Document Number 23082BIA

BASEMENT IMPACT ASSESSMENT

STRUCTURAL ENGINEERS

RM DMS

85-90 Paul Street
London
EC2A 4NE

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SITE ADDRESS

15 WIELAND RD, NORTHWOOD HA6 3QZ, UK

CLIENT

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PROJECT NO:23082

13 October 2023

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Excavation to form basement with vehicular access. Construction of projecting front bay window to ground and first floor. Erection of front porch with steps and terrace with glazing to front. Alterations to front, side and rear fenestration (revised description and plans)

1.0 Project Description

Excavation to form basement with vehicular access. Construction of projecting front bay window to ground and first floor. Erection of front porch with steps and terrace with glazing to front. Alterations to front, side and rear fenestration (revised description and plans).

1.1 It is proposed to re-developed the property and as part of the works it is proposed to form a subterranean garage under the front of the property.

1.2 The property is a residential house.

2.0 Brief

2.1 Following a planning application to undertake the above-mentioned work a requirement for a Basement Impact Assessment.

2.2 RM-DMS have been appointed as structural engineers and thus have been instructed to prepare said document.

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3.0 Property Description

3.1 The property is situated on the North East side of Wieland Road, its orientation being parallel to the road.

OS MAP 1:1250

3.1.1 Site Location Plan

3.2 The property is a 2-storey brick-built house with load-bearing masonry walls supporting timber 1st floor, surmounted using a tiled clad timber roof.

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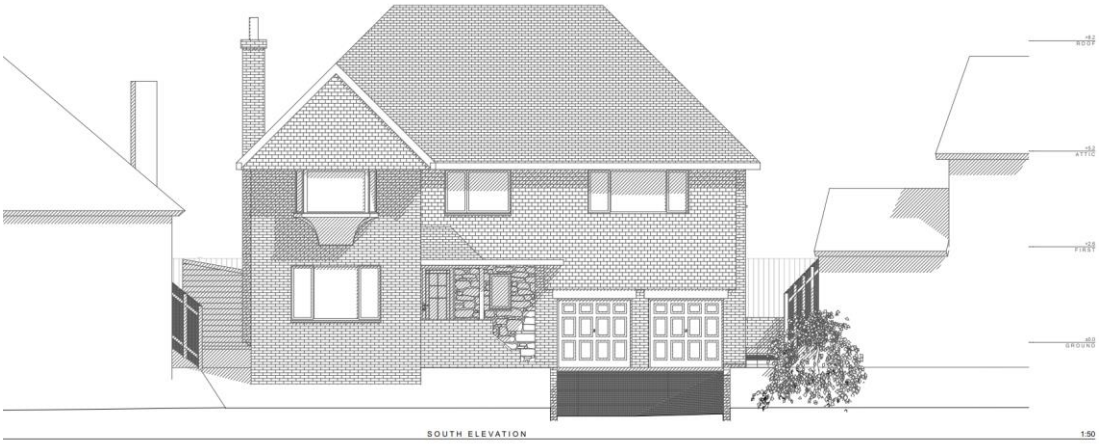
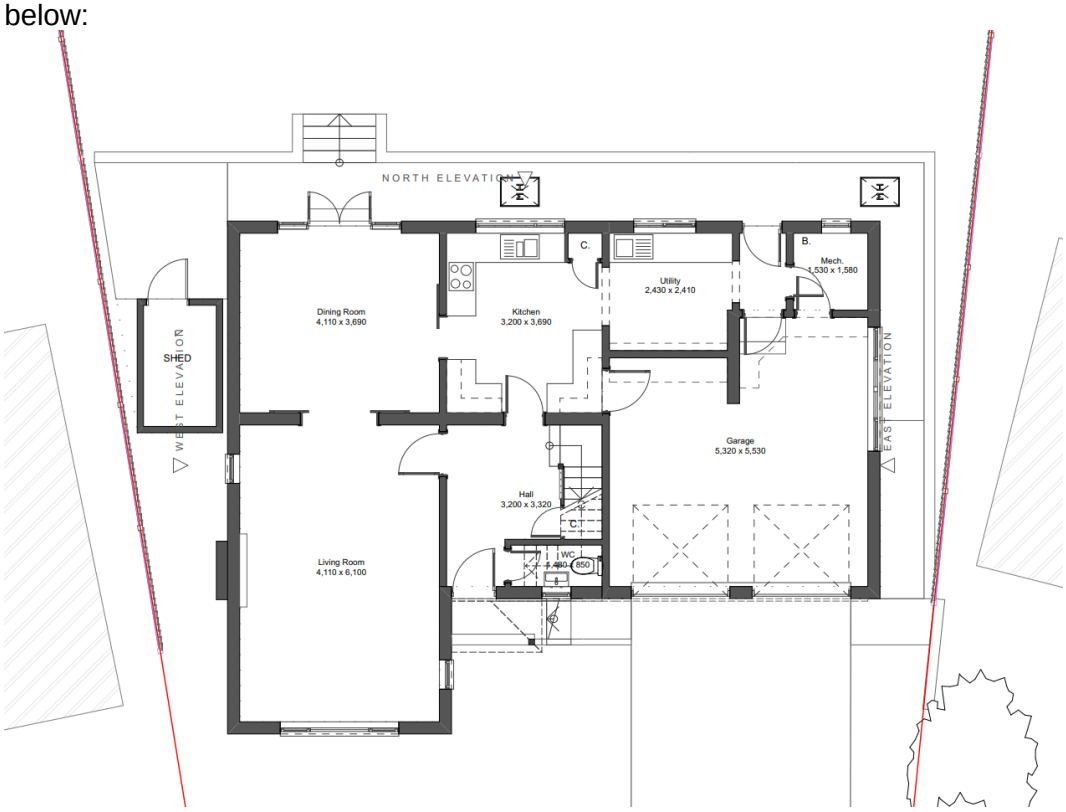
3.2.1 Front Elevation



