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**Client: Charles Richards on behalf of Fishguard & Goodwick United Ltd**

Assessment for the Provision of Daylight within the Development at Messom  
Mews, Grosvenor Road, Twickenham, Middlesex, TW1 4DP

**September 2024**

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Assessment for the Provision of Daylight within the Development at Messom Mews, Grosvenor Road, Twickenham, Middlesex, TW1 4DPP

## Contents Amendment Record

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### Herrington Consulting Limited

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## 1 Background and Scope of Appraisal

### 1.1 Study Objectives

Herrington Consulting has been commissioned by Charles Richards on behalf of Fishguard & Goodwick United Ltd to analyse and quantify the provision of natural daylight only to the habitable rooms within the proposed development at Messom Mews, Grosvenor Road, Twickenham, Middlesex, TW1 4DPP.

### 1.2 Site Location

The site is situated in the area of Twickenham in south-west London, and is located within the administrative boundaries of the London Borough of Richmond upon Thames. The location of the site is shown in Figure 1.1 and the site plan included in Appendix A.1 gives a more detailed reference to the site location and layout.



Figure 1.1 – Location map (contains Ordnance Survey data © Crown copyright and database rights 2015)

### 1.3 The Development

The proposal for development is a change of use from commercial use to become a residential building in order to accommodate 5 2-bedroom units and 2 3-bedroom units, along with amenity and parking spaces. Drawings of the proposed scheme are included in Appendix A.1.

## 2 Policy and Guidance

### 2.1 National Planning Policy

#### **National Planning Policy Framework (December 2023)**

Paragraph 129 on 'Achieving appropriate densities' states that "c) local planning authorities should refuse applications which they consider fail to make efficient use of land, taking into account the policies in this Framework. In this context, when considering applications for housing, authorities should take a flexible approach in applying policies or guidance relating to daylight and sunlight, where they would otherwise inhibit making efficient use of a site (as long as the resulting scheme would provide acceptable living standards)."

### 2.2 Regional Planning Policy

#### **The London Plan – The Spatial Development Strategy for Greater London – (March 2021)**

Policy D6 on 'Housing quality and standards' states that "C) Housing development should maximise the provision of dual aspect dwellings and normally avoid the provision of single aspect dwellings. A single aspect dwelling should only be provided where it is considered a more appropriate design solution to meet the requirements of Part B in Policy D3 Optimising site capacity through the design-led approach than a dual aspect dwelling, and it can be demonstrated that it will have adequate passive ventilation, daylight and privacy, and avoid overheating."

#### **The London Plan – Supplementary Planning Guidance – Housing (March 2016)**

Policy 7.6Bd on 'Standards for privacy, daylight and sunlight' states that "An appropriate degree of flexibility needs to be applied when using BRE guidelines to assess the daylight and sunlight impacts of new development on surrounding properties, as well as within new developments themselves. Guidelines should be applied sensitively to higher density development, especially in opportunity areas, town centres, large sites and accessible locations, where BRE advice suggests considering the use of alternative targets."

Similarly, Paragraph 2.3.47 on 'Daylight and Sunlight' includes the following statement "Quantitative standards on daylight and sunlight should not be applied rigidly, without carefully considering the location and context and standards experienced in broadly comparable housing typologies in London."

Standard 32 on 'Daylight and Sunlight' states that "All homes should provide for direct sunlight to enter at least one habitable room for part of the day. Living areas and kitchen dining spaces should preferably receive direct sunlight."

### 2.3 Local Planning Policy

#### **Richmond Upon Thames Local Plan (July 2018)**

Policy LP8 – Amenity and Living Conditions: 'All development will be required to protect the amenity and living conditions of occupants of new, existing, adjoining and neighbouring properties. The council will: 1. Ensure the design and layout of buildings enables good standards of daylight and sunlight to be achieved in new development and in existing properties affected by new development;

where existing daylight and sunlight conditions are already substandard, they should be improved where possible.’

Paragraph 4.8.5 under ‘Daylight, sunlight and solar glare’ states that ‘In assessing whether sunlight and daylight conditions are good, both inside buildings and in gardens and open spaces, the Council will have regard to the most recent Building Research Establishment guidance, both for new development, and for properties affected by new development. In some circumstances, mathematical calculations to assess daylighting and sunlighting may be an inappropriate measure, and an on-site judgement will often be necessary.’

#### **Residential Development Standards (March 2010)**

Paragraph 3.1.2: ‘Residential development should create good living conditions and should not cause any significant loss of daylight or sunlight to habitable rooms or gardens in neighbouring properties. In deciding the acceptability of proposals the council will be guided by the Building Research Establishment (BRE) standards. Regard will also be made to the impact on residential amenity and the patterns of use of the rooms and gardens.’

#### **2.4 The Town and Country Planning (General Permitted Development etc.) (England) (Amendment) Order 2021**

Legislation on permitted development related to Class MA – “Development consisting of a change of use of a building and any land within its curtilage from a use falling within Class E (commercial, business and service) of Schedule 2 to the Use Classes Order to a use falling within Class C3 (dwellinghouses) of Schedule 1 to that Order” states in conditions MA.2. that “(1) Development under

Class MA is permitted subject to the following conditions... (f) the provision of adequate natural light in all habitable rooms of the dwellinghouses.”

#### **2.5 Best Practice Guidance**

In the absence of official national planning guidance/legislation on daylight, the most recognised guidance document is published by the Building Research Establishment and entitled ‘Site Layout Planning for Daylight and Sunlight – A Guide to Good Practice’, Third Edition, 2022; herein referred to as the ‘**BRE Guidelines**’.

This version includes significant changes to the 2011 edition methodologies used for analysing daylight and sunlight provision to new developments, and therefore this assessment has been prepared in line with the current 2022, third edition of the guidelines.

The BRE Guidelines are not mandatory and themselves state that they should not be used as an instrument of planning policy, however in practice they are heavily relied upon as they provide a good guide to approach, methodology and evaluation of daylight impacts.

In conjunction with the BRE Guidelines, further guidance is given within **BS EN 17037:2018 - Daylight in Buildings**. This British Standard is the UK implementation of the European Standard and supersedes BS 8206 - 2:2008.

Whilst the BRE Guidelines provide numerical guidance for daylight, sunlight and overshadowing, these criteria should not be seen as absolute targets. The document states that the intention of the guide is to aid rather than constrain the

designer. The Guide is not an instrument of planning policy, therefore whilst the methods given are technically robust, it is acknowledged that some level of flexibility should be applied where appropriate.

## 3 Assessment Techniques

### 3.1 Background

Natural light refers to both daylight and sunlight. However, a distinction between these two concepts is required for the purpose of analysis and quantification of natural light in buildings. In this assessment, the term '*Daylight*' is used for natural light where the source is the sky in overcast conditions, whilst '*Sunlight*' refers specifically to the light coming directly from the sun. At request, only the assessment of Daylight has been provided within this report.

The updated third edition of the BRE Guidelines no longer supports the use of the Average Daylight Factor (ADF) method of calculating illuminance within a room, and now recommends two alternative methodologies. These are based on the assessment methods included within the BS EN 17037, but with the adaptations as set out in the UK National Annex. The two methods are described as follows.

### 3.2 Illuminance

The Illuminance method involves using climatic data based on the location of the site to calculate the illuminance of the specified reference plane resulting from natural daylight entering the room via windows and other glazed apertures. The analysis is carried out across an assessment grid on the reference plane for at least hourly intervals for a typical year. The objective of this test is to achieve a target illuminance ( $E_T$ ), which varies depending on room use, across at least

half of the reference plane. This level of illuminance needs to be achieved for at least half of the daylight hours.

For UK dwellings, there are specific recommendations for daylight provision, and these are set out in the UK National Annex. These minimum recommendations for habitable rooms acknowledge the specific challenges faced in the UK and these are used throughout this appraisal. The minimum illuminance recommendations are:

- 100 lux in bedrooms
- 150 lux in living rooms
- 200 lux in kitchens/studios

These are the median illuminances to be exceeded over at least 50% of the assessment points in the room for at least half of the daylight hours. The National Annex also states that the recommended levels over 95% of a reference plane need not apply to dwellings in the UK.

### 3.3 Daylight Factor

In the same way as for the Illuminance method, this method calculates the Daylight Factor (DF) at each calculation point on an assessment grid within each room. DF is the illuminance at a point on the reference plane in a space, divided by the illuminance on an unobstructed horizontal surface outdoors. The CIE standard overcast sky is used, and the ratio is expressed as a percentage.



Given that the numerical modelling process uses an overcast sky model, the orientation of the window(s) serving the room has no bearing on the daylight availability. However, in order to account for different climatic conditions at different locations around the UK, the National Annex provides daylight factor targets ( $D_T$ ) corresponding to the target illuminances for locations of differing latitude. These are shown in Table 3.1 and for each assessment, the targets associated with the location with the closest latitude are adopted.

Location	DT for 100 lx (Bedroom)	DT for 150 lx (Living room)	DT for 200 lx (Kitchen)
St Peter (Jersey)	0.6%	0.9%	1.2%
London (Gatwick Airport)	0.7%	1.1%	1.4%
Birmingham	0.6%	0.9%	1.2%
Hemsby (Norfolk)	0.6%	0.9%	1.3%
Finningley (Yorkshire)	0.7%	1.0%	1.3%
Aughton (Lancashire)	0.7%	1.1%	1.4%
Belfast	0.7%	1.0%	1.4%
Leuchars (Fife)	0.7%	1.1%	1.4%
Oban	0.8%	1.1%	1.5%
Aberdeen	0.7%	1.1%	1.4%

Table 3.1 – Minimum Target Daylight Factors ( $D_T$ )

The recommendations are met if the daylight factors calculated in a room meets or exceeds the specific minimum target for room type and location.

## 4 Assessment Methodology

### 4.1 Method of Baseline Data Collation

The following data has been used to inform this study:

- OS Mastermap mapping
- Scheme drawings in AutoCAD format (Genevieve Theriault Architecture and Interiors – May 2024)
- Aerial photography (Google Maps and Bing)

### 4.2 Numerical Modelling

The numerical analysis used in this assessment has been undertaken using the Waldrum Tools (Version 6.0.0.16) software package.

### 4.3 Calculation Assumptions

The following assumptions have been made when undertaking the analysis:

- When assessing the Illuminance and/or Daylight Factor for internal rooms and in the absence of specific information, the following parameters are assumed:
  - The glazing type is assumed to be double glazing (Pilkington K Glass 4/16/4 Argon filled) with a light transmittance value of 0.78 (value for double glazed unit not per pane).

- Correction factor for frames and glazing bars = 0.8
- Where information from the designer is not available, the following values are used to derive the Maintenance Factor applied to the transmittance values.

Type of window	Maintenance Factor	
	Rural/suburban	Urban
Vertical, no overhang	0.96	0.92
Vertical, sheltered from rain by balcony/overhang	0.88	0.76
Sloping rooflight	0.92	0.84
Horizontal rooflight	0.88	0.76

Table 4.1 – Parameters used for deriving Maintenance Factor

- The reflectance values used in the numerical analysis are shown in Table 4.2.

