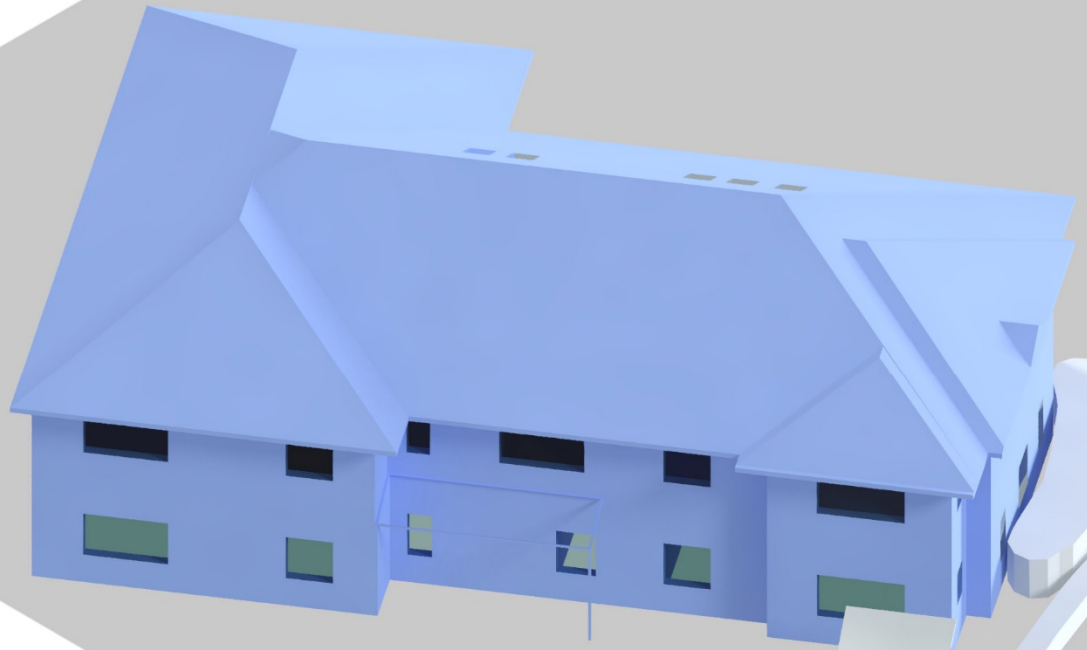




RIGHT OF LIGHT
CONSULTING
Chartered Surveyors

Daylight and Sunlight Report

(Within Development)



25 August 2021

Bampton House
Hursley Road, Eastleigh
Hampshire SO53 2TA

Right of Light Consulting Ltd

Burley House
15-17 High Street
Rayleigh
Essex SS6 7EW

Tel: 0800 197 4836

www.right-of-light.co.uk

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1 EXECUTIVE SUMMARY

1.1 Overview

- 1.1.1 Right of Light Consulting has been commissioned by Rivendale Homes to undertake a daylight and sunlight study in connection with the development at Bampton House, Bampton Court, Hursley Road, Eastleigh, Hampshire SO53 2TA. The aim of the study is to check whether the proposed accommodation will provide its future occupiers with adequate levels of natural light.
- 1.1.2 The study is based on the numerical tests laid down in the Building Research Establishment (BRE) guide 'Site Layout Planning for Daylight and Sunlight: a good practice guide, 2nd Edition' by P J Littlefair 2011.
- 1.1.3 Appendix 1 identifies the windows analysed in this study. The no sky line contours for the habitable rooms are also presented in Appendix 1. The numerical results of the BRE daylight and sunlight tests are provided in Appendix 2. Overshadowing to gardens and opens spaces contour drawings are provided in Appendix 3.
- 1.1.4 The numerical results demonstrate that the proposed development design achieves a high level of compliance with the BRE recommendations. In our professional opinion, the proposed design will provide the development's future occupiers with adequate levels of natural light. We consider the proposed development to be consistent with the NPPF, which requires developments to provide acceptable living standards whilst making efficient use of land.

2 INFORMATION SOURCES

2.1 Documents Considered

2.1.1 This report is based on the following drawings:

Primmer Olds BAS Chartered Surveys

21/70/25	Ground Floor Plan - as Proposed with Dims	Rev -
21/70/26	First Floor Plan - as Proposed with Dims	Rev -
21/70/27	Second Floor Plan - as Proposed with Dims	Rev -
21/70/31	Elevations with dimensions	Rev -

Twenty 20 Surveys Ltd

T20-P0107-DR-0001	Topographical Survey	Rev A
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Planning and Architectural Design Services

P112/104	Front and Side Elevations Sheet 1 of 2	Rev C
P112/105	Rear and Side Elevations Sheet 2 of 2	Rev C

3 METHODOLOGY OF THE STUDY

3.1 Local Planning Policy

3.1.1 We understand that the Local Authority takes the conventional approach of considering daylight and sunlight amenity with reference to the various numerical tests laid down in the Building Research Establishment (BRE) guide 'Site Layout Planning for Daylight and Sunlight: a guide to good practice, 2nd Edition' by P J Littlefair 2011. A new European standard BS EN 17037 'Daylight in Buildings' was published in May 2019. An update to the BRE guide to take into account the European standard is expected sometime in 2021. It is not yet clear how, and to what extent, the European recommendations will be adopted by the BRE and Local Authorities.

3.1.2 The standards set out in the BRE guide are intended to be used flexibly. The BRE guide states:

"The guide is intended for building designers and their clients, consultants and planning officials. The advice given here is not mandatory and the guide should not be seen as an instrument of planning policy; its aim is to help rather than constrain the designer. Although it gives numerical guidelines, these should be interpreted flexibly, since natural lighting is only one of many factors in site layout design."

