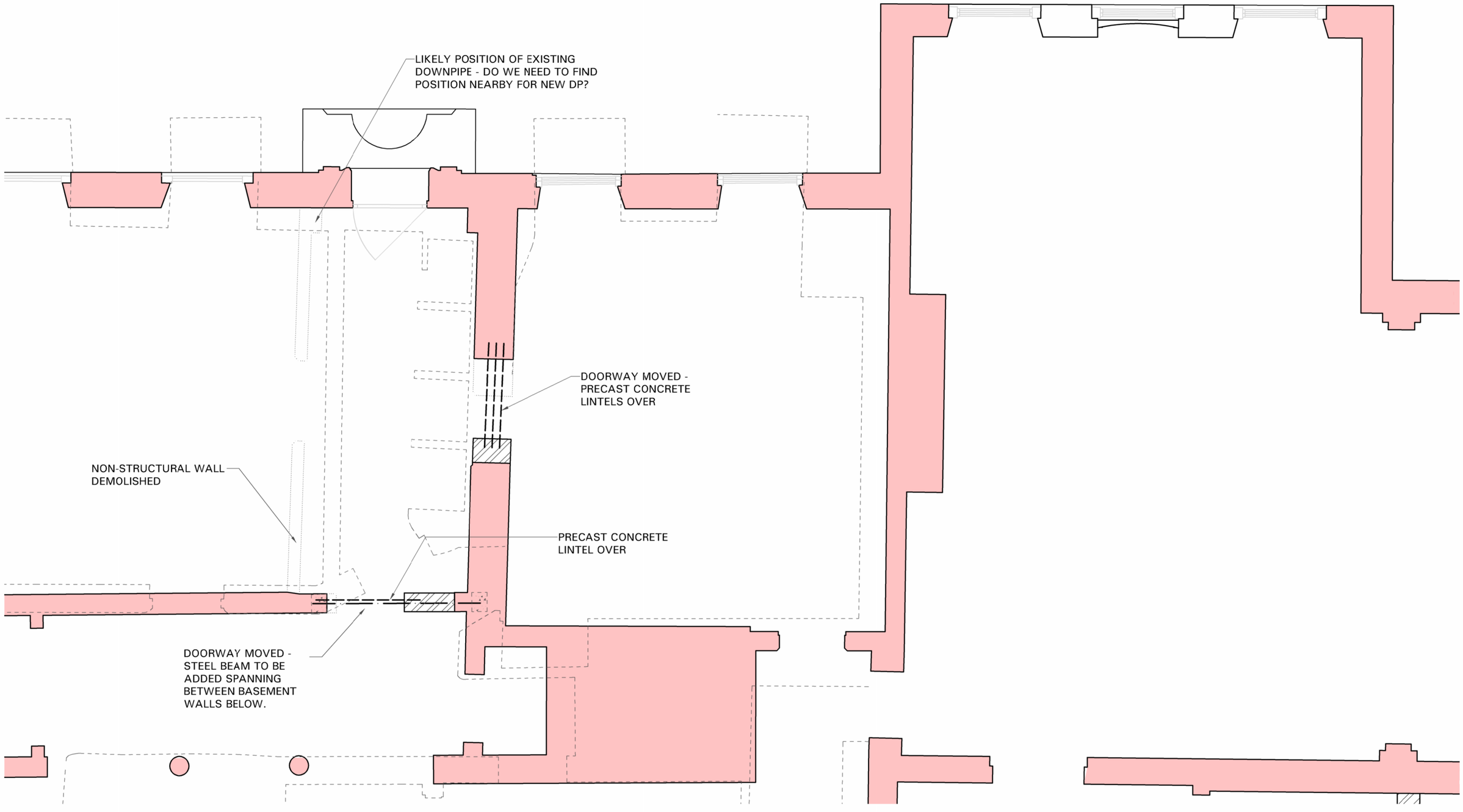
Addendum to Structural Impact Assessment for Planning
Appendix A - Michael Barclay Partnership Drawings



Rev	Date	Description	By
P1	23/08/23	PRELIMINARY ISSUE	LQ

Job
THE MANOR HOUSE,
HAM STREET,
RICHMOND TW10

Title
MAIN HOUSE
PART GROUND FLOOR PLAN

Scale @ A3	Date	By	Checked
1:50	AUG '23	LQ	

Status
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Drawing Number
MBP/8592/MH-00-DR-S-0300

