

19118 - 36-37 Chester Terrace, London NW1 4ND

Structural Engineer's Report for Planning

Prepared by: **Becky Rabjohns MEng**

Reviewed by: **Peter Dash MEng MIStructE**

Job Number: **19118**

Date	Version	Notes/Amendments/Issue Purpose
April 2017	1	Report Issued for Planning

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1 The Site

36-37 Chester Terrace is a residential property forming part of a terrace constructed in c.1825. Two adjoining four storey buildings were combined in 2009 to form one residential dwelling. Remodelling of the interior of the building was undertaken in 2010-2011 where parts of the lower ground floor were lowered and some internal partitions were removed and supported by new steelwork.

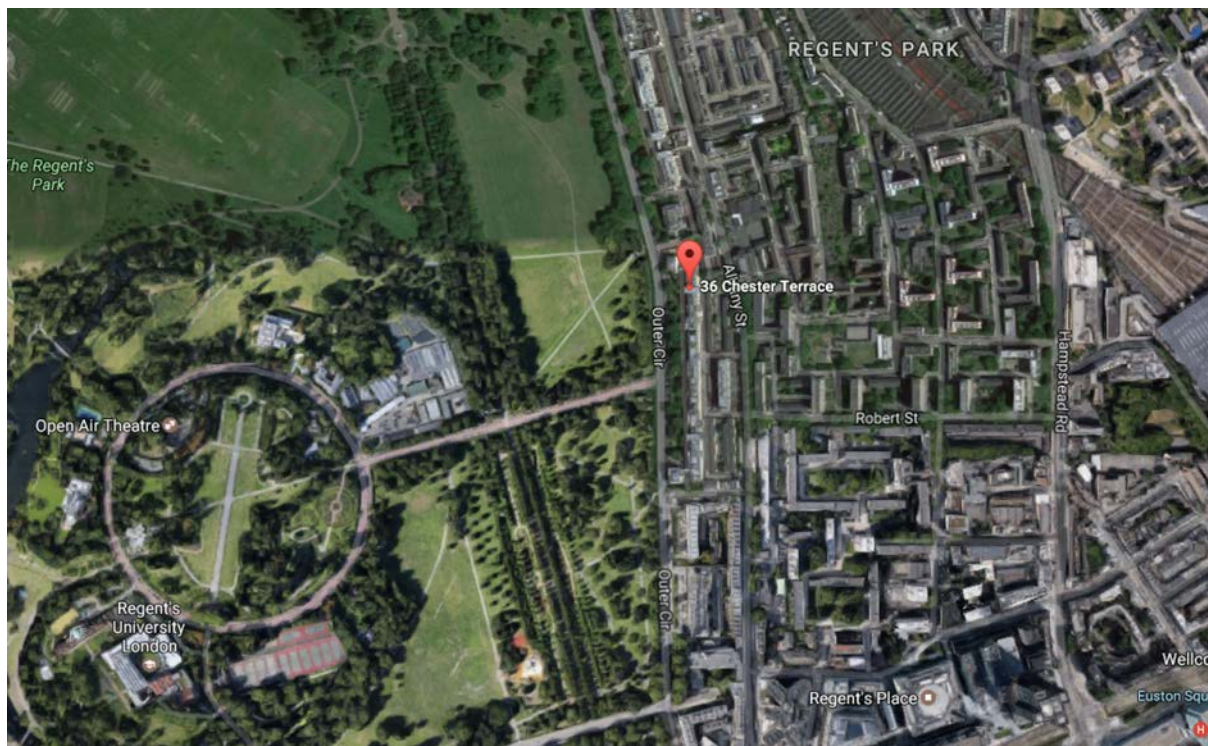


Fig 1. Aerial view of the site taken from Google Maps.

2 Existing Structure

The original structure is load bearing masonry with timber floors, generally spanning front to back. Openings have been made in the original party wall to allow access between 36 & 37. Steel beams have been added to support the existing floors and partition walls where walls have been removed below. The lower ground floor has vaults to the front which have previously been underpinned.

3 Proposed Structure

The proposed structural works include; lowering of the lower ground floor slab; the removal of an existing pier at lower ground floor; and remodelling of several internal partitions. The attached sketches in Appendix A show the extent of the proposed structural works. Appropriate temporary works will be implemented by the contractor to ensure that the integrity of the structure is maintained at all times.

3.1 Lowering of the lower ground floor slab

The allowable depth of the lower ground floor slab has been based on trial pit data collected during the works in 2010. The varying slab levels and depths across the building suggest that large sections of the slab are not original. The slab at the front of the building, the area around

the lift pit and the slabs in the garage would likely have been reconstructed during the works completed in the 1960s. The proposed new slab level allows for the ground bearing slab to be founded at or above the level of the existing foundations, with a build-up designed to ensure that no underpinning or cutting of the existing corbelled foundation is required and the existing party walls remain intact. The new floor slab will provide a permanent prop to the base of the foundation wall and adequate temporary works will be in place throughout the construction process. As the new slab will not extend beneath the depth of the existing foundations, the lowering of the ground floor slab will not affect ground water flows or local soil stability. Although the proposed works is not considered a basement or basement extension, the relevant screening process has been included below to show that the works will not have a significant impact on the local environment.

