

Our Ref: 22079

Thavies Inn House
3-4 Holborn Circus
London EC1N 2HA
020 7936 3668

6 March 2023

Carl Rudd
Co-op Homes
8 Waldegrave Road,
Teddington,
TW11 8GT.

info@delvapatmanredler.co.uk
www.delvapatmanredler.co.uk

Dear Carl,

Estate Office - Rowdell Drive, Reading RG2 8DW

Internal Daylight and Sunlight Report

As instructed, we have assessed the daylight and sunlight provision to the new dwelling within the proposed conversion site at Rowdell Drive, Reading, RG2 8DW ("the Site"). This report has been prepared to accompany the Applicant's planning application.

The proposed development comprises the conversion of the existing single storey office building into a residential dwelling with habitable living room and bedroom areas.

Our daylight and sunlight study has been carried out using the assessment methodology recommended in the Building Research Establishment (BRE) Report 209, '*Site Layout Planning for Daylight and Sunlight: A guide to good practice*' (Third edition, 2022) ("the BRE guide") and the Professional Guidance Note, '*Daylighting and sunlight*' (1st Edition, 2012), published by the Royal Institution of Chartered Surveyors.

This report is accompanied by the drawing and tabulated results as appended at the end.

Assessment Methodology

Daylight

Daylight provision in new rooms may be checked using either of the methods described in the BRE guide 2022, direct prediction of illuminance levels using hourly climate data, or the use of the daylight factor, which is a ratio of unobstructed external illuminance under overcast sky conditions. Both are measures of the overall amount of daylight in a space.

The Illuminance method is more useful, informative, and accurate as it is dependent on both geographic location and orientation of the building. Therefore, we undertake our technical assessment using illuminance method.

The illuminance method requires a 3D model of the space together with the key parameters such as nearby obstructions, the assigned internal and external surface reflectance values, diffuse glazing transmittance, and maintenance factors for the dirt that are a reasonable representation of those for the actual, completed building.

The minimum recommended target illuminance level (lux) for room types in UK dwellings is 100 lux for bedrooms, 150 lux for living rooms and 200 lux for kitchens. Bathrooms, stairwells and other circulation areas with less than 1.5m wide need not be assessed.

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Delva Patman Redler
The Quay
12 Princes Parade
Liverpool L3 1BG

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40 Berkeley Square
Bristol
BS8 1HP

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The guide recommends the target illuminance for the room type with the highest value should be taken where one room in a UK dwelling serves more than a single purpose - for example, in a space that combines a living room and a kitchen the target illuminance is recommended to be 200 lux.

Sunlight

In housing, sunlight should be assessed in living rooms. For interiors, access to sunlight can be quantified by measuring the number of hours during which the space receives direct sunlight, for a clear cloudless reference day in the year.

The BRE guide recommends that, for dwellings, at least one habitable room, preferably a living room, should receive at least 1.5 hours of sunlight on 21 March.

Information Used

We have undertaken our technical study using a 3D computer model built in AutoCAD and specialist analysis software, which runs the assessments recommended in the BRE guide.

We compiled our 3D computer model of the site and its surroundings from measured survey point cloud data produced by our in-house measured survey team.

The proposed habitable rooms for testing were advised by the client and surveying team. Our 3D computer model is illustrated on our site context drawing LOC_EXI_001 appended to this report.

For the daylight illuminance assessment, we used the window and room parameters stated in the table below.

Window and room parameters used in illuminance calculations.

Parameter	Value – Proposed Dwellings
Maintenance factor (dirt on glass)	0.92 for vertical windows with normal exposure in residential developments in urban locations with good maintenance
Diffuse light transmittance of glazing	0.68 for double glazing
Frame and glazing bar factor	0.7 for metal frames and large panes
Internal surface reflectance	0.8 for white ceilings, 0.7 for pale cream walls, 0.4 for light wood floors

To the best of our knowledge, the information and advice contained in this report is accurate at the date of issue, based on the information provided to or procured by us prior to its production. We have used trusted specialist computer software (Waldram Tools for AutoCAD®) to run the calculations recommended in the BRE guide.