Revision
P01

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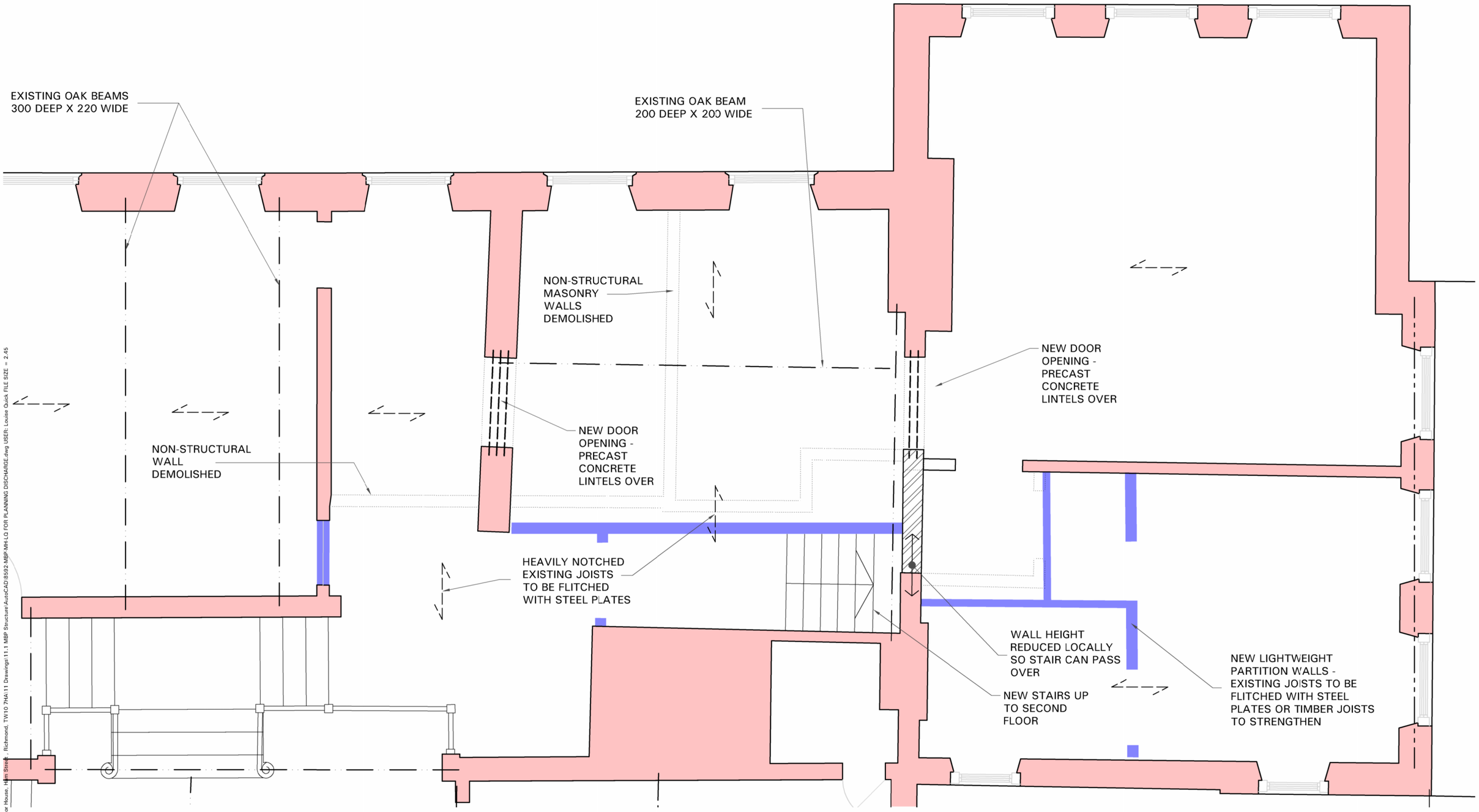

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Scale @ A3	Date	By	Checked
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Title
MAIN HOUSE
PART FIRST FLOOR PLAN

