DEVISE ENGINEERS

CONSTRUCTION METHOD STATEMENT

109 GOLDHURST TERRACE, LONDON, W6 3HA

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1.0

APPOINTMENT & INTRODUCTION

1.1 Devise Engineers have been appointed by the Client as Structural Engineers for the structural design of the proposed basement conversion at 109 Goldhurst Terrance, in the London Borough of Camden.

1.2 This report is to outline a suitable method to construct the basement structure below the extent of the site, and is to be read in conjunction with the planning application information submitted by Eksalta and the BIA undertaken by Chelmer.

1.3 It is based on the ground condition information and BIA provided by Chelmer as well as visual inspections undertaken and trial pits inspected by Devise Engineers.

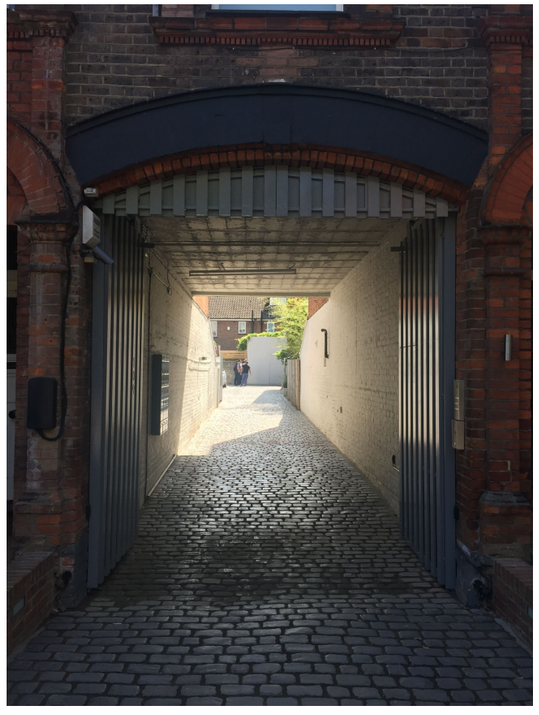
1.4 This report sets out the structural proposals and envisaged construction methods and sequencing to be undertaken by a competent building contractor.

2.0

EXISTING SITE & SURROUNDINGS

2.1 Devise visited site on 4th and 11th July 2015 to assess the existing building and overall site constraints.

2.2 109 Goldhurst Terrace is a detached two-storey dwelling located in the London Borough of Camden. The site is accessed via a gated entrance which forms part of a terrace property on Goldhurst Terrace and into a shared private road serving residential properties.



2.3 A car-port is present to the east of the house and a hardstanding courtyard to the south.

2.4 The surrounding area mainly consists of residential terraced properties. The site is bounded by properties on three sides, to the west, east and south, and by the shared private access road to the front (north).

SITE LOCATION PLAN

2.5 The west flank wall of the property bounds the garden to 111 Goldhurst Terrance and the west garden wall forms the boundary between the courtyard and the garden to 113 Goldhurst Terrace.

2.6 The party wall bounding the courtyard to the south, is the flank wall of 10d Fairhazel Gardens.

2.7 The boundary walls to the east of the site are party fence walls to 9, 11 and 13 Fairfax Place.

2.8 The London Overground line runs around 150m to the south of the site. The Jubilee and District London Underground lines are around 0.5km to north east.

2.9 Regents canal is approximately 1.5km south east of the site. Chelmer's BIA outlines other historic surface water features in the vicinity of the site.

3.0

SITE HISTORY & GEOLOGY

3.1 The house is thought to have been constructed in the late 19th Century. The earliest historic London map for which Goldhurst Terrace is present is from 1886.

3.2 The World War II bomb maps show the property did not suffer bomb damage, though high-explosive bombs were recorded nearby in Fairhazel Gardens and Greencroft Gardens.

3.3 The British Geological Survey boreholes show the site site is underlain by London Clay. This has been confirmed by the site investigation carried out by Chelmer and the trial pits recorded by Devise Engineers, which show the existing shallow foundations generally bearing onto 'clayey made ground' above 'slightly sandy silty clay' over weathered London Clay formation.

3.4 Ground water seepage was encountered in one of the boreholes at 1.8m BGL with water being recorded at 1.28m BGL upon the final reading of the standpipe on 25th September 2015.

3.5 Some perched ground water was also observed in one of the trial pits, TP7 at approximately 1.2m.

3.6 The results of the site investigation are recorded in more detail in Chelmer's BIA

4.0

EXISTING CONSTRUCTION

4.1 The building is a detached house, though the car-port roof bears onto the party walls to the properties along Fairfax Place. There are also beams which span over the rear courtyard onto the party wall with 10d Fairhazel Gardens.

4.2 Construction comprises solid 230mm thick load bearing masonry walls, bearing onto shallow corbelled masonry footings.

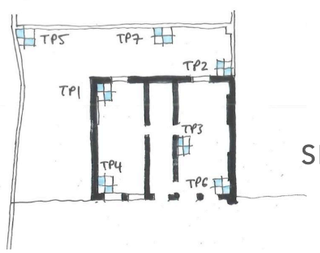
4.3 Internal walls are a mixture of loadbearing masonry and timber stud construction. The first floor and loft floors are in timber and span from front to back.

4.4 Steel beams have been installed more recently and span on to the internal masonry spine walls to support the first floor. The site investigation found the spine walls have been locally underpinned in mass concrete directly below the bearing of the beams.

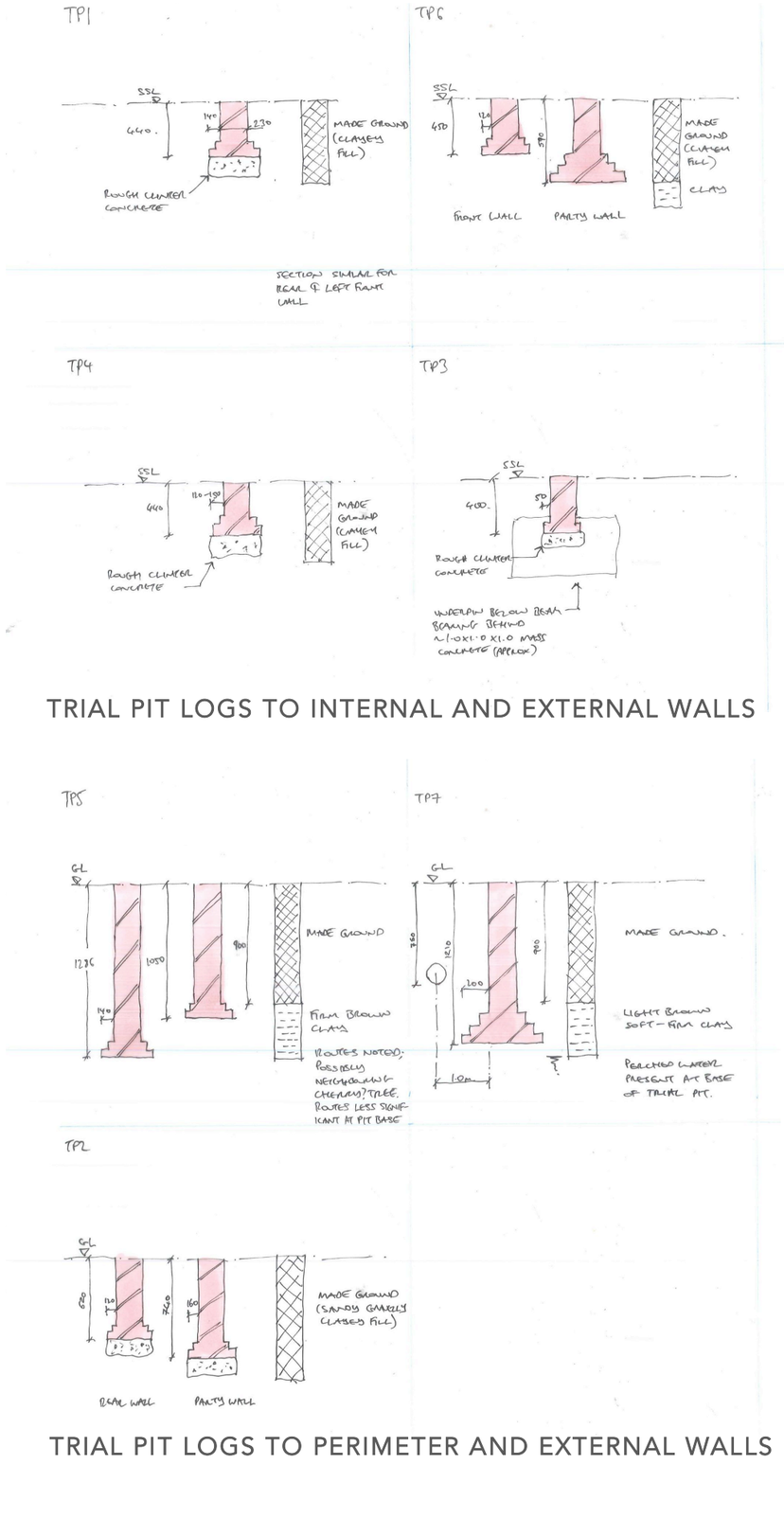
4.5 The roof slopes on four sides; and currently relies on the internal stud walls and external walls for support.