Surface	Material/Finish	Value
Internal walls	White painted walls	0.8
Internal ceiling	White painted ceilings	0.8
Internal flooring	Light wood floor/cream carpet	0.4
Exterior walls and obstructions	Standard value applied	0.2
Exterior ground	Standard value applied	0.2

Table 4.2 – Reflectance Values

- 
- The calculation of illuminance or daylight factor is carried out on a grid of points on a reference plane within each assessed room. The plane is set
  - 0.85m from the floor level. This assessment grid excludes a band of 0.3m from the walls, unless otherwise specified.
  - BS EN 17037 gives an equation for maximum grid spacing. However, in line with the recommendation of the BRE Guidelines for domestic rooms, a maximum grid spacing of 0.3m is adopted.

#### 4.4 Location Specific Data

In terms of latitude, the subject site is located in closest proximity to London (Gatwick Airport), and therefore climatic conditions and DF targets are set using values for this latitude.

## 5 Daylight Provision

### 5.1 Principles of Analysis

As discussed in Section 3, there are two tests for daylight; Illuminance and Daylight Factor. The Illuminance test has been applied to the habitable rooms within the development in the first instance, and the results are discussed in Section 5.2. In circumstances where the Illuminance test is not compliant, the Daylight Factor analysis has also been calculated. The detailed numerical outputs are included in Appendix A.3.

When setting the target illuminance value ( $E_T$ ), it is important to account for rooms that have a shared use, as it is necessary to apply the highest target. For example, in a bedroom/sitting room in a studio apartment, the value for a living room should be used as the occupants would be spending the majority of the daylight hours using the space as a living room.

However, in the case of a living/dining/kitchen area, the BRE Guidelines fully acknowledge that in the majority of situations, the kitchen element of these open plan living areas is not treated as a habitable space. Therefore, it is acceptable to adopt the target for the dominant room use, i.e. a living room. It is, nevertheless, still necessary to include the kitchen space as part of the assessment area, albeit that the interpretation of the daylighting results reflects the non-habitable status of the kitchen area.

In addition, if a kitchen is less than 13m<sup>2</sup>, then it is conventional for this room to be considered as a non-habitable space. In which case, such rooms are not necessarily included within the reported outputs of the model.

It is also conventional to assume that where the layout of the rooms and fenestration on lower floors is repeated on the floors above, then providing the daylighting provision on the lower floors meets the specific requirements, it can be inferred that the rooms on the floors above will also meet the target criteria.

### 5.2 Illuminance Analysis

Using the analytical techniques and assumptions discussed in Sections 3 and 4 respectively, the illuminance within each habitable room has been calculated.

For each room, the percentage of the assessment area that meets or exceeds the target illuminance value ( $E_T$ ) is presented in the detailed outputs included in Appendix A.3. To meet the assessment criteria, 50% or more of the assessment area will need to achieve illuminance that meets or exceeds  $E_T$ . The results are summarised in Table 5.1.

Property	No. Rooms Tested	Rooms satisfying BRE Criteria		Rooms not satisfying BRE Criteria
		No.	%	
Unit 1	3	3	100%	0
Unit 2	4	4	100%	0
Unit 3	3	3	100%	0
Unit 4	4	4	100%	0
Unit 5	3	3	100%	0
Unit 6	4	4	100%	0
<b>Total</b>	<b>21</b>	<b>21</b>	<b>100%</b>	<b>0</b>

Table 5.1 – Results of the Illuminance analysis

From the results in Table 5.1, it can be seen that all habitable rooms within the proposed development meet or exceed the target illuminance value ( $E_T$ ).

As the rooms are fully compliant with the Illuminance test, it has not been necessary to carry out the Daylight Factor test in this instance. This is because the UK National Annex to BS EN 17037 states that the provision of natural daylight be adequate provided that at least one of the two daylight tests are passed.

Consequently, it can be concluded that these habitable spaces will be **well lit** and will have a reduced reliance on supplementary electric lighting.

## 6 Conclusions

The detailed analysis undertaken as part of this assessment has examined the provision of natural daylight to the habitable rooms within the proposed development at Messom Mews, Grosvenor Road, Twickenham, Middlesex, TW1 4DPP. Using detailed numerical modelling applications, the Illuminance, has been quantified for each room. In line with the assessment criteria prescribed by the BRE Guidelines, it has been shown that for all of the habitable rooms, the provision of natural daylight will meet or exceed the minimum required threshold set out in the BRE Guidelines. Consequently, it can be concluded that these habitable spaces will be **well lit** and will have a reduced reliance on supplementary electric lighting.

## A Appendices

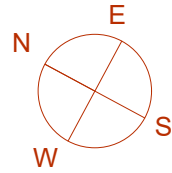
Appendix A.1 – Scheme Drawings

Appendix A.2 – Graphical Model Outputs

Appendix A.3 – Tabulated Results for Daylight Calculations

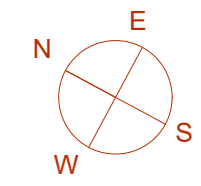
## Appendix A.1 – Scheme Drawings





**EXISTING & PROPOSED**

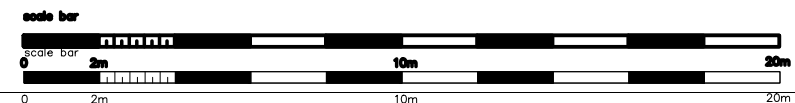
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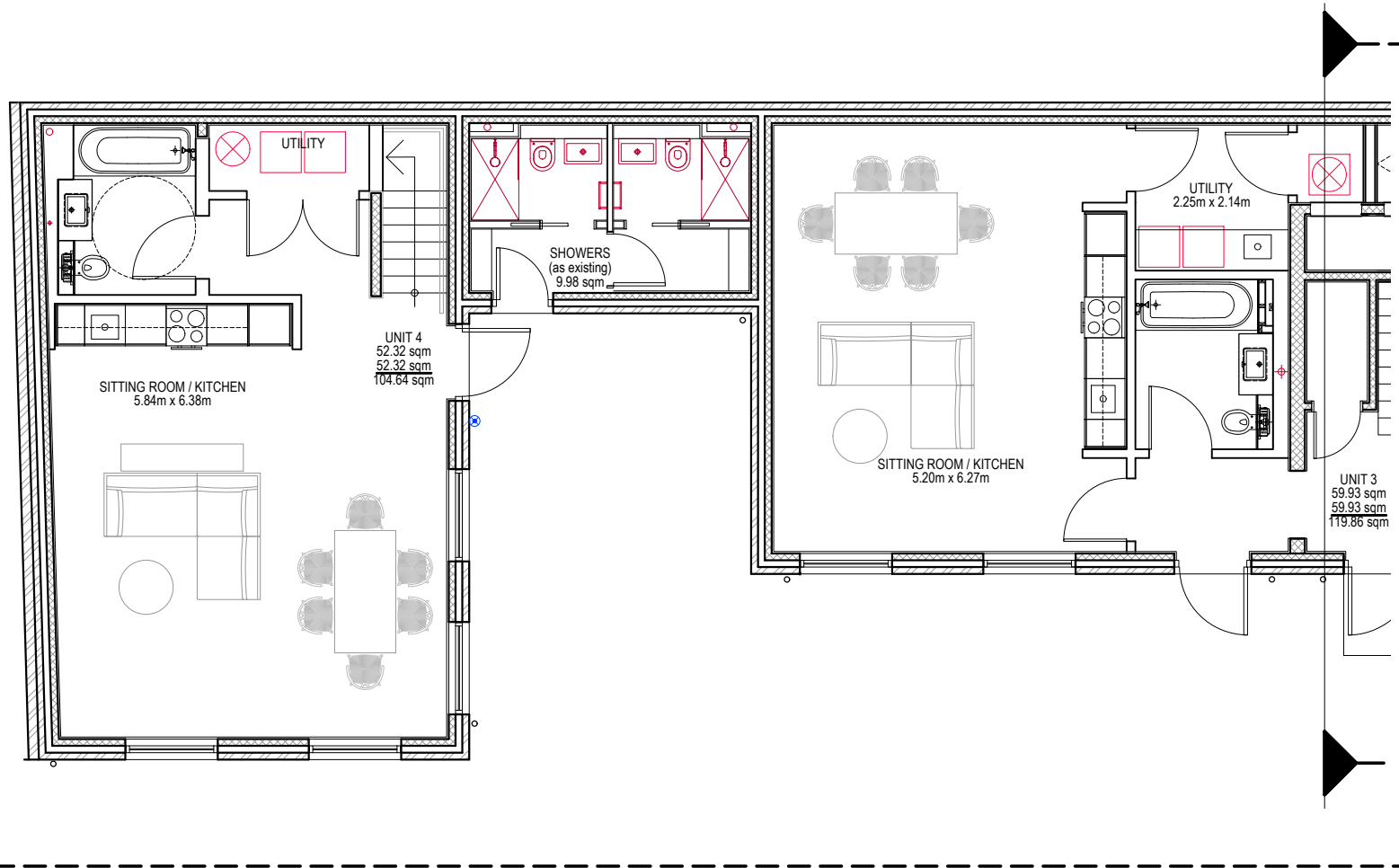
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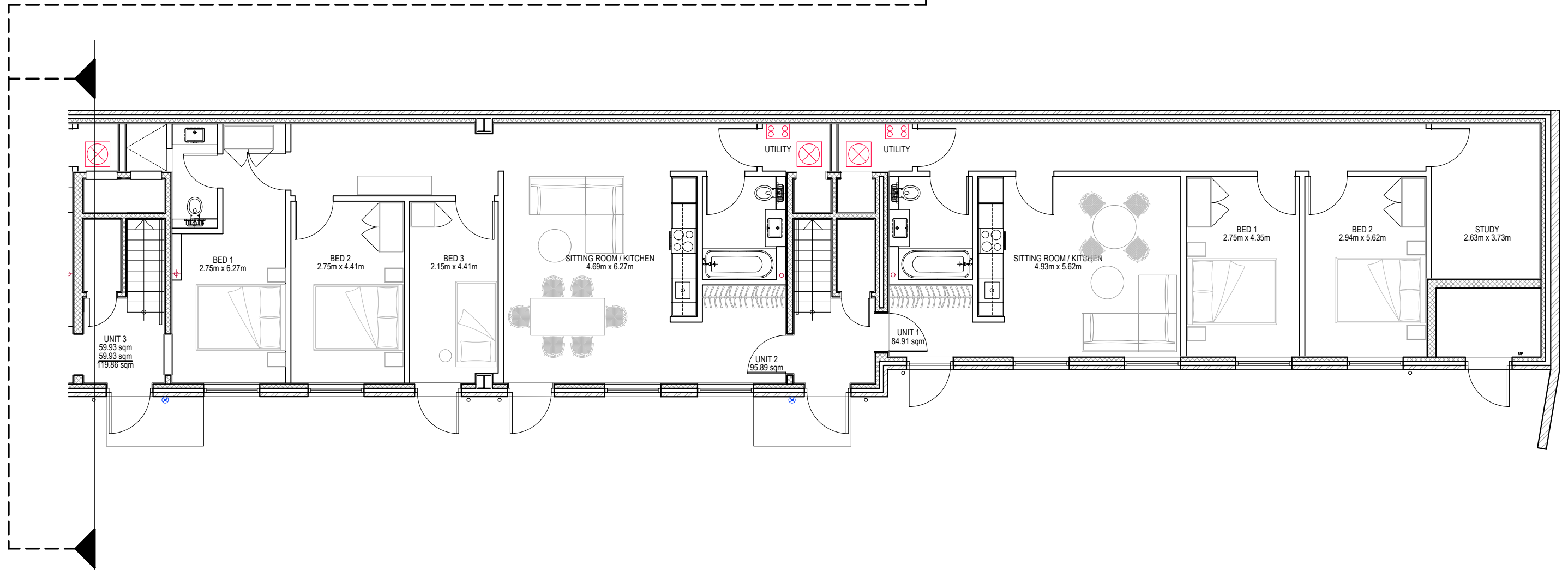