Subterranean flow Screening

Q 1a: Is the site located directly above an aquifer?	No	
Q 1b: Will the proposed basement extend beneath the water table surface?	No	
Q 2: Is the site within 100m of a watercourse, well (used/disused) or potential spring line?	No	
Q 3: Is the site within the catchment of the pond Chains on Hampstead Heath?	No	
Q 4: Will the proposed basement development result in a change in the proportion of hard surfaced/paved areas?	No	
Q 5: As part of the site drainage, will more surface water (e.g. rainfall and run-off) than at present be discharged to the ground (e.g. via soakaways and/or SUDS)?	No	
Q6: Is the lowest point of the proposed excavation (allowing for any drainage and foundation space under the basement floor) close to, or lower than, the mean water level in any local pond (not just ponds chains on Hampstead Heath) or spring line.	No	

Slope stability screening

Q 1: Does the existing site include slopes, natural or manmade, greater than 7° ? (approximately 1 in 8)	No	
Q 2: Will the proposed re-profiling of landscaping at site change slopes at the property boundary to more than 7° ? (approximately 1 in 8)	No	
Q 3: Does the development neighbour land, including railway cuttings and the like, with a slope greater than 7° ? (approximately 1 in 8)	No	

Q 4: Is the site within a wider hillside setting in which the general slope is greater than 7° ? (approximately 1 in 8)	No	
Q 5: Is the London Clay the shallowest strata at the site?	Yes	
Q 6: Will any tree/s be felled as part of the proposed development and/or are any works proposed within any tree zones where trees are to be retained?	No	
Q 7: Is there a history of seasonal shrink-swell subsidence in the local area, and/or evidence of such effects at the site?	No	
Q 8: Is the site within 100m of a watercourse or a potential spring line?	No	
Q 9: Is the site within an area of previously worked ground?	No	
Q 10: Is the site within an aquifer? If so, will the proposed basement extend beneath the water table such that dewatering may be required during construction?	No	
Q 11: Is the site within 50m of the Hampstead Heath ponds?	No	
Q 12: Is the site within 5m of a highway or pedestrian right of way?	Yes	Pedestrian footpath will not be affected by the proposed works.
Q 13: Will the proposed basement significantly increase the differential depth of foundations relative to neighbouring properties?	No	
Q 14: Is the site over (or within the exclusion zone of) any tunnels e.g. railway lines?	No	

Surface flow and flooding screening

Q 1: Is the site within the catchment of the ponds on Hampstead Heath	No	
Q 2: As part of the proposed site drainage, will surface water flows (e.g. volume of rainfall and peak run-off) be materially changed from the existing route?	No	
Q 3: Will the proposed basement development result in a change in the proportion of hard surfaced / paved external areas?	No	
	No	

<p>Q 4: Will the proposed basement result in changes to the profile of the inflows (instantaneous and long-term) of surface water being received by adjacent properties or downstream watercourses?</p>	<p>No</p>	
<p>Q 5: Will the proposed basement result in changes to the quality of surface water being received by adjacent properties or downstream watercourses?</p>	<p>No</p>	
<p>Q 6: Is the site in an area known to be at risk from Surface water flooding, such as South Hampstead, West Hampstead, Gospel Oak and King's Cross, or is it at risk from flooding, for example because the proposed basement is below the static water level of a nearby surface water feature?</p>		

3.2 Removal of existing pier at lower ground floor

One of the existing piers at the front of the lower ground floor of No. 37 is to be removed. The existing steel frame was installed in the 1960s in No.36, 37 and 38. The record drawing of the works (Appendix B) shows that the frame was installed to allow for the removal of timber beams and to adjust the location of the piers. The new steel frame was installed around the existing timber beams and so negating the need for needling of the façade wall. A similar construction methodology will be used in the replacement of the frame. See SK015-SK017 for details of the proposed method statement.

The new frame will be three steel beams which will support the entire width of the façade wall. The beams will be supported on the existing padstones in the party wall and a new steel column in one of the existing piers. The existing padstones may need to be strengthened between No. 37&38.

3.3 New opening at first floor in the spine wall between 36 & 37 Chester Terrace

A new opening will be formed through the existing spine wall at first floor level. This will be formed by needling the existing wall and inserting precast concrete lintels to the entire thickness of the wall.

3.4 Openings at ground floor

Two new openings are to be created in the ground floor reception room that require the provision of new steel beams at first floor level to support the structure over. The beams will sit on padstones into internal partition walls. The beam between the main entrance and the reception wall will be sat on a PFC at one end which is supported by an existing beam under so that the external façade masonry remains intact.

3.5 New partitions

A new partition wall is to be formed at second floor in the master bedroom. This will be supported through the strengthening of the second floor.