4.6 The overall stability of the building relies on the cellular nature of the walls and floors.

4.7 Although the finishes have now been stripped back, the structure is in a good state of repair with no indication of significant movement.



SITE LOCATION PLAN SHOWING TRIAL PITS



TRIAL PIT LOGS TO INTERNAL AND EXTERNAL WALLS

TRIAL PIT LOGS TO PERIMETER AND EXTERNAL WALLS

5.0

PROPOSED BASEMENT DESIGN & CONSTRUCTION

5.1 It is proposed to form a new basement below the extent of the site footprint. The external walls will generally be retained, though a full width opening in the rear wall at ground floor level is proposed.

5.2 Internally, the structure is to be remodelled throughout. The structure at each level will generally comprise new timber/concrete floors supported on steel beams. One internal column is proposed which is to be founded at the new basement level. This provides scope for the column to be installed first to allow the remodelling of the upper floors to progress first, should the contractor prefer.

5.3 Alterations to the roof are also proposed to make habitable use of the second floor.

5.4 The construction of the proposed basement will involve underpinning the party walls. In order to ensure the future flexibility of the adjoining buildings, should the adjoining owners wish to undertake similar basement works; and to mitigate against protracted party wall discussions relating to 'special [reinforced concrete] foundations', it is proposed that the existing party walls will be underpinned in mass concrete in a 'hit and miss' sequence.

5.5 The underpins are to be cast just below the underside of the existing foundations. The gap (circa 75mm) will then be well rammed with dry pack.

5.6 Whilst this is propped, a reinforced concrete wall can then be cast against the newly constructed mass concrete underpin which will be designed to resist the lateral forces due to earth pressure based on 'soil at rest' pressures, an appropriate surcharge load and hydrostatic pressure for the 'worst credible' ground water level (indicated to be at ground level within the BIA).

5.7 This form of construction will assist in maintaining the structural stability of this and the neighbouring structures during construction.

5.8 The two sections of wall will be separated by a slip membrane such as fibreboard which will provide a separation between the party wall and the basement structure to 109 Goldhurst Terrace. This will allow vertical movement between the two structures.

5.9 Upon completion of the works, the vertical loads will be transferred to the lower more consolidated clay ground stratum.

5.10 The base of the mass concrete underpins are at least equal width of the existing foundations, to ensure the allowable ground pressures are not exceeded.

5.11 The reinforced concrete toes have been designed with sufficient width to spread the load such that the allowable bearing pressure of 200kN/m^2 is not exceeded. This is the allowable bearing pressure as advised by Chelmer.

5.12 Since the existing foundations were generally founded on made ground, and the proposed basement will bear onto naturally occurring London clay, which will have been consolidated by the existing foundations, significant settlement is considered to have been minimised as far as practicable.

5.13 The effect of heave must be considered, which will cause an upward pressure on the new basement structure as a result of the relief of the overburden, following the excavation. This will be dealt with by the provision of a compressible heave

protection beneath the slab and designing the slab and walls upon which the slab spans for the net upward heave forces. Following discussion with Chelmer, the heave pressure has been calculated by multiplying the density of the clay strata by depth of the excavation with the assumption that half of the pressure is relieved prior to pouring the slab. An assessment of the likely heave has been calculated in the BIA by Chelmer and does not show significant displacements.

5.14 It is unlikely that any areas of loose or made ground will be encountered at formation level, though if isolated areas are encountered, they will be excavated and replaced with lean mix concrete, prior to forming new foundations.

5.15 Although some water was encountered within the borehole, this is thought to be within the granular lenses within the predominately clay strata. Where water is encountered during excavations, it can be dealt with by the use of submersible pumps and pumping into the surface water sewer.

5.16 Given the relatively impermeable ground conditions, ground water flows are not likely to be significant. Therefore, provided the contractor makes appropriate preparations, this should not adversely impact the construction of the proposed basement or any adjoining structures.

5.17 The structure as a whole is to be designed against upward pressures based on the 'worst credible' groundwater levels. Therefore an upward pressure of 3.5m x $10kN/m^3$ = $35kN/m^2$ has been used with a global factor of safety against uplift of $\gamma Gdst/\gamma Gstb$ = 1.11 in accordance with EC7. This conservatively ignores frictional forces of the earth against the concrete walls.

5.18 The Contractor shall undertake the works in such a way as to minimise noise, dust and vibration when working close to adjoining buildings in order to protect the amenities of the nearby occupiers.

5.19 Excavation works will generally be carried out using hand tools in order to minimise noise and vibrations to neighbouring properties. Upon completion of the underpins, a mini-digger may be used to expedite the bulk excavation.

5.20 The breaking out of existing structure shall be carried out by saw cutting where possible to minimise vibration to the adjacent properties and associated construction noise.

5.21 All demolition and excavation work will be undertaken in a carefully controlled sequence, taking into account the requirement to minimise vibration and noise.

5.22 The ground floor is to be constructed using steel beams supporting a reinforced concrete slab poured onto a profiled metal deck. The steel beams can be spliced and the metal deck can easily managed on site and forms a permanent formwork to the ground floor structure.

5.23 Although the RC walls have been designed as cantilevers, the ground floor will provide a prop to the top of the underpins to further limit deflection and provide a robust construction.

5.24 The RC walls will also be tied into the proposed slab construction to form a stiff raft.

5.25 It is recommended that the RC walls and slab be constructed in waterproof concrete with waterstops at construction joints. This would form the primary barrier against water and would be detailed by the specialist supplier.

5.26 The drained cavity system will provide a secondary barrier against the ingress of water to ensure a Category 3 basement construction. This will be specified by others and detailed and installed by a specialist subcontractor.

