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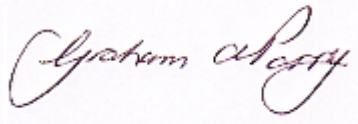
Eurospeak Build Limited

13 – 16 Market Place, Reading

Daylight and Sunlight Assessment

Status: Final

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CONTENTS

1. INTRODUCTION	4
2. THE NATURE AND EFFECT OF DAYLIGHT AND SUNLIGHT	5
3. ASSESSMENT CRITERIA	6
3.1. National Policy	6
3.2. The BRE Report	7
3.3. Daylight Assessment	8
3.4. Sunlight Assessment	9
4. DAYLIGHT IMPACT ASSESSMENT	11
4.1. Identification of Receptors	11
4.2. Vertical Sky Component (VSC)	11
5. SUNLIGHT IMPACT ASSESSMENT	22
5.1. Annual Probable Sunlight Hours	22
6. SELF TEST	31
7. CONCLUSION	44

LIST OF TABLES

Table 3.1: Summary criteria contained within the BRE Report	8
Table 4.1: Vertical Sky Component	11
Table 5.1: Annual Probable Sunlight Hours (APSH)	23
Table 6.1: Self Test Results	31

LIST OF APPENDICES

Appendix 1 Development Site Plan with Relevant Receptor	47
Appendix 2 Window Locations	49
Appendix 3 Daylight Contours	62
Appendix 4 The BRE Report	76

1. INTRODUCTION

ACCON UK Limited (ACCON) has been commissioned by Danks Badnell Architects Limited on behalf of Eurospeak Build Limited to undertake a daylight and sunlight assessment in respect of the proposed development at 13 – 16 Market Place, Reading. The assessment is required in order to determine if the proposed development will receive adequate light and whether the proposed development will have an impact on the daylight and sunlight received by neighbouring sensitive properties.

This is an updated report addressing those comments provided in the BRE review of daylight and sunlight assessment for 13 – 16 Market Place, Reading (Report number P126227-1000 Issue: 1, dated: 20 August 2023) forwarded by Reading Borough Council.

Appendix 1 provides a site location of the proposed development site with the locations of the potentially impacted buildings identified.

2. THE NATURE AND EFFECT OF DAYLIGHT AND SUNLIGHT

The provision of daylight is as important as ensuring low levels of noise or low levels of odour in maintaining the enjoyment of one's property. Adequate levels of daylight are important not only to light and heat the home, but also for an occupant's emotional well-being. Daylight is widely accepted to have a positive psychological effect on human beings and there is a great deal of evidence to suggest that people who are deprived of daylight are more susceptible to depression and mood swings. This is common in northern countries, such as Norway, Iceland and Canada where daylight is scarce during the winter months.

When assessing the effects of proposed building projects on the potential to cause issues relating to light, it is important to recognise the distinction between daylight and sunlight. Daylight is the combination of all direct and indirect sunlight during the daytime, whereas sunlight (for the purposes of this report) comprises only the direct elements of sunlight. For example, on a cloudy or overcast day diffused daylight still shines through windows, even when sunlight is absent.

Any development within a built-up area has the potential to alter the amount of daylight and direct sun received by nearby residential properties. Care should be taken when designing new buildings in built-up areas, especially when the proposed development is relatively tall or situated to the south of existing buildings, because in the northern hemisphere the majority of the sunlight comes from the south. In the UK (and other northern hemisphere countries) south-facing façades will, in general, receive most sunlight, while north-facing façades will receive sunlight on only a handful of occasions, specifically early-mornings and late evenings during the summer months.

It is therefore important to ensure that buildings to the south of any development do not cause overshadowing to existing dwellings and therefore reduce their capacity to receive sunlight.

3. ASSESSMENT CRITERIA

3.1. National Policy

The Department for Communities and Local Government (DCLG) sets national planning policy. The document 'The Planning System: General Principles' (2005), published in conjunction with 'Planning Policy Statement 1: Delivering Sustainable Development' (which has now been replaced by the National Planning Policy Framework), discusses the need to protect amenities in the public's interest, of which the need for daylight/sunlight could be considered one such amenity. However, the government does not have an adopted policy on daylight, sunlight and the effects of overshadowing, and does not have targets, criteria or relevant planning guidance in the way it has for other environmental impacts such as noise, landscape or air quality. However, three guidance documents are relevant when considering daylight, sunlight and overshadowing in dwellings:

- **The Building Research Establishment (BRE) report, “Site layout planning for daylight and sunlight – a guide to good practice – Third Edition 2022” by PJ Littlefair** (referred to as the BRE Report). Although not Government guidance, this report is commonly referenced as the main guide in the UK in determining the minimum standards of daylight and sunlight and identifies the assessment methodology for the impact trees may have on daylight and sunlight on a building;
- **British Standard BS EN 17037:2018 + A1:2021 Daylight in buildings.** BS EN 17037 supersedes the British Standard BS 8206-2:2008 “Lighting for buildings. Code of practice for daylighting”. It contains guidance on the minimum recommended levels of interior daylighting and introduces some of the calculation procedures used in the BRE Report;
- **The Code for Sustainable Homes – Technical Guidance.** The Code's Technical Guidance Document determines its target criteria for well-lit homes, building upon the calculation procedures within the BRE Report and BS 8206:2008. It should be noted that the daylight element of the Code is not mandatory, suggesting that the targets within the Code are desirable, but not an essential planning constraint.
- **Planning Practice Guidance – Effective use of land – How are daylight and sunlight regulated?** – This section of the PPG summarises the considerations in respect to making effective use of land, including planning for higher density development. Paragraph 006 – “How are daylight and sunlight regulated?” (Reference ID 66-006-20190722) in particular focuses on the levels of daylight and sunlight within proposed developments and how developments affect daylight and sunlight levels on neighbouring occupiers and states:

“Where a planning application is submitted, local planning authorities will need to consider whether the proposed development would have an unreasonable impact on the daylight and sunlight levels enjoyed by neighbouring occupiers, as well as assessing whether daylight and sunlight within the development itself will provide satisfactory living conditions for future occupants.

In some cases, properties benefit from a legal ‘right to light’, which is an easement that gives a landowner the right to receive light through specified openings, and can be used to prevent this from being obstructed without the owner’s consent. Such rights are not part of the planning system but may affect the scope for development on neighbouring sites.”

- **Planning Practice Guidance – Effective use of land – What are the wider planning consideration in assessing appropriate levels of sunlight and daylight?** – Paragraph 007 (Reference ID 66-007-20190722) in particular focuses on the context of the light levels of the development such as in city centre locations and states:

“All developments should maintain acceptable living standards. What this means in practice, in relation to assessing appropriate levels of sunlight and daylight, will depend to some extent on the context for the development as well as its detailed design. For example, in areas of high-density historic buildings, or city centre locations where tall modern buildings predominate, lower daylight and sunlight levels at some windows may be unavoidable if new developments are to be in keeping with general form of their surroundings.

In such situations good design (such as giving careful consideration to a building’s massing and layout of habitable rooms) will be necessary to help make the best use of the site and maintain acceptable living standards.”

3.2. The BRE Report: *Site layout planning for daylight and sunlight – a guide to good practice – Third Edition 2022*

The BRE Report contains guidance on how to design developments, whilst minimising the impacts on existing buildings from overshadowing and reduced levels of daylight and sunlight. As well as advice, the report contains a methodology to assess levels of daylight, sunlight and overshadowing, and contains criteria to determine the potential impacts of a new development on surrounding buildings. However, the report does state that the guidelines are not mandatory but should be considered a guide to help rather than constrain the designer.

The BRE document looks at three separate areas when considering the impacts on lighting:

- **Daylight** – i.e. the impacts of all direct and indirect sunlight during the daytime;
- **Sunlight** – i.e. the impacts of only the direct sunlight; and
- **Overshadowing of gardens and open spaces.**

Appendix 4 details the BRE Report, including the methodologies and full details of the criteria.

Table 3.1 summarises the criteria used to assess the impacts from new development on the daylight and sunlight reaching existing properties.

Table 3.1: Summary criteria contained within the BRE Report

Parameter	BRE Report Ref.	Criteria	Acceptability Criteria
Daylight	Section 2.2	Angle to sky from horizontal	Maximum 25°
		Vertical Sky Component (VSC)	Greater than 27%
	Appendix C	Daylight Factor (DF)	Greater than 0.7%-2.1%*
	Appendix D	Percentage of the Working Plane beyond the No-Sky Line (NSL)	20% or more of the room lies beyond the no sky line ⁺
Sunlight	Section 3.1	Sunlight Provision	Greater than 1.5 hours
	Section 3.2	Annual Probable Sunlight Hours (APSH) (Full Year)	Greater than 25% [†]
		Annual Probable Sunlight Hours (APSH) (Winter Months)	Greater than 5% [†]
Overshadowing	Section 3.3	Area of amenity space prevented from receiving any sun at all on the 21 st March	Maximum 40%

*= Varies depending on room use. See **Appendix 4** for full details.

+ = Whilst the BRE Report describes the methodology for determining the percentage of the Working Plane that can receive direct skylight, it does not give an acceptability criterion, only that supplementary electric lighting will be required if "20% or more of the room lies beyond the no sky line".

† = Applies only to main living rooms, not to bedrooms, kitchens or other non-habitable rooms.

3.3. Daylight Assessment

The assessment of daylight is required for windows serving rooms in adjoining dwellings where daylight is required, including living rooms, kitchens and bedrooms. Windows to bathrooms, toilets, storerooms, circulation areas and garages need not be assessed. The guidelines also apply to any room that may have a reasonable expectation of daylight, including schools, hospitals, hotels and some offices.

When assessing daylight, the numerical criteria must be viewed flexibly and should be considered against other site layout constraints. In addition, it is important to consider whether the existing building is itself a good neighbour, standing a reasonable distance from the boundary and not taking more than its fair share of light.

The assessment takes on several specific stages:

- 1) **The Distance Test:** loss of light to windows need not be analysed if the distance from the existing window to the development is three or more times its height above the centre of the existing window;

- 2) **The 25° Rule:** loss of light to windows need not be analysed if the angle to the horizontal subtended by the new development from the centre of the existing window is less than 25° (as an angle of 25° equates to a VSC of 27%);
- 3) **Daylight Assessment:** diffuse daylight of an existing building may be adversely affected by a proposed development if either:
 - a. the Vertical Sky Component (VSC) measured at the centre of an existing main window is less than 27%, **and** less than 0.8 times its former value; or
 - b. the area of the working plane which can receive direct skylight is reduced to less than 0.8 times its former value.

It should be noted that determining the area of the working plane which can receive direct light from the sky (which is often referred to as the No-Sky Line or NSL) is seen as an additional assessment, rather than as an alternative to VSC.

3.4. Sunlight Assessment

The assessment of sunlight is required for rooms in adjoining dwellings where sunlight is required. Generally, all main living rooms and conservatories should have access to direct sunlight. Kitchens and bedrooms are less important, although care should be taken not to block too much sun.

As with daylight, the numerical criteria for sunlight should be viewed flexibly and should be considered against other site layout constraints. It is important to understand that people like and appreciate sunlight and may resent the loss of sunlight, although it is not an essential requirement of a dwelling, unlike daylight availability or access to a quiet noise environment. Therefore, larger reductions in sunlight may be acceptable, for example if new development is to match the height and proportion of existing buildings nearby.

The assessment of sunlight at existing buildings takes on several specific stages:

1. **Facing South:** loss of sunlight to windows only needs to be assessed if the window faces within 90° of due south;
2. **The Distance Test:** loss of sunlight to windows need not be analysed if the distance from the existing window to the development is three or more times its height above the centre of the existing window;
3. **The 25° Rule:** loss of sunlight to windows need not be analysed if the angle to the horizontal subtended by the new development from the centre of the existing window is less than 25°;
4. **Sunlight Assessment:** direct sunlight of existing windows may be adversely affected by a proposed development if at the centre of a window:
 - a. It receives less than 25% of Annual Probable Sunlight Hours (APSH), or less than 5% APSH between 21st September and 21st March; **and**
 - b. it receives less than 0.8 times its former APSH during either period; **and**
 - c. it has a reduction in sunlight over the whole year of greater than 4% APSH.

The assessment of sunlight at Proposed buildings takes on several stages:

- 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.

4. DAYLIGHT IMPACT ASSESSMENT

This section summarises the daylight impacts of the proposed development on surrounding sensitive properties.

4.1. Identification of Receptors

The windows at existing residential properties have been assessed in accordance with the BRE 2022 guidance document, which states *‘the guidelines are intended for use with adjoining dwellings and any existing non-domestic buildings where occupants have a reasonable expectation of daylight; this would include schools, hospitals hotels workshops and offices... For dwellings this would include living rooms, dining rooms and kitchens. Bedrooms should also be analysed but are less important’*.

The assessment considers the following buildings detailed below and identified in **Appendix 1**:

- **Receptor 1:** Sussex House
- **Receptor 2:** 6 – 8 Soane Point with proposed two storey roof extension
- **Receptor 3:** 11 – 12 Market Place

The window reference numbers for the receptors are identified in **Appendix 2**.

4.2. Vertical Sky Component (VSC)

The Vertical Sky Component (VSC) has been calculated for the windows on receptors that will be affected by the proposed development. The 3D model was provided by Danks Badnell Architects Limited dated 31th October 2023 and includes the window locations and the internal layouts of the surrounding buildings.

The model also includes the proposed extension at 6 – 8 Soane Point to provide a worst case cumulative scenario at the existing buildings.

When undertaking a daylight assessment, the BRE Report suggests a VSC of 27% or more should be achieved if a room is to be adequately daylight. However, this level does not need to be applied to rooms which do not require high levels of natural light such as garages, storage rooms, hallways, etc.

The windows which do not meet one of the BRE guidelines levels are identified in **bold** in **Table 4.1**.