4 Design Criteria

Codes and Standards

Loading	BS EN 1991
Concrete	BS EN 1992
Foundations	BS EN 1997
Steelwork	BS EN 1993
Masonry	BS EN 1996
Timber	BS EN 1995

Loadings

Imposed Loadings

Residential floor	1.5 kN/m ² + 1.0kN/m ² partitions
Roof level	0.75 kN/m ²

Dead Loadings

Timber floors and plastered ceilings	0.75 kN/m ²
Tiled roofs	1.15 kN/m ²
Finishes	1.00 kN/m ²
Timber stud walls	0.55 kN/m ²
Brick	20 kN/m ³
Block	20 kN/m ³
Concrete	24 kN/m ³

5 Design Drawings

19118-SK012 Lower Ground Floor Layouts

19118-SK013 Ground Floor Layouts

19118-SK014 First Floor Layouts

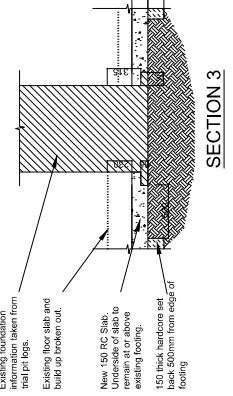
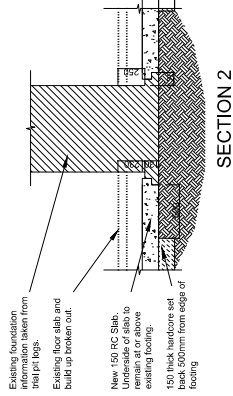
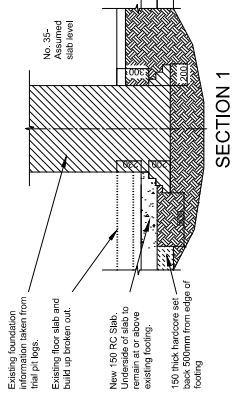
19118-SK015 Existing Steel Frame

19118- SK016 Proposed Steel Frame

19118- SK017 Method Statement

Notes :

- The Drawing is to be read in conjunction with all relevant Architect's Engineer's and specialist drawings and specifications.
- Do not scale from this drawing in either paper or digital form. Use written dimensions only. To check drawing has been printed to the intended scale this drawing should be printed on A3 paper at 1:100 scale.
- Health & Safety:**
All specific drawing notes are to be read in conjunction with the project "Information Pack" and "Site Rules".
- For general notes refer to Drawing No. 10110/041



1	Issue/Rev	BR	Issued for Information
	Rev	Date/Drawn	Eng

**36-37 CHESTER TERRACE
LONDON**

**PROPOSED LOWER
GROUND FLOOR LAYOUTS**

Drawn	BR	Eng	BR
Scales	1:50at A1	1:100at A3	
Drawing No	19118/SK012		Rev
			1

Notes :

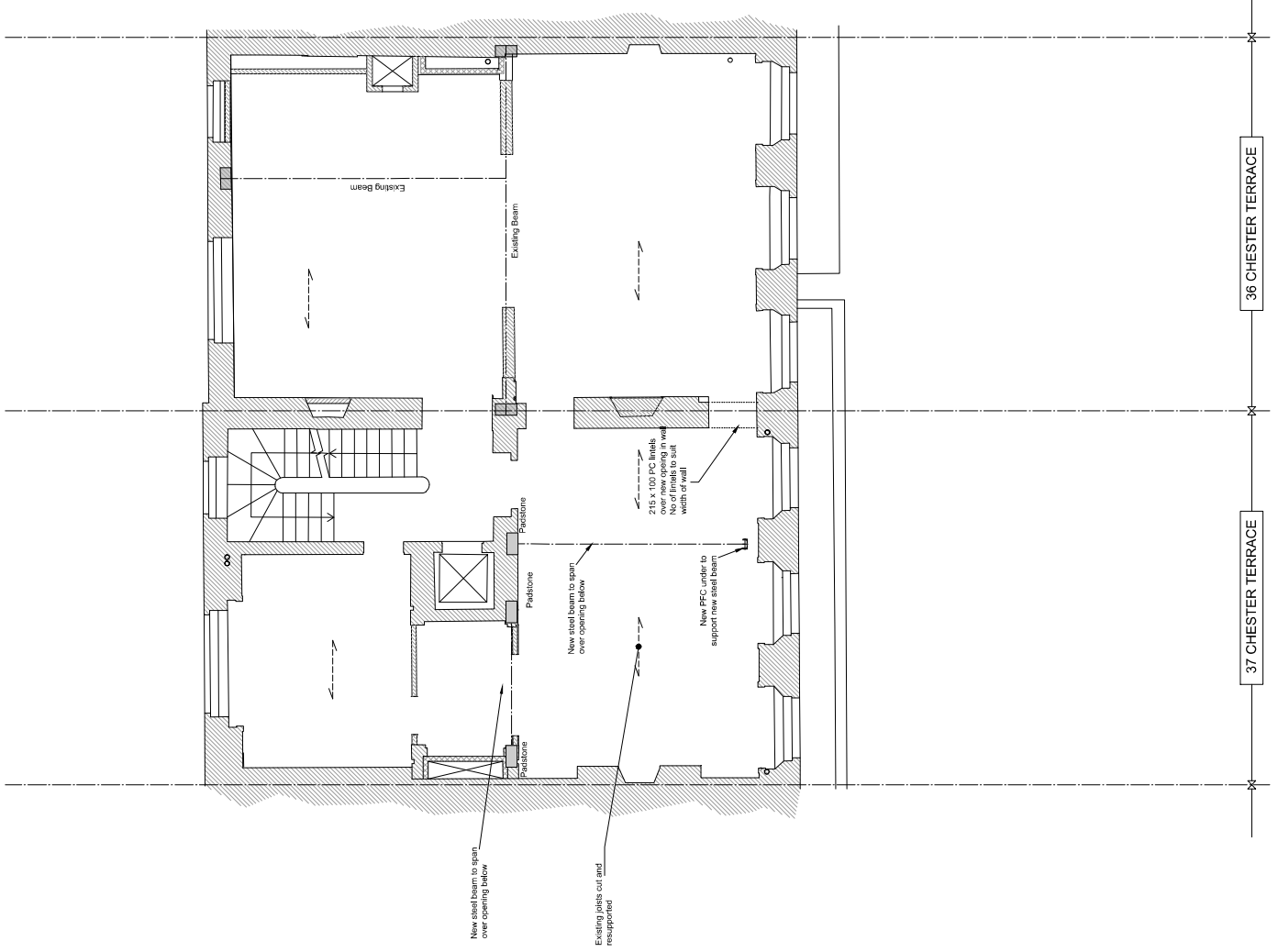
1. The Drawing is to be read in conjunction with all relevant Architect's Engineer's and specialist drawings and specifications.
2. Do not scale from this drawing in either paper or digital form. Use written dimensions only. To check drawing has been printed to the intended scale this drawing should be printed at A1 or A2 format using the plotter or software supplied by the printer.
3. Health & Safety: All specific drawing notes are to be read in conjunction with the project 'Information Pack' and 'Site Rules'.
4. For general notes refer to Drawing No. 10110/GH1

