Form

4 TAVISTOCK PLACE, LONDON, WC1

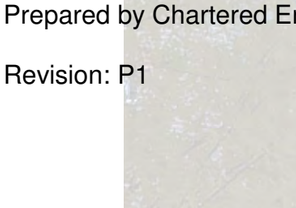
STRUCTURAL ENGINEER'S BASEMENT IMPACT ASSESSMENT

Job No: 172723

Date: 31st March 2017

Prepared by Chartered Engineer: Andy Ilsley C.Eng. M.I.Struct.E

Revision: P1


Residential


Commercial


Conservation

Retail

Education

Art

Hotels

Period

FORM Structural Design

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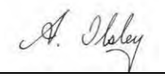
Form

Document Reference:	STRUCTURAL ENGINEER'S BASEMENT IMPACT ASSESSMENT	
Prepared By:	Signed:	Date:
Andy Ilsley		31.03.17
Checked By:	Signed:	Date:
Charlotte McAllister		31.03.17

Preamble

This report has been prepared by Form Structural Design Ltd on the instructions of the project architects, Marek Wojciechowski Architects, acting on behalf of the client Tavis Estates Ltd and is for the sole use and benefit of the client. It has been prepared as a supporting document to the planning application for the redevelopment of the property at 4 Tavistock Place. The proposals involve locally lowering part of the Lower Ground Floor and extension of the rear façade. This report presents an outline structural scheme for the local lowering of the Lower ground Floor.

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ABOUT FORM SD

Form has undertaken over 300 projects involving subterranean development, both new build and retrospective, using numerous techniques and sequences of construction. This extensive design, site and local geology/hydrology experience has positioned the practice as one of London's leading subterranean engineering design consultants.

Many of our subterranean projects are in the London Boroughs of Camden, Westminster, and RBKC, making us familiar with the most recent requirements of subterranean development.

Form has designed multi-level basements using techniques including open dig, underpinning (mass and 'L' shaped R.C. special foundations), temporary and permanent steel sheet piling, temporary and permanent concrete piled retaining walls, top down construction and tunnelling.

TERMS OF REFERENCE

We were appointed by the client Tavis Estates Ltd to prepare a supporting Structural Design Statement in support of a Planning Submission for new development at 4 Tavistock Place, London, WC1H 9RA.

Contents

1 Introduction

This report has been prepared as a supporting document to the planning application for the redevelopment of the property at 4 Tavistock Place which consists of six floors including a lower ground floor and attic room. The proposals primarily involve the limited construction of a subterranean level slightly below the existing lower ground floor. This report presents an outline structural scheme for the construction of the alterations to the lower ground floor level only as there are limited structural works associated with the refurbishment of the floors above.

Form

2 Planning Policy

The table below provides a non-technical executive summary covering key aspects of the London Borough of Camden's planning requirements for Basements and Lightwells GPG4 and DP27, which also ties in with Camden's preferred policy DP20. The key aspects have been divided into specific headings for ensure all requested information has been provided for the planning application.

Extract Descriptions of Key Aspects from Camden Development Policies Basements and Lightwells GPG4 and DP27:	Reference Location within this Report	Compliance to GPG4/ DP27 Policy
A. The **Desk Study** information and an analysis of the findings in relation to the proposals. A thorough desk study has been completed and presented in the Construction Method Statement main text, it includes: a. The site history; b. The age of the property; c. The site survey; d. The geology and ground conditions –from the site investigation and British Geological Society borehole logs; e. Historic River Courses; f. Underground Infrastructure; i. Services; ii. Drains; iii. Tunnels; iv. Nearby basement developments in the area have been considered.	Section 3 Section 3.1 Section 3.1 Sections 3.1 and 3.10 Section 3.2 Section 3.4 Sections 3.6, 3.7 and 3.8	✓
B. An appraisal of the **existing building structural arrangement** including previous alterations and any obvious defects, asses the condition and location of **adjoining buildings.**	Sections 3.1 and 3.10	✓
C. Assessment of a **site investigation** which is demonstrated to be relevant to the site together with **trial pits** showing existing foundations and the material they are founded on, for all walls which may be impacted by the proposed scheme. If **groundwater** is present, levels are to be monitored for a period of time.	Section 3.2 and refer to Aviron SI Report	✓
D. Details of the engineering design which is advanced to detailed proposal stage a. Ground conditions and ground water; b. Existing trees and infrastructure; c. Drainage; d. Flooding; e. Vertical and horizontal loading; f. Structural engineering general arrangement and details; drawing showing underpinning, piled walls etc	 Sections 3.2, 3.3, 3.4 and 3.5 Sections 3.8 and 3.9 Section 3.6 and 3.7 Section 3.5 Sections 4.2 and 4.4 Refer to Appendix A	✓
E. An analysis of the **upper aquifer** (when it exists) and how the basement may impact any groundwater flow.	Section 3.3	✓
F. Details of **flood risk, surface water flooding, critical drainage areas** and how these have been addressed in the design. A full flood report assessment to represent areas determined to be at risk.	Section 3.5	✓
G. An Assessment of **movement** expected and the effect of adjoining or adjacent properties, covering both short term and long term effects. Design and construction to limit damage to all buildings to a maximum of Category 2 as set out in CIRA Report 580	Section 4.4	✓

3 Site Information

3.1 Site Location, History, and the Existing Building

The site is located just off the south east corner of Tavistock Square and it is within the Bloomsbury Conservation Area. The property has a split level arrangement with 6 floors at the front of the property at levels set to align with original façade. At the rear of the property there is an additional level between lower ground floor and third floor which both align.

A desktop study has confirmed that there are no tube tunnels within the vicinity of the site and therefore it not be necessary to advise London Underground asset protection department to check alignments as agreed works will not affect any existing tunnels or access shafts.

Figure 1: Site Location Plan and Aerial View

The original terrace was demolished in the 1970's. It is not clear why it was demolished but a historic image confirms that at the time the terrace was used a single hotel. It is likely that the building fell in to a state of disrepair that there was no merit in retaining the existing fabric.

The existing terrace that extends from 2 – 14 Tavistock Place was rebuilt in its entirety in 1975 with a facsimile façade. It was Grade II listed the following year although nothing beyond the façade has any historical merit whatsoever. Figure 2 opposite illustrates some of archive drawings associated with the reconstruction.

During our visual inspection it was observed that the existing structure is constructed as a reinforced concrete frame. Subsequently intrusive opening up works area were then undertaken throughout the building to confirm the arrangement of the existing RC structure at all levels. Our findings are recorded and described on the Form existing structure drawings within our structural drawing package. (Refer to Appendix A of this report).

- Both the party walls are solid RC walls.
- Internally the lift shaft walls are also a structural RC element.
- The RC floor slabs span from side to side and take support from the lift shaft walls.
- The central spine wall is also a load-bearing RC element which supports the floor slabs and allows for the level changes between the front and the back of the building on all the lower levels.

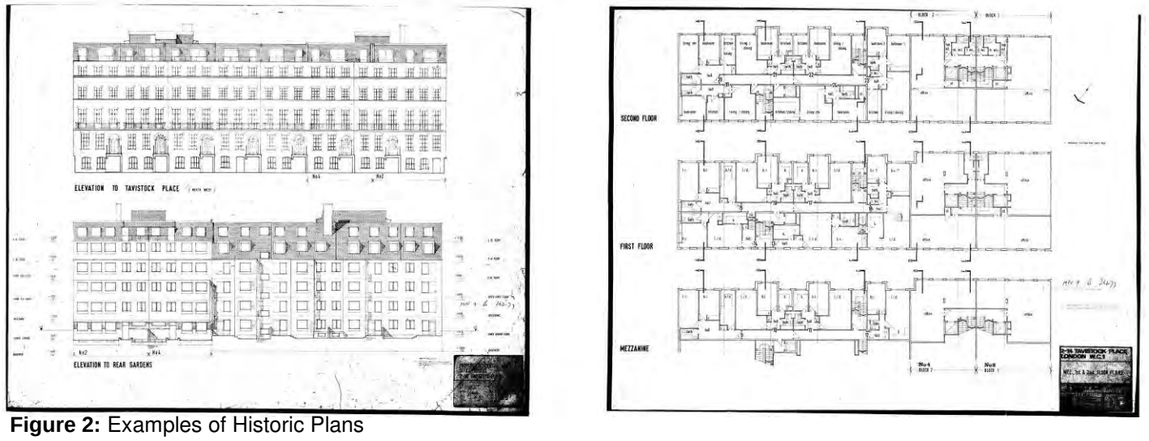


Figure 2: Examples of Historic Plans

3.2 Ground Conditions/Geology

According to British Geological Survey (BGS) map sheet 256**3** the site is underlain by the Lynch Hill Gravel Member over the London Clay Formation. The nearest borehole log (70.0m west) reports Made Ground to a depth of 0.2m, Lynch Hill Gravel to a depth of 3.2m and London Clay to a depth of 16.6m.

Aviron Associates Ltd were instructed to undertaken a site investigation to confirm the ground conditions and ground water levels. The conditions encountered were as expected and can be summarised as follows, for full details refer to the Aviron report within Appendix D.

The proposed lowering of the Lower Ground Floor will be founded on the gravel strata, which will provide a good bearing material and unlike London Clay is not susceptible to shrinkage or swelling. The conditions encountered are considered favourable for the excavation proposed for the extension of the basement. The construction techniques described on the following pages are common, and well established in the industry.

Description of Strata	Depth (From Lower Ground Floor)
Made Ground Concrete, crushed bricked, re-worked sandy, gravelly Clay	0.0m – 0.95m
Lynch Hill Gravel Very Gravely Sand, becoming very sandy Gravel	0.95m – 2.50m
London Clay Sandy Clay (Confirmed with dynamic probe)	2.50m – 6.05m

Shallow groundwater was encountered at a depth of 1.75m BGL within the Lynch Hill Gravel Member resting above the top of the impermeable London Clay Formation. This concurs with CGL's previous experience in the area and is at a level almost equal to the proposed formation level. It is recommended that further monitoring of the site ground water level is undertaken prior to construction to establish whether any dewatering will be required during excavations.

3 Site Information

Slope Stability
The site is considered to be generally level and not cut into the side of hills or valleys therefore slope stability is not considered to be a problem.

3.3 Hydrogeology

The site hydrogeology indicated on the Environment Agency website 'What's in my back yard' (March 2017), can be summarised as follows:

- The hydrogeology of the site has been determined by the superficial geology of the Lynch Hill Gravel Formation. According to the Environment Agency the superficial geology is classified as a Secondary A Aquifer.
- Secondary A aquifers are permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers.
- The site is not located within an Environment Agency Source Protection Zone (SPZ).

3.4 Hydrology

There are no main rivers within 500m of the site.

A desk top study and review of 'The Lost Rivers of London' by Nicholas Barton confirms that no lost rivers have been recorded in 500m of the site, however The Fleet and The Fleet's Storm Drain are between 500m-600m Northeast of the site before turning away.

3.5 Flooding

Tidal and Fluvial Flooding

There are no records of any tidal or fluvial flooding in the local area and the site is considered to be a low risk. The Environment Agency and the government Flood Map for Planning (March 2017) flood maps indicate that the site is in Flood Zone 1 and is therefore a low probability area for flooding. The proposed development can therefore be constructed and operated safely in flood risk terms and is therefore appropriate development in accordance with the National Planning Policy Framework.

Infrastructure Flooding

The London Borough of Camden Flood Risk Management Strategy identifies key locations at risk from flooding.
The site is not located within any of these 'key locations' areas.

Surface Water from On-Site

The proposals create a negligible increase the extent of the existing impermeable hard-standing across the site and on this basis the total amount of water entering into the sewer system as a result of the development will not increase.

3.6 Underground Drainage

The below ground drainage design will be developed further should planning consent be granted. It is expected that surface water and foul will be drained by utilising the existing gravity fed system where possible and the minimal amount of water entering the new Lower Ground Floor level via the cavity drain system will fall to a sump below the new Lower Ground Floor slab level. From the sump it will then be positively pumped to the outfall. A non-return valve will be installed at the main outfall to ensure the lower slab areas are not flooded by the combined sewer system in times of sustained heavy rainfall.

3.7 Existing Utilities

Water

A Thames Water Asset Location Search has been undertaken and search results have been appended to this report in Appendix E.

The search confirms that a combined mains sewer and a mains supply run under Tavistock Place to the front of the property. In both instances the proposed excavation is beyond the 3.0m construction exclusion zone and therefore the proposals will be acceptable to Thames Water without any further liaison.

Gas and Electrical

It is to be established whether any gas or electrical services run under the site. If so they will be diverted where required.

If required, services will be diverted and replaced to modern day standards where necessary as determined by the Mechanical and Electrical Engineer for the project. All services that are required to pass through new structure will be sleeved and articulated accordingly to allow for future movements and settlements of the surrounding structure.

3 Site Information

3.8 Underground Structures

It can be seen from the figure below that LUL Piccadilly Line is between 150 and 250m from the site to the East, the LUL Victoria Line and Northern Lines are also present a minimum of 400m to the north of the site.
The Metropolitan, Hammersmith and City LUL Lines are indicated on the figure however they are greater than 500m from the site.

As 4 Tavistock Place is greater 100m away from the indicated LUL Piccadilly Line, and the proposed works are shallow and within the existing footings of the property it is assumed that the proposed development will not impact LUL assets.

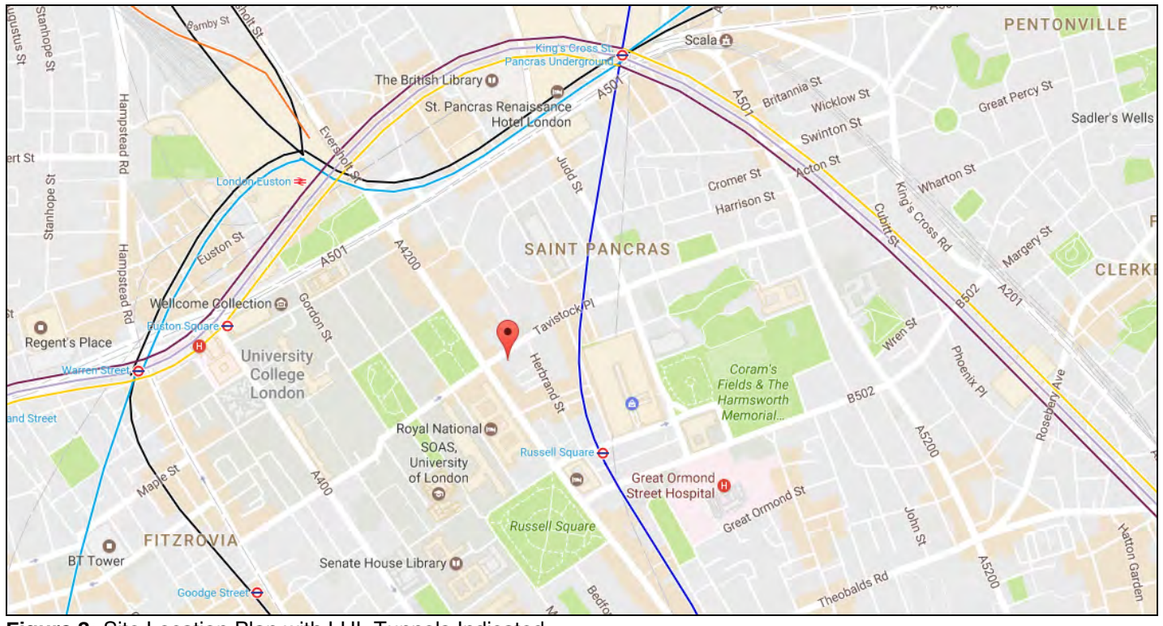


Figure 3: Site Location Plan with LUL Tunnels Indicated

3.9 Arboriculture

An arboriclutural report has not been completed.
No mature vegetation is present within the site however mature trees are present beyond the rear garden masonry wall.
As the trees are beyond the existing masonry garden wall is it assumed that the development proposal will not affect the trees root zones or health.

Based on the above assumption we are satisfied that no major effects of the trees need to be considered for the design of the structure.

3 Site Information

3.10 Boundary Conditions

The site is situated on the southern side of Tavistock Place within the rebuilt terrace. It is adjoined by Number 2 Tavistock Place to the west and Number 6 Tavistock Place to the east.

North (Front) Boundary

- The northern boundary along the front of the site is with Tavistock Place. This boundary is not impacted by the proposed works which are all to the rear of the site.

South (Rear) Boundary

- Along the rear of the site a masonry wall at the back of the garden forms the southern site boundary with the parking bays serving Thackeray House.
- The wall is approximately 3.5m high. It is freestanding, and it runs the length of the adjoining boundaries also.
- Refer to pictures 2, 3, 4, and 5 opposite.

East Boundary

- Internally the eastern boundary with Number 6 Tavistock Place is formed by an RC wall. The trial pits confirmed that the lower ground floor slab extends over a mass concrete strip footing approximately 1.5m wide and 600mmm deep. It is not proposed to either interfere or undermine these foundations.
- The external area to the rear of Number 6 has not been lowered so there is no level change across the boundary which is formed by a wooden fence sat in front of a masonry wall approximately 2.0m high.
- Refer to pictures 1 and 6 opposite.

West Boundary

- Internally the eastern boundary with Number 2 Tavistock Place is formed by an RC wall. To avoid unnecessary noise and vibration a trial pit was not undertaken along this boundary however it is assumed that the wall is founded on a mass concrete strip footing exactly as the internal eastern boundary. Richard Jackson the Structural Engineer for the recent refurbishment at Number 2 was able to confirm this assumption.
- The external area to the rear of Number 2 has been lowered from the original level to the lower ground floor level in exactly the same manner that we are proposing. This was achieved with a reinforced L shaped underpinning designed to retain the earth (on our site) behind. Details of the underpinning are confirmed on the EDA drawing within Appendix C of this report.
- Refer to pictures 4, and 5 opposite which show the fence positioned above the underpinning.

Figure 4: Photographs Indicating the Rear Boundary Conditions

4 Development Proposals

4.1 Subterranean Construction

The proposals involve extending the rear facade back in to the rear garden area with a local lowering of the Lower Ground Floor. The structural proposals are described on the drawings contained within Appendix A of this report. They have been developed by Form SD in conjunction with the architects to address the specific site constraints and characteristics including:

- The ground conditions
- The support to the proposed structures above
- The stability of the neighbouring boundary retaining walls
- Health and Safety considerations
- The physical site constraints

4.2 Retaining Boundary Structures

To construct the internal lowered area within the existing Lower Ground Floor different structural solutions have been identified for the design and construction implications along each boundary. These solutions are described below and described in detail on the structural drawings.

The Western Boundary – No Change

The Lower Ground Floor level along the Western boundary is to remain unaltered, therefore there will be no impact on the existing RC party wall nor on the existing mass concrete shared footing.

The Eastern Boundary – Mass Concrete Underpinning

As it is proposed to reduce the Lower Ground Floor of 4 Tavistock Place to slightly below that of Number 6. it will be necessary to install underpinning beneath the existing shared mass concrete footing supporting the party wall.

These underpins will extend up from a level below our proposed formation level to the underside of the existing footing. As the depth of these underpins is less than 1.0m the lateral earth loading will be limited and therefore it is possible to provide unreinforced simple mass concrete underpins that are restrained from sliding and overturning by a combination of the new lower ground floor slab and the vertical load from the structure above.

All underpinning will be carried out following a fixed hit and miss sequence agreed beforehand and designed to consider all the necessary propping to the underside of the wall and the shoring of the excavations that will be required in the temporary condition.

The works will be carried out by an experienced groundworker to best practice and in accordance with the Form SD drawings. On this basis we would not expect significant movements and the structures above will therefore remain stable and unaffected by the works. A contractor's method statement will be required at this stage for comment by the engineer and party wall surveyors.

The Northern Boundary – No Change

As the existing Lower Ground Floor footprint is to remain the same, with the level at the rear to remain the same it is proposed to utilise the existing retaining wall structure present at the back of the Lower Ground Floor.

The existing masonry wall along the party wall line with Tavistock Place will remain as is.

4.3 Temporary Works

The previous sections describe the methods for the construction of the basement and the associated temporary works required to maintain the stability of the excavation and the adjacent properties.

The temporary works will be designed by a specialist. No works on site requiring the installation of any temporary works will commence on site without all the necessary drawings, calculations, and method statements in place which will require approval from the Structural Engineer.

4.4 Potential Ground Movement

The underpinning installation described in the previous section may cause localised movement to the earth adjacent along the boundaries.

Internally it is proposed to not excavate beneath the majority of the existing lower ground floor strip foundations level, however a localised area is to be underpinned. As the underpinning is local only the risk of earth movement will be limited to the underpinned wall along the party wall between Number 4 and 6 only. This is expected to be minimal and movement will be suppressed by the stiffness of the wall above. Furthermore from experience this can be mitigated by appointing a suitably experience Contractor familiar with propping techniques and sequential operations.

As a result we anticipate that should any damage occur it will be limited to Category 0 (Negligible; hairline cracks of less than 0.1mm) based on the Boscardin and Cording / Burland and Potts Building Damage Classification Table found within Appendix B of this report.

However, there will always be some movement as it can never be completely avoided and there are occasions where unforeseen conditions beneath the property which were not or could not be detected by the pre-construction investigations will result in more extensive damage. From our experience such an occurrence is very uncommon and even then the damage would be limited to Category 1 (Very Slight, fine cracks less than 1mm) in the Damage Classification Table. These can be easily treated during normal decoration.

4.5 Superstructure

The superstructure works above the Lower Ground Floor are limited to the works necessary to facilitate the construction of a rear extension. These are indicated on the structural drawings within Appendix A.

5 Site Management

This section of the report has been produced at planning stage and before the main contractor has been fully appointed. It sets out the systems and procedures that the Contractor will utilise in controlling the construction operations on site, to ensure progress of the project in the most safe and efficient manner possible and to minimise impacts on the local environment and surrounding amenity.

Tendering contractors will be made aware of the contents below (alongside any planning conditions). Once planning permission is granted, the appointed contractor will be responsible for the submission of a Construction Traffic Management Plan prior to commencement of development.