6.0

DRAINAGE & WATERPROOFING

6.1 Although the design of the drainage is not covered within Devise Engineer's scope, the following was observed upon inspection to the site.

6.2 A soil vent pipe and rainwater pipe discharges into an existing drainage system at the rear of the site, accessible by two inspection chambers. This connects into a 300mm diameter drain within the shared access road at the front of the building. A rainwater pipe at the front also connects into this drain via a manhole. It is thought this discharges into the sewer in Goldhurst Terrace.

6.3 It is recommended that a CCTV survey of the drainage system is undertaken prior to undertaking the works to confirm the condition and route of the existing system.

6.4 It is thought that the proposed drainage system will be re-constructed within the proposed basement below ground floor level.

6.5 Drainage from the w/c and ancillary space will be pumped up to discharge into the drainage system below ground floor level. It will then be discharged into the existing drain at the front of the property.

6.6 A separate pump for the drained cavity system will be provided, to the specialist's design, which will also be discharged into the drainage system.

7.0

PARTY WALL

7.1 The proposed works development falls within the scope of the Party Walls Act 1996. Procedures under the Act will be undertaken by the Owner's Party Wall Surveyor.

7.2 The Party Wall Surveyor will serve notices under the provisions of the Act and agree Party Wall Awards with the Adjoining Owners' Surveyors in the event of disputes.

7.3 The preparation of the Awards and the resolution of party wall matters will serve to protect the interests of both the Building Owner and all Adjoining Owners.

7.4 The Contractor will also be required to provide the Party Wall Surveyor with method statements and other necessary information covering all notifiable works.

7.5 The resolution of matters under the Act and provisions of the Party Wall Awards will protect the interests of all owners.

7.6 The proposed basement structure to 109 Goldhurst Terrace will be designed to mitigate as far as practicable movement caused to the adjoining properties. The future flexibility of adjacent buildings will be maintained by ensuring the proposed basement works will not inhibit future extension works. This will be verified by the Surveyors during the process under the Act.

8.0 MONITORING

8.1 It is anticipated that the Contractor shall provide monitoring to all structures adjacent to the basement excavation at the time of excavation and construction as outlined in the BIA.

8.2 The Contractor will be responsible for reviewing the movement monitoring and for providing appropriate measures to mitigate against movement, by provision of necessary temporary support. This is to be agreed with the party wall surveyors.

8.3 Monitoring shall be completed as follows:

i) One week prior to any works being started to provide a base reading.
Iii) On a weekly basis during the excavation and until all underpins and the basement slab has been cast.
ii) On a fortnightly basis until completion of the notifiable works.

8.4 Suggested trigger levels are noted below and relate to the cumulative movement of survey points:

Vertical Displacement:

Amber trigger level: +/-5mm
Red trigger level: +/-7mm

8.5 The requirements of the trigger levels are set out below:

Amber Trigger Level

Should the movement reach the amber trigger levels, the contractor should increase the frequency of readings as appropriate and outline to all parties their plan to implement any emergency remedial/supporting works necessary. The Contractor must be ready to carry out these works immediately if the movement continues and approaches the red trigger values.

Red Trigger Level

Works are to cease and be made safe by providing the necessary support/shoring. The Contractor is to ensure that the movement has stopped as a result of the remedial works installed. The structural engineer and party wall surveyors are to be informed immediately and the party wall surveyors should agree any additional precautions or modifications to the proposals prior to re-commencement of the works.

9.0

ENVISAGED METHOD OF CONSTRUCTION

9.1 The following outlines a sequence of works to construct the proposed basement below the existing property.

9.2 The works are to be carried out by a competent contractor, who can demonstrate experience in undertaking works of a similar scale.

9.3 This document will assist the Contractor in the preparation of their method statement. However, the Contractor is responsible for providing the actual method statement based on how they wish to programme and sequence the project and their temporary works design.

9.4 The sequence of works can be broken down as follows:

9.4.1 STAGE 1.0 – SITE SET-UP & ENABLING WORKS

- Confirm location of below ground drainage and services and identify those requiring rerouting or capping.
- Agree and sign Party Wall Awards with adjoining owners.
- Construct hoarding around front of property, following permission from freeholder.
- Provide site welfare.
- Strip out all non-loadbearing structure.
- Provide temporary roof covering
- Install timber bracing around window openings.
- Remove timber ground floor and provide horizontal propping at floor level.

NOTE: The next two stages can be undertaken in order to facilitate the construction of upper floors if the contractor prefers. Otherwise these stages can be installed as part of the basement slab construction.

9.4.2 STAGE 1.1 – INSTALL PAD FOUNDATION

- Excavate pad foundation for proposed column down to formation level providing shoring to excavation with trench sheeting and propping.
- Confirm ground conditions at formation level and fix reinforcement and cast pad foundation.

9.4.3 STAGE 1.2 – INSTALL UPPER FLOOR STEELWORK

- Install column from basement to first floor and provide temporary restraint at ground floor level.
- Install first floor steelwork, timber floor and ply.
- Remove roof structure
- Install second floor steelwork, timber floor and ply.
- Install and roof steelwork, timber floor and ply.

9.4.4 STAGE 2.0 – UNDERPINNING

- Progress reinforced concrete underpins to front, rear and right hand (party) wall in a hit and miss sequence, leaving each pin to cure 48 hours before dry packing up to underside of existing structure.
- Provide necessary trench sheeting and shoring during excavation and prop against sliding.

9.4.5 STAGE 3.0 – TEMPORARY SUPPORT TO LEFT HAND FLANK WALL

- Ensure sufficient shoring to excavations to front and rear underpins at left flank wall.
- Install temporary footings and needling above ground floor level along left hand flank wall.
- Install steel beam to form opening below flank wall bearing onto newly constructed RC walls at each end.

9.4.6 STAGE 5.0 – UNDERPIN SITE PERIMETER WALLS

- Underpin left and rear wall party walls in hit and miss sequence in mass concrete and prop each pin horizontally.
- Continue in traditional 5 stage hit and miss sequence.
- Form base and kicker for RC wall for length of rear then flank wall and cast upto face of mass concrete underpin behind slip membrane.
- Move prop to base of wall to enable upper 'stem' of retaining wall to be cast.

9.4.7 STAGE 6.0 – FORM REMAINING BASEMENT SLAB

- Provide heave-board and form remaining RC basement raft slab
- Provide column (if not installed in STAGE 1.2) and prop.
- Form internal RC walls.

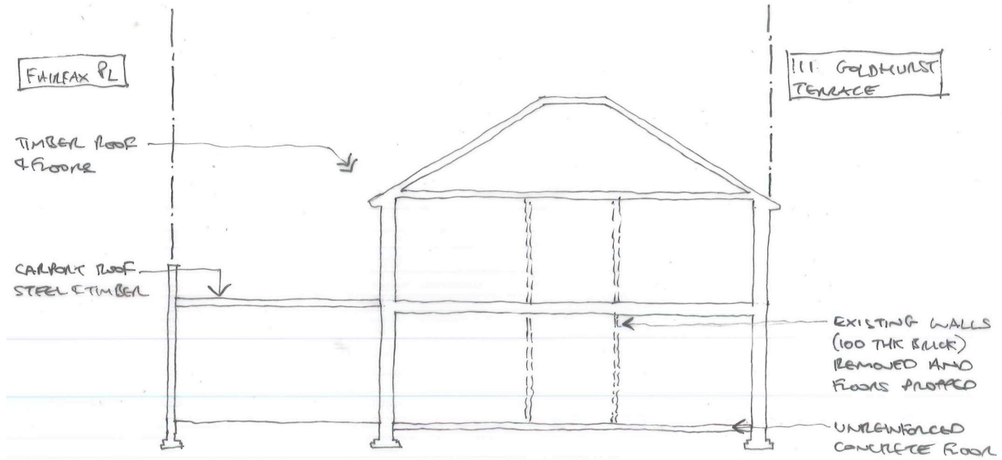
9.4.8 STAGE 7.0 - INSTALL LONG SPAN BEAM IN REAR WALL AT FIRST FLOOR LEVEL

- Install contractor designed needling above first floor level and prop down to newly formed ground slab.
- Break out rear wall at ground floor level, retaining piers at each end.
- Install steel beam temporarily bearing on to wall whilst providing propping directly below at regular centres and brace.
- Install steel columns bearing onto newly constructed RC wall below.