Table 4.1: Vertical Sky Component

Rec. No	Aspect	Floor	Window	VSC (%)		Ratio	Room Type
				Existing	Proposed		
R1	East	First	1	7.48	7.48	1.00	Bedroom
R1	East	First	2	10.02	10.02	1.00	
R1	East	First	3	12.67	12.67	1.00	Kitchen / Living Room
R1	East	First	4	14.27	14.27	1.00	
R1	East	First	5	15.37	15.33	1.00	
R1	East	First	6	15.92	15.67	0.98	

Rec. No	Aspect	Floor	Window	VSC (%)		Ratio	Room Type
				Existing	Proposed		
R1	East	First	7	15.96	15.44	0.97	Bedroom
R1	East	First	8	15.44	14.79	0.96	
R1	East	First	9	14.48	13.76	0.95	
R1	East	First	10	13.25	12.50	0.94	Kitchen / Living Room
R1	South	First	11	12.51	11.78	0.94	Kitchen / living Room
R1	South	First	12	17.81	16.66	0.94	
R1	South	First	13	19.69	18.25	0.93	Bedroom
R1	South	First	14	22.30	20.23	0.91	
R1	South	First	15	23.76	20.47	0.86	N/A
R1	South	First	16	24.68	20.33	0.82	Bedroom
R1	South	First	17	24.85	20.15	0.81	
R1	South	First	18	24.94	19.92	0.80	Bedroom
R1	South	First	19	24.96	19.63	0.79	
R1	East	Second	20	11.20	11.20	1.00	Bedroom
R1	East	Second	21	14.95	14.95	1.00	
R1	East	Second	22	18.03	18.03	1.00	Kitchen / Living Room
R1	East	Second	23	19.71	19.71	1.00	
R1	East	Second	24	20.56	20.54	1.00	
R1	East	Second	25	20.69	20.54	0.99	
R1	East	Second	26	20.16	19.82	0.98	Bedroom
R1	East	Second	27	18.95	18.55	0.98	
R1	East	Second	28	17.22	16.78	0.97	Kitchen / Living Room
R1	East	Second	29	15.14	14.70	0.97	
R1	South	Second	30	15.67	15.24	0.97	Kitchen / Living Room
R1	South	Second	31	23.89	23.26	0.97	
R1	South	Second	32	25.92	25.17	0.97	Bedroom
R1	South	Second	33	27.77	26.77	0.96	
R1	South	Second	34	27.99	26.03	0.93	N/A
R1	South	Second	35	28.24	25.45	0.90	Bedroom
R1	South	Second	36	28.23	25.14	0.89	
R1	South	Second	37	28.17	24.79	0.88	Bedroom
R1	South	Second	38	28.06	24.39	0.87	
R1	East	Third	39	19.21	19.21	1.00	Bedroom
R1	East	Third	40	26.14	26.01	1.00	
R1	East	Third	41	28.15	27.91	0.99	Kitchen / Living Room
R1	East	Third	42	28.34	28.06	0.99	
R1	East	Third	43	27.67	27.35	0.99	
R1	East	Third	44	26.66	26.32	0.99	
R1	East	Third	45	25.18	24.89	0.99	Bedroom
R1	East	Third	46	23.10	22.87	0.99	
R1	East	Third	47	20.26	20.07	0.99	Kitchen / Living Room
R1	East	Third	48	16.76	16.61	0.99	
R1	South	Third	49	19.41	19.27	0.99	Kitchen / Living Room
R1	South	Third	50	31.55	31.26	0.99	
R1	South	Third	51	32.21	31.82	0.99	Bedroom

Rec. No	Aspect	Floor	Window	VSC (%)		Ratio	Room Type
				Existing	Proposed		
R1	South	Third	52	32.46	31.96	0.98	
R1	South	Third	53	31.72	30.85	0.97	N/A
R1	South	Third	54	31.42	30.17	0.96	Bedroom
R1	South	Third	55	31.29	29.88	0.95	
R1	South	Third	56	31.13	29.56	0.95	Bedroom
R1	South	Third	57	30.95	29.20	0.94	
R2	North	First	58	25.58	21.86	0.85	Studio
R2	North	First	59	26.45	22.06	0.83	
R2	North	First	60	27.14	22.12	0.82	Bedroom
R2	North	First	61	27.46	22.24	0.81	Kitchen / Living Room
R2	North	First	62	27.37	22.17	0.81	
R2	North	First	63	27.14	22.07	0.81	Studio
R2	North	First	64	26.39	21.62	0.82	
R2	North	First	65	25.26	20.94	0.83	Studio
R2	North	First	66	23.62	19.80	0.84	
R2	North	First	67	21.64	18.33	0.85	Studio
R2	North	First	68	18.65	16.17	0.87	
R2	North	First	69	14.26	13.24	0.93	Studio
R2	North	First	70	9.77	9.62	0.98	
R2	East	First	71	12.12	12.10	1.00	Bedroom
R2	East	First	72	11.59	11.59	1.00	Studio
R2	East	First	73	10.06	10.06	1.00	
R2	North	Second	74	28.21	25.40	0.90	Studio
R2	North	Second	75	29.21	25.85	0.88	
R2	North	Second	76	29.93	26.10	0.87	Bedroom
R2	North	Second	77	30.30	26.38	0.87	Kitchen / Living Room
R2	North	Second	78	30.36	26.51	0.87	
R2	North	Second	79	30.12	26.39	0.88	Studio
R2	North	Second	80	29.70	26.23	0.88	
R2	North	Second	81	28.61	25.50	0.89	Studio
R2	North	Second	82	27.16	24.44	0.90	
R2	North	Second	83	25.31	22.97	0.91	Studio
R2	North	Second	84	22.49	20.71	0.92	
R2	North	Second	85	18.63	17.98	0.97	Studio
R2	North	Second	86	13.34	13.29	1.00	
R2	East	Second	87	14.00	14.00	1.00	Bedroom
R2	East	Second	88	13.75	13.75	1.00	Studio
R2	East	Second	89	12.01	12.01	1.00	
R2	North	Third	90	31.09	29.26	0.94	Studio
R2	North	Third	91	32.00	29.77	0.93	
R2	North	Third	92	32.70	30.18	0.92	Bedroom
R2	North	Third	93	33.10	30.59	0.92	Kitchen / Living Room
R2	North	Third	94	33.25	30.88	0.93	
R2	North	Third	95	33.32	31.12	0.93	Studio
R2	North	Third	96	33.05	31.06	0.94	

Rec. No	Aspect	Floor	Window	VSC (%)		Ratio	Room Type
				Existing	Proposed		
R2	North	Third	97	32.35	30.61	0.95	Studio
R2	North	Third	98	31.36	29.85	0.95	
R2	North	Third	99	30.07	28.76	0.96	Studio
R2	North	Third	100	28.01	26.99	0.96	
R2	North	Third	101	25.27	24.97	0.99	Studio
R2	North	Third	102	19.65	19.65	1.00	
R2	East	Third	103	16.69	16.69	1.00	Bedroom
R2	East	Third	104	17.22	17.22	1.00	Studio
R2	East	Third	105	15.16	15.16	1.00	
R2	North	Fourth	106	33.75	33.01	0.98	Studio
R2	North	Fourth	107	34.61	33.67	0.97	
R2	North	Fourth	108	35.20	34.15	0.97	Bedroom
R2	North	Fourth	109	35.58	34.55	0.97	Kitchen / Living Room
R2	North	Fourth	110	35.80	34.85	0.97	
R2	North	Fourth	111	36.00	35.13	0.98	Studio
R2	North	Fourth	112	36.08	35.33	0.98	
R2	North	Fourth	113	35.96	35.34	0.98	Studio
R2	North	Fourth	114	35.67	35.15	0.99	
R2	North	Fourth	115	35.39	34.98	0.99	Studio
R2	North	Fourth	116	34.58	34.25	0.99	
R2	North	Fourth	117	34.08	33.99	1.00	Studio
R2	North	Fourth	118	31.51	31.51	1.00	
R2	North	Fifth	119	36.18	36.18	1.00	Kitchen / Living Room
R2	North	Fifth	120	36.71	36.71	1.00	
R2	North	Fifth	121	37.02	37.02	1.00	Bedroom
R2	North	Fifth	122	37.34	37.34	1.00	
R2	North	Fifth	123	37.50	37.50	1.00	Kitchen / Living Room
R2	North	Fifth	124	37.66	37.66	1.00	
R2	North	Fifth	125	37.80	37.80	1.00	Bedroom
R2	North	Fifth	126	37.90	37.90	1.00	Bedroom
R2	North	Fifth	127	37.99	37.99	1.00	Kitchen / Living Room
R2	North	Fifth	128	38.07	38.07	1.00	
R2	North	Fifth	129	38.12	38.12	1.00	Bedroom
R2	North	Fifth	130	38.26	38.26	1.00	Bedroom
R2	North	Fifth	131	38.29	38.29	1.00	Kitchen / Living Room
R2	North	Sixth	132	38.02	38.02	1.00	Kitchen / Living Room
R2	North	Sixth	133	38.27	38.27	1.00	
R2	North	Sixth	134	38.37	38.37	1.00	Bedroom
R2	North	Sixth	135	38.49	38.49	1.00	
R2	North	Sixth	136	38.68	38.68	1.00	Kitchen / Living Room
R2	North	Sixth	137	38.63	38.63	1.00	
R2	North	Sixth	138	38.69	38.69	1.00	Bedroom
R2	North	Sixth	139	38.66	38.66	1.00	
R2	North	Sixth	140	38.87	38.87	1.00	Bedroom
R2	North	Sixth	141	38.89	38.89	1.00	Bedroom

Rec. No	Aspect	Floor	Window	VSC (%)		Ratio	Room Type
				Existing	Proposed		
R2	North	Sixth	142	38.91	38.91	1.00	
R2	North	Sixth	143	38.75	38.75	1.00	Kitchen / Living Room
R3	East	Ground	144	7.76	6.53	0.84	Kitchen / Living Room
R3	East	Ground	145	9.27	4.79	0.52	Bedroom
R3	East	Ground	146	12.60	5.35	0.42	Kitchen / Living Room (Shares window 148)
R3	East	Ground	147	9.69	3.78	0.39	Kitchen / Living Room
R3	Skylight	Ground	148	51.30	39.09	0.76	Kitchen / Living Room (Shares window 145)
R3	Skylight	Ground	149	51.95	43.90	0.85	Bedroom
R3	Skylight	Ground	150	65.68	55.46	0.84	Bedroom
R3	Skylight	Ground	151	73.39	57.12	0.78	N/A
R3	Skylight	Ground	152	77.59	51.54	0.66	N/A
R3	Skylight	Ground	153	73.58	60.42	0.82	N/A
R3	Skylight	Ground	154	77.61	53.23	0.69	Bedroom
R3	Skylight	Ground	155	74.35	60.58	0.81	Bedroom
R3	Skylight	Ground	156	75.29	54.21	0.72	Kitchen / Living Room
R3	Skylight	Ground	157	73.56	62.07	0.84	Kitchen / Living Room
R3	Skylight	Ground	158	68.91	60.65	0.88	N/A
R3	Skylight	Ground	159	50.08	44.95	0.90	N/A
R3	East	First	160	22.48	19.33	0.86	Kitchen / Living Room
R3	East	First	161	23.07	19.29	0.84	
R3	East	First	162	23.78	18.82	0.79	Kitchen / Living Room
R3	East	First	163	24.16	18.19	0.75	
R3	East	First	164	15.66	8.34	0.53	Bedroom
R3	East	Second	165	25.32	23.42	0.92	Kitchen / Living Room
R3	East	Second	166	25.92	23.58	0.91	
R3	East	Second	167	26.66	23.43	0.88	Kitchen / Living Room
R3	East	Second	168	27.07	23.00	0.85	
R3	East	Second	169	17.41	12.81	0.74	Bedroom
R3	East	Third	170	28.93	28.54	0.99	Kitchen / Living Room
R3	East	Third	171	31.83	31.08	0.98	Bedroom

Note: Room uses denoted with N/A are rooms which are considered to be non-habitable rooms.

It can be identified from **Table 4.1** that in respect of the daylight impact assessment 9 of the habitable windows assessed do not meet the BRE guideline Criteria of a ratio of at least 0.8. It should be noted that a number of the windows that do not meet the criteria are only marginally below the guideline level and for those windows they are not considered to be significantly impacted.

Whilst some windows fail, the rooms benefit from more than one window allowing an appropriate level of light into the rooms.

Windows 162 and 163 let into the same kitchen, although both of these windows fail but they are close to the 0.8 pass ratio and therefore the light levels in these rooms should not be adversely affected.

Window 146 does not meet the BRE Guideline; however, the window lets into the same room as skylight 148 which is marginally below the target values therefore this room will not be significantly adversely affected in respect to VSC.

Three of the windows that fail let into bedrooms and although sunlight in bedrooms is important it is not considered as important as light levels within Kitchen or Living rooms.

Window 147 is the most adversely affected window and lets into a Kitchen/Living room; however due to the location of the window in relation to the proposed development light levels would always be expected to be impacted.

4.3. Daylight Distribution

The Daylight Distribution has been calculated by plotting the no sky line in all of the habitable rooms at the existing buildings with the potential to be impacted by the proposed development.

The no sky line divides points on the working plane which can and cannot see the sky. The working plane is assumed to be horizontal and 0.85 m high. Areas beyond the no sky line, since they receive no direct daylight, usually look dark and gloomy compared with the rest of the room, however bright it is outside. Supplementary electric lighting will be needed if a significant part of the working plane (20% of the room or more) lies beyond the no sky line.

The daylight levels at the proposed development will be considered to be adversely affected if the working plane in a room which can receive direct skylight is reduced to less than 0.80 times its former value.

The results of the Daylight Distribution can be identified in **Table 4.2**. The daylight Distribution contours, and Room Reference No. can be identified in **Appendix 3**.

