



# Basement Impact Assessment

Flat 1, 44 Goldhurst Terrace  
London  
NW6 3HT

Issue 31/05/2018

# Contents

1.0 Introduction

2.0 Site and Existing Building

3.0 Structural Proposals

4.0 Construction Sequence

5.0 Surface Flow and Flooding, Subterranean (Groundwater) Flow and Land Stability

Appendices

Appendix A1 - Structural Proposals

Appendix A2 - Underpinning Principles

Appendix B - Chartered Geologist CV

Appendix C - Chartered Geologist Comments

Appendix D - Borehole Records

Appendix E - Trial Pit Records

Appendix F - Masonry Strain Calculations

Appendix G - Historical Maps/ Envirocheck Data

Appendix H - Arboricultural Survey



# 1.0 Introduction

This report has been prepared as a supporting document to the planning application for the proposed basement works at Flat 1, 44 Goldhurst Terrace, London NW6 3HT.

The proposals include internal remodelling of the existing lower ground floor flat together with the addition of a small extension at the rear. A single storey 3.4m deep basement is proposed beneath the full footprint of the property extending into the rear garden and incorporating a small light-well at the front of the property.

This report presents the principles of the proposed structural scheme along with the envisaged sequence of construction. Together with input from Soiltechnics Environmental & Geotechnical Consultants it also provides comprehensive ground investigation data and sections covering investigation of Ground Stability, Surface Flow and Flooding and Subterranean (Ground Water) Flow. The screening, scoping and impact assessment for each are included in order to cover the requirements of Camden Planning Guidance CPG4.

# 2.0 Site and Existing building

The existing building is a four storey mid-terrace house built in the late 19th Century. Flat 1 occupies the lower ground floor and is located at street/garden level. The site incorporates a small forecourt at the front of the property with a staircase leading to the main building entrance at ground floor (and flats above). The entrance to Flat 1 is located beneath the main staircase and is marginally lower than street level. A sizeable garden at the rear of the property is accessed from Flat 1.

The building superstructure consists of external solid masonry construction with internal timber joist floors spanning party wall to party wall onto internal single leaf masonry walls.

Historical structural modifications to Flat 1 have occurred and a beam replacing the entrance flanking wall has been installed and internal stud walls have been constructed within the property.

Based upon a trial pit at the rear of the property the building is founded upon corbelled masonry footings details of which have been included within appendix E.

More detailed information on the site and it's history can be found in Section 5.0.



Left: Rear Elevation  
Top Right: Front Elevation  
Bottom Right: Existing  
Modifications to Flat 1

### 3.0 Structural Proposals

Drawings indicating the proposed structural arrangement can be found in Appendix A1.

It is proposed to underpin the party walls of the building to around 3.4m depth. The underpinning will be extended into the rear garden and forecourt, thereby creating a rectangular, reinforced concrete basement box.

The underpinning will be carried out together with dry-packing using traditional techniques in a hit and miss sequence to be agreed with the contractor. The walls of the underpinning will be 340mm thick, which is sufficient to enable a cantilevering solution.

The base of the underpins and basement slab will be 350mm thick to provide a stiff integral connection with the underpin walls and resistance to buoyancy when combined with the weight of the rest of the building. The underpinning walls will be propped at multiple levels throughout the construction of the basement using a specialist designed adjustable propping system until casting of the basement box is complete.

Waterproofing of the basement box is to be a combination of Type B drained protection in accordance with BS8102 acting together with the inherent resistance of the basement wall. Careful attention will be given to the design and placing of the concrete mix to aim for high quality concrete, minimising shrinkage and cracking. Construction joints between all elements will be fully prepared prior to pouring.

Due to the extensive remodelling at the rear of the property including the addition of a new single storey extension, the lowest storey of the main rear wall will be demolished and supported on a new box frame which will sit onto the basement box. This frame will carry the vertical loads to the foundation and resist lateral forces from wind and notional horizontal load. Additional steelwork will support the rear bay, the main front wall, front bay and two internal load bearing walls. All steelwork will transfer loads into the concrete box beneath the external walls and into the supporting ground strata. All existing walls will be supported as necessary on temporary works as outlined in section 4.0 of this report.

The new lower ground floor will consist of timber joist construction supported on the existing masonry walls and new steelwork.

The new single storey extension will be constructed in brick and block cavity wall supported on concrete nibs/ beams connected to the concrete box. The extension roof will be constructed from timber joist construction with external grade plywood acting as a stiff diaphragm