5.1 Excavation of Soil

The soil will be excavated and removed using micro excavators and a conveyor system running to street level. Refer to the Marek Wojciechowski Architects; Construction Management Plan for further details.

Prior to works commencing, all neighbouring occupiers will be consulted to ensure that the construction process results in minimal disruption/disturbance. In particular, all reasonable endeavours will be made to organise vehicle arrivals/departures to avoid peak usage for neighbours i.e. early mornings, and early evenings.

The street adjacent to the Tavistock Place will remain open to the public throughout. It will be cleaned each evening and the frequency of vehicle movement will be confirmed by the chosen contractor and approved by the council before works commence.

Prior to the commencement of the works the specialist ground works contractor will provide detailed method statements for all aspects of the construction for approval by the engineer. These statements will address:

- All the site specific procedures described in the previous sections to necessary to minimises any noise and vibration that may affect the neighbouring properties.
- Construction requirements for temporary propping, movement monitoring, and waste disposal.

Throughout the duration of the works the engineer will also make site visits at regular intervals to ensure that construction is being progressed safely and in accordance with the agreed methods and design information.

5.2 Rubbish Removal and Recycling

An important part of the site management process involves site cleansing, rubbish removal and recycling.

To reduce and manage site waste:

- We will ensure that all material removed from site is taken to waste recycling stations and separated for recycling where possible. Records of the waste recycling will be provided by the recycling stations.
- Segregate waste types to facilitate recycling activities.
- Ensuring that all Duty of Care and other legal requirements are complied with during the disposal of wastes.
- Consulting with suppliers to determine correct / appropriate disposal routes for waste products and containers.
- It will be the responsibility of each contractor to keep the site area under his control safe from build-up of rubbish.

5.3 Local Environmental Considerations

The contractor will join the Considerate Contractors scheme.

Construction operations are likely to have impact on residential amenity on a day to day basis, it is our intention to minimise the impact that the construction process could cause to the Local Environment and the neighbouring community. All care will be taken not to cause the primary environmental nuisances, noise and dust pollution. Below are actions that will be carried out to abate these problems.

Reduction in noise disruption will be achieved by:

- Coordinated delivery times to avoid peak traffic times.
- Ensuring all plant has sound reduction measures (mufflers, baffles or silencers)
- Strict adherence to the site working hours.

Reduction in dust pollution and other airborne debris will be achieved by:

- Ensure that all materials transported to and from site are in enclosed containers or fully sheeted.
- During dry periods the works are to be damped down to control the generation of dust.
- Ensuring materials have a minimum of packaging.
- Ensuring all polystyrene and similar lightweight materials are weighted down
- Making sure all dust generating materials are adequately packaged.

In addition to the above provisions the following measures will be taken to reduce any further negative effects on the environment:

- Ensuring all contaminants kept on site are safely stored with the necessary procedures put in place for leaks and spillages etc.
- All temporary lighting, whether for the construction itself or for construction traffic, will be directional to ensure minimal light spillage across the site. The lighting will only be used as necessary during operational working hours.

Environmental issues must be treated seriously and must demonstrate good management practices are implemented to minimise the effects of noise and dust on the environment and local community.

Appendix A

Preliminary Form Structural Drawings

Document No.	Title	Revision
172723 L(00)01	Existing Lower Ground Floor Plan	P1
172723 L(00)02	Existing Ground Floor Plan	P1
172723 L(00)03	Existing First Floor Plan	P1
172723 L(00)04	Existing Second Floor Plan	P1
172723 L(00)05	Existing Third Floor Plan	P1
172723 L(00)06	Existing Fourth Floor Plan	P1
172723 L(00)07	Existing Fifth Floor Plan	P1
172723 L(00)08	Existing Roof Plan	P1
172723 L(23)01	Proposed Lower Ground Floor Plan	P1
172723 L(23)02	Proposed Ground Floor Plan	P1
172723 L(23)03	Proposed First Floor Plan	P1
172723 L(23)04	Proposed Second Floor Plan	P1
172723 L(23)05	Proposed Third Floor Plan	P1
172723 L(23)06	Proposed Fourth Floor Plan	P1
172723 L(23)07	Proposed Fifth Floor Plan	P1
172723 L(23)08	Proposed Roof Plan	P1

Document No.	Title	Revision
172723 A(00)01	Existing Section A-A	P1
172723 A(00)02	Existing Section B-B	P1
172723 A(00)03	Existing Section C-C	P1
172723 A(00)04	Existing Section D-D	P1
172723 A(23)01	Proposed Section A-A	P1
172723 A(23)02	Proposed Section B-B	P1
172723 A(23)03	Proposed Section C-C	P1
172723 A(23)04	Proposed Section D-D	P1

EXISTING FOUNDATION NOTE

	DENOTES EXISTING FOUNDATION WIDTHS BASED UPON LIMITED TRIAL PIT INFORMATION TAKEN FROM SITE. AS BUILT LOCATIONS OF EXISTING FOOTINGS MAY VARY FROM THOSE INDICATED

Notes

THIS DRAWING IS COPYRIGHT OF FORM.

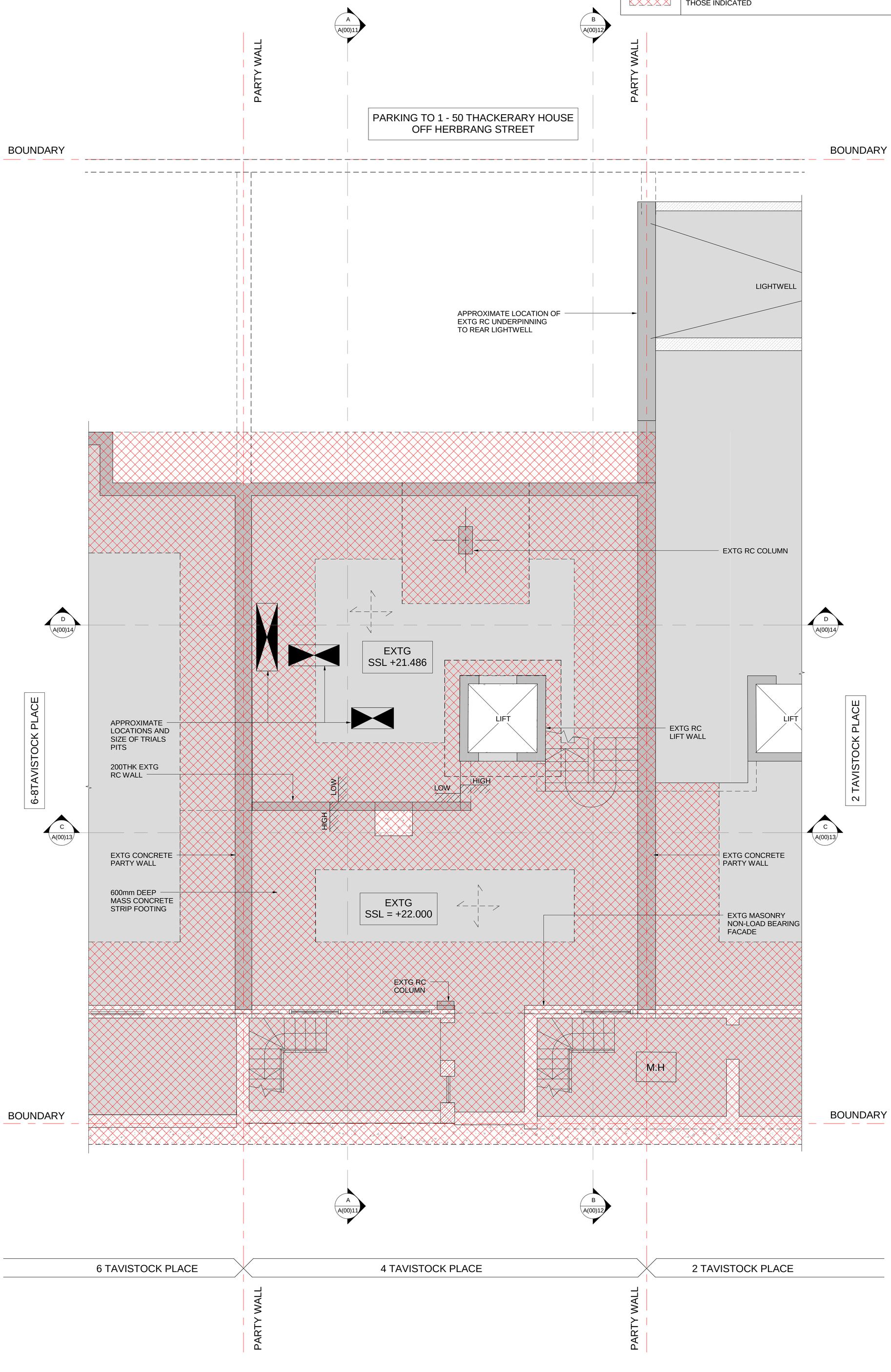
DO NOT SCALE FROM THIS DRAWING WORK ONLY TO FIGURED DIMENSIONS.

THE CONTRACTOR IS TO VERIFY ALL DIMENSIONS ON SITE BEFORE COMMENCING WORK. ALL ERRORS AND OMISSIONS ARE TO BE REPORTED TO THE ENGINEER.

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS, SERVICES ENGINEERS AND ENGINEERS DRAWINGS AND SPECIFICATIONS.

KEY (EXISTING STRUCTURE)

WALL TYPES	
	NON-LOAD BEARING MASONRY FACADE
	RC COLUMN / WALL (ALL WALLS 200mm THK U.N.O.)
	TIMBER FACADE
	RC LOAD BEARING COLUMN / WALL UNDER
LEGEND	
	350mm THK GROUND BEARING RC SLAB
	EXISTING TIMBER JOISTS
	EXISTING TIMBER RAFTERS
	EXISTING SINGLE SPAN CONCRETE SLAB



EXISTING LOWER GROUND FLOOR PLAN

SCALE - 1 : 50

0m 1m 2m 3m 4m 5m

SCALE 1:50 @ A1, 1:100 @ A3

NOT FOR CONSTRUCTION

Rev.	Date	Amendment	Drawn	Chkd
P1	**31.03.17**	**PRELIMINARY ISSUE**	**P.E**	**C.M**

Drawing Status: PRELIMINARY

Form

Job Title
4 TAVISTOCK PLACE
HOLBORN
WC1H 9RA

Drawing Title
EXISTING LOWER GROUND FLOOR

Form Structural Design Ltd 77 St John Street London EC1M 4NN
T:020 7253 2893 E:studio@form-sd.com W:www.form-sd.com

Date	Scale	Drawn	Checked
MAR 15	As indicated	P.E	C.M

Job No.	Drawing No.	Revision
172723	L(00)01	P1

PARKING TO 1 - 50 THACKERARY HOUSE
OFF HERBRANG STREET

PARTY WALL

PARTY WALL

A
A(00)11

B
A(00)12

EXTG BOUNDARY
MASONRY WALL

BOUNDARY

BOUNDARY

LIGHTWELL

EXTG MASONRY NON-
LOAD BEARING FACADE

290

575

EXTG RC COLUMN

DOWNSTAND BEAM 290dp O/A

D
A(00)14

D
A(00)14

200 THK TBC

EXTG SSL =
+ 23.882

EXTG RC LIFT WALL

LIFT

LIFT

6-8TAVISTOCK PLACE

2 TAVISTOCK PLACE

200THK EXTG RC WALL

LOW

HIGH

LOW

HIGH

C
A(00)13

C
A(00)13

EXTG CONCRETE
PARTY WALL

200 THK TBC

EXTG SSL =
+ 24.896

EXTG CONCRETE PARTY WALL

EXTG MASONRY NON-LOAD
BEARING FACADE

EXTG RC COLUMN

LIGHTWELL

LIGHTWELL

BOUNDARY

BOUNDARY

6 TAVISTOCK PLACE

4 TAVISTOCK PLACE

2 TAVISTOCK PLACE

TAVISTOCK PLACE

A
A(00)11

B
A(00)12

PARTY WALL

PARTY WALL

EXISTING GROUND FLOOR PLAN

SCALE - 1 : 50

0m 1m 2m 3m 4m 5m

SCALE 1:50 @ A1, 1:100 @ A3

Notes
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KEY (EXISTING STRUCTURE)	
WALL TYPES	
	NON-LOAD BEARING MASONRY FACADE
	RC COLUMN / WALL (ALL WALLS 200mm THK U.N.O.)
	TIMBER FACADE
	RC LOAD BEARING COLUMN / WALL UNDER
LEGEND	
	350mm THK GROUND BEARING RC SLAB
	EXISTING TIMBER JOISTS
	EXISTING TIMBER RAFTERS
	EXISTING SINGLE SPAN CONCRETE SLAB

NOT FOR CONSTRUCTION

Rev.	Date	Amendment	Drawn	Chkd
P1	31.03.17	PRELIMINARY ISSUE	P.E	C.M

Drawing Status: PRELIMINARY

Form

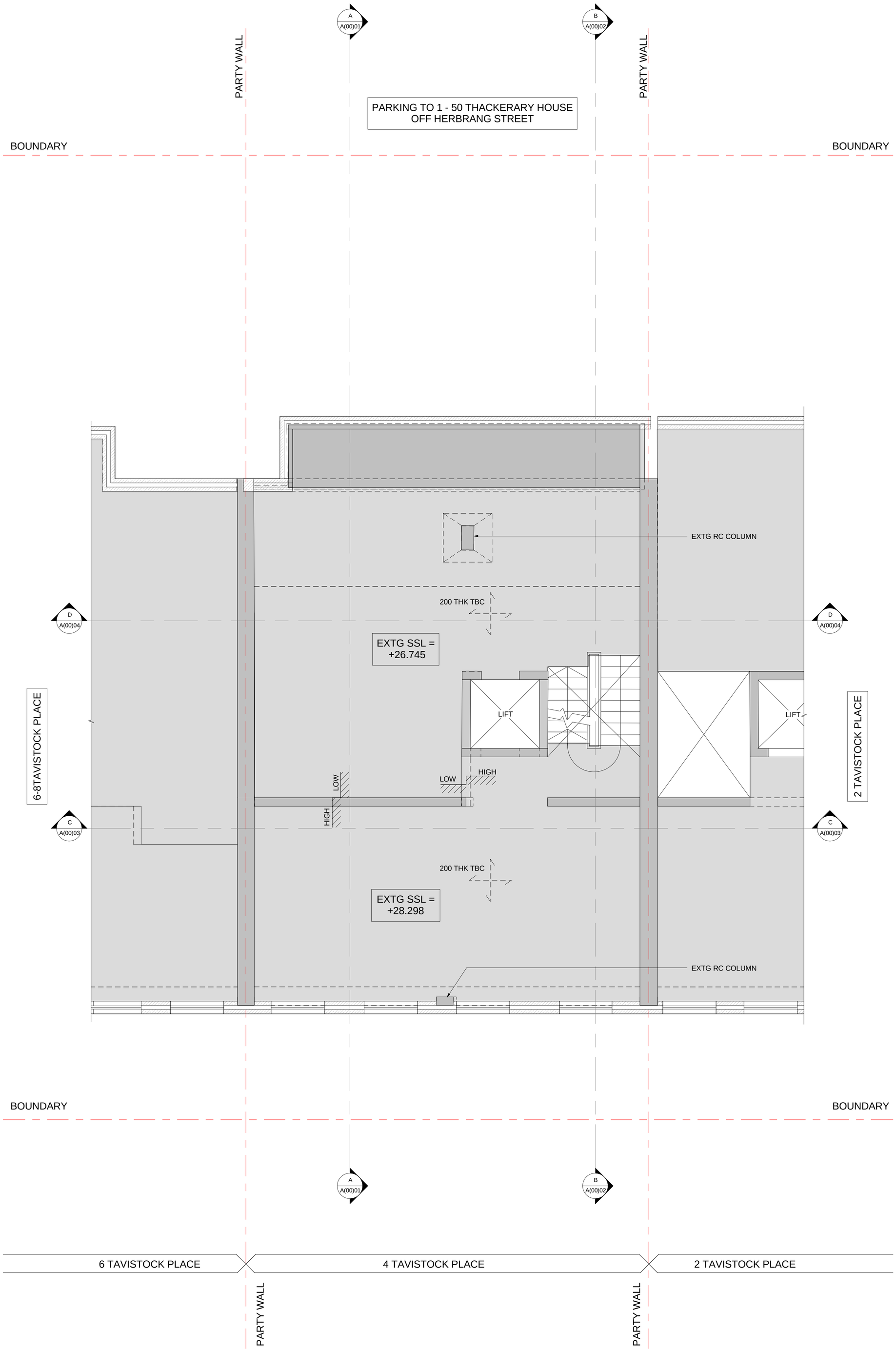
Job Title
4 TAVISTOCK PLACE
HOLBORN
WC1H 9RA

Drawing Title
EXISTING GROUND FLOOR

Form Structural Design Ltd 77 St John Street London EC1M 4NN
T:020 7253 2893 E:studio@form-sd.com W:www.form-sd.com

Date	Scale	Drawn	Checked
MAR 17	As indicated	P.E	C.M

Job No.	Drawing No.	Revision
172723	L(00)02	P1



EXISTING FIRST FLOOR PLAN

SCALE - 1 : 50

0m 1m 2m 3m 4m 5m

SCALE 1:50 @ A1, 1:100 @ A3

Notes
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	TIMBER FACADE
	RC LOAD BEARING COLUMN / WALL UNDER
LEGEND	
	350mm THK GROUND BEARING RC SLAB
	EXISTING TIMBER JOISTS
	EXISTING TIMBER RAFTERS
	EXISTING SINGLE SPAN CONCRETE SLAB

NOT FOR CONSTRUCTION

Rev.	Date	Amendment	Drawn	Chkd
P1	31.03.17	PRELIMINARY ISSUE	P.E	C.M

Drawing Status: PRELIMINARY

Form

Job Title
4 TAVISTOCK PLACE
HOLBORN
WC1H 9RA

Drawing Title
EXISTING FIRST FLOOR

Form Structural Design Ltd 77 St John Street London EC1M 4NN
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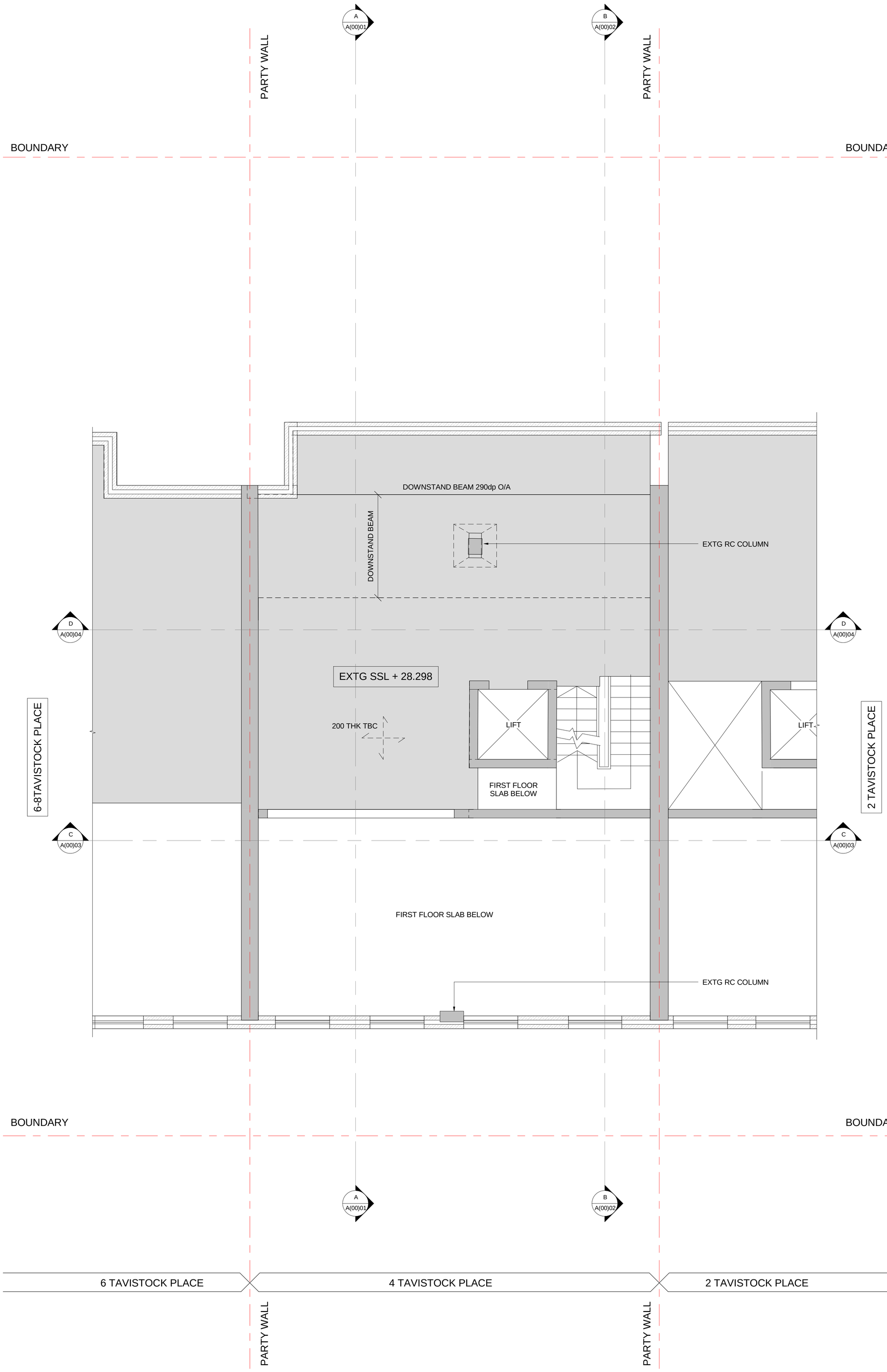
Date	Scale	Drawn	Checked
MAR 17	As indicated	P.E	C.M