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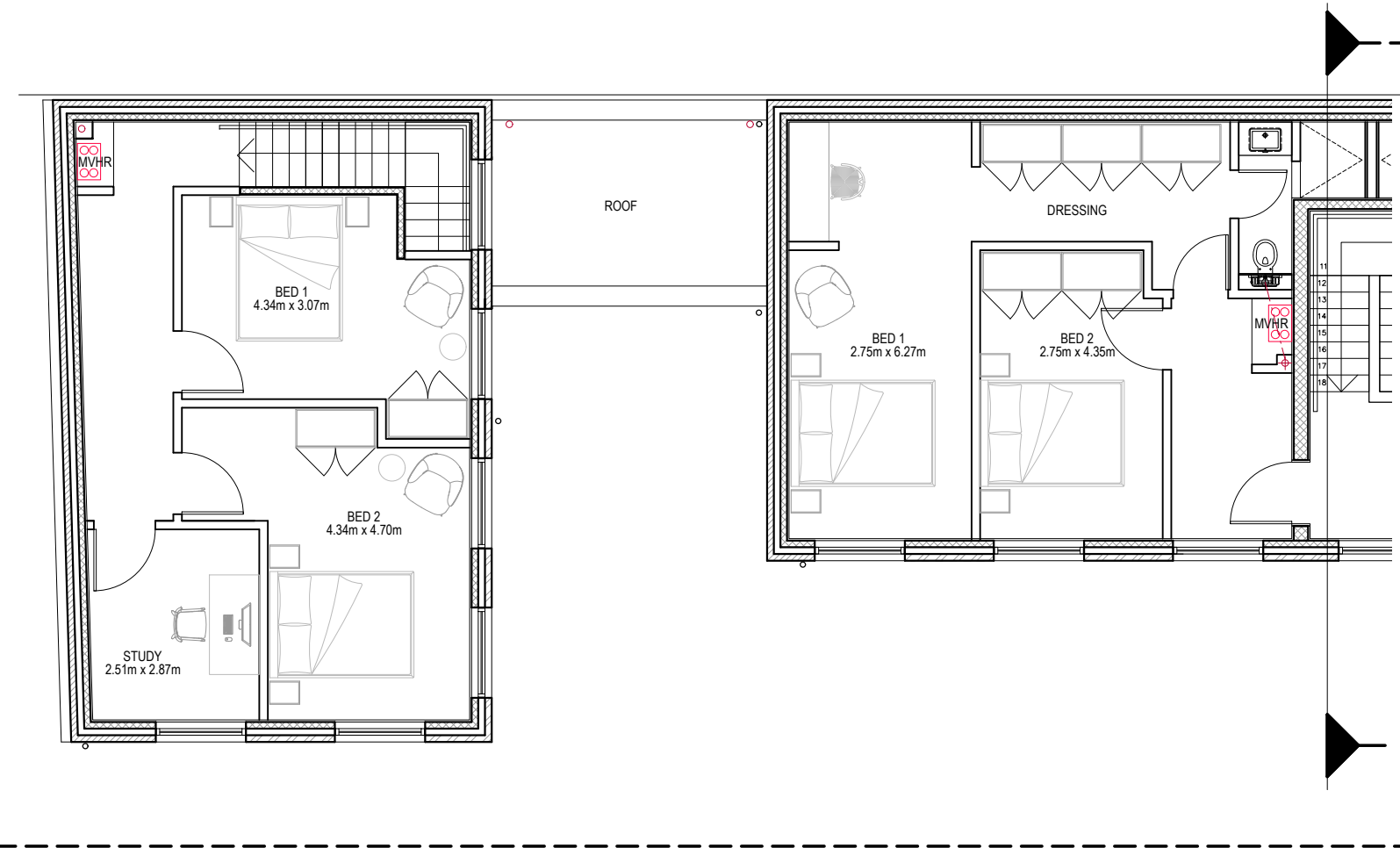
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date 13.05.24	checked		



ACCOMMODATION SCHEDULE			
UNIT NO.	TYPE	AREA (SQM)	NOTES
UNIT 1	FLAT	84.91	2 DOUBLE BEDROOMS + STUDY
UNIT 2	FLAT	95.89	2 DOUBLE BEDROOMS + 1 SINGLE BEDROOM
UNIT 3	HOUSE	119.86	2-STOREY, 2 DOUBLE BEDROOMS
UNIT 4	HOUSE	104.64	2-STOREY, 2 DOUBLE BEDROOMS + STUDY
UNIT 5	FLAT	73.56	2 DOUBLE BEDROOMS
UNIT 6	FLAT	95.89	2 DOUBLE BEDROOMS + 1 SINGLE BEDROOM
--	SHOWERS	9.98	AS EXISTING

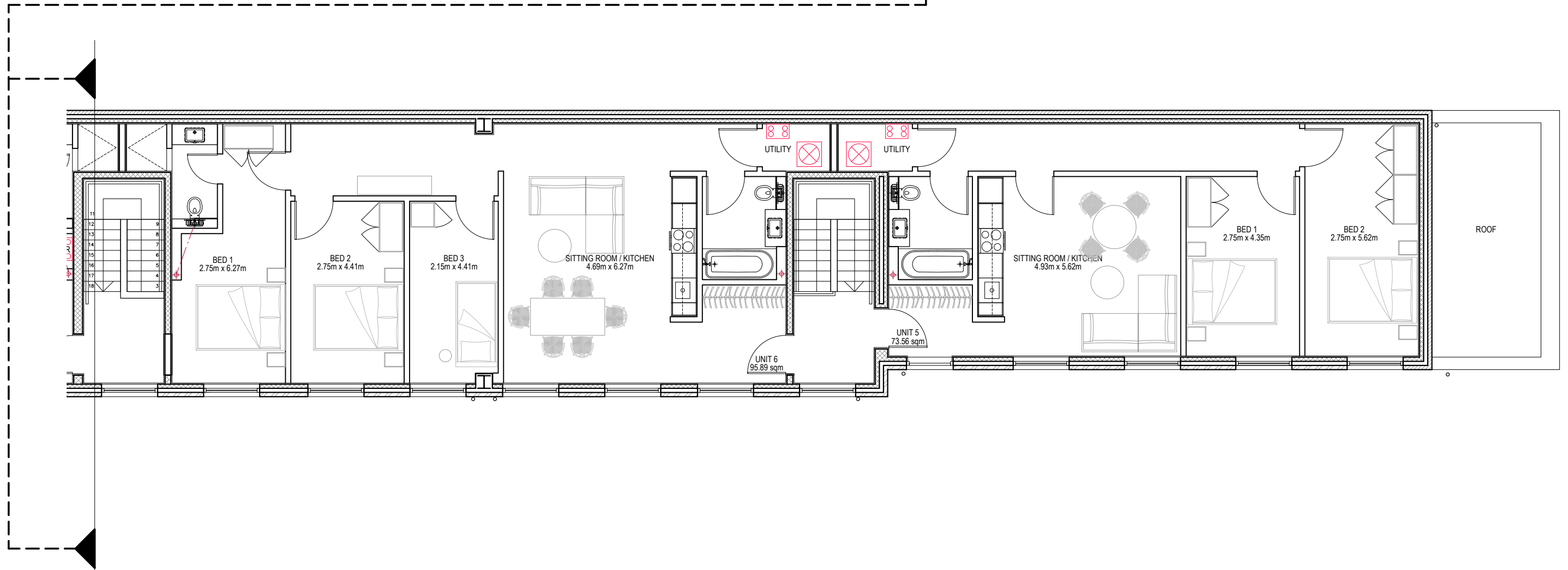


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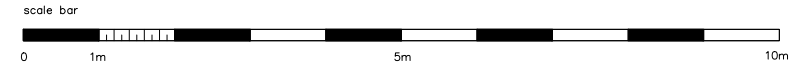
ACCOMMODATION SCHEDULE