3.2 National Planning Policy Framework

3.2.1 The BRE numerical guidelines should be considered in the context of the National Planning Policy Framework (NPPF), which stipulates that local planning authorities should take a flexible approach to daylight and sunlight to ensure the efficient use of land. The NPPF states:

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

3.3 Interior Daylighting

- 3.3.1 The interior daylighting recommendations set out in the BRE guide are based on British Standard BS 8206 Part 2 and the Chartered Institute of Building Services Engineers Applications Manual on window design. Collectively, the guides set out three main criteria for interior daylighting. These are summarised as follows:

Test 1 - Average Daylight Factor

- 3.3.2 The Average Daylight Factor (ADF) can be calculated using the following formula:

$$df = \frac{T A_w \theta}{A (1-R^2)} \%$$

where

T is the diffuse visible transmittance of the glazing
A_w is the net glazed area of the window (m²)
A is the total area of the room surfaces (m²)
R is their average reflectance
θ is the angle of visible sky in degrees

- 3.3.3 The ADF test is applied to habitable rooms within domestic properties. A kitchen is generally deemed to be a habitable room if it is large enough to accommodate a dining area. If the kitchen is small, or if the property has a separate dining area, then the accepted practice is to treat the kitchen as a non-habitable room.
- 3.3.4 For the purpose of this study, we have assumed BRE internal reflectance coefficients pertaining to medium wooden floors (0.4), light painted walls (0.8) and matt white painted ceilings (0.85).
- 3.3.5 We have assumed that each window is double-glazed and has a glazed area that equates to 80% of the structural opening size. A glazing transmittance value, inclusive of a maintenance to allow for the effect of dirt and grime on the glazing, of 0.68 has been used.
- 3.3.6 To achieve a predominately daylit appearance, the guide recommends an ADF of 5% or more if there is no supplementary electric lighting, or 2% or more if supplementary lighting is provided. The guide also gives minimum recommendations for dwellings of 2% for kitchens, 1.5% for living rooms and 1% for bedrooms. The minimum targets have been adopted for the purpose of this study.

-
- 3.3.7 The BRE guide does not give guidance on how to apply the ADF test to spaces which contain a mix of room uses e.g. open plan living, dining and kitchen areas. For this assessment we have set a target of 2% with the aim of reaching the predominately daylight benchmark.
- 3.3.8 A special procedure is required for floor to ceiling windows such as patio doors. If part of a window is below the height of the working plane (a horizontal plane 0.85m above the floor in housing), this portion should be treated as a separate window. The ADF for this window has an extra factor applied to it, to take account of the reduced effectiveness of low level glazing in lighting the room. A value equal to the floor reflectance may be taken for this factor. The ADF for the portion of the window above the working plane is calculated in the normal way without this additional factor, and the ADFs for the two portions are added together.
- 3.3.9 Reflected light can be factored into the ADF calculation. For example, where a window has a large obstruction in front of it, the angle of visible sky can be increased by around 6°, assuming the obstruction is painted a light colour.

Test 2 - Room Depth

- 3.3.10 If a daylight room is lit by windows in one wall only, the depth of the room L should not exceed the limiting value given by:

$$\frac{L}{W} + \frac{L}{H} \leq \frac{2}{1-R_b}$$

where

W is the room width

H is the window-head height above floor level

R_b is the average reflectance of the surfaces in the rear half of the room

Test 3 - Position of the no sky line (Daylight Distribution)

- 3.3.11 If a significant area of the working plane lies beyond the no sky line (i.e. it receives no direct skylight), then the distribution of daylight in the room will look poor and supplementary electric lighting will be required.

3.3.12 The no sky line assessment is not applicable where a room derives its daylight solely from a light well or atrium. In these situations the room relies on borrowed light instead of direct skylight.

3.4 Sunlight to Windows

3.4.1 The BRE guide states that, in general, a dwelling or non-domestic building which has a particular requirement for sunlight, will appear reasonably sunlit if:

- at least one main window wall faces within 90 degrees of due south, and
- the centre of at least one window to a main living room can receive 25% of annual probable sunlight hours, including at least 5% of the annual probable sunlight hours during the winter months between 21st September and 21st March.

3.4.2 The guide states that, where groups of dwellings are planned, site layout design should aim to maximise the number of dwellings with a main living room that meets the above recommendations.

3.4.3 The guide states that sunlight is viewed as less important in kitchens and bedrooms.

3.5 Overshadowing to Gardens and Open Spaces

3.5.1 The availability of sunlight should be checked for all open spaces where sunlight is required. This would normally include:

- Gardens, usually the main back garden of a house
- Parks and playing fields
- Children's playgrounds
- Outdoor swimming pools and paddling pools
- Sitting out areas, such as those between non-domestic buildings and in public squares
- Focal points for views such as a group of monuments or fountains.

3.5.2 The BRE guide recommends that, for an open space to appear adequately lit throughout the year, at least 50% of its area should receive two hours of sunlight on 21st March.

3.6 Trees and Hedges

3.6.1 Appendix H of the BRE guide gives guidance on trees and hedges. Trees and hedges vary in their effects on skylight and sunlight. Most tree species will cast partial shade;

for deciduous trees, this will vary with the time of year. It is generally more difficult to calculate the effects of trees on daylight and sunlight because of their irregular shape and because some light will generally penetrate through the tree crown. Modern computer programmes do allow daylight and sunlight consultants to predict the impact of trees with a relatively high degree of accuracy.