Job No.	Drawing No.	Revision
172723	L(00)03	P1



EXISTING SECOND FLOOR PLAN

SCALE - 1 : 50

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KEY (EXISTING STRUCTURE)	
WALL TYPES	
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	TIMBER FACADE
	RC LOAD BEARING COLUMN / WALL UNDER
LEGEND	
	350mm THK GROUND BEARING RC SLAB
	EXISTING TIMBER JOISTS
	EXISTING TIMBER RAFTERS
	EXISTING SINGLE SPAN CONCRETE SLAB

0m 1m 2m 3m 4m 5m

SCALE 1:50 @ A1, 1:100 @ A3

NOT FOR CONSTRUCTION

Rev.	Date	Amendment	Drawn	Chkd
P1	31.03.17	PRELIMINARY ISSUE	P.E	C.M

Drawing Status: PRELIMINARY

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Job Title
4 TAVISTOCK PLACE
HOLBORN
WC1H 9RA

Drawing Title
EXISTING SECOND FLOOR

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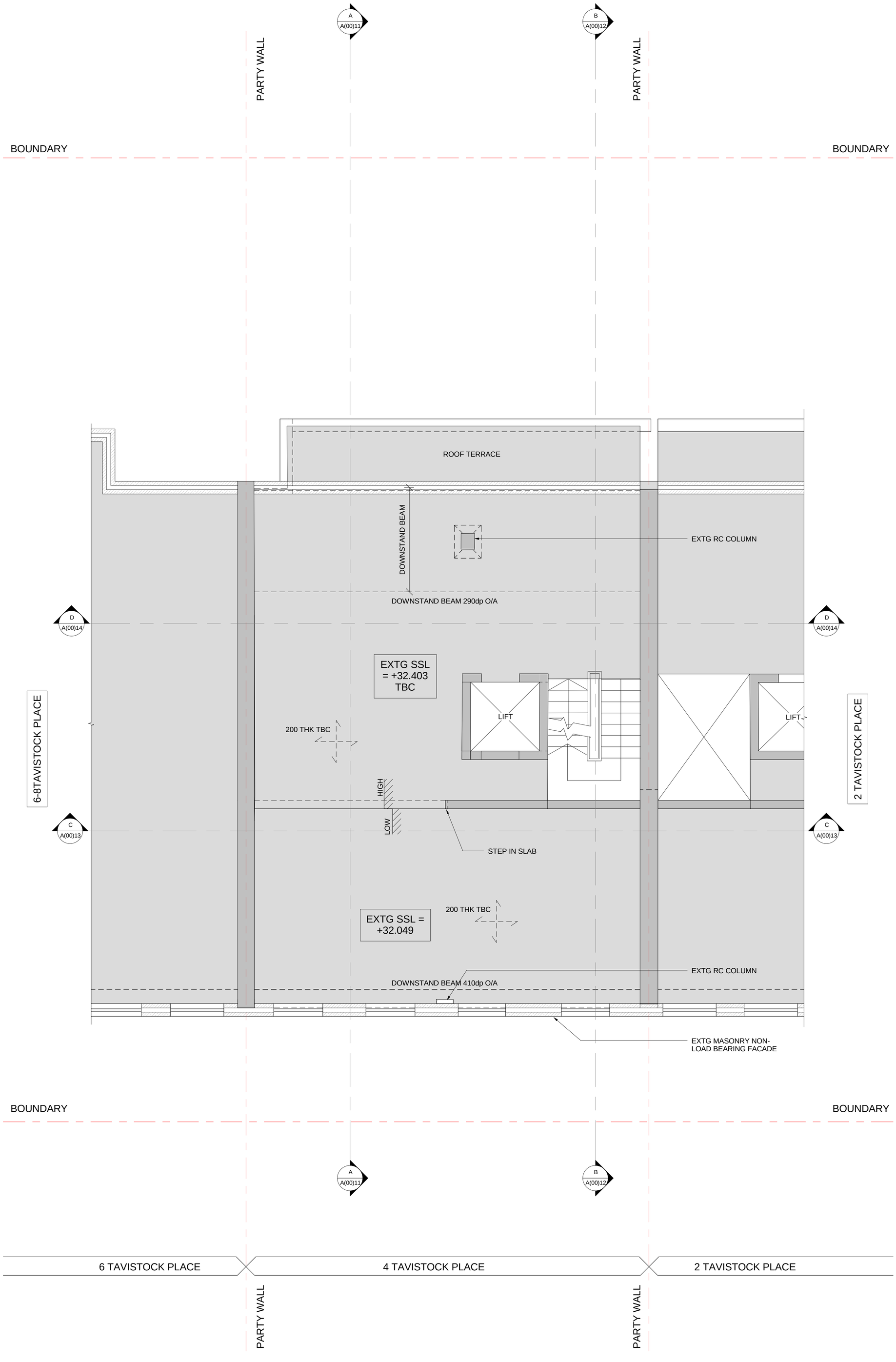
Date	Scale	Drawn	Checked
MAR 17	As indicated	P.E	C.M

Job No.	Drawing No.	Revision
172723	L(00)04	P1



EXISTING THIRD FLOOR

SCALE - 1 : 50

0m 1m 2m 3m 4m 5m

SCALE 1:50 @ A1, 1:100 @ A3

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	RC COLUMN / WALL (ALL WALLS 200mm THK U.N.O.)
	TIMBER FACADE
	RC LOAD BEARING COLUMN / WALL UNDER
LEGEND	
	350mm THK GROUND BEARING RC SLAB
	EXISTING TIMBER JOISTS
	EXISTING TIMBER RAFTERS
	EXISTING SINGLE SPAN CONCRETE SLAB

NOT FOR CONSTRUCTION

Rev.	Date	Amendment	Drawn	Chkd
P1	**31.03.17**	**PRELIMINARY ISSUE**	**P.E**	**C.M**

Drawing Status: PRELIMINARY

Form

Job Title
4 TAVISTOCK PLACE
HOLBORN
WC1H 9RA

Drawing Title
EXISTING THIRD FLOOR

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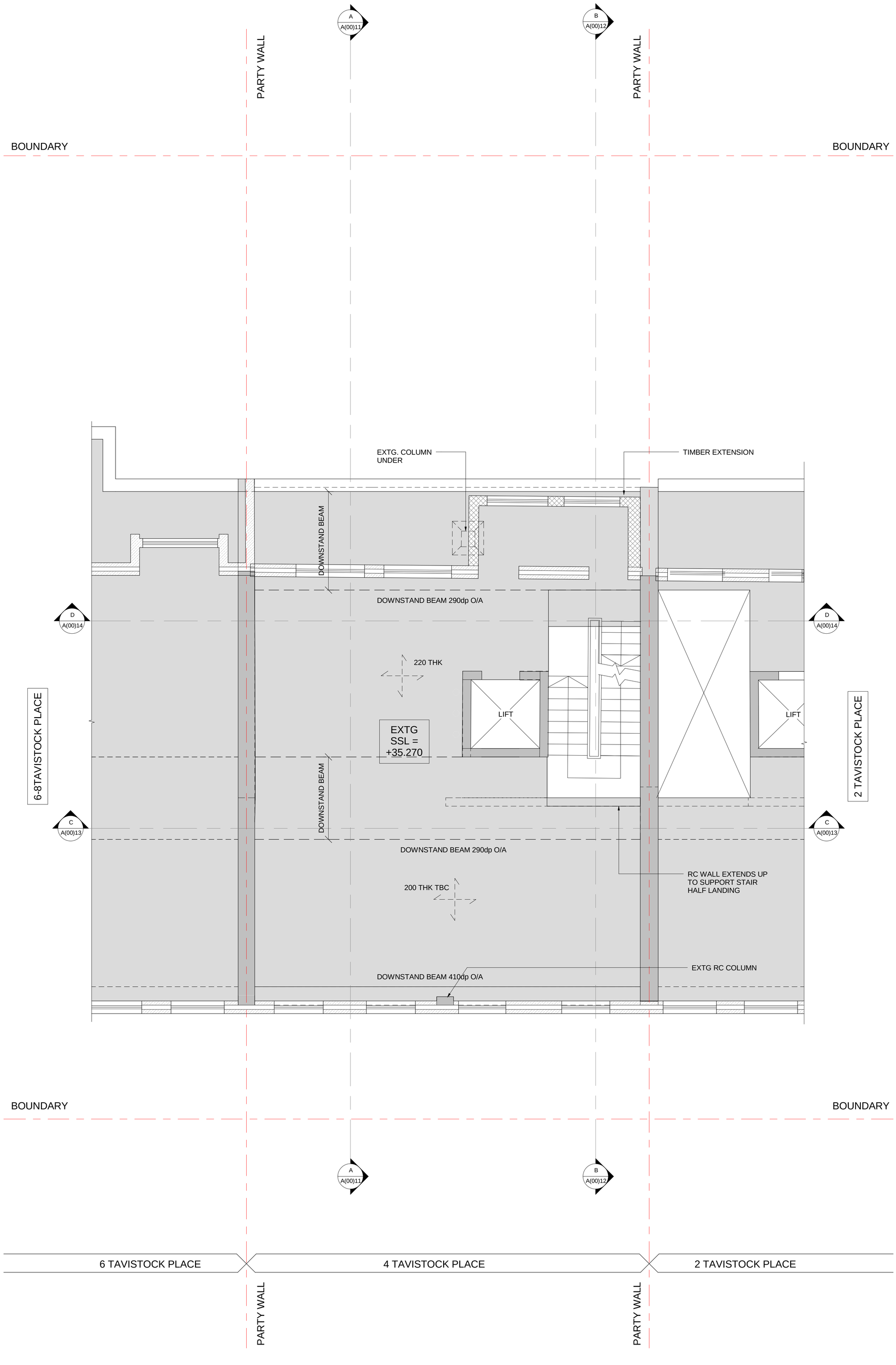
Date	Scale	Drawn	Checked
MAR 17	As indicated	P.E	C.M

Job No.	Drawing No.	Revision
172723	L(00)05	P1



EXISTING FOURTH FLOOR PLAN

SCALE - 1 : 50

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KEY (EXISTING STRUCTURE)

WALL TYPES	
	NON-LOAD BEARING MASONRY FACADE
	RC COLUMN / WALL (ALL WALLS 200mm THK U.N.O.)
	TIMBER FACADE
	RC LOAD BEARING COLUMN / WALL UNDER
LEGEND	
	350mm THK GROUND BEARING RC SLAB
	EXISTING TIMBER JOISTS
	EXISTING TIMBER RAFTERS
	EXISTING SINGLE SPAN CONCRETE SLAB

0m 1m 2m 3m 4m 5m

SCALE 1:50 @ A1, 1:100 @ A3

NOT FOR CONSTRUCTION

Rev.	Date	Amendment	Drawn	Chkd
P1	31.03.17	PRELIMINARY ISSUE	P.E	C.M

Drawing Status: PRELIMINARY

Form

Job Title
4 TAVISTOCK PLACE
HOLBORN
WC1H 9RA

Drawing Title
EXISTING FOURTH FLOOR

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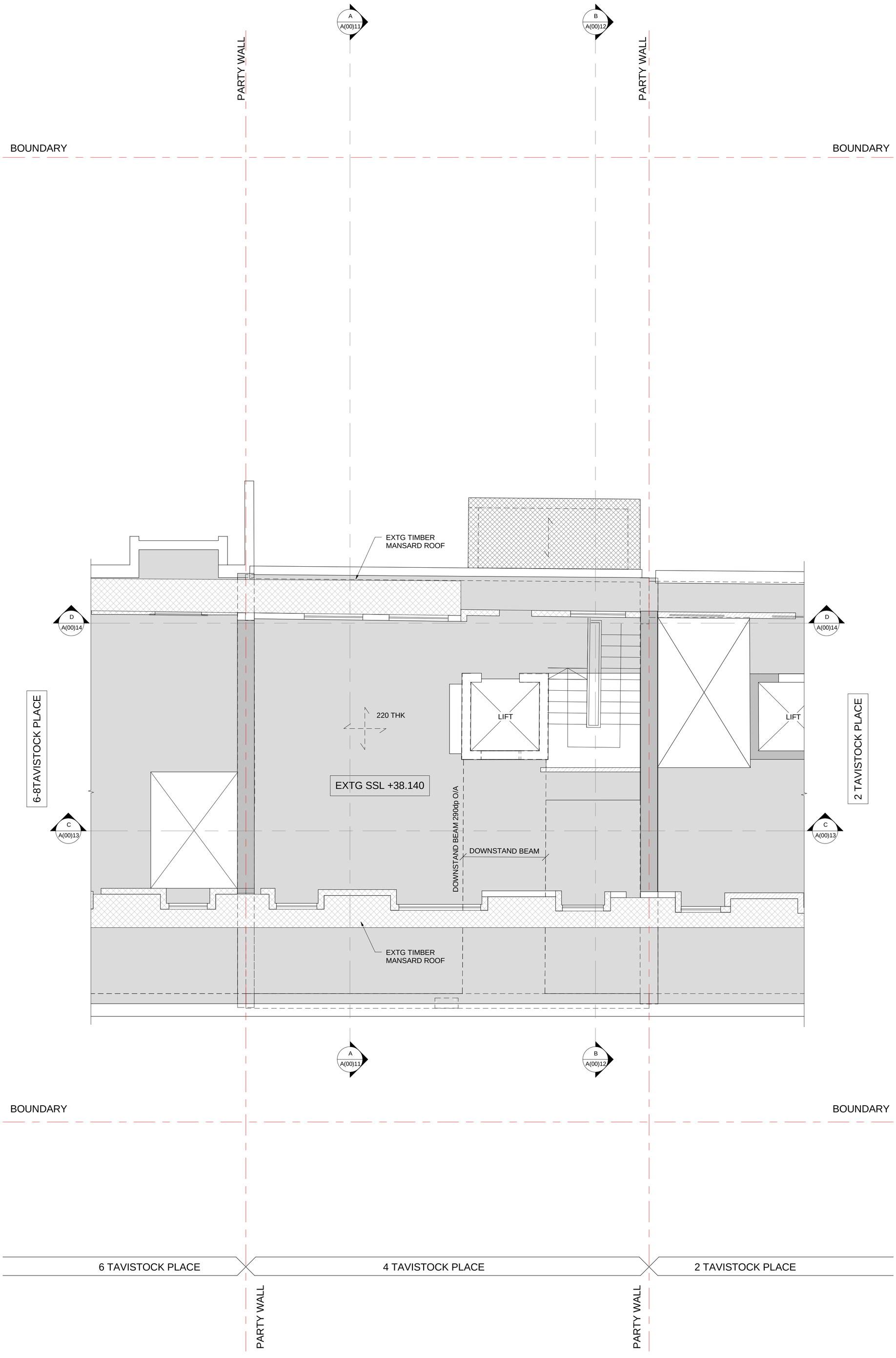
MAR 17	As indicated	P.E	C.M

Job No.	Drawing No.	Revision
172723	L(00)06	P1



EXISTING FIFTH FLOOR PLAN

SCALE - 1 : 50

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WALL TYPES	
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	RC COLUMN / WALL (ALL WALLS 200mm THK U.N.O.)
	TIMBER FACADE
	RC LOAD BEARING COLUMN / WALL UNDER
LEGEND	
	350mm THK GROUND BEARING RC SLAB
	EXISTING TIMBER JOISTS
	EXISTING TIMBER RAFTERS
	EXISTING SINGLE SPAN CONCRETE SLAB

0m 1m 2m 3m 4m 5m

SCALE 1:50 @ A1, 1:100 @ A3

NOT FOR CONSTRUCTION

Rev.	Date	Amendment	Drawn	Chkd
P1	**31.03.17**	**PRELIMINARY ISSUE**	**P.E**	**C.M**

Drawing Status: PRELIMINARY

Form

Job Title
4 TAVISTOCK PLACE
HOLBORN
WC1H 9RA

Drawing Title
EXISTING FIFTH FLOOR

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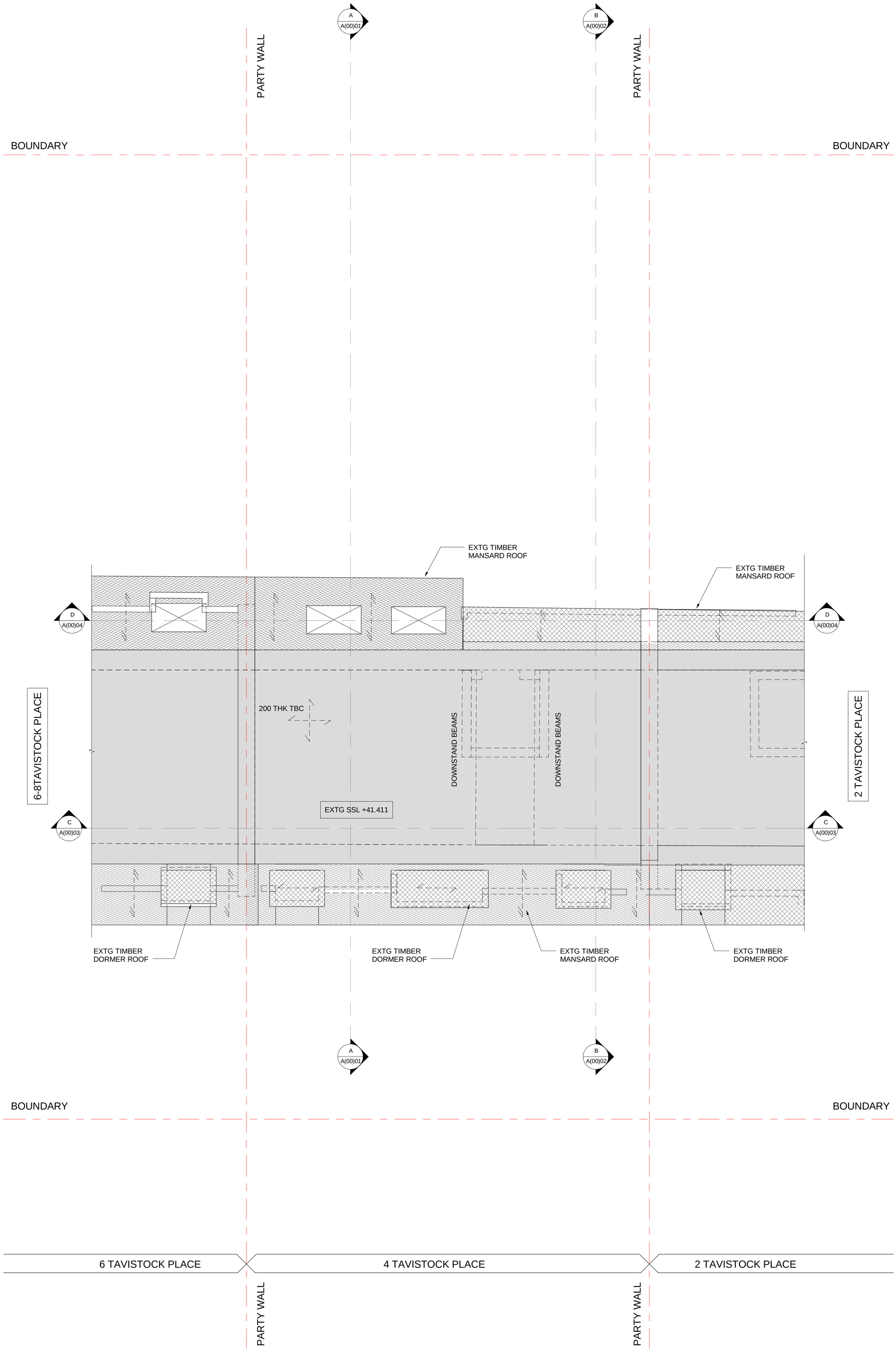
Date	Scale	Drawn	Checked
MAR 17	As indicated	P.E	C.M

Job No.	Drawing No.	Revision
172723	L(00)07	P1



EXISTING ROOF

SCALE - 1 : 50

0m 1m 2m 3m 4m 5m

SCALE 1:50 @ A1, 1:100 @ A3

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	RC COLUMN / WALL (ALL WALLS 200mm THK U.N.O.)
	TIMBER FACADE
	RC LOAD BEARING COLUMN / WALL UNDER
LEGEND	
	350mm THK GROUND BEARING RC SLAB
	EXISTING TIMBER JOISTS
	EXISTING TIMBER RAFTERS
	EXISTING SINGLE SPAN CONCRETE SLAB

NOT FOR CONSTRUCTION

Rev.	Date	Amendment	Drawn	Chkd
P1	31.03.17	PRELIMINARY ISSUE	P.E	C.M

Drawing Status: PRELIMINARY

Form

Job Title
4 TAVISTOCK PLACE
HOLBORN
WC1H 9RA

Drawing Title
EXISTING ROOF

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MAR 17	As indicated	P.E	C.M

Job No.	Drawing No.	Revision
172723	L(00)08	P1

EXISTING FOUNDATION NOTE

EXISTING FOUNDATIONS SHOWN THUS ARE BASED UPON LIMITED TRIAL PIT INFORMATION TAKEN FROM SITE. AS BUILT LOCATIONS OF EXISTING FOOTINGS MAY VARY FROM THOSE INDICATED

Notes

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KEY (EXISTING STRUCTURE)

WALL TYPES	
	NON-LOAD BEARING MASONRY FACADE
	RC COLUMN / WALL (ALL WALLS 200mm THK U.N.O.)
	RC LOAD BEARING COLUMN / WALL UNDER
LEGEND	
	EXISTING 3350mm THK GROUND BEARING RC SLAB

KEY (PROPOSED LOWER GROUND FLOOR STRUCTURE)