### 4.0 Construction Sequence

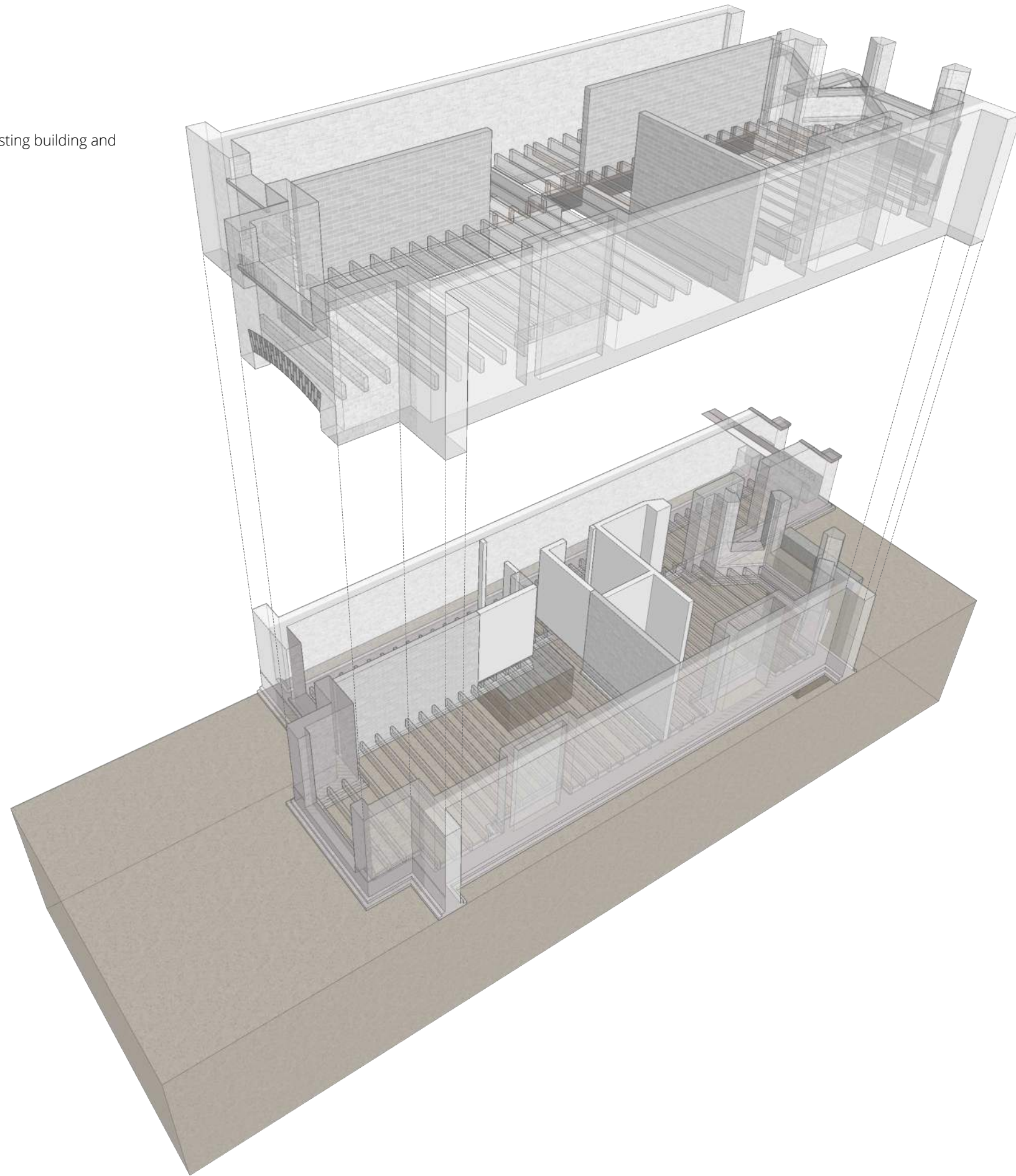
The following pages set out a proposed construction sequence. The approach taken and proposed sequencing has been developed so as to minimise any noise and disturbance to neighbouring properties and enable as short a construction programme as possible.