- 3.6.2 To account for the effect of trees, it is necessary to run the daylight and sunlight simulation twice. For example, with daylight, the first set of calculations treats the trees as solid obstructions. The second set of calculations ignores the trees altogether. The true effect of the trees is somewhere between the two sets of results. To interpolate between the two sets of results, it is necessary to factor in how much light is able to pass through the trees.
- 3.6.3 Appendix H of the BRE guide gives approximate transparency values for various types of trees. The transparency value is a measure of how much light will pass through a tree. When analysing daylight and sunlight, we have applied the average transparency value of 35% in the summer months and 70% in the winter months i.e. 35% of the light will pass through and 65% will be blocked in the summer and 70% of light will pass through and 30% will be blocked in the winter.
- 3.6.4 Because there are two different values of transparency for winter and summer, there will be two different values of equivalent visible sky angle θ . These values are then used in the Average Daylight Factor (ADF) equation to give two different ADF scores for winter and summer.
- 3.6.5 The BRE guide notes that, if the recommended values of ADF are exceeded in both summer and winter, then daylight would be considered adequate. The guide adds that, for a room where the minimum value is exceeded in winter but not in summer, daylight provision year round is still likely to be adequate, but it is clear that the trees are having some effect on daylight.
- 3.6.6 To assess the effect of trees on sunlight, a modified form of the above procedure is used. In the calculation, the θ is replaced by the annual probable sunlight hours (APSH) and winter probable sunlight hours (WPSH). As with the ADF, the results showing the effect of trees on APSH will lie somewhere between if the trees are treated as opaque and if they are not there at all.

3.6.7 For the overshadowing to gardens test, as per section H4 in Appendix H of the BRE guide, trees and shrubs are not normally included in the calculation because the dappled shade of a tree is more pleasant than the deep shadow of a building. However, if the trees and shrubs are dense enough, the impact they have on a garden or amenity area can be demonstrated by showing the results if the trees are treated as both opaque and if they are not there.

4 RESULTS OF THE STUDY

4.1 Window Reference Points and No Sky Line Contours

4.1.1 Appendix 1 identifies the positions of the windows analysed in this study. The no skyline contours for the habitable rooms are also presented in Appendix 1.

4.2 Daylight & Sunlight Data

4.2.1 The numerical results of the BRE daylight and sunlight tests are provided in Appendix 2. Overshadowing to gardens and opens spaces contour drawings are provided in Appendix 3.

4.3 Interior Daylighting

4.3.1 For completeness, we have provided Average Daylight Factor (ADF) results for both the summer and winter months. The BRE Guide explains that, providing the ADF target is met in the winter months, daylight provision year-round is likely to be adequate. In the case of the proposed development, all the rooms tested meet or surpass the BRE winter ADF targets. The proposed development therefore satisfies the BRE daylight recommendations.

4.3.2 All rooms pass the room depth test.

4.3.3 The BRE guide does not give fixed numerical pass/fail criteria for the No Sky Line test when applied to new dwellings. However, for completeness, we have illustrated the no sky line contours in Appendix 1. The contours illustrate good access to daylight over the working plane of all rooms.

4.4 Sunlight to Windows

4.4.1 The BRE guide acknowledges that, in some cases, it may not be possible for every dwelling to achieve ideal levels of sunlight. The guide explains that, where groups of dwellings are planned, the aim should be to maximise the number of dwellings that:

- have at least one main window that faces within 90 degrees of due south, and
- have at least one window to a main living room that meets the BRE numerical targets.

4.4.2 In the case of the proposed development, 10 of the 15 units have a living room window which faces within 90 degrees of due south. All of these south facing units have a living room window which meets the BRE numerical targets.

4.4.3 In our opinion, the proposed development represents good site layout design. Since the design maximises sunlight availability, as far as practically possible given the constraints of the site, the BRE direct sunlight to windows recommendations for groups of dwellings have been met.

4.5 Overshadowing to Gardens and Open Spaces

4.5.1 The results show that 61% or more of the area of the amenity space will receive at least two hours of sunlight on 21 March with no trees in place. This exceeds the BRE recommendation which states that at least 50% of any garden or amenity area should receive at least two hours of sunlight on 21 March. The proposed development therefore passes the BRE overshadowing to gardens and open spaces test.

4.6 Conclusion

4.6.1 The numerical results demonstrate that the proposed development design achieves a high level of compliance with the BRE recommendations. In our professional opinion, the proposed design will provide the development's future occupiers with adequate levels of natural light. We consider the proposed development to be consistent with the NPPF, which requires developments to provide acceptable living standards whilst making efficient use of land.

