66 CHARLOTTE STREET, LONDON, W1T 4QD

PROPOSED DEVELOPMENT WORKS STRUCTURAL DESIGN PHILOSOPHY

INCORPORATING:-

- SECTION 3 BASEMENT IMPACT ASSESSMENT (BIA) (WITH REFERENCE TO CAMDEN PLANNING GUIDANCE CPG4 AND POLICY DP27)
- SECTION 5 BELOW GROUND DRAINAGE STRATEGY

PS1569 11th May 2017 - Rev B



form...function...solution...

Document Control

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Street

1.0 INTRODUCTION/EXISTING BUILDING

Pure Structures Ltd have been appointed by Cyclemight as Structural/Civil engineers for the proposed mixed offices/residential redevelopment of No. 66 Charlotte Street London, W1T 4QD.

The existing building is a mid terrace Victorian property, with part basement, ground level and levels 1, 2, 3 over.

The existing building structure which shares party walls with No. 64, 68 Charlotte Street and No. 30 Tottenham Street includes full plan rear atrium infill structures at Ground and Level 1.

2.0 BUILDING REDEVELOPMENT PROPOSALS

2.1 **PROPOSED OFFICES**

BASEMENT - FIRST FLOOR

CHARLOTTE STREET OFFICES

A two level unit at ground level with entrance in Charlotte Street.

TOTTENHAM STREET OFFICES

A three level unit at Basement, Ground and part Level 1 with ground level entrance in Tottenham Street.

2.2 PROPOSED RESIDENTIAL APARTMENTS LEVEL 1 TO PROPOSED NEW MANSARD LEVEL (LEVEL 4)

The proposed works reconfigure the floor plates at Ground Floor, Level 1, with more efficient residential space by the removal of the existing staircase/alternative use of new stair access in the recently redeveloped No.64 Charlotte Street.

The works include the formation of a new lift shaft from Ground Floor to Levels 3/proposed New Mansard (Level 4) and providing lift access to Levels 3 and 4.

At Level 2, it is proposed to part infill the rear atrium to provide a second bedroom to the Level 2 apartment.

Separate apartments with lift access are proposed at Levels 3 and New Mansard (Level 4).

A separate planning option considers a duplex apartment at Levels 3/4 combined.

The works incorporating the new Mansard Level (Level 4) are subject to obtaining planning consent, although precedence has already been established with a new full plan mansard to the neighbouring No.64 Charlotte Street currently in the final stages of construction.

2.3 **DEMOLITIONS**

2.3.1 Atrium Infill Ground/Level 1

The major reconfiguration of the atrium requires the demolition of the existing atrium infill structure at Ground Level and Level 1.

The existing constructions at these levels is irregular and has no structural relevance with regard the adjoining buildings.

2.3.2 New Floor Constructions

The reconfigured floors include the removal of existing main staircase from Ground Level to existing Level 3 together with existing staircase enclosure and partition walls.

Removal of these load bearing elements affects the larger part of the existing floor plates and as a result will require total removal/replacement of the floor plate incorporating proposed new lift shaft and stairs Level 3-4 (Mansard Option B).

2.4 **BASEMENT EXTENSION**

There is an existing basement at the front which is unaffected by the works.

To the rear of the building within the area of the existing atrium, it is proposed to form a new basement to the extents of the property and at a level common with the adjacent basement to No. 64 Charlotte Street.

The works include the formation of two large openings into the adjacent No.66 basement and providing a larger shared rear basement office area.

2.5 NEW LIFT ACCESS GROUND FLOOR TO MANSARD APARTMENT NO. 64 CHARLOTTE STREET- LEVEL 3, 4 APARTMENTS

New lift access is proposed from a residential entrance of No. 66 Charlotte Street and providing access to mansard apartment of No. 64 Charlotte Street.

2.6 **REDEFINED FLOOR PLATE/REAR LIGHT WELL INFILL LEVEL 1, PART LEVEL 2**

The proposals provide a more simplified open plan area to the Ground and Level 1 atrium and including a part infill at Level 2 providing a Second bedroom to the Level 2 apartment.

The construction has a better defined atrium enabling natural light to extend down to Ground and Basement Level offices space.

2.7 PROPOSED MANSARD EXTENSION (LEVEL 4)

A new mansard level is proposed subject to achieving planning consent.

The new structure will be set back from the façade parapet and gain support from the adjacent party walls to Nos. 64 and 68.

3.0 BASEMENT IMPACT

Significant works are proposed to form a new basement to the extents of the property within the existing atrium light well.

The works affect party walls to the properties No. 64, 68 Charlotte Street (property of the same Freeholder) and No. 30 Tottenham Street directly to the rear and where a formal Party Wall agreement will be required.

Section 3.1 responds to Camden Planning Guidance Local Development Framework CPG4 and DP27 for developments including Lightwells and Basements.

Section 3.2 of this report presents a Method Sequence for the works together with outline description of temporary works measures for ensuring stability of the works during formation. Supporting sequence and temporary works sketches are provided as Appendix II.

3.1 BASEMENT IMPACT ASSESMENT (BIA)

Planning at Camden provides the following guidance documents for applications incorporating Basements and Lightwells.

Ref

CPG4 - Basement and Lightwells

DP27 - Basements and Lightwells - Camden Local Development

Framework

The guidance requires applicants to consider the scheme's impact on local drainage and flooding and on the structural stability of neighbouring properties.

The planning policy requires applicants to submit a Basement Impact Assessment (BIA), specific to the site/proposed development.

The BIA to which this section responds is provided in support of the development planning application.

Following the CPG4 guidance the BIA follows the 5 stages of evaluation as follows:-

- Stage 1 Screening
- Stage 2 Scoping
- Stage 3 Site Investigation and Study
- Stage 4 Impact Assessment
- Stage 5 Review and Decision making (By Camden)

STAGE 1 - SCREENING

The proposed basement extends the existing basement at the front of the building to include the area of the rear atrium.

The basement to the front of No. 66 Charlotte Street dates from the original construction and has no record of flooding/flooding related issues.

Conclude:-

Ground water flooding/flooding related issues are not relevant with regard to Stage 2 - Scoping.

STAGE 2 - SCOPING

With reference to Stage 1 hydrological issues are concluded to be not relevant due to the basement being an extension of the existing basement and to a level common with adjacent basement to No. 64 Charlotte Street.

The residual development scope relates to the impact of the basement formation works on the neighbouring properties.

As a result of the basement being an extension of the existing formation it is proposed to carry out the works adopting traditional underpinning methods and including the installation of temporary propping works until completion of the permanent structure.