Table 4.2: Daylight Distribution Results

Rec. No	Room Ref	Floor	Existing Ratio	Proposed Ratio	Ratio Between Existing and Proposed	Room Use
B1	1	First	0.53	0.53	1.00	Bedroom
B1	2	First	0.98	0.98	1.00	Kitchen / Living Room
B1	3	First	1.00	1.00	1.00	Bedroom
B1	4	First	0.27	0.23	0.84	Kitchen / Living Room
B1	5	First	0.54	0.42	0.78	Kitchen / Living Room
B1	6	First	0.69	0.67	0.97	Bedroom
B1	7	First	0.56	0.54	0.97	N/A
B1	8	First	0.66	0.51	0.77	Bedroom
B1	9	First	0.78	0.55	0.71	Bedroom
B1	10	Second	0.62	0.62	1.00	Bedroom
B1	11	Second	1.00	1.00	1.00	Kitchen / Living Room
B1	12	Second	0.65	0.65	0.99	Bedroom
B1	13	Second	0.92	0.89	0.97	Kitchen / Living Room
B1	14	Second	0.84	0.83	0.99	Kitchen / Living Room
B1	15	Second	0.70	0.68	0.97	Bedroom
B1	16	Second	0.84	0.82	0.98	N/A
B1	17	Second	0.78	0.68	0.88	Bedroom
B1	18	Second	0.92	0.75	0.81	Bedroom
B1	19	Third	0.88	0.88	0.99	Bedroom

Rec. No	Room Ref	Floor	Existing Ratio	Proposed Ratio	Ratio Between Existing and Proposed	Room Use
B1	20	Third	1.00	1.00	1.00	Kitchen / Living Room
B1	21	Third	0.82	0.81	0.99	Bedroom
B1	22	Third	0.97	0.97	1.00	Kitchen / Living Room
B1	23	Third	0.88	0.88	1.00	Kitchen / Living Room
B1	24	Third	0.80	0.76	0.95	Bedroom
B1	25	Third	0.95	0.95	1.00	N/A
B1	26	Third	0.94	0.93	0.99	Bedroom
B1	27	Third	0.95	0.92	0.97	Bedroom
B2	28	First	0.98	0.96	0.98	Kitchen / living Room
B2	29	First	0.99	0.99	1.00	Bedroom
B2	30	First	0.97	0.97	1.00	Kitchen / Living Room
B2	31	First	0.99	0.99	1.00	Kitchen / Living Room
B2	32	First	0.91	0.91	1.00	Kitchen / Living Room
B2	33	First	0.99	0.99	1.00	Bedroom
B2	34	First	0.77	0.76	1.00	Kitchen / Living Room
B2	35	First	0.69	0.59	0.85	Bedroom
B2	36	First	0.65	0.65	0.99	Kitchen / Living Room
B2	37	First	0.82	0.82	1.00	Kitchen / Living Room
B2	38	First	0.88	0.88	1.00	Bedroom
B2	39	Second	0.98	0.98	1.00	Kitchen / living Room
B2	40	Second	0.99	0.99	1.00	Bedroom
B2	41	Second	0.97	0.97	1.00	Kitchen / Living Room
B2	42	Second	0.99	0.99	1.00	Kitchen / Living Room
B2	43	Second	0.92	0.92	1.00	Kitchen / Living Room
B2	44	Second	0.99	0.99	1.00	Bedroom
B2	45	Second	0.85	0.85	1.00	Kitchen / Living Room
B2	46	Second	0.73	0.73	1.00	Bedroom

Rec. No	Room Ref	Floor	Existing Ratio	Proposed Ratio	Ratio Between Existing and Proposed	Room Use
B2	47	Second	0.82	0.81	1.00	Kitchen / Living Room
B2	48	Second	0.86	0.86	1.00	Kitchen / Living Room
B2	49	Second	0.91	0.91	1.00	Bedroom
B2	50	Third	0.99	0.99	1.00	Kitchen / living Room
B2	51	Third	0.99	0.99	1.00	Bedroom
B2	52	Third	0.97	0.97	1.00	Kitchen / Living Room
B2	53	Third	0.99	0.99	1.00	Kitchen / Living Room
B2	54	Third	0.92	0.92	1.00	Kitchen / Living Room
B2	55	Third	0.99	0.99	1.00	Bedroom
B2	56	Third	0.99	0.99	1.00	Kitchen / Living Room
B2	57	Third	0.89	0.89	1.00	Bedroom
B2	58	Third	0.91	0.91	1.00	Kitchen / Living Room
B2	59	Third	0.94	0.94	1.00	Kitchen / Living Room
B2	60	Third	0.95	0.95	1.00	Bedroom
B2	61	Fourth	1.00	1.00	1.00	Kitchen / living Room
B2	62	Fourth	0.99	0.99	1.00	Bedroom
B2	63	Fourth	0.97	0.97	1.00	Kitchen / Living Room
B2	64	Fourth	0.99	0.99	1.00	Kitchen / Living Room
B2	65	Fourth	0.92	0.92	1.00	Kitchen / Living Room
B2	66	Fourth	0.99	0.99	1.00	Bedroom
B2	67	Fourth	0.99	0.99	1.00	Kitchen / Living Room
B2	68	Fourth	0.94	0.94	1.00	Bedroom
B2	69	Fourth	0.88	0.88	1.00	Kitchen / Living Room
B2	70	Fifth	1.00	1.00	1.00	Kitchen / Living Room
B2	71	Fifth	0.98	0.98	1.00	Bedroom
B2	72	Fifth	1.00	1.00	1.00	Kitchen / Living Room

Rec. No	Room Ref	Floor	Existing Ratio	Proposed Ratio	Ratio Between Existing and Proposed	Room Use
B2	73	Fifth	0.99	0.99	1.00	Bedroom
B2	74	Fifth	0.97	0.97	1.00	Bedroom
B2	75	Fifth	0.92	0.92	1.00	Kitchen / Living Room
B2	76	Fifth	0.97	0.97	1.00	Bedroom
B2	77	Fifth	0.96	0.96	1.00	Bedroom
B2	78	Fifth	0.89	0.89	1.00	Kitchen / Living Room
B2	79	Sixth	1.00	1.00	1.00	Kitchen / Living Room
B2	80	Sixth	1.00	1.00	1.00	Bedroom
B2	81	Sixth	0.98	0.98	1.00	Kitchen / Living Room
B2	82	Sixth	0.98	0.98	1.00	Bedroom
B2	83	Sixth	0.99	0.99	1.00	Bedroom
B2	84	Sixth	0.99	0.99	1.00	Bedroom
B2	85	Sixth	0.97	0.97	1.00	Kitchen / Living Room
B3	86	Ground	0.99	0.89	0.90	Kitchen / Living Room
B3	87	Ground	0.98	0.98	1.00	Kitchen / Living Room
B3	88	Ground	0.95	0.95	1.00	Bedroom
B3	89	Ground	0.97	0.72	0.74	Bedroom
B3	90	Ground	0.99	0.99	1.00	Bedroom
B3	91	Ground	0.94	0.13	0.14	Kitchen / Living Room
B3	92	Ground	0.88	0.88	1.00	Bedroom
B3	93	Ground	0.95	0.87	0.91	Kitchen / Living Room
B3	94	Ground	1.00	0.78	0.78	Bedroom
B3	95	Ground	0.25	0.21	0.85	Kitchen / Living Room
B3	96	First	0.98	0.98	1.00	Kitchen / Living Room
B3	97	First	0.93	0.92	0.99	Kitchen / Living Room
B3	98	First	0.68	0.35	0.51	Bedroom
B3	99	Second	0.99	0.99	1.00	Kitchen / Living Room
B3	100	Second	0.98	0.98	1.00	Kitchen / Living Room
B3	101	Second	0.70	0.56	0.80	Bedroom

Rec. No	Room Ref	Floor	Existing Ratio	Proposed Ratio	Ratio Between Existing and Proposed	Room Use
B3	102	Second	0.94	0.94	1.00	Kitchen / Living Room
B3	103	Second	1.00	1.00	1.00	Bedroom

It can be identified that 7 of the rooms do not meet the guideline values in respect of internal daylight distribution with the proposed development in place, 5 of the Rooms are bedrooms and although light levels are important in bedrooms it is not as important as in kitchens or living rooms.

Two of the rooms are Kitchen / Living Rooms which will be adversely affected.

5. SUNLIGHT IMPACT ASSESSMENT

This section summarises the sunlight impacts of the proposed development on surrounding properties.

5.1. Annual Probable Sunlight Hours

When designing a new development or an extension to an existing building, the impact on the amount of sunlight received in the living areas of residential properties must be assessed, as residents are particularly likely to notice a loss of sunlight entering their homes.

The BRE Report provides guidelines for when the obstruction to sunlight may become an issue;

- If the proposed development affects a window that faces within 90° of due south; and
- If in the section drawn perpendicular to this existing window wall, the new development subtends an angle greater than 25° to the horizontal measured from a point 2m above the ground.

The sunlight assessment uses the Sunlight Availability Indicators method as detailed within the BRE guidance.

Table 5.1 below details the results of the Annual Probable Sunlight Hours (APSH) calculations for all of the windows affected by the proposed development using the London latitude reference data, as given in the BRE guidance.

Below are the criteria required for a window to fail in respect of sunlight:

- a) It receives less than 25% of Annual Probable Sunlight Hours (APSH), or less than 5% APSH between 21st September and 21st March; **and**
- b) It receives less than 0.8 times its former APSH during either period; **and**
- c) It has a reduction in sunlight over the whole year of greater than 4% APSH.

Where the above test is not met then the results are shown in **bold** in **Table 5.1**.

Table 5.1: Annual Probable Sunlight Hours (APSH)

Rec. No	Aspect	Floor	Window	APSH Annual (%)		Ratio	APSH Winter (%)		Ratio	Room Use
				Existing	Proposed		Existing	Proposed		
B1	East	First	1	0.00	0.00	N/A	0.00	0.00	North	Bedroom
B1	East	First	2	0.00	0.00	N/A	0.00	0.00	North	
B1	East	First	3	0.00	0.00	N/A	0.00	0.00	North	Kitchen / Living Room
B1	East	First	4	2.00	2.00	N/A	0.00	0.00	North	
B1	East	First	5	10.00	9.00	N/A	0.00	0.00	North	
B1	East	First	6	15.00	15.00	N/A	0.00	0.00	North	
B1	East	First	7	22.00	22.00	N/A	0.00	0.00	North	
B1	East	First	8	25.00	25.00	N/A	0.00	0.00	North	Bedroom
B1	East	First	9	28.00	28.00	N/A	2.00	2.00	North	
B1	East	First	10	30.00	30.00	N/A	3.00	3.00	North	Kitchen / Living Room
B1	South	First	11	33.00	32.00	0.97	5.00	4.00	0.80	Kitchen / living Room
B1	South	First	12	40.00	38.00	0.95	5.00	3.00	0.60	
B1	South	First	13	45.00	43.00	0.96	6.00	4.00	0.67	Bedroom
B1	South	First	14	51.00	48.00	0.94	7.00	4.00	0.57	
B1	South	First	15	56.00	49.00	0.88	9.00	4.00	0.44	N/A
B1	South	First	16	62.00	53.00	0.85	12.00	5.00	0.42	Bedroom
B1	South	First	17	64.00	55.00	0.86	14.00	7.00	0.50	
B1	South	First	18	60.00	50.00	0.83	14.00	6.00	0.43	Bedroom
B1	South	First	19	56.00	47.00	0.84	11.00	4.00	0.36	
B1	East	Second	20	0.00	0.00	N/A	0.00	0.00	North	Bedroom
B1	East	Second	21	0.00	0.00	N/A	0.00	0.00	North	
B1	East	Second	22	6.00	6.00	N/A	0.00	0.00	North	Kitchen / Living Room
B1	East	Second	23	15.00	15.00	N/A	0.00	0.00	North	
B1	East	Second	24	23.00	23.00	N/A	0.00	0.00	North	
B1	East	Second	25	28.00	28.00	N/A	2.00	2.00	North	Bedroom
B1	East	Second	26	30.00	30.00	N/A	3.00	3.00	North	

Rec. No	Aspect	Floor	Window	APSH Annual (%)		Ratio	APSH Winter (%)		Ratio	Room Use
				Existing	Proposed		Existing	Proposed		
B1	East	Second	27	33.00	32.00	N/A	5.00	4.00	North	
B1	East	Second	28	34.00	33.00	N/A	6.00	5.00	North	Kitchen / Living Room
B1	East	Second	29	33.00	33.00	N/A	5.00	5.00	North	
B1	South	Second	30	35.00	35.00	1.00	7.00	7.00	1.00	Kitchen / Living Room
B1	South	Second	31	51.00	50.00	0.98	11.00	10.00	0.91	
B1	South	Second	32	61.00	60.00	0.98	14.00	13.00	0.93	Bedroom
B1	South	Second	33	67.00	65.00	0.97	15.00	13.00	0.87	
B1	South	Second	34	68.00	66.00	0.97	15.00	13.00	0.87	N/A
B1	South	Second	35	70.00	65.00	0.93	17.00	12.00	0.71	Bedroom
B1	South	Second	36	70.00	65.00	0.93	18.00	13.00	0.72	
B1	South	Second	37	68.00	62.00	0.91	17.00	11.00	0.65	Bedroom
B1	South	Second	38	69.00	62.00	0.90	18.00	11.00	0.61	
B1	East	Third	39	3.00	3.00	N/A	0.00	0.00	North	Bedroom
B1	East	Third	40	26.00	26.00	N/A	0.00	0.00	North	
B1	East	Third	41	34.00	33.00	N/A	4.00	4.00	North	Kitchen / Living Room
B1	East	Third	42	37.00	35.00	N/A	7.00	6.00	North	
B1	East	Third	43	37.00	35.00	N/A	7.00	6.00	North	
B1	East	Third	44	37.00	35.00	N/A	7.00	6.00	North	
B1	East	Third	45	37.00	36.00	N/A	7.00	6.00	North	Bedroom
B1	East	Third	46	38.00	37.00	N/A	8.00	7.00	North	
B1	East	Third	47	40.00	39.00	N/A	10.00	9.00	North	Kitchen / Living Room
B1	East	Third	48	39.00	39.00	N/A	10.00	10.00	North	
B1	South	Third	49	44.00	44.00	1.00	11.00	11.00	1.00	Kitchen / Living Room
B1	South	Third	50	78.00	78.00	1.00	22.00	22.00	1.00	
B1	South	Third	51	79.00	79.00	1.00	22.00	22.00	1.00	Bedroom
B1	South	Third	52	78.00	78.00	1.00	22.00	22.00	1.00	
B1	South	Third	53	77.00	75.00	0.97	22.00	20.00	0.91	N/A
B1	South	Third	54	78.00	77.00	0.99	23.00	22.00	0.96	Bedroom