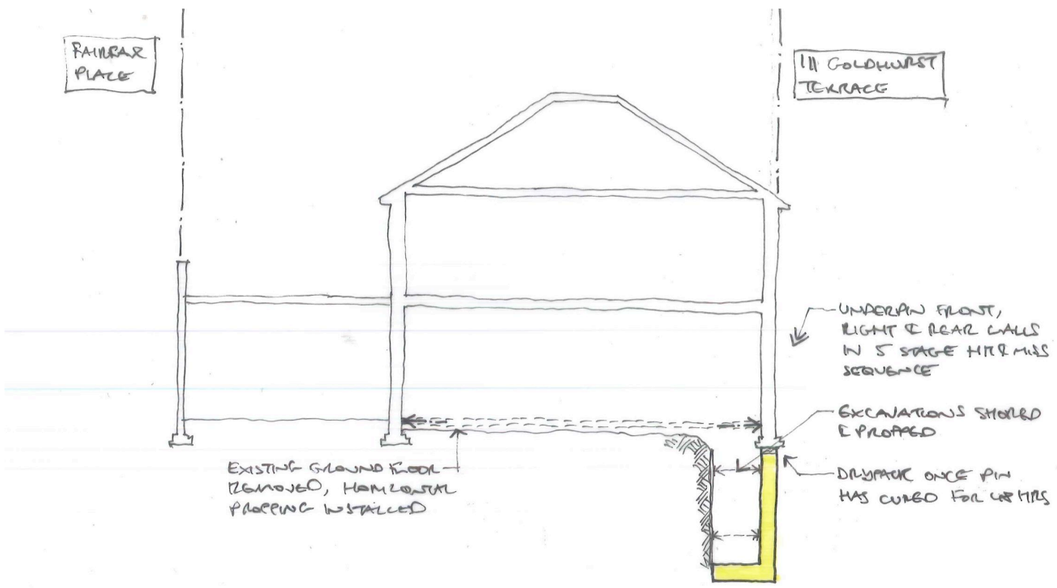
9.4.9 STAGE 8.0 – INSTALL GROUND FLOOR STRUCTURE

- Install steel grillage to ground floor and place metal deck.
- Cast ground floor slab.

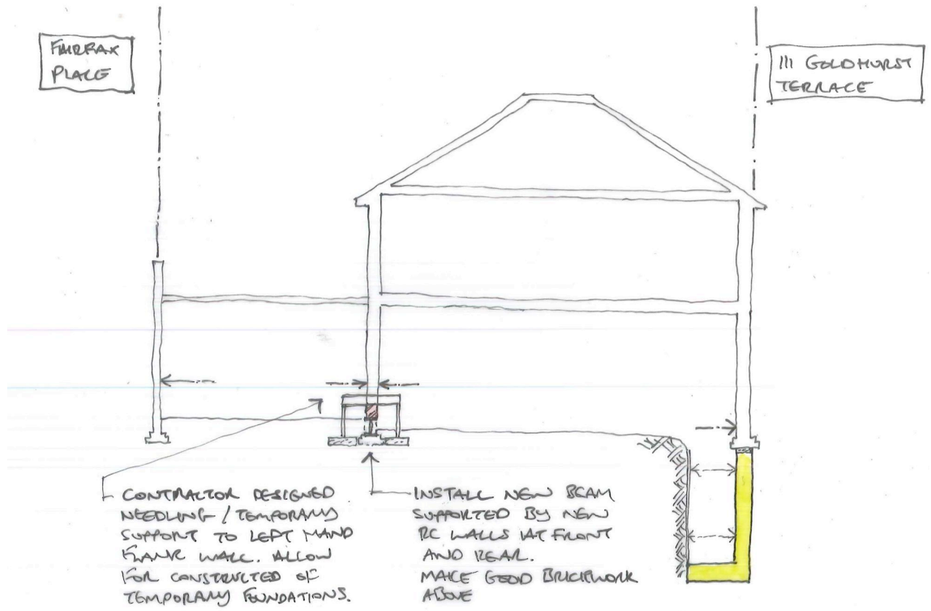
10.0 CONSTRUCTION SEQUENCE



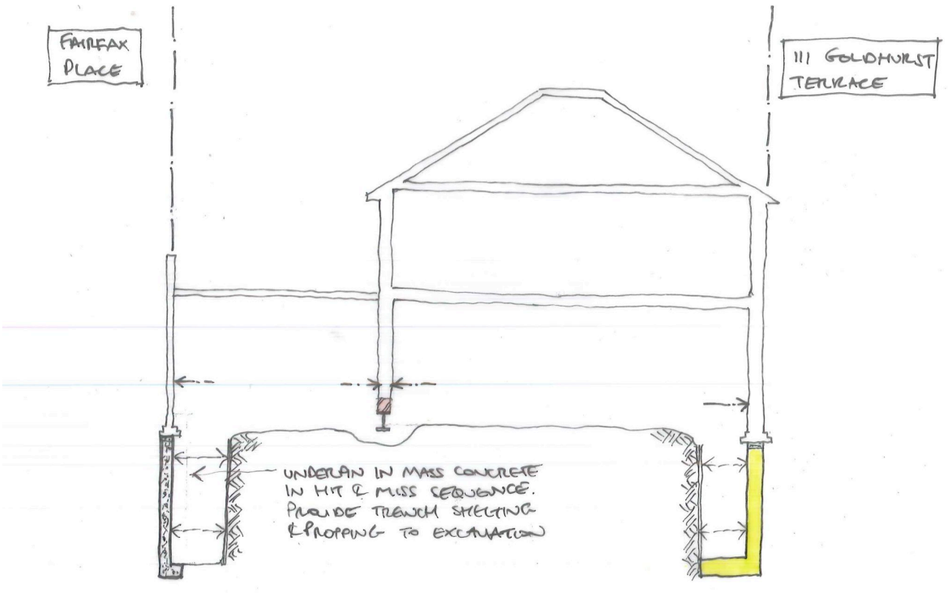
STAGE 1.0 – SITE SET-UP & ENABLING WORKS



