

Project name	Hampton Waterworks		
Design note title	Structural Statement		
Client	Waterfall Hampton Investment Ltd		
Document reference	12193-HYD-00-XX-RP-S-0001		
Author	Roger Bareham		
Revision	Rev A: 24/4/20; scheme updates Rev B: 5/9/22; scheme updates Rev C: 27/2/23; minor corrections Rev D: 30/11/23; reissued		
Date first issue	30 September 2019	Approved	✓

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## INTRODUCTION

Hydrock have been engaged by Waterfall Planning Ltd to work alongside architects LOM Architecture and Design to develop a civil and structural engineering strategy for conversion of the existing buildings for residential use, in line with other former waterworks buildings in the area.

Hydrock are also providing building performance engineering consultancy services.

This report is a structural statement to outline the existing building structural description and condition. It describes the proposed structural alterations and highlights where they affect existing original fabric. Options for alternative structural form of intrusions have been given where appropriate.

The report draws on the following references:

- Architect's pre-planning drawings
- Built Heritage Assessment report by CgMs Heritage
- Site inspections undertaken by Hydrock on 21st June 2019

## EXISTING SITE DESCRIPTION

The development site comprises four buildings arranged along an east-west axis alongside Upper Sunbury Road outside the village of Hampton.



From west to east, the four buildings are:

- Karslake Waterworks building (comprising 3 adjoining blocks in a line)
- Workshop building
- Waterworks cottages
- Ruston Waterworks building (comprising 3 separate blocks in L-shape, adjoining a workshop retained by Thames Water; hence a party wall)

The site itself is about 6400m<sup>2</sup> area and generally flat, roughly following the road levels, although the site stands a little above the road at the east end and a little below it at west end.

Geotechnically the ground conditions are thought to be river terrace gravels on London Clay. The area was historically reclaimed from the Thames river basin, so there is a possibility of made ground or alluvial material overlying the gravels. That said, there is no evidence of any subsidence issues to buildings or ground slabs. Also there is no historical or visual evidence of any levels re-working since the waterworks have been in existence that might suggest extensive made ground.

Geoenvironmentally, there is no visual or olfactory evidence of widespread contamination, although there are some discarded oil drums and some oil tanks present and hot spots of TPH's may exist.

## EXISTING STRUCTURAL DESCRIPTION

### *Karslake*

Building divided into three sections; general overview as follows:

- Solid brickwork walls, generally approx mm thick but with strengthening pilaster
- Generally, aesthetically characterful brickwork features comprising arches piers, mouldings
- Some stone portico entrances
- Feature brickwork roof parapets
- Cast iron windows, thought to be original
- Metal truss duopitch hipped roofs with timber sarking board and slate tiles
- Masonry chimney tower against east block
- Footings are unknown but presumed to be corbelled brick footings on competent strata.

### West block

- 1882 extension to the original 1855 building
- Front section is thought also to be extension
- Predominantly 4-storey high space, front part single storey "lean-to".
- Concrete ground slab
- First floor varying construction: steel beams at close centres with stone slabs and concrete infill was evident.
- Most of level 0 not accessible. It is thought that the slab at level 1 spans between loadbearing walls to support the 4No cast iron columns that appear to start at level 1 but this could not be verified.
- Second floor part mezzanine of iron column and partitioning system, possibly original
- Third floor timber joisted spanned between iron beams spanning between walls and pairs of large circular cast iron columns. Strips between beams have removable timber planks for lifting wells.
- Large gantry crane with "fishbelly" lifting beams spanning width of block on runway beams set on masonry piers
- Steel lightweight duo-pitched and hipped ends roof trusses supporting timber purlins and sarking boarding, slate tiles.
- Timber half trusses to front section supporting timber purlins and common rafters.

Central range – 1855 original

- Single storey space
- Concrete ground slab
- Wrought iron lightweight duo-pitched and hipped ends roof trusses supporting timber purlins and sarking boarding, slate tiles.

East block – original

- Three-storey space, but with no internal floor structure at all.
- Former engine house
- Evidence of former beam supports
- Undercroft basement level

## ***Ruston***

Building is L-shaped and can be divided into three sections; general overview similar to Karslake.

North west range – 1855 original

- Single storey space
- Concrete ground slab, some floor trenches with durbar plate over
- Apex glazed roof lantern.

North east corner block – 1855 original

- Three storey height open space, no internal floors
- Wrought iron lightweight duo-pitched and hipped ends roof trusses supporting timber purlins and sarking boarding, slate tiles.
- Full basement containing plant
- Suspended concrete slab, seen in parts to comprise I-section beams at about 700mm centres with concrete copping. Could also comprise filler joist construction.
- Original coal fired engines driving pumps replaced with diesel engines salvaged from WW2 battleships after the war and still in place today. Long since decommissioned for electric pumps. Clearly the suspended ground slab has significant structural capacity.
- Overhead gantry crane on runway beams

South range – 1882 extension

- Two storey height open space, no internal floors
- Part basement
- Steel lightweight duo-pitched and hipped ends roof trusses supporting timber purlins and sarking boarding, slate tiles. All steel and timber structure restored to aesthetically high standard. Tiling also apparently renovated.
- Gantry crane on runway beams bearing on stone padstones on masonry piers. Crane also restored to aesthetically high standard.
- Adjoining block to south of this range to be retained by Thames Water, and therefore will be a Party Wall.

## ***Cottages***

Not accessed, but understood to comprise loadbearing masonry walls and presumably timber floor and roof construction.

## *Workshop*

Single storey loadbearing masonry building. Where visible “agricultural” timber roof trusses at close centres were visible.

## STRUCTURAL CONDITION

Generally primary structure is in very good structural condition. The public health issues that brought about their initial development (i.e. Metropolis Water Act 1852 after devastating cholera epidemic) meant that the buildings were lavish in design and construction. The structure is very robust and of apparently high-quality workmanship.

Any defects observed are therefore local and mostly characteristic of a building of its age.

It is noted that since Thames Water took on the management of the buildings in the 1970's maintenance has been fairly minimal and only undertaken when urgently required.

## *Karlake*

- Surface corrosion to first floor beams
- West block: some cracking at north west corner first floor window
- West block: some cracking to arches at first floor level
- West block: remedial tie across width of block from south west to south east corner
- Central range: cracking to non-loadbearing blockwork partitions. Consider ground slab integrity
- Roof leaks historically since the 1960's
- East block: about 600mm depth of water in basement slab, from 50+ years of roof leaks. H&S hazard.
- East block: severely corroded decking and stairs at entrance. H&S hazard.
- East block: steel roof structure not visible, but may be in poor condition as block derelict since 1960's.
- East block: vertical crack in south wall at high level, plaster removed at some point to expose apparently straight joint or chase. Close visual inspection was not possible.

## *Ruston*

- South range: cracking in west end piers under the gantry crane runway beams

## *Cottages*

Not accessed; condition not known.

- Some cracking to one of the voussoir brick arches on front elevation
- Part of rear boundary garden wall leaning out at south west corner, evident from cracking at structural return.

## *Workshop*

West leg not accessed and condition thus not known.

- Roof trusses in north leg have pair of timber plates and post support at their internal eaves. Not clear if this was remedial strengthening or built this way as a result of load bear wall/roof relationship.
- Damp in walls

## STRUCTURAL PROPOSALS AFFECTING EXISTING FABRIC

Refer to indicative scheme sketches.

### Karslake

- New ground bearing slab, possibly lowered. Investigations on walls required to check slab can be lowered without undermining existing foundations.
- Transfer slabs at following locations:
  - East block: levels 0 and 2
  - Central range: level 2
- West block: structural alterations at level 1, subject to access / inspection
- Transfer slabs proposed as following alternatives:
  - Steel beams with Slimdeck metal deck and slab within the depth of the supporting beams.
  - Flat RC slabs supported on perimeter existing masonry walls via hit/miss notching into the brickwork.
  - Both versions supported on internal columns and foundations.
- Subject to detailed design development the steel transfer slab option is likely to be preferable for the following reasons:
  - Slightly shallower construction than slab (approx. 250mm vs 300mm).
  - Less intrusive bearing detail on heritage fabric (padstone vs hit/miss slab bearings)
  - Better commercial flexibility (ie extent of concrete works may be too small for a frame contractor experienced in such work).
- SFS alternative to transfer slabs for range, east and west towers, see alternative sketch plans, comprising as follows:
  - Loadbearing stud partition
  - New foundations to loadbearing partitions
  - Metal joist mezzanine floors
  - Hot rolled steelwork for joisted mezzanines
  - Concrete slab on metal decking designed to support penthouse structure.
  - Hot rolled steelwork (beams/internal columns) to supplement decking to transfer loads from above

<i>Transfer slab / columns</i>	<i>SFS</i>
<p><i>Pros:</i></p> <ul style="list-style-type: none"> <li>• <i>Makes use of walls</i></li> <li>• <i>Less new foundations and structure</i></li> <li>• <i>Works better with apartment layouts</i></li> </ul> <p><i>Cons:</i></p> <ul style="list-style-type: none"> <li>• <i>Intrusive to heritage fabric</i></li> </ul>	<p><i>Pros:</i></p> <ul style="list-style-type: none"> <li>• <i>Cheaper</i></li> <li>• <i>Less intrusive to heritage fabric</i></li> </ul> <p><i>Cons:</i></p> <ul style="list-style-type: none"> <li>• <i>More strip foundations,</i></li> <li>• <i>Compromises apartment layouts</i></li> <li>• <i>More new structure</i></li> </ul>

- New stairwell in west tower cut through existing wrought iron beams and joisted structure in west block, stairwell configured to require only one beam removed.

- Gantry crane to be relocated to suit apartment layout. Specialist temporary works s/c, to adopt computer controlled hydraulic tiffors.
- Central range roof trusses removed to accommodate new lightweight penthouse structure – see options assessment below.
- New openings in existing walls in east and west blocks, formed with needles / temporary propping
- Masonry stresses to be checked to verify if simple beams or box frames required.
- Some windows will be converted into entrance doors by lowering their cills. Reveals of dropped cills will be made good with reclaimed or matched bricks toothed into existing brickwork carefully cut back along mortar joints.

### ***Typical bearing detail inset for SFS, hot rolled steel and RC slabs***

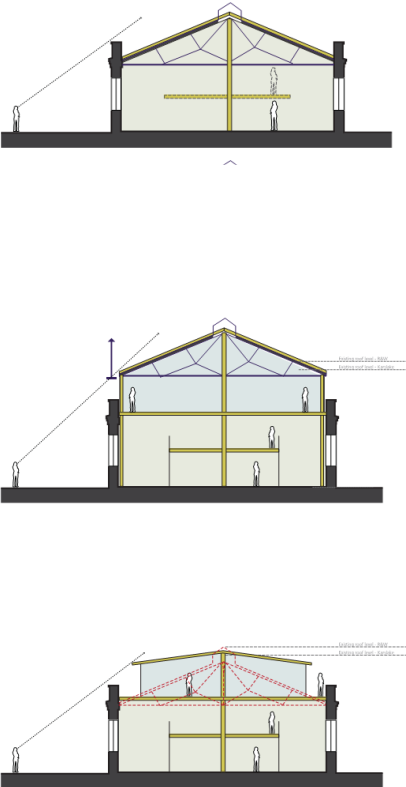
*Beam bearings: the walls are robust and should be used for support of the elements of the converted scheme. The implications of not using them would require more structure within the apartments and this will compromise layouts and at some point will transfer to a point of required support. Mass concrete padstones to be detailed is a module of brick dimensions and carefully disc cut to install, or within the depth of the beam rather than extending below beam/ceiling so thus hidden.*

*Ledger angle support to joists or metal deck: provide angle bolted to wall to honestly utilise the existing walls as much as possible for support of the elements of the converted scheme.*

*RC transfer slab option: cast hit/miss into walls, with drypack to pin up tight into existing brickwork. This would be intrusive on the fabric and onerous to construct.*

*SFS floors option: generally on new walls on new foundations, independent from existing masonry*

Discussion of options for new steel framed roof in central range:

	<p><b>Option 1 – retain roof truss as existing</b></p> <ul style="list-style-type: none"> <li>• Insufficient space for viable number of units</li> <li>• Thermal/weathering upgrade required</li> <li>• Retains heritage feature</li> <li>• Roof truss not structurally justifiable but precedence would suggest adequate to accept a very nominal load increase, ie no added ceilings, suspended services, PV's etc.</li> </ul> <p><b>Option 2: alter truss and move up to create new storey</b></p> <ul style="list-style-type: none"> <li>• Maintaining configuration leads to excessive massing = Planning issue</li> <li>• Risk of damage to truss in relocation</li> <li>• Complex reconfiguration of supports = risk of damage</li> <li>• Precedence structural justification not valid if relocating truss</li> <li>• Retains heritage feature</li> </ul> <p><b>Option 3: remove existing trusses for new penthouse</b></p> <ul style="list-style-type: none"> <li>• Creates space for viable number of units</li> <li>• Minimises massing</li> <li>• Loss of trusses, mitigated by retention of similar trusses in 3 tower blocks</li> </ul>
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It is noted that the form / arrangement of the step-back does not affect in any way the impact on the heritage fabric since the new storey will be steel framed and amenable to any arrangement proposed, and transfer structures discussed above will equally be suitable for any arrangement.