With reference to works sequence sketches included in Appendix II, the basement works affect adjoining walls to No. 64, 68 (property of the Freeholder of No. 66) and the rear property wall shared with No. 30 Tottenham Street.

Liaison with the owner of No. 30 Tottenham Street will be carried out by formal Party Wall award to be agreed with the adjoining owner's surveyors/engineer.

The proposed formation method sequencing and monitoring requirements are described in Section 3.2/ sketches included as Appendix II.

Conclude:-

It is concluded that the basement formation works can be carried out using traditional underpinning methods as part of a method sequence incorporating temporary propping measures.

STAGE 3 - SITE INVESTIGATION AND STUDY

Site investigations have been carried out comprising trial hole investigations to adjoining wall No. 64/66 as part of the No. 66 Charlotte Street works.

Trial pit photograph included as Appendix III indicates the wall to the adjoining single storey building to have a minimal foundation at GL - 250mm and bearing onto made ground (dark brown sand silty fill material).

No ground water was encountered within the No. 66 basement works including adaptions to the existing gravity below ground drainage system.

Conclude:-

It is concluded that investigations/presence of River Terrace Gravels combined with existing adjacent basement level confirm that the scheme is of low impact with regard its hydrological effect on neighbouring properties.

STAGE 4 - IMPACT ASSESSMENT

Screening, scoping and site investigation studies have concluded that the basement extension is of low impact hydrologically and structurally and can be formed adopting traditional underpinning methods.

The proposed construction method/sequence is included as Section 3.2.

The construction method includes underpinning making use of face sheeting to limit material loss into the pin excavations (Refer SK05 - Appendix II).

Works being controlled in this manner are proposed to limit typical damage to Category 'Slight' with reference Burland Scale - Circa C580 Figure 1.

The proposed construction sequence incorporates temporary propping measures required to ensure pin stability ahead of construction of the permanent Ground Floor plate and perimeter wall over.

With reference to 3.2, the basement formation works will be combined with a movement monitoring regime recording global positions/levels of surrounding party walls against a pre-works baseline survey.

Full works method sequence and monitoring regime will be based upon a traffic light system are described in Section 3.2.

Conclude:-

It is concluded that the works are able to be carried out making use of traditional underpinning methods.

Preliminary works method and sequence are described in 3.2.

The final works method and sequence will be incorporated in party wall agreements with adjoining owners and be supported by an established movement monitoring regime with reference to a pre-works baseline survey.

Category of damage		Approximate crack width (mm)	Limiting tensile strain ϵ_{lim} (per cent)			
0 Negligible	Hairline cracks of less than about 0.1 mm are classed as negligible	<0.1	0.0-0.05			
1 Very slight	Fine cracks that can easily be treated during normal decoration. Perhaps isolated slight fracture in building. Cracks in external brickwork visible on inspection	<1	0.05-0.075			
2 Slight	Cracks easily filled. Redecoration probably required. Several slight fractures showing inside of building. Cracks are visible externally and some repointing may be required externally to ensure weathertightness. Doors and windows may stick slightly.	<5	0.075-0.15			
3 Moderate	The cracks require some opening up and can be patched by a mason. Recurrent cracks can be masked by suitable lining. Repointing of external brickwork and possibly a small amount of brickwork to be replaced. Doors and windows sticking. Service pipes may fracture. Weathertightness often impaired.	5-15 or a number of cracks > 3	0.15-0.3			
4 Severe	Extensive repair work involving breaking-out and replacing sections of walls, especially over doors and windows. Windows and frames distorted, floor sloping noticeably. Walls leaning or bulging noticeably, some loss of bearing in beams. Service pipes disrupted.	15-25 but also depends on number of cracks	>0.3			
5 Very severe	This requires a major repair involving partial or complete rebuilding. Beams lose bearings, walls lean badly and require shoring. Windows broken with distortion, Danger of instability.	Usually > 25 but depends on number of cracks				

Damage Category Chart (CIRIA C580)

3.2 BASEMENT WORKS METHOD AND CONSTRUCTION SEQUENCE

3.2.1 Rear Basement

The rear basement works require the formation of a new rear basement to a depth common with the existing basement of No.66 Charlotte Street.

To be read in conjunction with sketch details PS1569 SK02, 03, 04, 05 as Appendix II.

Stage 1 - SK02, 03

The works will be carried out by sequenced underpinning of the party wall to No. 30 Tottenham Street Using a 1, 3, 5, 2, 4 sequence.

The proposed basement wall to the adjacent single storey garage will similarly be constructed using a traditional 1, 3, 5, 2, 4 under pin sequence.

The underpinning works will include the formation of approx. 2m long toes, required to resist low level lateral soil pressures in the temporary prior to completion of the basement slab.

Stage 2 - SK04

Following completion of the underpinning works, high level temporary propping will be installed to restrain the heads of the pins during the bulk basement excavation works.

Stage 3 - SK05

Following bulk formation of excavation/formation of basement slab, the GF RC slab is cast and providing the permanent propping to the basement retaining structures.

At completion, the temporary works propping to the underside of ground flow becomes redundant and is removed.

TEMPORARY WORKS PROCEDURE COMPLETE

3.3 Movement Monitoring

It is advised that temporary propping and basement construction, be monitored on a bi-weekly basis.

The location of movement monitoring points will be agreed with the adjoining owners' surveyors and will be nominally above existing Ground Level.

Trigger values and actions are highlighted in the table 1 below:(and are compatible with Burland Scale 2)

Colour	Movement Range	Response
Green	0-4mm Movements	No Action
Orange	4-8mm Movements	Notify Party Wall Surveyors
		Check survey results
		Carry out site inspection of
		propping.
Red	8+mm Movements	Notify Party Wall
		Surveyors. Stop Works
		(excepting any remedial
		works).
		Consider options for
		varying method/providing
		additional propping
		measures.
		Increase monitoring to
		twice weekly until further
		notice

Table 1

Important to the works is ensuring that the movement of the party walls is limited to acceptable limits.

4.0 STRUCTURAL WORKS GF - NEW MANSARD LEVEL (LEVEL 4)

4.1 **NEW/EXTENDED FLOOR PLATES**

Extended, rationalised floor plates are proposed at Ground Floor and First Floor in the location of the existing atrium and within the existing building floor plate at Ground Floor, Levels 1, 2, 3.

Front Building

The front building works will be carried out under the protection of a temporary over roof supported from the party walls to Nos.64 and 68 Charlotte Street.