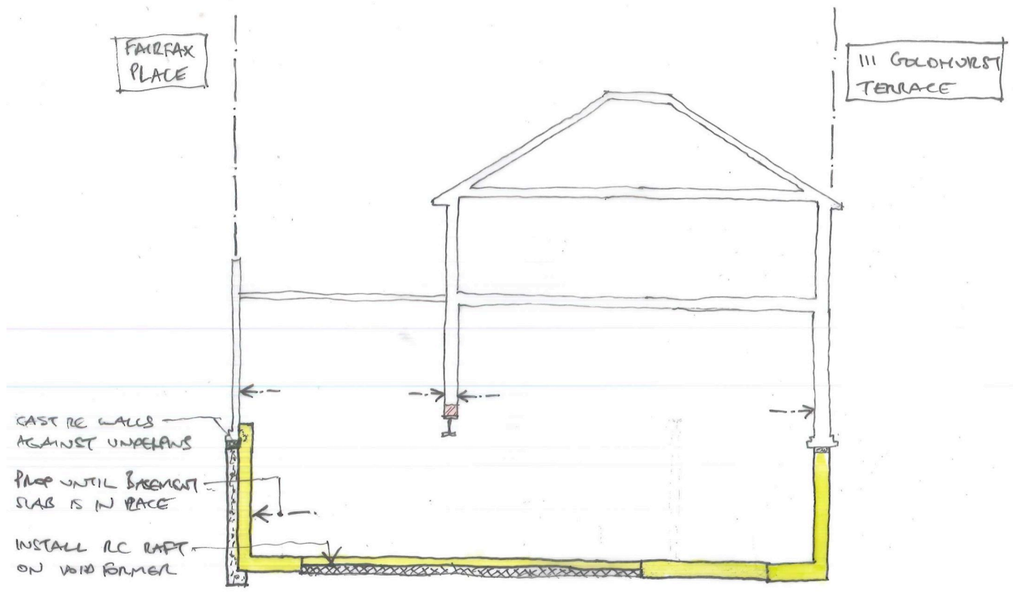
STAGE 2.0 – UNDERPINNING



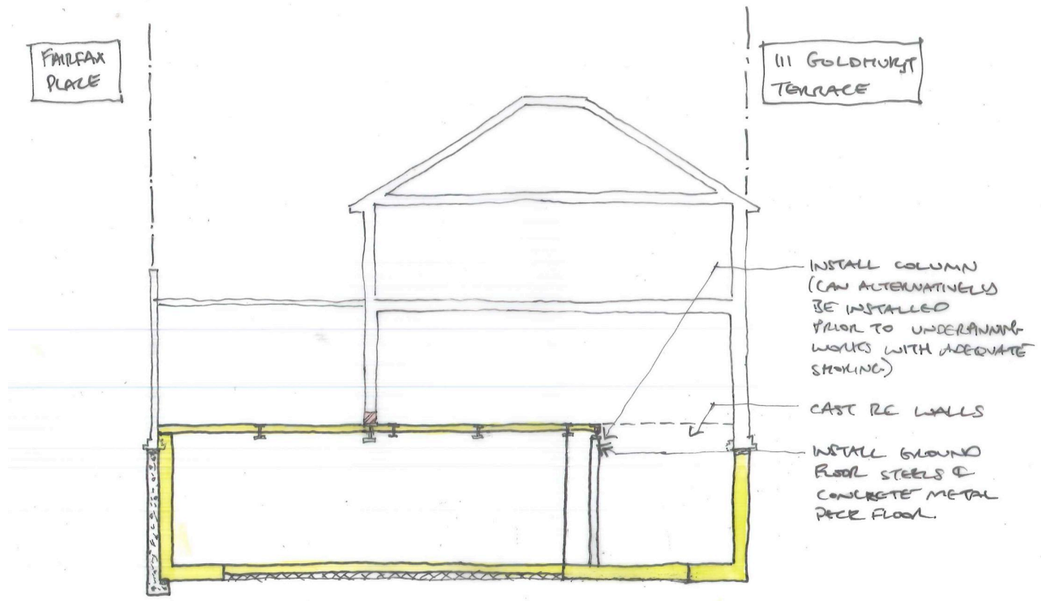
STAGE 3.0 – TEMPORARY SUPPORT TO LEFT HAND FLANK WALL



STAGE 5.0 – UNDERPIN SITE PERIMETER WALLS



STAGE 6.0 – FORM REMAINING BASEMENT SLAB



STAGE 7.0 - INSTALL LONG SPAN BEAM IN REAR WALL AT FIRST FLOOR LEVEL

STAGE 8.0 – INSTALL GROUND FLOOR STRUCTURE

11.0 CONSTRUCTION MANAGEMENT PLAN

11.1 Routing of demolition, excavation and construction vehicles

11.1.1 Vehicles will turn off the A41 Finchley Road and left onto Greencroft Gardens. They will then take the first left on to Goldhurst Terrance and find the private road to 109 Goldhurst Terrance on the left hand side.

11.1.2 Depending on their size, lorries will either reverse into the private road to the front of the property or make drop offs and picks ups outside the property within two suspended parking spaces. Access into the private access road is restricted by the size of the gated entrance, which measures approximately 2.8m wide, 3.1m high.

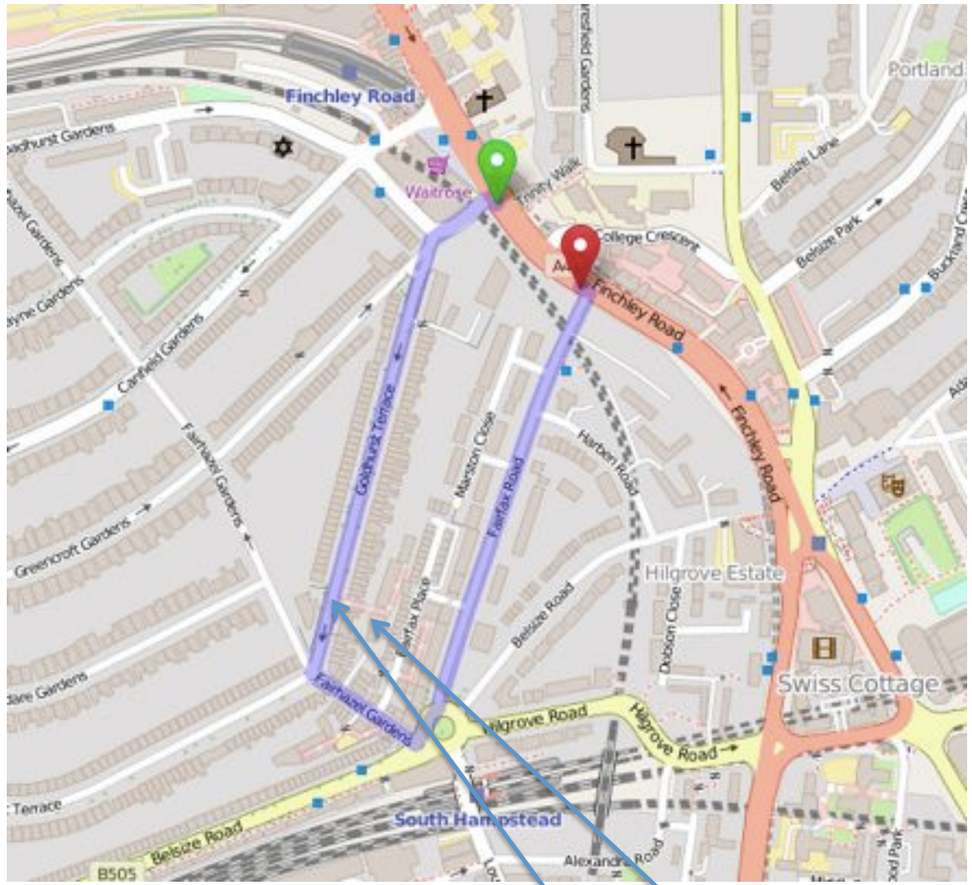
11.1.3 Once drop-offs are made, they will be wheel-borrowed through the private access road by hand, or for larger loads be transferred to the site via a small folk lift truck. Given the restricted access, it is intended that concrete will be mixed on site, rather than pumping from the road. A cube testing regime will be will be agreed to ensure the necessary quality assurance is maintained on site.