## Stage 0

### Install Monitoring

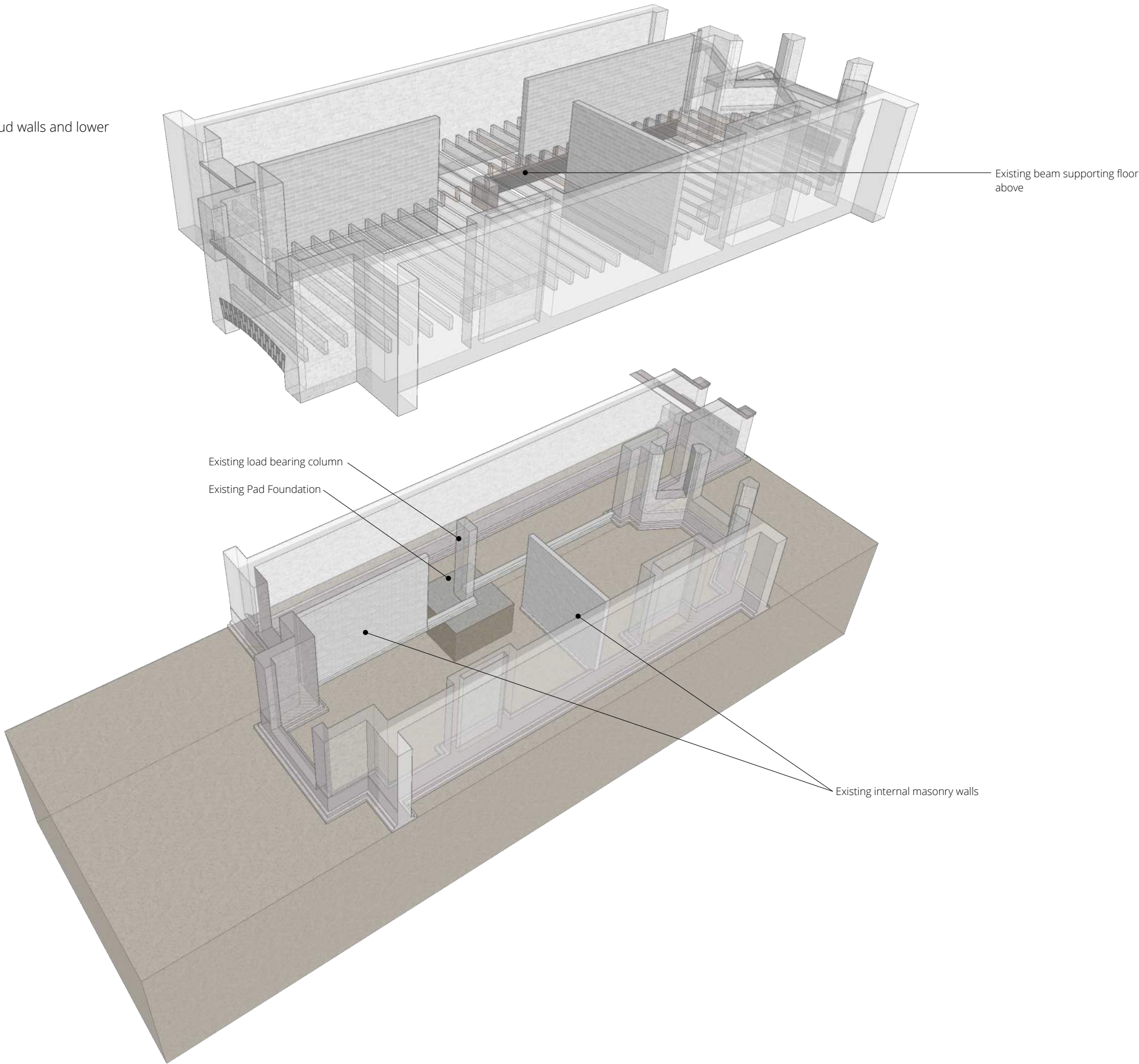
- 0-1. Install vertical and horizontal movement monitoring system on existing building and surrounding ground
- 0-2. Complete condition survey of building and neighbouring buildings



# Stage 1

## Building Strip-out

1-1. Strip-out property back to structural elements removing existing stud walls and lower ground floor