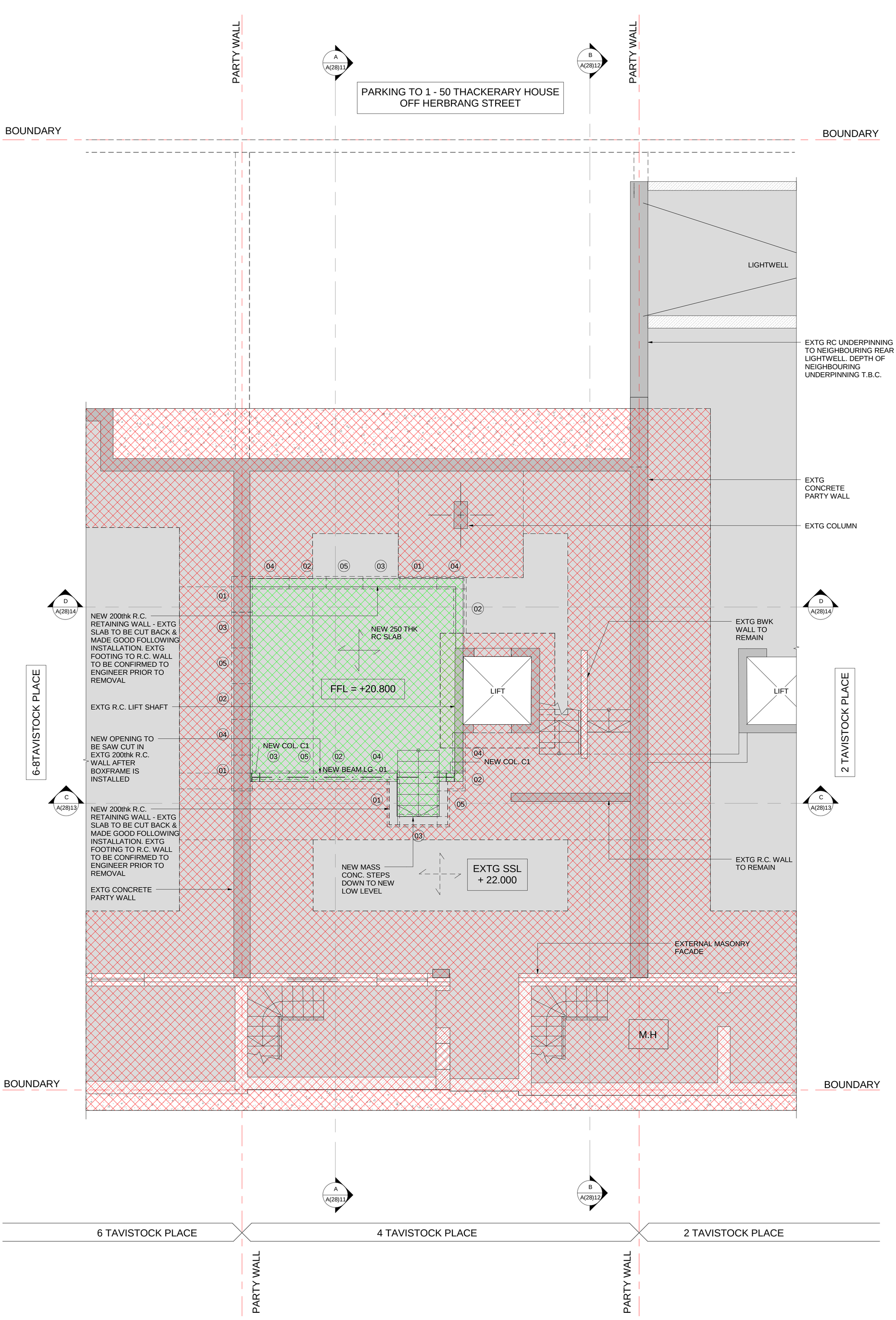
	PROPOSED NEW GROUND BEARING CONCRETE SLAB. THICKNESS AS INDICATED ON PLAN
	NEW FLOOR

STRUCTURAL BEAM SCHEDULE LOWER GROUND FLOOR

Mark	Type
NEW BEAM LG - 01	UC203x203x60

STRUCTURAL COLUMN SCHEDULE

Mark	SIZE
NEW COL. C1	UC203x203x60
NEW COL. C2	SHS100x100x10.0



PROPOSED LOWER GROUND FLOOR PLAN

SCALE - 1 : 50

DRAINAGE NOTE:

PROPOSED UNDERGROUND DRAINAGE NOT SHOWN, TO BE DESIGNED & DETAILED BY SPECIALISTS CONTRACTOR

CUTTING CONCRETE NOTE:

IN ALL LOCATIONS WHERE EXISTING CONCRETE IS TO BE CUT, CONTRACTOR TO ALLOW FOR CONCRETE REPAIRS INCLUDING BONDING AGENT AND REPAIR MORTAR

0m 1m 2m 3m 4m 5m

SCALE 1:50 @ A1, 1:100 @ A3

UNDERPINNING

(X) DENOTES MASS CONCRETE UNDERPINS. TO BE INSTALLED IN A 'HIT AND MISS' SEQUENCE (UNLESS NOTED OTHERWISE) AS SHOWN ON PLAN. MAXIMUM WIDTH 1m. UNDERPNNING TO SUIT WIDTH AND CENTRE OF WALL

Rev.	Date	Amendment	Drawn	Chkd
P1	31.03.17	PRELIMINARY ISSUE	P.E	C.M

Drawing Status: PRELIMINARY

Form

Job Title
4 TAVISTOCK PLACE
HOLBORN
WC1H 9RA

Drawing Title
PROPOSED LOWER GROUND FLOOR

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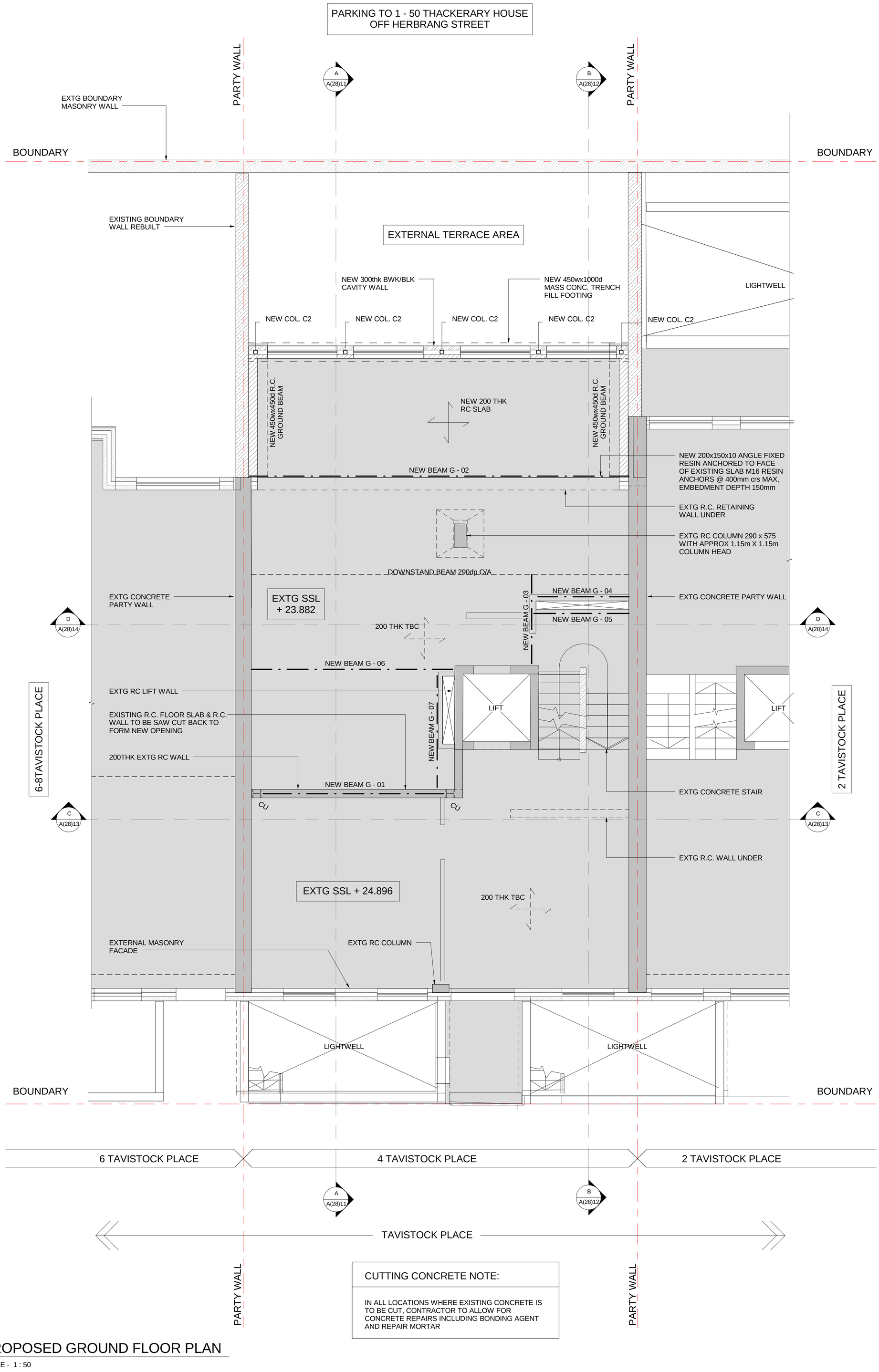
Date	Scale	Drawn	Checked
MAR 17	As indicated	P.E	C.M

Job No.	Drawing No.	Revision
172723	L(23)01	P1



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PROPOSED GROUND FLOOR PLAN

SCALE - 1 : 50

0m 1m 2m 3m 4m 5m

SCALE 1:50 @ A1, 1:100 @ A3

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	RC COLUMN / WALL (ALL WALLS 200mm THK U.N.O.)
	RC LOAD BEARING COLUMN / WALL UNDER
LEGEND	
	ASSUMED 2 WAY SPANNING RC FLAT SLAB (THICKNESS AS INDICATED ON PLAN)

KEY (PROPOSED GROUND FLOOR STRUCTURE)	
	NEW FLOOR
	NEW BEAM UNDER.
	DENOTES SPAN OF NEW 50x225 C24 TIMBER JOISTS AT 400c/c U.N.O.
	DENOTES SPAN OF NEW 200 THK RC SLAB OVER COMFLOR 80 METAL DECK
CU	COLUMN UNDER

STRUCTURAL BEAM SCHEDULE GROUND FLOOR

Mark	SIZE
NEW BEAM G - 01	UC203x203x60
NEW BEAM G - 02	L200x150x10
NEW BEAM G - 03	UC203x203x60
NEW BEAM G - 04	UC203x203x60
NEW BEAM G - 05	UC203x203x60
NEW BEAM G - 06	UC203x203x60
NEW BEAM G - 07	UC203x203x60

STRUCTURAL COLUMN SCHEDULE

Mark	SIZE
NEW COL. C1	UC203x203x60
NEW COL. C2	SHS100x100x10.0

Rev.	Date	Amendment	Drawn	Chkd
P1	31.03.17	PRELIMINARY ISSUE	P.E	C.M

Drawing Status: PRELIMINARY

Form

Job Title
4 TAVISTOCK PLACE
HOLBORN
WC1H 9RA

Drawing Title
PROPOSED GROUND FLOOR

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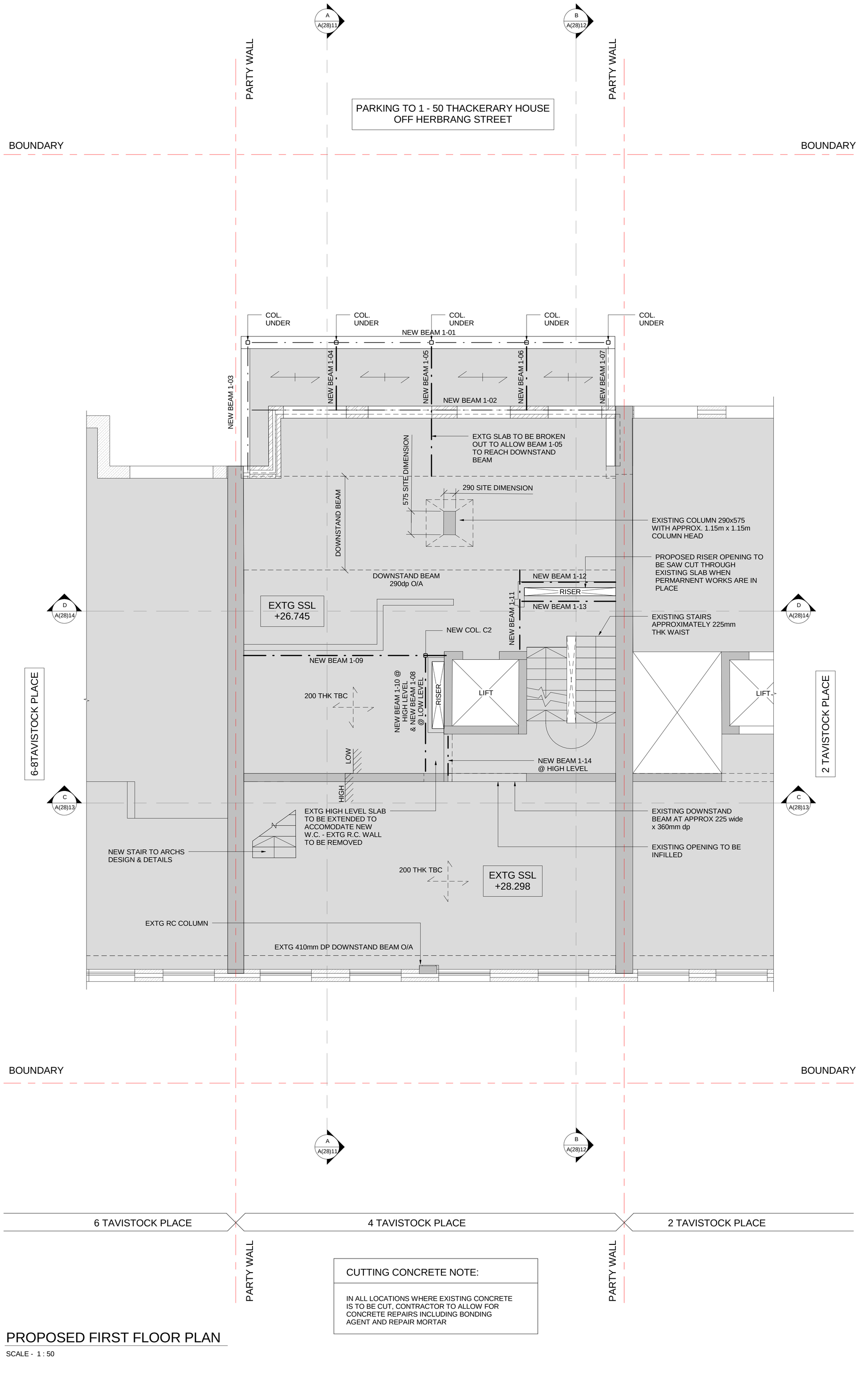
T:020 7253 2893 E:studio@form-sd.com W:www.form-sd.com

Date	Scale	Drawn	Checked
MAR 17	As indicated	P.E	C.M

Job No.	Drawing No.	Revision
172723	L(23)02	P1



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	RC LOAD BEARING COLUMN / WALL UNDER
LEGEND	
	ASSUMED 2 WAY SPANNING RC FLAT SLAB (THICKNESS AS INDICATED ON PLAN)
	NEW BEAM UNDER.
CU	COLUMN UNDER

STRUCTURAL BEAM SCHEDULE FIRST FLOOR	
Mark	SIZE
NEW BEAM 1-01	UC203x203x60
NEW BEAM 1-02	UC203x203x60
NEW BEAM 1-03	UC203x203x60
NEW BEAM 1-04	UB203x133x25
NEW BEAM 1-05	UC203x203x60
NEW BEAM 1-06	UB203x133x25
NEW BEAM 1-07	UC203x203x60
NEW BEAM 1-09	UC203x203x60
NEW BEAM 1-10	UC203x203x60
NEW BEAM 1-11	UC203x203x60
NEW BEAM 1-12	UC203x203x60
NEW BEAM 1-13	UC203x203x60
NEW BEAM 1-14	UC203x203x60

STRUCTURAL COLUMN SCHEDULE	
Mark	SIZE
NEW COL. C1	UC203x203x60
NEW COL. C2	SHS100x100x10.0

CUTTING CONCRETE NOTE:
IN ALL LOCATIONS WHERE EXISTING CONCRETE IS TO BE CUT, CONTRACTOR TO ALLOW FOR CONCRETE REPAIRS INCLUDING BONDING AGENT AND REPAIR MORTAR

PROPOSED FIRST FLOOR PLAN

SCALE - 1 : 50

0m 1m 2m 3m 4m 5m

SCALE 1:50 @ A1, 1:100 @ A3

Rev.	Date	Amendment	Drawn	Chkd
P1	31.03.17	PRELIMINARY ISSUE	P.E	C.M

Drawing Status: PRELIMINARY

Form

Job Title
4 TAVISTOCK PLACE
HOLBORN
WC1H 9RA

Drawing Title
PROPOSED FIRST FLOOR

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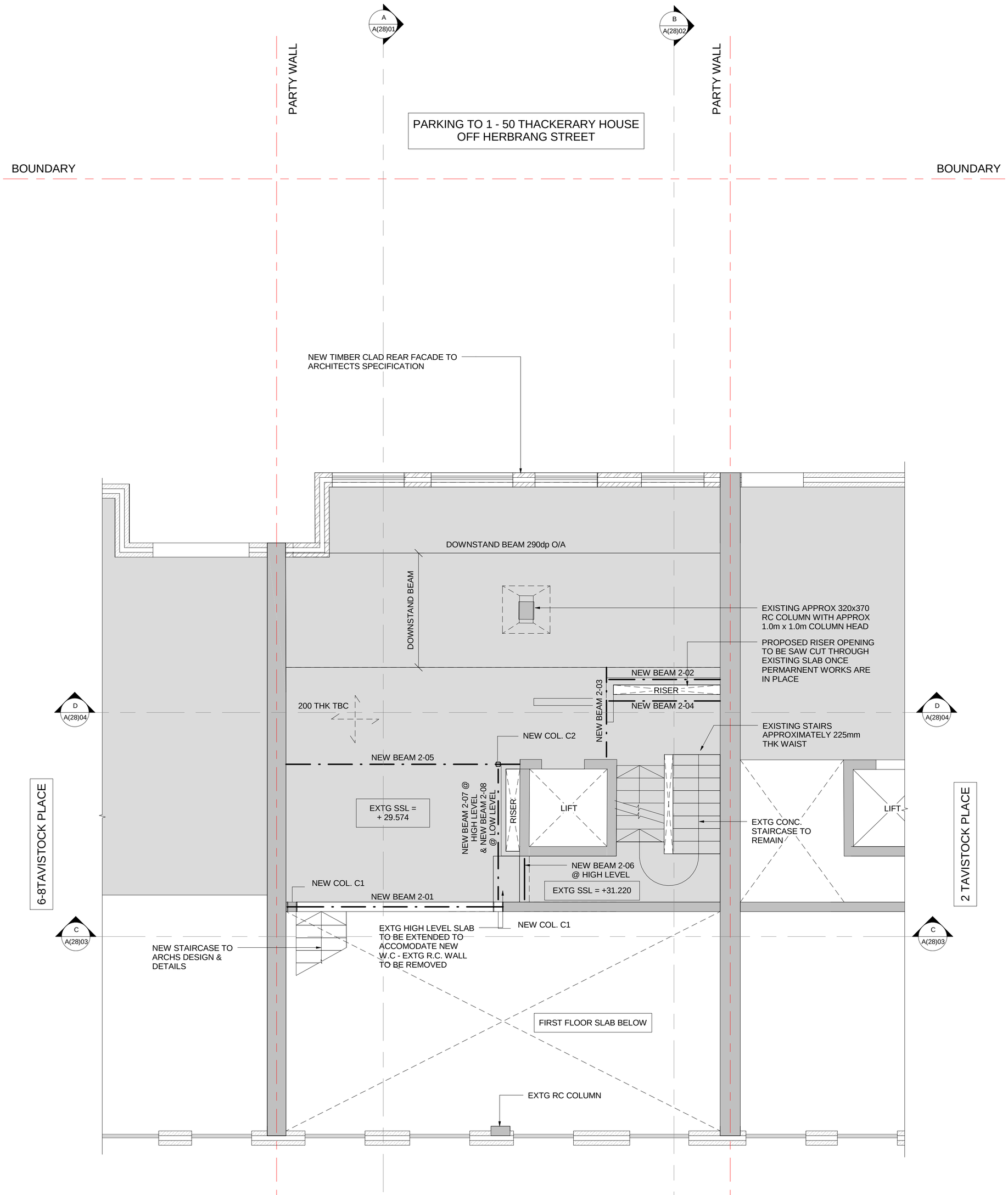
Date	Scale	Drawn	Checked
MAR 15	As indicated	P.E	C.M

Job No.	Drawing No.	Revision
172723	L(23)03	P1



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KEY (EXISTING STRUCTURE)	
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	RC COLUMN / WALL (ALL WALLS 200mm THK U.N.O.)
	RC LOAD BEARING COLUMN / WALL UNDER
LEGEND	
	ASSUMED 2 WAY SPANNING RC FLAT SLAB (THICKNESS AS INDICATED ON PLAN)
	NEW BEAM UNDER.
	DENOTES SPAN OF NEW 50x225 C24 TIMBER JOISTS AT 400c/c U.N.O.
CU	COLUMN UNDER

STRUCTURAL BEAM SCHEDULE SECOND FLOOR	
Mark	SIZE
NEW BEAM 2-01	UC203x203x60
NEW BEAM 2-02	UC203x203x60
NEW BEAM 2-03	UC203x203x60
NEW BEAM 2-04	UC203x203x60
NEW BEAM 2-05	UC203x203x60
NEW BEAM 2-06	UC203x203x60
NEW BEAM 2-07	UC203x203x60
NEW BEAM 2-08	UC203x203x60

STRUCTURAL COLUMN SCHEDULE	
Mark	SIZE
NEW COL. C1	UC203x203x60
NEW COL. C2	SHS100x100x10.0

CUTTING CONCRETE NOTE:

IN ALL LOCATIONS WHERE EXISTING CONCRETE IS TO BE CUT, CONTRACTOR TO ALLOW FOR CONCRETE REPAIRS INCLUDING BONDING AGENT AND REPAIR MORTAR

PROPOSED SECOND FLOOR PLAN

SCALE - 1 : 50

0m 1m 2m 3m 4m 5m

SCALE 1:50 @ A1, 1:100 @ A3

Rev.	Date	Amendment	Drawn	Chkd
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WC1H 9RA