11.1.4 The excavated material will be bagged on site by hand. When the muck-away lorry gets the site, they will be transferred to the lorry, either by wheel-barrow or folk lift truck.

11.1.5 Banksmen will be available to assist and ensure the safety of passing pedestrians.

11.1.6 It is intended for vehicles to leave by continuing along Goldhurst Terrace and taking a left onto Fairhazel Gardens and then first left at the roundabout onto Fairfax Place. They will continue to the end of the road and then back onto the A41 Finchley Road.

11.1.7 This arrangement minimises the amount of right hand turns that the construction traffic will take along its route through built up areas therefore reducing risk of incident.



PROPOSED ROUTING OF CONSTRUCTION VEHICLES

11.2 Estimated number of vehicles per day and during the works

11.2.1 It is estimated that there will be 50 loads of excavated material and a further 25 other vehicle movements as part of the proposed works. On average there will be up to two grab lorries moving the excavated material per day. As far as possible, these will occur between 10am and 4pm.

11.3 Details of vehicle holding area

11.3.1 No off-site vehicle holding area is envisaged. Labour will be designated to control vehicle movements and offloading, and to ensure safe routes for vehicles and pedestrians are maintained.

11.4 Details of vehicle call up procedure

11.4.1 The site foreman will arrange deliveries to avoid delays and ensuring there is sufficient space for the vehicles being called on site. The call up procedure will reduce stoppage times to a minimum and prevent stacking of vehicles on the public highway.

11.5 Estimated number and type of parking suspensions that will be required

11.5.1 It will be necessary to suspend two residential only parking bays at the front of the property for the duration of the construction works. This is required so that access is provided for grab lorries and other deliveries.

11.6 Details of any diversion or other disruption to the public highway during demolition, excavation and construction works

11.6.1 All works are contained within the site with hoarding extending approximately 1.5m onto the private access road at the front of the property.

11.7 Strategy for coordinating the connection of services on site with any programmed work to utilities upon adjacent land.

11.7.1 There are no planned alterations to utilities outside of the site boundary

11.8 Work programmes and timescale for each phase

11.8.1 The preliminary construction programme is summarised as follows for each construction stage:

Site setup, soft strip and enabling works	2 weeks
Underpinning of walls to existing house	4 weeks
Underpinning to perimeter walls	4 weeks
Remaining RC walls basement slab	2 weeks
Ground floor grillage slab	2 weeks
Upper floors	2 weeks
First & second fix and finishes	14 weeks
Total Construction Period	30 weeks

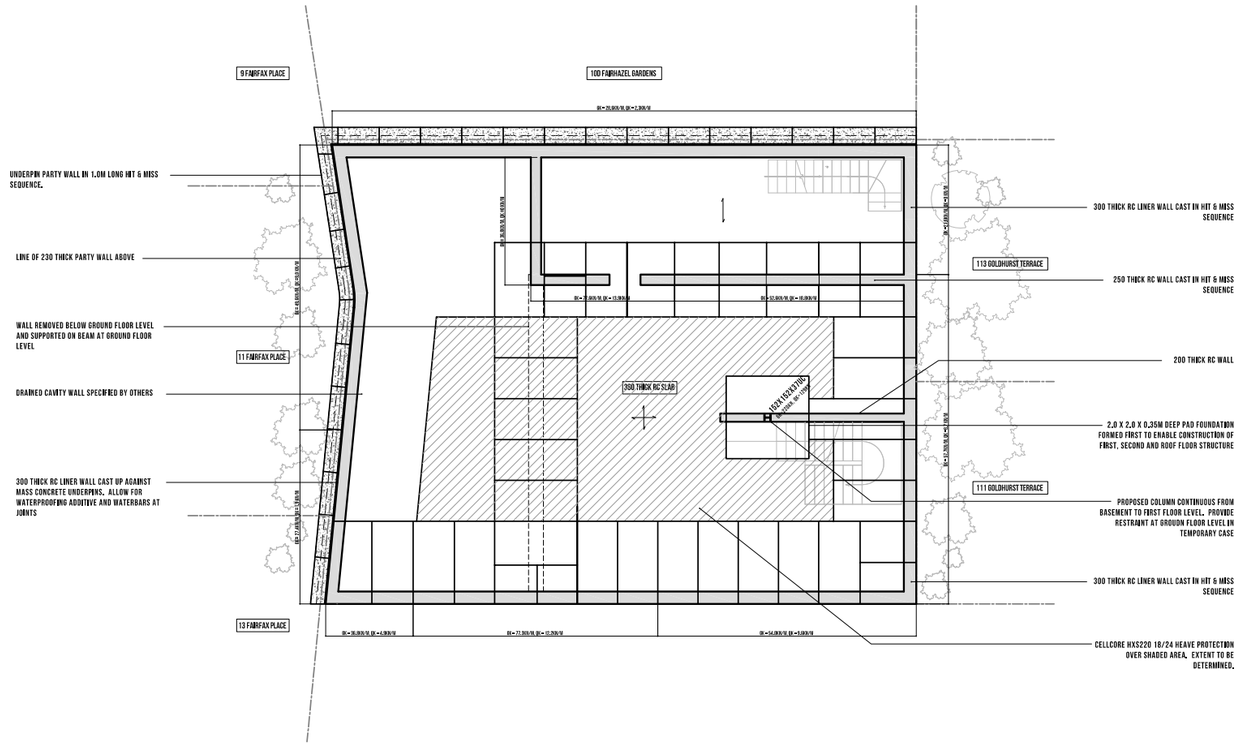
11.9 Nuisance Control

11.9.1 Measures will be implemented to ensure that the potential impact of the works on local residents and neighbours will be kept to a minimum.

11.9.2 Dust and dirt will be controlled by erecting panels around scaffolding to provide shelter and tarpaulins will be used when materials are being loaded onto vehicles.

11.9.3 All site accommodation and welfare facilities will be provided inside the property at first floor level as the proposed works at this level can be installed following construction of the basement.

