
Daylight and Sunlight Report

672 Hanworth Road,
Whitton
Hounslow,
TW4 5NP



Title

Daylight and Sunlight Report

Address

672 Hanworth Road, Whitton
Hounslow, TW4 5NP

Client

Linden Hill Capital Management

Date of inspection

12 July 2024

Prepared by

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Report Preface



Figure 1: Location Aerial Photograph (Google Earth 2024)

Issue/Revision	01	Date of issue	12 July 2024
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Contents

1.0	Introduction	1
2.0	Planning Policy and Guidance	1
3.0	Daylight and Sunlight Methodology	2
4.0	Source Information	4
5.0	Assumptions	4
6.0	Development Site	5
7.0	Proposed Scheme	5
8.0	Scope of Assessment	6
9.0	Assessment Results	6
10.0	Conclusions	8

Appendices

Appendix A: Plan and 3D View drawing of the Proposed Scheme in Context

Appendix B: Internal Daylight and Sunlight Adequacy Results

1.0 Introduction

TFT Consultants have been appointed by Linden Hill Capital Management to undertake a technical review of the daylight and sunlight adequacy to the proposed residential dwellings to 672 Hanworth Road, Whitton. More specifically, revisions to planning application 21/0156/FUL to reflect layout changes to three first-floor dwellings to 'Block A'.

The study has been undertaken by reference to the 2D drawings provided by Bowman Riley and using our specialist computer software to simulate the internal natural light levels.

2.0 Planning Policy and Guidance

The technical assessment has been undertaken in accordance with the Building Research Establishment (BRE) *Guidelines 'Site Layout Planning for Daylight and Sunlight: a guide to good practice'* 2022, which adopts the methodology outlined in in accordance with BS EN 17037: 2018 - National Annex NA.

"The UK committee supports the recommendations for daylight in buildings given in BS EN 17037:2018; however, it is the opinion of the UK committee that the recommendations for daylight provision in a space (see Clause A.2) may not be achievable for some buildings, particularly dwellings. The UK committee believes this could be the case for dwellings with basement rooms or those with significant external obstructions (for example, dwellings situated in a dense urban area or with tall trees outside), or for existing buildings being refurbished or converted into dwellings. This National Annex therefore provides the UK committee's guidance on minimum daylight provision in all UK dwellings."

Guidance and policy context is important in establishing acceptable levels of Daylight and Sunlight amenity. National policy seeks to ensure that the planning system encourages more efficient use of land and promotes a flexible approach when applying guidance to avoid inhibiting these objectives, which includes specific reference to Daylight and Sunlight. The guidelines should not be considered as a matter of planning policy, but instead with an appropriate degree of flexibility in relation to Daylight and Sunlight within new dwellings.

The summary section of the BRE Guidelines state that they are '*purely advisory and that the numerical target values within it may be varied to meet the need of the development and its location*'. For example, the numerical targets are based on traditional low density suburban housing, therefore it is often considered appropriate to apply more flexible targets when dealing with modern dwelling configurations in an urban environment. It should also be considered that whilst many buildings are appropriate for conversion, permitted development rights bring with them inherent constraints, such as fixed window positions, internal structural configurations, and orientation. Therefore, the determination of what is deemed 'adequate natural light' requires professional judgement and a degree of flexibility.

Although the British Standard Code of Practice for Daylighting and BRE Guidelines are used to help test the provision of daylight, the primary legislation of the General Permitted Development Order (GDPO) does not set a specific target. Furthermore, the GPDO does not explicitly state that proposals must comply with the BRE Guidelines.

National Planning Policy Framework: December 2023

The National Planning Policy Framework (NPPF) amended in December 2023, sets out the Government's planning policies and how these are expected to be applied. It provides a framework that can be used by councils to produce their own distinctive local and neighbourhood plans, which reflect the needs and priorities of their communities.

Section 4 of the NPPF relates to Decision-making setting out the principle to consider when determining applications. Paragraph 38 states that "*Local planning authorities should approach decisions on proposed development in a positive and creative way*".