3.3 The existing Ground floor is likely to be solid concrete and the floor plans are as below:



3.3.1 Existing Ground Floor Plan

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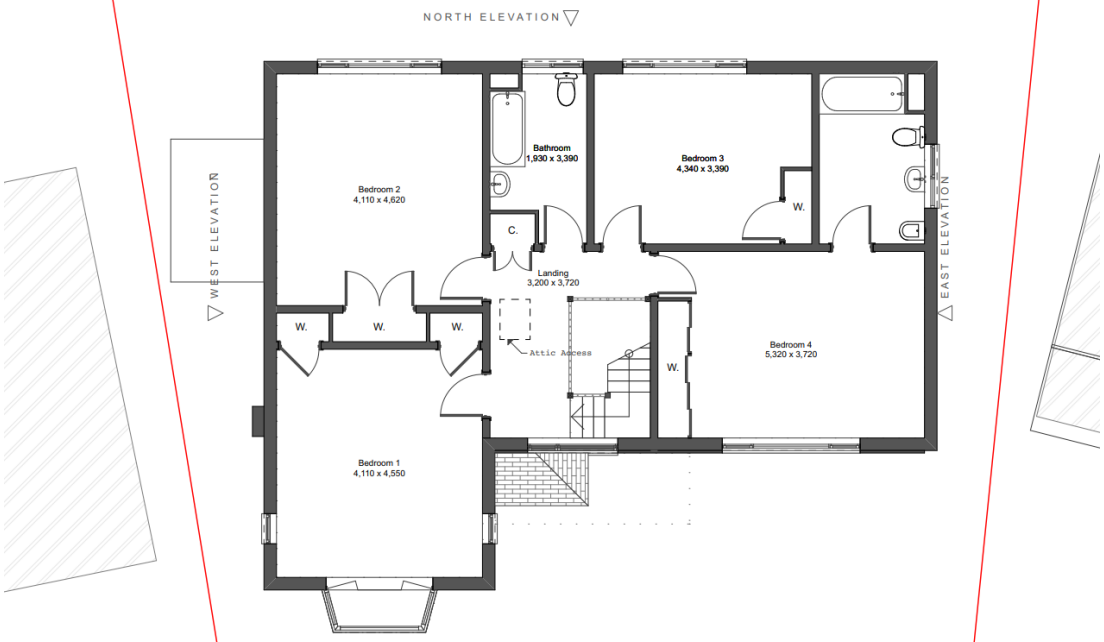

3.3.2 Existing First Floor Plan.

3.4 Historic evidence has been sourced demonstrating property was constructed before September 1999.

4.0 Site Geology Contamination and Ground Water

4.1 Currently there is no survey information however there is no indication that there are any signs of contamination and the local ground conditions appear to be natural clay.