Drawing Title
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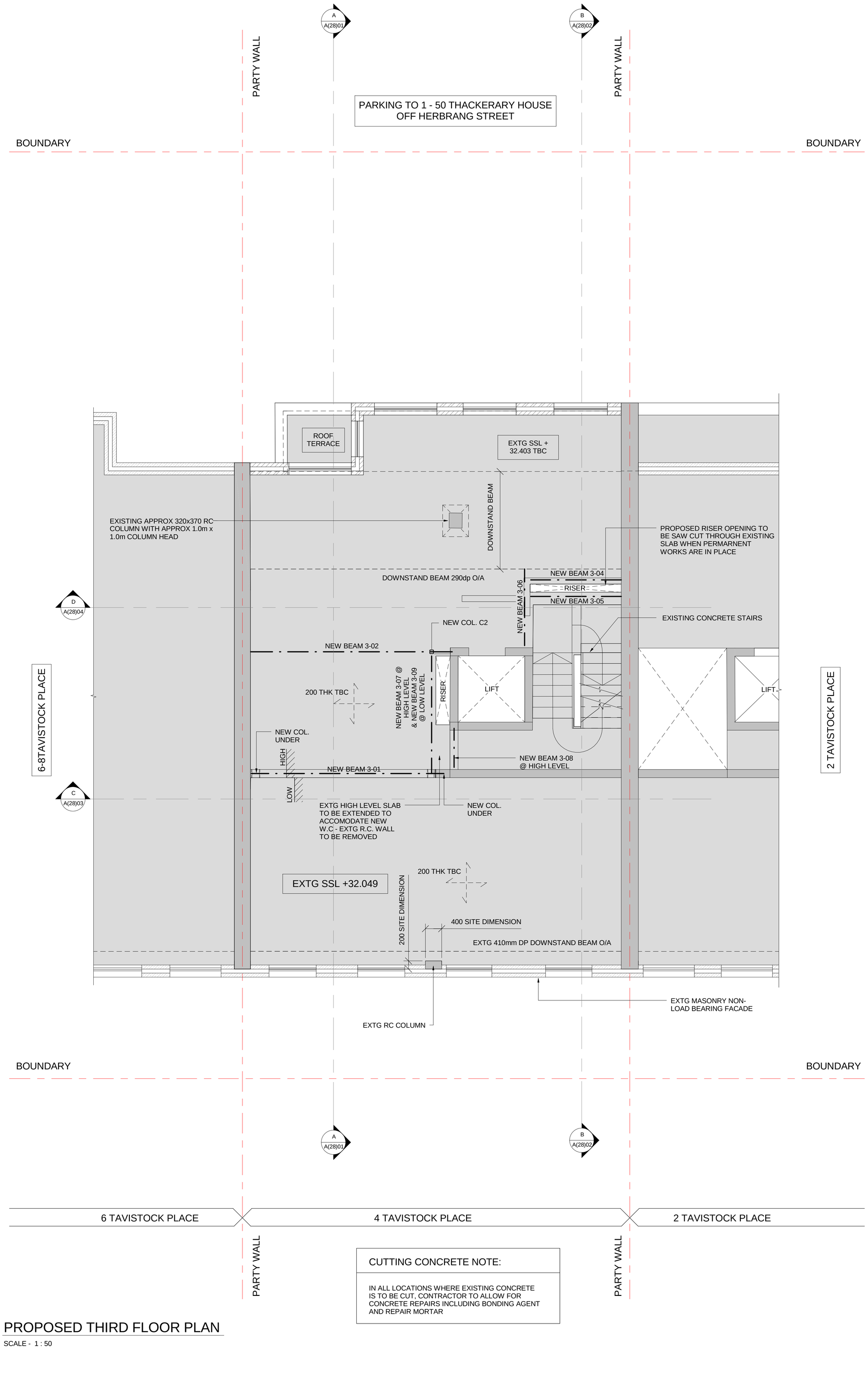
Job No.	Drawing No.	Revision
172723	L(23)04	P1



CUTTING CONCRETE NOTE:

IN ALL LOCATIONS WHERE EXISTING CONCRETE IS TO BE CUT, CONTRACTOR TO ALLOW FOR CONCRETE REPAIRS INCLUDING BONDING AGENT AND REPAIR MORTAR

PROPOSED THIRD FLOOR PLAN

SCALE - 1 : 50

0m 1m 2m 3m 4m 5m

SCALE 1:50 @ A1, 1:100 @ A3

Notes

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KEY (EXISTING STRUCTURE)	
WALL TYPES	
	NON-LOAD BEARING MASONRY FACADE
	RC COLUMN / WALL (ALL WALLS 200mm THK U.N.O.)
	TIMBER FACADE
	RC LOAD BEARING COLUMN / WALL UNDER
LEGEND	
	ASSUMED 2 WAY SPANNING RC FLAT SLAB (THICKNESS AS INDICATED ON PLAN)
	EXISTING TIMBER JOISTS
	EXISTING TIMBER RAFTERS

KEY (PROPOSED THIRD FLOOR STRUCTURE)	
	NEW BEAM UNDER.
	DENOTES SPAN OF NEW 50x225 C24 TIMBER JOISTS AT 400c/c U.N.O.
	DENOTES SPAN OF NEW 200 THK RC SLAB OVER COMFLOR 51 METAL DECK
CU	COLUMN UNDER

STRUCTURAL BEAM SCHEDULE THIRD FLOOR	
Mark	SIZE
NEW BEAM 3-01	UC203x203x60
NEW BEAM 3-02	UC203x203x60
NEW BEAM 3-04	UC203x203x60
NEW BEAM 3-05	UC203x203x60
NEW BEAM 3-06	UC203x203x60
NEW BEAM 3-07	UC203x203x60
NEW BEAM 3-08	UC203x203x60
NEW BEAM 3-09	UC203x203x60

STRUCTURAL COLUMN SCHEDULE	
Mark	SIZE
NEW COL. C1	UC203x203x60
NEW COL. C2	SHS100x100x10.0

Rev.	Date	Amendment	Drawn	Chkd
P1	31.03.17	PRELIMINARY ISSUE	P.E	C.M

Drawing Status: PRELIMINARY

Form

Job Title
4 TAVISTOCK PLACE
HOLBORN
WC1H 9RA

Drawing Title
PROPOSED THIRD FLOOR

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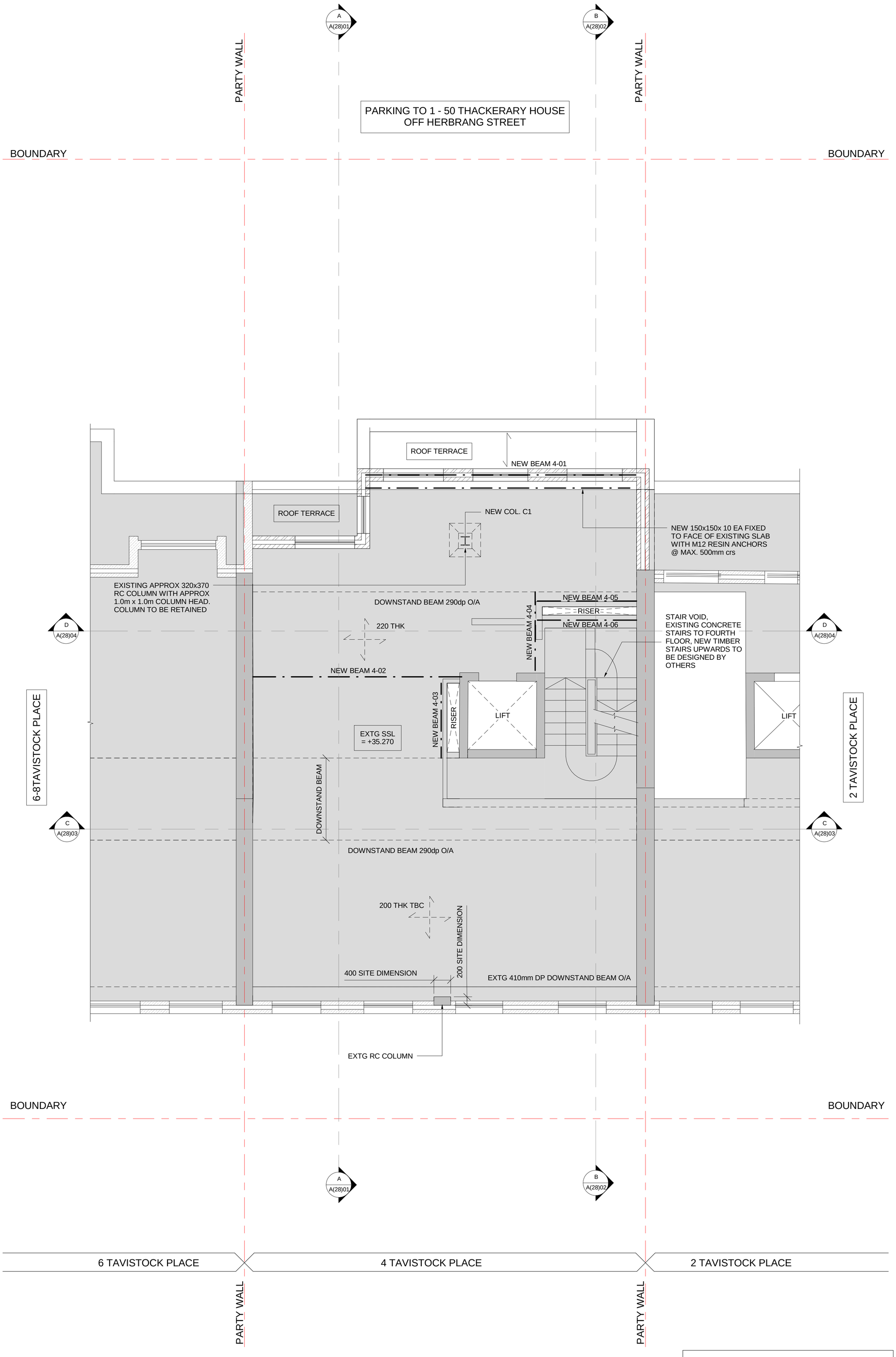
MAR 17	As indicated	P.E	C.M

Job No.	Drawing No.	Revision
172723	L(23)05	P1



PROPOSED FOURTH FLOOR PLAN

SCALE - 1 : 50

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KEY (EXISTING STRUCTURE)	
WALL TYPES	
	NON-LOAD BEARING MASONRY FACADE
	RC COLUMN / WALL (ALL WALLS 200mm THK U.N.O.)
	TIMBER FACADE
	RC LOAD BEARING COLUMN / WALL UNDER
LEGEND	
	ASSUMED 2 WAY SPANNING RC FLAT SLAB (THICKNESS AS INDICATED ON PLAN)
	EXISTING TIMBER JOISTS
	EXISTING TIMBER RAFTERS

KEY (PROPOSED FOURTH FLOOR STRUCTURE)	
	NEW BEAM UNDER.
	DENOTES SPAN OF NEW 50x225 C24 TIMBER JOISTS AT 400c/c U.N.O.
CU	COLUMN UNDER

STRUCTURAL BEAM SCHEDULE FOURTH FLOOR

Mark	SIZE
NEW BEAM 4-01	UC203x203x46
NEW BEAM 4-02	UC203x203x60
NEW BEAM 4-03	UC203x203x60
NEW BEAM 4-04	UC203x203x60
NEW BEAM 4-05	UC203x203x60
NEW BEAM 4-06	UC203x203x60

STRUCTURAL COLUMN SCHEDULE

Mark	SIZE
NEW COL. C1	UC203x203x60
NEW COL. C2	SHS100x100x10.0

CUTTING CONCRETE NOTE:

IN ALL LOCATIONS WHERE EXISTING CONCRETE IS TO BE CUT, CONTRACTOR TO ALLOW FOR CONCRETE REPAIRS INCLUDING BONDING AGENT AND REPAIR MORTAR

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SCALE 1:50 @ A1, 1:100 @ A3

Rev.	Date	Amendment	Drawn	Chkd
P1	31.03.17	PRELIMINARY ISSUE	P.E	C.M

Drawing Status: PRELIMINARY

Form

Job Title
4 TAVISTOCK PLACE
HOLBORN
WC1H 9RA

Drawing Title
PROPOSED FOURTH FLOOR

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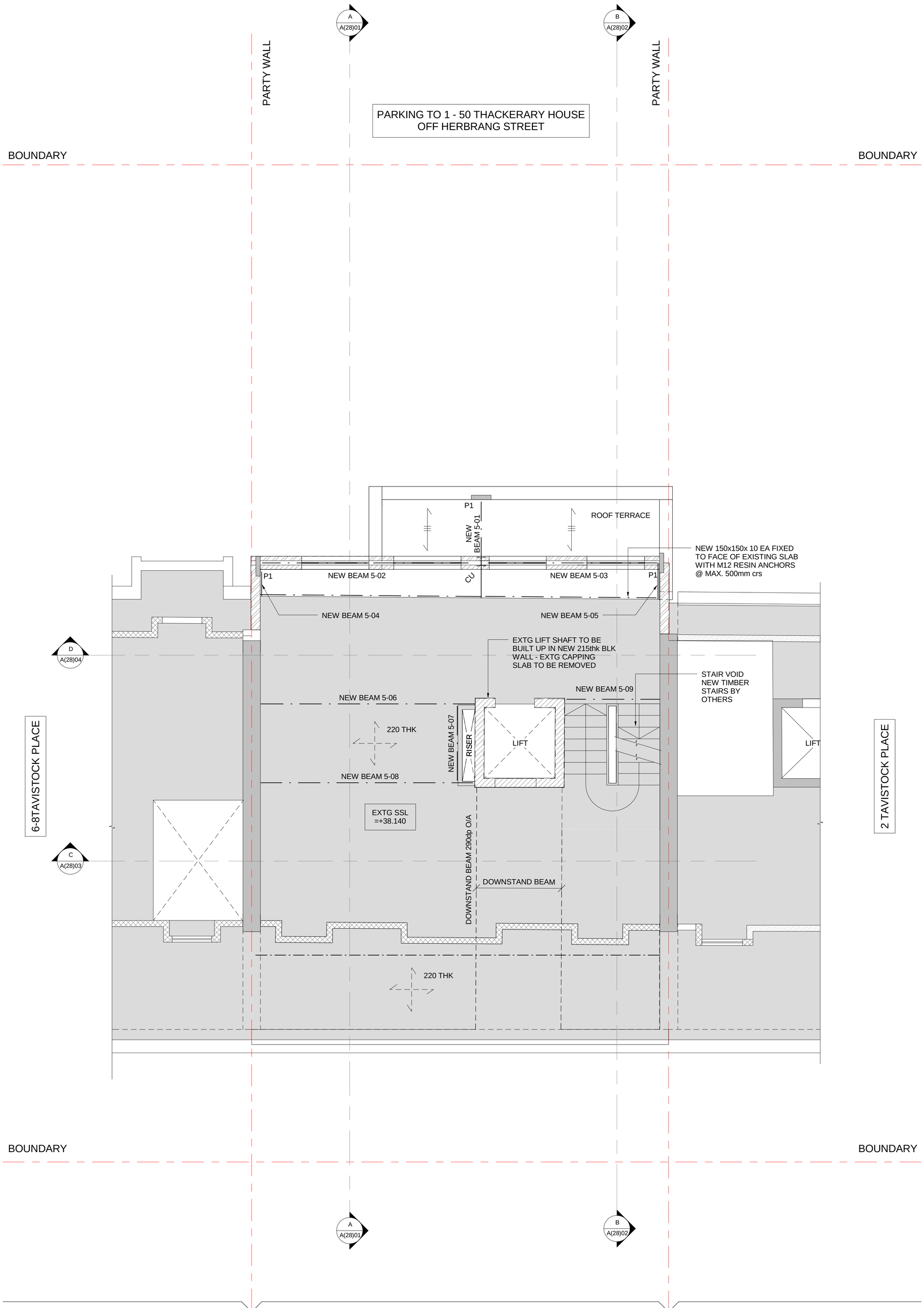
MAR 17	As indicated	P.E	C.M

Job No.	Drawing No.	Revision
172723	L(23)06	P1



PROPOSED FIFTH FLOOR PLAN

SCALE - 1 : 50

CUTTING CONCRETE NOTE:

IN ALL LOCATIONS WHERE EXISTING CONCRETE IS TO BE CUT, CONTRACTOR TO ALLOW FOR CONCRETE REPAIRS INCLUDING BONDING AGENT AND REPAIR MORTAR

0m 1m 2m 3m 4m 5m

SCALE 1:50 @ A1, 1:100 @ A3

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KEY (EXISTING STRUCTURE)	
WALL TYPES	
	NON-LOAD BEARING MASONRY FACADE
	RC COLUMN / WALL (ALL WALLS 200mm THK U.N.O.)
	TIMBER FACADE
	RC LOAD BEARING COLUMN / WALL UNDER
LEGEND	
	ASSUMED 2 WAY SPANNING RC FLAT SLAB (THICKNESS AS INDICATED ON PLAN)
	EXISTING TIMBER JOISTS
	EXISTING TIMBER RAFTERS

KEY (PROPOSED FIFTH FLOOR STRUCTURE)	
	NEW BEAM UNDER.
	DENOTES SPAN OF NEW 50x225 C24 TIMBER JOISTS AT 400c/c U.N.O.
CU	COLUMN UNDER

STRUCTURAL BEAM SCHEDULE FIFTH FLOOR	
	SIZE
NEW BEAM 5-01	UC203x203x46
NEW BEAM 5-02	UC203x203x46
NEW BEAM 5-03	UC203x203x46
NEW BEAM 5-04	PFC200x90x30
NEW BEAM 5-05	PFC200x90x30
NEW BEAM 5-06	UC203x203x60
NEW BEAM 5-07	UC203x203x60
NEW BEAM 5-08	UC203x203x60
NEW BEAM 5-09	UC203x203x60

STRUCTURAL COLUMN SCHEDULE	
Mark	SIZE
NEW COL. C1	UC203x203x60
NEW COL. C2	SHS100x100x10.0

Rev.	Date	Amendment	Drawn	Chkd
P1	31.03.17	PRELIMINARY ISSUE	P.E	C.M

Drawing Status: PRELIMINARY

Form

Job Title
4 TAVISTOCK PLACE
HOLBORN
WC1H 9RA

Drawing Title
PROPOSED FIFTH FLOOR

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Date	Scale	Drawn	Checked
MAR 17	As indicated	P.E	C.M

Job No.	Drawing No.	Revision
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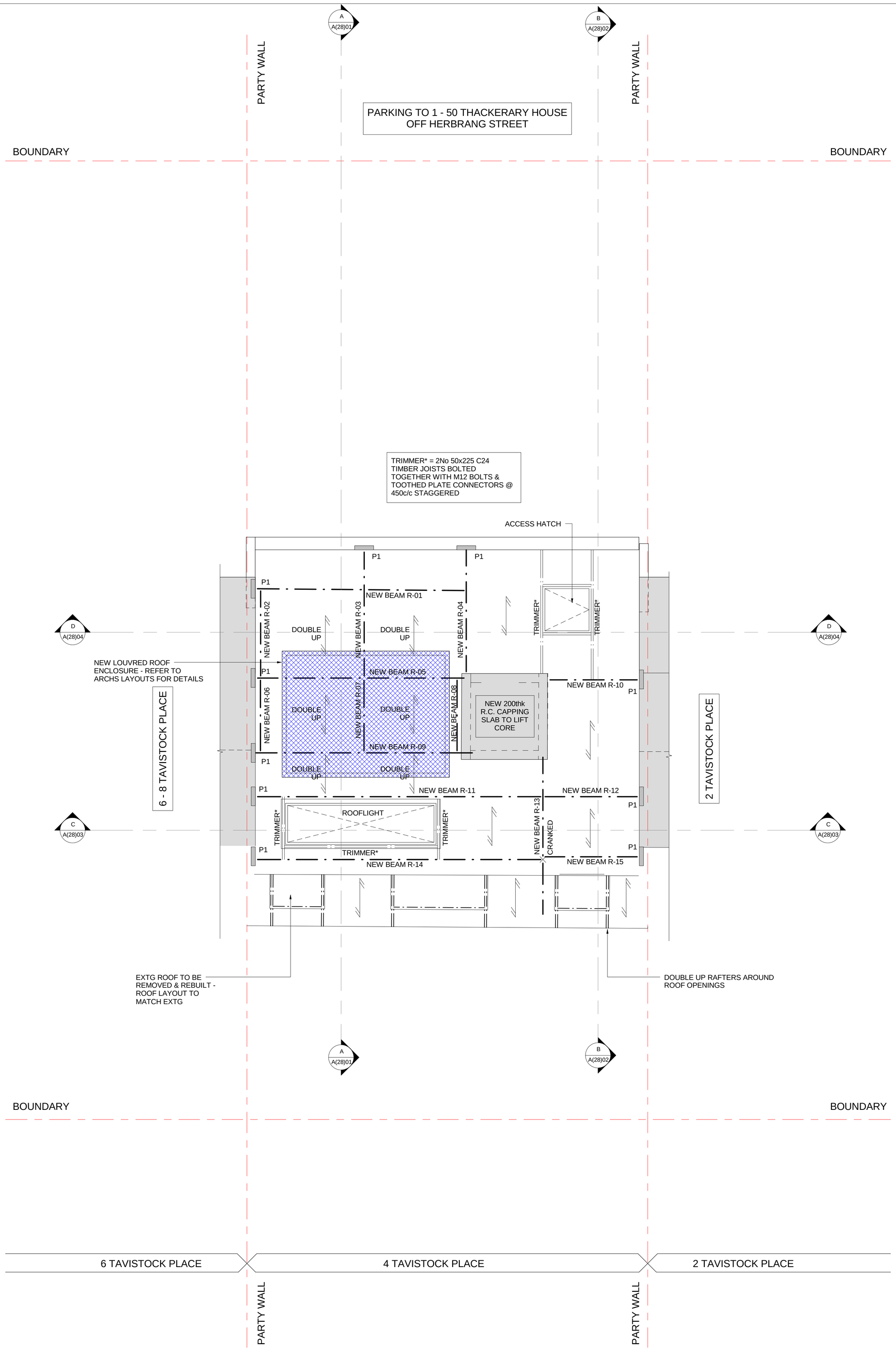

PROPOSED ROOF PLAN

SCALE - 1 : 50

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KEY (EXISTING STRUCTURE)	
WALL TYPES	
	NON-LOAD BEARING MASONRY FACADE
	RC COLUMN / WALL (ALL WALLS 200mm THK U.N.O.)
	TIMBER FACADE
	RC LOAD BEARING COLUMN / WALL UNDER
LEGEND	
	ASSUMED 2 WAY SPANNING RC FLAT SLAB (THICKNESS AS INDICATED ON PLAN)
	EXISTING TIMBER JOISTS
	EXISTING TIMBER RAFTERS

KEY (PROPOSED ROOF STRUCTURE)	
	NEW BEAM UNDER.
	DENOTES SPAN OF NEW 50x225 C24 TIMBER JOISTS AT 400c/c U.N.O.
	DENOTES SPAN OF NEW 50x225 C24 TIMBER RAFTERS AT 400c/c U.N.O.
L1	DENOTES **TBC** CATNIC CG LINTEL OVER WINDOW OPENINGS, MIN. BEARINGS 150mm.