Paragraph 129 (c) mentions daylight and sunlight stating that local planning authorities “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).”

3.0 Daylight and Sunlight Methodology

Daylight and Sunlight Potential to Proposed Habitable Rooms

The Building Research Establishment (BRE) *Guidelines ‘Site Layout Planning for Daylight and Sunlight: a guide to good practice’ 2022*, is the document referred to by most local authorities. The BRE Guide gives advice on site layout planning to achieve good daylight and sunlight, within buildings and in the open spaces between them. The BRE 2022 document refers to the British Standard BS EN 17037:2018 in relation to daylight and sunlight within new dwellings. The BRE 2022 and BS-EN 2018 both supersede the BRE 2011, and the BS 8206-2:2008 documents, respectively.

For the avoidance of doubt, the BRE 2011 and the BS 8206-2:2008 assessments, namely Vertical Sky Component (VSC), No Skyline (NSL), Average Daylight Factor (ADF) for daylight and Annual Probable Sunlight Hours (APSH) for sunlight are not applicable in relation to the adequacy of light for new dwellings. These have been superseded by the Spatial Daylight Autonomy (SDA) for daylight and Annual Sunlight Exposure (SE) in the accordance with the BRE guidelines (2022) and BS EN 17037.

Daylight Principles: BS EN 17037:2018

BS EN 17037:2018 contains National Annex “NA” section, which provides further recommendations and data for daylight provision in the UK and Channel Islands specifically. NA.1 Introductions states “The UK committee supports the recommendations for daylight in buildings given in BS EN 17037:2018; however, it is the opinion of the UK committee that the recommendations for daylight provision in a space (see Clause A.2) may not be achievable for some buildings, particularly dwellings. The UK committee believes this could be the case for dwellings with basement rooms or those with significant external obstructions (for example, dwellings situated in a dense urban area or with tall trees outside), or for existing buildings being refurbished or converted into dwellings. This National Annex therefore provides the UK committee’s guidance on minimum daylight provision in all UK dwellings.”

Daylight makes the main contribution towards the lighting needs of any type of building but is particularly important in residential buildings. The evaluation of daylight provision should take into account the availability of daylight at the site (climate and location) in addition to the properties of the space (external obstructions, glazing and reflectance of surfaces in the room). The BS EN 17037:2018 and the UK National Annex seek to improve upon previous assessment methods and make the quantification of daylight provision more accurate and robust. The National Annex provides corresponding climatic data for various UK locations, so that users may identify daylight provision based on localized data. This localised climate data can be found by reference to sections NA.1 to NA.8 of the National Annex.

There are two methods set out by the BS EN 17037:2018, by which daylight provision may be assessed. Method 1 involves calculating the individual daylight factors (DF) on the reference plane. Method 2 involves calculating the illuminance levels (IL or Lux) on the reference plane and uses climatic data and an adequate time step to inform this second method.

For either method, section NA.2 sets out that “Even if a predominantly daylight appearance is not achievable for a room in a UK dwelling, the UK committee recommends that the target illuminance values given in Table NA.1 are exceeded over at least 50 % of the points on a reference plane 0.85 m above the floor, for at least half of the daylight hours.” The document makes clear that the reference plane (also referred to by the BRE as the *working plane*) should typically be 0.85m above the floor level, unless otherwise specified. Different room uses have different target daylighting values, but for Method 2 the illuminance values recommended to be achieved are:

Room Type	Target % Area of Reference Plane	Target % Available Daylight Hours	Target Illuminance (LUX) Value
Bedroom	50%	50%	100
Living Room	50%	50%	150
Kitchen	50%	50%	200

Table 1 – Values of target illuminance for room types in London (UK) dwellings

The BRE guidelines confirm that only one of the two daylight methods require consideration and submission, at the discretion of the assessor. Since adoption of the current guidelines, SDA (Method 2) has consistently been the preferred method for submission and has been considered acceptable by Local Planning Authorities.