5 CLARIFICATIONS

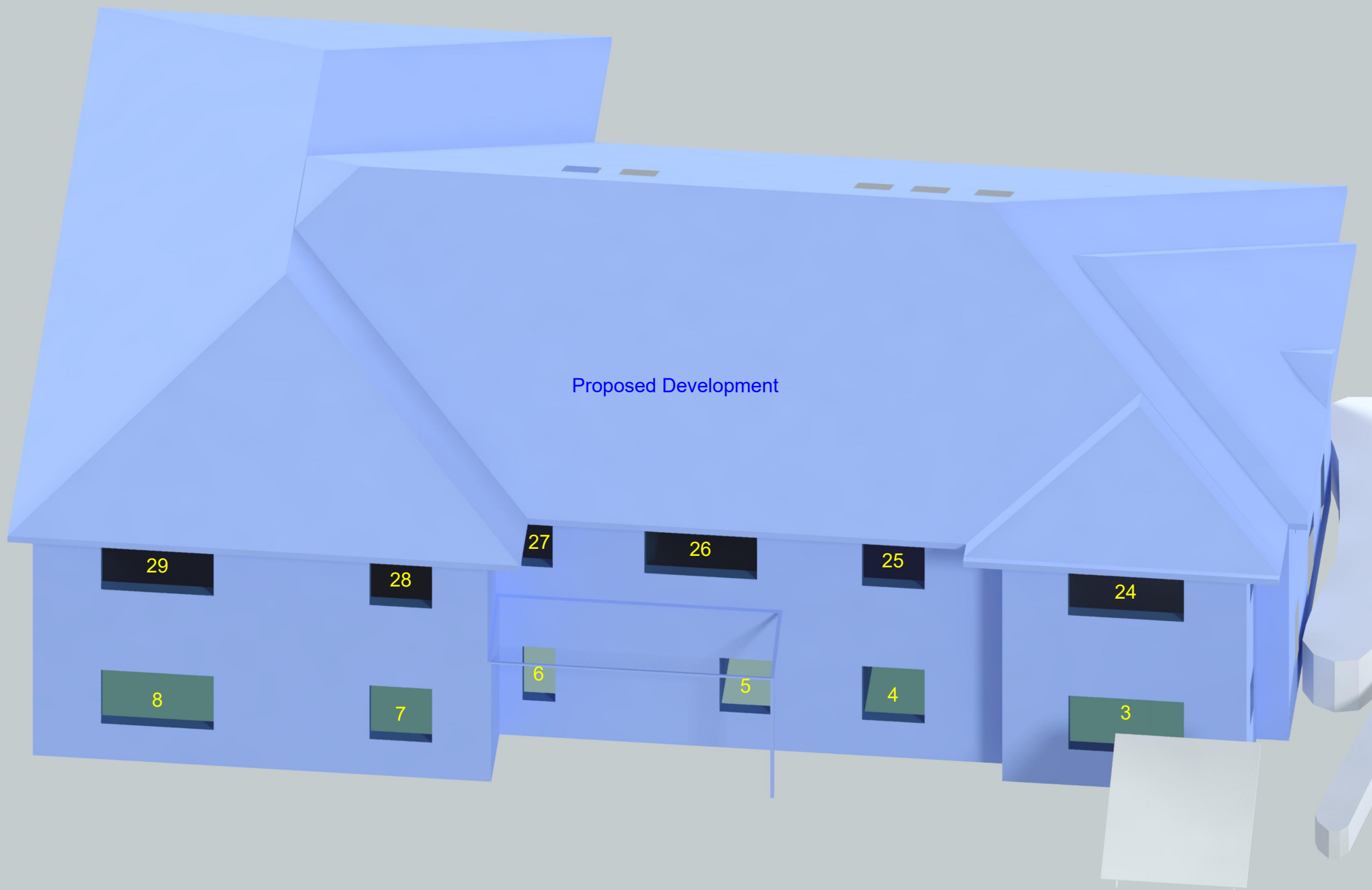
5.1 General

- 5.1.1 The report provided is solely for the use of the client and no liability to anyone else is accepted.
- 5.1.2 The study is limited to assessing daylight, sunlight and overshadowing of the proposed development as set out in section 2.1, 3.1 and 3.3 of the BRE Guide.
- 5.1.3 The study is based on the information listed in section 2 of this report and a site visit undertaken in July 2021.
- 5.1.4 We have undertaken the survey following the guidelines of the RICS publication "Surveying Safely". Where limited access is available, assumptions will have been made.
- 5.1.5 This report is based upon and subject to the scope of work set out in Right of Light Consulting's quotation and standard terms and conditions.