Rec. No	Aspect	Floor	Window	APSH Annual (%)		Ratio	APSH Winter (%)		Ratio	Room Use
				Existing	Proposed		Existing	Proposed		
B1	South	Third	55	77.00	75.00	0.97	23.00	21.00	0.91	Bedroom
B1	South	Third	56	77.00	75.00	0.97	23.00	21.00	0.91	
B1	South	Third	57	77.00	75.00	0.97	23.00	21.00	0.91	
B2	North	First	58	2.00	2.00	N/A	0.00	0.00	N/A	Studio
B2	North	First	59	2.00	2.00	N/A	0.00	0.00	N/A	
B2	North	First	60	2.00	2.00	N/A	0.00	0.00	N/A	Bedroom
B2	North	First	61	2.00	2.00	N/A	0.00	0.00	N/A	
B2	North	First	62	3.00	3.00	N/A	0.00	0.00	N/A	Kitchen / Living Room
B2	North	First	63	3.00	3.00	N/A	0.00	0.00	N/A	
B2	North	First	64	2.00	2.00	N/A	0.00	0.00	N/A	Studio
B2	North	First	65	1.00	1.00	N/A	0.00	0.00	N/A	
B2	North	First	66	0.00	0.00	N/A	0.00	0.00	N/A	Studio
B2	North	First	67	0.00	0.00	N/A	0.00	0.00	N/A	
B2	North	First	68	0.00	0.00	N/A	0.00	0.00	N/A	Studio
B2	North	First	69	0.00	0.00	N/A	0.00	0.00	N/A	
B2	North	First	70	0.00	0.00	N/A	0.00	0.00	N/A	Studio
B2	East	First	71	1.00	1.00	N/A	0.00	0.00	N/A	
B2	East	First	72	3.00	3.00	N/A	0.00	0.00	N/A	Bedroom
B2	East	First	73	4.00	4.00	N/A	0.00	0.00	N/A	
B2	North	Second	74	4.00	4.00	N/A	0.00	0.00	N/A	Studio
B2	North	Second	75	4.00	4.00	N/A	0.00	0.00	N/A	
B2	North	Second	76	4.00	4.00	N/A	0.00	0.00	N/A	Bedroom
B2	North	Second	77	5.00	5.00	N/A	0.00	0.00	N/A	
B2	North	Second	78	4.00	4.00	N/A	0.00	0.00	N/A	Kitchen / Living Room
B2	North	Second	79	4.00	4.00	N/A	0.00	0.00	N/A	
B2	North	Second	80	3.00	3.00	N/A	0.00	0.00	N/A	Studio
B2	North	Second	81	1.00	1.00	N/A	0.00	0.00	N/A	
B2	North	Second	82	0.00	0.00	N/A	0.00	0.00	N/A	Studio
B2	North	Second								

Rec. No	Aspect	Floor	Window	APSH Annual (%)		Ratio	APSH Winter (%)		Ratio	Room Use
				Existing	Proposed		Existing	Proposed		
B2	North	Second	83	0.00	0.00	N/A	0.00	0.00	N/A	Studio
B2	North	Second	84	0.00	0.00	N/A	0.00	0.00	N/A	
B2	North	Second	85	0.00	0.00	N/A	0.00	0.00	N/A	Studio
B2	North	Second	86	0.00	0.00	N/A	0.00	0.00	N/A	
B2	East	Second	87	2.00	2.00	N/A	0.00	0.00	N/A	Bedroom
B2	East	Second	88	3.00	3.00	N/A	0.00	0.00	N/A	Studio
B2	East	Third	89	7.00	7.00	N/A	0.00	0.00	N/A	
B2	North	Third	90	7.00	7.00	N/A	0.00	0.00	N/A	Studio
B2	North	Third	91	7.00	7.00	N/A	0.00	0.00	N/A	
B2	North	Third	92	6.00	6.00	N/A	0.00	0.00	N/A	Bedroom
B2	North	Third	93	7.00	7.00	N/A	0.00	0.00	N/A	Kitchen / Living Room
B2	North	Third	94	6.00	6.00	N/A	0.00	0.00	N/A	
B2	North	Third	95	6.00	6.00	N/A	0.00	0.00	N/A	Studio
B2	North	Third	96	5.00	5.00	N/A	0.00	0.00	N/A	
B2	North	Third	97	4.00	4.00	N/A	0.00	0.00	N/A	Studio
B2	North	Third	98	3.00	3.00	N/A	0.00	0.00	N/A	
B2	North	Third	99	1.00	1.00	N/A	0.00	0.00	N/A	Studio
B2	North	Third	100	1.00	1.00	N/A	0.00	0.00	N/A	
B2	North	Third	101	1.00	1.00	N/A	0.00	0.00	N/A	Studio
B2	North	Third	102	3.00	3.00	N/A	0.00	0.00	N/A	
B2	East	Third	103	4.00	4.00	N/A	0.00	0.00	N/A	Bedroom
B2	East	Third	104	11.00	11.00	N/A	0.00	0.00	N/A	Studio
B2	East	Fourth	105	8.00	8.00	N/A	0.00	0.00	N/A	
B2	North	Fourth	106	8.00	8.00	N/A	0.00	0.00	N/A	Studio
B2	North	Fourth	107	8.00	8.00	N/A	0.00	0.00	N/A	
B2	North	Fourth	108	8.00	8.00	N/A	0.00	0.00	N/A	Bedroom
B2	North	Fourth	109	9.00	9.00	N/A	0.00	0.00	N/A	Kitchen / Living Room
B2	North	Fourth	110	9.00	9.00	N/A	0.00	0.00	N/A	

Rec. No	Aspect	Floor	Window	APSH Annual (%)		Ratio	APSH Winter (%)		Ratio	Room Use
				Existing	Proposed		Existing	Proposed		
B2	North	Fourth	111	9.00	9.00	N/A	0.00	0.00	N/A	Studio
B2	North	Fourth	112	10.00	10.00	N/A	0.00	0.00	N/A	
B2	North	Fourth	113	10.00	10.00	N/A	0.00	0.00	N/A	Studio
B2	North	Fourth	114	10.00	10.00	N/A	0.00	0.00	N/A	
B2	North	Fourth	115	9.00	9.00	N/A	0.00	0.00	N/A	Studio
B2	North	Fourth	116	8.00	8.00	N/A	0.00	0.00	N/A	
B2	North	Fourth	117	3.00	3.00	N/A	0.00	0.00	N/A	Studio
B2	North	Fifth	118	8.00	8.00	N/A	0.00	0.00	N/A	
B2	North	Fifth	119	8.00	8.00	N/A	0.00	0.00	N/A	Kitchen / Living Room
B2	North	Fifth	120	8.00	8.00	N/A	0.00	0.00	N/A	
B2	North	Fifth	121	9.00	9.00	N/A	0.00	0.00	N/A	
B2	North	Fifth	122	10.00	10.00	N/A	0.00	0.00	N/A	Bedroom
B2	North	Fifth	123	11.00	11.00	N/A	0.00	0.00	N/A	Kitchen / Living Room
B2	North	Fifth	124	11.00	11.00	N/A	0.00	0.00	N/A	
B2	North	Fifth	125	11.00	11.00	N/A	0.00	0.00	N/A	Bedroom
B2	North	Fifth	126	11.00	11.00	N/A	0.00	0.00	N/A	Bedroom
B2	North	Fifth	127	11.00	11.00	N/A	0.00	0.00	N/A	Kitchen / Living Room
B2	North	Fifth	128	11.00	11.00	N/A	0.00	0.00	N/A	
B2	North	Fifth	129	11.00	11.00	N/A	0.00	0.00	N/A	Bedroom
B2	North	Fifth	130	11.00	11.00	N/A	0.00	0.00	N/A	Bedroom
B2	North	Fifth	131	38.00	38.00	1.00	3.00	3.00	1.00	Kitchen / Living Room
B2	North	Sixth	132	9.00	9.00	N/A	0.00	0.00	N/A	Kitchen / Living Room
B2	North	Sixth	133	10.00	10.00	N/A	0.00	0.00	N/A	
B2	North	Sixth	134	11.00	11.00	N/A	0.00	0.00	N/A	
B2	North	Sixth	135	11.00	11.00	N/A	0.00	0.00	N/A	Bedroom
B2	North	Sixth	136	11.00	11.00	N/A	0.00	0.00	N/A	
B2	North	Sixth	137	11.00	11.00	N/A	0.00	0.00	N/A	

Rec. No	Aspect	Floor	Window	APSH Annual (%)		Ratio	APSH Winter (%)		Ratio	Room Use
				Existing	Proposed		Existing	Proposed		
B2	North	Sixth	138	11.00	11.00	N/A	0.00	0.00	N/A	Kitchen / Living Room
B2	North	Sixth	139	11.00	11.00	N/A	0.00	0.00	N/A	Bedroom
B2	North	Sixth	140	11.00	11.00	N/A	0.00	0.00	N/A	Bedroom
B2	North	Sixth	141	11.00	11.00	N/A	0.00	0.00	N/A	Bedroom
B2	North	Sixth	142	11.00	11.00	N/A	0.00	0.00	N/A	
B2	North	Sixth	143	11.00	11.00	N/A	0.00	0.00	N/A	Kitchen / Living Room
B3	East	Ground	144	1.00	1.00	N/A	0.00	0.00	N/A	Kitchen / Living Room
B3	East	Ground	145	0.00	0.00	N/A	0.00	0.00	N/A	Bedroom
B3	East	Ground	146	0.00	0.00	N/A	0.00	0.00	N/A	Kitchen / Living Room (Shares window 148)
B3	East	Ground	147	2.00	0.00	N/A	0.00	0.00	N/A	Kitchen / Living Room
B3	Skylight	Ground	148	20.00	20.00	1.00	0.00	0.00	1.00	Kitchen / Living Room (Shares window 145)
B3	Skylight	Ground	149	15.00	15.00	1.00	0.00	0.00	1.00	Bedroom
B3	Skylight	Ground	150	22.00	22.00	1.00	0.00	0.00	1.00	Bedroom
B3	Skylight	Ground	151	30.00	29.00	0.97	0.00	0.00	1.00	N/A
B3	Skylight	Ground	152	42.00	40.00	0.95	0.00	0.00	1.00	N/A
B3	Skylight	Ground	153	26.00	25.00	0.96	0.00	0.00	1.00	N/A
B3	Skylight	Ground	154	41.00	38.00	0.93	1.00	1.00	1.00	Bedroom
B3	Skylight	Ground	155	29.00	28.00	0.97	0.00	0.00	1.00	Bedroom
B3	Skylight	Ground	156	48.00	44.00	0.92	2.00	2.00	1.00	Kitchen / Living Room
B3	Skylight	Ground	157	35.00	34.00	0.97	0.00	0.00	1.00	Kitchen / Living Room

Rec. No	Aspect	Floor	Window	APSH Annual (%)		Ratio	APSH Winter (%)		Ratio	Room Use
				Existing	Proposed		Existing	Proposed		
B3	Skylight	Ground	158	16.00	16.00	1.00	0.00	0.00	1.00	N/A
B3	Skylight	Ground	159	11.00	11.00	1.00	0.00	0.00	1.00	N/A
B3	East	First	160	11.00	11.00	N/A	0.00	0.00	N/A	Kitchen / Living Room
B3	East	First	161	13.00	13.00	N/A	0.00	0.00	N/A	
B3	East	First	162	19.00	19.00	N/A	0.00	0.00	N/A	Kitchen / Living Room
B3	East	First	163	21.00	21.00	N/A	0.00	0.00	N/A	
B3	East	First	164	2.00	2.00	N/A	0.00	0.00	N/A	Bedroom
B3	East	Second	165	19.00	19.00	N/A	0.00	0.00	N/A	Kitchen / Living Room
B3	East	Second	166	22.00	22.00	N/A	0.00	0.00	N/A	
B3	East	Second	167	25.00	25.00	N/A	0.00	0.00	N/A	Kitchen / Living Room
B3	East	Second	168	26.00	26.00	N/A	0.00	0.00	N/A	
B3	East	Second	169	3.00	3.00	N/A	0.00	0.00	N/A	Bedroom
B3	East	Third	170	28.00	28.00	N/A	0.00	0.00	N/A	Kitchen / Living Room
B3	East	Third	171	32.00	32.00	N/A	0.00	0.00	N/A	Bedroom

Note - Values denoted with N/A are windows that do not face within 90° of south and therefore are not valid for a sunlight assessment.

It can be identified from **Table 5.1** that of those windows that are within 90° of due south, all of the windows meet the guideline value for the annual APSH, however of the windows that let in to habitable rooms, 1 does not achieve the guideline value for the winter APSH (Window 19), however window 18 lets in to the same room and is not adversely impacted and therefore this room should receive adequate levels of sunlight in the winter.

6. SELF TEST

For the proposed development, a self-test has been undertaken to determine whether all the habitable rooms in the new residential property would receive sufficient levels of daylight and sunlight for the future inhabitants.

Table 6.1 identifies the daylight levels for the windows of the proposed development. The windows that do not meet the BRE criteria are identified in **bold**.

Table 6.2 identifies the sunlight levels received by each room of the proposed development.

A separate scenario with the proposed 2 - storey extension at 6 – 8 Soane Point has also been included within the self-test calculations and is identified in **Table 6.1 and Table 6.2**.