However, the BRE Guidelines state that in relation to Specific recommendations for daylight provision in UK dwellings. *Appendix C: Interior daylighting* recommendations, paragraph C17 states that **“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. The kitchen space would still need to be included in the assessment area (Figures C4 and C5).”** Therefore, an alternative value of 150 Lux can be applied to Living/Kitchen/Dining rooms, considering the primary Living Room use rather than the secondary Kitchen use. This is similar to the accepted approach in relation to now superseded Average Daylight Factor (ADF) assessment, where 1.5% ADF was applied within high density inner-city locations, rather than 2% ADF.

To calculate the climate-based Illuminance Levels (IL) the data and reflectance values have been applied, and those inform the calculation assumptions which are specified in the following sections of this report.

Sunlight Principles: BS EN 17037:2018

In relation to sunlight, the new Sunlight Exposure assessment outlined in the BRE 2022 and BS EN 2018, is taken at the vertical plane of the window, and the following climate and location data standards for use in the tests, are set out in relation to the south of England.

Location	Geographical latitude	Opening normal measured from South		
		Minimum exposure to sunlight	Medium exposure to sunlight	Maximum exposure to sunlight
London (Gatwick)	51.15	1.5 h	3 h	4 h

Table 2 – Summary table for sunlight exposure targets for London, UK

Annex D.1 in the BS EN 17037:2018 states, *“Evaluation of exposure to sunlight consists of checking if the sun may be visible across the sky on the selected date, and to calculate the duration of the exposure in hours. Sunlight provision is essential for any interior space and depending on the function of the space, it is generally desirable, except during hot climatic conditions. ...”*

Sunlight exposure tests should be carried out for a selected test date in the year, which is recommended by the BS to be any date between 1st February and 21st March. The assessment should be carried out for each opening (window) serving the space, and a calculation point located at the centre of the window opening width, but a minimum of 1.2m above floor level (or 0.3m above sill level) should be used. The sun’s location in the sky, and path is tracked throughout the test day, taking into account neighbouring obstructions externally, to quantify how long the sun is exposed to the window reference point, on that selected date. The BS recommends minimum to maximum durations of time for sunlight exposure to occur, based on the geographic location of the window. These targets are summarised in the table above.

Internal

- A working plane of 850mm;
- Glazing transmission 0.68% clear clean double glazed;
- Maintenance factor 0.8;
- Glazing bar factor 0.9;
- Wall reflectance 0.85% white paint;
- Floor reflectance 0.4% wood light veneer; and
- Ceiling reflectance 0.85% white paint.

External

- Surrounding buildings - 0.3% (Brick);

4.0 Source Information

The assessment has been undertaken using the following information:

Existing Building and Surrounding Context:

- Bowman Riley Architect's drawings received 29 June 2022:
 - 8129(0000) 020_A_EXISTING SOUTH AND WEST ELEVATION
 - 8129(0000) 021_A_EXISTING NORTH AND EAST ELEVATION
 - 8129------(0000) 022_A_EXISTING PUBLIC HOUSE FLOOR PLANS
- 3D Mapping – AccuCities drawing reference: '002765_Hanworth Road,Whitton_HD_MASTER.dwg'
- Topographic Survey – ADS Surveys: 'ADS-0548 EL1.dwg' and 'ADS-0548 TP1.dwg'

Proposed Development: Bowman Riley Architect's drawings received 11 July 2024, file reference:

- 8651-BOW-A-01-DR-A-2500_B_Part First Floor Sketch Reconfigurations
- 8651-BOW-A1-01-DR-A-0012_A_Proposed Sketch North & East Elevation
- 8651-BOW-A1-01-DR-A-0013_A_Proposed Sketch South and West Elevations
- 8651-BOW-A1-01-DR-A-0014_A_Proposed Sketch Elevations

5.0 Assumptions

The glazing transmittance and internal/external reflectance in our calculations are based on default industry standards, unless otherwise stated. We have not undertaken internal inspections of neighbouring properties and where on-line plans are not available, the layouts adopted are based on reasonable assumptions.