APPENDICES

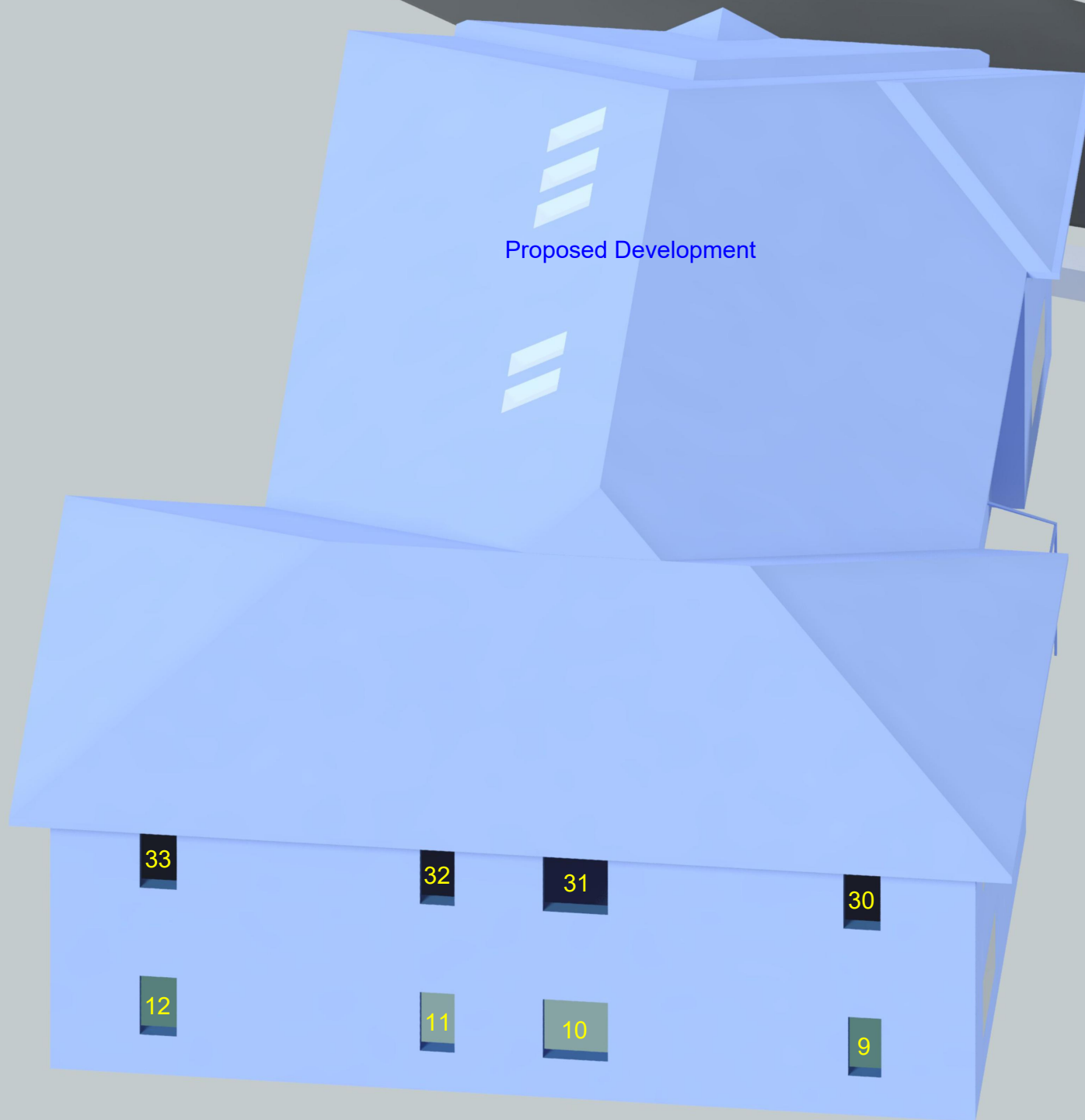
APPENDIX 1

WINDOW KEY & NO SKY LINE CONTOURS





Proposed Development





Proposed Development

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Proposed Development

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Proposed Ground Floor

Window Key and No Sky Line Contours



Key:

- Window reference
-  Area receives no direct sky light (applied to habitable rooms)
-  Area does receive direct sky light.
-  Light aperture.

Drawing Title: Window Key and No Sky Line Contours

Scale: Do not scale

Drawing No: 1 of 3 Rev. .

Rev	Date	Details of revision



Right of Light Consulting
 Burley House
 15 - 17 High Street
 Rayleigh
 Essex
 SS6 7EW
 TEL 0800 197 4836
 E-MAIL enquiries@right-of-light.co.uk
 WEBSITE www.right-of-light.co.uk

Proposed First Floor

Window Key and No Sky Line Contours



Key:

- Window reference
-  Area receives no direct sky light (applied to habitable rooms)
-  Area does receive direct sky light.
-  Light aperture.

Drawing Title: Window Key and No Sky Line Contours

Scale: Do not scale

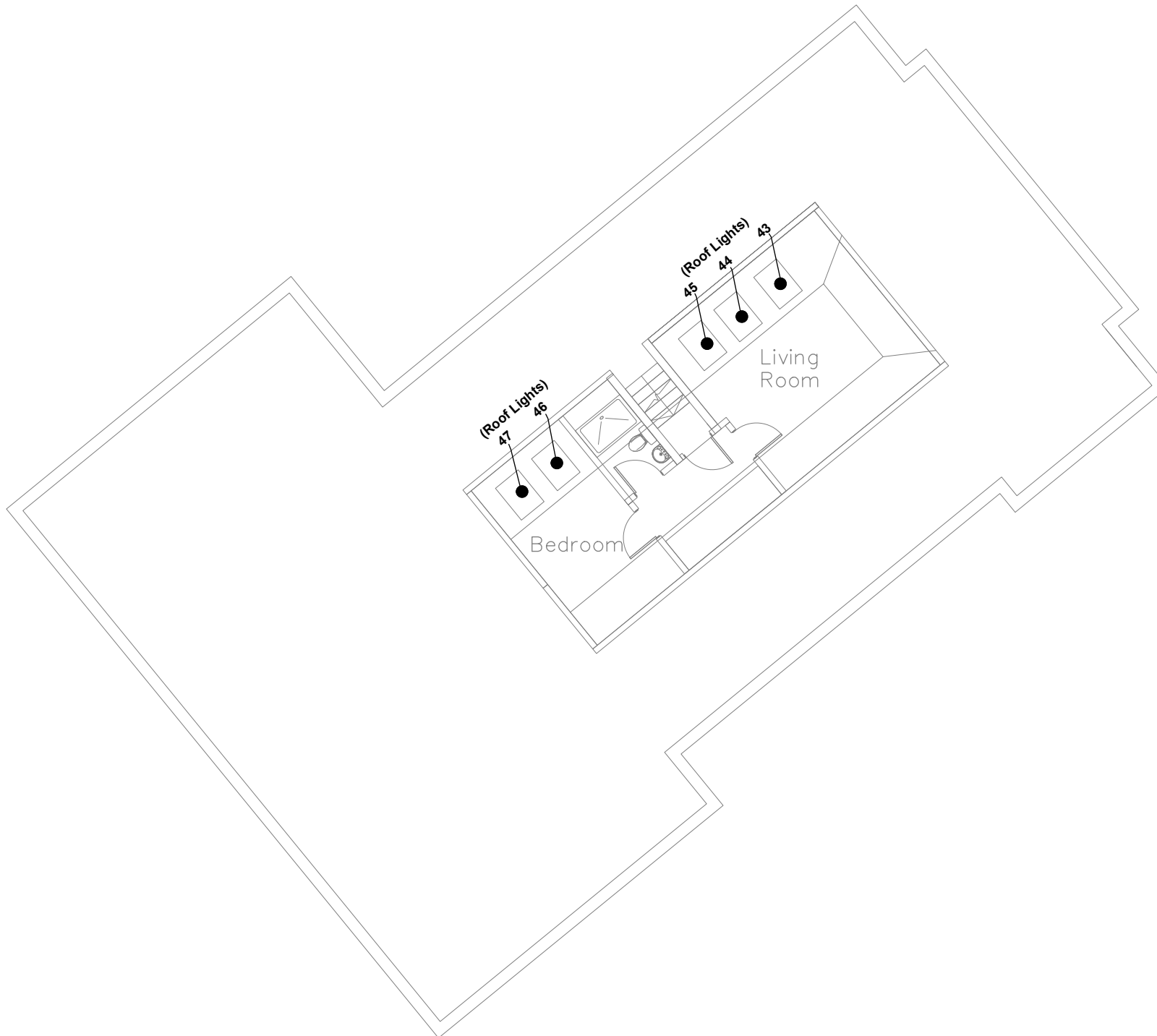
Drawing No: 2 of 3

Rev. .