Table 6.1: Self Test VSC Results

Floor	Window	Aspect	No Extension 6 – 8 Soane Point	With Extension of 6 – 8 Soane Point	Room Type
			VSC (%)	VSC (%)	
Ground	173	North	19.31	19.31	Class E use
First	174	South	15.16	10.78	Bedroom
First	175	South	15.25	9.99	Bedroom
First	176	South	19.62	12.91	Bedroom
First	177	South	16.18	9.46	Kitchen/Living Room
First	178	South	20.85	14.39	Bedroom
First	179	South	18.69	12.72	Kitchen/Living Room
First	180	East	8.11	8.11	
First	181	East	6.64	6.64	
First	182	East	6.15	6.15	Bedroom
First	183	North	25.10	25.10	Stairwell
First	184	West	10.37	10.37	Kitchen/Living Room
First	185	West	16.22	16.22	Bedroom
First	186	East	11.04	11.04	Stairwell
First	187	North	13.56	13.56	
First	188	East	14.44	14.44	Hallway
First	189	East	17.54	17.54	Toilet
First	190	East	7.18	7.18	Bedroom
First	250	North	25.13	25.13	Bedroom
First	251	North	24.17	24.17	Kitchen / Living Room
Second	191	South	18.62	13.73	Bedroom
Second	192	South	19.17	13.18	Bedroom
Second	193	South	24.48	16.60	Bedroom
Second	194	South	20.86	12.96	Kitchen/Living Room
Second	195	South	25.21	17.62	Bedroom
Second	196	South	21.11	13.95	Kitchen/living room
Second	197	East	10.62	10.62	
Second	198	East	9.13	9.13	
Second	199	East	8.63	8.63	Bedroom
Second	200	North	28.77	28.77	Stairwell

Floor	Window	Aspect	No Extension 6 – 8 Soane Point	With Extension of 6 – 8 Soane Point	Room Type
			VSC (%)	VSC (%)	
Second	201	West	20.45	20.45	Kitchen/Living Room
Second	202	West	22.96	22.96	Bedroom
Second	203	East	14.80	14.80	Stairwell
Second	204	North	23.06	23.06	
Second	205	East	19.87	19.87	Hallway
Second	206	East	23.50	23.50	Toilet
Second	207	East	18.83	18.83	Bedroom
Second	208	East	20.85	20.85	
Second	209	East	17.12	17.12	
Second	252	North	28.49	28.49	Bedroom
Second	253	North	29.66	29.66	Kitchen/Living Room
Third	210	South	26.20	20.91	Bedroom
Third	211	South	25.37	19.04	Bedroom
Third	212	South	30.30	21.82	Bedroom
Third	213	South	30.67	22.10	Kitchen/Living Room
Third	214	South	29.91	21.67	Bedroom
Third	215	South	29.77	22.01	Kitchen/Living Room
Third	216	East	14.39	14.39	
Third	217	East	13.02	13.02	
Third	218	East	12.59	12.59	Bedroom
Third	219	North	31.49	31.49	Stairwell
Third	220	West	32.67	32.67	Kitchen/Living Room
Third	221	West	30.64	30.64	Bedroom
Third	222	East	27.46	27.46	Bedroom
Third	223	East	27.57	27.45	Bedroom
Third	254	North	31.94	31.94	Bedroom
Third	255	North	34.35	34.35	Kitchen / Living Room
Fourth	224	South	34.68	26.66	Bedroom
Fourth	225	South	34.51	26.40	Kitchen/Living Room
Fourth	226	South	34.14	26.33	Bedroom
Fourth	227	South	33.80	26.51	Kitchen/Living Room
Fourth	228	East	20.81	20.81	
Fourth	229	East	19.77	19.77	
Fourth	230	East	19.54	19.54	Bedroom
Fourth	231	North	34.50	34.50	Stairwell
Fourth	256	North	38.15	38.15	Bedroom
First	232	West	26.05	26.05	Kitchen/Living Room
First	233	West	29.35	29.35	
First	234	West	25.28	25.28	
First	235	West	30.38	30.38	Kitchen/Living Room
First	236	West	30.45	30.45	
First	237	West	27.52	27.52	Bedroom
First	238	West	30.44	30.44	
First	239	West	26.55	26.55	

Floor	Window	Aspect	No Extension 6 – 8 Soane Point	With Extension of 6 – 8 Soane Point	Room Type
			VSC (%)	VSC (%)	
Second	240	West	29.76	35.48	Kitchen/Living Room
Second	241	West	32.15	32.15	
Second	242	West	29.05	29.05	
Second	243	West	26.97	26.97	Kitchen/Living Room
Second	244	West	28.88	28.88	
Second	245	West	29.79	29.79	Bedroom
Second	246	West	32.73	32.73	
Second	247	West	29.97	29.97	
Third	248	West	88.23	88.23	Bedroom
Third	249	West	87.18	87.18	Bedroom

It can be identified from **Table 6.1** that only 53% of the windows assessed in the self-test, without the extension to 6 – 8 Soane Point, meet the BRE criteria for daylight. Of the 76 windows assessed, 64 of these windows let into habitable rooms. Fifteen of the rooms assessed were kitchen/living rooms and of these fifteen rooms eight meet the BRE criteria for at least one window letting into these rooms.

Windows 227, 228 and 229 all let into the same kitchen/living room and although windows 228 and 229 fail in respect to daylight, window 227 passes and the room will therefore receive adequate daylight.

Furthermore, 19 of the windows which let into bedrooms do not meet the requirements for daylight, although it is less important that bedrooms receive adequate daylight levels compared to kitchen and living rooms.

The proposed 2 - storey extension of 6 – 8 Soane Point (Receptor 4), as identified in **Appendix 2**, will cause a decrease in daylight and sunlight on all the windows on the south façade of the proposed building.

The proposed extension of 6 – 8 Soane Point will result in eight of the windows to fail in respect to daylight where they previously passed without the proposed extension to 6 – 8 Soane Point (windows, 212, 213, 214, 224, 225, 226, 227).

6.1.1. Sunlight Provision

When designing a new development or an extension to an existing building, the impact on the amount of sunlight received in the living areas of residential properties must be assessed, as residents are particularly likely to notice a loss of sunlight entering their homes.

The BRE Report provides guidelines for when the obstruction to sunlight may become an issue;

- 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.

The results of the sunlight provisions assessment can be identified in **Table 6.2**.

Table 6.2: Proposed Building Sunlight Provision

Room Ref.	Window	Floor	Sunlight Provision (Hours)				Room Use
			No Extension 6 – 8 Soane Point	Meets BRE Criteria	With Extension of 6 – 8 Soane Point	Meets BRE Criteria	
1.0	179	First	5.5	Yes	2.3	Yes	Kitchen/Living Room
	180		1.5		1.3		
	181		1.5		1.5		
Total Sunlight Provision			5.5		3.0		
1.1	172	First	1.5	Yes	1.5	Yes	Bedroom
	250		0.0		0.0		
Total Sunlight Provision			1.5		1.5		
1.2	178	First	5.3	Yes	1.9	Yes	Bedroom
Total Sunlight Provision			5.3		1.9		
2.0	177	First	5.1	Yes	1.1	No	Kitchen/Living Room
Total Sunlight Provision			5.1		1.1		
2.1	176	First	4.8	Yes	0.6	No	Bedroom
Total Sunlight Provision			4.8		0.6		

Room Ref.	Window	Floor	Sunlight Provision (Hours)				Room Use
			No Extension 6 – 8 Soane Point	Meets BRE Criteria	With Extension of 6 – 8 Soane Point	Meets BRE Criteria	
3.0	184	First	0.6	No	0.6	No	Kitchen/Living Room
	251		0.0		0.0		
	Total Sunlight Provision		0.6		0.6		
3.1	185	First	0.0	No	0.0	No	Bedroom
Total Sunlight Provision		0.0	0.0				
3.2	174	First	3.4	Yes	0.6	No	Bedroom
Total Sunlight Provision		3.4	0.6				
3.3	175	First	3.7	Yes	1.0	No	Bedroom
Total Sunlight Provision		3.7	1.0				
4.0	197	Second	1.7	Yes	1.7	Yes	Kitchen/Living Room
	198		1.7		1.7		
	196		6.5		6.2		
Total Sunlight Provision		6.5		6.5			
4.1	199	Second	1.7	Yes	1.7	Yes	Bedroom
	252		0.0		0.0		
	Total Sunlight Provision		1.7		1.7		
4.2	195	Second	6.4	Yes	5.8	Yes	Bedroom
Total Sunlight Provision		6.4	5.8				
5.0	194	Second	6.0	Yes	4.6	Yes	Kitchen/Living Room
Total Sunlight Provision		6.0	4.6				
5.1	193	Second	5.6	Yes	3.5	Yes	Bedroom
Total Sunlight Provision		5.6	3.5				
5.2	192	Second	4.1	Yes	4.1	Yes	Bedroom

Room Ref.	Window	Floor	Sunlight Provision (Hours)				Room Use
			No Extension 6 – 8 Soane Point	Meets BRE Criteria	With Extension of 6 – 8 Soane Point	Meets BRE Criteria	
Total Sunlight Provision			4.1		4.1		
6.0	201	Second	4.2	Yes	4.2	Yes	Kitchen/Living Room
	253		0.0		0.0		
	Total Sunlight Provision		4.2		4.2		
6.1	202	Second	0.4	No	0.4	No	Bedroom
Total Sunlight Provision		0.4	0.4				
6.2	191	Second	3.9	Yes	3.7	Yes	Bedroom
Total Sunlight Provision		3.9	3.7				
7.0	217	Third	2.0	Yes	2.0	Yes	Kitchen/Living Room
	216		2.0		2.0		
	215		7.6		7.6		
Total Sunlight Provision			7.6		7.6		
7.1	218	Third	2.5	Yes	2.5	Yes	Bedroom
	254		0.0		0.0		
Total Sunlight Provision			2.5		2.5		
7.2	214	Third	7.6	Yes	7.6	Yes	Bedroom
Total Sunlight Provision		7.6	7.6				
8.0	213	Third	7.4	Yes	7.4	Yes	Kitchen/Living Room
Total Sunlight Provision		7.4	7.4				
8.1	212	Third	7.0	Yes	7.0	Yes	Bedroom
Total Sunlight Provision		7.0	7.0				
8.2	211	Third	6.7	Yes	6.7	Yes	Bedroom
Total Sunlight Provision		6.7	6.7				

Room Ref.	Window	Floor	Sunlight Provision (Hours)				Room Use
			No Extension 6 – 8 Soane Point	Meets BRE Criteria	With Extension of 6 – 8 Soane Point	Meets BRE Criteria	
9.0	220	Third	4.9	Yes	4.9	Yes	Kitchen/Living Room
	255		0.0		0.0		
	Total Sunlight Provision		4.9		4.9		
9.1	221	Third	5.1	Yes	5.1	Yes	Bedroom
Total Sunlight Provision		5.1	5.1				
9.2	210	Third	5.5	Yes	5.5	Yes	Bedroom
Total Sunlight Provision		5.5	5.5				
10.0	228	Fourth	3.5	Yes	3.5	Yes	Kitchen/Living Room
	229		2.8		2.8		
	227		8.2		8.2		
Total Sunlight Provision			8.8		8.8		
10.1	230	Fourth	2.4	Yes	2.4	Yes	Bedroom
	256		0.0		0.0		
	Total Sunlight Provision		2.4		2.4		
10.2	226	Fourth	8.4	Yes	8.4	Yes	Bedroom
Total Sunlight Provision		8.4	8.4				
11.0	225	Fourth	8.7	Yes	8.7	Yes	Kitchen/Living Room
Total Sunlight Provision		8.7	8.7				
11.1	224	Fourth	8.9	Yes	8.9	Yes	Bedroom
Total Sunlight Provision		8.9	8.9				
12.0	232	Ground	3.9	Yes	3.9	Yes	Kitchen/Living Room
	233		3.7		3.7		
	234		2.1		2.1		

Room Ref.	Window	Floor	Sunlight Provision (Hours)				Room Use
			No Extension 6 – 8 Soane Point	Meets BRE Criteria	With Extension of 6 – 8 Soane Point	Meets BRE Criteria	
Total Sunlight Provision			4.0		4.0		
12.1	190	Ground	0.3	Yes	0.3	No	Bedroom
Total Sunlight Provision			0.3		0.3		
13.0	235	Ground	3.9	Yes	3.9	Yes	Kitchen/Living Room
	236		3.8		3.8		
Total Sunlight Provision			4.1		4.1		
13.1	237	Ground	4.2	Yes	4.2	Yes	Bedroom
	238		4.2		4.2		
	239		2.8		2.8		
Total Sunlight Provision			4.5		4.5		
14.0	240	Second	4.7	Yes	4.7	Yes	Kitchen/Living Room
	241		4.5		4.5		
	242		3.3		3.3		
Total Sunlight Provision			4.9		4.9		
14.1	207	Second	1.1	Yes	1.1	Yes	Bedroom
	208		2.9		2.9		
	209		2.4		2.4		
Total Sunlight Provision			3.3		3.3		
14.2	222	Third	8.0	Yes	8.0	Yes	Bedroom
	248		4.3		4.3		
Total Sunlight Provision			9.4		9.4		
15.0	243	Second	3.5	Yes	3.5	Yes	Kitchen/Living Room
	244		3.9		3.9		
Total Sunlight Provision			3.9		3.9		

Room Ref.	Window	Floor	Sunlight Provision (Hours)				Room Use
			No Extension 6 – 8 Soane Point	Meets BRE Criteria	With Extension of 6 – 8 Soane Point	Meets BRE Criteria	
15.1	245	Second	4.7	Yes	4.7	Yes	Bedroom
	246		4.6		4.6		
	247		3.3		3.3		
	Total Sunlight Provision		4.8		4.8		
15.2	223	Third	6.5	Yes	6.5	Yes	Bedroom
	249		0.0		0.0		
	Total Sunlight Provision		6.5		6.5		

It can be Identified in **Table 6.2** that only 3 rooms do not meet the target values in respect of Sunlight, one of these windows lets into a Kitchen / Living Room (Room 3), and the other 2 Rooms are bedrooms (Rooms 3.1 and 6.1) where although sunlight is important it is not as important as in Kitchen or Living Rooms.