## **Ruston**

- Transfer slabs at level 2 in east block and range, detail as Karlake.
- Alternative SFS could apply to range and tower as Karlake, albeit with compromises on layouts for internal structure (not sketched).
- Range roof trusses removed to accommodate new lightweight penthouse structure. See options assessment as for Karlake.
- New openings in existing walls in east block, formed with needles / temporary propping.
- New door openings formed from lowering window cills as Karlake.
- New mezzanine in workshop space, hot rolled steel frame built off slab with joisted floor. Steel frame to be braced and independent of existing characterful ceramic brick walls



## *Cottages*

- Loadbearing walls removed at ground floor with new steels supporting wall over. Piers to remain each side sufficiently big to avoid a box frame solutions. Beams to be installed with needles and temporary propping.

## *Workshop*

- New open plan single storey masonry extension with windposts to stabilise walls and flat roof.
- New small openings in existing walls for new entrance and access to new extension.
- Roof structure assumed to remain unaltered, although thermal upgrading keeping existing tiling will be incorporated.
- No other structural changes to existing building.

## BELOW GROUND DRAINAGE

New foul below ground drainage to connect to existing network outside the building. New runs will involve cutting through existing ground slabs. Whilst intrusive and significant alteration work, it is considered that the fabric is not particularly heritage sensitive.

Penetrations through walls will be required and this is considered as being small scale intrusion and hence not intrusive.

Surface water downpipes will be reused and reconnected as part of above ground plumbing and roofing works.

There are considerable external finishings works proposed, including permeable paving as part of SUDS measures. Again, this is generally not considered as being heritage contentious.

It is noted that relic train lines are still visible in the hard finishes in areas. It has been noted that this will be preserved and left exposed in any external works.

## FINANCIAL RISK ASSESSMENT

Foundation design – pile v pads – geotechnical survey / trial pits or boreholes.

Ground contamination

Disposal of ponded water in Karlake east tower

Buried obstructions and services – radar survey

Corroded filler joists in west tower of Karlake – consider replacement or upgrade, subject to investigations and scheme development.

Ground slab in Karlake central range voids – keep or renew, subject to levels assessment geo survey and foundation design development.

If lowering slabs in central ranges of Karlake and Ruston check will not undermine existing foundations or cause issues with drainage falls

Karlake east block roof structure condition, subject to investigations / close up access inspections

Slab support detail on existing fabric – subject to investigations, heritage review and consideration of alternative SFS option.

Alternative SFS scheme may require apartment revision or more internal walls vs hot rolled steel beams and columns to make it work.

Headroom issues associated with deeper SFS structure and/or columns within apartment layout.

Agreement to removal of roof trusses in ranges.

Structural repairs to cracks – local Cintec/Helibar stitching

## HEALTH AND SAFETY RISK ASSESSMENT

Ponded water in Karslake, thought to be around 600mm deep in basement.

Karslake east block: highly corroded deck and stairs at entrance to basement. No guarding present.

Asbestos present – asbestos survey available but not received.

Many external buried services, marked on topographical survey.

Unknown buried internal services.

## FURTHER INVESTIGATIONS

Geotechnical investigations to prove existing foundations profile, obtain foundation design parameters for new structures, check no undermining, soakaways

Geoenvironmental investigations to ascertain if any ground contamination, although little is expected.

Ground slab in Karslake central range.

Karslake east block – pump out water for safe disposal and install access to inspect roof structure.

Access Karslake west tower ground level, previously inaccessible.

Access cottages and previously inaccessible west leg of workshop.

## NEXT STEPS

Full access as noted above

Scope and commission of further surveys noted above

Agree heritage options

Agree scheme options

Discuss gantry crane relocation with specialist temporary works contractor

Develop scheme options with design team to RIBA 3 / Planning.

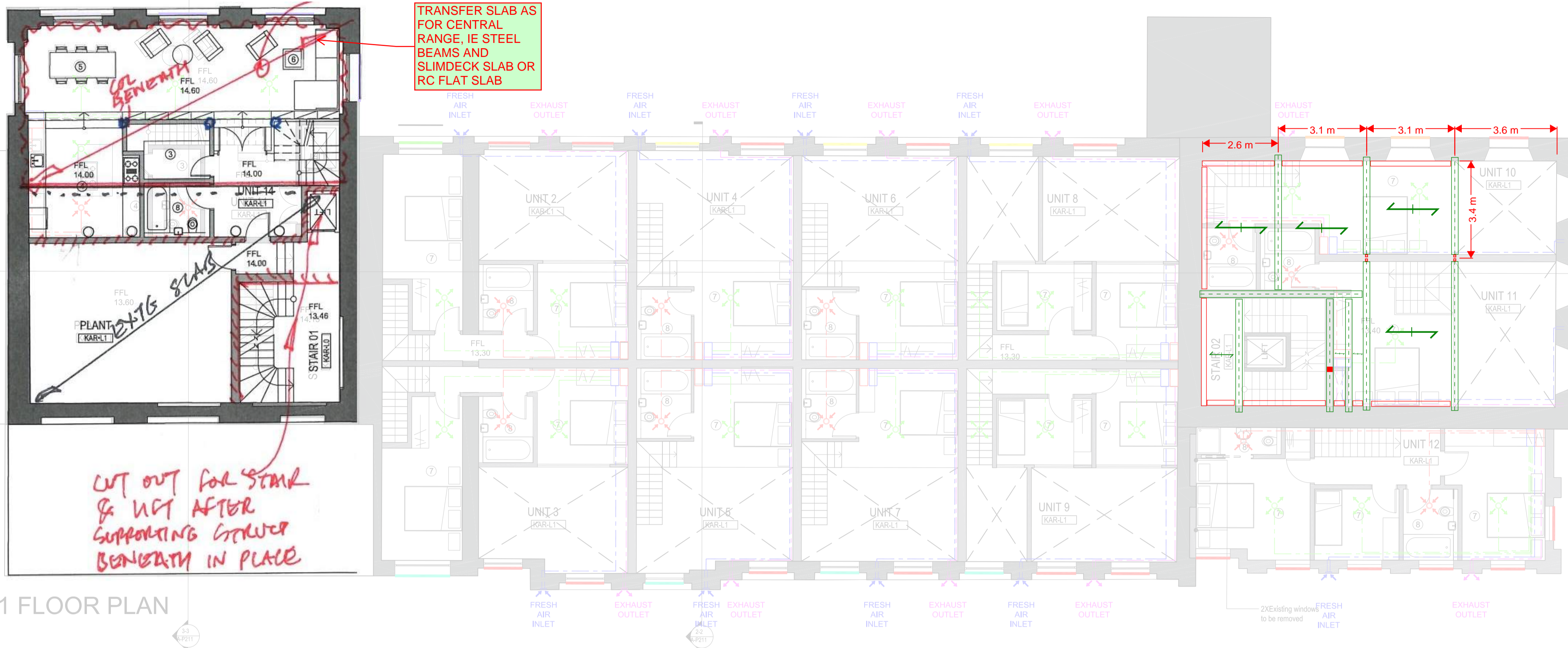
# TECHNICAL DESIGN NOTE



Appointment for above to be agreed.

## Appendix A

### Structural Scheme Karslake P02



SCALE 1:100  
KARSLAKE - Level 1 FLOOR PLAN

**COMFLOR SLAB DESIGN LOADINGS**

**Dead:**  
75mm screed  
slab + beam self weight  
Services + ceiling, say 0.25kN/m<sup>2</sup>

**Live:**  
Live resi load  
Partitions, allow 1kNm<sup>2</sup>

**MEZZANINE FLOOR DESIGN LOADINGS**

**Dead**  
Ply deck  
Timber joists  
Plasterboard ceiling

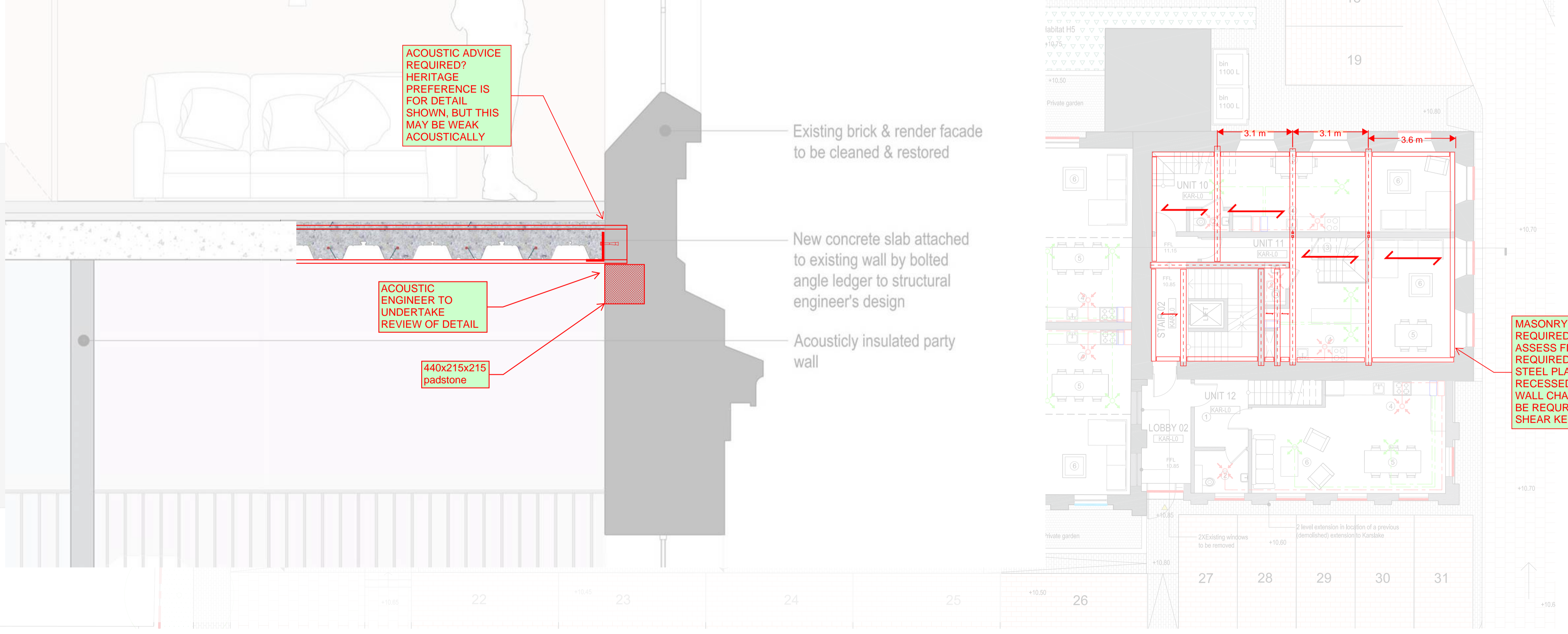
**Live**  
Imposed 1.5kN/m<sup>2</sup>  
Partitions 1kN/m<sup>2</sup>

**Q: Assumptions for confirmation:**  
Internal duplex floors timber joisted, allow 250mm construction depth.  
All new partitions, division walls and internal walls, to be lightweight.

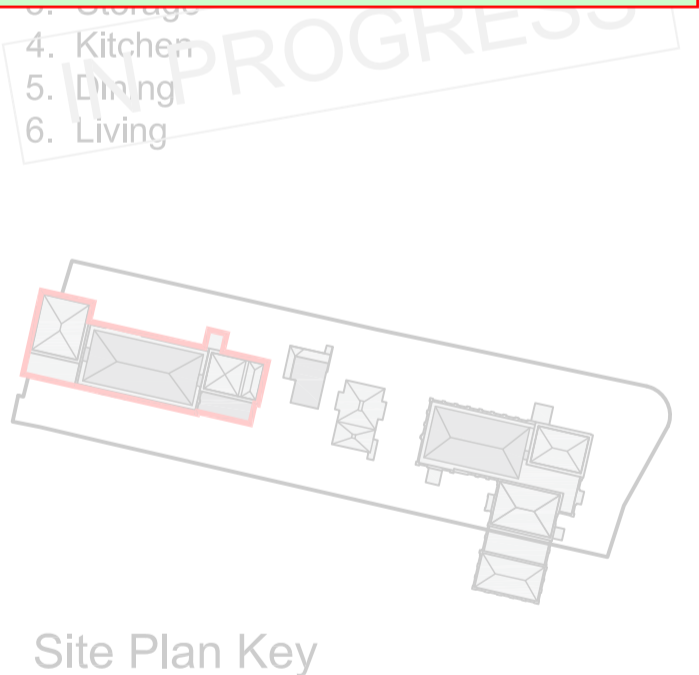
NOTE:  
SURVEY INFORMATION BY M.J. REES AND COMPANY LTD, CHARTERED LAND SURVEYORS

CODE REF.	DESCRIPTION
01	Replaced with new double glazed aluminium/crittal window
02	Replaced with double glazed window with additional secondary glazing required including aluminium panel to cover mezzanine level

- LEGEND:**
- UC254x254x132 w/550x20thk plate underneath
  - ComFlor 80 - 1.2mm gauge - C25//30 w/A393 mesh - 276mm deep
  - UC152x152x30
  - 47x175dp C24 timber joists @ 400mm c/c
  - RSA ledger to support deck fixed to existing masonry via resin anchors
  - UC152 hangers to stair structure
  - SHS 100x100x6.3 posts