The construction of the floor plates will proceed following demolitions a level at a time.

The new floor plates including new Mansard (Level 4) will comprise structural steelwork framing/timber joist infill.

4.2 PROPOSED LIFT ACCESS TO LEVELS 3, 4 FROM GROUND LEVEL

The proposed new lift from Ground Floor to Levels 3, 4 will be formed in structural steelwork framing combined with 'Dura steel' (Lift surround) providing a lightweight fire protected construction supported at each level.

5.0 BELOW GROUND DRAINAGE STRATEGY

The redevelopment works propose to reuse/extend the existing Below Ground surface/foul drainage arrangements at the property.

Surface Drainage

The new atrium arrangement includes proposed 'green' roofs at First Level (accessible) and also at Second Floor over offices (incorporating roof lights).

All surface drainage will be collected to new surface downpipes and discharged via existing surface connection to the existing gravity surface water drainage system.

The proposals provide a significant betterment over the existing surface water drainage regime and are in line with National Policy Planning Statement PPS25 Development and Flood Risk.

Foul Drainage

Foul drainage from the property will be reconfigured to the proposed new architectural arrangement and discharge via existing foul connection to the existing gravity foul water drainage system.

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6.0 CONCLUSION

This report and appendices present the structural proposals for the redevelopment of No. 66 Charlotte Street, London.

The proposals include the extension of the existing basement to the extents of the property, the rationalisation of the rear atrium infill at Ground Floor and First Floor and the provision of a new Mansard Level 4.

The structural implications of the proposal are most significant in respect of the basement formation works.

In response to the Camden Planning Guidance, the report incorporates the following:-

- Section 3.1 Basement Impact Assessment (BIA)
- Section 5.0 Drainage Strategy

This document is intended to form the basis for agreement of the structural aspects of Party Wall agreements with adjoining owners, and as part of the pre-contract H&S plan for the works.