STRUCTURAL BEAM SCHEDULE ROOF	
Mark	SIZE
NEW BEAM R-01	UC203x203x60
NEW BEAM R-02	UC203x203x60
NEW BEAM R-03	UC203x203x60
NEW BEAM R-04	UC203x203x60
NEW BEAM R-05	UC254x254x89
NEW BEAM R-06	UC203x203x60
NEW BEAM R-07	UC203x203x60
NEW BEAM R-08	UC203x203x60
NEW BEAM R-09	UC254x254x89
NEW BEAM R-10	UC254x254x89
NEW BEAM R-11	UC254x254x89
NEW BEAM R-12	UC254x254x89
NEW BEAM R-13	UC203x203x86
NEW BEAM R-14	UC254x254x89
NEW BEAM R-15	UC254x254x89

STRUCTURAL COLUMN SCHEDULE	
Mark	SIZE
NEW COL. C1	UC203x203x60
NEW COL. C2	SHS100x100x10.0

0m 1m 2m 3m 4m 5m

SCALE 1:50 @ A1, 1:100 @ A3

Rev.	Date	Amendment	Drawn	Chkd
P1	31.03.17	PRELIMINARY ISSUE	P.E	C.M

Drawing Status: PRELIMINARY

Form

Job Title
4 TAVISTOCK PLACE
HOLBORN
WC1H 9RA

Drawing Title
PROPOSED ROOF PLAN

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Date	Scale	Drawn	Checked
MAR 17	As indicated	P.E	C.M

Job No.	Drawing No.	Revision
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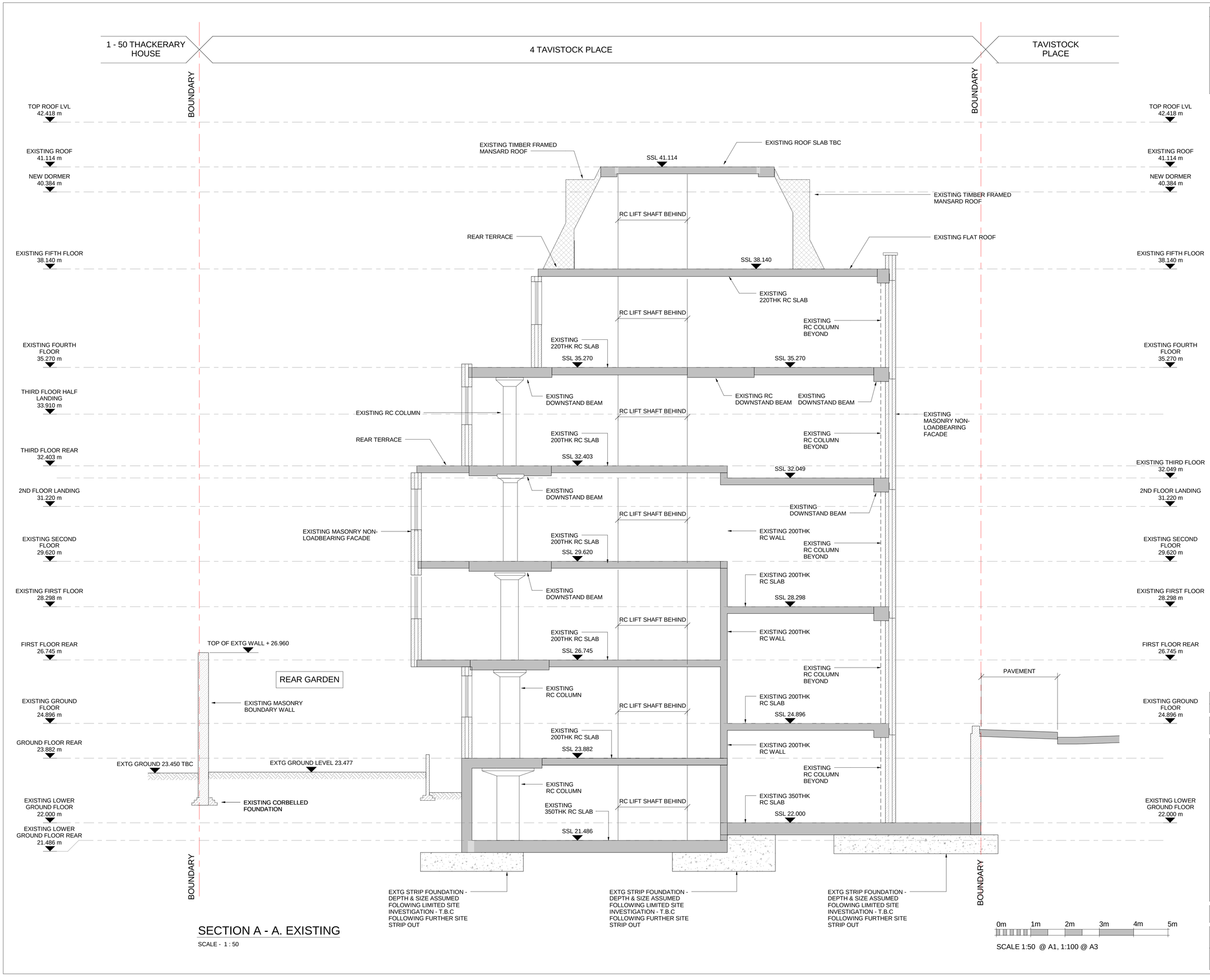

SECTION A - A. EXISTING

SCALE - 1 : 50

SCALE 1:50 @ A1, 1:100 @ A3

Notes

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Rev.	Date	Amendment	Drawn	Chkd
P1	31.03.17	PRELIMINARY ISSUE	P.E	C.M

Drawing Status: PRELIMINARY

Form

Job Title
4 TAVISTOCK PLACE
HOLBORN
WC1H 9RA

Drawing Title
EXISTING SECTION A - A

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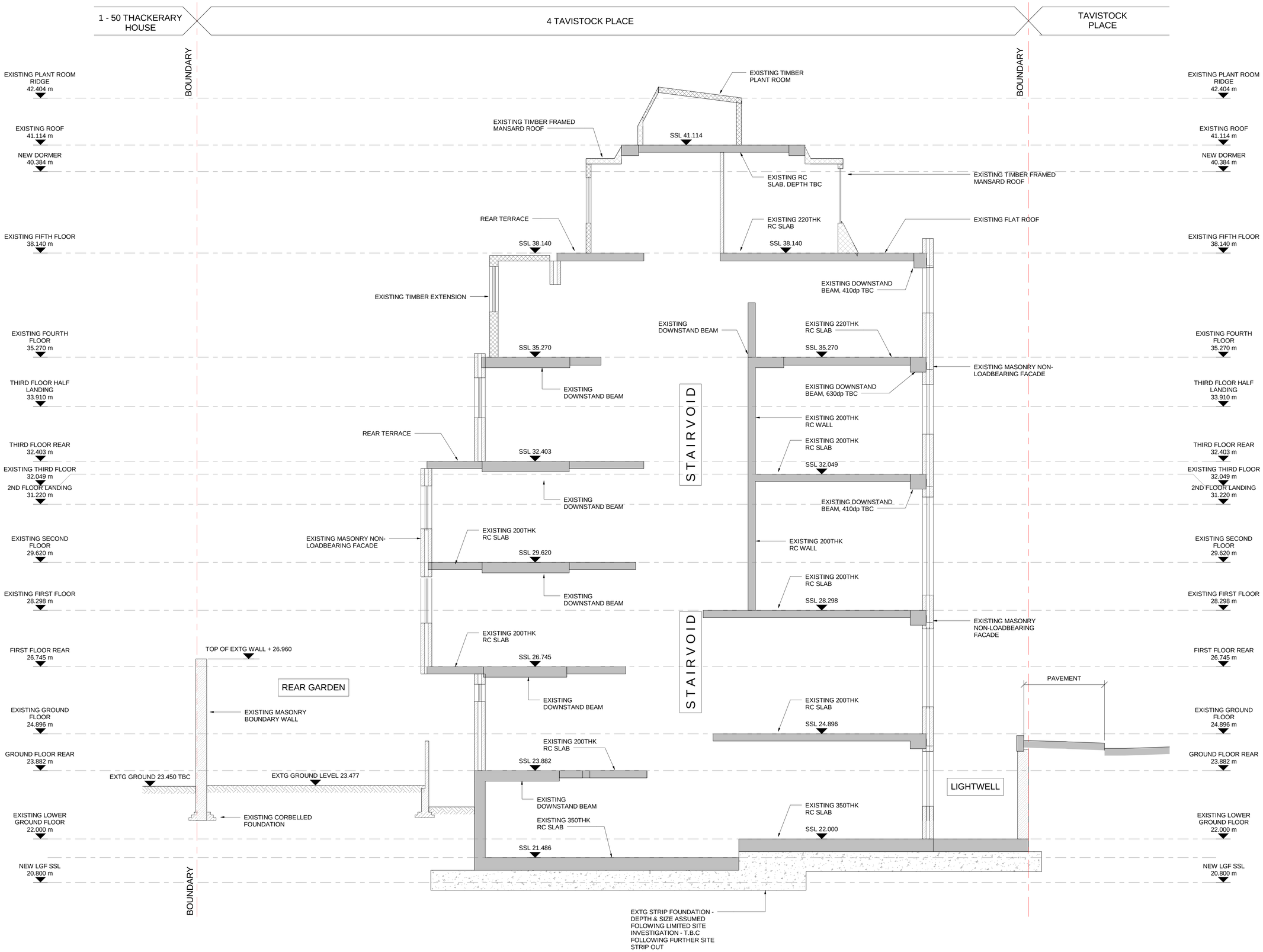
T:020 7253 2893 E:studio@form-sd.com W:www.form-sd.com

Date	Scale	Drawn	Checked
MAR 17	1 : 50	P.E	C.M

Job No.	Drawing No.	Revision
172723	A(00)01	P1



SECTION B-B - EXISTING

SCALE - 1 : 50

SCALE 1:50 @ A1, 1:100 @ A3

Notes

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Rev.	Date	Amendment	Drawn	Chkd
P1	31.03.17	PRELIMINARY ISSUE	P.E	C.M

Drawing Status: PRELIMINARY

Form

Job Title
4 TAVISTOCK PLACE
HOLBORN
WC1H 9RA

Drawing Title
EXISTING SECTION B - B

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Job No.	Drawing No.	Revision
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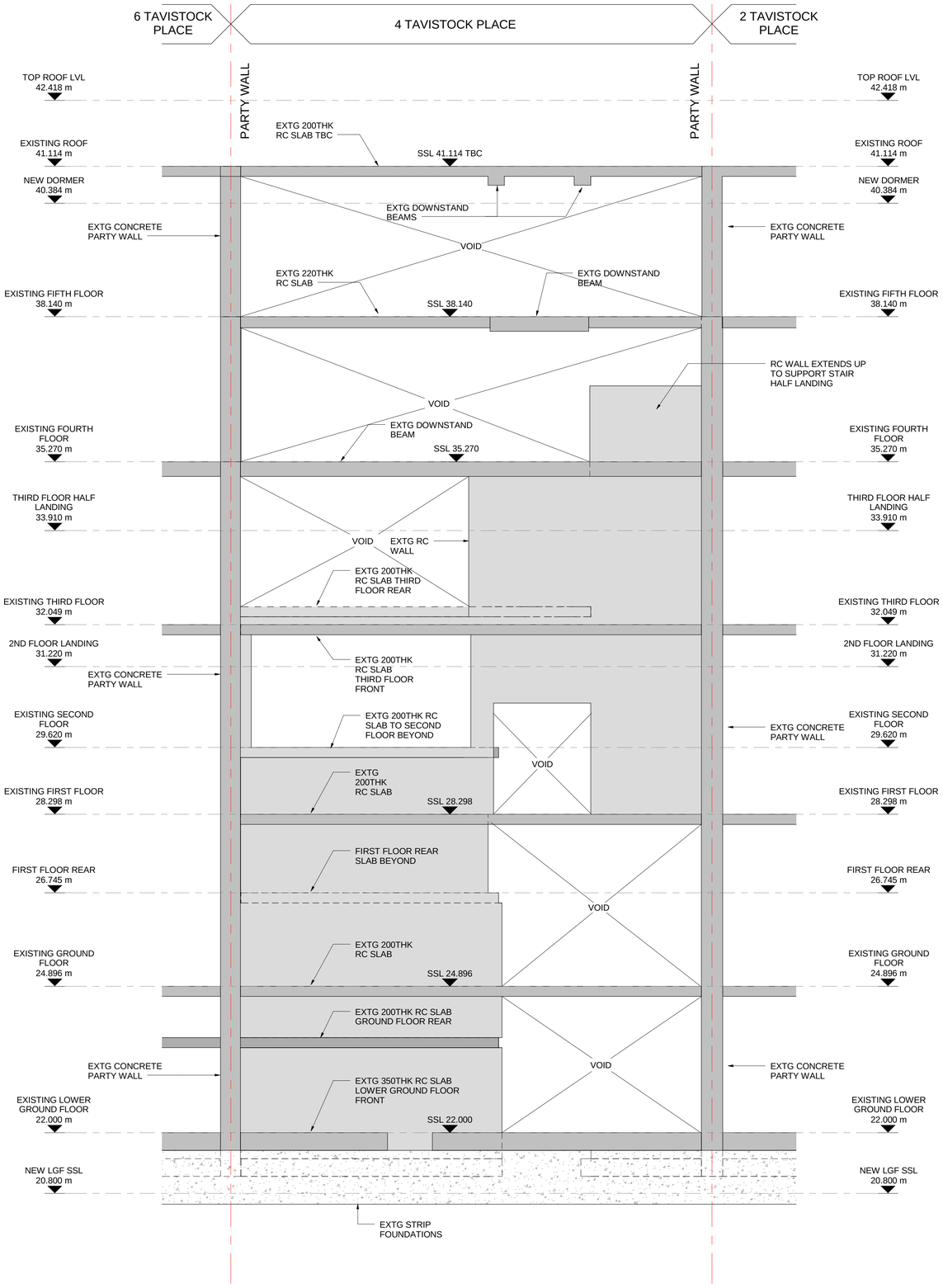

SECTION C - C. ELEVATION OF EXISTING RC SPINE WALL

SCALE - 1 : 50

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SCALE 1:50 @ A1, 1:100 @ A3

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Drawing Status: STAGE E

Form

Job Title
4 TAVISTOCK PLACE
HOLBORN
WC1H 9RA

Drawing Title
EXISTING SECTION C-C

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MAR 17	1 : 50	C.M	P.E

Job No.	Drawing No.	Revision
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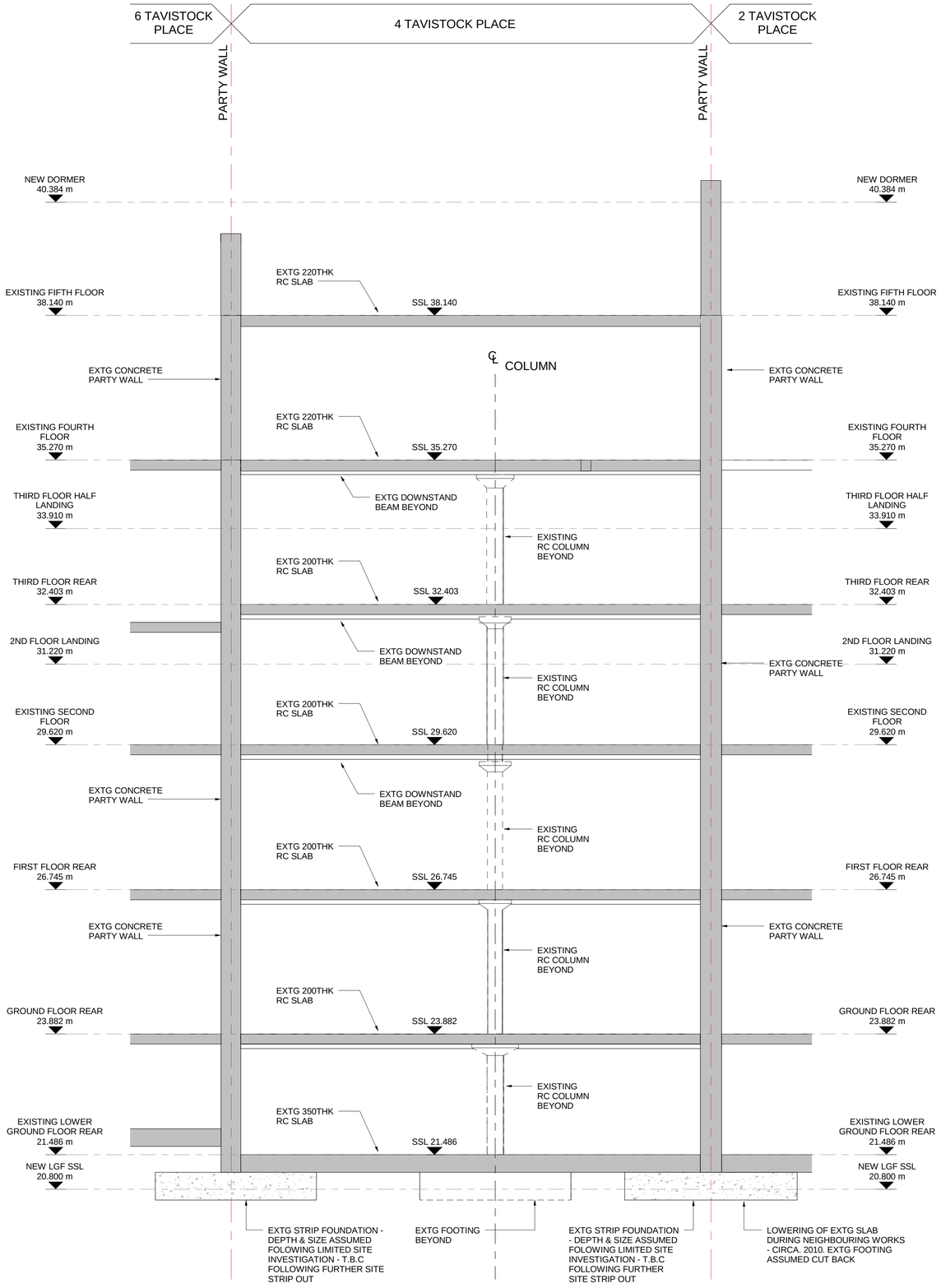

SECTION D - D EXISTING

SCALE - 1 : 50

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SCALE 1:50 @ A1, 1:100 @ A3

Notes

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Rev.	Date	Amendment	Drawn	Chkd
P1	30.03.17	PRELIMINARY ISSUE	P.E	C.M

Drawing Status: PRELIMINARY

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Job Title
4 TAVISTOCK PLACE
HOLBORN
WC1H 9RA

Drawing Title
EXISTING SECTION D - D

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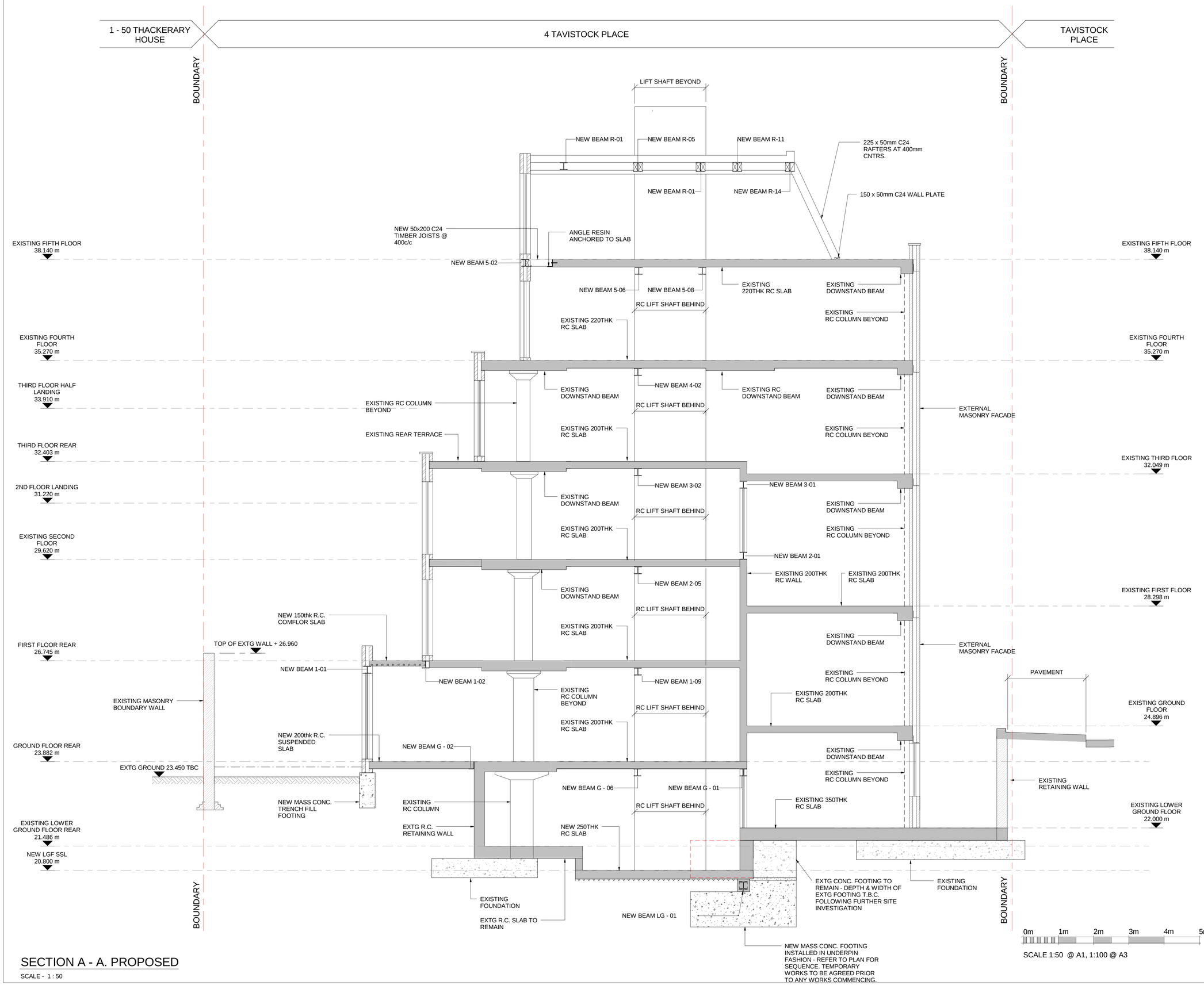
Date	Scale	Drawn	Checked
MAR 17	1 : 50	P.E	C.M