UNIT NO.	TYPE	AREA (SQM)	NOTES
UNIT 1	FLAT	84.91	2 DOUBLE BEDROOMS + STUDY
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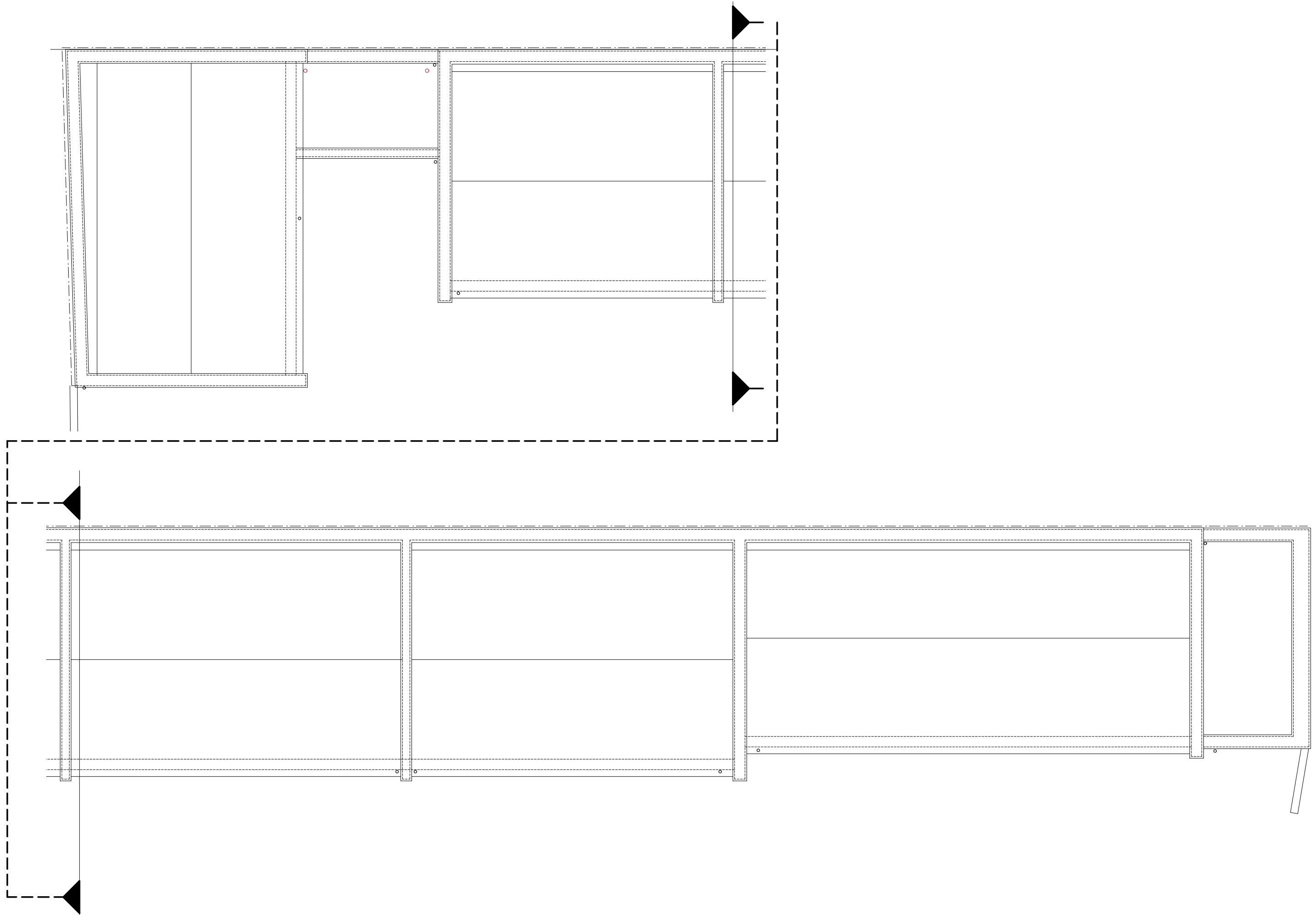
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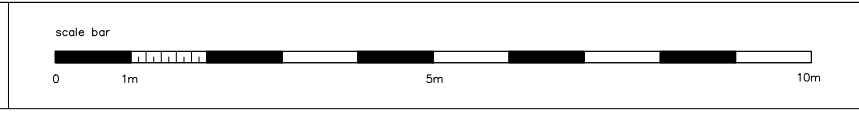
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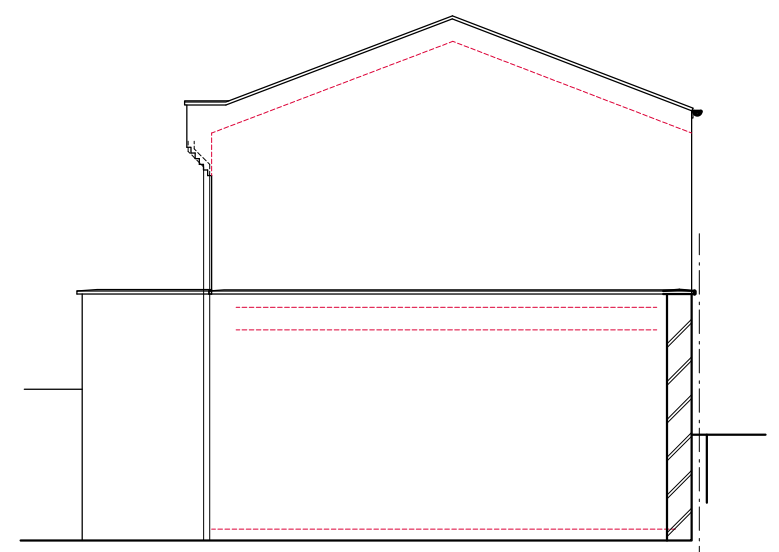


North East elevation - part to courtyard

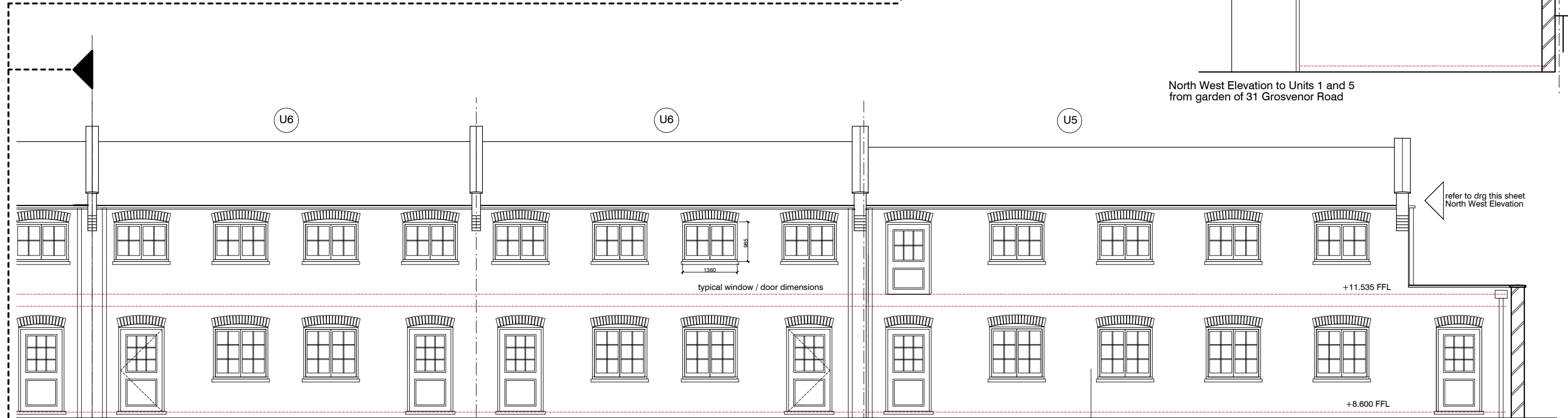
WINDOW & DOOR SCHEDULE TYPE	GLAZING (SQM)	NOTES
HALF-GLAZED DOOR	0.75	TYPICAL EXTERIOR DOOR
DOUBLE CASEMENT WINDOW	0.94	TYPICAL GROUND FLOOR WINDOW
DOUBLE CASEMENT WINDOW	0.68	TYPICAL GROUND FLOOR WINDOW



Proposed North West Elevation (to courtyard)



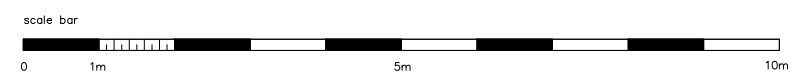
North West Elevation to Units 1 and 5 from garden of 31 Grosvenor Road