Rev	Date/Drawn	Eng	Amendment	Issued for Information
1		BR		

**36-37 CHESTER TERRACE
LONDON**

**PROPOSED
FIRST FLOOR LAYOUTS**

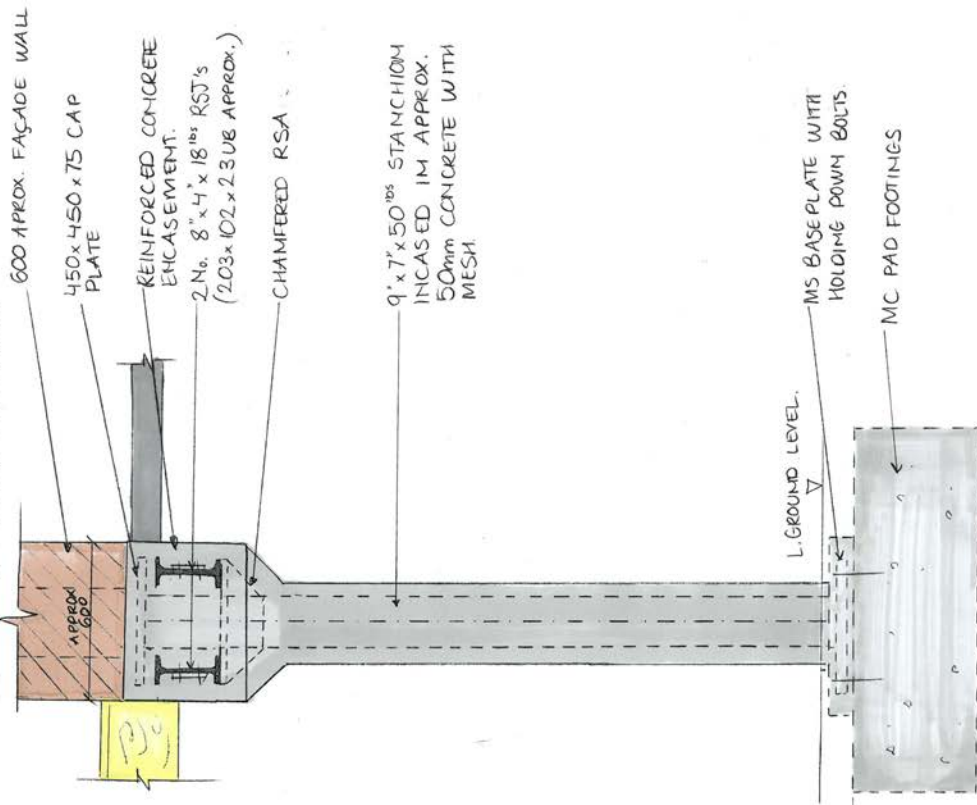
Drawn	BR	Eng	BR
Scales	1:50at A1	1:100at A3	
Drawing No	191118/SK014		
Rev	1		