5.0 Hydrology and Hydrogeology

5.1.1 There is no water courses or information demonstrating high water tables in the area.

6.0 Proposed Development Methodology

6.1 The proposed development will need to be undertaken as an underpinning and sequenced groundworks dig. Areas where the most risk will be will be those areas adjacent adjoining structures

6.2 Sections along the right-hand boundary will need to be done in a top-down method and propped during the exercise, the drawing below shows the colour phases, these will be undertaken one colour at a time and the concrete will be cured before the next phase.

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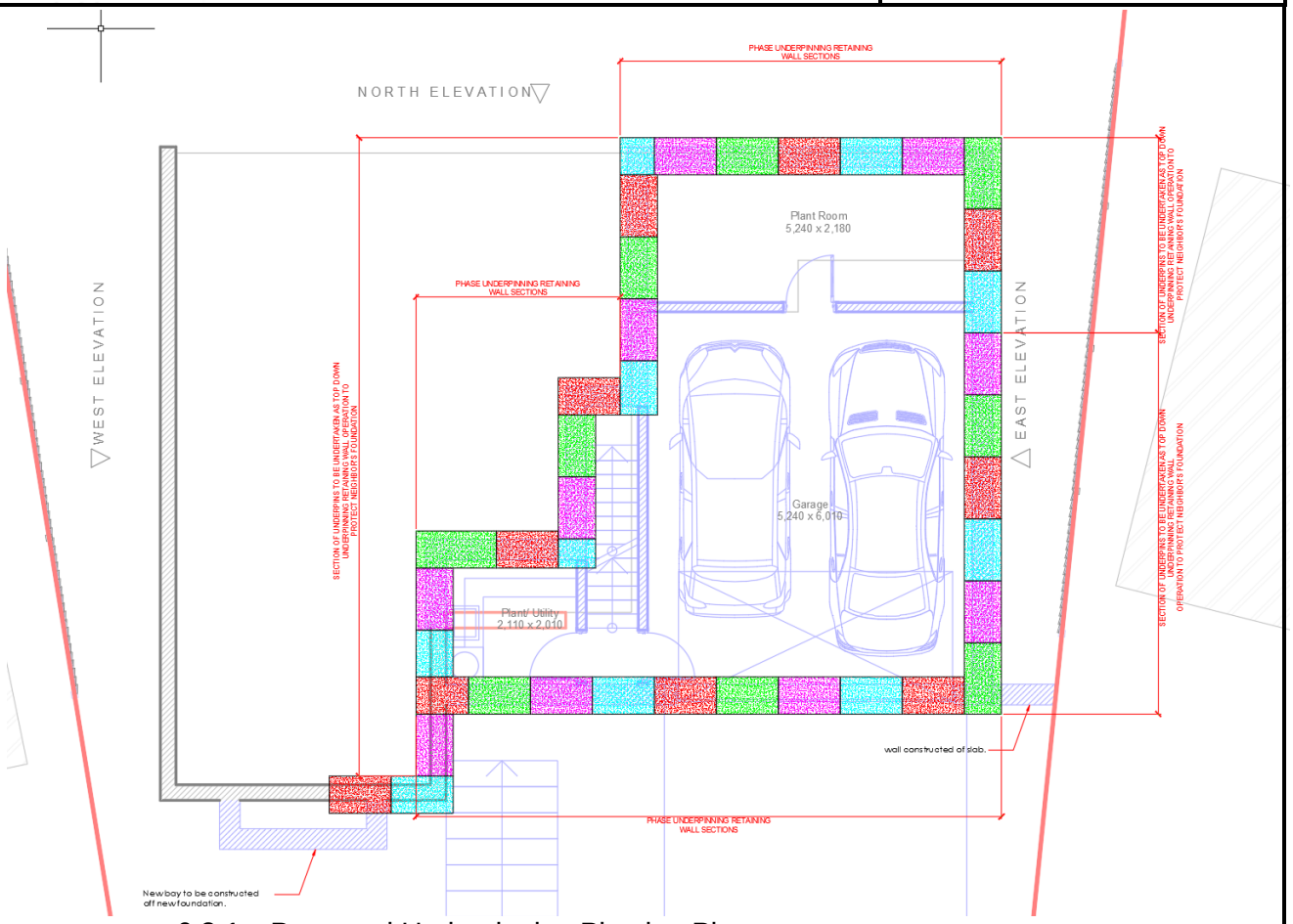
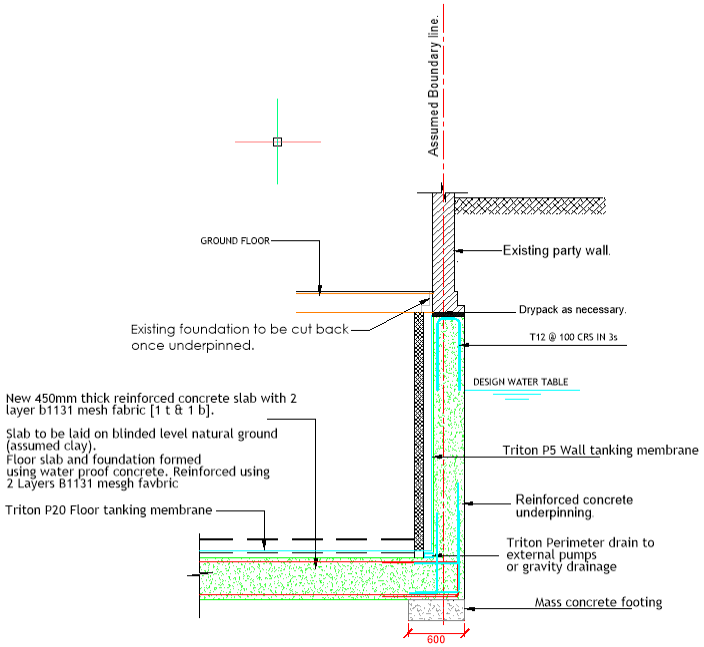