North East elevation - part to courtyard

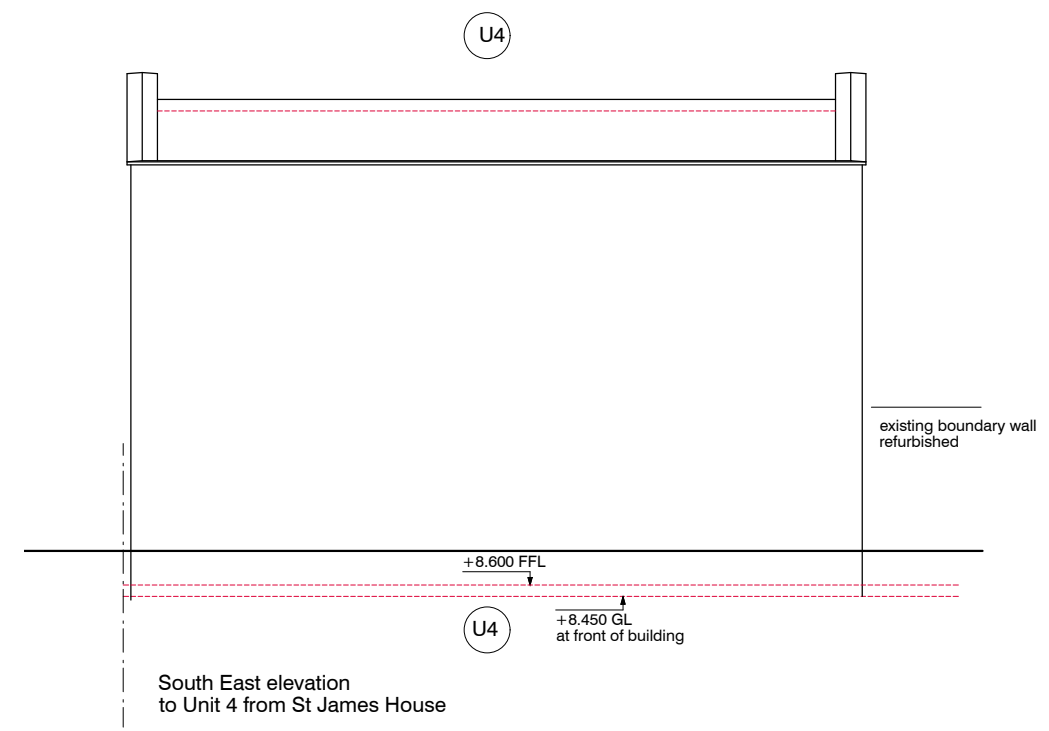
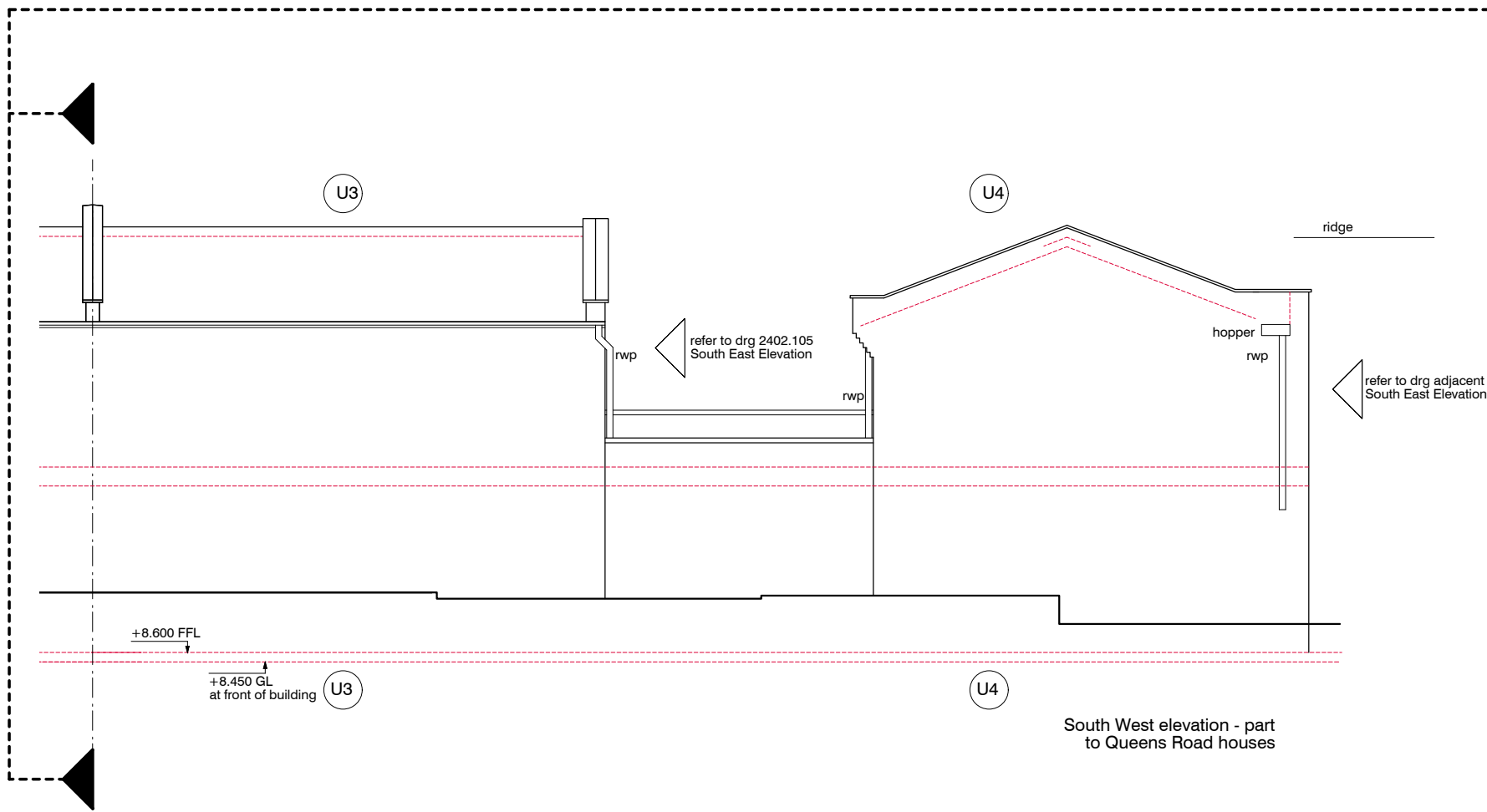
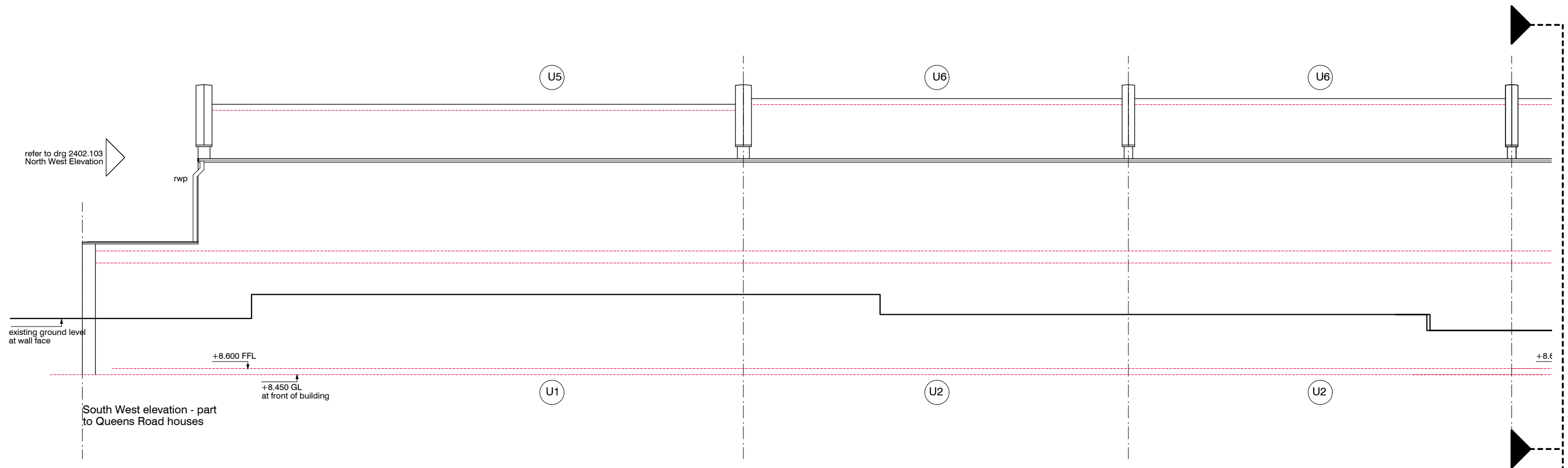
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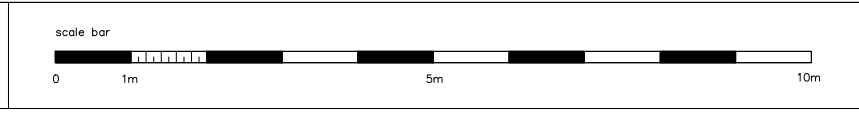
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scale 1:50@A1 / 1:100@A3	drawn GT	project Genevieve Theriault Architecture & Interiors 19 Seymour Place, London W1H 5BG t : 07904 974 068 e : mail@gtai.co.uk	
date 13.05.24	checked		



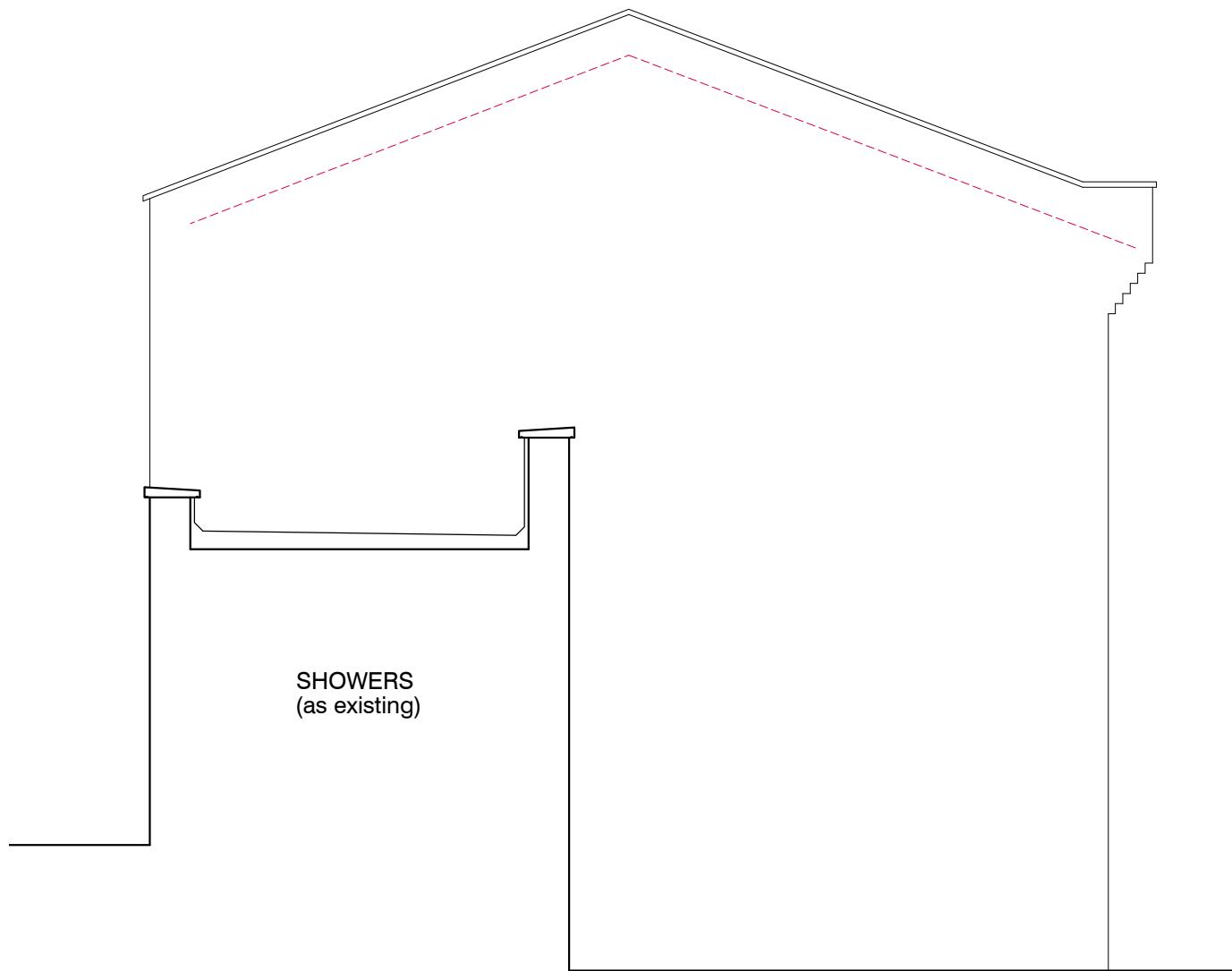
do not scale from this drawing  
verify all dimensions by site measurement  
errors and omissions to be reported to the architect  
copyright