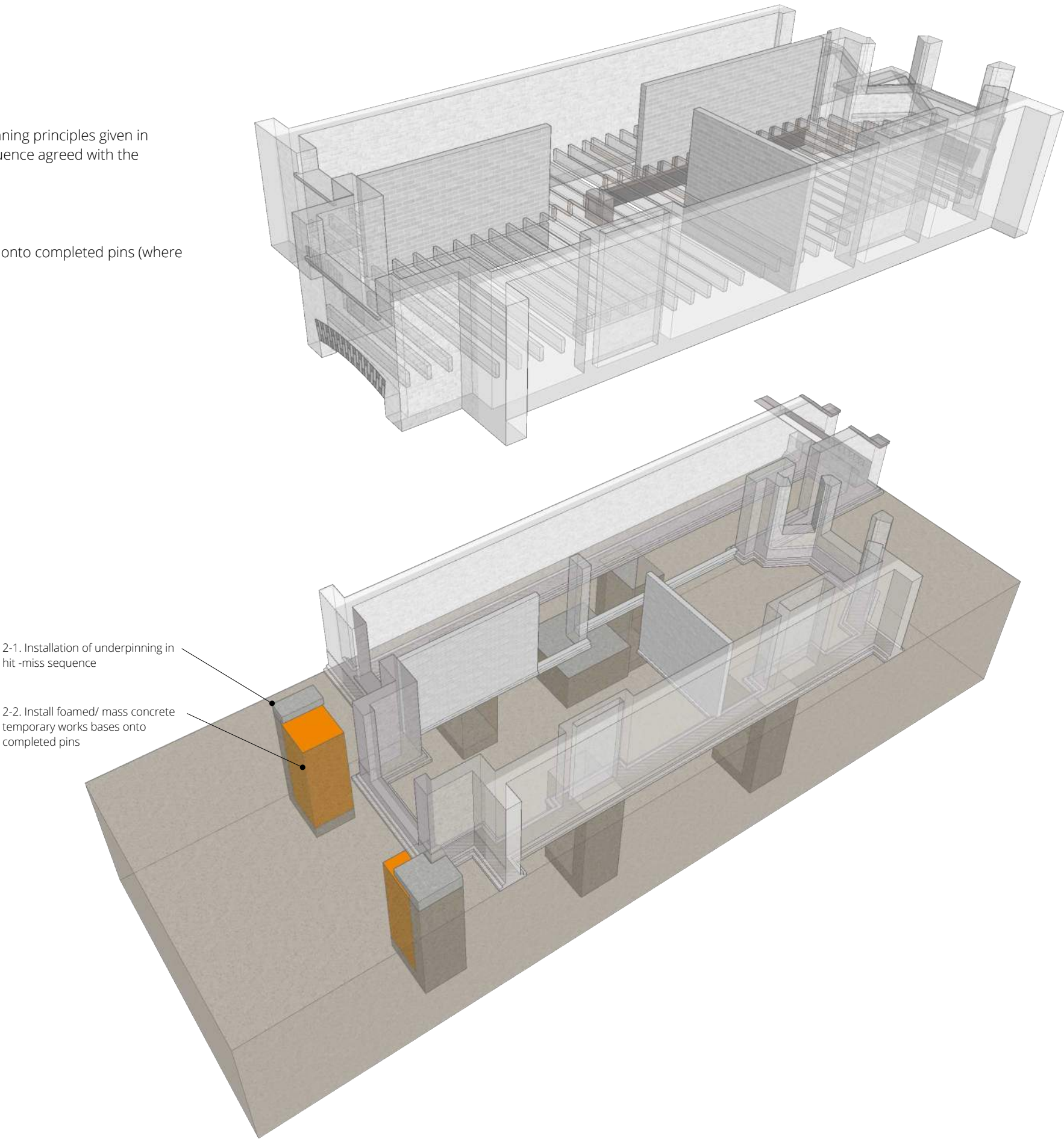




# Stage 2

Commence underpinning

- 2-1. Commence underpinning in accordance with underpinning principles given in appendix A2.Underpinning to be in a hit and miss sequence agreed with the temporary works engineer/ contractor.
- All excavation of underpinning bases to be by hand.
- 2-2. Install foamed/ mass concrete temporary works bases onto completed pins (where proposed).



# Stage 3

Continue underpinning/ Commence Steelwork to rear of property

- 3-1. Continue underpinning within building in hit-miss sequence
- 3-2. Continue installing foamed/ mass concrete temporary works bases onto completed pins (where proposed).
- 3-3. Install temporary propping/ needling to rear bay wall as required (not shown)
- 3.4 Erect steelwork supporting existing rear masonry bay, dry-packing above beam (Beam B1 and Column C1).