SCALE 1:100  
KARSLAKE - Level 0 FLOOR PLAN



**Hydrock** Merchants' House  
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Bristol  
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t: +44(0)117 945 9225  
e: bristolcentral@hydrock.com

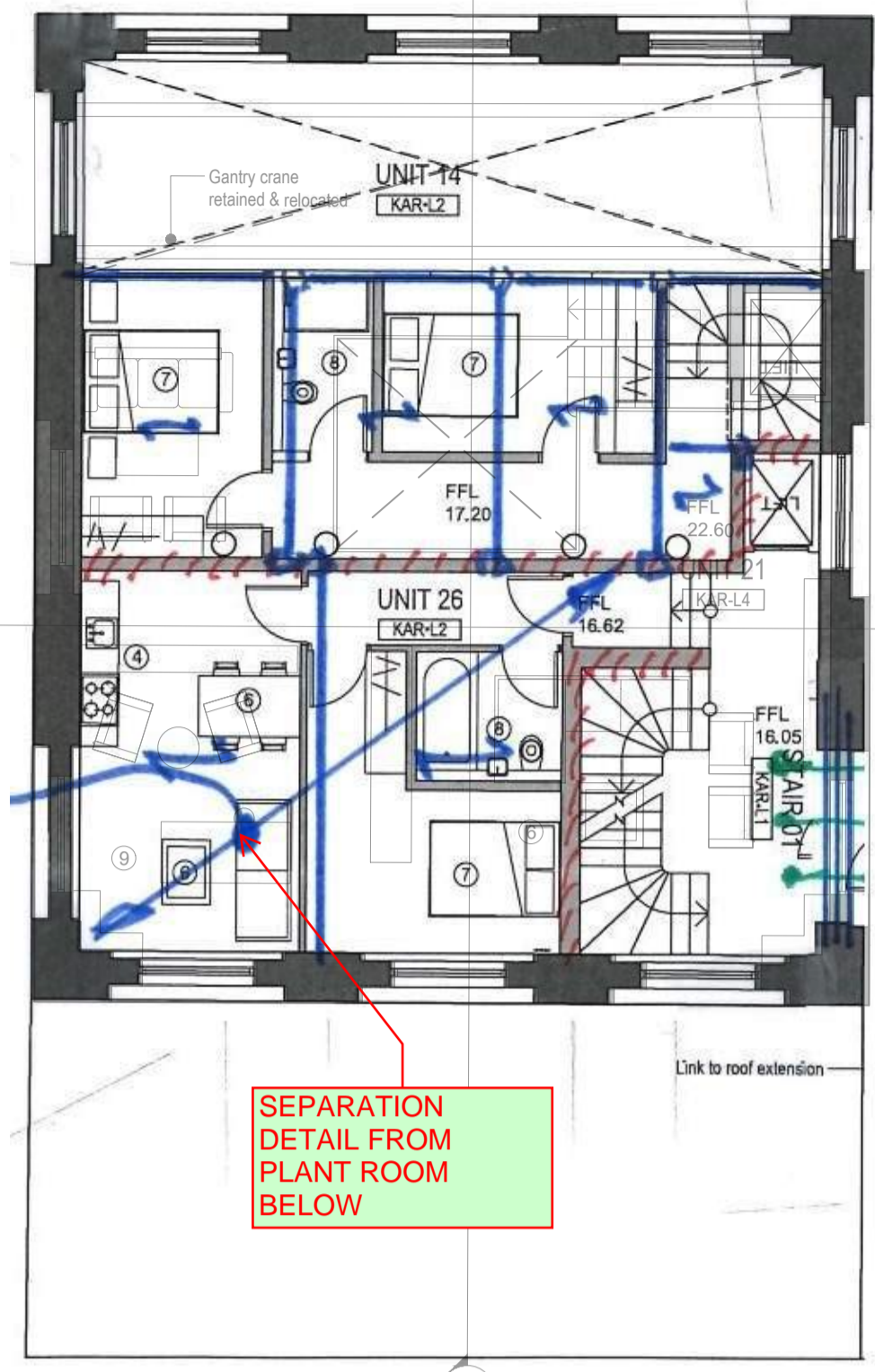
Project Title:  
**HAMPTON WATERWORKS**

Sketch Title:  
**KARSLAKE EAST PUMP HOUSE  
PARTY FLOOR  
SLIMDECK FLOOR PROPOSAL - Level  
00 & 01**

Status:  
**INFORMATION**

Hydrock Job No: 12193

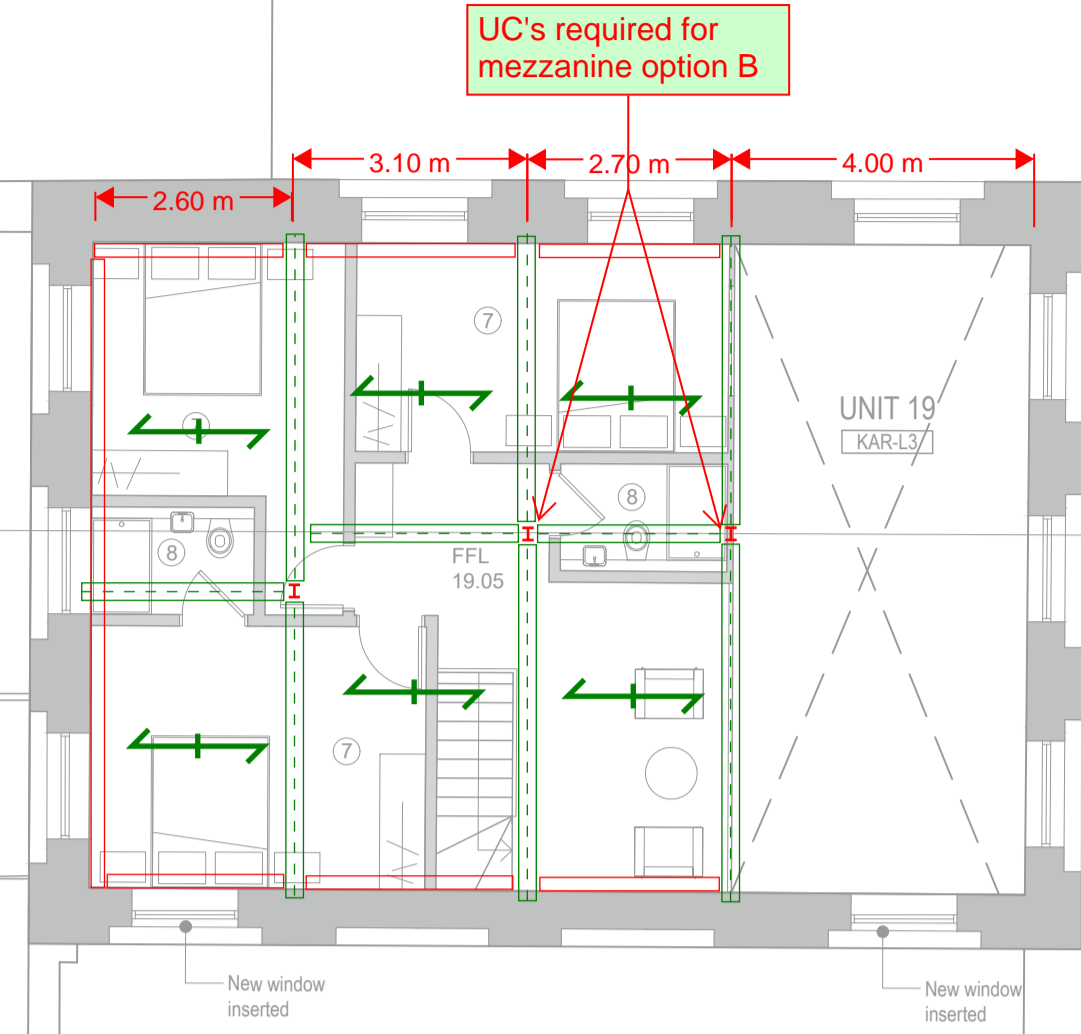
Drawn	CV	Scale	NTS	Date	12/07/22
Sketch Number	HWW-HYD-KS-ZZ-SK-S-0011			Revision	P02



OVERHEAD GANTRY CRANE TO BE RETAINED. CONSIDER MOVING TO SUIT APMNT PAYOUTS: REMOVE GEARS AND EMPLOY COMPUTER CONTROLLED HYDRAULIC TIRFORS BY TEMP WORKS SPECIALIST

SEPARATION DETAIL FROM PLANT ROOM BELOW

EXTG TIMBER / W/ FOR STRUCTURE REMOVED & REPLACED NEW STEEL STAIR / AIR STRUCTURE.



**COMFLOR SLAB DESIGN LOADINGS**  
 Dead:  
 75mm screed  
 slab + beam self weight  
 Services + ceiling, say 0.25kN/m2  
 Live:  
 Live resi load  
 Partitions, allow 1kNm2  
**MEZZANINE FLOOR DESIGN LOADINGS**  
 Dead  
 Ply deck  
 Timber joists  
 Plasterboard ceiling  
 Live  
 Imposed 1.5kN/m²  
 Partitions 1kN/m²  
**Q: Assumptions for confirmation:**  
 Internal duplex floors timber joisted, allow 250mm construction depth.  
 All new partitions, division walls and internal walls, to be lightweight.

**NOTE:**  
 - DRAWINGS ARE DESIGN INTENT FOR THE PURPOSE OF PLANNING APPROVAL.  
 - ALL DRAWINGS ARE SUBJECT TO FURTHER DESIGN DEVELOPMENT AND COORDINATION WITH ENGINEERS INFORMATION.  
 - ALL FURNITURE AND INTERIOR LAYOUTS ARE INDICATIVE AND SUBJECT TO DETAILED DESIGN.  
 - EXISTING HERITAGE BRICK AND STONE FAÇADES TO BE CLEANED AND RESTORED  
 - INTERNAL VOLUMES TO BE STRIPPED OUT, REMOVING 20TH C. WORK AND RESTORING ORIGINAL FABRIC  
 - INDUSTRIAL HERITAGE DETAILS - TILES, BRICKS, ELECTRICAL SWITCHES, LIFTING CRANES, ETC. - TO BE CLEANED AND RETAINED  
 - ALL EXISTING ORIGINAL WINDOWS TO BE RETAINED AND RESTORED, WITH NEW HIGH-PERFORMANCE SECONDARY GLAZING INSERTED BEHIND  
 - ALL EXISTING WINDOWS WHICH ARE NOT ORIGINAL TO THE BUILDING TO BE REPLACED WITH HIGH PERFORMANCE WINDOWS TO MATCH EXISTING DESIGN

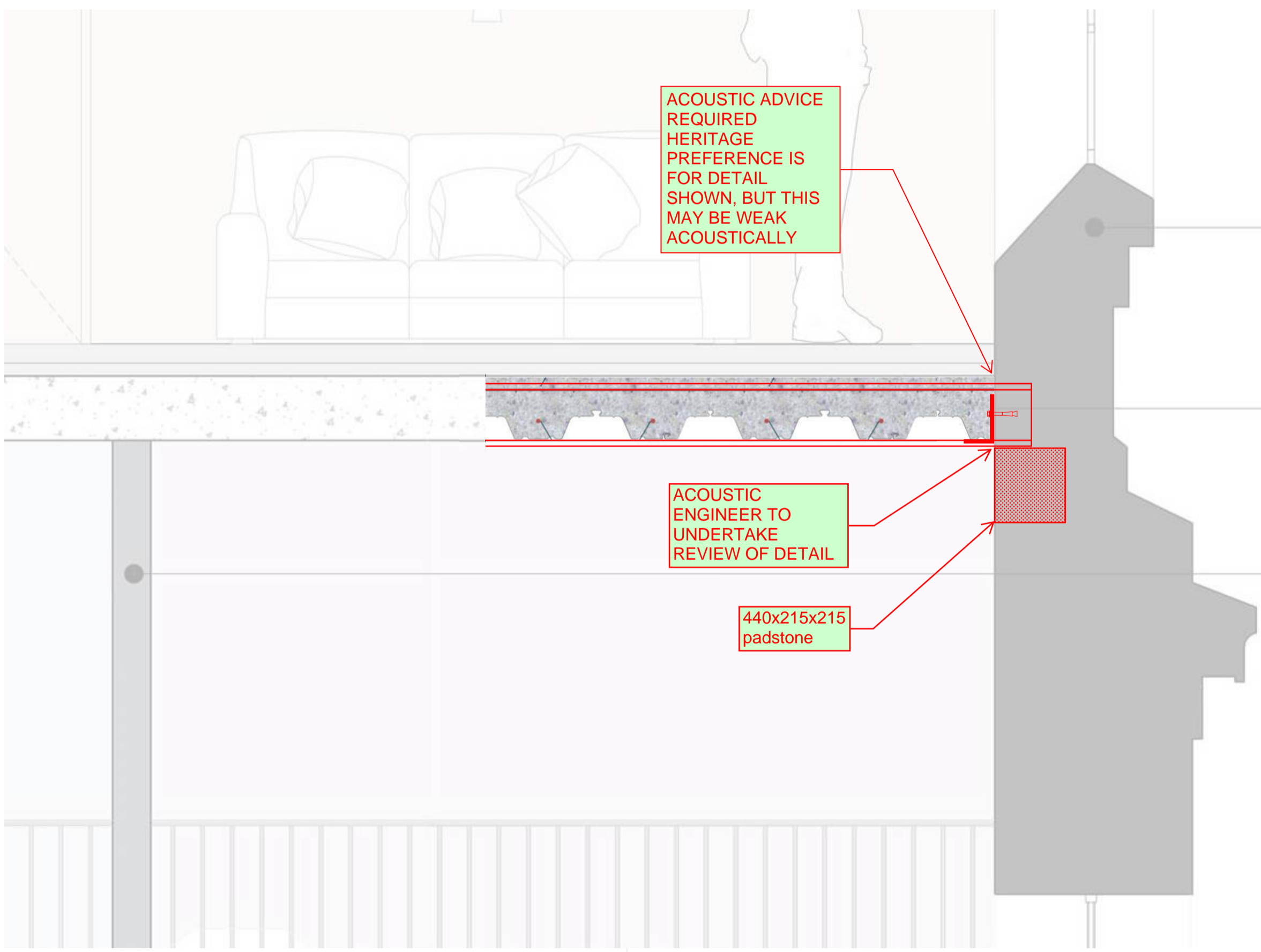
**LEGEND:**  
 UC254x254x132 w/550x20thk plate underneath  
 ComFlor 80 - 1.2mm gauge - C25//30 w/A393 mesh - 276mm deep  
 Mezzanine floor beams:  
 Option A: no internal columns / full span: 254UC  
 Option B: internal columns breaking up beam span: UC152x152x37  
 47x175dp C24 timber joists @ 400mm c/c  
 RSA ledger to support deck fixed to existing masonry via resin anchors  
 UC152x152x23 post

