MORGAN
light assessors

Analysis of site layout for **Sunlight And Daylight**

DATE

JUNE 2024

ADDRESS

10 RICKMANSWORTH ROAD, NORTHWOOD, HA6 1HA

Table of Content

10 Rickmansworth Road, Northwood, HA6 1HA

Analysis of Site Layout with Regard to Daylight & Sunlight

1. Introduction

An application has been submitted to convert the existing house at 10 Rickmansworth Road into two separate flats.

This daylight and sunlight assessment has been prepared to support the planning application for the proposed development.

The report assesses the proposals in regards to daylight and sunlight matters within habitable rooms in the proposed building. The report concludes that the proposal is acceptable and in accordance with the planning policy requirements in relation to daylight and sunlight for the assessed rooms.

There is no existing specific National Planning Policy relating to the prospective impacts of developments on daylight and sunlight to their surrounding environment. However, the Building Research Establishment publication 'Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice 'is the established National guidance to aid the developer to prevent or minimise the impact of a new development on the existing buildings and on the availability of daylight within the new proposals. The BRE guide has been revised and published a third edition in June 2022. It has been developed in conjunction with daylight and sunlight recommendations in the BS EN 17037:2018.

The 2022 document is referred to as the 'BRE Guide' in this report.

2. Description of Proposed Development

The development is situated at 10 Rickmansworth Road in the area of Northwood in North West London within the administrative boundaries of the London Borough of Hillingdon.

The proposal is to divide the house into two units, one with three bedrooms and the other with one bedroom.

The proposal is shown on the following floor plans by Redwoods Architects.

LOCATION PLAN	E00
EXISTING DRAWINGS FLOOR PLANS	E01
EXISTING DRAWINGS ELEVATIONS	E02
EXISTING DRAWINGS ELEVATIONS	E03
EXISTING DRAWINGS ELEVATIONS	E04
EXISTING DRAWINGS SECTION	E05
PROPOSED DRAWINGS FLOOR PLANS	P01
PROPOSED DRAWINGS ELEVATIONS	P02
PROPOSED DRAWINGS ELEVATIONS	P03
PROPOSED DRAWINGS ELEVATIONS	P04
PROPOSED DRAWINGS SECTION	P05

3. Daylight and Sunlight Requirements

3.1. Regional Planning Policy

The Mayor of London Supplementary Planning Guidance Housing (2016) makes recommendations that the BRE Guide should be applied sensitively to higher density development in London, particularly in central and urban areas.

> *1.3.45 Policy 7.6Bd requires new development to avoid causing 'unacceptable harm' to the amenity of surrounding land and buildings, particularly in relation to privacy and overshadowing and where tall buildings are proposed. 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. This should take into account local circumstances; the need to optimise housing capacity; and scope for the character and form of an area to change over time.*
>
> *1.3.46 The degree of harm on adjacent properties and the daylight targets within a proposed scheme should be assessed drawing on broadly comparable residential typologies within the area and of a similar nature across London. Decision makers should recognise that fully optimising housing potential on large sites may necessitate standards which depart from those presently experienced, but which still achieve satisfactory levels of residential amenity and avoid unacceptable.*

The SPG includes Standard 32 regarding direct sunlight

Standard 32 - 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

> *2.3.45 Daylight enhances residents' enjoyment of an interior and reduces the energy needed to provide light for everyday activities, while controlled sunlight can help to meet part of the winter heating requirement. Sunlight is particularly desirable in living areas and kitchen dining spaces. The risk of overheating should be taken into account when designing for sunlight alongside the need to ensure appropriate levels of privacy. In addition to the above standards, BRE good practice guidelines and methodology146 can be used to assess the levels of daylight and sunlight achieved within new developments, taking into account guidance below and in Section 1.3.*

2.3.46 Where direct sunlight cannot be achieved in line with Standard 32, developers should demonstrate how the daylight standards proposed within a scheme and individual units will achieve good amenity for residents. They should also demonstrate how the design has sought to optimise the amount of daylight and amenity available to residents, for example, through the design, colour and landscaping of surrounding buildings and spaces within a development.