6.2.1 Proposed Underpinning Phasing Plan.



6.2.2 Proposed Section through Underpinning Section

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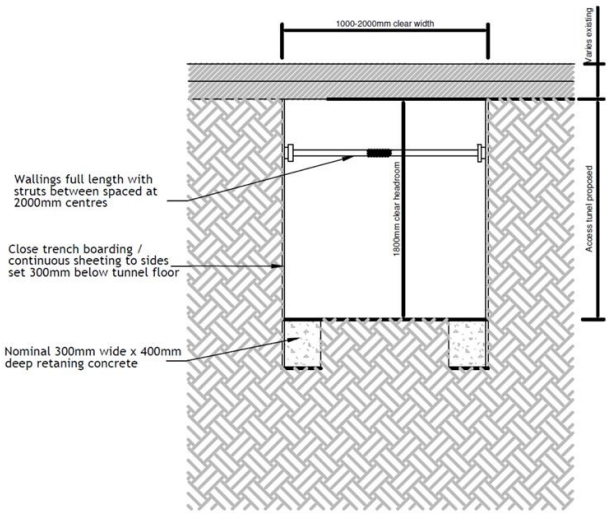
6.3 The methodology for the underpinning operation will be follows as per the below (this operation may be modified by the Contractor to suit site conditions but be undertaken in such a manner as to mitigate ground movement and fabric damage to the building and those buildings adjacent the excavation):

6.3.1 Vertical excavation adjacent the existing wall will extend down to formation level; it is assumed from the trial hole results that the ground condition should be clay and stable however in the event of the ground being found to be unstable temporary works propping may be necessary:

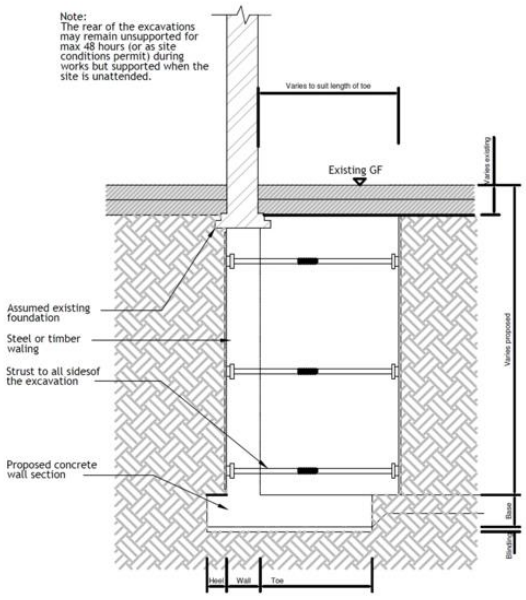


SECTION THROUGH UNDERPINNING EXCAVATION MAIN AND BRANCH ACCESS TUNNEL

Sequence
1. Excavate main access tunnel beneath ground floor
2. Install trench shoring and struts as work progresses

STAGE 1

6.3.2 The excavation will then extend out under the wall to be underpinned, again propping may be required to ensure the stability the Party-wall.