Job No.	Drawing No.	Revision
172723	A(00)04	P1



SECTION A - A. PROPOSED

SCALE - 1 : 50

SCALE 1:50 @ A1, 1:100 @ A3

Notes

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Rev.	Date	Amendment	Drawn	Chkd
P1	31.03.17	PRELIMINARY ISSUE	P.E	C.M

Drawing Status: PRELIMINARY

Form

Job Title
4 TAVISTOCK PLACE
HOLBORN
WC1H 9RA

Drawing Title
PROPOSED SECTION A - A

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MAR 17	1 : 50	P.E	C.M

Job No.	Drawing No.	Revision
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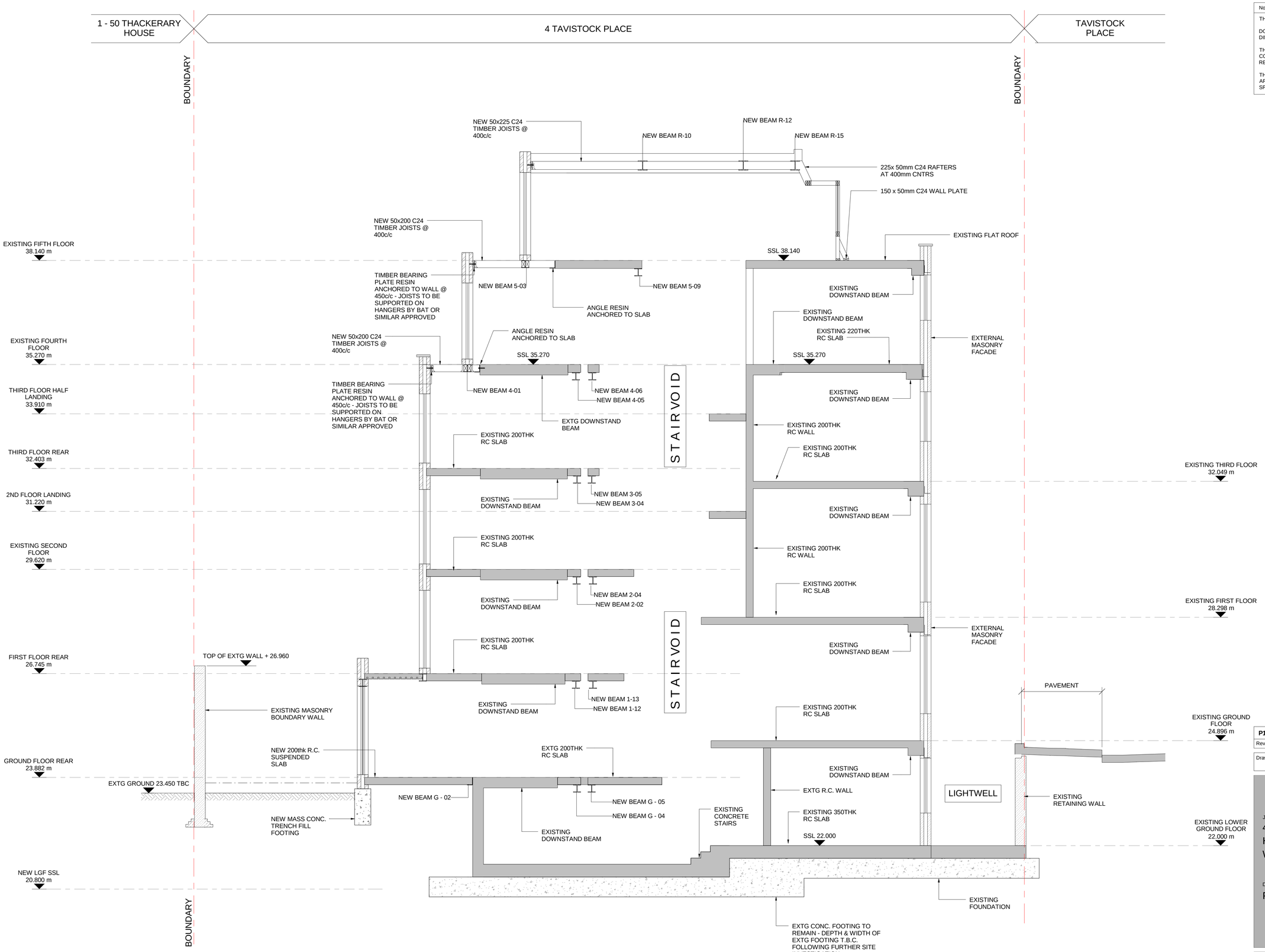

SECTION B-B - PROPOSED

SCALE - 1 : 50

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SCALE 1:50 @ A1, 1:100 @ A3

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Drawing Status: PRELIMINARY

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Job Title
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HOLBORN
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Drawing Title
PROPOSED SECTION B - B

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MAR 17	1 : 50	P.E	C.M

Job No.	Drawing No.	Revision
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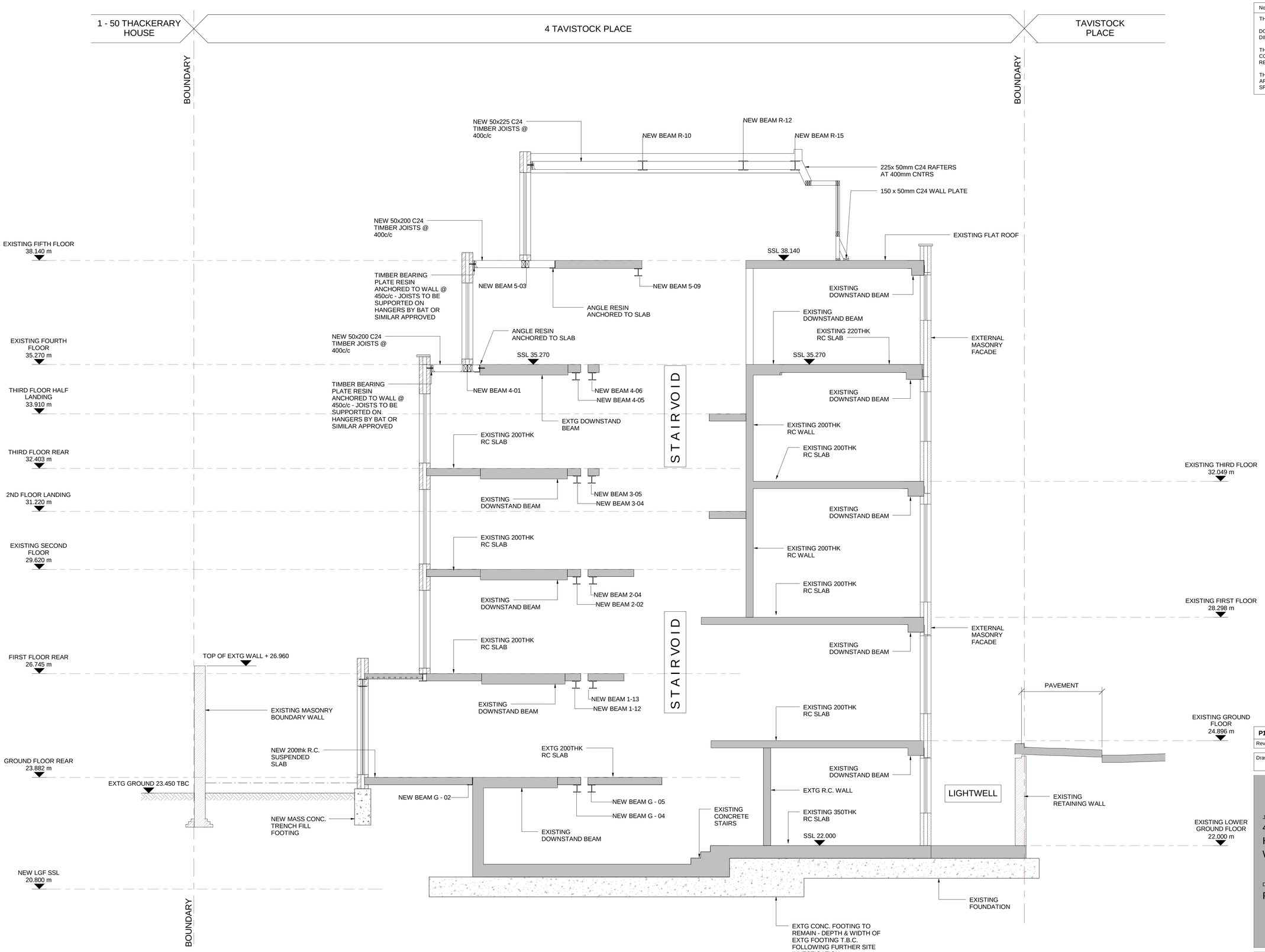

SECTION B-B - PROPOSED

SCALE - 1 : 50

SCALE 1:50 @ A1, 1:100 @ A3

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Rev.	Date	Amendment	Drawn	Chkd
P1	31.03.17	PRELIMINARY ISSUE	P.E	C.M

Drawing Status: PRELIMINARY

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Job Title
4 TAVISTOCK PLACE
HOLBORN
WC1H 9RA

Drawing Title
PROPOSED SECTION B - B

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Date	Scale	Drawn	Checked
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Job No.	Drawing No.	Revision
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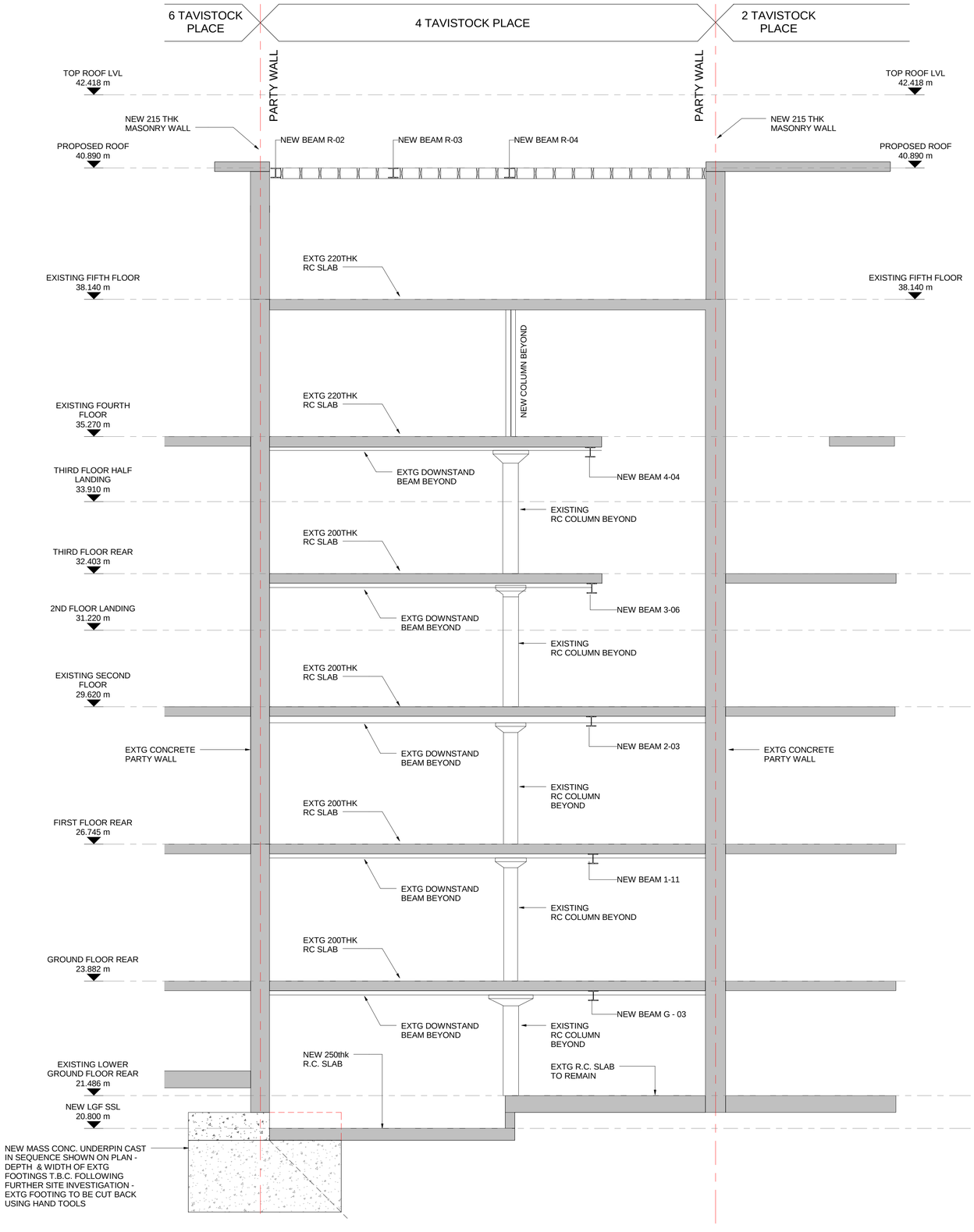

SECTION D - D PROPOSED

SCALE - 1 : 50

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SCALE 1:50 @ A1, 1:100 @ A3

Notes

NOT FOR CONSTRUCTION

Rev.	Date	Amendment	Drawn	Chkd
P1	31.03.17	PRELIMINARY ISSUE	P.E	C.M

Drawing Status: PRELIMINARY

Form

Job Title
4 TAVISTOCK PLACE
HOLBORN
WC1H 9RA

Drawing Title
PROPOSED SECTION D - D

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Date	Scale	Drawn	Checked
MAR 17	1 : 50	P.E	C.M

Job No.	Drawing No.	Revision
172723	A(28)04	P1

Appendix B

Building Damage Classification Table

During the later detailed design phases of the project a geotechnical specialist will undertake a ground movement analysis to confirm the foundation widths and limit movement to within the trigger values agreed under the Party Wall awards. Monitoring will be undertaken during the works to ensure these values are not exceeded.

Classification of visible damage to walls (after Burland et al, *1977, Boscardin and Cording, 1989; and Burland, 2001)*

Category of damage	Description of typical damage (ease of repair is underlined)	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 linings. 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.	

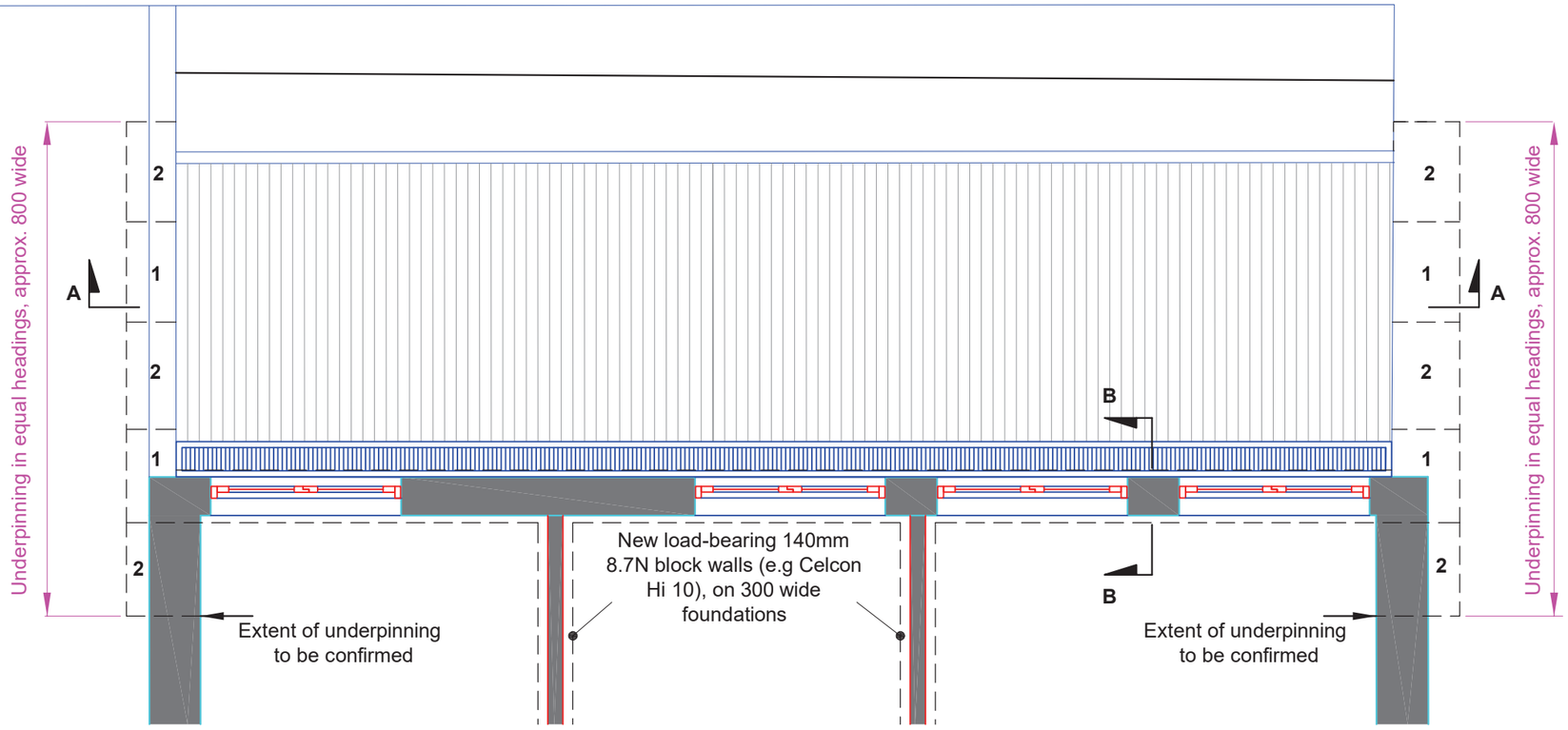
Notes

1. In assessing the degree of damage, account must be taken of its location in the building or structure.
2. Crack width is only one aspect of damage and should not be used on its own as a direct measure of it.