2.3.47 BRE guidelines on assessing daylight and sunlight should be applied sensitively to higher density development in London, particularly in central and urban settings, recognising the London Plan's strategic approach to optimise housing output (Policy 3.4) and the need to accommodate additional housing supply in locations with good accessibility suitable for higher density development (Policy 3.3). 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.

4. Daylight Methodology to Rooms within the Development

The BRE Group set out their interior daylight guidelines in Appendix C of the document. They refer to the British Standard Daylight in Buildings BS EN17037 and its UK National Annex which sets out two criteria for assessing interior daylight. One is based on target illuminances from daylight to be achieved over specified fractions of the reference plane (a plane at table top height covering the room) for at least half of the daylight hours in a typical year. The other, alternative, method is based on calculating the daylight factors achieved over specified fractions of the reference plane.

4.1. Illuminance Method

This method involves using climatic data for the location of the site (via the use of an appropriate, typical or average year, weather file within the software) to calculate the illuminance from daylight at each point on an assessment grid on the reference plane at an at least hourly interval for a typical year.

The UK National Annex gives specific minimum recommendations for habitable rooms in dwellings in the United Kingdom. The National Annex therefore provides the UK guidance on minimum daylight provision in all UK dwellings.

The UK National Annex gives illuminance recommendations of:

· 100 lux in bedrooms

· 150 lux in living rooms

· 200 lux in kitchens with eating area

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 recommended levels over 95% of a reference plane need not apply to dwellings in the UK.

The BRE Guidelines state in paragraph C17 that:

> *"Where a room has a shared use, the highest target should apply. For example, in a bed sitting room in student accommodation, the value for a living room should be used if students would often spend time in their rooms during the day. Local authorities could use discretion here. For example, the target for a living room could be used for a combined living/dining/kitchen area if the kitchens are not treated as habitable spaces, as it may avoid small separate kitchens in a design."*

4.2. Daylight Factor Method

This method involves the computation of the daylight factor at each calculation point on an assessment grid. The daylight factor 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 usually expressed as a percentage.

Since the calculation uses an overcast sky model, the daylight factor is independent of orientation and location. For spaces with side windows, equivalent daylight factor targets to achieve a target illuminance over at least half of the daylight hours in a year are based on the formula:

D = Target illuminance / Median external diffuse horizontal illuminance x 100 (%)

where the median external diffuse horizontal illuminance (Ev,d,med) is the illuminance from the sky on an unobstructed horizontal surface

achieved for half of the yearly daylight hours at a particular location.

The table below shows the daylight factor targets to be achieved over at least 50% of the assessment grid in domestic habitable rooms with vertical and/or inclined daylight apertures. The UK National Annex gives alternative target values for rooms with diffusing horizontal rooflights. The recommendations are met if the median of the daylight factors calculated in a room meets or exceeds the specific target for room type and location.

Target daylight factors (DT) to achieve over at least 50% of the assessment grid in UK domestic habitable rooms with vertical and/or inclined daylight apertures			
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%

5. Sunlight Methodology

For internal sunlight, the BRE Guidelines state in paragraph 3.1.15:

"In general, a dwelling, or non-domestic building that has a particular requirement for sunlight, will appear reasonably sunlit provided:

- *at least one main window wall faces within 90° of due south and*
- *a habitable room, preferably a main living room, can receive a total of at least 1.5 hours of sunlight on 21 March. This is assessed at the inside centre of the window(s); sunlight received by different windows can be added provided they occur at different times and sunlight hours are not double counted."*

6. Daylight & Sunlight to Rooms within the Proposed Flats

The BRE and BS EN 17037 guidance allows for two alternative methods to assess daylight within new dwellings.