SECTION UNDERPINNING - EXCAVATION

Sequence
1. Excavate away from tunnel
2. Install trench shoring as work progresses
3. Reduce excavation down to level of wall base
4. Install trench shoring

STAGE 1

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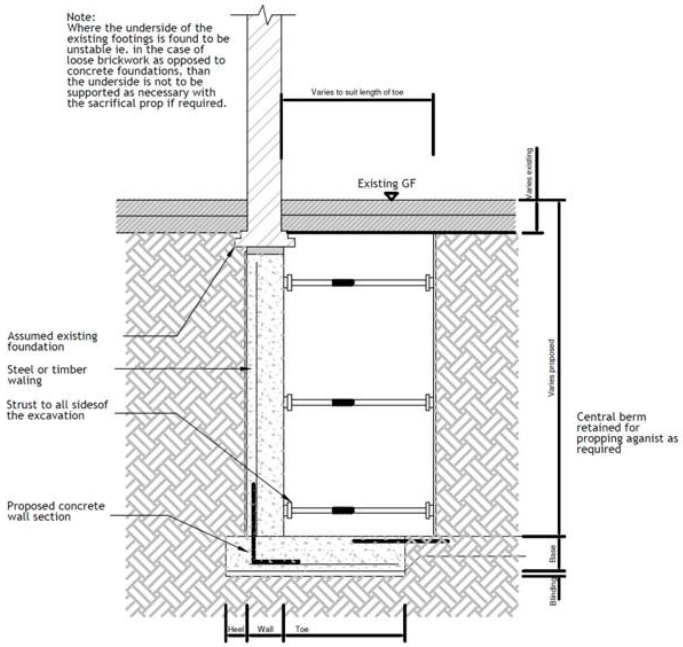
6.3.3 A Toe section of the base of the retaining wall will be poured along with the mass concrete footing will be poured initially with starter bars for the wall section which will follow.



SECTION UNDERPINNING - WALL CONSTRUCTED

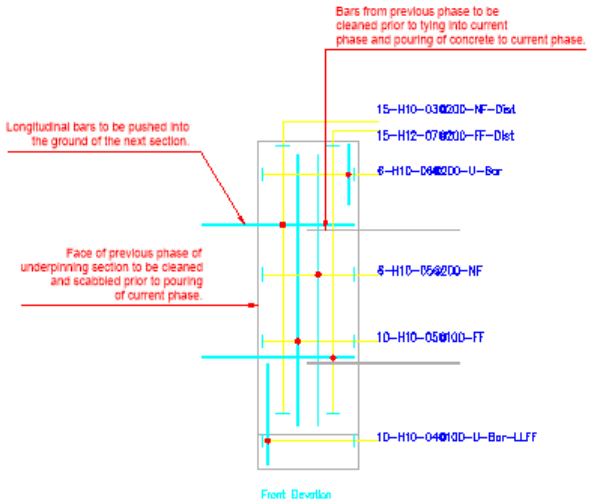
Sequence

1. Concrete base and wall
2. Maintain trench / shoring as work progresses

STAGE 2

6.3.4 Bars will be installed to the side of each pin for connection and tying between the individual pins.

Once the full pin is completed and cured drypak will be installed to ensure the continuity of the support to the existing wall.



ELEVATION ON TYPICAL UNDERPINNING SECTION SHOWINGCONNECTIVITY BETWEEN PINS.

PERMINENT CONDITION UNDERPINNING

SCALE 1:50

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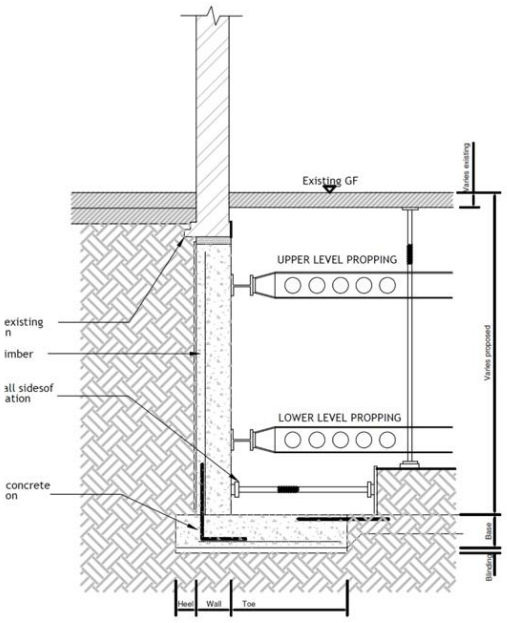
6.4 Once the section is poured propping may be employed to ensure the lateral stability of the wall until the whole structure is complete and all lateral forces are restrained in the permanent condition.