Steelwork and temporary works supported off completed basement pins at rear of property





## Stage 4

Continue underpinning/ Install temporary works for support of rear of property

- 4-1. Continue underpinning within building in hit-miss sequence
- 4-2. Continue installing foamed/ mass concrete temporary works bases onto completed pins (where proposed).
- 4-3. Demolish side wall of existing bay and part demolish main rear wall to property.
- 4.4 Erect temporary works for support of existing rear wall off completed temporary bases and completed adjacent pins

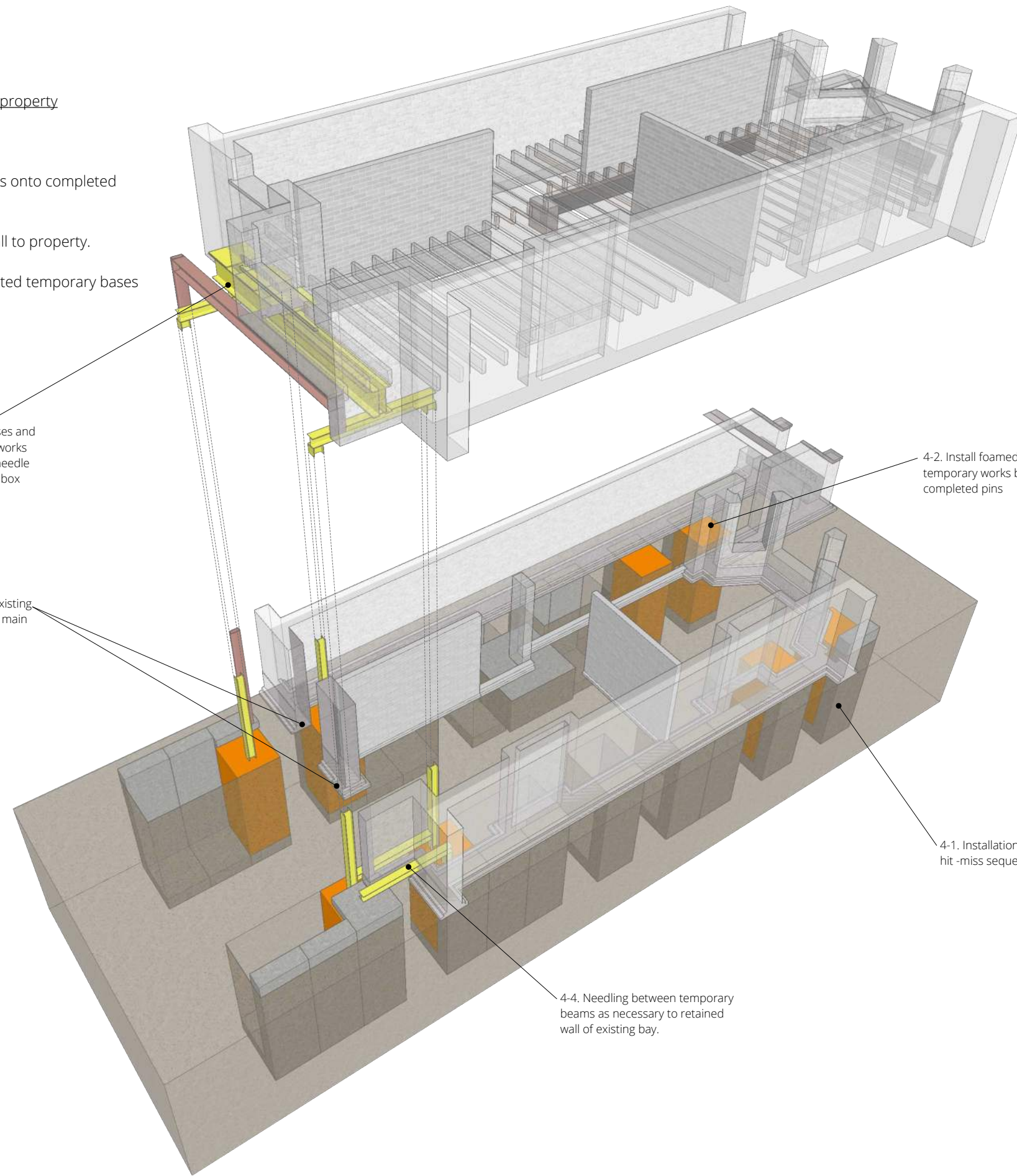
4-4. Erect temporary works supported off temporary bases and completed pins. Temporary works arranged with cantilevering needle plates to allow installation of box frame from inside.