Results of Internal daylight and sunlight assessment

The results of the Illuminance method for daylight analysis and the sunlight exposure for sunlight analysis for the proposed dwellings assessed are shown in the table of results below.

Property & room attributes			Daylight/Sunlight (BRE 2022)			Sunlight	
Floor	Room ref.	Room use	Daylight (illum)			Sun exp.	BS EN17037
			Target illum (lx)	Median illum (lx)	% area ≥target	Room (Hrs)	Sun exp. level
B1							
F00	R1	LKD	200	313	95%	9.2	High
	R2	Bedroom	100	129	72%	9.5	High

This shows that all rooms assessed would satisfy the BRE guidelines for daylight illuminance and sunlight exposure guidelines.

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The visual results for daylight illuminance are shown on the floor plans drawing LOC_ST_001 appended to this report.

Conclusion

The proposed development comprises the conversion of the existing single storey office building into a residential dwelling with habitable living room and bedroom areas.

We assessed the daylight and sunlight provision to the proposed new dwellings and ran our assessments using the methodologies recommended in the BRE guide.

The assessment shows that all rooms assessed would satisfy the BRE guidelines for daylight illuminance and sunlight exposure guidelines and therefore in conclusion, it is submitted that the proposed conversion for residential dwelling is consistent with the Council's local planning policy on daylight and sunlight.

We trust this provides you with clarity with the instructed requirements and if any queries arise, please do let us know.