Drawing Number	Revision
MBP/8592/MH-01-DR-S-0301	P01

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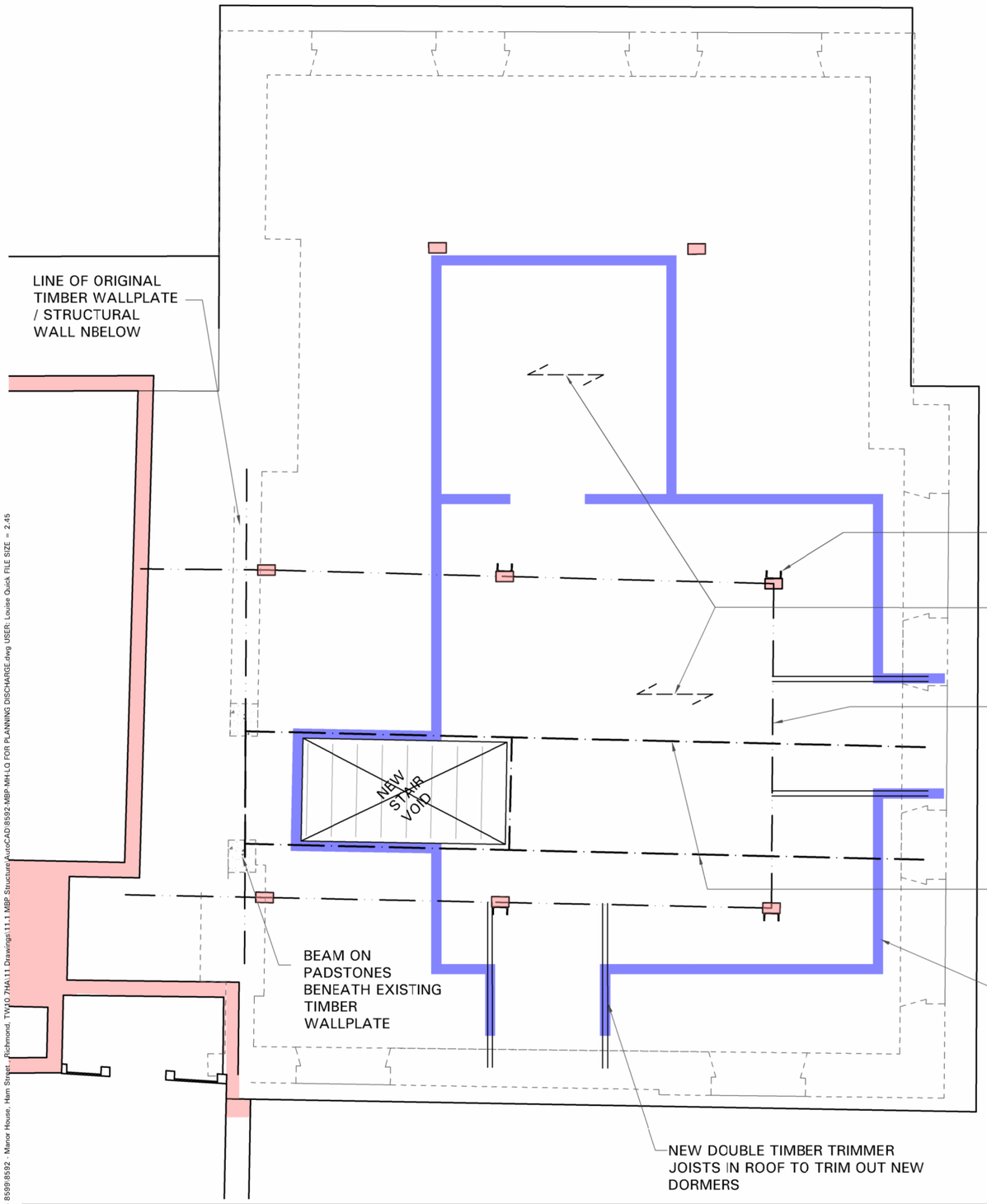

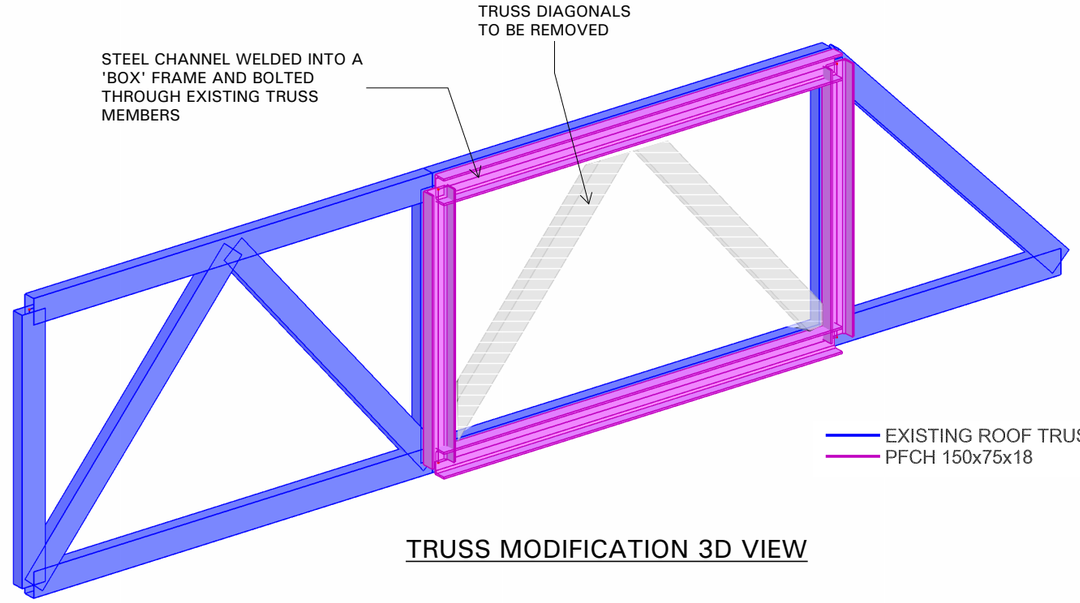

TRUSS MODIFICATION 3D VIEW

Rev	Date	Description	By
P1	23/08/23	PRELIMINARY ISSUE	LQ

Job: THE MANOR HOUSE, HAM STREET, RICHMOND TW10

Title: MAIN HOUSE PART SECOND FLOOR PLAN

Scale @ A3	Date	By	Checked
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