Rev	Date	Details of revision



Right of Light Consulting
 Burley House
 15 - 17 High Street
 Rayleigh
 Essex
 SS6 7EW
 TEL 0800 197 4836
 E-MAIL enquiries@right-of-light.co.uk
 WEBSITE www.right-of-light.co.uk



Key:

● Window reference

▨ Area receives no direct sky light
(applied to habitable rooms)

□ Area does receive direct sky light.

▬ Light aperture.

Drawing Title: Window Key and No Sky Line Contours

Scale: Do not scale

Drawing No: 3 of 3 Rev. .

Rev	Date	Details of revision

APPENDIX 2

DAYLIGHT & SUNLIGHT DATA

Appendix 2 - Average Daylight Factor (ADF)

Bampton House, Bampton Court, Hursley Road, Eastleigh, Hampshire SO53 2TA

Reference	Target ADF based on room use		Average Daylight Factor Coefficients						ADF	Trees	Summer		Winter	
	Primary room use	ADF	T	Aw	A	R	θ	θ _{no trees}		T _{psummer}	ADF	T _{pwinter}	ADF	
<u>Bampton House</u>														
<u>Ground Floor</u>														
Window 1			0.68	0.76	84.9	0.69	73.4	0.9%	79.2	0.5	0.9%	0.7	0.9%	
Window 2			0.68	0.59	84.9	0.69	70.0	0.6%	70.0	0.5	0.6%	0.7	0.6%	
Window 3			0.68	2.59	84.9	0.69	66.3	2.7%	69.4	0.5	2.7%	0.7	2.7%	
Total ADF for room	Living/Dining/Kitchen	2.0%						4.2%			4.2%		4.2%	
Window 4	Living Room	1.5%	0.68	1.4	88.67	0.71	73.7	1.6%	78.8	0.35	1.6%	0.7	1.7%	
Window 5	Bedroom	1.0%	0.68	1.18	53.88	0.72	70.1	2.2%	76.4	0.35	2.3%	0.7	2.3%	
Window 6	Bedroom	1.0%	0.68	0.73	59.05	0.73	59.5	1.1%	60.4	0.35	1.1%	0.7	1.1%	
Window 7	Living Room	1.5%	0.68	1.4	78.56	0.71	66.1	1.6%	82.6	0.35	1.8%	0.7	1.9%	
Window 8			0.68	2.52	88.66	0.7	55.9	2.1%	82.7	0.35	2.4%	0.7	2.8%	
Window 9			0.68	0.68	88.66	0.7	69.2	0.7%	84.3	0.35	0.8%	0.7	0.8%	
Total ADF for room	Living/Dining/Kitchen	2.0%						2.8%			3.2%		3.6%	
Window 10	Bedroom	1.0%	0.68	1.33	51.46	0.72	77.6	2.8%	85.9	0.35	2.9%	0.7	3.0%	
Window 11	Bedroom	1.0%	0.68	0.71	50.44	0.73	78.9	1.6%	85.9	0.35	1.7%	0.7	1.7%	
Window 12			0.68	0.76	74.56	0.71	76.3	1.1%	86.9	0.35	1.1%	0.7	1.2%	
Window 13			0.68	1.3	74.56	0.71	39.0	0.9%	83.7	0.35	1.3%	0.7	1.7%	
Total ADF for room	Living/Dining/Kitchen	2.0%						2.0%			2.4%		2.9%	
Window 14			0.68	1.32	56.76	0.71	33.2	1.1%	82.0	0.35	1.6%	0.7	2.2%	
Window 15			0.68	0.7	56.76	0.71	25.7	0.4%	56.6	0.35	0.6%	0.7	0.8%	
Total ADF for room	Living Room	1.5%						1.5%			2.2%		3.0%	
Window 16	Bedroom	1.0%	0.68	1.03	45.88	0.73	22.0	0.7%	55.6	0.35	1.1%	0.7	1.5%	
Window 17	Bedroom	1.0%	0.68	1.03	49.23	0.72	22.8	0.7%	78.5	0.35	1.3%	0.7	1.9%	
Window 18			0.68	2.07	88.06	0.7	15.4	0.5%	80.2	0.35	1.2%	0.7	1.9%	
Window 19			0.68	0.59	88.06	0.7	47.2	0.4%	74.7	0.35	0.5%	0.7	0.6%	
Window 20			0.68	0.76	88.06	0.7	65.1	0.7%	81.4	0.35	0.8%	0.7	0.9%	
Total ADF for room	Living/Dining/Kitchen	2.0%						1.6%			2.5%		3.4%	

Appendix 2 - Average Daylight Factor (ADF)