Yours faithfully,

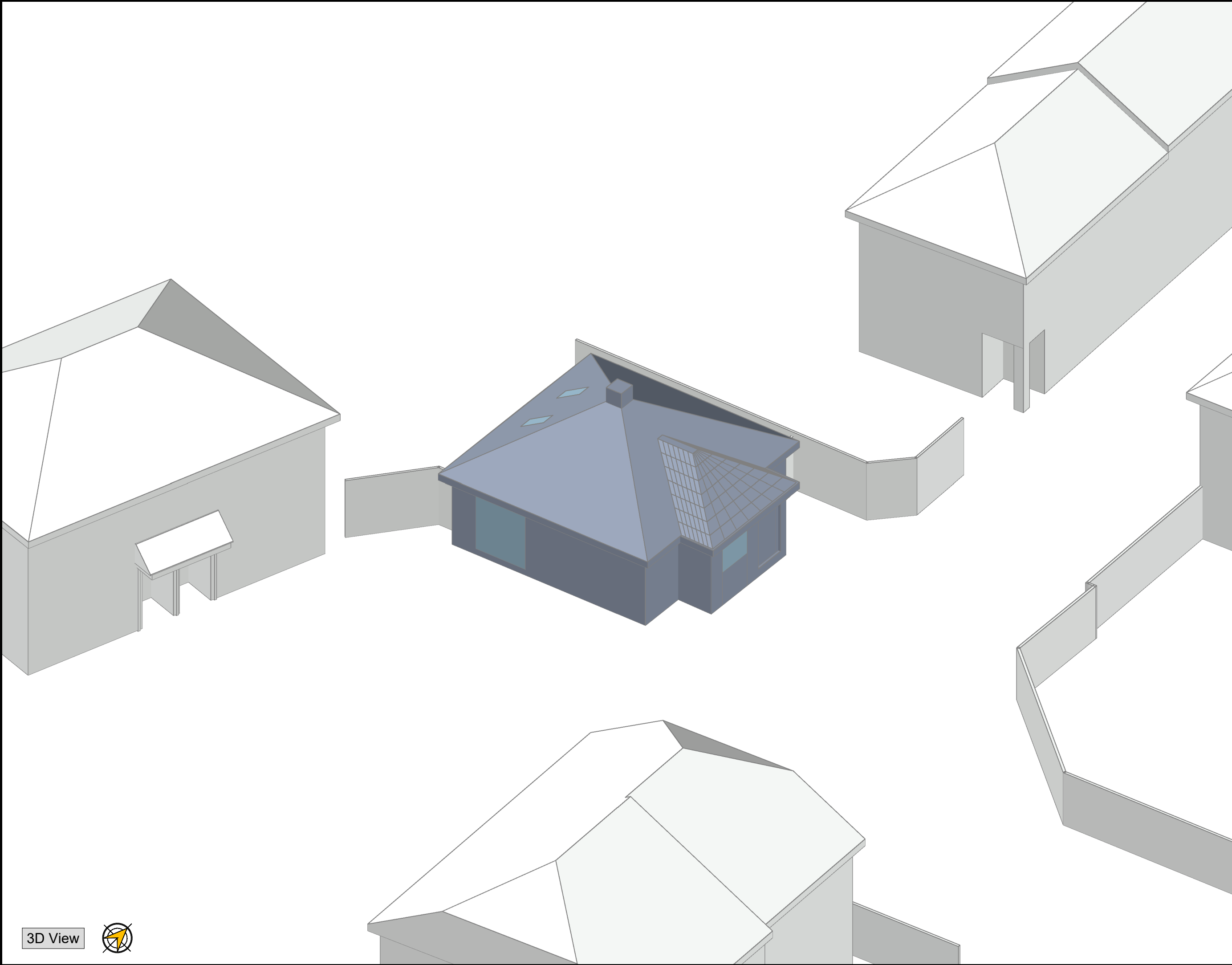


Veysel Karkin BA

Associate

E: veysel.karkin@delvapatmanredler.co.uk

Encs: Site context 3D view and plan drawing – LOC_EXI_001
Daylight illuminance results visual presentation – LOC_ST_001



NO DIMENSIONS TO BE SCALED
FROM THIS DRAWING

KEY:

Site

Surrounding

SOURCE DATA:

Surrounding and Proposed:

DPR Measured Surveys

NOTES:

REV	Description	Drawn	Date

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Chartered Surveyors

London 020 7936 3668
Liverpool 0151 242 0980
Bristol 0117 450 9703

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TITLE:

ESTATE OFFICE - ROWDELL DRIVE,
READING, RG2 8DW.