SECTION UNDERPINNING - TEMPORARY PROPPING

Sequence

1. Reduce central area / bern down to allow for upper level propping
2. Maintain vertical propping to existing floor as necessary
3. Install waling and full width props

STAGE 4

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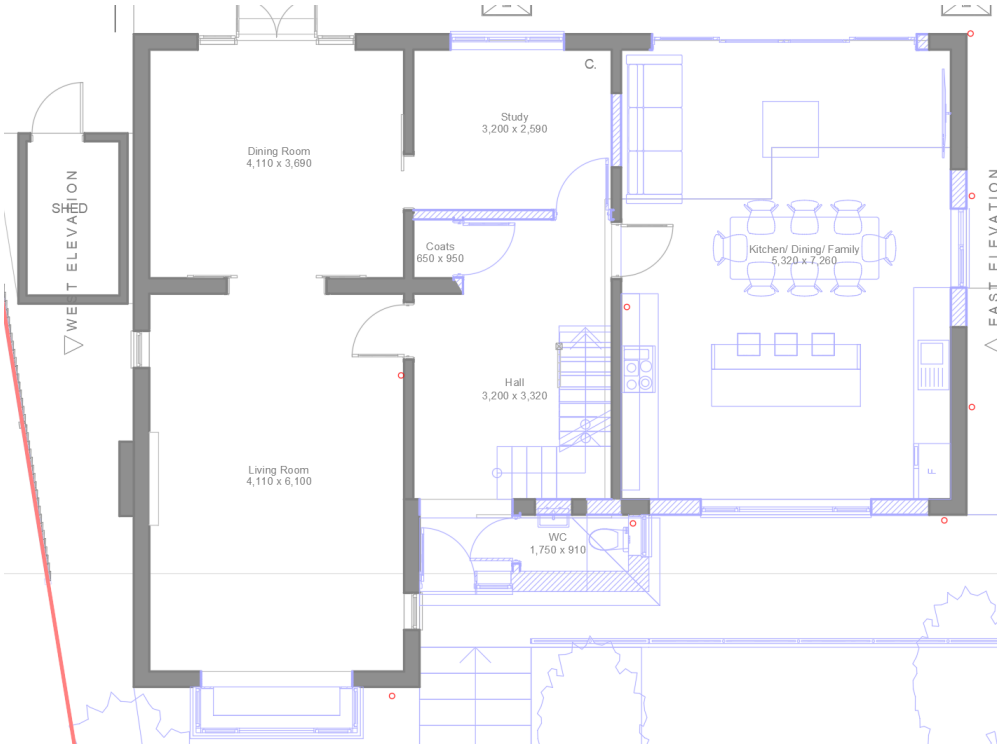
7.0 Ground Movement

7.1 Some mild ground movement may be experienced during excavation and the installation of the underpinning, if the mitigating measures outlined in the method statement above are employed previous analysis has demonstrated that the movement will be within category 1 (very Slight 0 to 1mm) on the Burland Scale.

7.2 Prior to works being undertaken the stability and condition of all surrounding structures will be undertaken, any necessary propping and repairs will be negotiated with the neighbour's and undertaken to ensure the stability of these structure as well as the well-being of their occupants.

7.3 As a precaution and as a method of ensuring this during construction monitoring is proposed, trigger action limits will be employed to force remedial action prior to damage occurring. An example of possible locations of such monitors are demonstrated below:



7.4 Repairs to the walls above will be undertaken as necessary on completion of the works.

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8.0 CONCLUSION

8.1 The proposed works are able to be undertaken to extend the existing Basement without any adverse determent to the existing structure nor the surrounding properties.

8.2 Ground water is unlikely to be experienced during construction and contamination of the neighbour's property nor the water course is considered likely.