12.0 APPENDIX A – PLANS



LEGEND

SPAN DIRECTION

NEW RC STRUCTURE

NEW MASS CONCRETE STRUCTURE

NOTES

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THAT THEIR OPERATIONS DO NOT IN ANY WAY IMPAIR THE SAFETY OR CONDITION OF THE EXISTING STRUCTURE OR THE ADJACENT PROPERTIES. THEY SHALL PROVIDE ANY TEMPORARY SUPPORTS REQUIRED FOR THIS PURPOSE, AND SHALL CAREFULLY INSPECT THE CONDITION OF THE STRUCTURE BOTH BEFORE AND DURING THE EXECUTION OF THE WORK AND IMMEDIATELY INFORM THE ENGINEER AND ARCHITECT IF THEY CONSIDER THAT ANY MORE STRINGENT PROCEDURE THAN THAT SPECIFIED IS NECESSARY.
2. BEFORE STARTING THE WORK THE CONTRACTOR IS TO CHECK FOR ANY SERVICES THAT COULD BE DAMAGED BY THE WORK AND SHALL PROVIDE FOR THE MAINTENANCE OF DRAINAGE SERVICES DURING THE WORKS AND FOR THE REINSTATEMENT OF ANY SERVICES INTERRUPTED OR DISTURBED BY THE EXCAVATIONS.
3. BEFORE COMPLETING THE BULK EXCAVATION, THE CONTRACTOR MUST INSTALL ANY TEMPORARY PROPPING TO THE UNDERPINS AND RETAINING WALLS IN ACCORDANCE WITH THE TEMPORARY WORKS DESIGN AND SEQUENCE, AND THIS TEMPORARY SUPPORT SHALL REMAIN IN PLACE UNTIL THE DRAINAGE AND PERMANENT SUPPORT STRUCTURE HAS BEEN INSTALLED.
4. UNDERPINNING AND RETAINING WALL INSTALLATION IS TO BE CARRIED OUT IN SHORT SECTIONS NOT EXCEEDING 1000MM IN LENGTH, IN THE NUMBERED SEQUENCE SHOWN ON THE DRAWINGS. RETAINING WALLS MAY BE INSTALLED IN LONGER SECTIONS WHERE AGREED IN THE CONTRACTORS TEMPORARY DESIGN AND SEQUENCE OF WORKS.
5. BEFORE UNDERPINNING, PROJECTING PORTIONS OF THE EXISTING FOOTINGS ARE TO BE CAREFULLY CUT OFF AS DETAILED AND THE UNDERSIDE OF THE FOOTINGS ARE TO BE CLEANED AND HACKED FREE OF ANY DIRT, SOIL OR LOOSE MATERIAL.
6. THE ENGINEER AND BUILDING CONTROL OFFICER SHALL BE GIVEN THE OPPORTUNITY OF EXAMINING ALL EXCAVATIONS, PRIOR TO ANY UNDERPINNING OR RETAINING WALLS BEING CAST.
7. MASS CONCRETE UNDERPINNING IS TO BE CONSTRUCTED IN DESIGNATED FND2 CONCRETE IN ACCORDANCE WITH BS8500 AND BS EN 206-1.
8. REINFORCED CONCRETE UNDERPINNING/RETAINING WALLS ARE TO BE CONSTRUCTED IN DESIGNATED CONCRETE RC32/40 USING SULPHATE RESISTANT CEMENT AND 20MM MAX AGGREGATE IN ACCORDANCE WITH BS8500 AND BS EN 206-1. COVER TO REINFORCED CONCRETE IN CONTACT WITH THE GROUND TO BE A MINIMUM OF 75MM UNLESS NOTED OTHERWISE.
9. UNDERPINNING AND RETAINING WALLS ARE TO BE CAST TO THE WIDTHS AND DEPTHS SHOWN ON THE DRAWINGS, AS FAR AS PRACTICABLE EXCAVATION AND CONCRETING OF ANY SECTION OF UNDERPINNING OR RETAINING WALL SHALL BE CARRIED OUT ON THE SAME DAY. UN-CONCRETED SECTIONS SHALL BE KEPT COVERED TO PREVENT THE INGRESS OF WATER.
10. CONCRETE UNDERPINNING IS TO BE STOPPED OFF APPROXIMATELY 100MM BELOW THE UNDERSIDE OF THE EXISTING FOOTING, AND THE FINAL PINNING UP OVER THE WHOLE EXTENT OF THE LATTER IS TO BE CARRIED OUT WITH DRY PACK, WELL RAMMED IN AS SOON AS POSSIBLE AFTER THE FOUNDATION HAS SET HARD. THE DRY PACK IS TO CONSIST OF 1 PART BY VOLUME OF SULPHATE RESISTANT CEMENT TO 3 PARTS OF SAND.
11.
12. EXCAVATION TO ANY SECTION OF UNDERPINNING SHALL NOT BE COMMENCED UNTIL AT LEAST 48 HOURS AFTER COMPLETION OF ANY ADJACENT SECTION OF THE WORK.
13. THE JOINT BETWEEN ADJACENT SECTIONS OF MASS CONCRETE UNDERPINNING IS TO BE FORMED BY CREATING A ROUGH SURFACE AGAINST WHICH THE FIRST SECTION IS CAST, THEN, HAVING THOROUGHLY CLEANED THE EXPOSED CONCRETE FACE, THE ADJACENT SECTION MAY BE CAST. THE JOINT BETWEEN ADJACENT SECTIONS OF REINFORCED CONCRETE UNDERPINS OR RETAINING WALLS SHOULD BE PREPARED AS ABOVE. HOWEVER REINFORCED CONCRETE UNDERPINS ARE TO BE DOWELLED TOGETHER IN ACCORDANCE WITH THE REINFORCEMENT DETAIL DRAWINGS.
14. THE CONTRACTOR SHALL PREPARE A SEQUENCE OF WORK AND SUBMIT IT TO THE CONTRACT ADMINISTRATOR FOR HIS COMMENTS PRIOR TO THE COMMENCEMENT OF THE WORK.
15. THE CONTRACTOR IS TO KEEP A RECORD OF THE SEQUENCE AND DIMENSIONS OF THE UNDERPINNING ACTUALLY CARRIED OUT, INCLUDING DETAILS OF EXCAVATION, CASTING CONCRETE AND PINNING UP FOR EACH SECTION.
16. HOLES AND PENETRATIONS FOR SERVICES THROUGH UNDERPINS AND RETAINING WALLS ARE TO BE SET OUT AND DETAILED BY THE ARCHITECT, INCLUDING WATERPROOFING DETAILS SUCH AS PUDDLE FLANGES OR HYDROPHILIC STRIPS, AND INSTALLED PRIOR TO THE POURING OF CONCRETE.

LOADS INDICATED ARE SLS AND ARE BASED ON A LINEAR LOAD SPREAD AT 45 DEGREES BELOW BEAM BEARINGS. SUSPENDED BASEMENT FLOOR NOT INCLUDED WITHIN LINE LOADS.

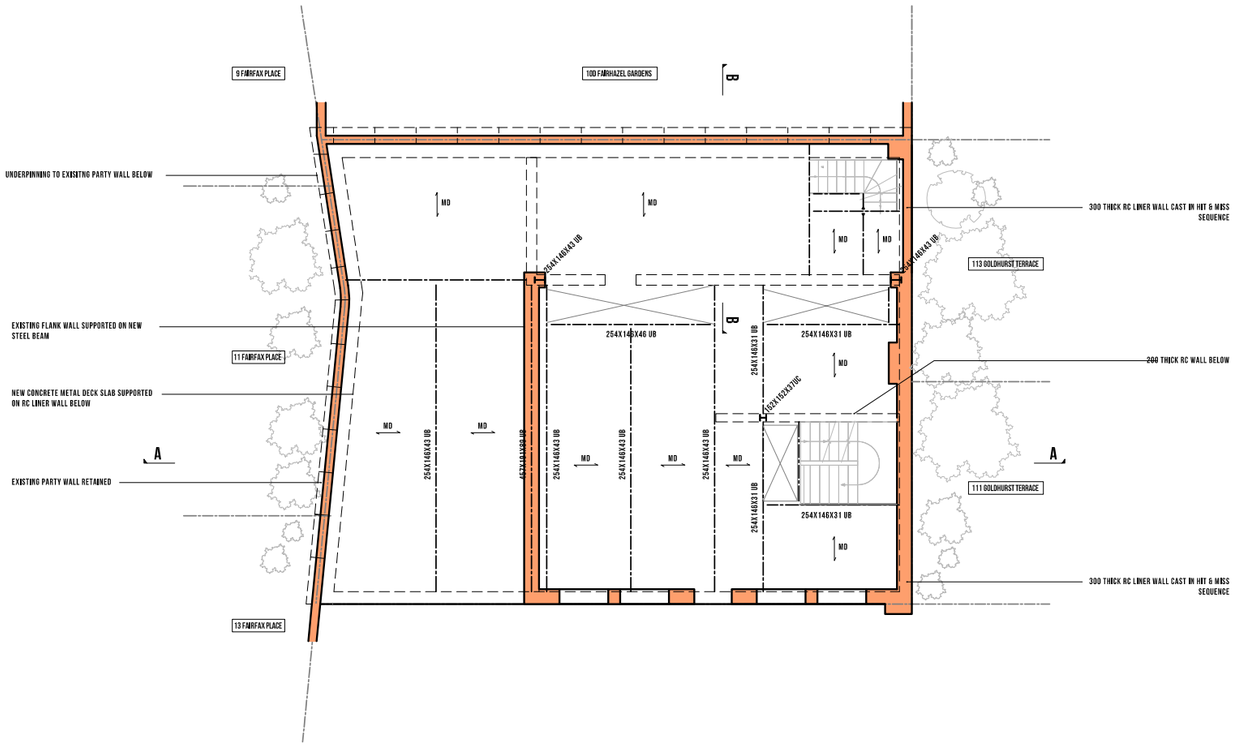
AREA LOAD OF BASEMENT FLOOR AS FOLLOWS:
- DX= 11.2 KN/M2
- DX= 1.5 KN/M2