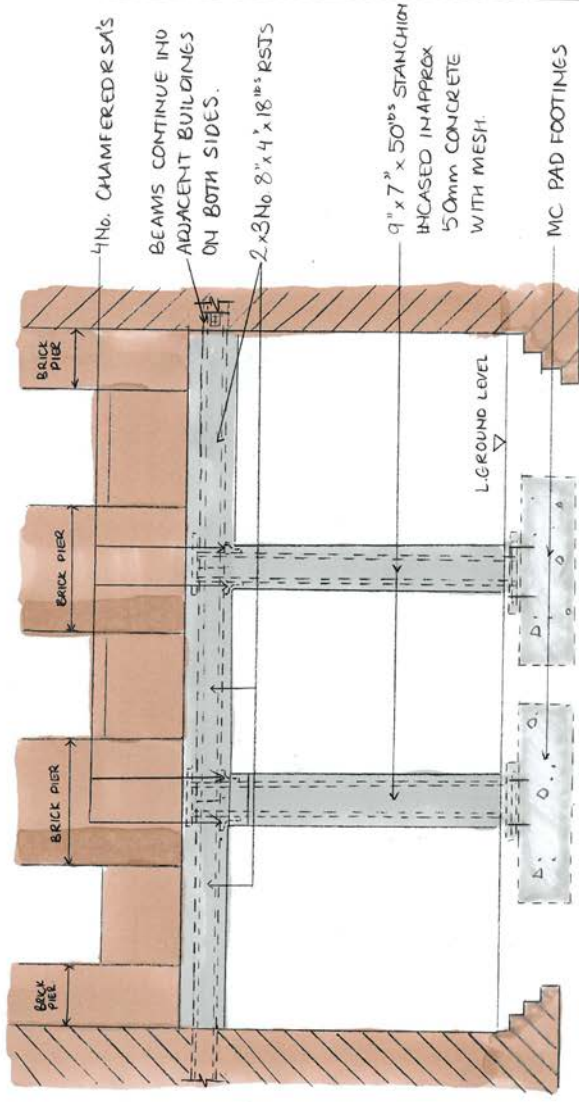
Appendix A- Construction Methodology

FRONT ELEVATION REPLACEMENT OF 1960s STEEL FRAME

ASSUMED EXISTING CONDITION
TAKEN FROM RECORD DRAWING.



SECTION A 1:20



ELEVATION 1:50

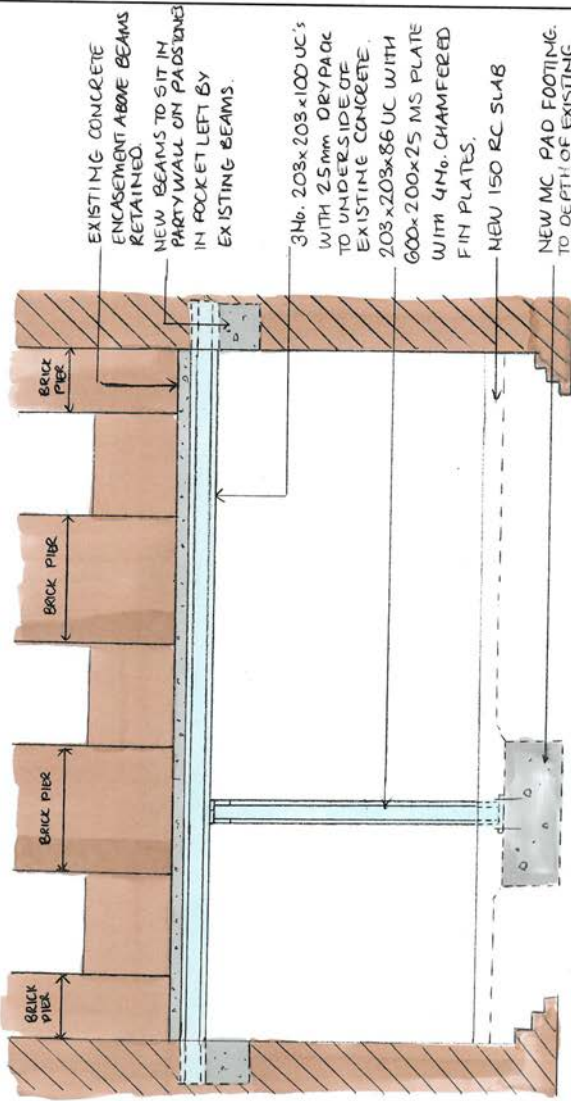
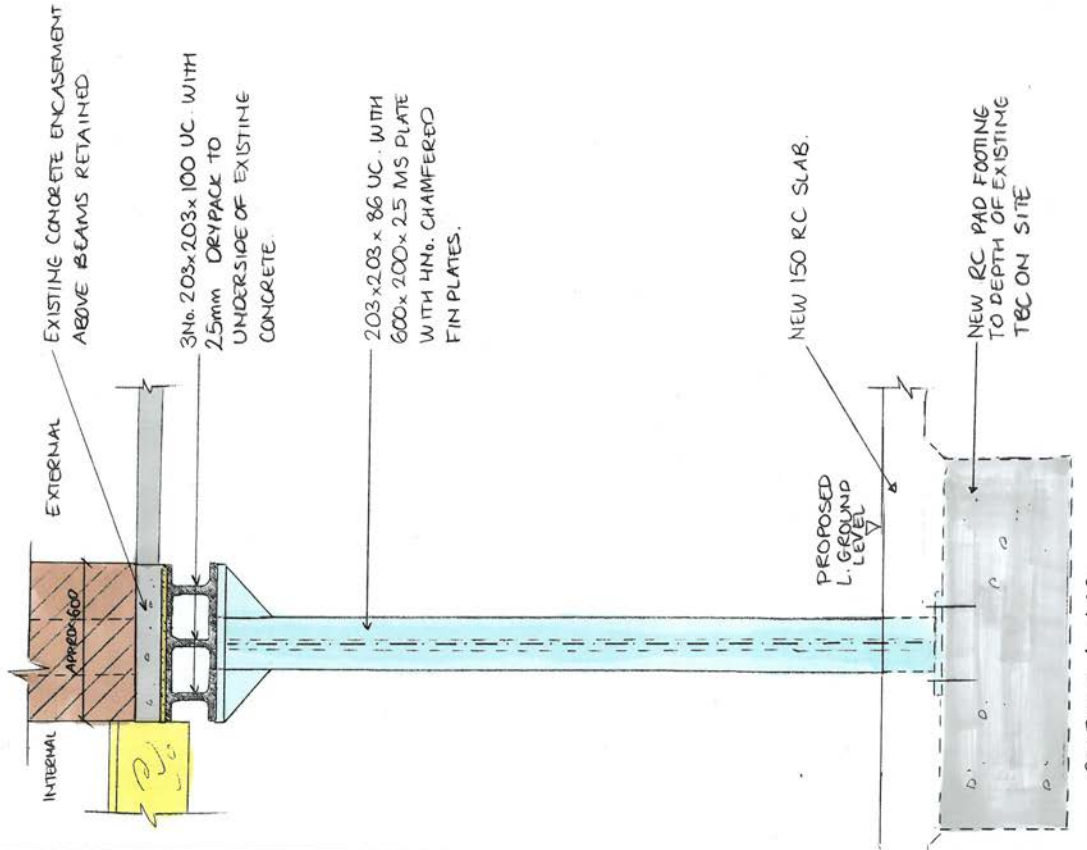
FRONT ELEVATION REPLACEMENT OF 1960s STEEL FRAME