- 2. WC
- 3. Storage
- 4. Kitchen
- 5. Dining
- 6. Living
- 9. Study

MASONRY TESTING REQUIRED TO ASSESS FIXINGS REQUIRED. A STEEL PLATE RECESSED INTO WALL CHASE MAY BE REQUIRED FOR SHEAR KEY

SCALE 1:100  
KARSLAKE - Level 4 FLOOR PLAN

SCALE 1:100  
KARSLAKE - Level 3 FLOOR PLAN



ACOUSTIC ADVICE REQUIRED. HERITAGE PREFERENCE IS FOR DETAIL SHOWN, BUT THIS MAY BE WEAK ACOUSTICALLY

ACOUSTIC ENGINEER TO UNDERTAKE REVIEW OF DETAIL

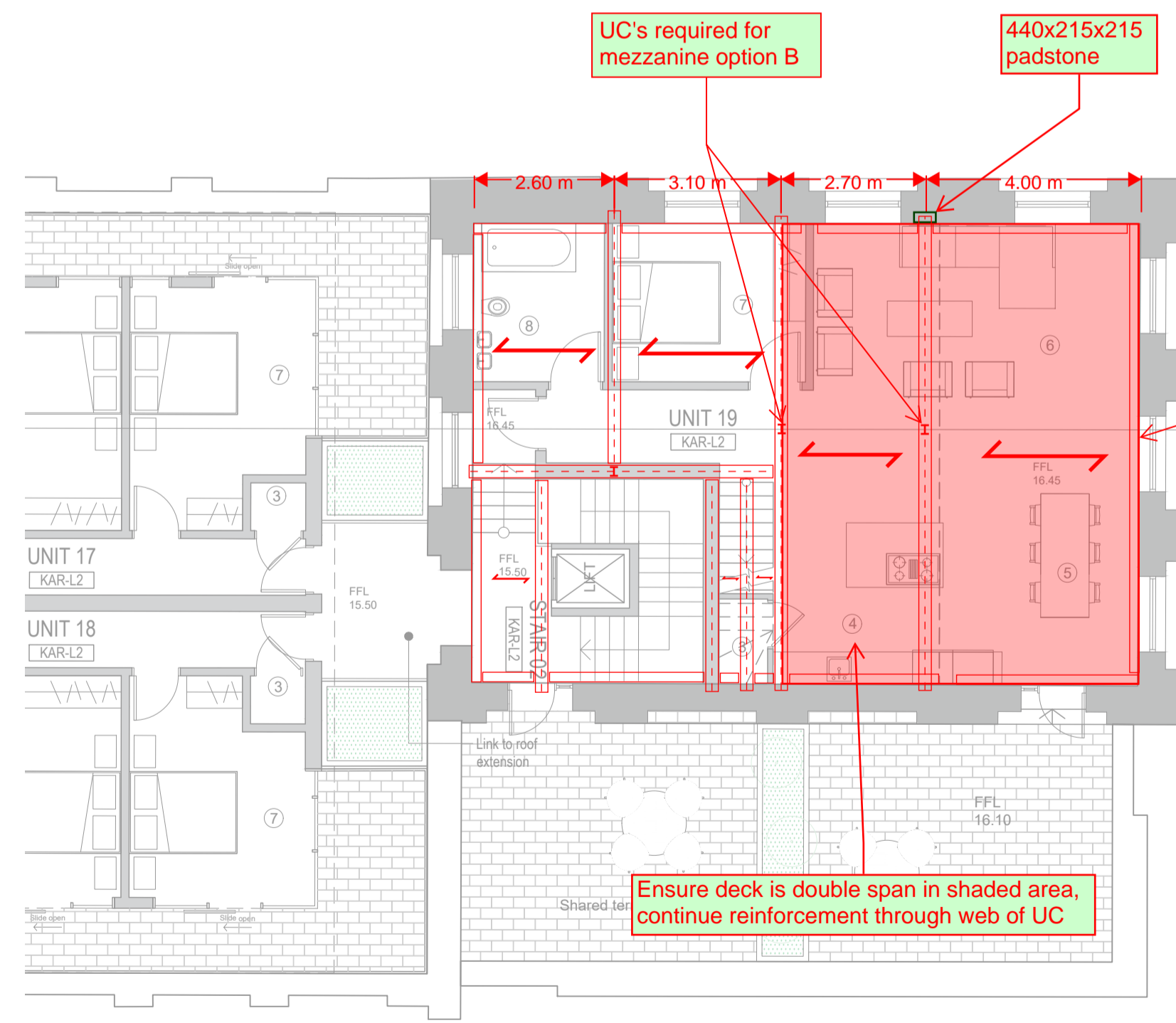
440x215x215 padstone

Existing brick & render facade to be cleaned & restored

New concrete slab attached to existing wall by bolted angle ledger to structural engineer's design

Acoustically insulated party wall

SCALE 1:100  
KARSLAKE - Level 2 FLOOR PLAN



Ensure deck is double span in shaded area, continue reinforcement through web of UC

Site Plan Key

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 Wapping Road  
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 e: bristolcentral@hydrock.com

Project Title:  
**HAMPTON WATERWORKS**

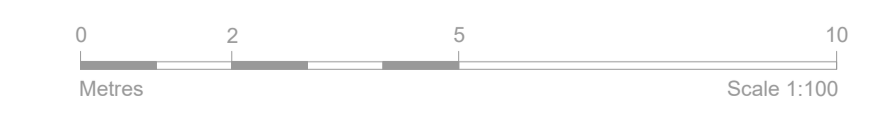
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**KARSLAKE EAST PUMP HOUSE PARTY FLOOR SLIMDECK FLOOR PROPOSAL - Level 02 & 03**

Status:  
**INFORMATION**

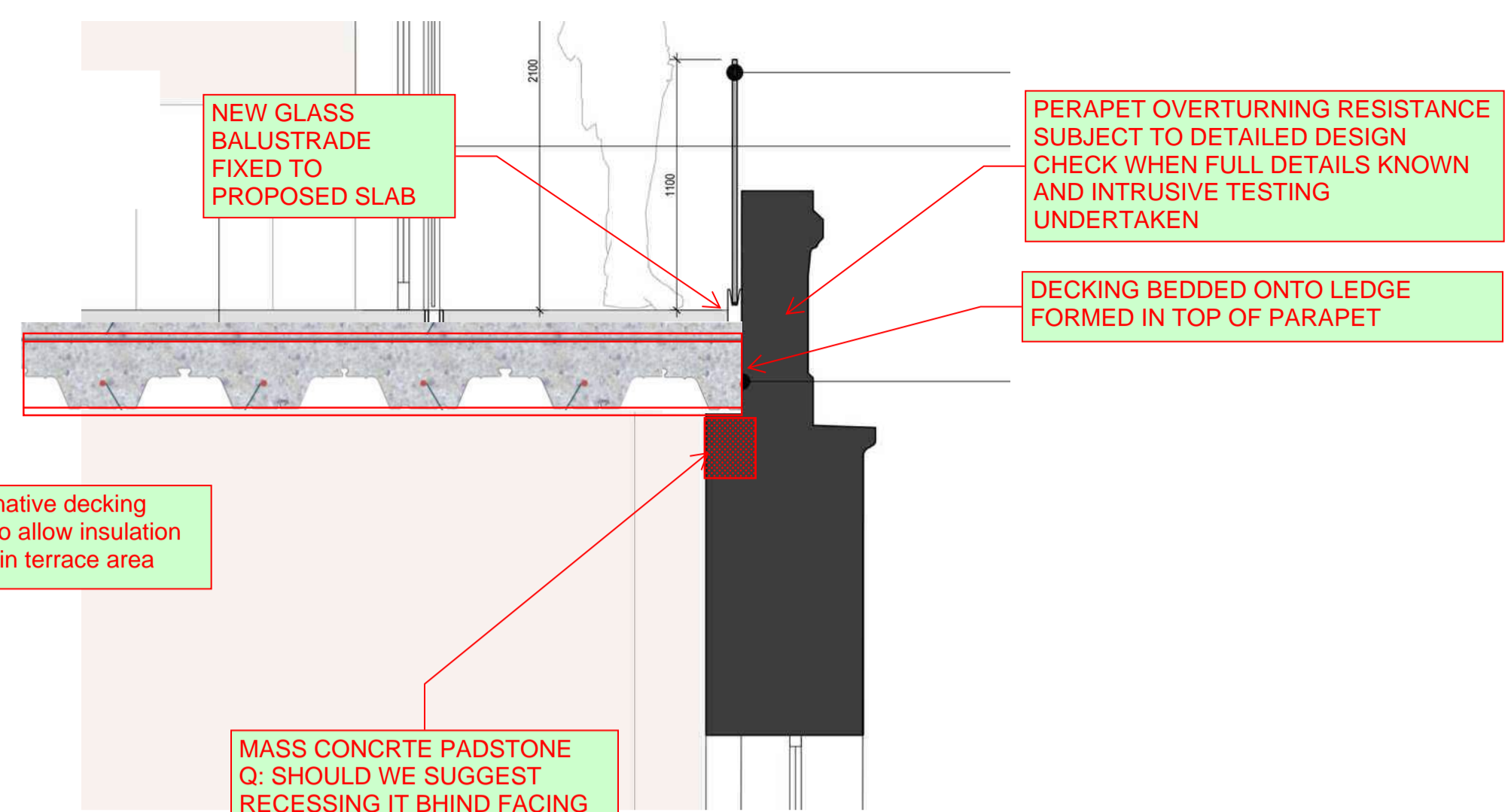
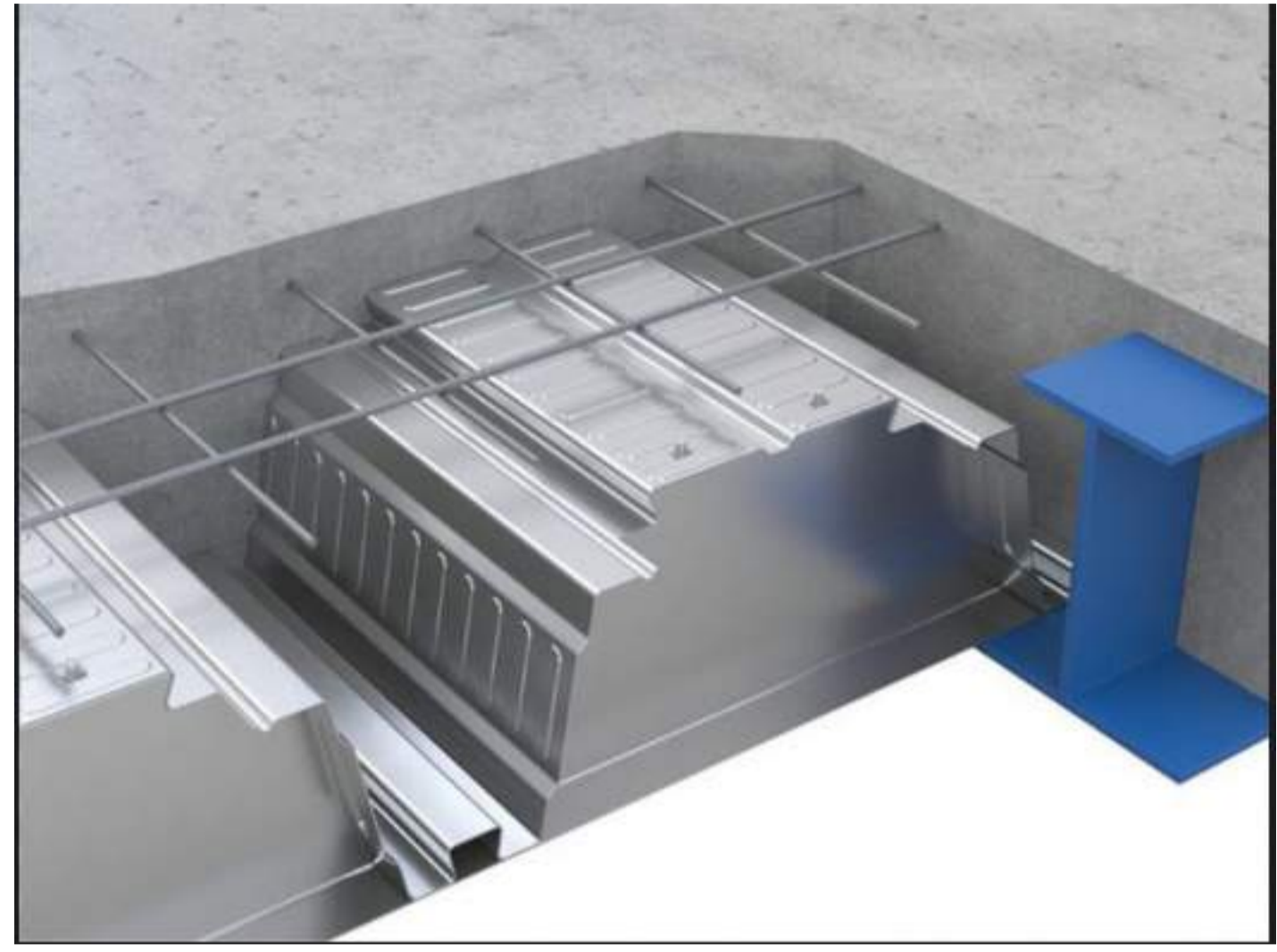
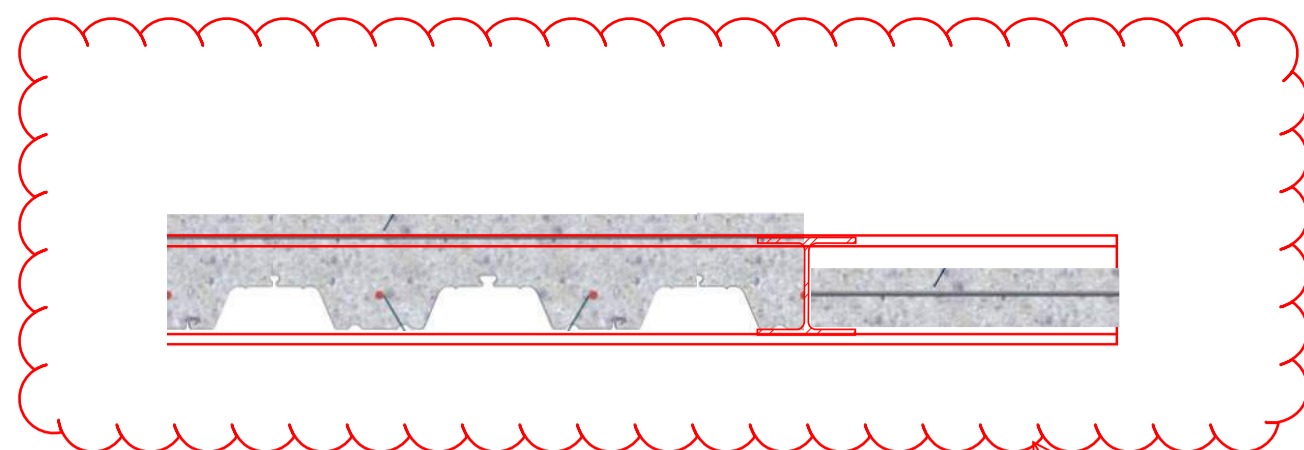
Hydrock Job No: **12193**