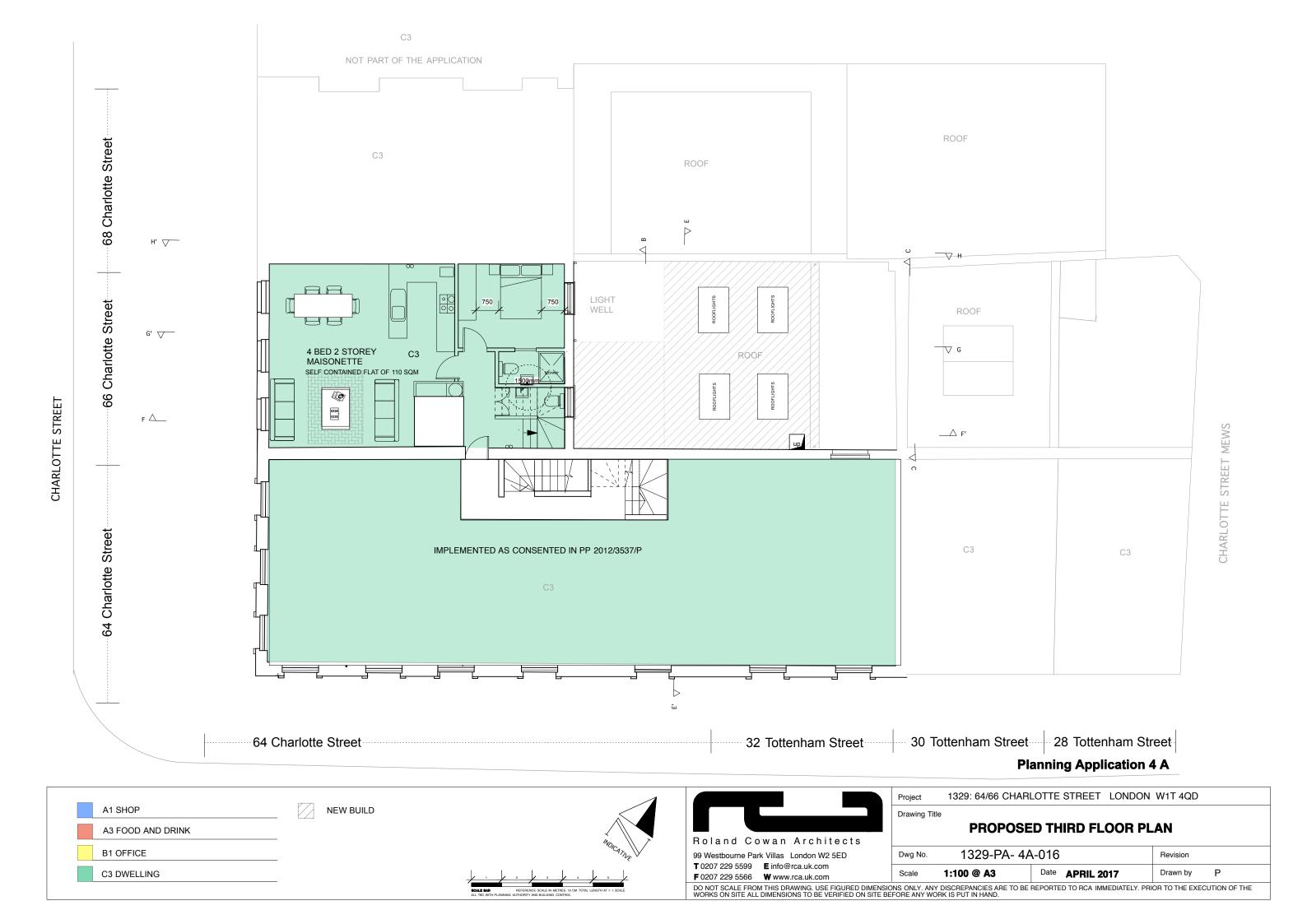
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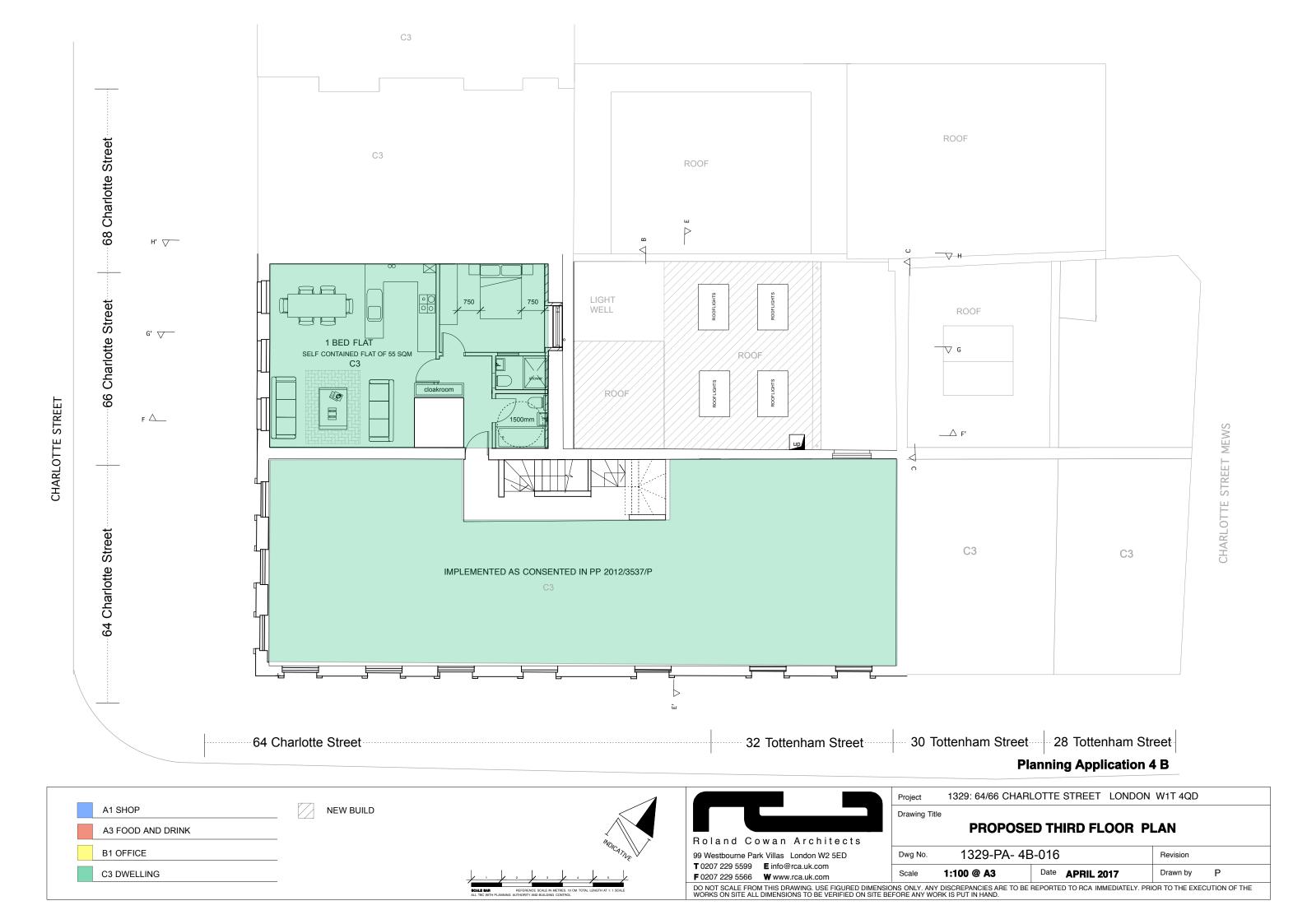