36 CHESTER TERRACE

37 CHESTER TERRACE

38 CHESTER TERRACE

PROPOSED CONDITION

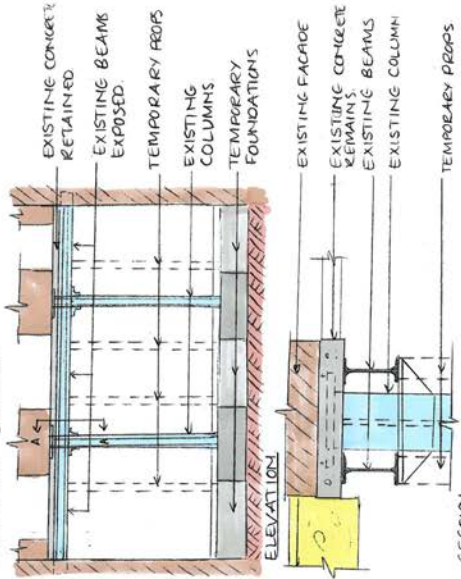


ELEVATION 1:50

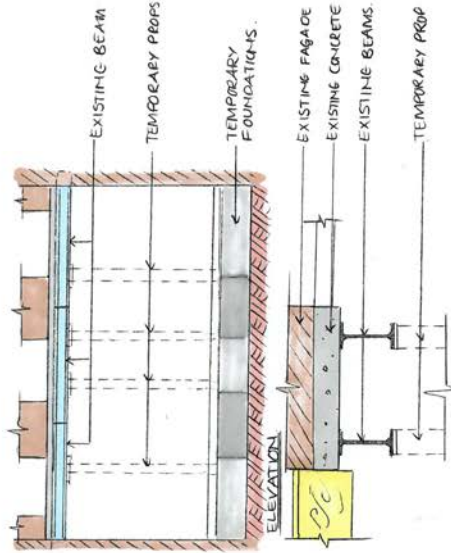
SECTION A 1:20

METHOD STATEMENT FOR REPLACEMENT OF EXISTING 1960S STEEL FRAME.

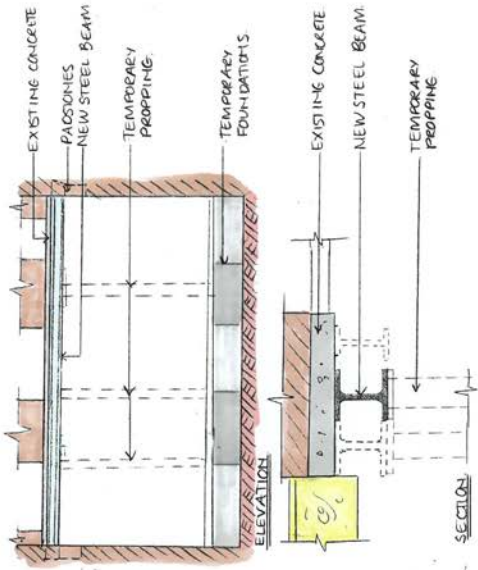
STEP 1
BREAK OUT CONCRETE ENCASMENT LOCALLY.
PROP EXISTING STEEL BEAMS
BREAK OUT CONCRETE ENCASMENT TO SIDES AND
BOTTOM OF BEAMS.