Drawn: **CV** Scale: **NTS** Date: **12/07/22**

Sketch Number: **HWW-HYD-KS-ZZ-SK-S-0012** Revision: **P02**



Rev P02; 5/9/22; Updates to arch comments



**COMFLOR SLAB DESIGN LOADINGS**

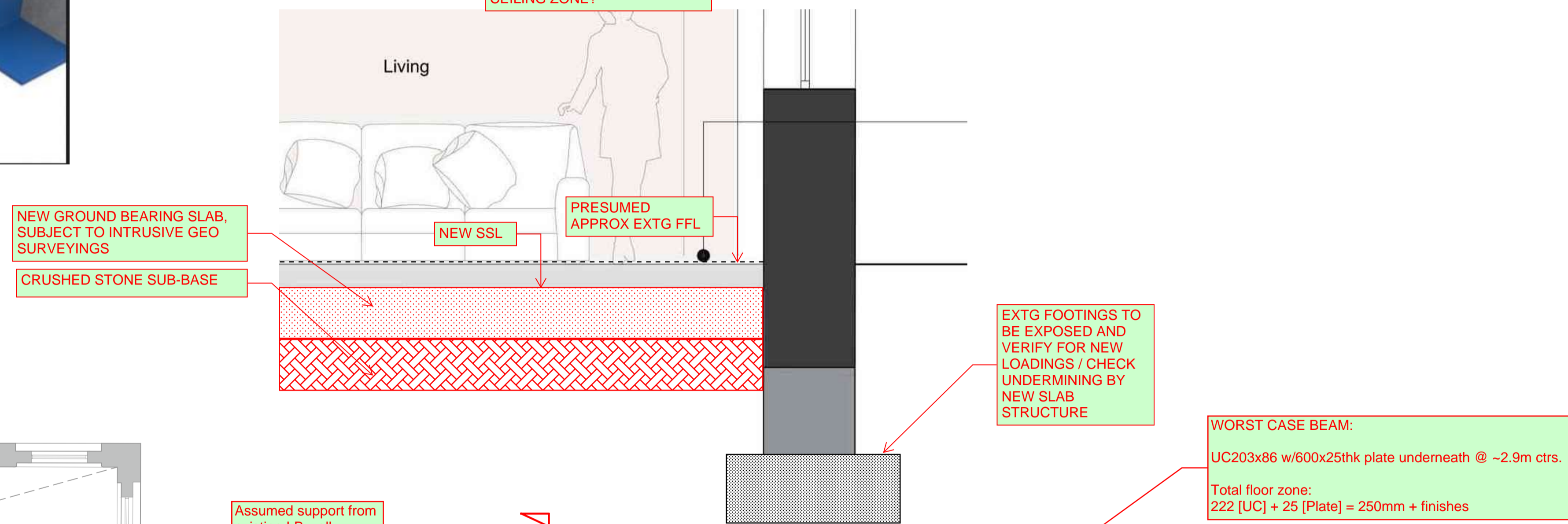
**Dead:**  
75mm screed  
slab self weight  
Services + ceiling, say 0.25kN/m2

**Live:**  
Live resi load  
Partitions, allow 1kNm2

Penthouse structure: braced steel frame loadings transferred to primary beams, global "all up" loads as follows:

Roof dead - say, 2.5kN/m2  
Roof live - 0.75kN/m2  
External glazed curtain walling - 1.5kN/m2 in elevation  
Assume central support column over ground floor columns

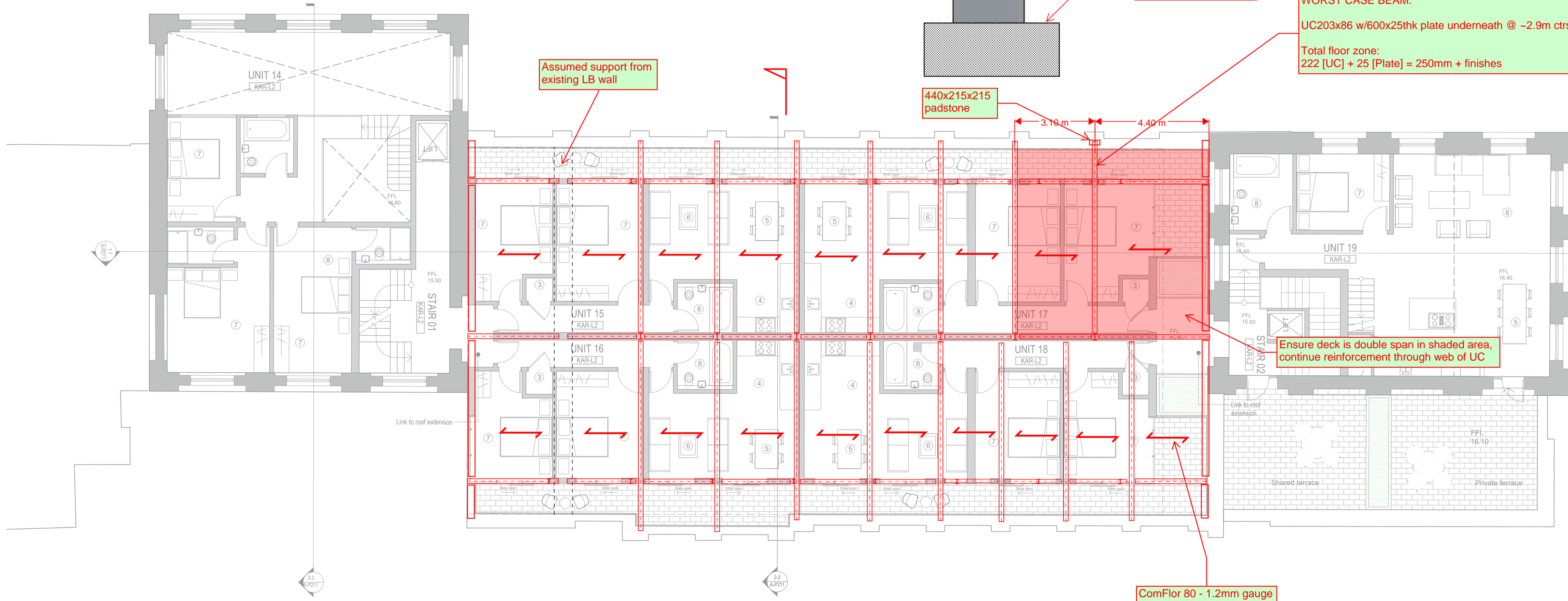
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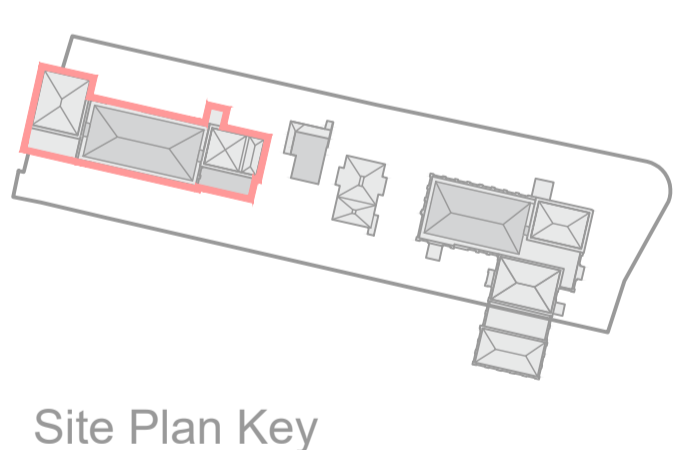
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- INTERNAL VOLUMES TO BE STRIPPED OUT, REMOVING 20TH C. WORK AND RESTORING ORIGINAL FABRIC
- INDUSTRIAL HERITAGE DETAILS - TILES, BRICKS, ELECTRICAL SWITCHES, LIFTING GRANES, ETC. - TO BE CLEANED AND RETAINED
- ALL EXISTING ORIGINAL WINDOWS TO BE RETAINED AND RESTORED, WITH NEW HIGH-PERFORMANCE SECONDARY GLAZING INSERTED BEHIND
- ALL EXISTING WINDOWS WHICH ARE NOT ORIGINAL TO THE BUILDING TO BE REPLACED WITH HIGH PERFORMANCE WINDOWS TO MATCH EXISTING DESIGN

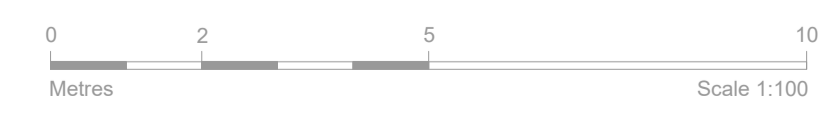
IN PROGRESS



- Key rooms:
- |            |             |
|------------|-------------|
| 1. Entry   | 7. Bedroom  |
| 2. WC      | 8. Bathroom |
| 3. Storage | 9. Study    |
| 4. Kitchen |             |
| 5. Dining  |             |
| 6. Living  |             |



SCALE 1:100  
KARSLAKE - Level 2 FLOOR PLAN



Rev P02; 5/9/22; Updates to arch comments

**Hydrock** Merchants' House  
Wapping Road  
Bristol  
BS1 4RW  
t: +44(0)117 945 9225  
e: bristolcentral@hydrock.com

Project Title:  
**HAMPTON WATERWORKS**

Sketch Title:  
**KARSLAKE BOILER HOUSE  
PARTY FLOOR  
LEVEL 02 SLIM DECK PROPOSAL**

Status:  
**INFORMATION**

Hydrock Job No: **12193**

Drawn <b>CV</b>	Scale <b>NTS</b>	Date <b>12/07/22</b>
Sketch Number <b>HWW-HYD-KS-ZZ-SK-S-0013</b>	Revision <b>P02</b>	