4-3. Demolish side wall of existing rear bay and part demolish main rear wall to property

4-2. Install foamed/ mass concrete temporary works bases onto completed pins

4-1. Installation of underpinning in hit -miss sequence

4-4. Needling between temporary beams as necessary to retained wall of existing bay.

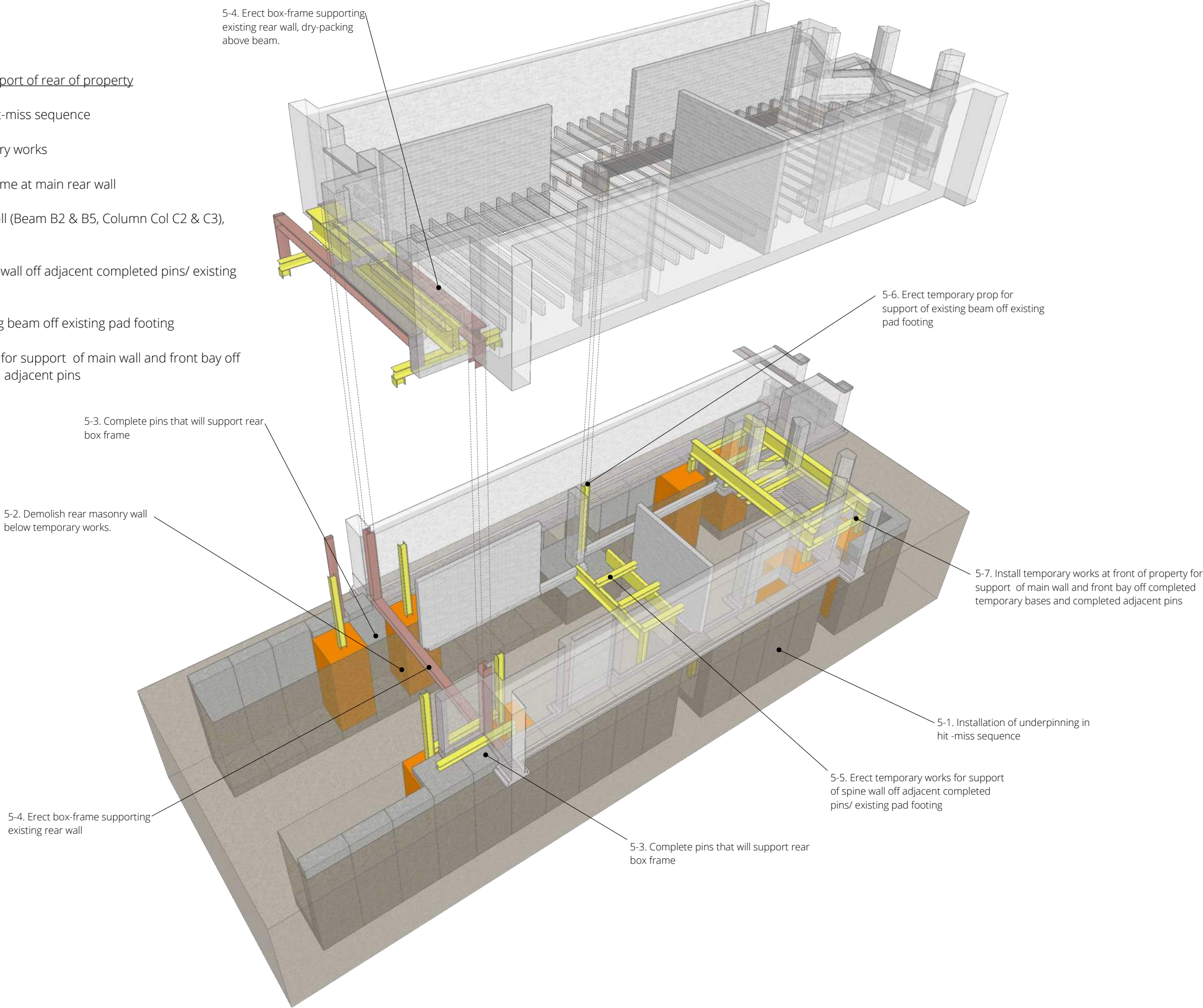




# Stage 5

Continue underpinning/ Install steelwork for support of rear of property

- 5-1. Continue underpinning within building in hit-miss sequence
- 5-2. Demolish rear masonry wall below temporary works
- 5-3. Complete pins that will support rear box frame at main rear wall
- 5.4 Erect box-frame supporting existing rear wall (Beam B2 & B5, Column Col C2 & C3), dry-packing above beam.
- 5.5 Erect temporary works for support of spine wall off adjacent completed pins/ existing pad footing
- 5.6 Erect temporary prop for support of existing beam off existing pad footing
- 5.7 Install temporary works at front of property for support of main wall and front bay off completed temporary bases and completed adjacent pins

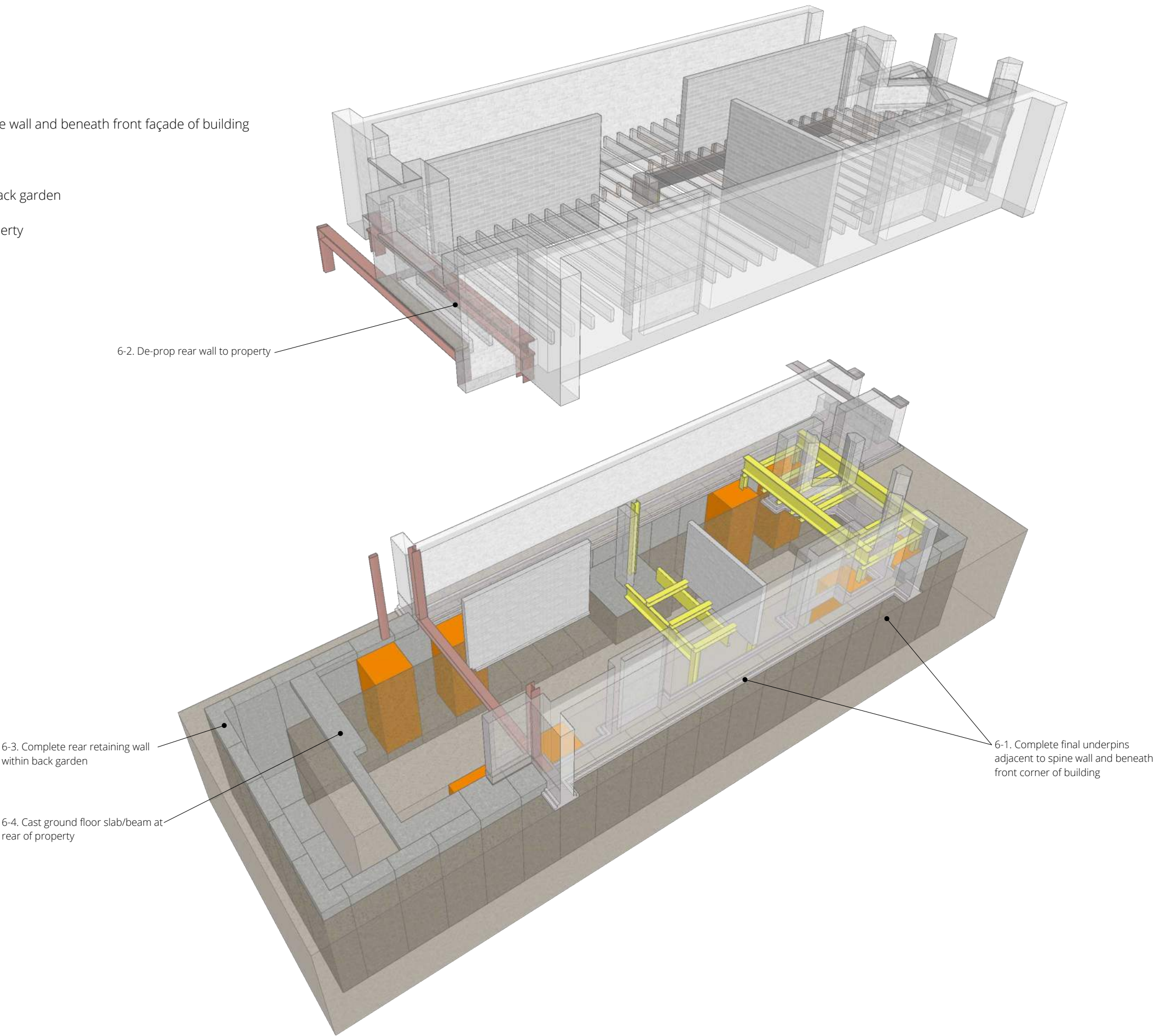




# Stage 6

Complete underpinning

- 6-1. Complete underpins adjacent to spine wall and beneath front façade of building
- 6-2. De-prop rear wall to property
- 6-3. Complete rear retaining wall within back garden
- 6.4 Cast ground floor slab at rear of property