CONCRETE TO BE RC32/40 WITH SULPHATE RESISTING CEMENT AND WATERPROOF ADDITIVE. PROVIDE WATERSTOPS AT ALL CONSTRUCTION JOINTS TO SPECIALIST'S DETAILS

DEVISE ENGINEERS

PRELIMINARY	1:100 AT A3
109 GOLDHURST TERRACE, LONDON, W7 1NU	OCT 2015
PROPOSED BASEMENT PLAN	1508 I B01 I S900 | P1

PROPOSED BASEMENT PLAN



LEGEND

- STEEL BEAM
- FIXED JOINT
- MD — 110MM DEEP KINGSPAN CONCRETE METAL DECK SLAB WITH A142 MESH
- EXISTING MASONRY WALL
- STRUCTURE BELOW

STEELWORK NOTES

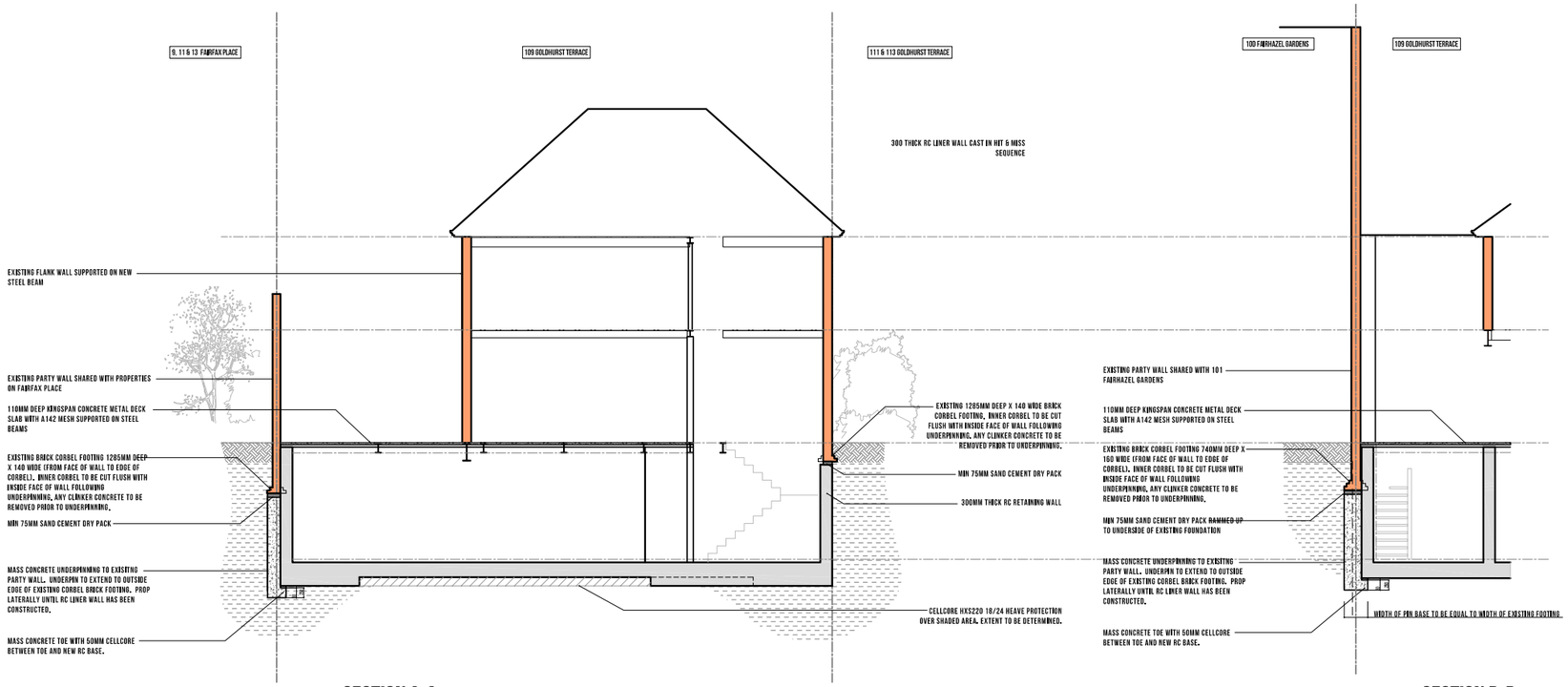
1. ALL STRUCTURAL STEEL SECTIONS ARE TO BE GRADE S355.
2. THE STEEL CONNECTIONS ARE TO BE DESIGNED AND DETAILED BY THE ENGINEER.
3. THE STEELWORK FABRICATION IS TO OBTAIN DIMENSIONS FROM SITE, SETTING OUT DIMENSIONS ARE TO BE OBTAINED FROM THE ARCHITECT'S DRAWINGS.
4. SHOP FABRICATION DRAWINGS SHOWING LAYOUT, CONNECTIONS AND FIXING DETAILS ARE TO BE SUBMITTED TO THE ENGINEER AND ARCHITECT FOR COMMENT AT LEAST TWO WEEKS BEFORE ANY FABRICATIONS CARRIED OUT.
5. ALL BOLTS ARE TO BE GRADE 8.8 BLACK BOLTS UNLESS NOTED OTHERWISE ON THE DRAWINGS.
6. ALL WELDING IS TO COMPLY WITH BS EN 1011 PARTS 1 & 2. SITE WELDING SHALL NOT BE PERMITTED.
7. UNLESS NOTED OTHERWISE, ENDS OF ALL STEELWORK BUILT INTO BRICKWORK ARE TO BE CONCRETE ENCASED, MIN 50MM CONCRETE COVER.

ALL STEEL SECTION SIZES SUBJECT TO CONFIRMATION FOLLOWING DETAILED DESIGN

DEVISE ENGINEERS

	PRELIMINARY	1:100 AT A3
	109 GOLDHURST TERRACE, LONDON, W7 1NU	OCT 2015
	PROPOSED GROUND FLOOR PLAN	1508 I G01 I S1000 P1

PROPOSED GROUND FLOOR PLAN



DEVISE ENGINEERS

	PRELIMINARY	1:100 AT A3
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	PROPOSED SECTIONS	1508 I S I S2000 | P1

PROPOSED SECTIONS