For this report we have assessed the proposed new accommodation to determine whether the internal spaces will be provided with adequate daylight by reference to Target Illuminance (ET) Factor. This method involves the computation of the illuminance level at each calculation point on an assessment grid.

The following reflectance, transmittance, and maintenance values have been used in the internal daylight calculations:

· Transmittance (T): 0.68

· Reflectance (R): 0.2 for floors, 0.7 for walls and ceilings

· Maintenance Factor: 0.92

All habitable rooms meet the BRE recommended targets for illuminance and sunlight value.

The full results of the internal daylight and sunlight analysis are included in Appendix B.

7. Conclusion

An assessment of the daylight and sunlight levels in the proposed flats at 10 Rickmansworth Road has been undertaken in accordance with the guidance set out in BRE report 209, Site Layout Planning for Daylight and Sunlight: A guide to good practice, Third Edition, 2022 (BR 209).

The proposed flats have good windows. Daylight and sunlight to all rooms within the proposed flats is better than the recommendations of the Building Research Establishment publication 'Site layout and planning for daylight and sunlight, a guide to good practice' published in 2022 and the standard planning requirements of London Boroughs and the London Plan.

Harry Morgan 25th June 2024

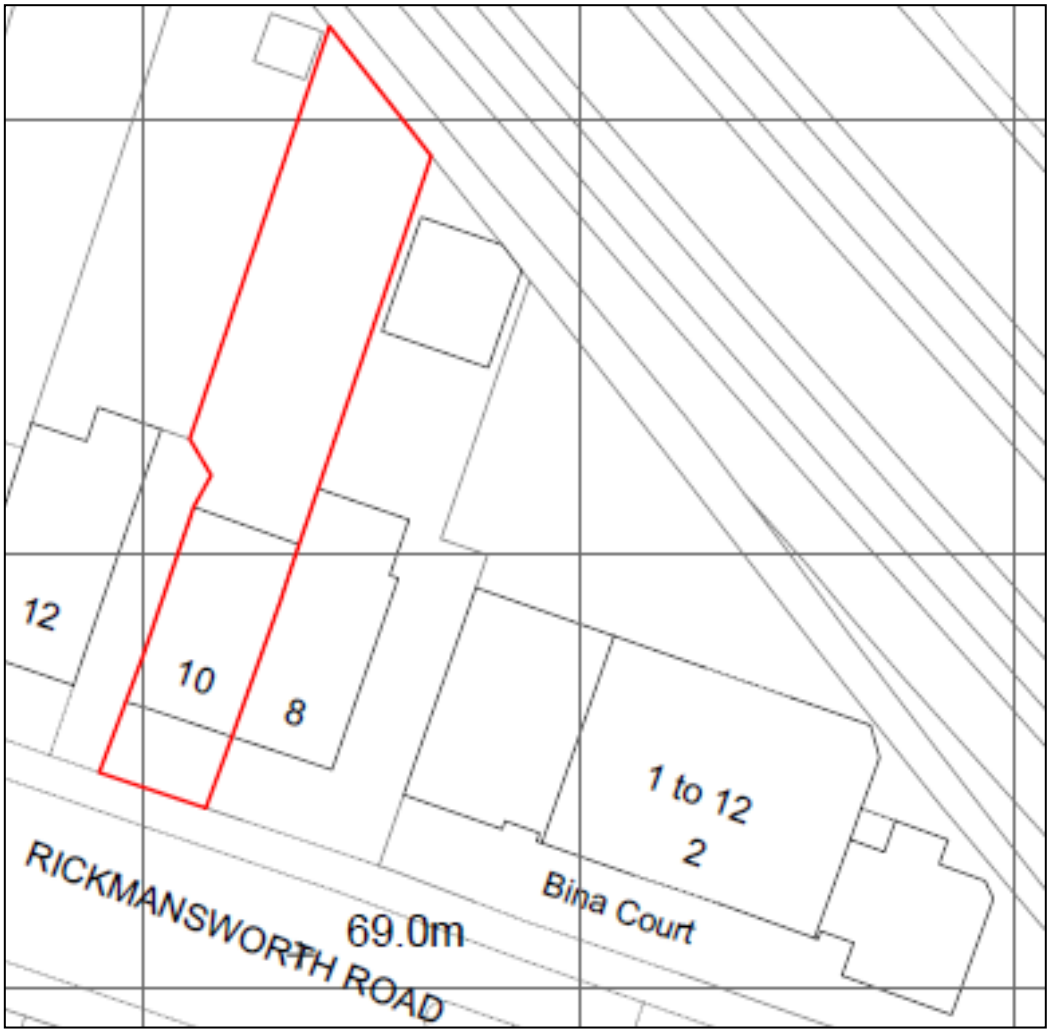
References:

i. Building Research Establishment publication 'Site layout and planning for daylight and sunlight, a guide to good practice' published in 2022

ii. The Mayor of London Supplementary Planning Guidance Housing (2016)

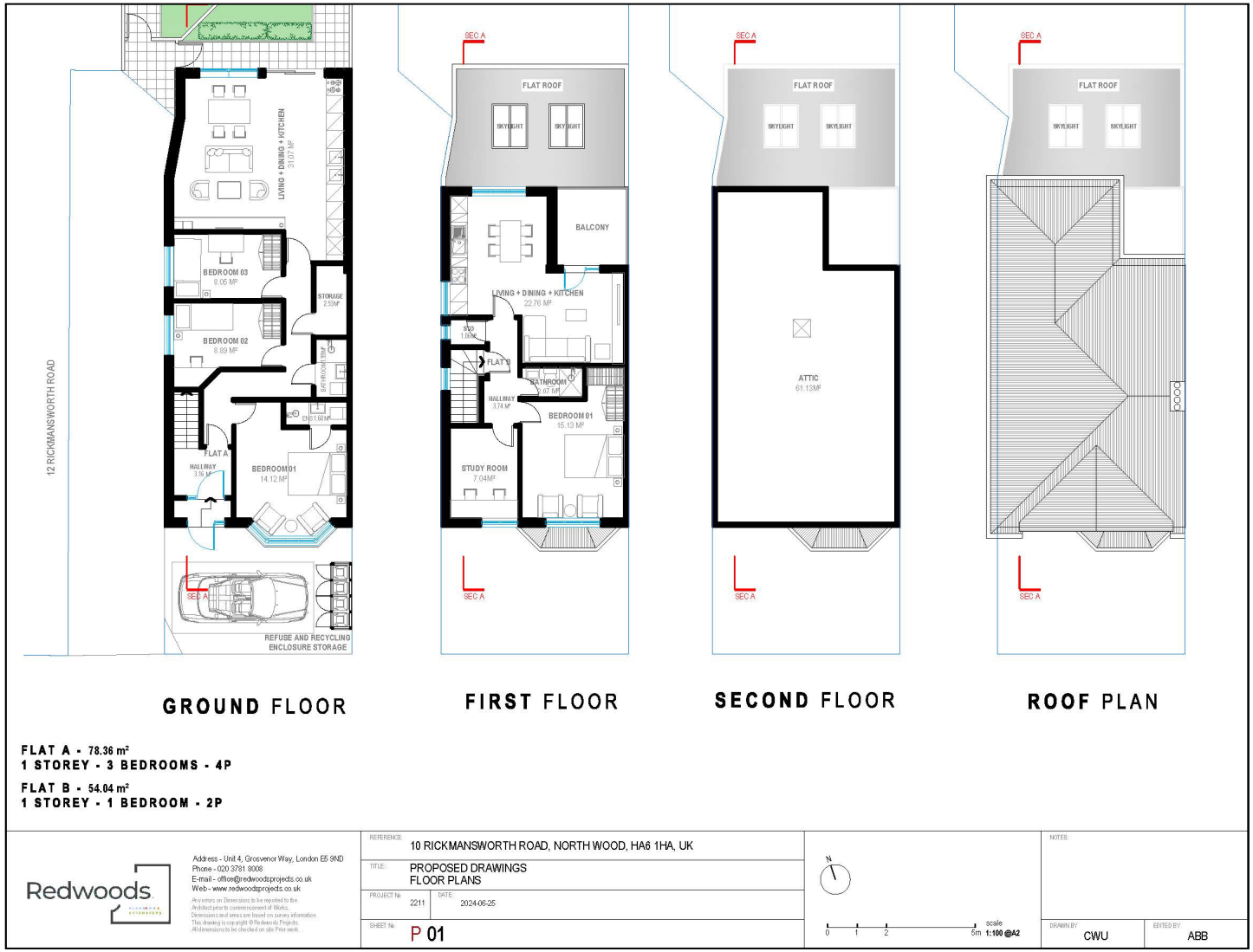
Appendix A

Site Plan



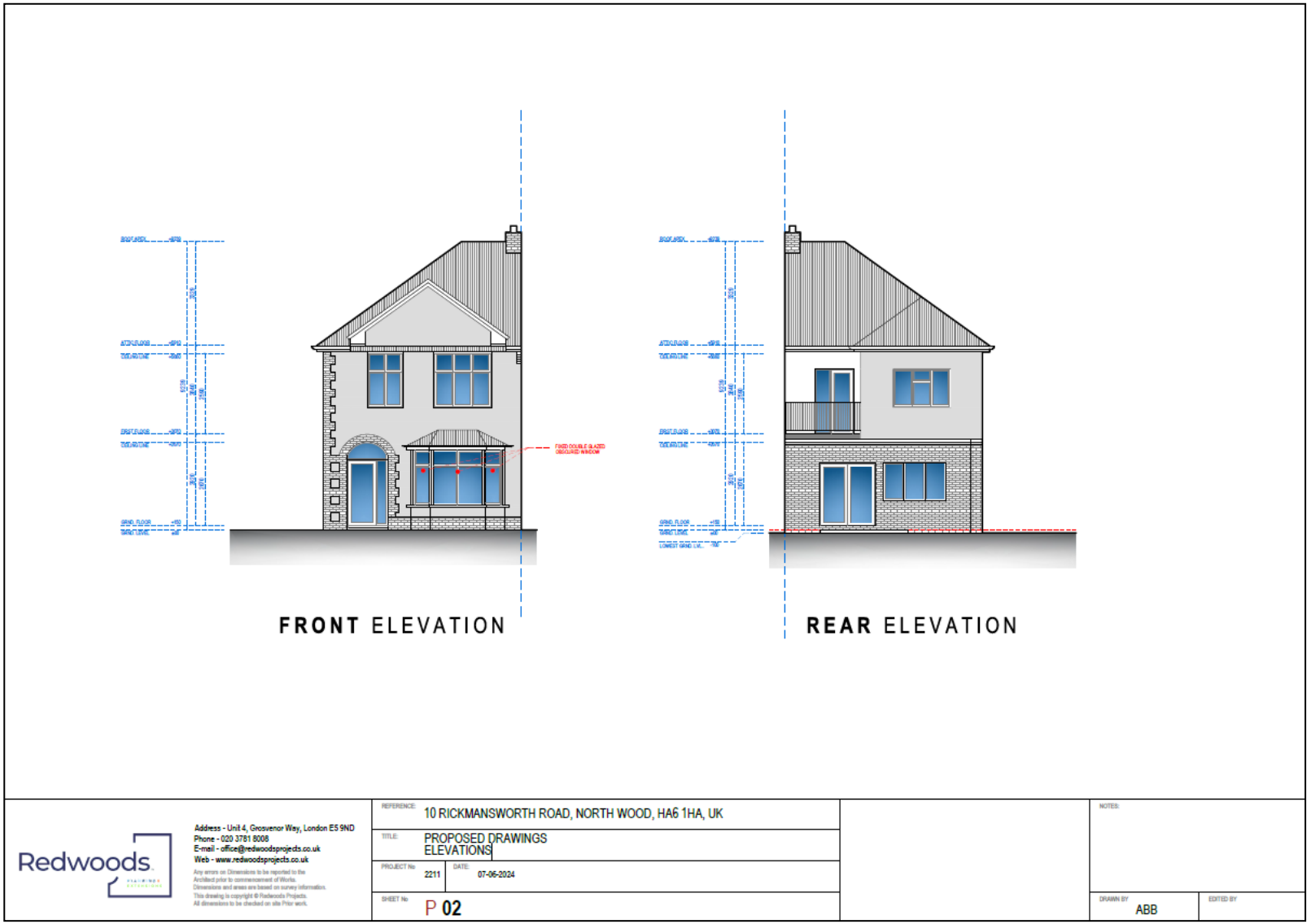
MORGAN light assessors

Proposed Floor Plans



MORGAN light assessors

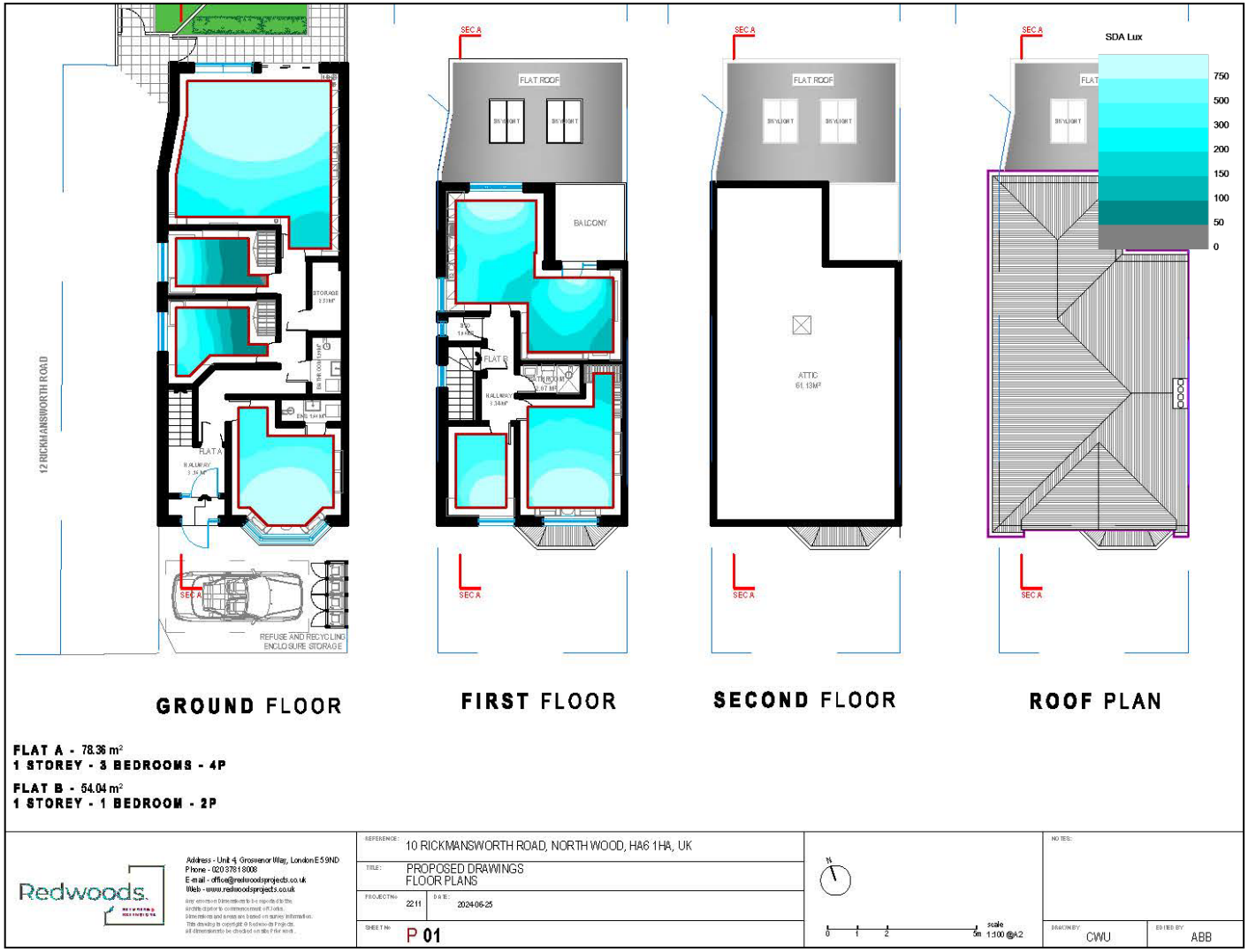
Proposed Elevations



MORGAN light assessors

Appendix B

Proposed Internal Illuminance Factor



MORGAN light assessors

Detailed Internal Daylight Results

Project Name: 10 RICKMANSWORTH ROAD