**FLAT SLAB DESIGN LOADINGS**

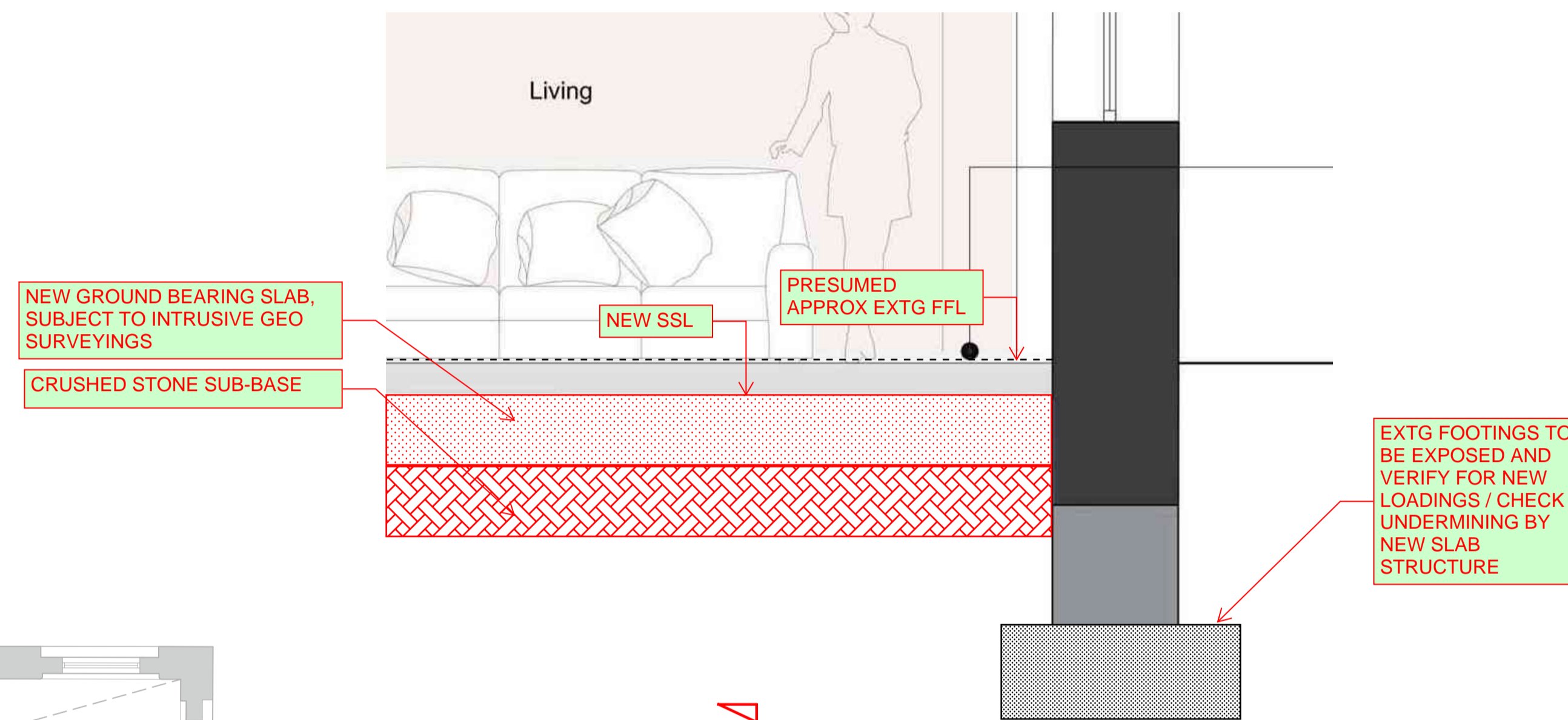
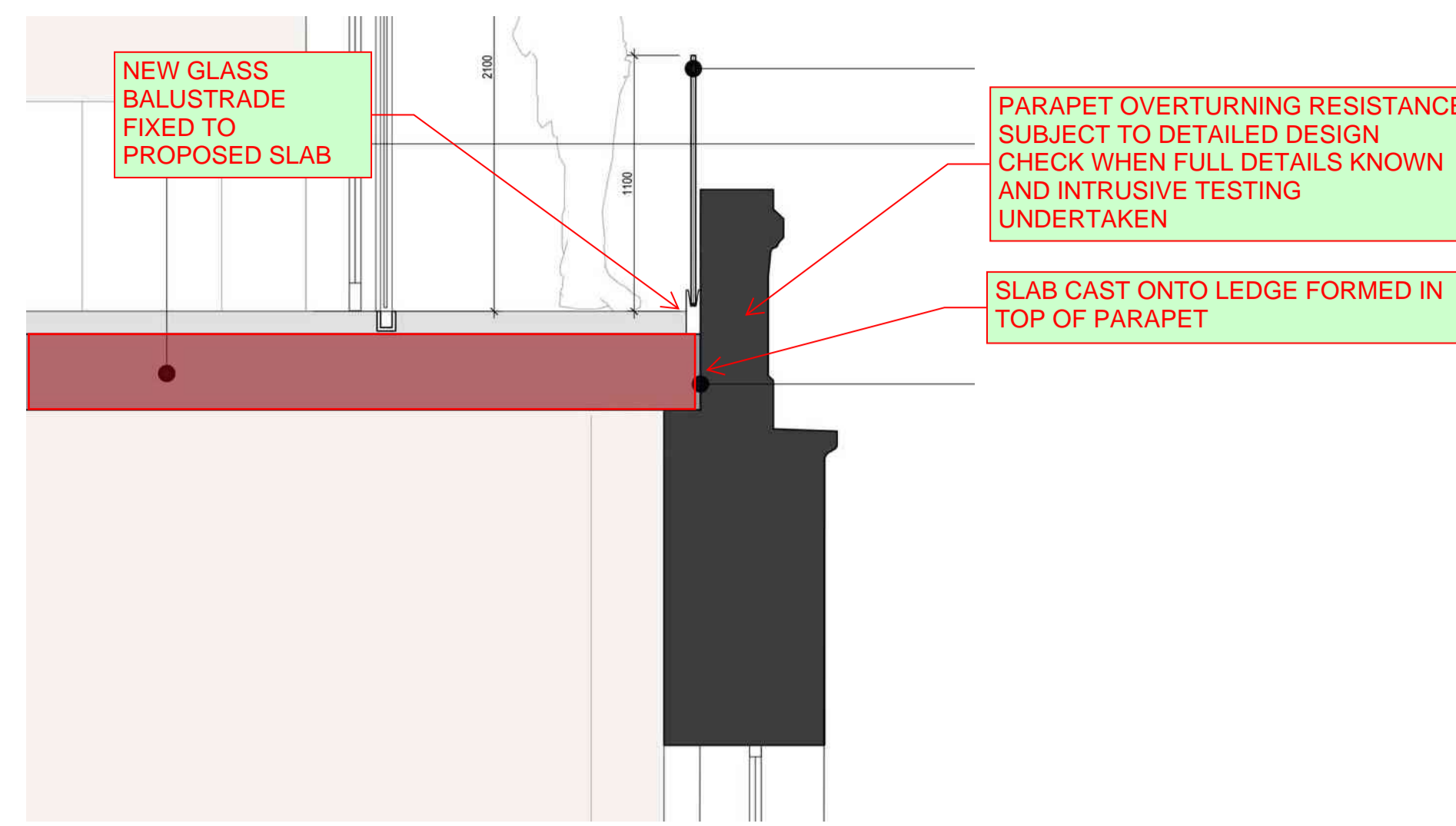
**Dead:**  
75mm screed  
slab self weight  
Services + ceiling, say 0.25kN/m2

**Live:**  
Live resi load  
Partitions, allow 1kNm2

Penthouse structure: braced steel frame loadings transferred to primary beams, global "all up" loads as follows:

Roof dead - say, 2.5kN/m2  
Roof live - 0.75kN/m2  
External glazed curtain walling - 1.5kN/m2 in elevation  
Assume central support column over ground floor columns

**Q: Assumptions for confirmation:**  
Internal duplex floors timber joisted, allow 250mm construction depth.  
All new partitions, division walls and internal walls, to be lightweight.



**USE OF DRAWINGS**

DO NOT SCALE FROM THIS DRAWING. USE WRITTEN DIMENSIONS AND CHECK ON SITE. THIS DRAWING IS BASED ON SITE INFORMATION SUPPLIED BY THIRD PARTIES AND ACCURACY OF EXISTING FEATURES IS NOT GUARANTEED. ANY ERROR, OMISSION OR DISCREPANCY NOTED ON OR BETWEEN DRAWINGS AND OTHER DOCUMENTS MUST BE REPORTED IN WRITING IMMEDIATELY. ALL MECHANICAL, ELECTRICAL AND STRUCTURAL LAYOUTS / COMPONENTS ARE INDICATIVE AND MUST BE DESIGNED AND CHECKED BY SPECIALISTS. DO NOT START WORK ON SITE BEFORE CONFIRMING THAT ALL NECESSARY STATUTORY AND OTHER CONSENTS HAVE BEEN OBTAINED. THIS DRAWING IS COPYRIGHT AND MUST NOT BE DISTRIBUTED WITHOUT PERMISSION. ELECTRONIC CAD FILES MUST NOT BE ALTERED OR COPIED.

**LEGEND**

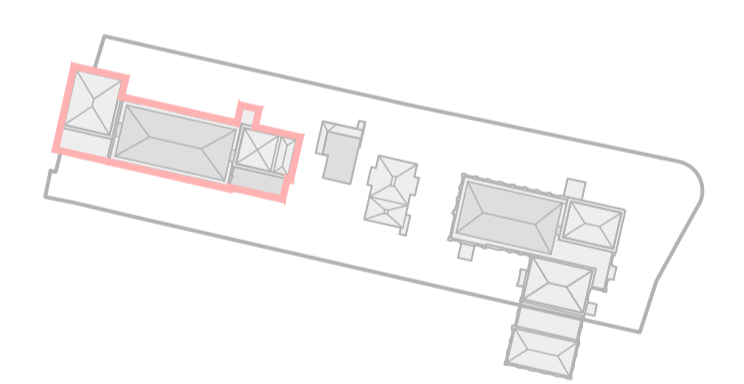
- 300mm RC25/30 FLAT SLAB ALLOW 125kg/m3 REBAR
- RC COLS BELOW
- ROOF STEEL COLUMN ABOVE

**NOTE:**

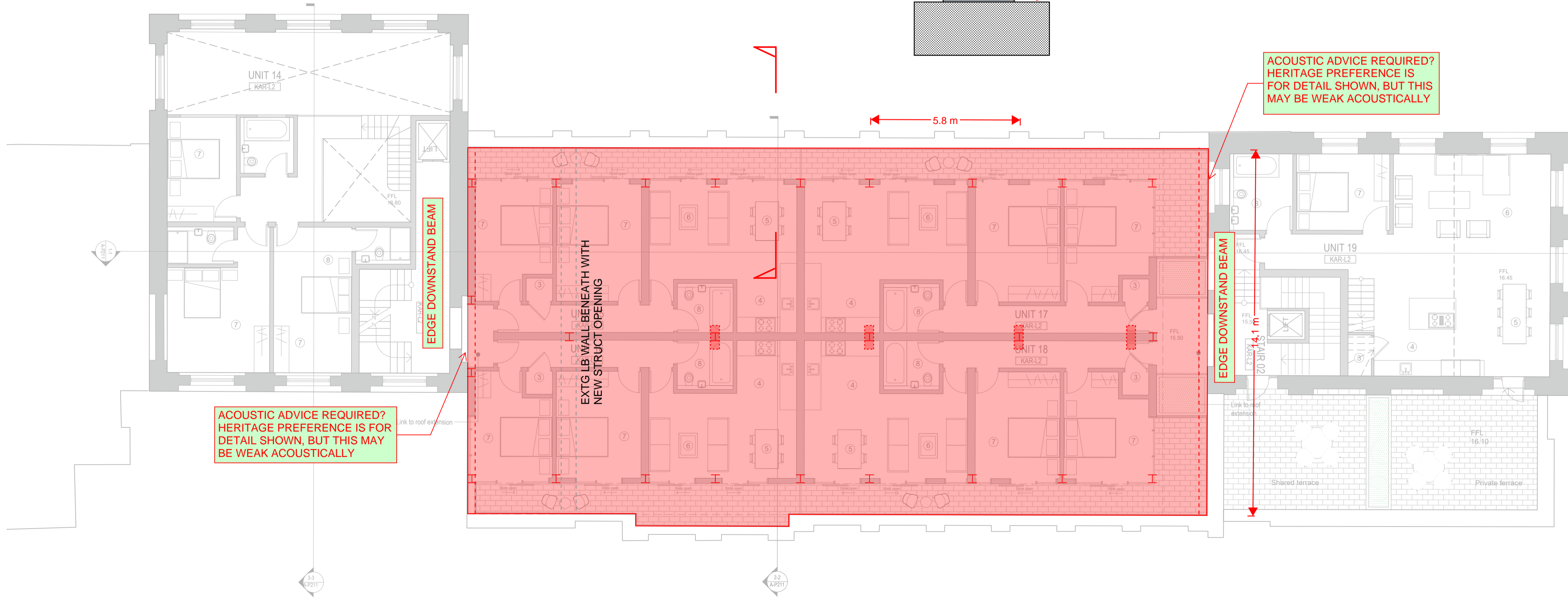
- DRAWINGS ARE DESIGN INTENT FOR THE PURPOSE OF PLANNING APPROVAL.
- ALL DRAWINGS ARE SUBJECT TO FURTHER DESIGN DEVELOPMENT AND COORDINATION WITH ENGINEERS INFORMATION.
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- ALL EXISTING WINDOWS WHICH ARE NOT ORIGINAL TO THE BUILDING TO BE REPLACED WITH HIGH PERFORMANCE WINDOWS TO MATCH EXISTING DESIGN.