6.0 Development Site

Amendment to planning approval reference: 21/0156/FUL for “Demolition of the existing structures and the erection on of two buildings, consisting of a retail unit and community centre at ground floor and 15 residential units above, parking and associated hard and soft landscaping.” Amendments to three first-floor dwellings to Block A..

The amended layouts are shown in Figure 3 below and in more detailed analysis drawing 220398/03/11, which can be found in Appendix A

7.0 Proposed Scheme

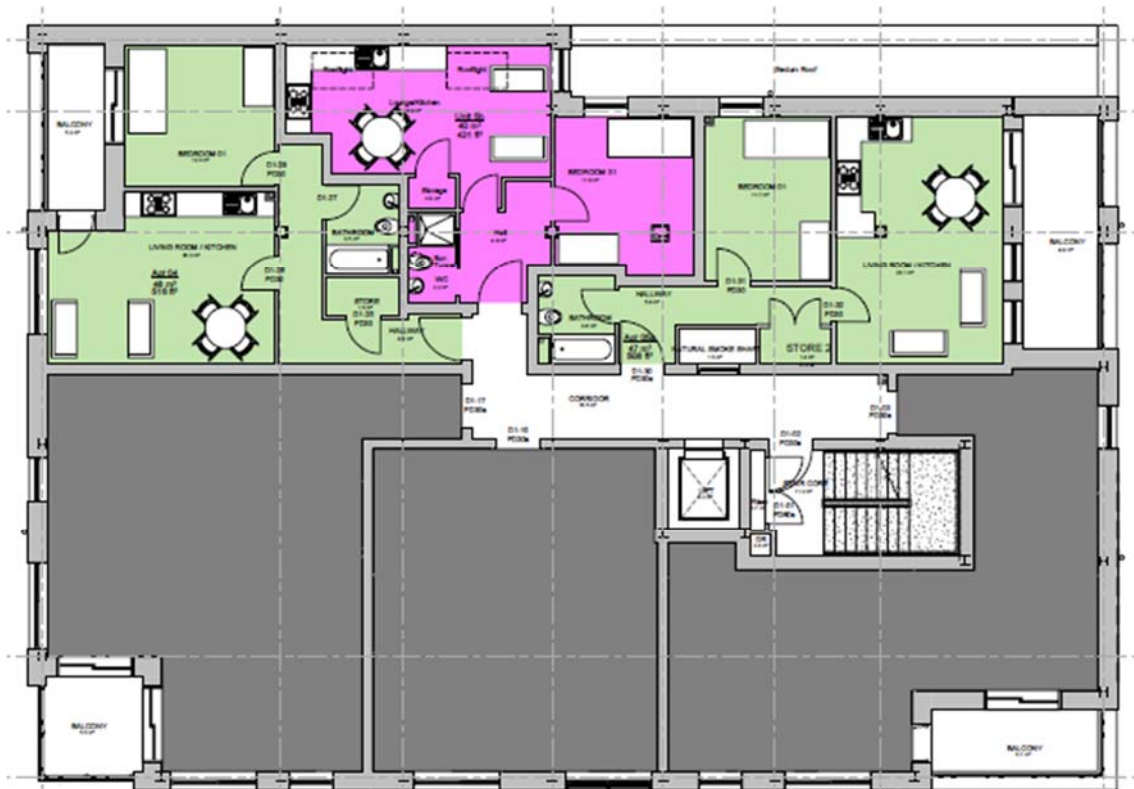


Figure 3: Proposed first floor plan: Bowman Riley (July 2024)



Figure 4: 3D computer model of the Proposed '672 Hanworth Road' in the current context: July 2024

8.0 Scope of Assessment

Internal Daylight and Sunlight

The BRE indicates by reference to BS EN 170037, the daylight and sunlight adequacy assessments required to determine whether new development provides 'adequate natural light' amenity for future occupants.