It can be identified that with the proposed extension to Soane Point, an additional 5 rooms would fail in respect of sunlight. The extension will only impact sunlight provision on the first and second floors and at higher floors there is no impact to sunlight with the proposed extension to Soane Point.

7. INTERIOR DAYLIGHTING

Previously, the Average Daylight Factor (ADF) method was used to assess the light levels within rooms. However, the methodology for this has been withdrawn and is no longer recommended and was superseded within the BRE 209 (2022) report.

There are now two new recommended methodologies to assess the interior daylight levels within buildings: the “Illuminance” method and the “Daylight Factor” (DF) method. The Daylight Factor method has been used within this report and this method is based on calculating the daylight factors achieved over specified fractions of the reference plane within a room.

Three levels of recommendations for daylight provision in interior spaces have been provided: minimum, medium and high. Daylight spaces will need to achieve at least the minimum levels for both 50% and 95% of the assessment grid area within a room in order to meet the BRE recommended targets. Where the target levels are met it is considered that those rooms will receive acceptable levels of light. The target values are identified in **Table 4.1**.

Table 7.1: Target Daylight Factors

Level of Recommendation	Target daylight factor for 50% of the assessment grid	Target daylight factor for 95% of assessment grid
Minimum	2.1%	0.7%
Medium	3.5%	2.1%
High	5.3%	3.5%

When calculating the DF the following variables are considered:

- The diffuse visible transmittance of the glazing including corrections for dirt on the glass and any blinds or curtains. It has been assumed that the windows are double glazed and clean and therefore a value of 0.68 has been used;
- A maintenance factor, allowing the effect of dirt;
- The net glazed area of the window (m²);
- The total area of the room surface: ceiling, floor, walls and windows (m²); and
- The Average reflectance values that have been used were advised by the client;
 - Walls, a value of 0.8 has been used;
 - Floors, a value of 0.4 has been used; and
 - Ceiling, a value of 0.8 has been used.

Table 4.2 identifies the results of the Daylight Factor calculations. The Daylight Factor contours for the light levels within the habitable rooms can be identified in **Appendix 3**. The Daylight Factors that do not meet the BRE target values have been identified on **Bold**.

Table 7.2: Percentage Area Meeting the Target Daylight Factors.

Room Ref.	Room	Percentage area meeting the Target daylight factor (2.1%) for 50% of the assessment grid	Percentage area meeting the Target daylight factor (0.7%) for 95% of assessment grid	Meets BRE Criteria
1.0	Kitchen / Living Room	100%	100%	Yes
1.1	Bedroom	94%	100%	Yes
1.2	Bedroom	78%	100%	Yes
2.0	Kitchen / Living Room	23%	80%	No
2.1	Bedroom	65%	100%	Yes
3.0	Kitchen / Living Room	50%	100%	Yes
3.1	Bedroom	80%	100%	Yes
3.2	Bedroom	24%	100%	No
3.3	Bedroom	28%	100%	No
4.0	Kitchen / Living Room	100%	100%	Yes
4.1	Bedroom	100%	100%	Yes
4.2	Bedroom	100%	100%	Yes
5.0	Kitchen / Living Room	49%	100%	No
5.1	Bedroom	100%	100%	Yes
5.2	Bedroom	66%	100%	Yes
6.0	Kitchen / Living Room	96%	100%	Yes
6.1	Bedroom	100%	100%	Yes
6.2	Bedroom	95%	100%	Yes
7.0	Kitchen / Living Room	54%	100%	Yes
7.1	Bedroom	100%	100%	Yes

Room Ref.	Room	Percentage area meeting the Target daylight factor (2.1%) for 50% of the assessment grid	Percentage area meeting the Target daylight factor (0.7%) for 95% of assessment grid	Meets BRE Criteria
7.2	Bedroom	59%	100%	Yes
8.0	Kitchen / Living Room	60%	100%	Yes
8.1	Bedroom	60%	100%	Yes
8.2	Bedroom	59%	100%	Yes
9.0	Kitchen / Living Room	100%	100%	Yes
9.1	Bedroom	100%	100%	Yes
9.2	Bedroom	74%	100%	Yes
10.0	Kitchen / Living Room	100%	100%	Yes
10.1	Bedroom	100%	100%	Yes
10.2	Bedroom	100%	100%	Yes
11.0	Kitchen / Living Room	51%	100%	Yes
11.1	Bedroom	97%	100%	Yes
12.0	Kitchen / Living Room	100%	100%	Yes
12.1	Bedroom	0%	17%	No
13.0	Kitchen / Living Room	97%	100%	Yes
13.1	Bedroom	100%	100%	Yes
14.0	Kitchen / Living Room	59%	100%	Yes
14.1	Bedroom	50%	100%	Yes
14.2	Bedroom	100%	100%	Yes
15.0	Kitchen / Living Room	65%	100%	Yes
15.1	Bedroom	66%	100%	Yes

Room Ref.	Room	Percentage area meeting the Target daylight factor (2.1%) for 50% of the assessment grid	Percentage area meeting the Target daylight factor (0.7%) for 95% of assessment grid	Meets BRE Criteria
15.2	Bedroom	100%	100%	Yes

It can be identified in **Table 4.2** that 5 rooms do not meet the BRE guideline target values, 2 of these rooms are Kitchen/Living rooms and 3 are bedrooms. However, 4 of these rooms do achieve the BRE guidelines in respect of a target daylight value of 0.7% for 95% of the reference plane and Room 5.0 is only marginally below the guideline value of 50% with a calculated level of 49%. It can also be noted that the most adversely affected room (Room 12.1) is a bedroom that is located in the existing building at the development site, this window is also positioned behind a green wall. It would be recommended that additional artificial lighting should be installed into these rooms so that they do not appear poorly lit.

8. CONCLUSION

Calculations were conducted in accordance with BRE guidelines to determine if the proposed development at 13 -16 Market Place, Reading, would result in a significant impact at the surrounding properties, as well as determining if the proposed development would receive acceptable levels of daylight and sunlight.

Impact at Existing Receptors

The currently proposed building envelope including the proposed extension to 6 – 8 Soane Point will result in:

- Marginal impacts for both daylight and sunlight at all the existing receptors, however there are only a limited number of rooms which are likely to be significantly impacted and the majority of these have other windows that are less significantly impacted that let into the same room.
- The most adversely impacted room is located at 11 – 12, Market place, Window 147 lets into room 97 which is adversely affected but due to the location of this room in relation to the proposed development achieving good light levels with the development in place would always be very difficult.
- The Daylight Distribution identified that 5 Bedrooms and 2 Kitchen / Living Rooms would be adversely impacted as a result of the proposed development.

Acceptability of Light at the Proposed Development

With respect to the self-test for the proposed development:

- With no extension of 6 – 8 Soane Point, 53% of the windows meet the BRE target values.
- With the proposed 2 - storey extension at 6 – 8 Soane Point (Receptor 4) in place, there will be a decrease in daylight and sunlight at all of the windows on the south façade of the proposed development. This will result in 8 windows failing in respect of VSC that did not previously and 5 rooms would fail in respect of sunlight that previously did not.
- It has been identified that 5 rooms out of the 42 rooms assessed do not meet the BRE guideline values in respect of Daylight Factors; however, these results have been calculated with the Extension to Soane Point in place as a worst-case scenario. It would be recommended that additional artificial lighting would be installed into these rooms, so they do not appear poorly lit.

Summary of Conclusions

The proposal will have marginal but acceptable impacts at existing surrounding properties.

The proposed development will receive acceptable light levels in 88% of the rooms and at 53% of the windows, therefore supplementary artificial lighting would be recommended in the most adversely impacted rooms.

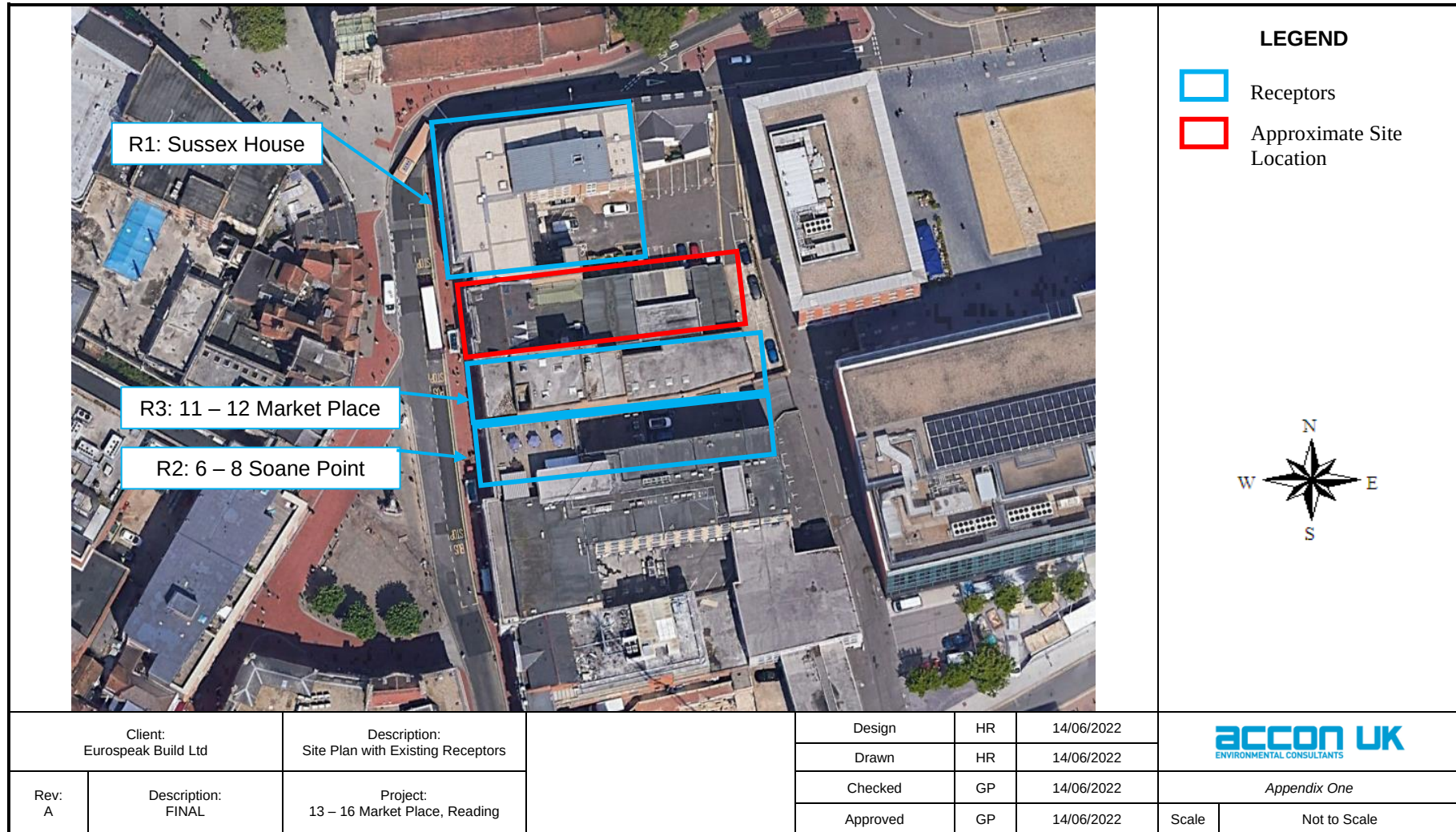
It should be noted that in town centre locations it is accepted that the BRE Guideline values will not always be achievable and therefore the values should be treated with some degree of flexibility

APPENDICES

Appendix 1

Development Site Plan with Relevant Receptor

Appendix 1: Development Site Plan with Relevant Receptors

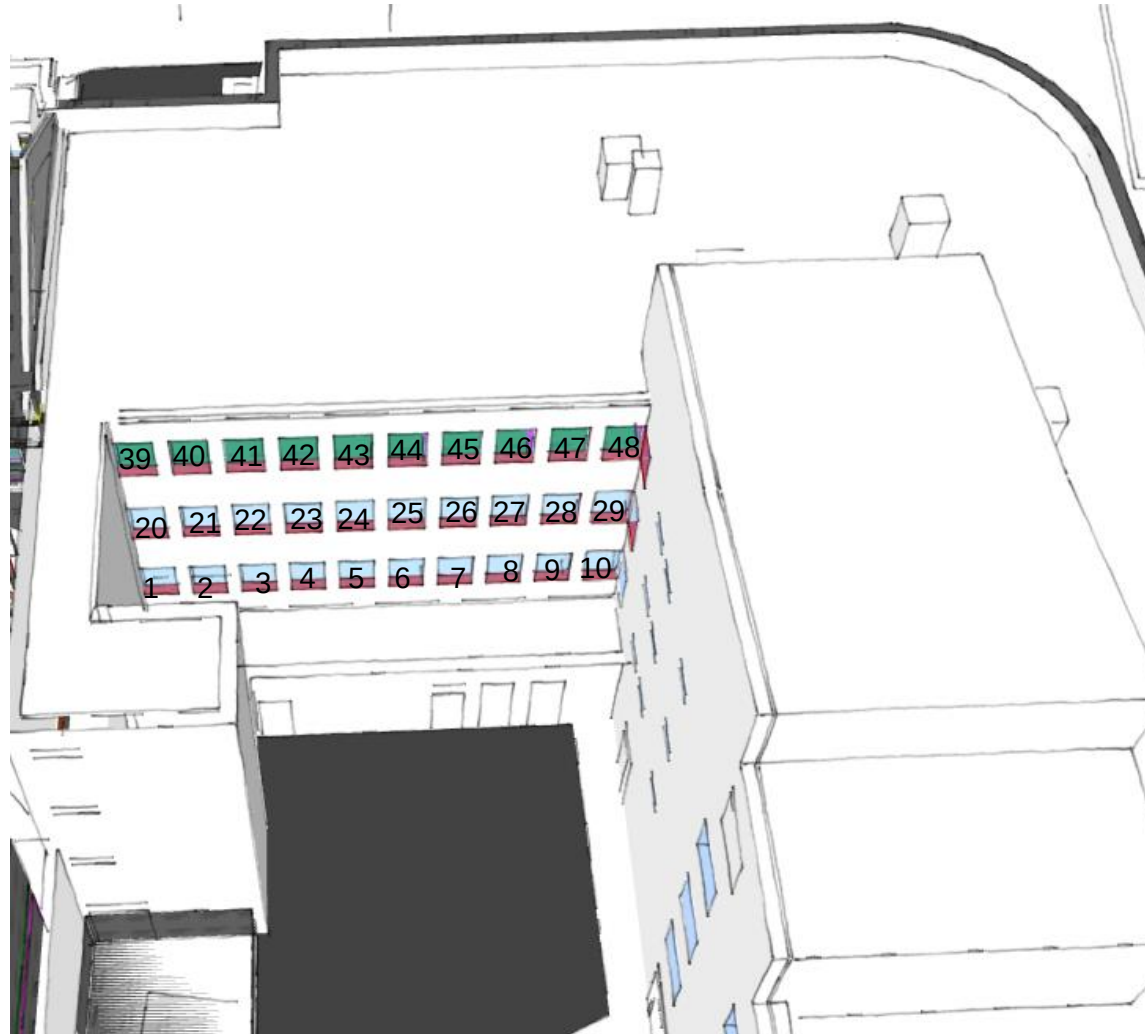


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Page | 48

Appendix 2 Window Locations

Appendix 2: Receptor 2 Window Locations (East Façade)