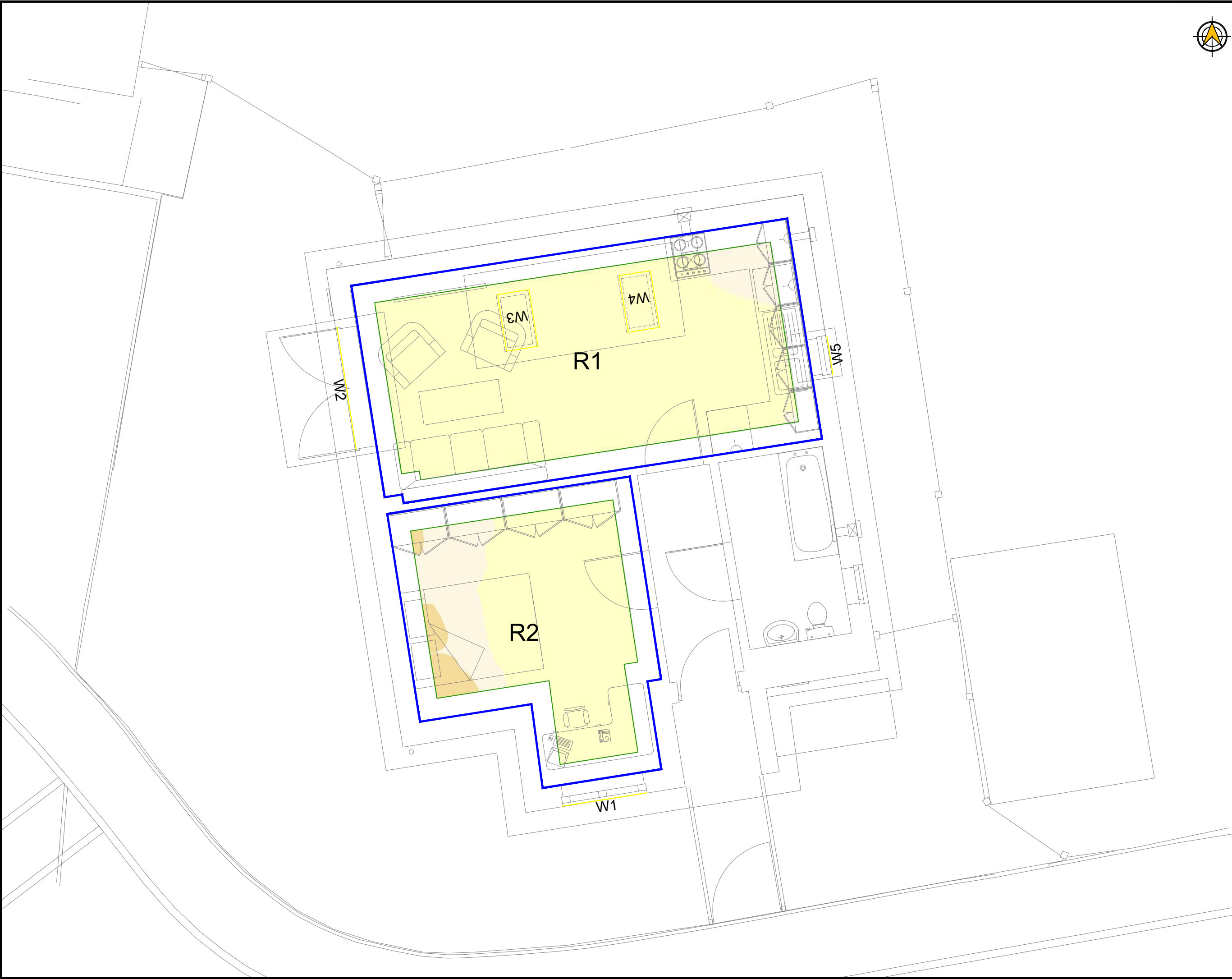
DRAWING:

SITE CONTEXT
Plan and 3D Views

DRAWN: VK	JOB NBR:
SCALE: NTS	22079
DATE: 06.03.2023	
DWG NO:	REV:
LOC_EXI_001	=

3D View





NO DIMENSIONS TO BE SCALED
FROM THIS DRAWING

KEY:

Median illuminance (lux)

Light yellow	≥ 200
Yellow	≥ 150
Orange	≥ 100
Dark orange	≥ 50
Dark orange	< 50

SOURCE DATA:

Surrounding and Proposed:

DPR Measured Surveys

NOTES:

Illuminance level calculated in accordance with the BRE guide 2022:
"A space is considered to provide adequate daylight if a target illuminance level is achieved across a 50% of the space for at least half of the daylight hours (4,380) in the year."
SDA presents percentage of area achieves the target illuminance (lux) for at least half of daylight hours.
MI presents median illuminance (lux) value for each room.

Values of target illuminance for room types in UK dwellings:	
Room type	Target illuminance (lux)
Kitchen/LKD	200
Living room/LD	150
Bedroom	100

REV	Description	Drawn	Date

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TITLE:

ESTATE OFFICE - ROWDELL DRIVE,
READING, RG2 8DW.

DRAWING:

DAYLIGHT ILLUMINANCE STUDY
Plan View

DRAWN: VK	JOB NBR:
SCALE: 1:50@A3	22079
DATE: 06.03.2023	
DWG NO:	REV:
LOC_ST_001	