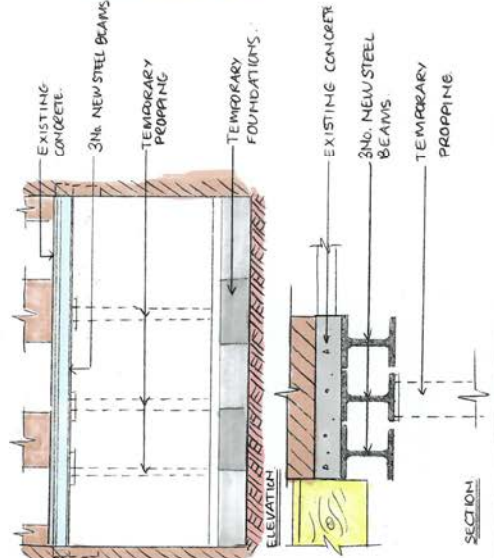
STEP 2
REMOVE EXISTING COLUMNS, LEAVING BEAMS
SUPPORTED BY PROPS.



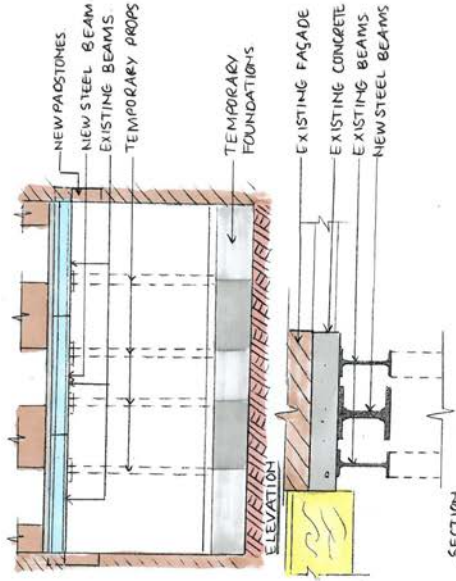
STEP 4
PROP NEW STEEL BEAM AND REMOVE
EXISTING BEAMS, ONE AT A TIME.



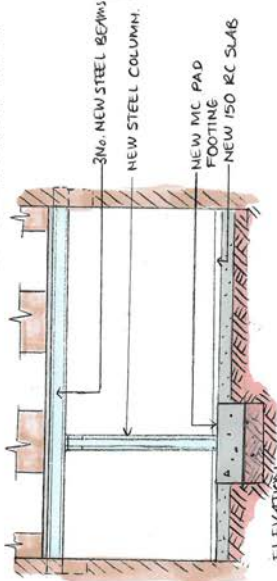
STEP 5
PLACE REMAINING TWO NEW STEEL BEAMS



STEP 3
PLACE NEW STEEL BEAM CENTRALLY TO THE
WALL, BETWEEN EXISTING BEAMS. DRY PACK
TO UNDERSIDE OF CONCRETE.