Amendments to the current planning consent reference: 21/0156/FUL, revise layouts to three first floor dwellings to 'Building A' and the proposed habitable rooms within these dwelling require assessment in accordance with the BRE Guidelines. These habitable rooms have been assessed by reference to the Spatial Daylight Autonomy (lux) daylight and Sunlight Exposure (SE) sunlight tests, reference the BRE Guideline 2022.

9.0 Assessment Results

Internal Daylight and Sunlight Assessment

TFT have undertaken a detailed technical assessment of the proposals and considered the potential light amenity received by the future occupants in accordance with the BRE Guidelines (2022), which references BS EN 17037:2018, applying the UK National Annex NA for internal daylight and sunlight assessments. In relation to daylight within the room, the method of assessment undertaken is the Illuminance Level (lux) (Method 2) within the room and Sunlight Exposure within the room.

The dwellings feature open plan living/kitchen/dining areas, whereby the main living rooms are located nearest to the main window wall, prioritise daylight to the main living rooms. Given their use, typically bedrooms are considered less important, whilst bathrooms and circulation spaces need not be considered.

The room Illuminance Level assessment determines the level of interior illumination (Lux) compared with the BRE Guidelines (2022). This recommends 200 (lx) for kitchens, 150 (lx) for living rooms and 100 (lx) for bedrooms to 50% of the room area, for 50% of the available daylight hours. However, the guidelines states that alternative targets can be set based on individual circumstances.

In relation to the sunlight, the Sunlight Exposure assessment parameters for minimum, medium and high exposure to south facing windows are referenced in Table NA.8. However, in special circumstances the designer or planning authority may wish to choose a different target value for hours of sunlight. If their risk of solar overheating needs to be borne in mind or in a particular development sunlight is deemed to be less important, a lower target value could be used.

All windows/rooms have been assessed for the Sunlight Exposure assessment regardless of orientation. Therefore, reasonable to expect that those windows oriented beyond 90° of due south will fall short of the criterion. Also, it should be noted that **it is sufficient for only one habitable room within a dwelling to achieve the minimum criteria**, therefore compliance for all rooms is not required.

Daylight

The table setting out the SDA (Lux) results to the habitable rooms assessed can be found by reference to Appendix B. The reference Lux contour plans are shown on drawings 220398/03/10 in Appendix B, a sample of which is shown in Figure 5, below.

A total of six habitable rooms have been assessed, comprising of three Living/Kitchen/Dining rooms and three bedrooms, at first floor.

The SDA (Lux) results indicate that all six rooms considered (**100%**) will exceed their respective room type criteria by virtue of achieving their specified illuminance level to 50% of the room area.



Figure 5: Lux Assessment Contour Diagram within the Proposed Dwellings

By reference to the daylight contour diagram on drawing 220398/03/10, the colour-coded daylight contour plan to these rooms indicates that these will enjoy excellent daylight levels to the main living area, where natural light is enjoyed throughout the day.

The proposals will provide new dwellings with excellent access to daylight and all dwellings should be considered to enjoy 'adequate natural light' and therefore should be considered acceptable.

Sunlight

Sunlight to the windows and the rooms to which they serve have been considered by virtue of the Sunlight Exposure (SE) test. All rooms have been assessed regardless of orientation; however, the target values relate to windows receiving sunlight from the south. Therefore, the windows orientated north or predominantly east or west facing do not have a realistic expectation of receiving these values and should be considered accordingly. The rooms are west and south facing to provide sunlight access to all units, minimising single aspect north-facing units as suggested by the BRE guidelines.

Of the six habitable rooms, three rooms orientated predominately north will be below guidance as reasonably expected. However, three of these rooms are to dwellings where at least one other room will meet the SE criteria, which is sufficient to satisfy the BRE Guidelines. Furthermore, these are the three main habitable rooms to the dwellings and therefore enjoyed throughout the daylight hours.

Therefore, the proposed development will achieve high sunlight levels, where the orientation of the fenestration dictates the sunlight values are reasonably achievable.