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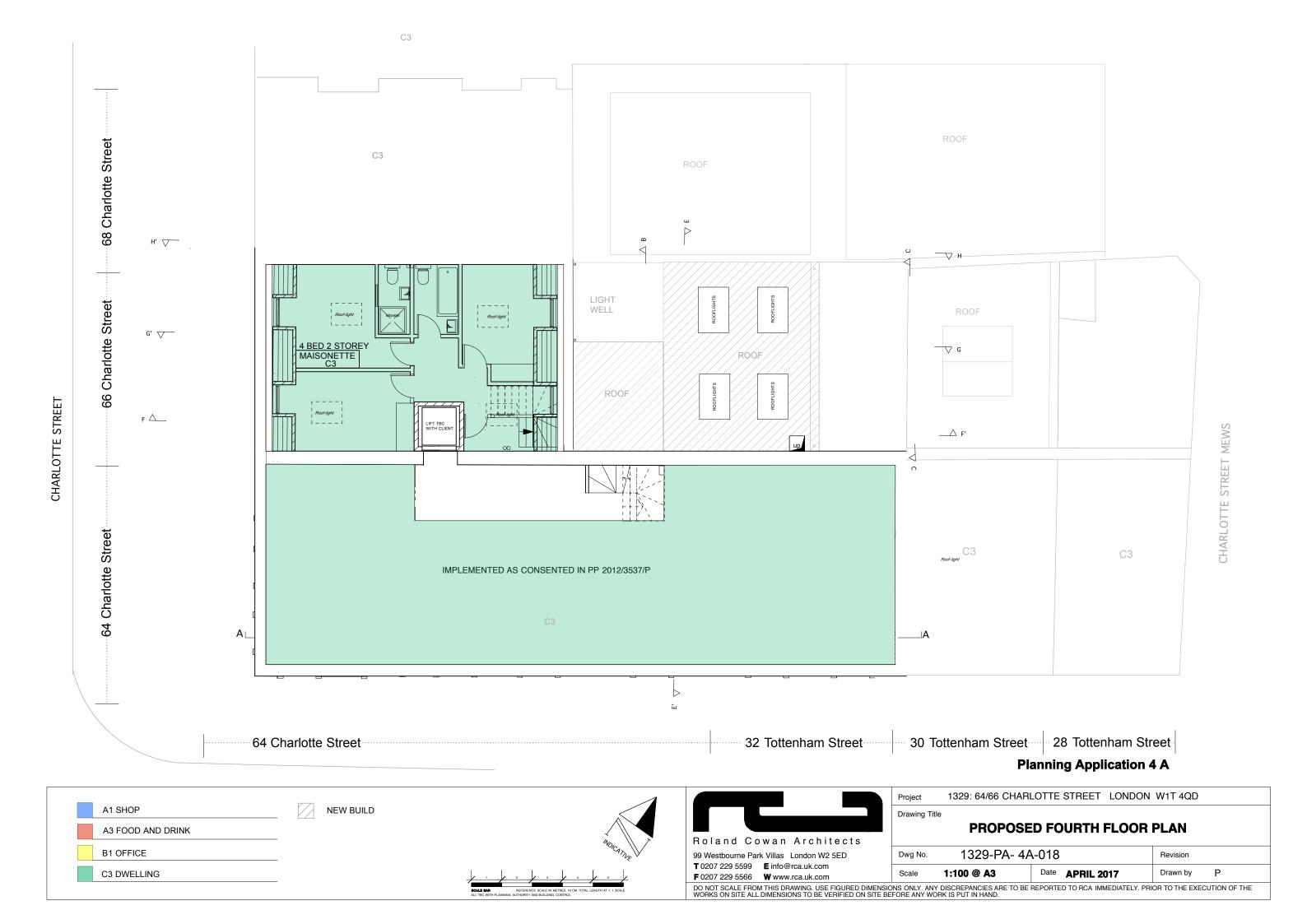
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