Project No.: 1
Report Title: SDA BS En17037 Analysis - Proposed Scheme
Date of Analysis: 25/06/2024

										Criteria				
Floor Ref	Room Ref	Room Attribute	Property Type	Room Use	Room Area m2	Effective Area	Median Lux	Area Meeting Req Lux	% of Area Meeting Req Lux	Req Lux	Req % of Effective Area	Req % of Daylight Hours	Daylight Hours	Meets Criteria
B1														
Ground	R1	Flat1	Residential	LKD	31.07	24.34	676	22.70	93%	200	50%	50%	4380	YES
	R2	Flat1	Residential	Bedroom	7.29	4.13	108	2.37	57%	100	50%	50%	4380	YES
	R3	Flat1	Residential	Bedroom	8.12	4.67	197	3.49	75%	100	50%	50%	4380	YES
	R4	Flat1	Residential	Bedroom	14.14	9.71	685	9.71	100%	100	50%	50%	4380	YES
First	R1	Flat2	Residential	LKD	22.76	16.15	283	12.02	74%	200	50%	50%	4380	YES
	R2	Flat2	Residential	Bedroom	15.14	10.37	461	10.37	100%	100	50%	50%	4380	YES
	R3	Flat2	Residential	Study	7.04	4.18	518	4.18	100%	200	50%	50%	4380	YES

Detailed Sunlight Results

Project Name: 10 RICKMANSWORTH ROAD
Project No.: 1
Report Title: Sunlight Exposure Analysis - Proposed Scheme
Date: 25/06/2024

Floor Ref	Room Ref	Room Attribute	Property Type	Room Use	Window Ref	Window Orientation	Proposed Sunlight Exposure (Hours)	Rating
Ground	R1	Flat1	Residential	LKD	W6	18°N	0.3	
					W7	18°N	0.3	
					W8	90° Hz	3.8	
					W9	90° Hz	5	
							5	High
Ground	R2	Flat1	Residential	Bedroom	W5	288°N	1.5	
							1.5	Minimum
Ground	R3	Flat1	Residential	Bedroom	W4	288°N	1.5	
							1.5	Minimum
Ground	R4	Flat1	Residential	Bedroom	W1	153°	8.5	
					W2	198°	9.2	
					W3	243°	6.2	
							9.5	High
First	R1	Flat2	Residential	LKD	W1	18°N	0.3	
					W2	18°N	0.3	
					W3	18°N	0.3	
					W4	288°N	3.4	
							3.7	Medium
First	R2	Flat2	Residential	Bedroom	W6	198°	9.2	
							9.2	High
First	R3	Flat2	Residential	Study	W5	198°	9.2	
							9.2	High

MORGAN
light assessors

T:07933 877 780

E: info@morganassessors.com

W:www.morganassessors.com

A:28 Lemsford Close London N15 6BY