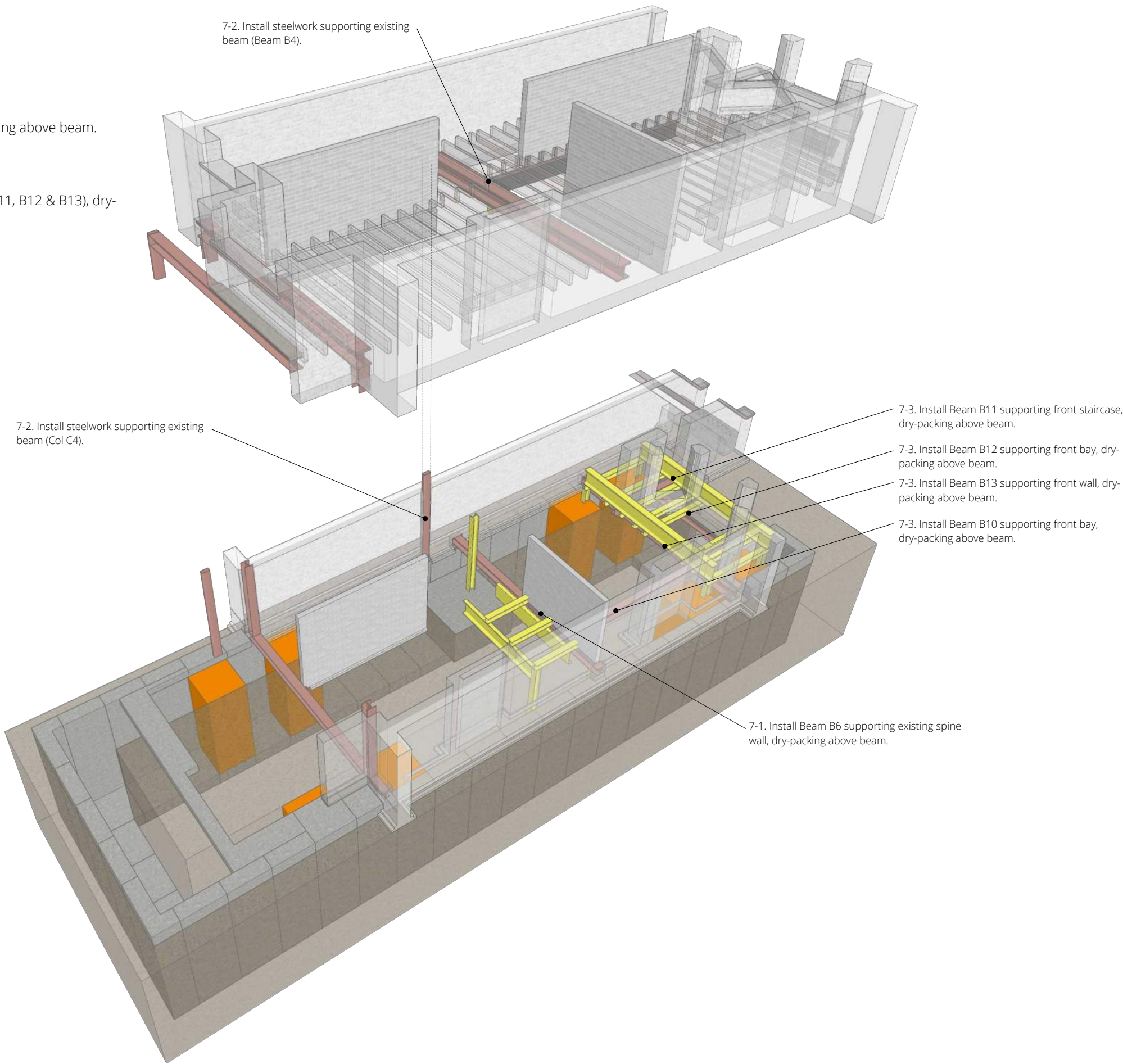
# Stage 7

Install steelwork supporting front of property and spine wall

7-1. Install steelwork supporting existing spine wall (Beam B6), dry-packing above beam.

7-2. Install steelwork supporting existing beam (Col C4 & Beam B4).

7-3. Install steelwork supporting front wall and front bay (Beams B10, B11, B12 & B13), dry-packing above beams.