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Reference	Target ADF based on room use		Average Daylight Factor Coefficients						ADF	Trees	Summer		Winter	
	Primary room use	ADF	T	Aw	A	R	θ	θ _{no trees}		T _{psummer}	ADF	T _{pwinter}	ADF	
Window 21	Bedroom	1.0%	0.68	1.33	53.54	0.72	70.6	2.5%	80.9	0.35	2.6%	0.7	2.7%	
<u>First Floor</u>														
Window 22			0.68	0.76	84.46	0.69	68.2	0.8%	72.3	0.35	0.8%	0.7	0.8%	
Window 23			0.68	0.76	84.46	0.69	55.3	0.6%	55.3	0.35	0.6%	0.7	0.6%	
Window 24			0.68	2.6	84.46	0.69	59.2	2.4%	61.4	0.35	2.4%	0.7	2.4%	
Total ADF for room	Living/Dining/Kitchen	2.0%						3.8%			3.8%		3.8%	
Window 25	Bedroom	1.0%	0.68	1.4	57.05	0.72	56.8	2.0%	60.3	0.35	2.0%	0.7	2.0%	
Window 26	Living/Dining/Kitchen	2.0%	0.68	2.52	85.45	0.7	56.2	2.2%	61.1	0.35	2.3%	0.7	2.4%	
Window 27	Bedroom	1.0%	0.68	0.7	42.66	0.73	45.1	1.1%	45.7	0.35	1.1%	0.7	1.1%	
Window 28	Living Room	1.5%	0.68	1.4	72.27	0.71	51.3	1.4%	62.3	0.35	1.5%	0.7	1.6%	
Window 29			0.68	2.52	85.37	0.7	41.4	1.6%	62.4	0.35	1.9%	0.7	2.2%	
Window 30			0.68	0.76	85.37	0.7	54.7	0.6%	74.3	0.35	0.7%	0.7	0.8%	
Total ADF for room	Living/Dining/Kitchen	2.0%						2.2%			2.6%		3.0%	
Window 31	Bedroom	1.0%	0.68	1.33	54.49	0.72	68.4	2.3%	74.3	0.35	2.4%	0.7	2.5%	
Window 32	Bedroom	1.0%	0.68	0.71	49.2	0.73	69.5	1.5%	74.1	0.35	1.5%	0.7	1.5%	
Window 33			0.68	0.76	74.29	0.71	65.1	0.9%	74.1	0.35	1.0%	0.7	1.0%	
Window 34			0.68	1.3	74.29	0.71	16.2	0.4%	62.2	0.35	0.8%	0.7	1.2%	
Total ADF for room	Living/Dining/Kitchen	2.0%						1.3%			1.8%		2.2%	
Window 35			0.68	1.32	71.59	0.71	12.1	0.3%	61.4	0.35	0.7%	0.7	1.2%	
Window 36			0.68	0.97	71.59	0.71	25.7	0.5%	51.6	0.35	0.6%	0.7	0.8%	
Total ADF for room	Living Room	1.5%						0.8%			1.3%		2.0%	
Window 37	Bedroom	1.0%	0.68	1.03	46.86	0.73	5.6	0.2%	41.9	0.35	0.6%	0.7	1.0%	
Window 38	Bedroom	1.0%	0.68	1.03	48.84	0.72	2.8	0.1%	55.3	0.35	0.6%	0.7	1.2%	
Window 39			0.68	2.66	87.67	0.69	0.4	0.0%	60.6	0.35	0.9%	0.7	1.7%	
Window 40			0.68	0.76	87.67	0.69	29.4	0.3%	56.6	0.35	0.4%	0.7	0.5%	
Window 41			0.68	0.76	87.67	0.69	57.9	0.7%	73.0	0.35	0.7%	0.7	0.8%	
Total ADF for room	Living/Dining/Kitchen	2.0%						1.0%			2.0%		3.0%	

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Bampton House, Bampton Court, Hursley Road, Eastleigh, Hampshire SO53 2TA

Reference	Target ADF based on room use		Average Daylight Factor Coefficients						ADF	Trees	Summer		Winter	
	Primary room use	ADF	T	Aw	A	R	θ	θ _{no trees}		Tp _{summer}	ADF	Tp _{winter}	ADF	
Window 42	Bedroom	1.0%	0.68	1.33	53.23	0.72	64.8	2.3%	72.8	0.35	2.4%	0.7	2.5%	
<u>Second Floor</u>														
Window 43	Living Room	1.5%	0.68	0.73	130.89	0.72	112.3	0.9%	131.5	0.35	0.9%	0.7	1.0%	
Window 44			0.68	0.73	130.89	0.72	113.2	0.9%	131.5	0.35	0.9%	0.7	1.0%	
Window 45			0.68	0.73	130.89	0.72	113.9	0.9%	131.5	0.35	0.9%	0.7	1.0%	
Total ADF for room									2.7%			2.7%		3.0%
Window 46	Bedroom	1.0%	0.68	0.73	88.47	0.73	115.9	1.4%	131.5	0.35	1.5%	0.7	1.5%	
Window 47			0.68	0.73	88.47	0.73	116.0	1.4%	131.4	0.35	1.5%	0.7	1.5%	
Total ADF for room									2.8%			3.0%		3.0%

Appendix 2 - Room Depth Calculation

Bampton House, Bampton Court, Hursley Road, Eastleigh, Hampshire SO53 2TA

Reference	Room Depth Coefficients				Room Depth Calculation		
	L	W	H	Rb	$L/W + L/H$	$\leq$	$2/1-Rb$
<u>Bampton House</u>							
<u>Ground Floor</u>							
Window 4	6.0	3.2	2.3	0.71	4.48	$\leq$	6.97
Window 5	3.4	2.8	2.3	0.72	2.69	$\leq$	7.17
Window 6	3.4	3.2	2.3	0.73	2.54	$\leq$	7.32
Window 7	5.1	3.3	2.2	0.71	3.86	$\leq$	7.01
Window 10	3.2	2.9	2.2	0.72	2.56	$\leq$	7.14
Window 11	3.4	2.7	2.2	0.73	2.8	$\leq$	7.38
Window 16	3.2	2.4	2.3	0.73	2.72	$\leq$	7.3
Window 17	2.8	3.0	2.3	0.72	2.15	$\leq$	7.26
Window 21	3.8	2.5	2.2	0.72	3.25	$\leq$	7.16
<u>First Floor</u>							
Window 25	2.9	3.7	2.7	0.72	1.86	$\leq$	7.08
Window 26	5.0	3.8	2.7	0.7	3.17	$\leq$	6.76
Window 27	2.5	2.8	2.7	0.73	1.82	$\leq$	7.45
Window 28	4.0	3.8	2.7	0.71	2.53	$\leq$	6.98
Window 31	3.2	3.2	2.7	0.72	2.19	$\leq$	7.1
Window 32	3.2	2.7	2.7	0.73	2.37	$\leq$	7.37
Window 37	3.3	2.4	2.7	0.73	2.6	$\leq$	7.28
Window 38	2.8	3.0	2.7	0.72	1.97	$\leq$	7.24
Window 42	3.8	2.5	2.7	0.72	2.93	$\leq$	7.14