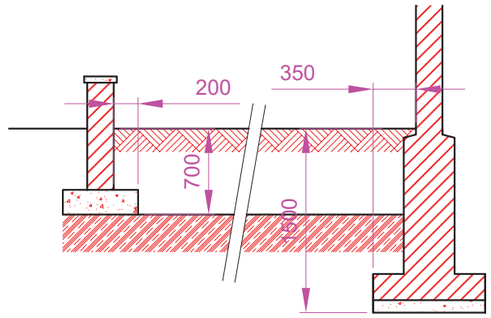
Appendix C

Number 2 Tavistock Place – EDA Rear Foundation Drawing

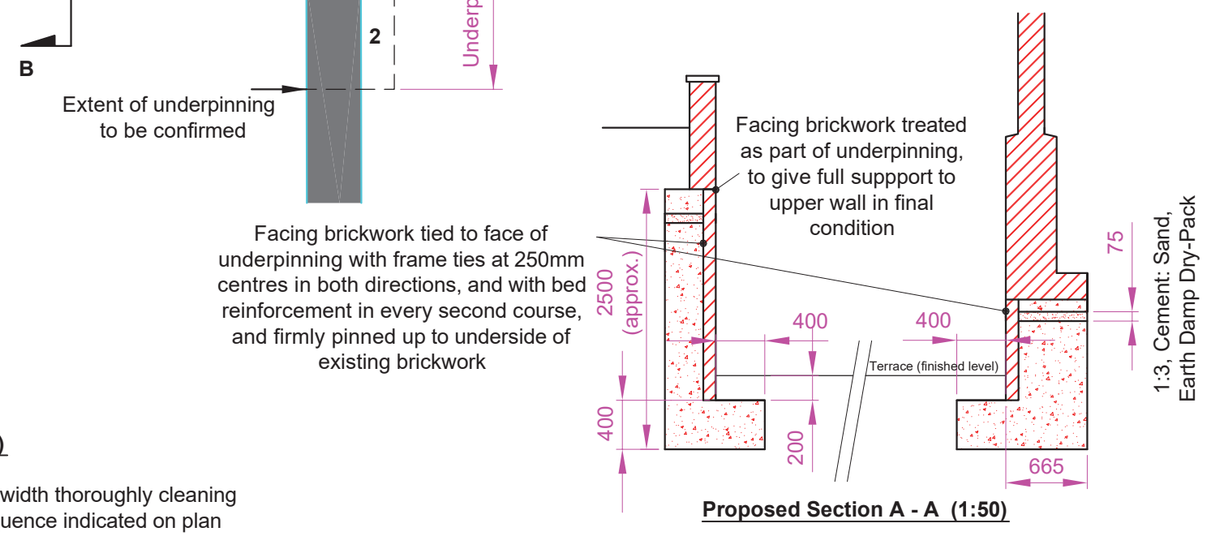
Loose brickwork exposed in this wall to be removed in sections no more than 1m wide and backfilled in concrete (as underpinning specification), except where it will be exposed in final condition, where matching facing brickwork is to be used to repair wall



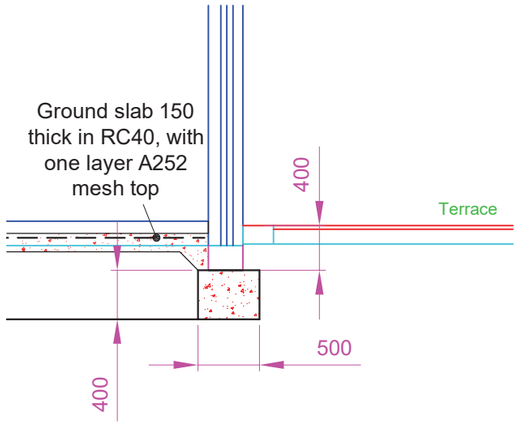
Plan on Basement Extension (1:50)



Existing Section A - A (1:50)



Proposed Section A - A (1:50)



Section B - B (1:50)

Notes and Method Statement (for underpinning)

1) Excavate for new heading, no larger than 1m in width thoroughly cleaning the underside of the existing foundations, in sequence indicated on plan

2) Cast new heading in GEN 3 Designated concrete mix to BS 8500

3) Allow heading to cure for a minimum of two days, before drypacking to the underside of the existing foundation, and constructing new facing brickwork

4) Allow bed reinforcement to project at edges of underpinning panels by not less than 300mm (to lap with reinforcement in adjacent panel)

5) Allow a further three days before excavating adjacent heading, and repeating underpinning process

6) For all setting out see drawings by Brooks/Murray Architects

7) See Drawing S100 for full structural specification

Drawing No: 1520/S1E
Date: 27.11.09
Scale: 1:50 @ A3

Revisions

Rev C: Section A - A amended 16.06.10

Rev D: Section A - A amended 18.06.10

Rev E: Note to rear wall added; underpinning MS amended 18.07.10

eda

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Project: 2 Tavistock Place, London WC1

Drawing: Foundations to Rear Extension

Client: Mr S Firth

Appendix D

Aviron Ground Investigation Report

Report prepared at
4 Tavistock Place
London
WC1H 9RA

On behalf of
GFZ Investments Ltd

Report reference
15-192.01

Report date
May 2015

Prepared by
Aviron Associates Limited

Geotechnical and Land Contamination Specialists
www.aviron.co.uk

Report Quality Management

Project Name	4 Tavistock Place, London, WC1H 9RH		
Project Title	Factual Report of Ground Investigation		
Client	GFZ Investments Limited		
Project Number	15-192.01		
Version	ISSUE 1		**Date**
Prepared by	Orlando Blackwell BEng (Hons) MSc (Eng)	Principal Engineer	15/05/2015
Prepared & Checked by	James Burkitt BEng (Hons) CEnv MRICS	Managing Director	20/05/2015

Aviron Associates Limited (Aviron) has prepared this report in accordance with our fee proposal to the above listed Client or their agents and subsequent instructions pertinent to this which were received from the above listed Client.

This report is confidential and non-assignable by the Client. Aviron shall not be responsible for any use of the report or its contents for any other purpose than for which, and to whom, it was prepared and provided.

Should the Client pass copies of this report to other parties for further comment and advice the whole of the report should be provided and used in the context to which it was prepared.

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For the avoidance of doubt and litigation Aviron should be contacted to establish lawful use of this report.

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Contents

Figures

Appendices

1.0 PROJECT AND SITE INFORMATION

1.1 APPOINTMENT

Aviron Associates Limited (Aviron) was retained by Form Structural Design Limited on behalf of GFZ Investments Limited (the "Client") to complete a Ground Investigation at the following premises:

4 Tavistock Place, London, WC1H 9RA (hereafter referred to as the "site").

The purpose of this assessment is to report on a ground investigation involving a single borehole in order to;

1. Complete a borehole to a depth of at least 3m below formation level to be logged by a qualified and competent geotechnical engineer.
2. Install a monitoring well standpipe to suitable depth, ideally within the water table.
3. Provide standing level groundwater monitoring one week after investigation works and a further week after this.

Proposed works to meet the requirement of the Local Authority's checking engineers in connection with the proposed lowering of the existing lower ground floor and extension of this level of accommodation out into the rear courtyard.

1.2 THE SITE

Table 1.2 provides a summary of site details and surrounding area.

Table 1.2 - Site Details

Site Location	The site is located on Tavistock Place in Camden. The site is approximately 1200m to the east of the most southern point of Regents Park and approximately 200mm north-north-east of Russell Square tube station.
National Grid Ref.	Centred at approximately 530034N, 182320E.
Current Land Use	The site exists as mid-terraced property which comprises six above ground storeys and a lower ground floor. To the front of the property (north) a small light well exists at lower ground floor level and to the rear a small courtyard garden at roughly ground floor (pavement) level. The site is boarded by the pavement of Tavistock Place to the north; numbers 6 and 8 Tavistock Place to the east; an ambulance station to the south and number 2 Tavistock Place to the west. **Figure 1** is presented as an Existing Section and Window Sample Location Plan.

Proposed Land Use

It is proposed to lower the current lower ground floor currently at 21.536m to 20.797m, thus a reduction of 0.739m. The proposed works shall also laterally extend beyond the rear elevation into the courtyard garden maintaining the floor level of 20.797m.

Accounting for 400mm of new floor slab (250mm), blinding (50mm) and finishes (100mm) formation level is expected to be circa 20.3m.

It is understood the neighbouring property of number 2 Tavistock Place has already completed a similar extension and therefore no underpinning will be required at this party wall. It is also understood that the property of number 6 Tavistock Place has a lower ground floor at the same level as that of the proposed development. Therefore, earth will be retained around the rear garden only.

Garden perimeter walls will be underpinned to lower the garden level to the new depth in the rear.

Figure 2 is presented as a Proposed Section.

1.3 DESK BASED RESEARCH

As part of these works a formal desk study has not been completed. Information obtained has been taken from the *Screening and Scoping Study prepared by Card Geotechnics Limited (CGL), reference CG/18292, February 2015, Rev 1* in order to complete this section.

The following presents a brief summary of the information collected by CGL to assist understanding of ground conditions encountered and to avoid unnecessary repetition.

1.3.1 Geology and Hydrogeology

Anticipated ground conditions are expected to comprise;

- Superficial Geology : Lynch Hill Gravel Member. Typically sandy GRAVEL. Listed as secondary (a) aquifer and thus expected to contain a mobile body of groundwater, typically perching upon the underlying London Clay Formation.
- Solid Geology : London Clay Formation. Typically brown, grey, blue fissured CLAY. Listed as unproductive strata and generally impermeable, typically retaining overlying groundwater bodies.
- Local British Geological Survey (BGS) borehole logs indicates the GRAVEL extends to thicknesses of between 3.2m and 4.6m. The nearest borehole log to the site reports (70m west) reports Made Ground to a depth of 0.2m, Lynch Hill Gravel Member to a depth of 3.2m and London Clay to a depth of 16.6m

The site is not located within an Environment Agency source protection zone (SPZ).

1.3.2 Hydrology

The Lost River Fleet is located approximately 200m north of the site with a further tributary 300m west/south-west of the site.

2.0 INVESTIGATION WORK

2.1 METHOD STATEMENT AND SITE INVESTIGATION APPROACH

A method statement detailing how the site investigation was to be conducted was produced in accordance with current statuary guidance, best practices and the Client's instructions.

A health and safety plan was completed before site work commenced. Site investigation staff were briefed on the potential risk and the appropriate personal protective equipment (PPE) to be adopted for this type of investigation.

The site investigation was conducted in accordance with British Standards; BS5930:1999 including amendment 2 'Code of Practice for site Investigation' and BS1377:1990 'Method of test for soils for Civil Engineering Purposes.

The investigation focused on the following objectives as set out in Section 1.1 and was completed on 8 May 2015 with return groundwater monitoring being completed on 15 May 2015.

2.2 SITE INVESTIGATION METHODS

Window sample drilling using a dismantleable modular rig and dynamic probing was employed in order to assess ground conditions beneath the site.

Figure 1 is enclosed as a Window Sample Location Plan.

Window Sampling : 8 May 2015

In order to complete ground investigation works a dismantleable 'modular' window sample drilling rig was constructed in the space available for drilling. Following site inspection insufficient internal access was available for drilling within the lower ground floor of the property. The rear garden is located some 3m higher than proposed formation level of the 'lowered' ground floor and therefore drilling at this elevation was unlikely to achieve the necessary depth of 3m below formation.

Drilling of location WS1 was completed within the front light well at an elevation of 22.050m. Considering the proposed finish floor level plus 0.4m of 'make-up', formation level is expected to be 20.3m, being 1.75m lower than the light well. Therefore, in order to complete a formation plus 3m deep borehole a 5m deep borehole would necessary. This was considered achievable using the proposed modular window sampling methods.

WS1 was completed within the front light well following the removal of a 470mm thick reinforced concrete slab at 150mm diameter. A 0.5m extension rod was placed on the first 1m window sampling tube to collect strata from 0.5m to 1.5m below the light well (blw). 'Sampling' (1m tubes) was completed to a depth of 2.5m below the light well. Standard Penetration Tests (SPTs) were undertaken at 1.5m and 2.5m within the borehole to in accordance with BS EN ISO 22476-2 "Standard Penetration Test".

'Sampling' continued from 2.5m to 3.5m however, due to the wet strata no recovery was possible. Therefore, the borehole was continued from the base of the 2.5m SPT at 2.95m to a depth of 6.05m using Dynamic Probing Super Heavy (DPSH). Thus a borehole of suitable depth has been completed.

Upon completion of drilling 1m of geosock wrapped slotted 63/50mm standpipe with push cover end cap was placed in the base of the borehole beneath 1m of un-perforated standpipe. The base of the installation was measured at 2.07m blw with the top of the pipe fixed with a gas valve 0.10m below slab level. 10mm pea shingle was introduced into the annulus to a depth of 1m blw and bentonite granules to 0.2m blw. The installation was fitted with a push over to standpipe and steel cover secure into the concrete light well slab.

2.3 GROUND CONDITIONS

Detailed strata descriptions are shown on the window sample log though in general ground conditions comprise;

- Reinforced CONCRETE to 0.47m blw.
- MADE GROUND; crushed brick to 0.70m blw.
- MADE GROUND; brown, re-worked sandy, gravelly Clay to 0.95m blw.
- Brown, very gravelly SAND to 1.50m blw
- Brown, very sandy GRAVEL to 2.35m blw.
- Brown, sandy CLAY to 2.5m blw.

No significant roots or rootlets were observed within the borehole. No visual or olfactory evidence of contamination was observed. Groundwater was noted in the sample liners at 1.8m blw and resting at 1.71m blw upon completion of work.

The ground conditions encountered are consisted with the closest recorded BGS borehole log noted 70m from the site.

The results of the DPSH indicates the strength of the underlying CLAY remains consitent to a depth of 5.05m blw at which point an increase in strength is noted to 5.25m blw where it is likely a unit of Claystone/Siltstone is present within the Formation. Beneath this the CLAY returns to a similar strength to a depth of 6.05m blw. No weakening of the Clay Formation is shown within the results of the DPSH.

Appendix I is presented as the window sample log, probe log and photographs.

2.4 GROUNDWATER

As previously mentioned groundwater was dipped as follows;

- 8 May 2015 : Completion of Work : 1.71m below light well (22.05 – 1.71 = 20.34m)
- 15 May 2015 : 1.75m below light well (22.05 – 1.75 = 20.3m)
- 20 May 2015 : 1.75m below light well (22.05 – 1.75 = 20.3m)

Formation level is expected to be approximately 20.3m.

3.0 PROJECT INSTRUCTION AND LIMITATIONS

3.1 SCOPE OF WORKS

The following scope of work was undertaken to the proposed methods within our proposal letter of 28 April 2015 and involves the following;

- Mobilise to site and undertake a site inspection to determine safe drilling access and working areas.
- Complete one window sample/dynamic probe to a depth of 3m below formation.
- Install the exploratory hole with standpipe to below the water table.
- Return on two occasions to complete groundwater standing level monitoring.
- Prepare a factual Ground Investigation Report.

Aviron has relied upon information received from the Client and their agents as accurate, unless contradicted by written documentation or site observations.

3.2 LIMITATIONS

Aviron's scope of work has been designed to meet the timeframe. The scope of work provided shall provide a view of site conditions and understanding of potential geo-environmental risks and possible mitigation procedures.

The information used in this report has been derived from the site investigation, which in turn were based on known current and historical land uses identified at the site and surrounding area, available to Aviron at the time of the investigation.

Intrusive points chosen relate to the data collected and the risk assessment will rely on these points only. It therefore follows that some areas of the site will not be examined. It is always possible that some areas not investigated may contain conditions which would be impossible to determine due to lack of evidence or time, access and budget restrictions.

Soil and groundwater sampling and testing was not undertaken as part of this instruction.

Should changes in legislation, statutory requirements or industry practices occurred following issue of this report, this report should be viewed in light of these changes.

4.0 REFERENCES AND OTHER SOURCES OF INFORMATION

Card Geotechnics Limited. Screening and Scoping Study. Reference CG/18292. Revision 1. February 2015.

BS5930:1999 +A2 2010. British Standards Institute. Code of Practice for Site Investigations.

BS EN ISO 22475-1 Geotechnical investigation and testing - sampling methods and groundwater measurements

Jardine, Maswose, Burland. 1985. Field and Laboratory Measurements of Soil Stiffness. Proceedings of the 11th International Conference on Soil Mechanics and Foundation Engineering, San Francisco.

Figures

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Legend

Window Sample Borehole

Areas/Structure to be demolished/excavated/ removed

Notes

Plan provided to Aviron by Client

Figure 1

Drawing Title

Existing Section and Window Sample Location Plan

Project Number	15-192.01
Project Title	4 Tavistock Place, London, WC1H 9RA
Drawn by	JB
Checked by	OB
Scale	NTS

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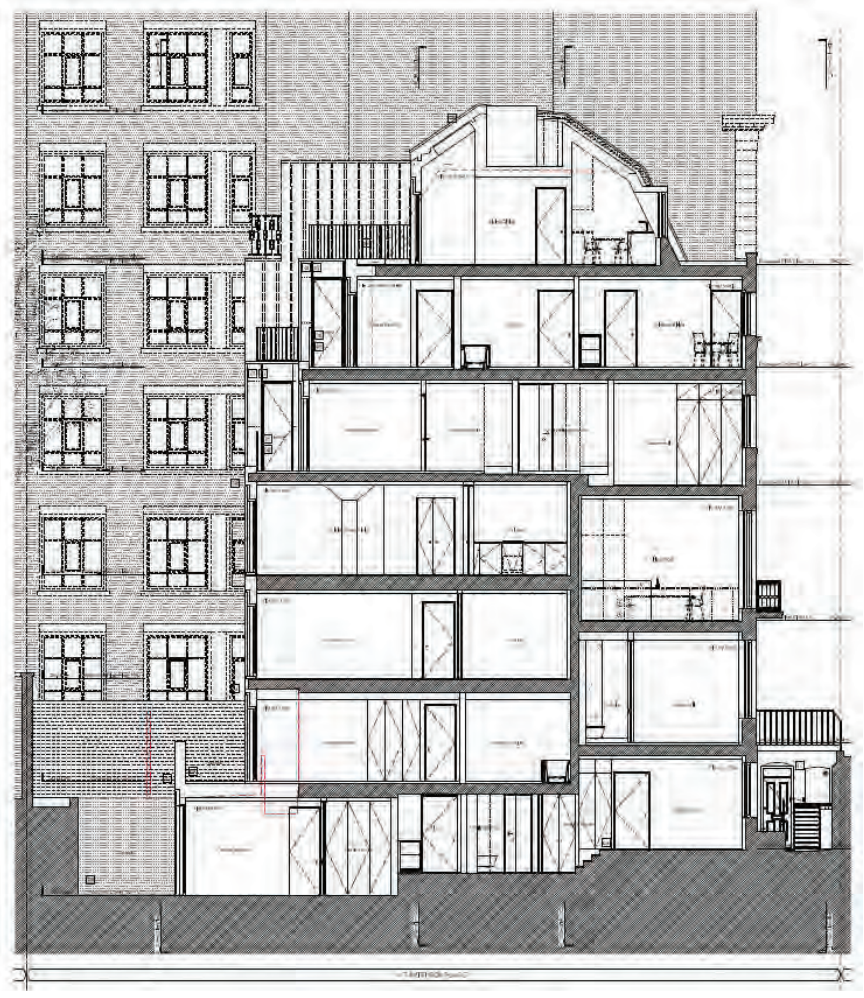

Legend

Notes

Plan provided to Aviron by Client

Figure 2

Drawing Title

Proposed Section

Project Number	15-192.01
Project Title	4 Tavistock Place, London, WC1H 9RA
Drawn by	JB
Checked by	OB
Scale	NTS

Aviron Associates Limited - Badgemore House - Gravel Hill - Henley on Thames - RG9 4NR - T: 01491 413 722 - M: 07787 771 686 - E: james@aviron.co.uk

Appendices

I Window Sample Log, Probe Log and Photographs

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WINDOW SAMPLE LOG

Project:		Project No.	Borehole:
4 Tavistock Place, London, WC1H 9RA		15-192.01	WS1
Client:	Start:	End:	Sheet:
GFZ Investments Limited	08.05.15	08.05.15	1 of 1
Method/Plant Used:	Co-ordinates:	Ground Level:	
Modular Window Sample	NT	22.05m (light well)	

Description of Strata	Legend	Depth (m bgl) (thickness)	Standing Water Level	Samples/Tests			SPT Results						Laboratory Test Details
				Depth	No	Type	75mm	75mm	75mm	75mm	75mm	N Value	
MADE GROUND; Reinforced CONCRETE		(0.47) 0.47											
MADE GROUND; Crush red brick comprising red, sub-angular to angular, fine to coarse, sandy Gravel		(0.23) 0.70											
MADE GROUND; Brown, grey, sandy, gravelly re-worked Clay. Gravel is sub-rounded to angular, fine to coarse, brick, flint and concrete		(0.25) 0.95											
Brown, yellow, very gravelly, angular, coarse SAND. Gravel is sub-angular to angular, fine to coarse flint (LYNCH HILL GRAVEL MEMBER)		1.50		1.5		SPT	3	3	4	4	4	16	
Medium dense, brown, very sandy, rounded to sub-angular, fine to coarse, flint GRAVEL. Sand is angular and coarse. (LYNCH HILL GRAVEL MEMBER)		(0.85) 2.35	▼										
Stiff, brown, slightly sandy (sand stained) CLAY. Sand is angular and medium. (LONDON CLAY FORMATION)		(0.15) 2.50		2.5		SPT	4	5	6	5	5	21	

Casing record			Chiselling records			Water level observations (depths in metres below gl)					
Date	Diameter (mm)	Depth (m)	Time	From (m)	To (m)	Date	Water strike	Water level (after 20mins)	Flow	Standing level	Remarks
08.05.15	101	1.00				08.05.15	1.80	1.60	NT	1.71	Water recovered in bailer on 15.05.15 dark brown in colour
						15.05.15	-	-	-	1.75	

Remarks		By	Date
No unusual stains or odours No roots Liners taken from site to Aviron stores.	Logged	OB	08.05.15
	Checked	JB	15.05.15

Scale 01:25

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DPSH LOG

Project:		Project No.	Borehole:
4 Tavistock Place, London, WC1H 9RA		15-192.01	WS1-DP
Client:	**Start:**	**End:**	**Sheet:**
GFZ Investments Limited	08.05.15	08.05.15	1 of 1
Method/Plant Used:	**Ground Level:**	**Ground Level:**	
Modular Window Sample	NT	22.05m (light well)	

Strata Description (Assumed)	Legend	Depth (m) bgl	Blow Counts (per 100mm penetration)
Brown to grey CLAY (LONDON CLAY FORMATION		2.95-3.05	5
		3.05-3.15	5
		3.15-3.25	6
		3.25-3.35	6
		3.35-3.45	6
		3.45-3.55	5
		3.55-3.65	5
		3.65-3.75	5
		3.75-3.85	5
		3.85-3.95	4
		3.95-4.05	4
		4.05-4.15	5
		4.15-4.25	5
		4.25-4.35	6
		4.35-4.45	6
		4.45-4.55	6
		4.55-4.65	7
		4.65-4.75	7
		4.75-4.85	7
		4.85-4.95	5
		4.95-5.05	9
- Unit of Claystone/Siltone		5.05-5.15	15
		5.15-5.25	12
		5.25-5.35	7
		5.35-5.45	7
		5.54-5.55	7
		5.55-5.56	6
		5.65-5.75	8
		5.75-5.85	8
		5.85-5.95	7
		5.95-6.05	7

Remarks:
Commenced in base of SPT

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PHOTOGRAPHIC LOG

SITE 4 Tavistock **DATE** 08.05.15

PROJECT 15-192.01 **TAKEN BY** JD + OB

Coring of WS1

Drilling of WS1

WS1

Top : Clay at 2.35m to 2.5m.

Bottom : Sample liners. 0.5m rod placed on first 1m sampler to account for 0.47m concrete slab.

AVIRON ASSOCIATES LIMITED

is a dynamic company of Chartered Environmental Surveyors and Geotechnical Engineers.

We continuously work hard to ensure our services are the most technically competent, efficient and viable in our market place. Our years of experience of vastly varied sites and projects compliment our ability to deliver assured and effective Ground Investigations and Risk Assessments of both Brownfield, Greenfield and Currently Developed Land.

Our clients choose Aviron to plan, design and manage their Ground Investigations and Land Remediation Schemes assisting in land procurement to deliver engineering requirements, discharge planning and ensure their sites are suitable, developable and sustainable.

Our tenaciously committed team ensure regardless of project value we will always deliver quickly, effectively and exceed expectations.

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Appendix E

Thames Water Asset Report

4 Tavistock Place TW Asset Sewer Search

4 Tavistock Place TW Asset Water Search