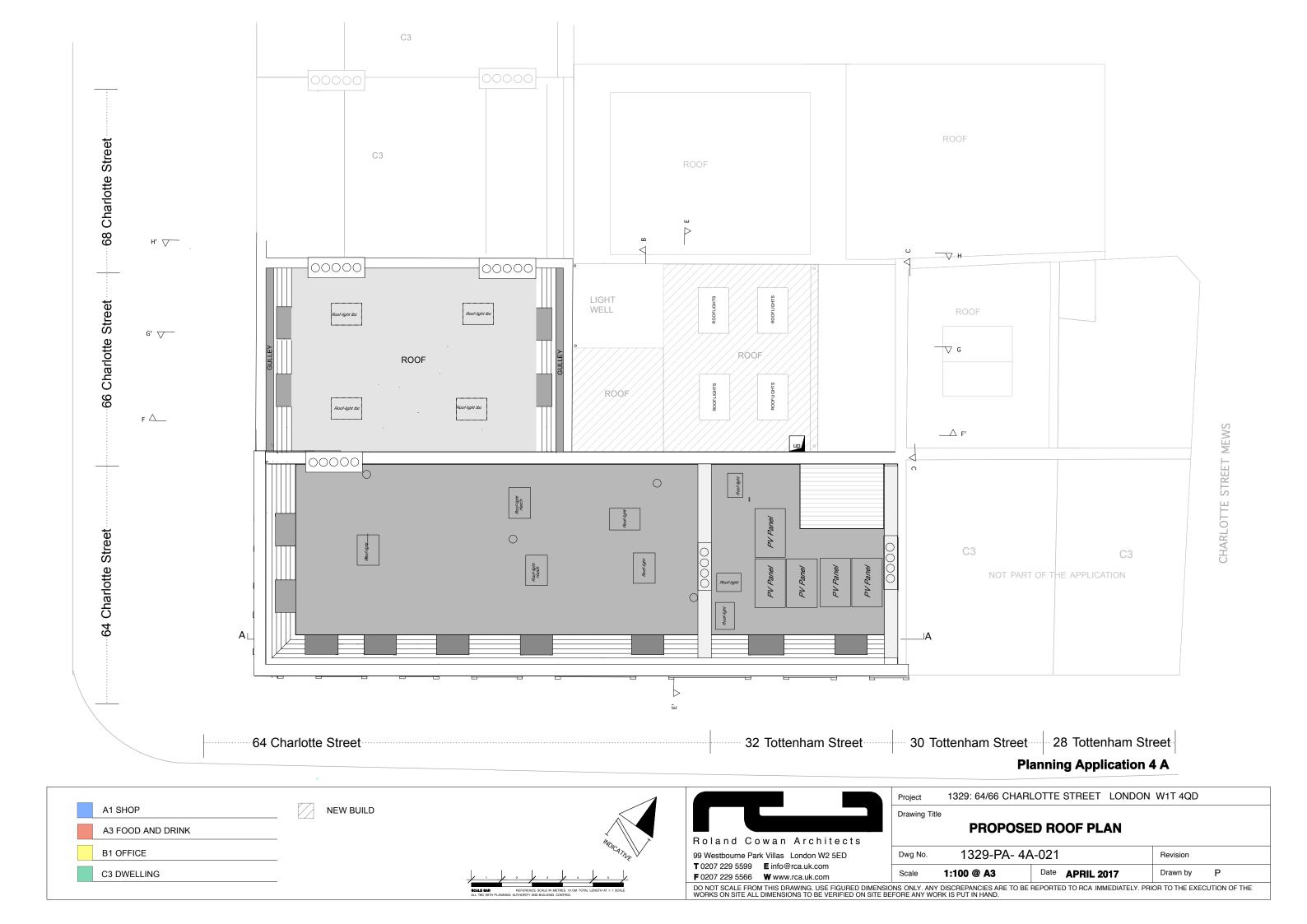
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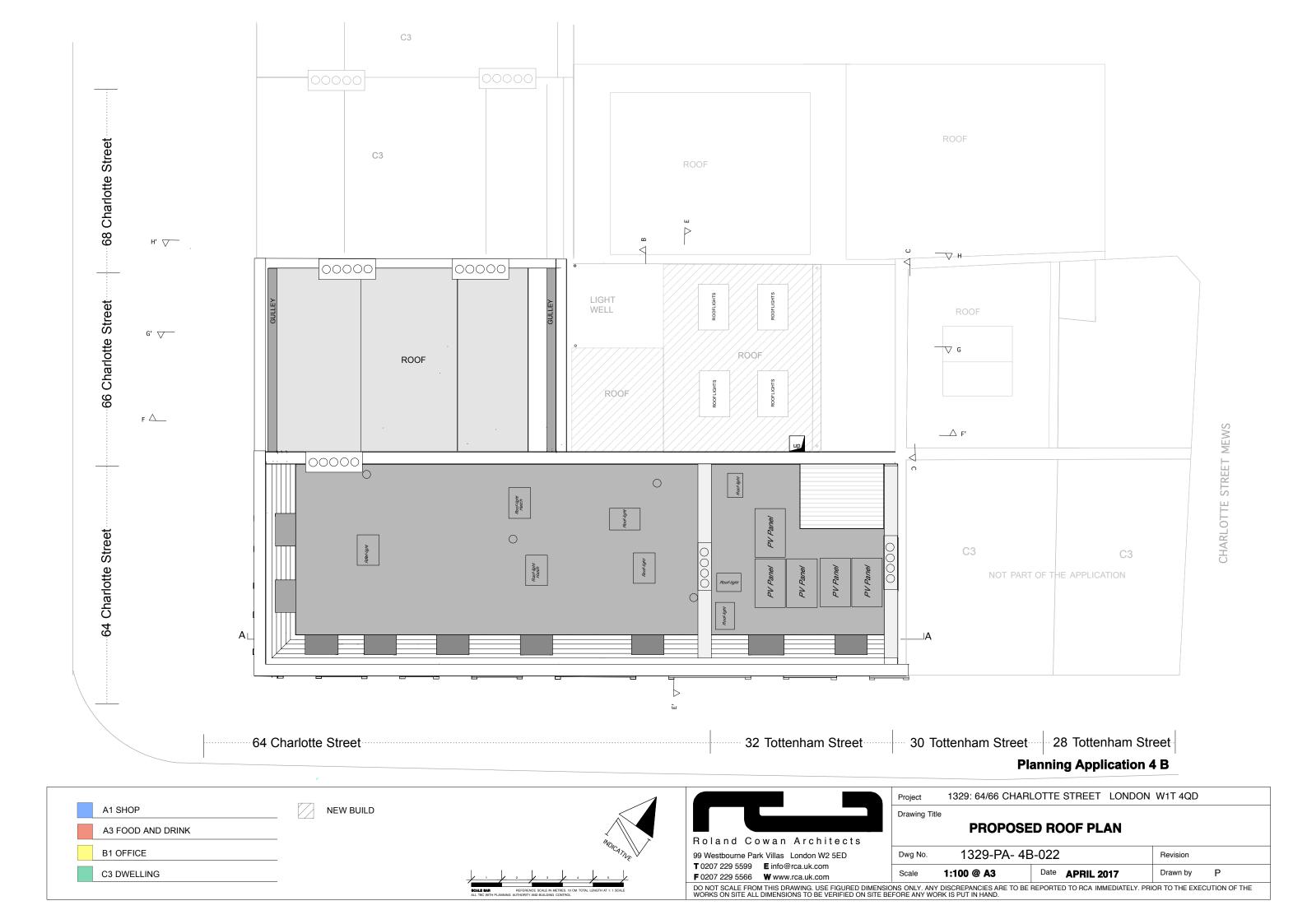
APPENDIX I