## Stage 8

Complete front lightwell/ Install steelwork for support of internal wall and chimneys

- 8-1. Remove temporary props/needles supporting front wall, spine wall and existing beam.
- 8-2. Complete retaining wall at front lightwell
- 8-3. Install temporary propping/ needling to internal wall as required and demolish internal wall (not shown)
- 8-4 Install Beam B3 supported off previously installed Beams B2 & B4
- 8-5 Install Beam B8 & B9 supporting existing chimneys
- 8.6 Remove existing foundation corbels to internal face of masonry walls

8-4. Install Beam B3 supported off previously installed Beams B2 & B4, needling/ propping as required (needling not shown)

8-6. Remove existing foundation corbels to internal face of masonry walls

8-3. Install temporary propping/ needling to internal wall as required and demolish internal wall (not shown)

8-1. Remove temporary props/needles supporting front wall, spine wall and existing beam.

8-2. Complete retaining wall at front lightwell

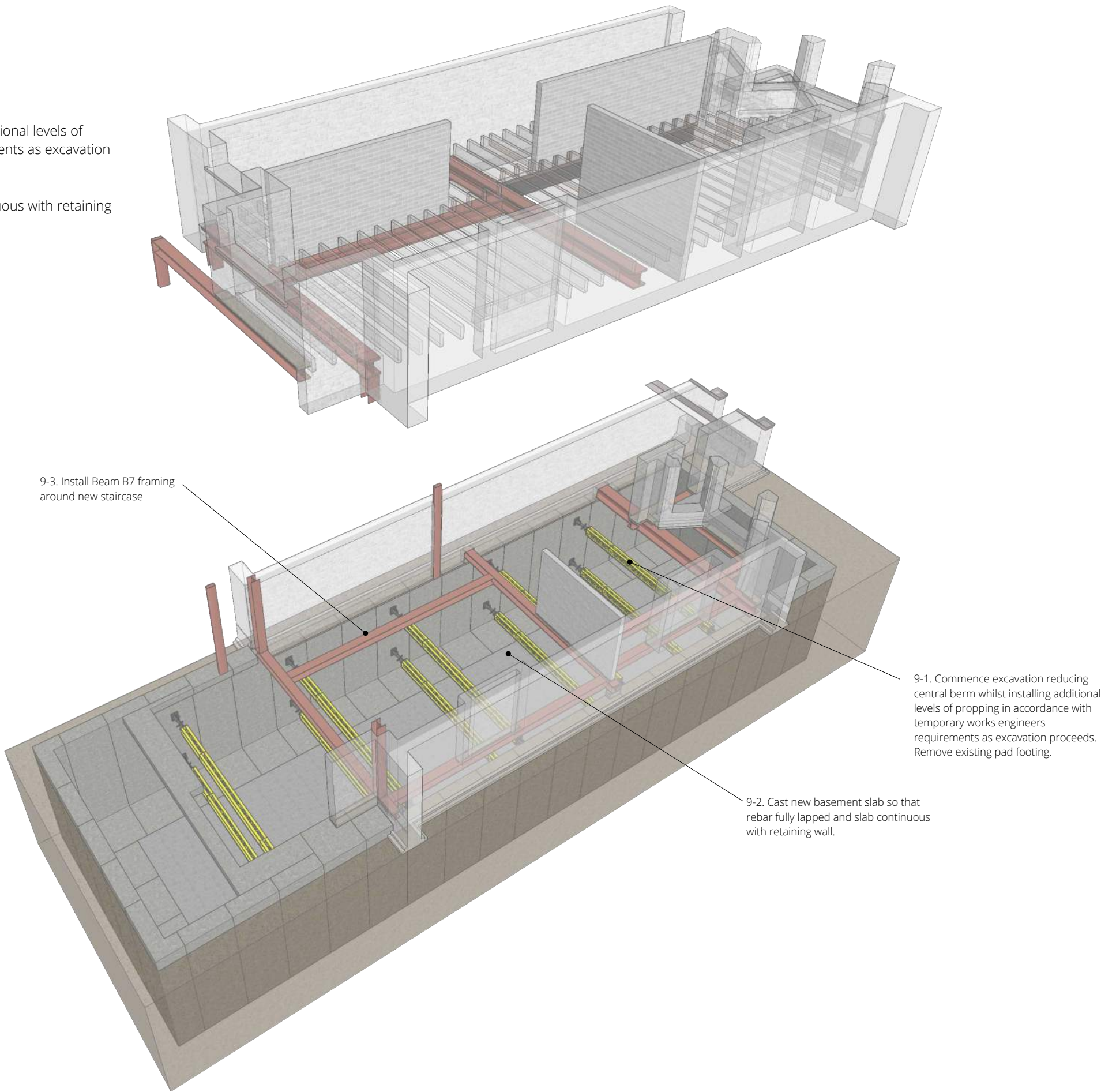
8-5. Install Beam B8 & B9 supporting existing chimneys



# Stage 9

## Excavate Basement

- 9-1. Commence excavation reducing central berm whilst installing additional levels of propping in accordance with temporary works engineers requirements as excavation proceeds. Remove existing pad footing and temporary bases.
- 9-2. Cast new basement slab so that rebar fully lapped and slab continuous with retaining wall
- 9-3. Install Beam B7 framing around new staircase





# Stage 10

Complete structural works

- 10-1. Construct new rear extension
- 10-2. Construct new front bay in basement
- 10-3. Install new ground floor and staircase

10-1. Construct new rear extension

10-2. Construct new front bay in basement

10-3. Install new ground floor