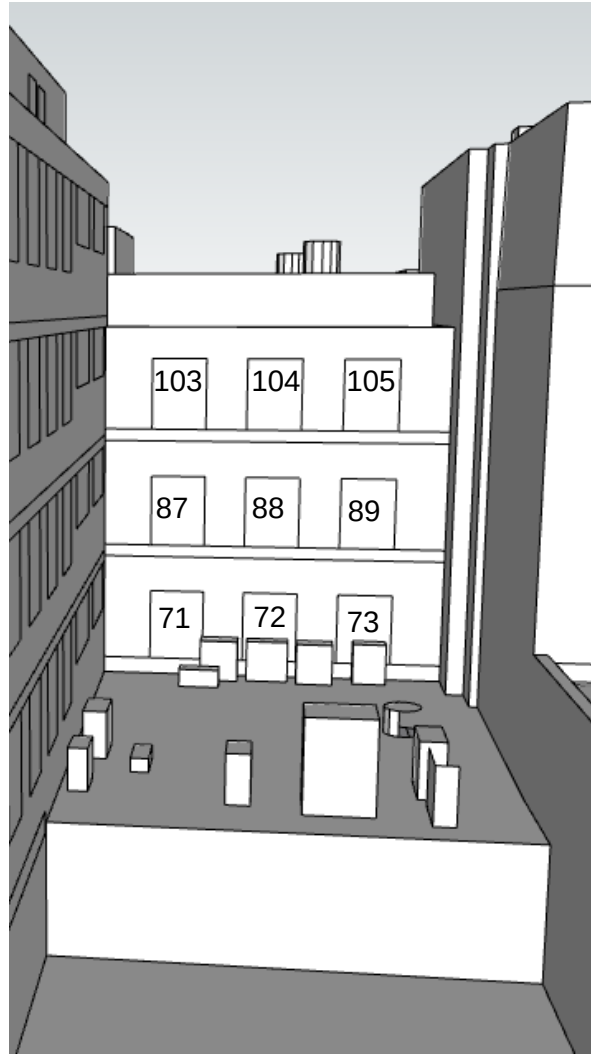
Appendix 2: Receptor 2 Window Locations (East Façade)



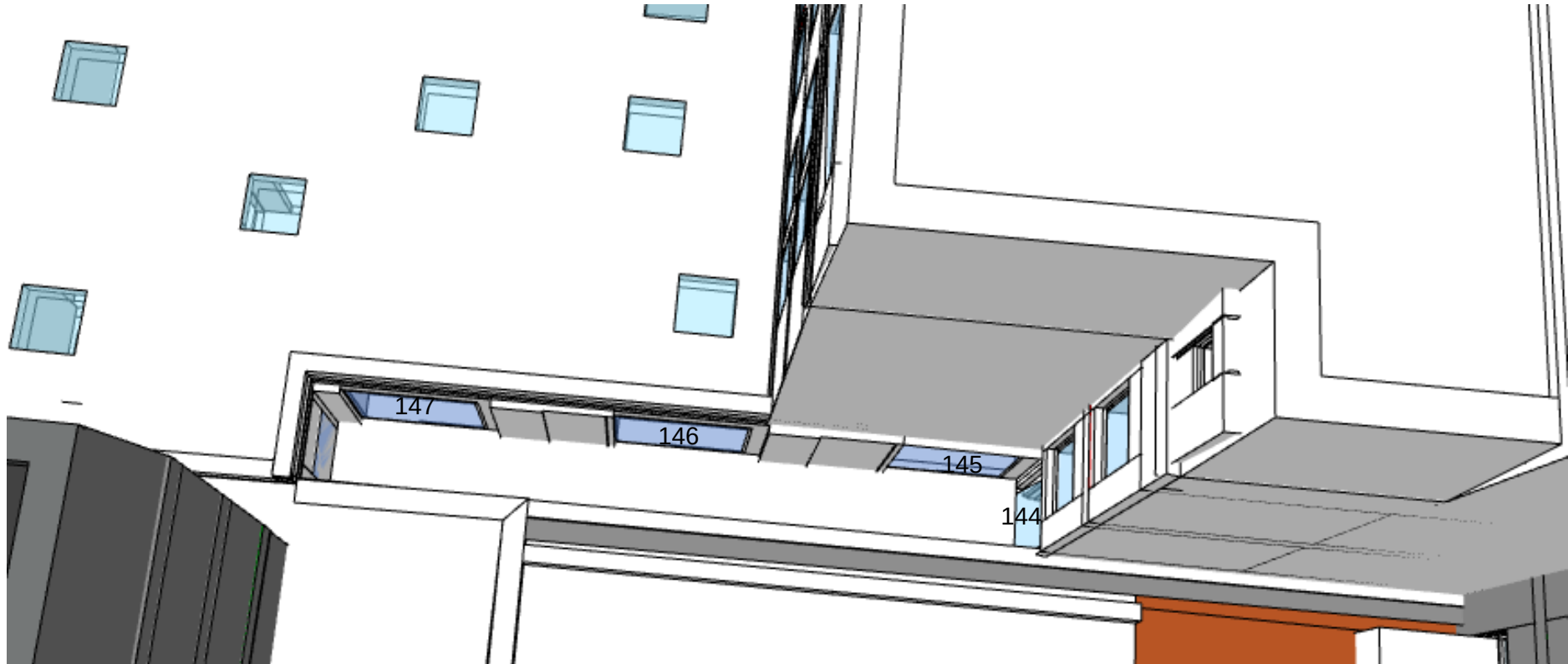
Appendix 2: Receptor 4 Window Locations (East Façade)



Appendix 2: Receptor 4 Window Locations (East Façade)



Appendix 2: Receptor 3 Window Locations (North Façade)



Appendix 2: Receptor 3 Window Locations (East Façade)



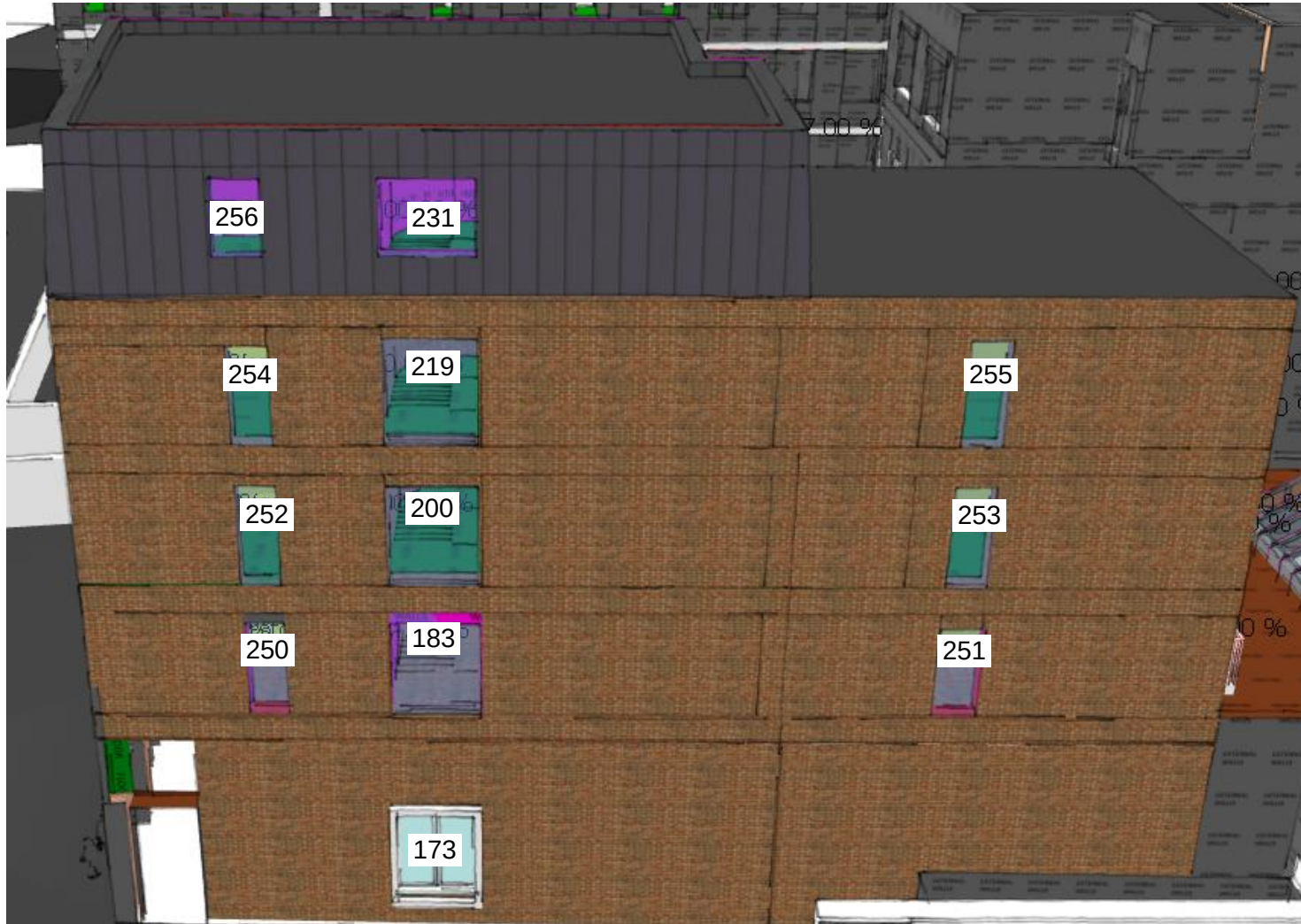
Appendix 2: Proposed Window Locations (South Façade – Existing Building)



Appendix 2: Proposed Window Locations (East Façade)



Appendix 2: Proposed Window Locations (North Façade)



Appendix 2: Proposed Window Locations (North Façade)



Appendix 2: Proposed Window Locations (East Façade)



01.12.2023

Page | 60

Appendix 2: Existing Window Locations (West Façade)