Therefore, overall, the proposed development will provide excellent access to daylight and sunlight to each of the dwellings.


10.0 Conclusions

These technical assessments have been undertaken in accordance with the methodology outlined in The Building Research Establishment Report "*Site Layout Planning for Daylight and Sunlight*" (2022). The BRE document is the principle guidance when considering daylight and sunlight. The BRE guidelines state that it is "*purely advisory and the numerical target values within it may be varied to meet the needs of the development and its location.*"

In relation to the daylight assessments within the Proposed Development, the analysis confirms that all rooms tested will exceed their respective room criteria, with high lux levels throughout, particularly to the main habitable areas. Where rooms meet their guidance criteria for sunlight, the dwellings achieving the high standards. Therefore, overall compliance within the Proposed Development should be considered excellent.

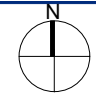
Planning policy suggests that "*local planning authorities should refuse applications which they consider fail to make efficient use of land...authorities should take a flexible approach in applying policies or guidance relating to daylight and sunlight, where they would otherwise inhibit making efficient use of a site (as long as the resulting scheme would provide acceptable living standards).*"

Overall, the potential for natural light within the Proposed Development will be excellent and in line with the design principles set out in BRE Guidelines. Therefore, the proposed Bowman Riley Architect's scheme will meet the aims of the BRE Guidelines and planning policy will be fully satisfied.



APPENDICES

APPENDIX A – 3D VIEW AS PROPOSED



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Sources of Information

IR01 - Existing Site Topographic Survey Drawing (ADS-0548 TP1.dwg)
 ADS Surveys
 Received 29/06/2022

IR01 - Proposed Scheme Drawings (8129-011_A_PROPOSED STREETSCAPES.dwg, 8129-000_A_PROPOSED SITE PLAN.dwg, 8129-003_A_PROPOSED ELEVATIONS.dwg, 8129-001_A_PROPOSED SOUTH AND WEST ELEVATIONS.dwg, 8129-002_A_PROPOSED NORTH AND EAST ELEVATIONS.dwg)
 8651-BOW-A-01-DR-A-2500 REV B (000)012, (000)006 REV Z, (000)008 REV Z
 Bowman Riley Architects
 Received 29/06/2022

IR02 - 3D Photogrammetric Survey Model (002765_Hanworth Road,Whitton_HD_MASTER.dwg)
 AccuCities
 Received 04/07/2022

Drawing Key

BUILDING KEY:
 SURROUNDING BUILDINGS
 TFT PROPOSED SCHEME

CLIENT:
 LINDEN HILL CAPITAL MANAGEMENT

PROJECT:
 672 HANWORTH ROAD,
 HOUNSLOW

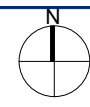
DRAWING TITLE:
 PROPOSED SCHEME 3D VIEW

DWN BY	CHK BY	DATE	SCALE	REV
MS	RN	JUL 2024	NTS	-
PROJ No.	REL No.	ADR No.	IS No.	DWG No.
220398	03	-	-	11



APPENDIX B – INTERNAL DAYLIGHT AND SUNLIGHT ADEQUACY RESULTS

FIRST FLOOR



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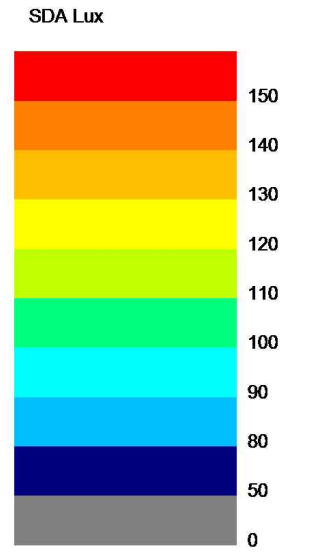
Sources of Information

IR01 - Existing Site Topographic Survey Drawing (ADS-0548 TP1.dwg)
 ADS Surveys
 Received 29/06/2022