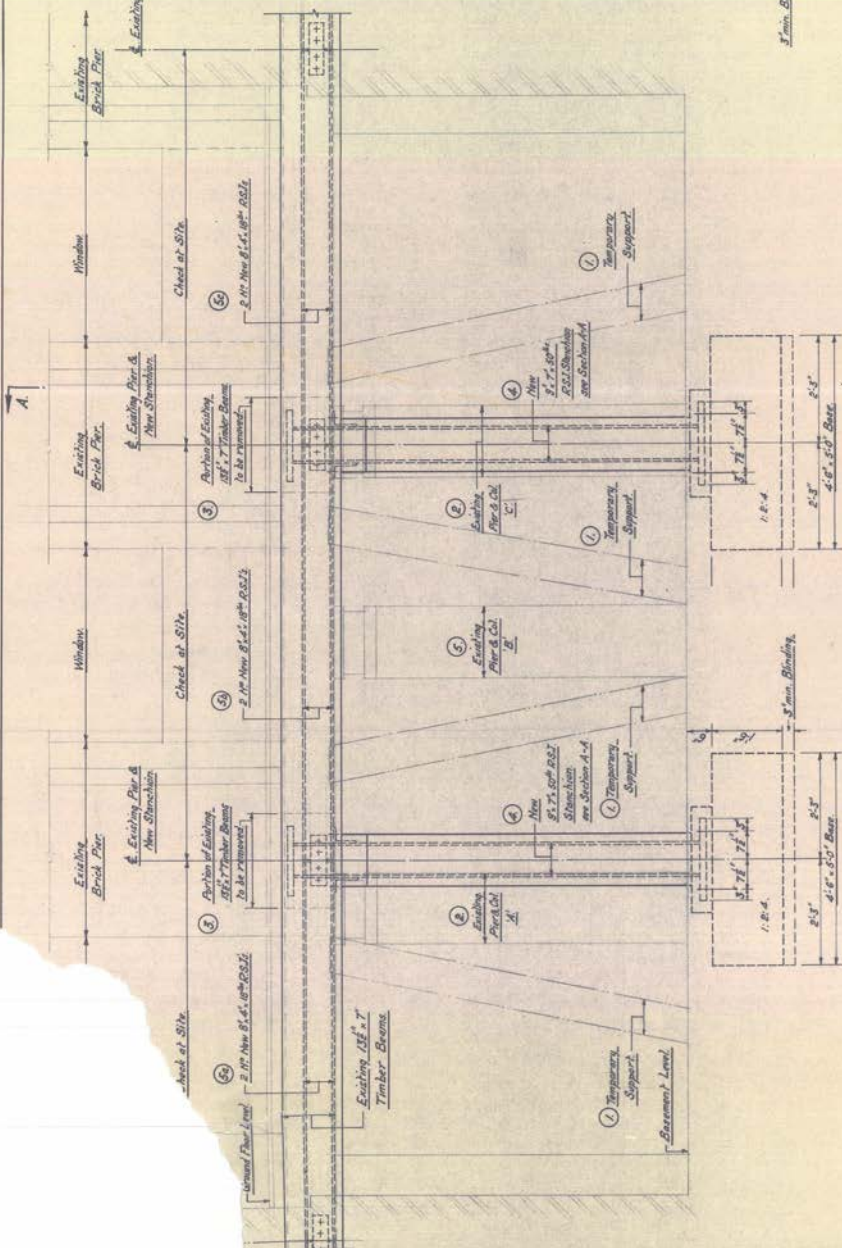


STEP 6
CAST NEW MC FOOTING. PLACE NEW COLUMN
AND BOLT TO STEEL BEAMS. REMOVE PROPPING.



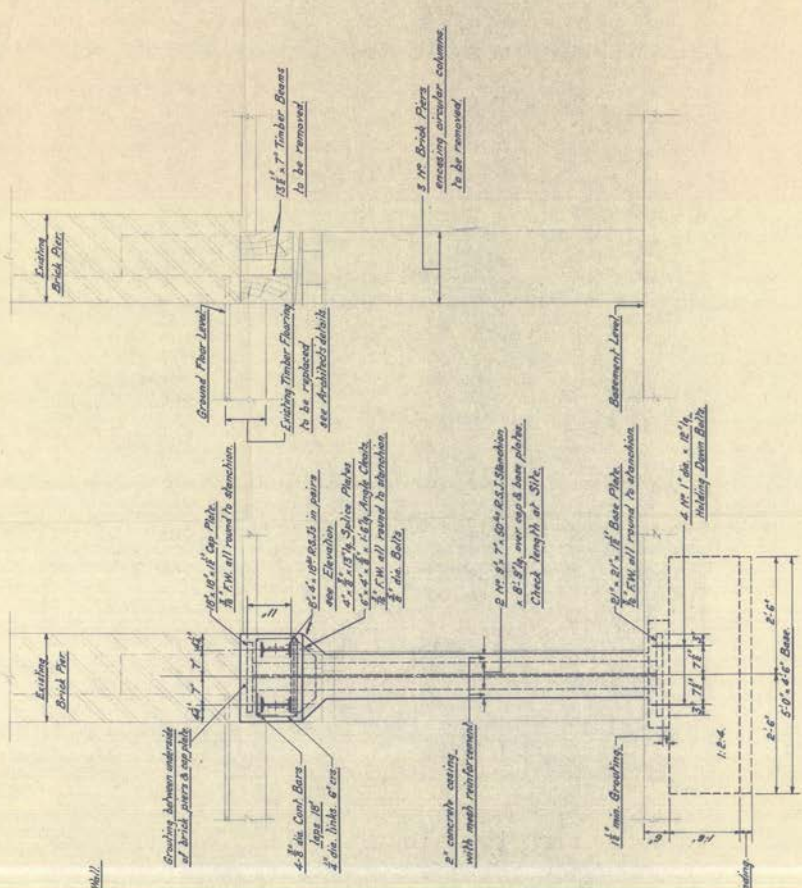
SEE SK016 FOR COMPLETED
SECTION DETAILS.

Appendix B- Record Drawings



HOUSE NO. 37.
INTERNAL ELEVATION OF FRONT WALL.
Scale: 1/4" to 1'-0"

- SEQUENCE OF OPERATIONS FOR INSERTION OF NEW R.S.J. STANCHIONS & BEAMS
- 1 Temporary Supports to be secured firmly to underside of existing 18" x 7" Timber Beams & Basement Floor.
 - 2 Existing Piers & Circular Columns & Bases marked A & C to be removed.
 - 3 Portions of Existing 18" x 7" Timber Beams to be cut away & removed.
 - 4 Concrete Bases to be formed for & new 8" x 7" 50th R.S.J. Stanchions positioned & underside of existing brick piers grouted to cap plates.
 - 5 Remaining portions of 18" x 7" Timber Beams, Temporary Supports & Existing Pier marked B' to be removed and new 8" x 4" 18th R.S.J.'s inserted in three stages - (5), (5) & (5) at same time encasing stanchions & beams in concrete & grouting up to underside of remaining brickwork.



SECTION A-A
showing new construction.

SECTION A-A
showing existing construction.

CHESTER TERRACE DEVELOPMENT REGENTS PARK, N.W.I.	2520	5
HOUSE NO. 37 DETAILS OF NEW SUPPORTS FOR BSMT. WALL	Scale: 1/4" to 1'-0"	
Architects: Louis de Soissons, Pascoe Hodges & Robertson 3, Abel Street, Wimp. N.W.I.	Consulting Civil Engineers: E. T. James & Partners & Lower Grosvenor Place London, E.W.I.	Date: 1914

Treatment for House 39 & part House 36 similar.