drawing status  
issued for planning

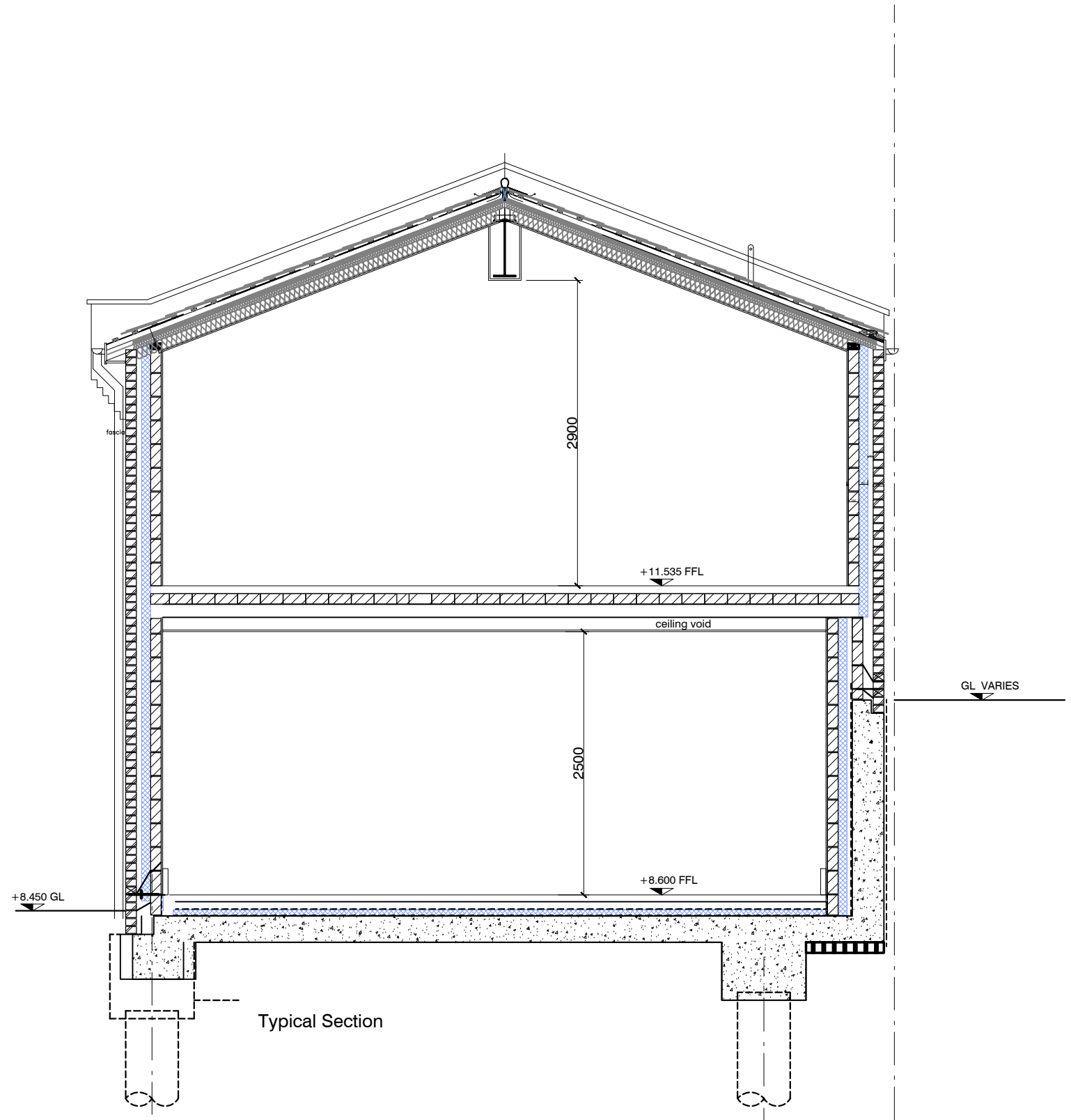


notes

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scale 1:50@A1 / 1:100@A3	drawn GT	Genevieve Theriault Architecture & Interiors 19 Seymour Place, London W1H 5BG t : 07904 974 066 e : mail@gta.co.uk	
date 13.05.24	checked		



South East elevation to Main Building

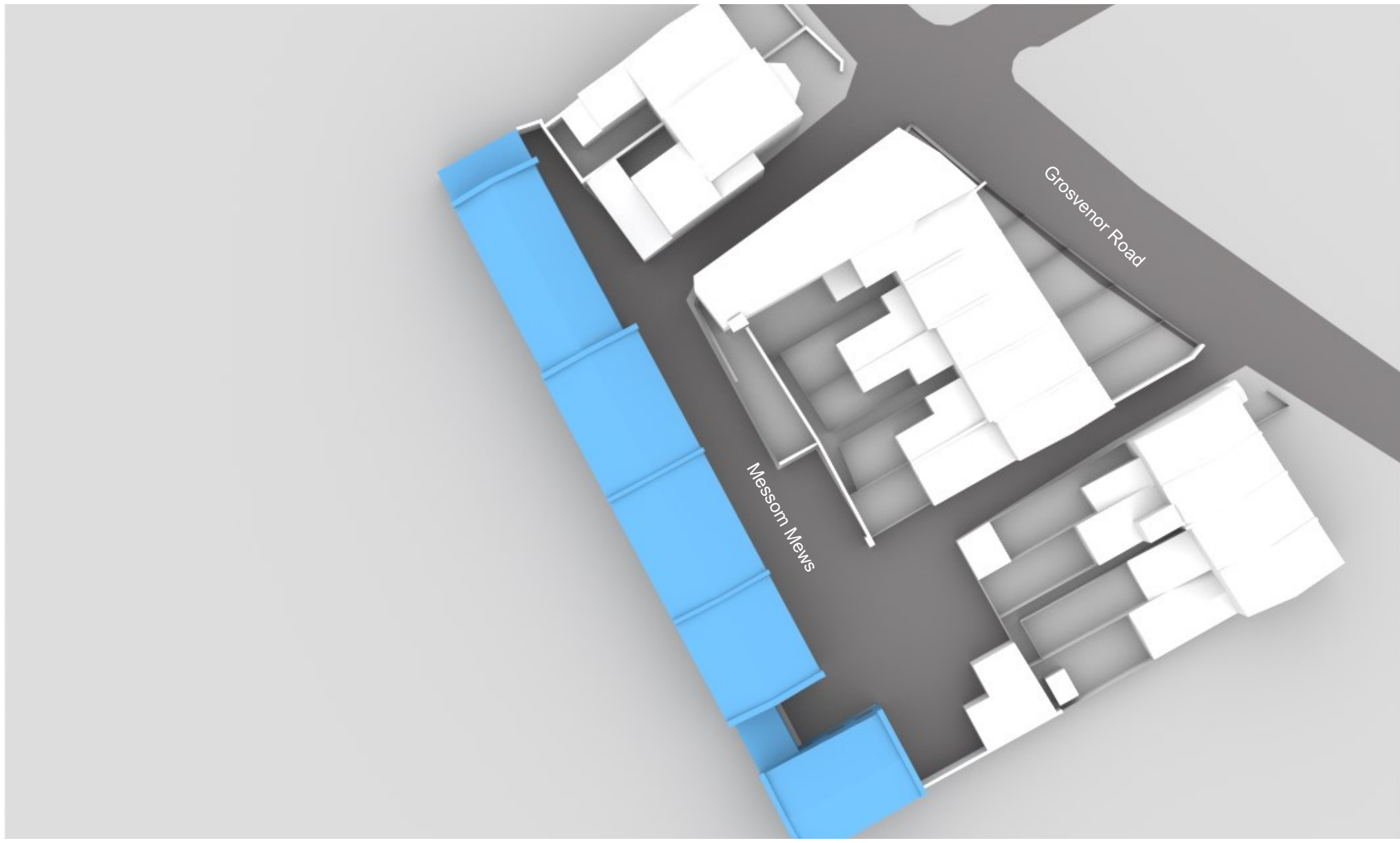


Typical Section

<p>do not scale from this drawing verify all dimensions by site measurement errors and omissions to be reported to the architect. copyright.</p>	<p>drawing status <b>issued for planning</b></p>	<p>scale bar 0 1m 2.5m 5m</p>	<p>notes</p>	<p>title <b>Existing Side Elevation &amp; Existing Typical Section</b></p> <p>scale 1:25@A1 / 1:50@A3</p> <p>date 13.05.24</p>	<p>client <b>Charles Richards</b></p> <p>drawn GT</p> <p>checked</p>	<p>project <b>Office Conversion</b> Messom Mews, 33 - 57 Grosvenor Road Twickenham, Middlesex TW1 4AD</p> <p>Genevieve Theriault Architecture &amp; Interiors 19 Seymour Place, London W1H 5BG t : 07904 974 066 e : mail@gtai.co.uk</p>	<p>drawing number <b>2402.105.a</b></p>
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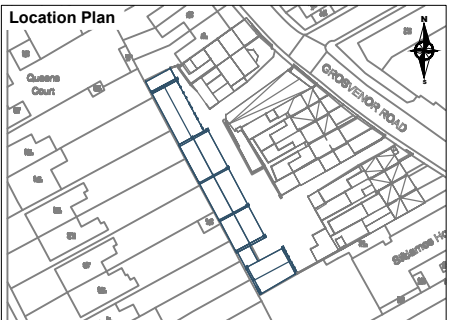
## Appendix A.2 – Graphical Model Outputs



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Specialists in the built environment - Coastal, Flood Risk, Drainage, Light Analysis



**Legend**

- Proposed Buildings
- Surrounding Buildings

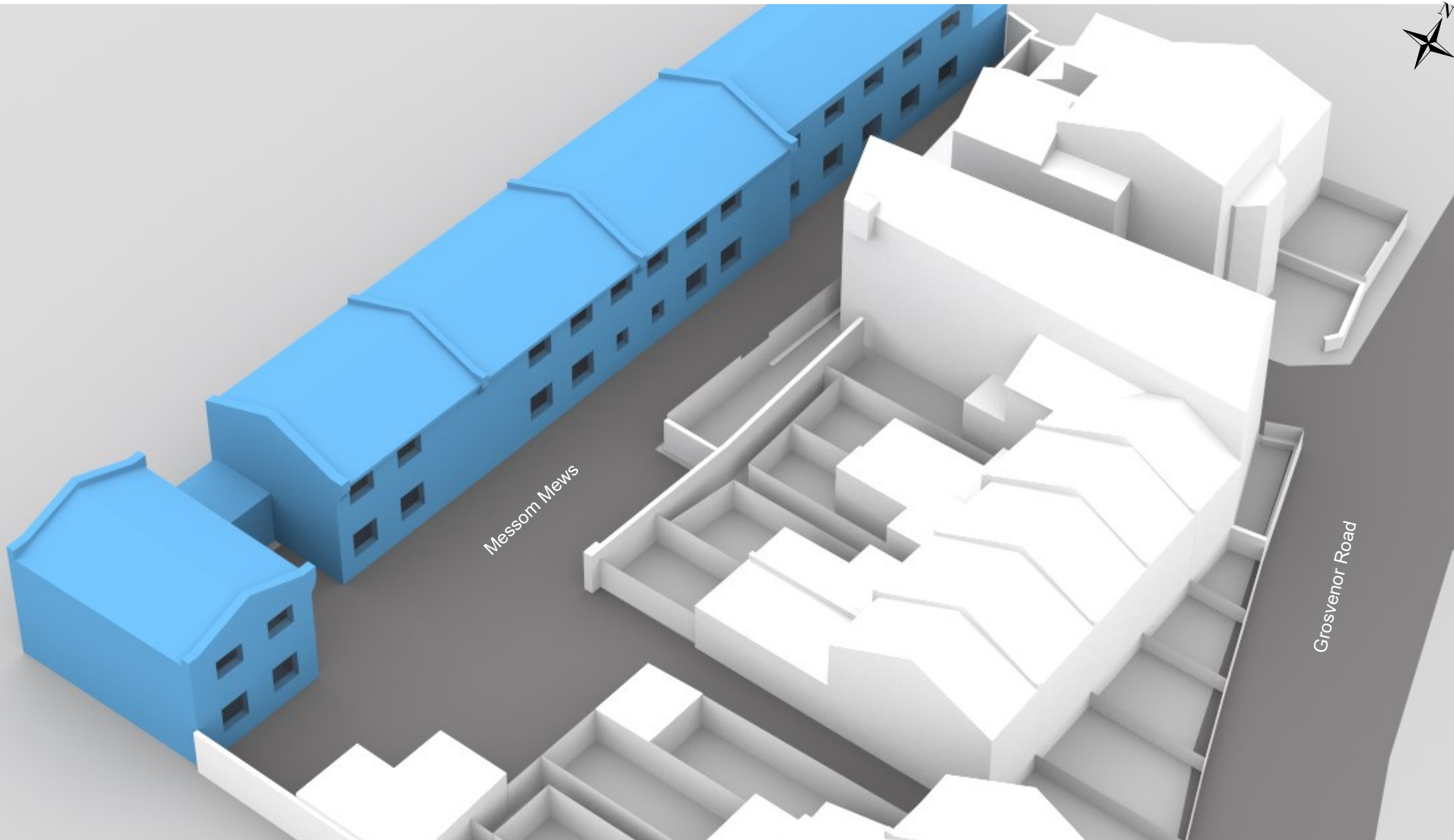
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00	First issue	_____	28/06/2024
Rev	Description	_____	Date