01.12.2023

Page | 61

Appendix 3 **Daylight Contours**



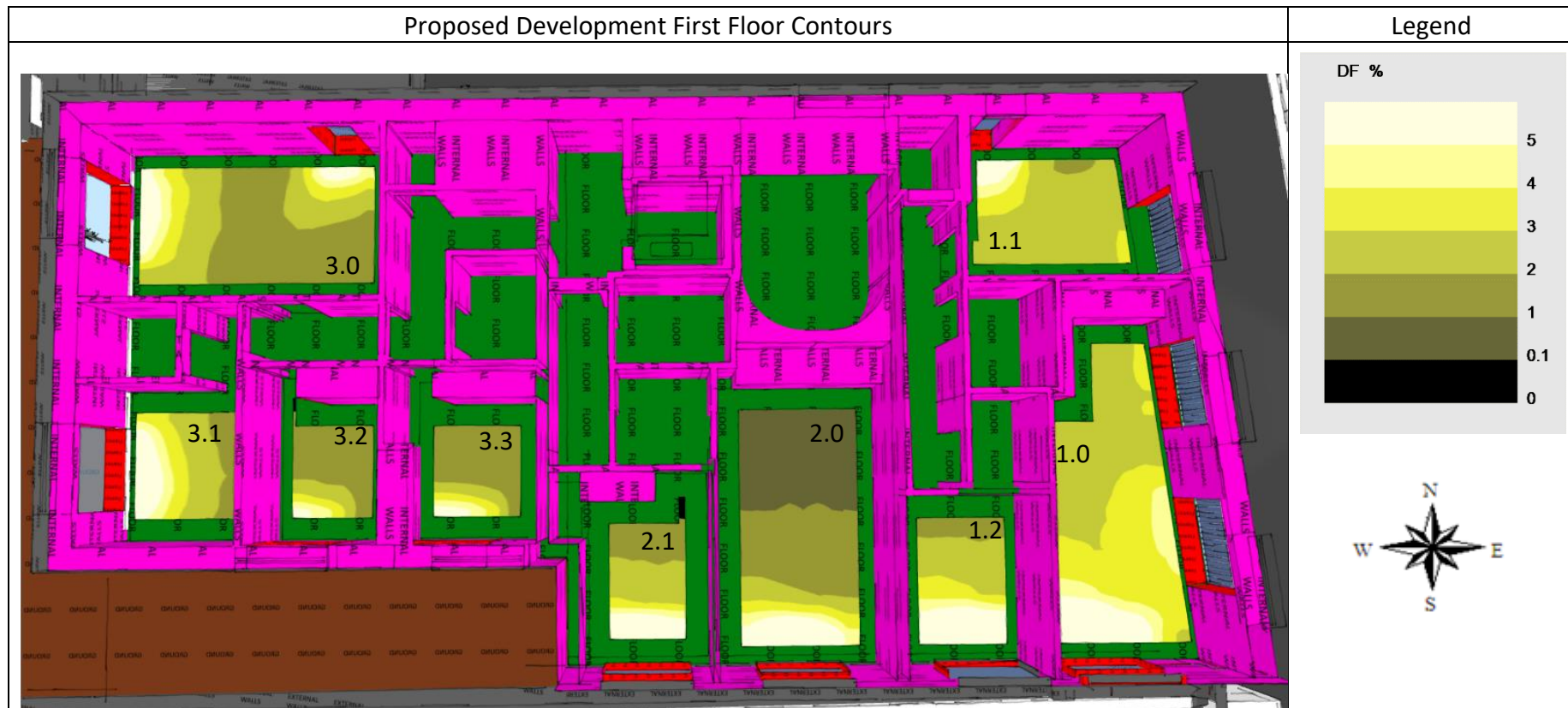






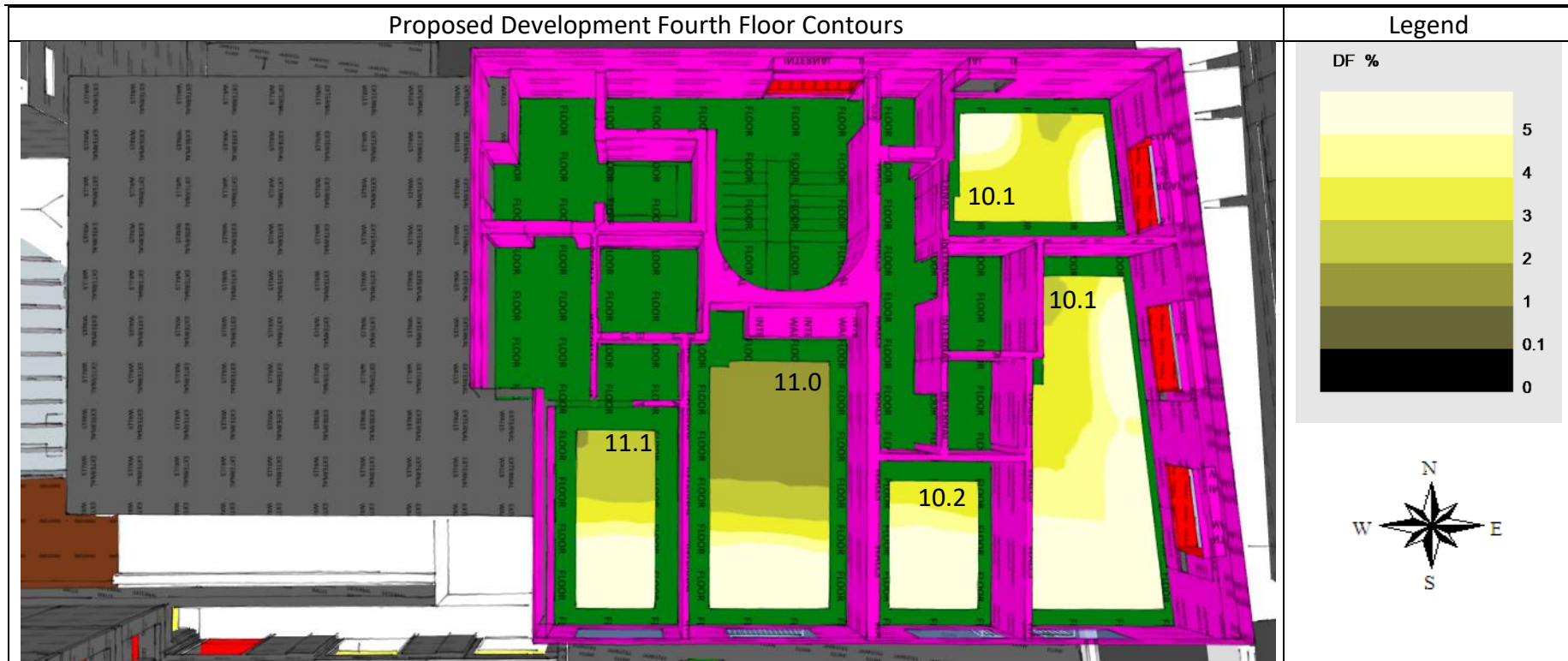


















Appendix 4 The BRE Report

Appendix 4: The BRE Report

When considering daylight and sunlight assessments, reference is often made to the Building Research Establishment (BRE) Report, “Site layout planning for daylight and sunlight - a guide to good practice” by PJ Littlefair et al.

The BRE Report contains guidance in how to design developments, whilst minimizing the impacts on existing buildings from overshadowing and reduced levels of daylight and sunlight. As well as advice, the report contains a methodology to assess levels of daylight/sunlight and contains criteria to determine the potential impact of a new development on surrounding buildings. However, the report does state that the guidelines are not mandatory but should be considered a guide to help rather than constrain the designer.

A2.1 Daylight

Contained within the three relevant documents, there are three criteria and calculation procedures to determine levels of daylight. Each one has its limitations and is used in different circumstances. The criteria are:

- The 25° Rule and the Vertical Sky Component
- Average Daylight Factor
- No-Skyline and the Working Plane

A2.1.1 The 25° Rule and Vertical Sky Component

The BRE Report contains guidance on how to design developments, whilst minimising the impacts of existing buildings from overshadowing and reduced levels of daylight and sunlight, as well as ensuring developments are adequately daylighted. The report suggests that in general, a building will have the potential for good interior diffuse daylighting providing that:

- a) No obstruction, measured in a vertical section perpendicular to the main face, from a point 2m from the ground level, subtends an angle of more than 25° to the horizontal;

or

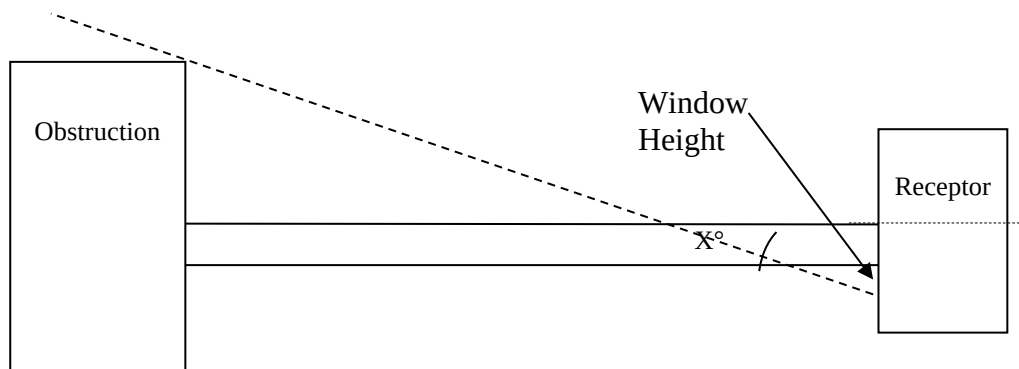
- b) If a) is not satisfied, then all points on the main face on a line 2m above ground level are within 4m (measured sideways) of a point which has a Vertical Sky Component (VSC) of 27% or more.

The report contains a methodology for calculating the VSC, but also indicates that the methodology for calculating the levels of interior daylighting in BS8206-2 should also be used where appropriate.

The report highlights a simplified procedure that can be used to screen new developments to determine whether a more detailed assessment is required. This screening method considers the extent to which the angle of view of the sky from the centre of the lowest window of the existing properties will be constrained by the proposed new buildings. If the new development subtends an angle of less than 25° to the horizontal from the lowest window of the existing property, then it is unlikely that the development will cause any substantive effects of the lighting of existing buildings; greater than 25° and further analysis will be

required to determine the extent to which there will be a loss of daylight to the existing building. A schematic example of this calculation can be seen in **Figure A2.1**.

Figure A2.1: Schematic Example of Daylight Calculations



If the screening method determined that there may be an obstruction, the exact level of light can be calculated by determining the Vertical Sky Component (VSC). The BRE Report highlights a number of ways to calculate the VSC, including the skylight indicator method and the Waldram Diagrams.

When undertaking a daylight assessment, the BRE Report suggests a VSC of 27% or more should be achieved if a room is to be adequately day lit. It also suggests that when existing levels of daylight are below 27% VSC, a reduction of more than 20% from the existing level will be noticeable to the inhabitants, i.e., an impact will occur.

With regard to the surrounding properties, greater protection should be afforded to windows that serve habitable dwellings and, in particular, those serving living rooms and family kitchens. The tests can also be applied to non-domestic uses such as offices and workplaces where such uses will ordinarily have a reasonable expectation of daylight or sunlight. However, retail outlets such as shops and high street banks are not generally considered to have a reasonable expectation of daylight or sunlight. It is considered that retail outlets and point-of-sale displays do not rely on daylight or sunlight but on electric lighting. Assessment for daylight and sunlight is not therefore considered necessary in those instances.

The use of the VSC does have a number of limitations. For example, the calculation procedure only calculated the amount of light falling on the wall on question, it does not take into account the size of the windows or the size of the room that it is intending to light. Consequently, it is possible to design a room that would be adequately daylit through sensible room and window design (e.g., shallow rooms and large windows, or the use of roof lights), but the VSC will still show a low level of light falling on the wall. The VSC calculations do not take into account how designers may maximise the available light within a dwelling.

A2.1.2 Interior Daylight Recommendations

The VSC only determined whether a room has the potential for good interior daylighting. The actual interior daylighting of the building can be checked by using the Daylight Factor (DF) introduced in BS EN 17037.

BS EN 17037 supersedes BS 8206 Part 2 “Code of practice for daylighting”, which contained a method of assessment based on Average Daylight Factor, which is now no longer recommended.

For daylight provision in buildings, BS EN 17037 provides two methodologies. 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, method is based on calculating the daylight factors achieved over specified fractions of the reference plane.

BS EN 17037 provides three levels of recommendation for daylight provision in interior spaces: minimum, medium and high. For compliance with the standard, a daylight space should achieve the minimum level of recommendation.

The recommendations for side lit rooms are met if both target daylight factors (the median daylight factor over 50% of the reference plane, and the minimum daylight factor over 95% of the reference plane) are achieved.

Table A2.1: Daylight Factor Criteria

Level of Recommendation	Target daylight factor for 50% of the assessment grid	Target daylight factor for 95% of assessment grid
Minimum	2.1%	0.7%
Medium	3.5%	2.1%
High	5.3%	3.5%

A2.1.3 No-Skyline and the Working Plane

Whilst the DF and VSC determine the amount of daylight in a room, the no-skyline determines how well the daylight is distributed in the room. Areas beyond the no-skyline will generally look gloomy.

The working plane is a notional surface, typically at about desk or table height, at which the daylight factor or the 'no-skyline' is calculated or plotted. For calculations in dwellings, it is taken to be at a position 0.85m above the floor.

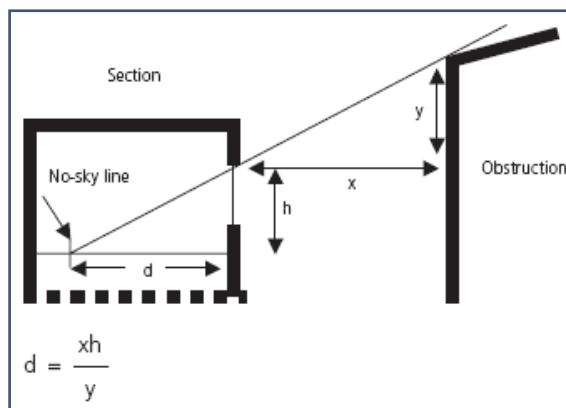
The no-skyline divides those areas of the working plane which can receive direct skylight, from those which cannot. If the external obstructions already exist, it is possible to measure directly the position of the no-skyline in a room.

The assessment criteria for the working plane are detailed in the Communities & Local Government published report *Code for Suitable Homes – Technical Guidance (2008)*. The minimum requirement stated by the guidance is 80% of the working plane in each kitchen, living room, dining room and study must receive direct light from the sky.

As an approximation, obstructions that are parallel to the window can be considered infinite. The no-skyline will then be parallel to the window at a distance 'd' from the window wall.

Figure A2.2 illustrates how the no-skyline can be calculated. If 'd' is greater than the room depth, then no part of the room lies beyond this no-skyline.

Figure A2.2: Pictorial calculation of the No-Skyline



Where:

h = height of the window head above the working plane

y = height of the obstruction above the window head

x = distance from the window to the obstruction

A2.2 Sunlight

Whilst daylight is an essential element of all dwellings, sunlight is considered to be desirable rather than essential. The BRE Report suggests that not all windows need to have access to direct sunlight and that direct sunlight is most desirable in living rooms and kitchens and less important in bedrooms.

When designing a new development or an extension to an existing building, the impact on the amount of sunlight received in the living areas of residential properties must be assessed, as residents are particularly likely to notice a loss of sunlight entering their homes.

Sunlight availability can be measured in Annual Probable Sunlit Hours (APSH). The APSH assessment determined the amount of probable sunlight that will shine on the window in a typical year.

The BRE Report suggests that to ensure that a dwelling will appear reasonably sunlit, at least one main window wall should face within 90° of due south and that the window received at least 25% of the total APSH available during a given year, and at least 5% of the total APSH during the winter months. Consequently, not every window in a dwelling needs to achieve the minimum levels of sunlight, nor does every room in a dwelling.

When assessing the impact on sunlight from a new development on an existing development if the levels with the development proposals include an APSH less than 0.8 times their former value, then the existing occupants will notice the loss in sunlight.

For new buildings a habitable room, preferably a main living room, should 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.



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