IN PROGRESS

- Key rooms:
- |            |             |
|------------|-------------|
| 1. Entry   | 7. Bedroom  |
| 2. WC      | 8. Bathroom |
| 3. Storage | 9. Study    |
| 4. Kitchen |             |
| 5. Dining  |             |
| 6. Living  |             |



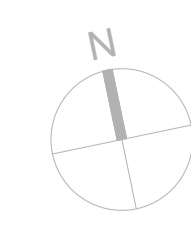
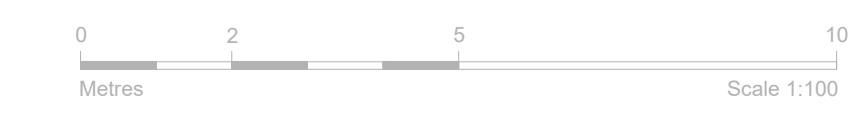
Site Plan Key



ACOUSTIC ADVICE REQUIRED? HERITAGE PREFERENCE IS FOR DETAIL SHOWN, BUT THIS MAY BE WEAK ACOUSTICALLY

ACOUSTIC ADVICE REQUIRED? HERITAGE PREFERENCE IS FOR DETAIL SHOWN, BUT THIS MAY BE WEAK ACOUSTICALLY

SCALE 1:100  
KARSLAKE - Level 2 FLOOR PLAN



Rev P02; 5/9/22; Updates to arch comments

**Hydrock** Merchants' House  
Wapping Road  
Bristol  
BS1 4RW  
t: +44(0)117 945 9225  
e: bristolcentral@hydrock.com

Project Title:  
**HAMPTON WATERWORKS**

Sketch Title:  
**KARSLAKE BOILER HOUSE RANGE PARTY FLOOR FLAT SLAB PROPOSAL**

Status:  
**INFORMATION**

Hydrock Job No: **12193**

Drawn	Scale	Date
CV	NTS	12/07/22
Sketch Number	Revision	
HHW-HYD-KS-ZZ-SK-S-0014	P02	



## Appendix B

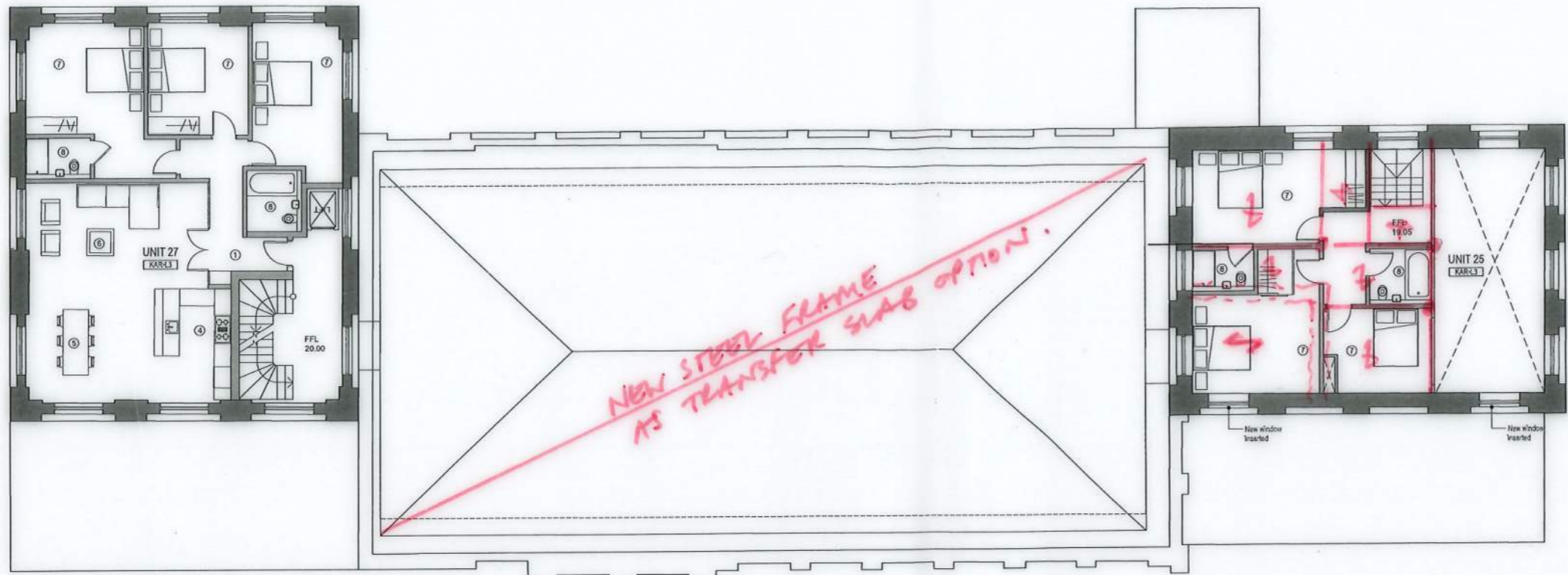
### Structural Scheme Karslake SFS Alternative

*Indicative only*

USE OF DRAWINGS  
 DO NOT SCALE FROM THIS DRAWING. USE WRITTEN DIMENSIONS AND CHECK ON SITE. THIS DRAWING IS BASED ON INFORMATION SUPPLIED BY THIRD PARTIES AND ACCURACY OF EXISTING FEATURES IS NOT GUARANTEED. ANY ERROR, OMISSION OR DISCREPANCY NOTED ON OR BETWEEN DRAWINGS AND OTHER DOCUMENTS MUST BE REPORTED IN WRITING IMMEDIATELY. ALL MECHANICAL, ELECTRICAL AND STRUCTURAL LAYOUTS / COMPONENTS ARE INDICATIVE AND MUST BE DESIGNED AND CHECKED BY SPECIALISTS. DO NOT START WORK ON SITE BEFORE CONFIRMING THAT ALL NECESSARY STATUTORY AND OTHER CONSENTS HAVE BEEN OBTAINED. THIS DRAWING'S COPYRIGHT AND MUST NOT BE DISTRIBUTED WITHOUT PERMISSION. ELECTRONIC CAD FILES MUST NOT BE ALTERED OR COPIED.

REVISIONS

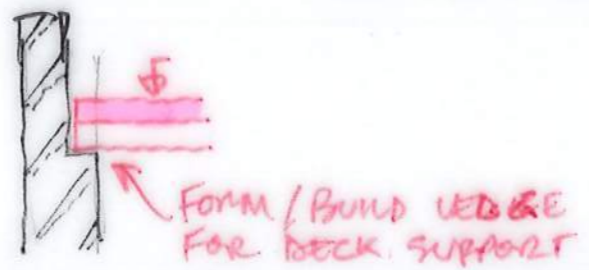
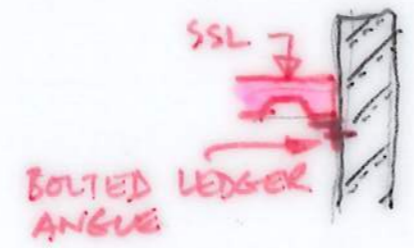
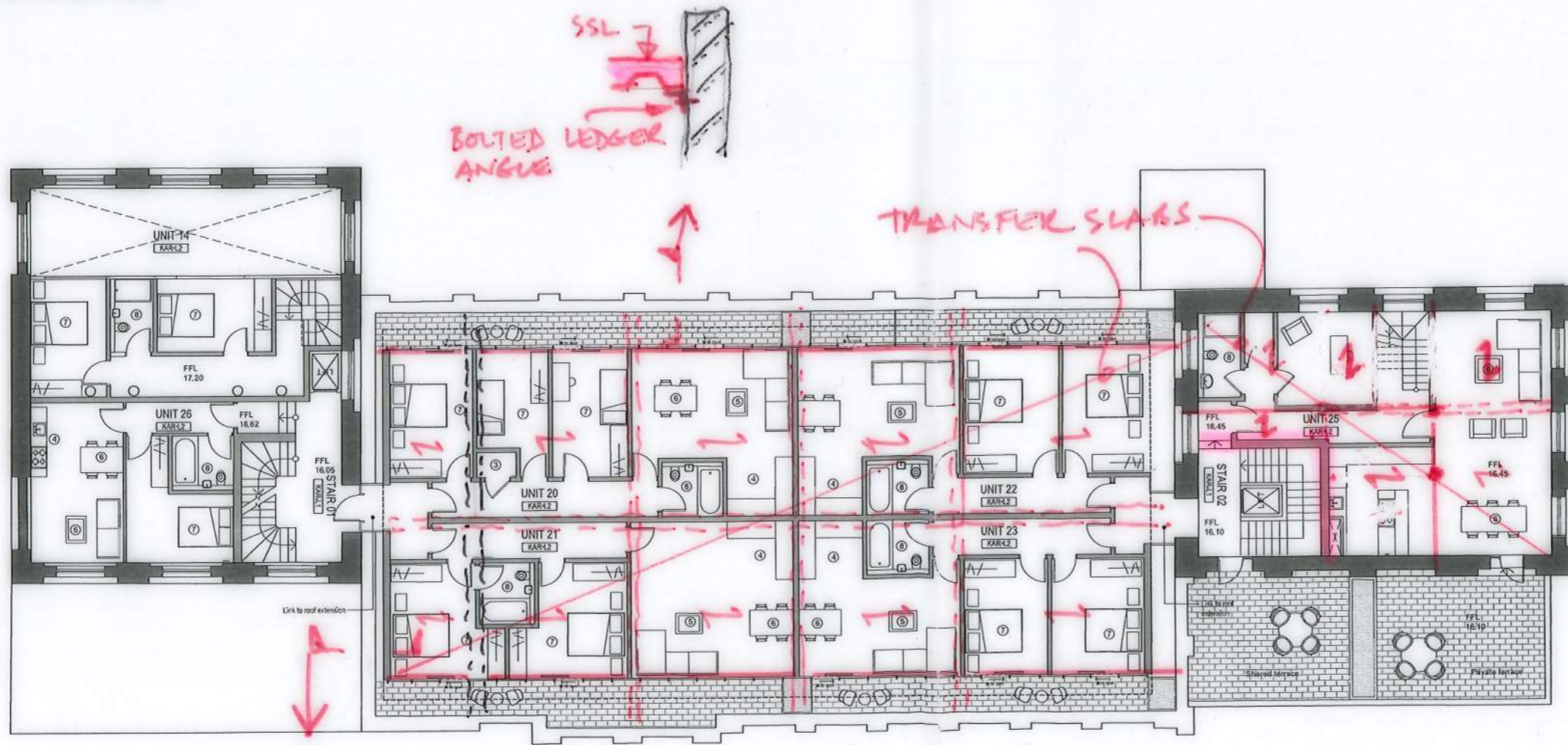
REV	DATE	DESCRIPTION	CHECKED	DRAWN
00	00/00/00	INITIAL ISSUE		



- HK. STEEL BEAMS
- - - - L BEAR WALLS BELOW, S.F.S
- - - - EXTG L BEAR WALLS BELOW
- ↔ METAL DECK WITH CONC. SLABS, SAY 150 O'ALL THK.
- ↔ METAL JOISTS

IN PROGRESS

SCALE 1:100  
 KARSLAKE - Level 3 FLOOR PLAN



- Key rooms:
- |            |             |
|------------|-------------|
| 1. Entry   | 7. Bedroom  |
| 2. WC      | 8. Bathroom |
| 3. Storage | 9. Study    |
| 4. Kitchen |             |
| 5. Dining  |             |
| 6. Living  |             |