Appendix 2 - Sunlight to Windows

Bampton House, Bampton Court, Hursley Road, Eastleigh, Hampshire S

Reference	Room Use	APSH _{no trees}		APSH _{opaque tree}		Transparency, Tp		APSH	
		Total	Winter	Total	Winter	Tp _{summer}	Tp _{winter}	Total	Winter
<u>Bampton House</u>									
<u>Ground Floor</u>									
Window 1	Living/Dining/Kitchen	10%	0%	10%	0%	0.2	0.55	10%	0%
Window 2	Living/Dining/Kitchen	10%	0%	10%	0%	0.2	0.55	10%	0%
Window 3	Living/Dining/Kitchen	54%	18%	51%	15%	0.2	0.55	52%	16%
Window 4	Living Room	58%	21%	54%	17%	0.2	0.55	56%	19%
Window 7	Living Room	59%	21%	44%	11%	0.2	0.55	53%	16%
Window 8	Living/Dining/Kitchen	63%	24%	35%	12%	0.2	0.55	53%	17%
Window 9	Living/Dining/Kitchen	45%	14%	37%	14%	0.2	0.55	43%	14%
Window 12	Living/Dining/Kitchen	47%	15%	47%	15%	0.2	0.55	47%	15%
Window 13	Living/Dining/Kitchen	10%	0%	6%	0%	0.2	0.55	9%	0%
Window 14	Living Room	10%	0%	6%	0%	0.2	0.55	9%	0%
Window 15	Living Room	0%	0%	0%	0%	0.2	0.55	0%	0%
Window 18	Living/Dining/Kitchen	13%	2%	1%	0%	0.2	0.55	10%	1%
Window 19	Living/Dining/Kitchen	6%	0%	6%	0%	0.2	0.55	6%	0%
Window 20	Living/Dining/Kitchen	11%	0%	11%	0%	0.2	0.55	11%	0%
<u>First Floor</u>									
Window 22	Living/Dining/Kitchen	11%	0%	11%	0%	0.2	0.55	11%	0%
Window 23	Living/Dining/Kitchen	9%	0%	9%	0%	0.2	0.55	9%	0%
Window 24	Living/Dining/Kitchen	38%	21%	36%	19%	0.2	0.55	37%	20%
Window 26	Living/Dining/Kitchen	37%	20%	32%	15%	0.2	0.55	34%	17%
Window 28	Living Room	37%	20%	27%	10%	0.2	0.55	32%	15%
Window 29	Living/Dining/Kitchen	38%	21%	21%	7%	0.2	0.55	30%	13%
Window 30	Living/Dining/Kitchen	38%	15%	25%	10%	0.2	0.55	34%	12%
Window 33	Living/Dining/Kitchen	38%	15%	34%	15%	0.2	0.55	37%	15%
Window 34	Living/Dining/Kitchen	7%	0%	0%	0%	0.2	0.55	6%	0%

Appendix 2 - Sunlight to Windows

Bampton House, Bampton Court, Hursley Road, Eastleigh, Hampshire S

Reference	Room Use	APSH _{no trees}		APSH _{opaque tree}		Transparency, Tp		APSH	
		Total	Winter	Total	Winter	Tp _{summer}	Tp _{winter}	Total	Winter
Window 35	Living Room	7%	0%	0%	0%	0.2	0.55	6%	0%
Window 36	Living Room	0%	0%	0%	0%	0.2	0.55	0%	0%
Window 39	Living/Dining/Kitchen	9%	2%	0%	0%	0.2	0.55	7%	1%
Window 40	Living/Dining/Kitchen	5%	0%	5%	0%	0.2	0.55	5%	0%
Window 41	Living/Dining/Kitchen	11%	0%	11%	0%	0.2	0.55	11%	0%
<u>Second Floor</u>									
Window 43	Living Room	23%	0%	20%	0%	0.2	0.55	22%	0%
Window 44	Living Room	23%	0%	19%	0%	0.2	0.55	22%	0%
Window 45	Living Room	23%	0%	19%	0%	0.2	0.55	22%	0%

Appendix 2 - Overshadowing to Gardens and Open Spaces
Bampton House, Bampton Court, Hursley Road, Eastleigh, Hampshire SO53 2TA

Reference	Total Area	Area receiving at least 2 hours of sunlight on 21 March (opaque trees)		Area receiving at least 2 hours of sunlight on 21 March (no trees)	
<u>Bampton House</u>					
<u>Ground Floor</u>					
Garden 1	120.95 m2	51.01 m2	42%	73.25 m2	61%

APPENDIX 3

OVERSHADOWING TO GARDENS & OPEN SPACES



Key



Receives under two hours sunlight on 21st March before and after the development.



Receives at least two hours sunlight on 21st March before and after the development.

Garden 1

Proposed Development

Drawing Title: Appendix 3 - Overshadowing to Gardens and Open Spaces



**RIGHT OF LIGHT
CONSULTING**
Chartered Surveyors

Right of Light Consulting

Burley House
15 - 17 High Street
Rayleigh
Essex
SS6 7EW
TEL 0800 197 4836
E-MAIL enquiries@right-of-light.co.uk
WEBSITE www.right-of-light.co.uk