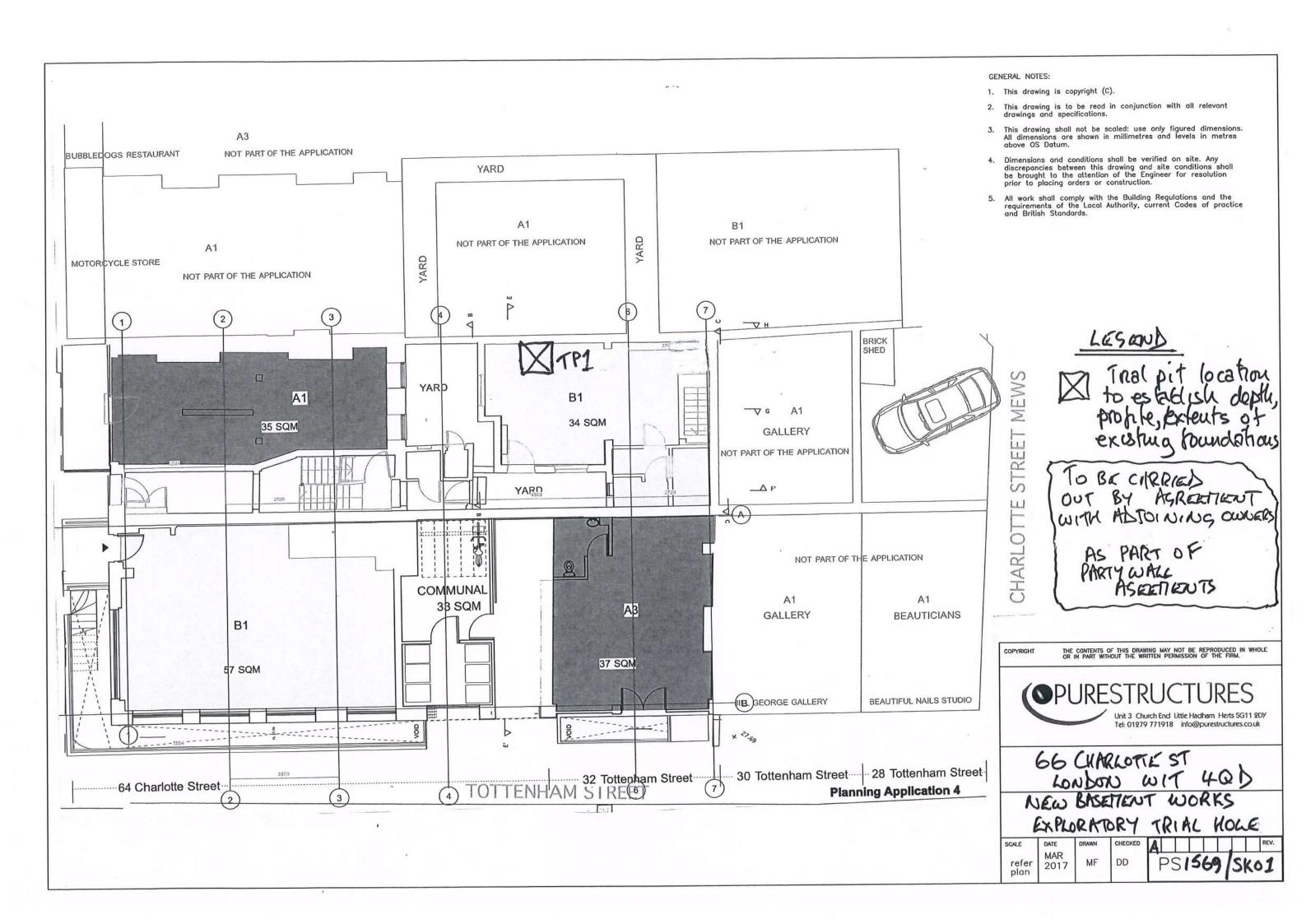


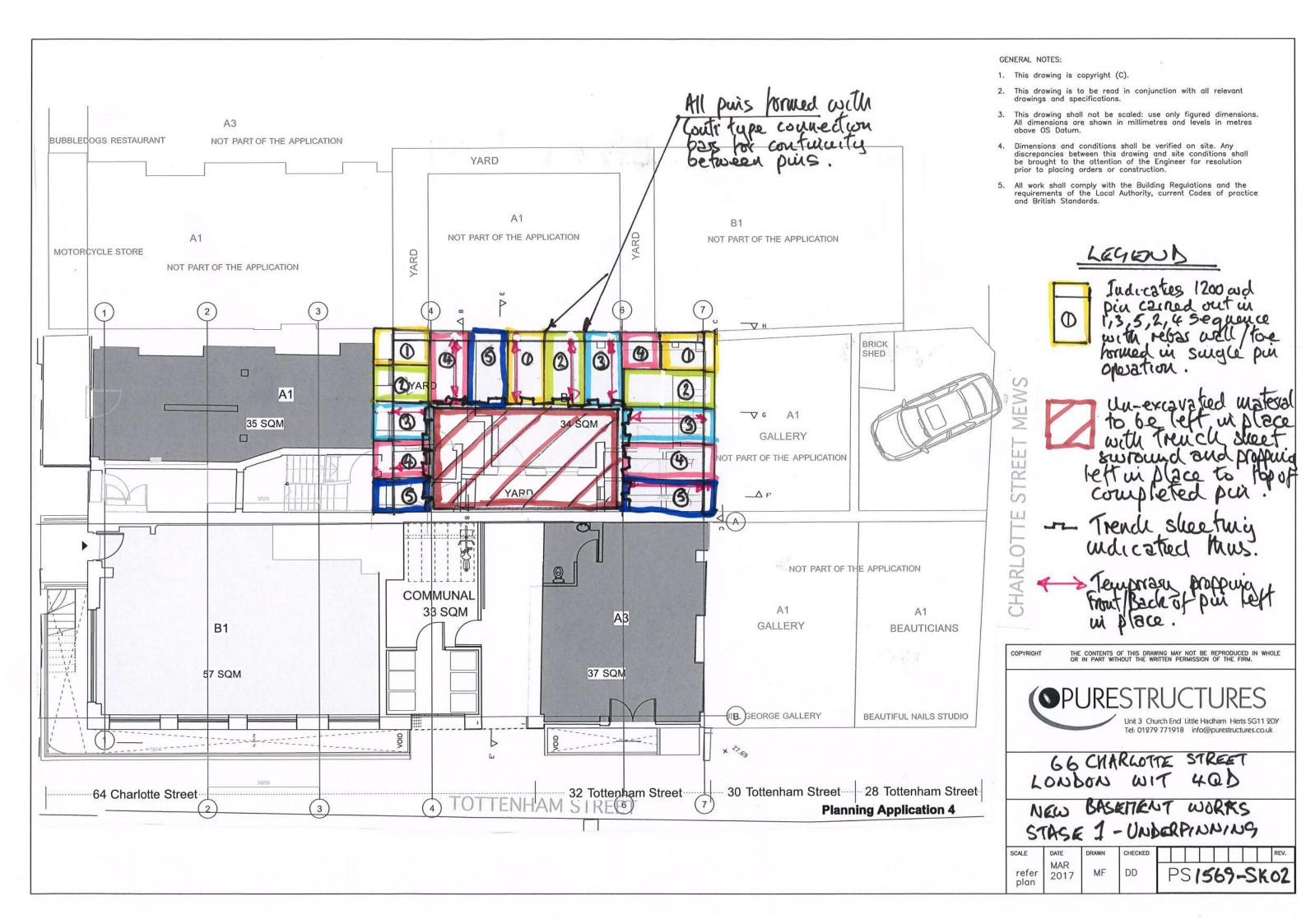


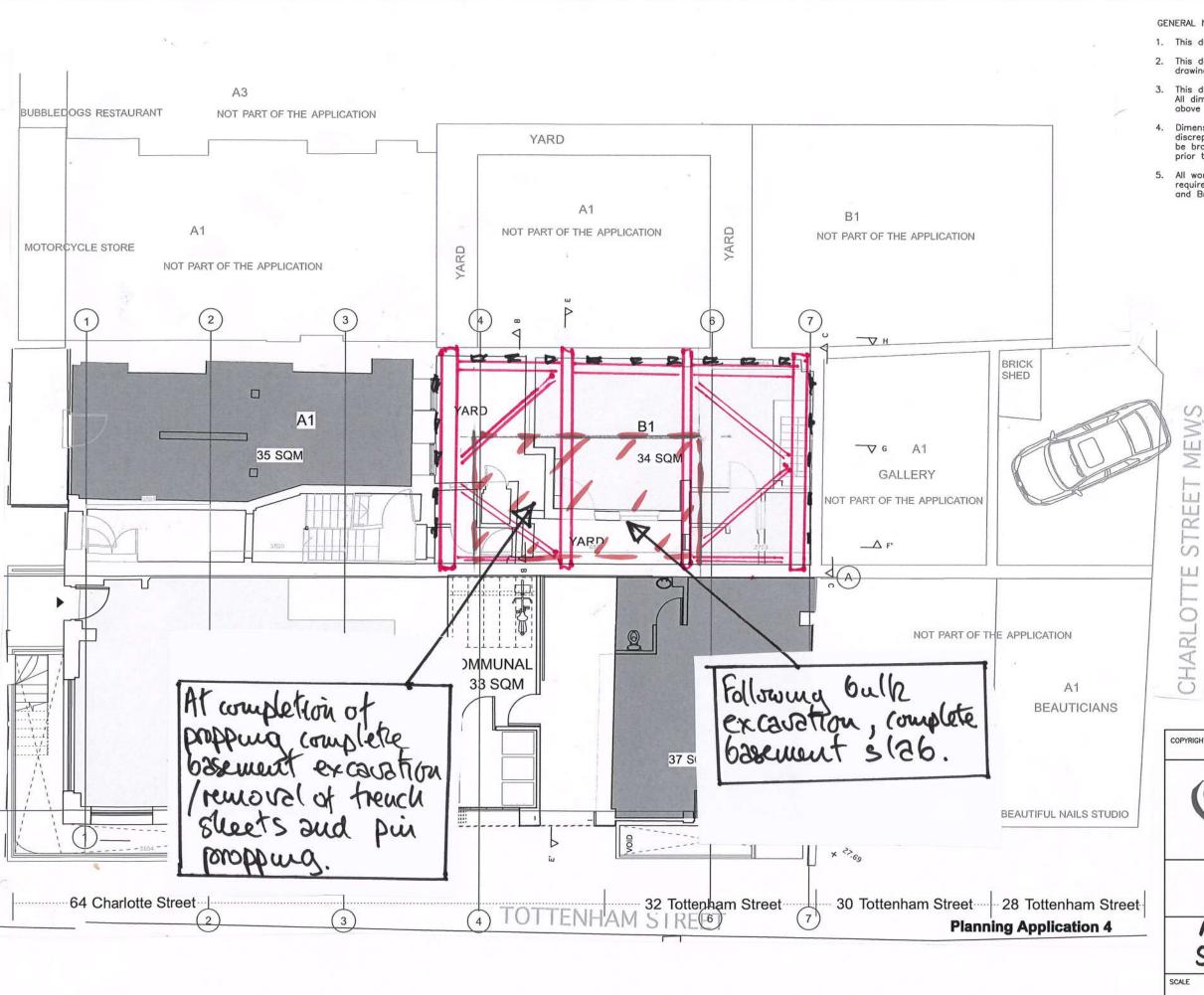




APPENDIX II







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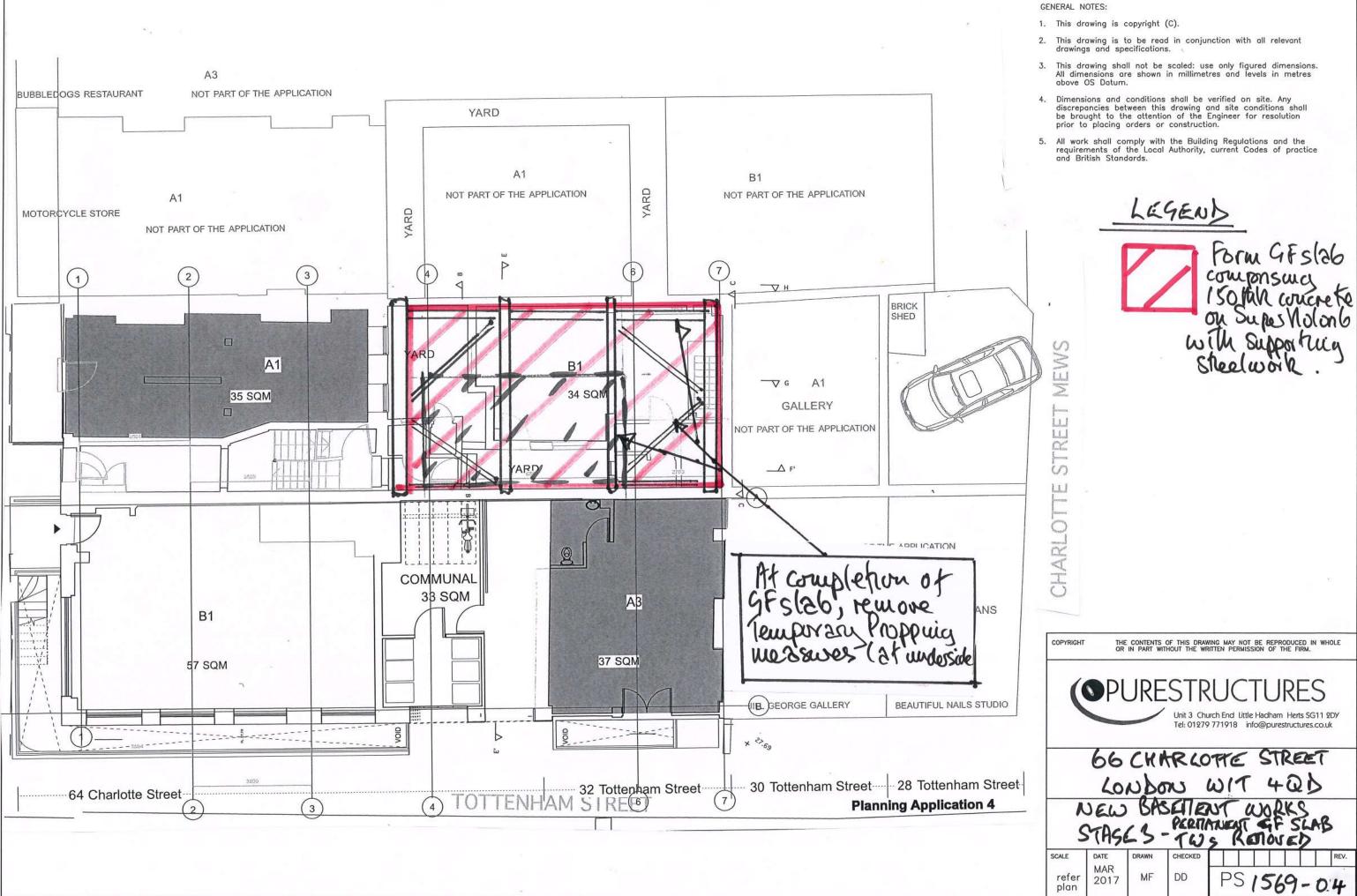
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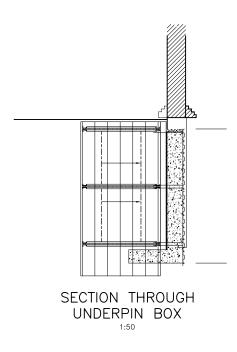


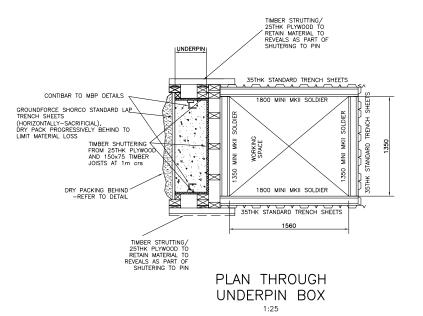
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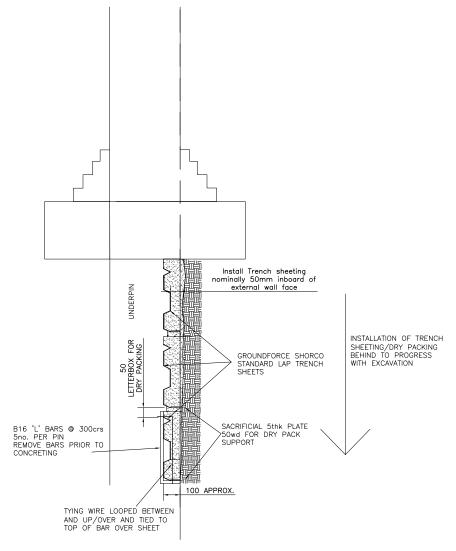
66 CHARLOTTE STREET LONDON WIT 4QD NEW BASETPEUT WORKS STAGE 2 - UPPER TEMPORARY PROPRIE

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refer plan	MAR 2017	MF	DD	Р	S	15	69	-Sk	03









UNDERPIN TRENCH SHEETING DRY PACK SUPPORT AT LEADING FACE

1:10

(Where required in support of loose material)

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 Dimensions indicated thus: - *are to be confirmed on site.





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DRAWING DESCRIPT

INDICATIVE UNDERPIN BOX DETAILS

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CYCLEMIGHT

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APPENDIX III