CLIENT  
Mr Charles Richards

PROJECT  
Messom Mews, Grosvenor Road, Twickenham

SCALE	PROJ REF	ANALYST	DRAWN BY
Not to scale	4047	KT	JP

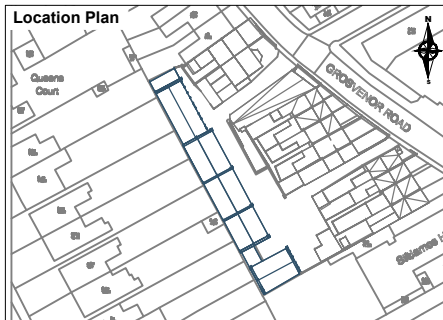
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3D Model - Proposed Location Plan	4047_01



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**Legend**

- Proposed Buildings
- Surrounding Buildings

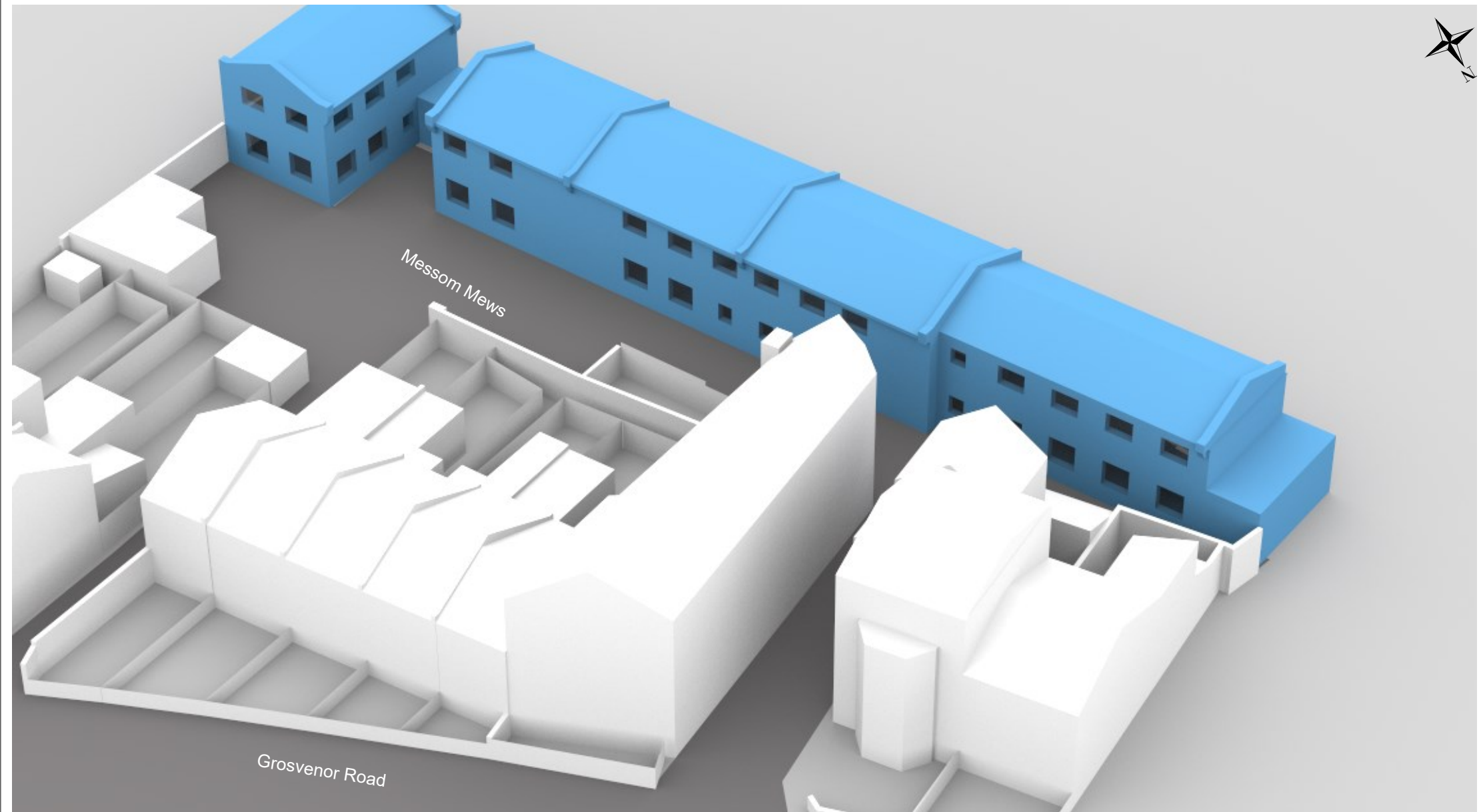
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Rev	Description	_____	Date

CLIENT  
Mr Charles Richards

PROJECT  
Messom Mews, Grosvenor Road, Twickenham

SCALE	PROJ REF	ANALYST	DRAWN BY
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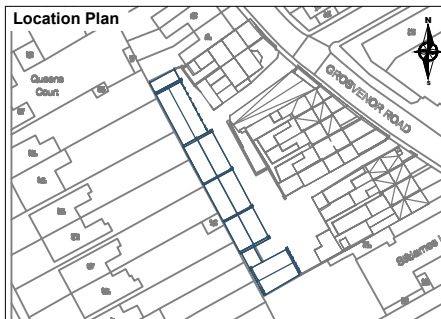
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**Legend**

-  Proposed Buildings
-  Surrounding Buildings

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Rev	Description	_____	Date

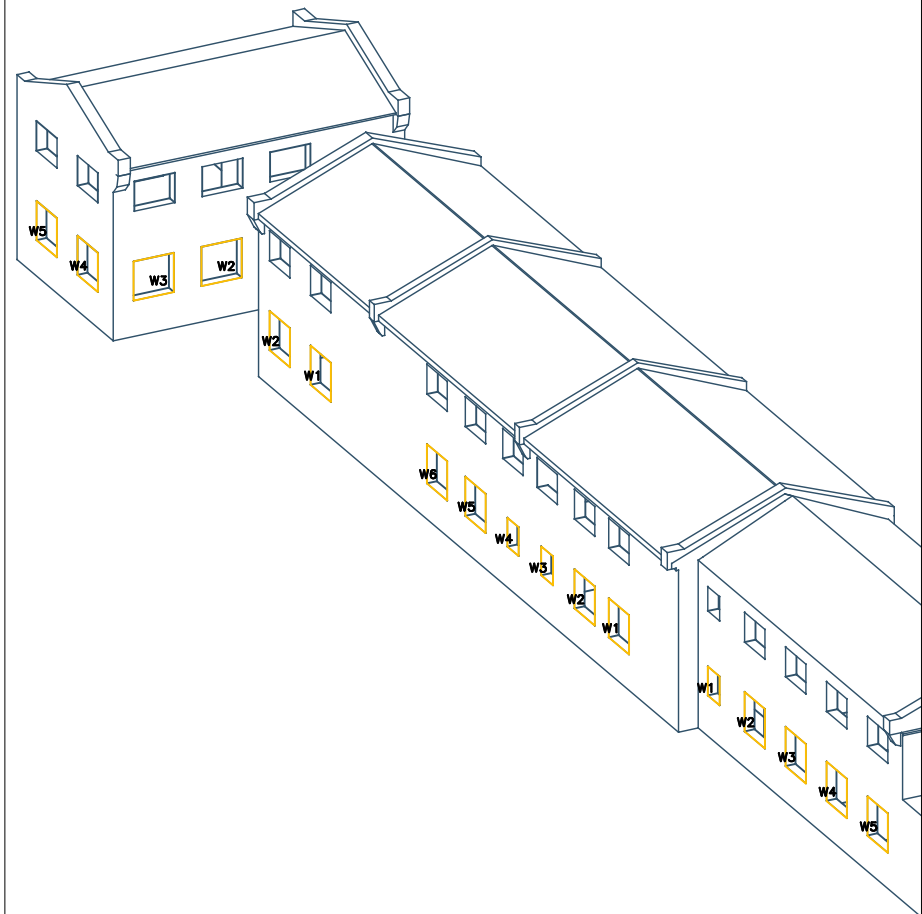
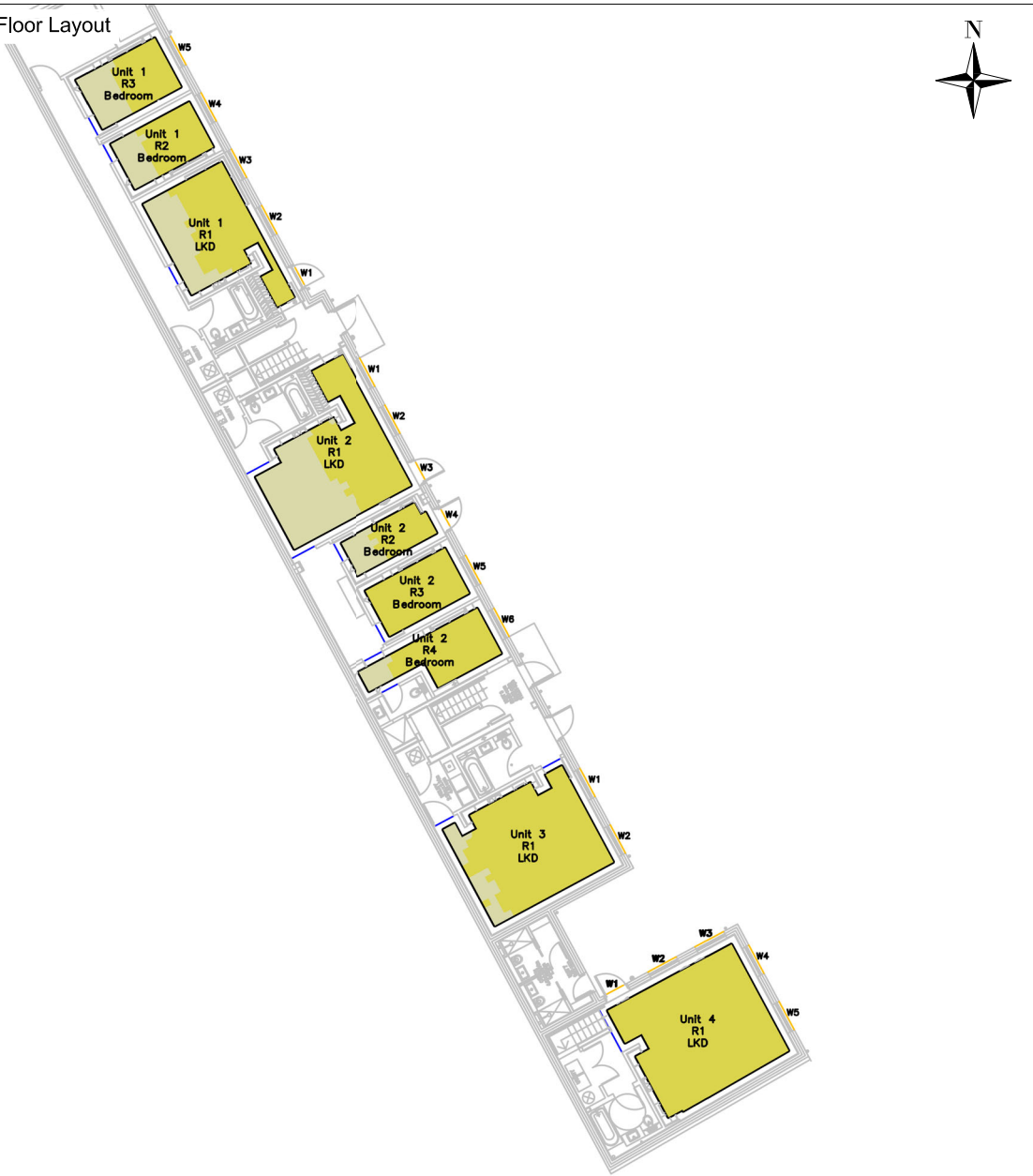
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Messom Mews, Grosvenor Road, Twickenham