IR01 - Proposed Scheme Drawings (8129-011_A_PROPOSED STREETSCAPES.dwg, 8129-000_A_PROPOSED SITE PLAN.dwg, 8129-003_A_PROPOSED ELEVATIONS.dwg, 8129-001_A_PROPOSED SOUTH AND WEST ELEVATIONS.dwg, 8129-002_A_PROPOSED NORTH AND EAST ELEVATIONS.dwg)
 8651-BOW-A-01-DR-A-2500 REV B (000)012, (000)006 REV Z, (000)008 REV Z
 Bowman Riley Architects
 Received 29/06/2022

IR02 - 3D Photogrammetric Survey Model (002765_Hanworth Road,Whitton_HD_MASTER.dwg)
 AccuCities
 Received 04/07/2022

Drawing Key



CLIENT:
 LINDEN HILL CAPITAL MANAGEMENT

PROJECT:
 672 HANWORTH ROAD,
 HOUNSLOW

DRAWING TITLE:
 SDA CONTOURS TO PROPOSED SCHEME

DWN BY	CHK BY	DATE	SCALE	REV
MS	RN	JUL 2024	1:100@A3	-
PROJ No.	REL No.	ADR No.	IS No.	DWG No.
220398	03	-	-	10



Project Name: 672 Hanworth Road
 Project No.: 220398
 Report Title: SDA BS En17037 Analysis - Proposed Scheme
 Date of Analysis: 11/07/2024

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	
PROPOSED SCHEME													
First	R1	Residential	LKD	20.27	14.95	337	14.95	100%	200	50%	50%	4380	YES
	R2	Residential	Bedroom	9.52	6.16	402	6.16	100%	100	50%	50%	4380	YES
	R3	Residential	LKD	18.17	12.89	331	9.85	76%	200	50%	50%	4380	YES
	R4	Residential	Bedroom	9.15	5.86	332	5.86	100%	100	50%	50%	4380	YES
	R5	Residential	Bedroom	10.67	6.87	284	6.87	100%	100	50%	50%	4380	YES
	R6	Residential	LKD	23.16	17.63	220	12.38	70%	200	50%	50%	4380	YES

Project Name: 672 Hanworth Road
 Project No.: 220398
 Report Title: Sunlight Exposure Analysis - Neighbour
 Date: 11/07/2024

Floor Ref	Room Ref	Property Type	Room Use	Window Ref	Window Orientation	Existing Sunlight Exposure (Hours)	Proposed Sunlight Exposure (Hours)	Rating
PROPOSED SCHEME								
First	R1	Residential	LKD	W1	300°N	-1	2.1	
				W2	30°N	-1	0	
						-1	2.1	Minimum
First	R2	Residential	Bedroom	W3	300°N	-1	0.4	
						-1	0.4	Below
First	R3	Residential	LKD	W4	90°	-1	3.4	
				W5	90°	-1	3.4	
				W6	120°	-1	1.5	
						-1	3.4	Medium
First	R4	Residential	Bedroom	W7	30°N	-1	0	
						-1	0	Below
First	R5	Residential	Bedroom	W8	30°N	-1	0	
						-1	0	Below
First	R6	Residential	LKD	W9	120°	-1	2.1	
				W10	120°	-1	1.7	
				W11	120°	-1	2.1	
						-1	2.1	Minimum

OUR SERVICE LINES



TECHNICAL DUE DILIGENCE



PROJECT MONITORING



SUSTAINABILITY



DILAPIDATIONS



PROJECT CONSULTANCY



COST CONSULTANCY



M+E CONSULTANCY



DEVELOPMENT CONSULTANCY



PRINCIPAL DESIGNER



INSURANCE ASSESSMENT



DISASTER RESPONSE



PARTY WALLS



EXPERT WITNESS



DESIGN



COMPLIANCE



RIGHTS OF LIGHT

OUR MARKET SECTORS



OFFICE



RETAIL



INDUSTRIAL



EDUCATION



LEISURE



HERITAGE



RESIDENTIAL



MIXED-USE