SCALE 1:100  
 KARSLAKE - Level 2 FLOOR PLAN



Merchants' House North, Wapping Road, Bristol, BS1 4RW  
 t 0117 945 9225

**KARSLAKE - SFS  
 ALTERNATIVE, 1 of 2.**

Job: C1203

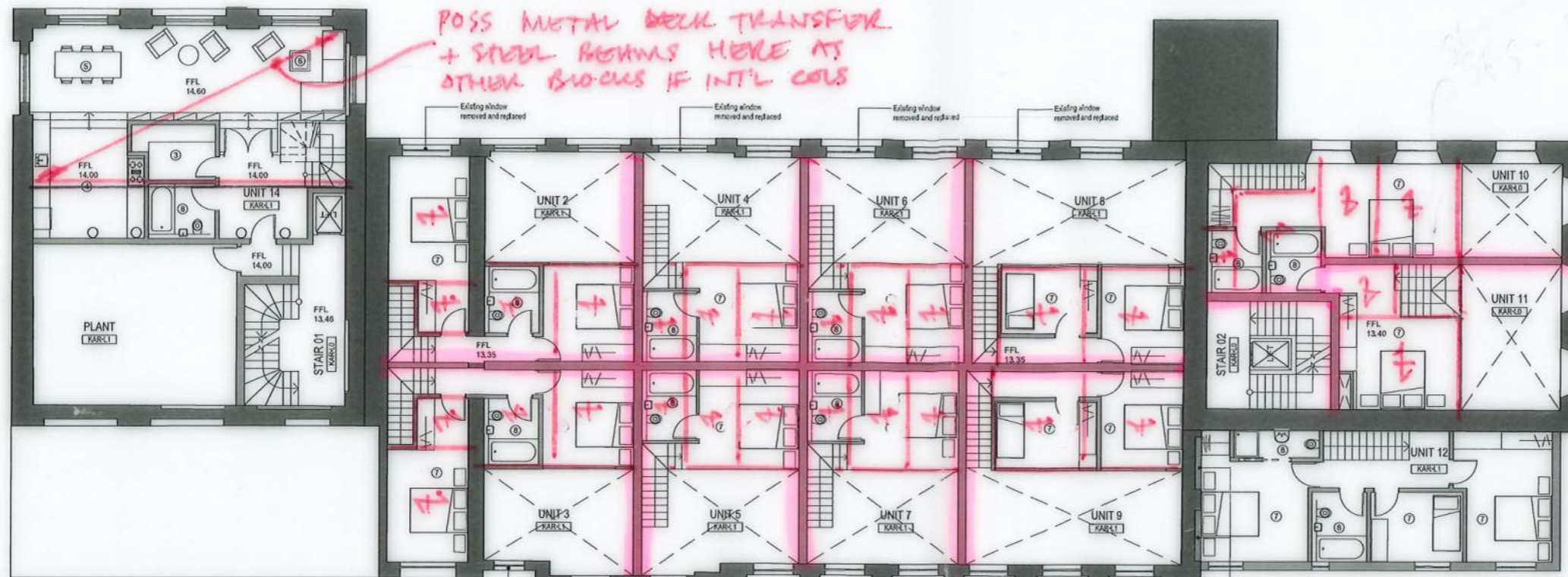
Sketch No: \_\_\_\_\_  
 Date: \_\_\_\_\_  
 Rev: \_\_\_\_\_

USE OF DRAWINGS

DO NOT SCALE FROM THIS DRAWING. USE WRITER DIMENSIONS AND CHECK ON SITE. THIS DRAWING IS BASED ON SITE INFORMATION SUPPLIED BY THIRD PARTIES AND ACCURACY OF EXISTING FEATURES IS NOT GUARANTEED. ANY ERROR, OMISSION OR DISCREPANCY NOTED ON OR BETWEEN DRAWINGS AND OTHER DOCUMENTS MUST BE REPORTED IN WRITING IMMEDIATELY. ALL MECHANICAL, ELECTRICAL AND STRUCTURAL LAYOUTS / COMPONENTS ARE PRELIMINARY AND MUST BE DESIGNED AND CHECKED BY SPECIALISTS. DO NOT START WORK ON SITE BEFORE CONFIRMING THAT ALL NECESSARY STATUTORY AND OTHER CONSENTS HAVE BEEN OBTAINED. THIS DRAWING IS COPYRIGHT AND MUST NOT BE DISTRIBUTED WITHOUT PERMISSION. ELECTRONIC CAD FILES MUST NOT BE ALTERED OR COPIED.

REVISIONS

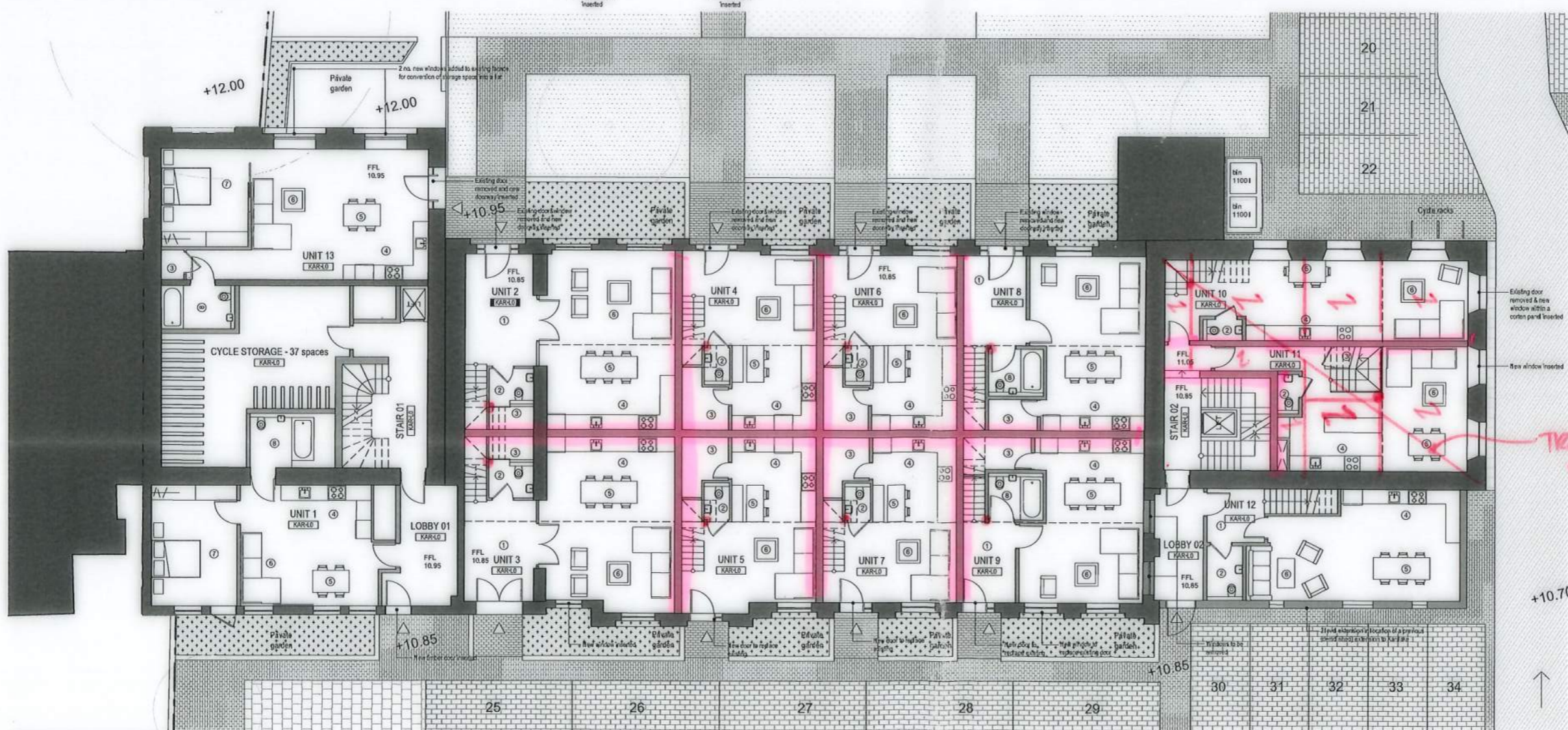
REV	DATE	DESCRIPTION	CHECKED
01	04.08.2000	INITIAL ISSUE	



- HR. STEEL BEAMS
- COLS - HR. STEEL
- L-BEAM S.F.S. WALLS (2 SKINS, 300 THK?)
- ↗ C-SECTION JOISTS
- ↘ METAL DECK WITH CONC SLAB, SAT 250 O'ALL THK.

SCALE 1:100  
KARSLAKE - Level 1 FLOOR PLAN

IN PROGRESS



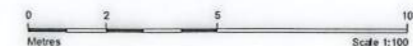
- Key rooms:
- |            |             |
|------------|-------------|
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| 4. Kitchen |             |
| 5. Dining  |             |
| 6. Living  |             |

SCALE 1:100  
KARSLAKE - Level 0 FLOOR PLAN

Merchants' House North, Wapping Road, Bristol, BS1 4RW  
t 0117 945 9225

KARSLAKE - SFS  
ALTERNATIVE 2 OF 2

Sketch No: C12193.  
Date:  
Rev:



## Appendix C

### Structural Scheme Cottages Workshop

USE OF DRAWINGS

DO NOT SCALE FROM THIS DRAWING. USE WRITTEN DIMENSIONS AND CHECK OR SITE THIS DRAWING IS BASED ON SITE INFORMATION SUPPLIED BY THIRD PARTIES AND ACCURACY OF EXISTING FEATURES IS NOT GUARANTEED. ANY ERROR, OMISSION OR DISCREPANCY NOTED ON OR BETWEEN DRAWINGS AND OTHER DOCUMENTS MUST BE REPORTED IN WRITING IMMEDIATELY. ALL MECHANICAL, ELECTRICAL AND STRUCTURAL LAYOUTS / COMPONENTS ARE INDICATIVE AND MUST BE DESIGNED AND CHECKED BY SPECIALISTS. DO NOT START WORK ON SITE BEFORE CONFIRMING THAT ALL NECESSARY STATUTORY AND OTHER CONSENTS HAVE BEEN OBTAINED. THIS DRAWING'S COPYRIGHT AND MUST NOT BE DISTRIBUTED WITHOUT PERMISSION. ELECTRONIC CAD FILES MUST NOT BE ALTERED OR CORRECTED.

REVISIONS

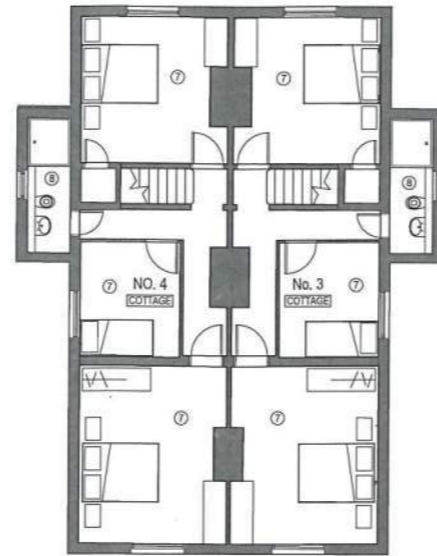
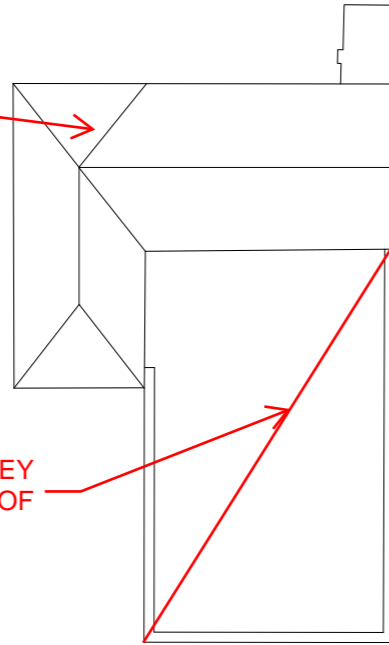
REV	DATE	DESCRIPTION	CHECKED	DRAWN
1	06.06.2020	INITIAL ISSUE		

NOTE:  
THE INFORMATION SHOWN ON THE DRAWINGS IS FOR PLANNING PURPOSES ONLY. THIS DRAWING TO BE READ WITH ALL MEP SERVICES, STRUCTURAL AND CIVILS CONSULTANT INFORMATION. ALL WORKS IN ACCORDANCE WITH BUILDING REGS AND RELEVANT STATUTORY REGULATIONS.

**IN PROGRESS**

EXISTING ROOF STRUCTURE RETAINED, THERMAL UPGRADE PROVIDED AND TILING REUSED

NEW SINGLE STOREY EXTENSION, FLAT ROOF



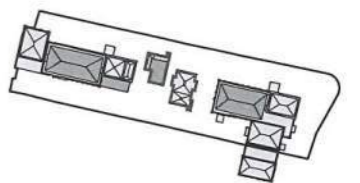
SCALE 1:100  
Workshop & Cottages - Level 1 FLOOR PLAN

NEW OPENINGS FORMED IN EXTG BWK WALL WITH LINTELS OVER

NEW SINGLE STOREY EXTENSION. LOADBEARING MASONRY, WINDPOSTS FOR STABILITY, STEEL FRAMING TO FORM GLAZING

NEW STEEL BEAMS INSERTED WITH NEEDLES / TEMP PROPING SUFFICIENT BULK HEADS TO REMAIN TO AVOID BOX FRAME SOLUTIONS - STRESSES TO BE ASSESSED

- Key rooms:
- |            |             |
|------------|-------------|
| 1. Entry   | 7. Bedroom  |
| 2. WC      | 8. Bathroom |
| 3. Storage | 9. Study    |
| 4. Kitchen |             |
| 5. Dining  |             |
| 6. Living  |             |



Site Plan Key



clients  
WATERFALL HAMPTON INVESTMENT LTD

project  
HAMPTON WATERWORKS

drawing title  
PROPOSED  
GA PLANS L0 & L1  
WORKSHOP & COTTAGES

sheet size scale  
A1 1:100 @ A1

status  
PLANNING

drawing no.  
1685-A-P116

LOM architecture and design  
The Glass House 5 Sclater Street London E1 6JY UK  
Phone +44(0)20 8444 2999 email mail@lom-tdp.com  
Web www.lom-architecture.com

SCALE 1:100  
Workshop & Cottages - Level 0 FLOOR PLAN