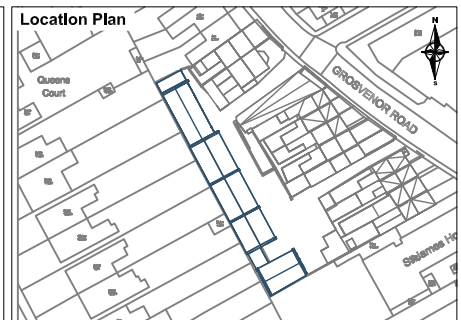
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Not to scale	4047	KT	JP

DWG REF. 3D Model - Proposed Site Scenarios	DWG No. 4047_03
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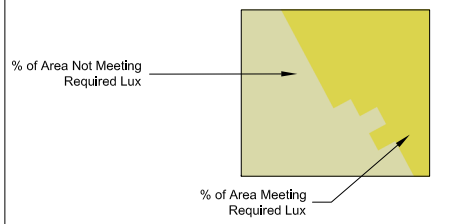
Proposed - Ground Floor Layout



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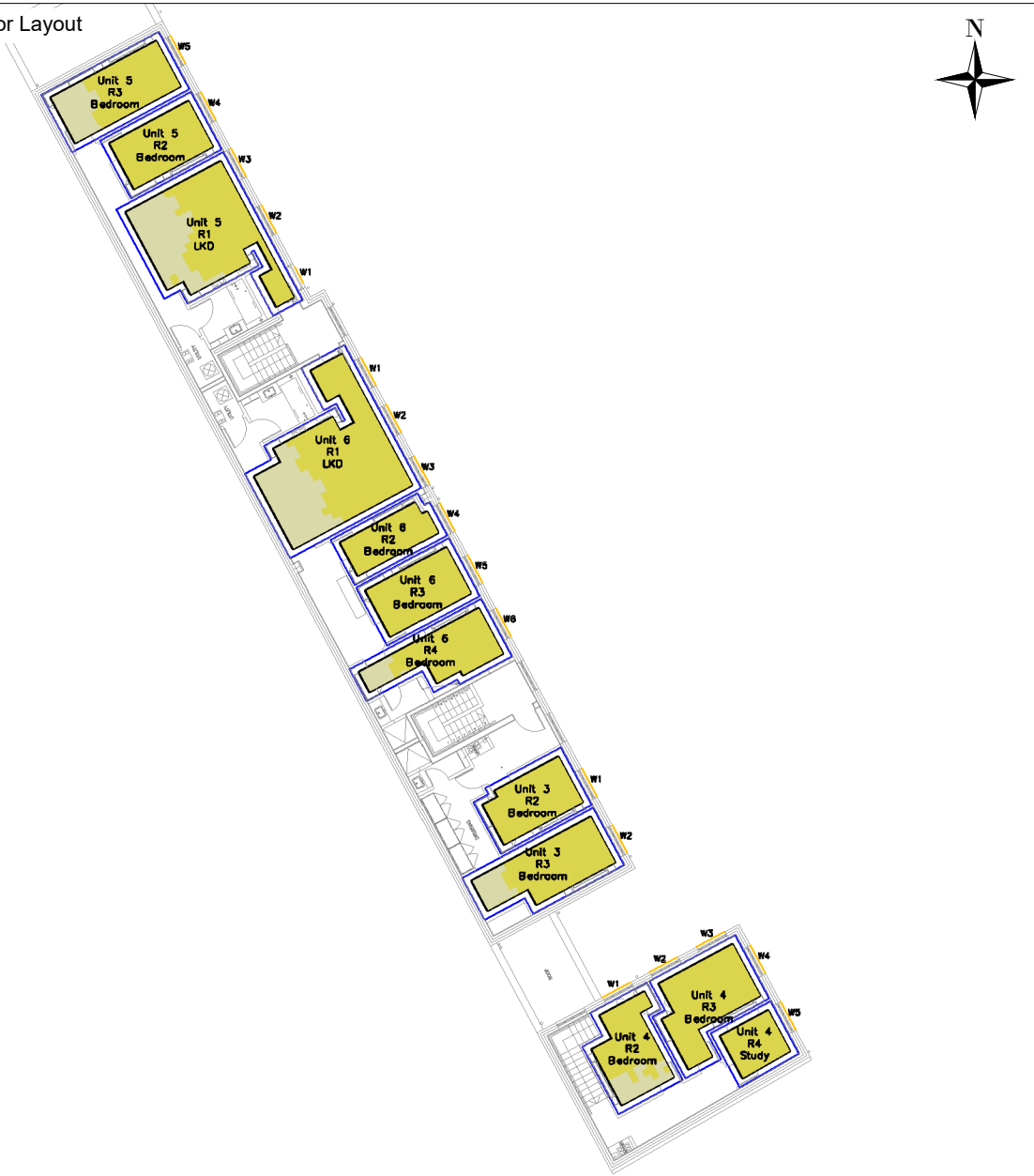


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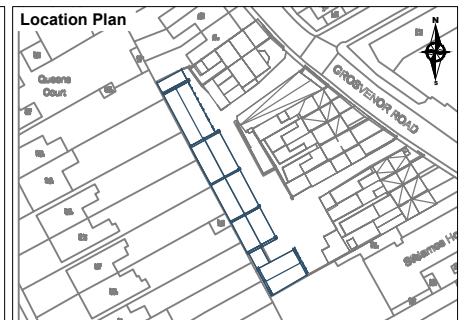


01	Second issue	_____	
00	First issue	_____	28/06/2024
Rev	Description	_____	Date
CLIENT			
Mr Charles Richards			
PROJECT			
Messom Mews, Grosvenor Road, Twickenham			
SCALE	PROJ REF	ANALYST	DRAWN BY
Not to scale	4047	KT	JP
DWG REF. Location of Window Receptors SDA contours			DWG No. 4047_04

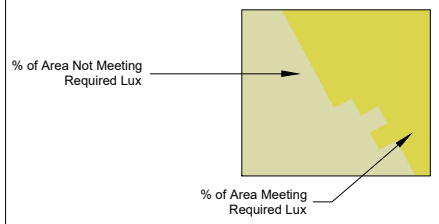
Proposed - First Floor Layout



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Legend



01	Second issue	_____	
00	First issue	_____	28/06/2024
Rev	Description	_____	Date
CLIENT			
Mr Charles Richards			
PROJECT			
Messom Mews, Grosvenor Road, Twickenham			
SCALE	PROJ REF	ANALYST	DRAWN BY
Not to scale	4047	KT	JP
DWG REF. Location of Window Receptors SDA contours			DWG No. 4047_05

## Appendix A.3 – Tabulated Results for Daylight Calculations

Project Name: Messom Mews, Grosvenor Road, Twickenham  
 Project No.: 4047  
 Report Title: SDA BS En17037 Analysis - Proposed Scheme  
 Date of Analysis: 28/06/2024

Floor Ref	Room Ref	Property Type	Room Use	Room Area m2	Effective Area	Median Lux	Area Meeting Req Lux	% of Area Meeting Req Lux	Criteria				Meets Criteria
									Req Lux	Req % of Effective Area	Req % of Daylight Hours	Daylight Hours	
<b>Unit 1</b>													
Ground	R1	Residential	LKD	24.30	17.06	205	11.65	68%	150	50%	50%	4380	YES
	R2	Residential	Bedroom	11.96	8.06	141	5.50	68%	100	50%	50%	4380	YES
	R3	Residential	Bedroom	12.78	8.77	126	5.31	61%	100	50%	50%	4380	YES
<b>Unit 2</b>													
Ground	R1	Residential	LKD	32.90	24.65	168	13.47	55%	150	50%	50%	4380	YES
	R2	Residential	Bedroom	9.34	5.76	133	3.64	63%	100	50%	50%	4380	YES
	R3	Residential	Bedroom	12.11	8.18	323	8.18	100%	100	50%	50%	4380	YES
	R4	Residential	Bedroom	13.99	8.93	278	7.76	87%	100	50%	50%	4380	YES
<b>Unit 3</b>													
Ground	R1	Residential	LKD	32.44	25.14	254	22.61	90%	150	50%	50%	4380	YES
First	R2	Residential	Bedroom	11.74	7.84	268	7.84	100%	100	50%	50%	4380	YES
	R3	Residential	Bedroom	15.81	10.75	175	8.93	83%	100	50%	50%	4380	YES
<b>Unit 4</b>													
Ground	R1	Residential	LKD	36.94	29.54	405	29.54	100%	150	50%	50%	4380	YES
First	R2	Residential	Bedroom	13.01	8.57	124	6.42	75%	100	50%	50%	4380	YES
	R3	Residential	Bedroom	15.67	10.61	609	10.61	100%	100	50%	50%	4380	YES
	R4	Residential	Study	7.32	4.43	458	4.43	100%	200	50%	50%	4380	YES
<b>Unit 5</b>													
First	R1	Residential	LKD	24.30	17.06	204	14.99	88%	150	50%	50%	4380	YES
	R2	Residential	Bedroom	11.96	8.06	169	8.06	100%	100	50%	50%	4380	YES
	R3	Residential	Bedroom	15.45	10.79	127	7.68	71%	100	50%	50%	4380	YES
<b>Unit 6</b>													
First	R1	Residential	LKD	32.90	24.65	194	16.98	69%	150	50%	50%	4380	YES
	R2	Residential	Bedroom	9.34	5.76	268	5.76	100%	100	50%	50%	4380	YES
	R3	Residential	Bedroom	12.11	8.18	246	8.18	100%	100	50%	50%	4380	YES
	R4	Residential	Bedroom	13.74	8.68	211	7.47	86%	100	50%	50%	4380	YES