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Daylight and Sunlight Study 10a Belmont Street, Camden, London NW1

21st April 2009

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DAYLIGHT AND SUNLIGHT STUDY
10a Belmont Street, Camden, London NW1

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1 EXECUTIVE SUMMARY

1.1 Overview

- 1.1.1 Right of Light Consulting has been commissioned to undertake a daylight and sunlight study of the proposed development at 10a Belmont Street, Camden, London NW1 10.
- 1.1.2 The aim of the study is to assess the impact of the development on the light receivable by the neighbouring properties at 2 to 8, 12 & 14, 21, 23 and 27 Belmont Street and 1 to 64 Hardington. The study is based on the various numerical tests laid down in the Building Research Establishment (BRE) Digest 209 'Site Layout Planning for Daylight and Sunlight: a good practice guide' by P J Littlefair 1991.
- 1.1.3 The window key in Appendix 1 identifies the windows analysed in this study. Appendix 2 gives the numerical results of the various daylight and sunlight tests.
- 1.1.4 We are of the opinion that in general the impact of the development will be relatively low. Whilst we have identified some transgression of the BRE recommendations, we are of the opinion that the development design may be deemed to be acceptable when taking into account all material planning considerations which affect layout design.

2 INFORMATION SOURCE

2.1 Documents Considered

2.1.1 This report is based on drawings:

John Pardey Architects

TBC

3 METHODOLOGY OF THE STUDY

3.1 BRE Digest 209 : Site Layout Planning for Daylight and Sunlight

3.1.1 The study is based on the various numerical tests laid down in the Building Research Establishment (BRE) Digest 209 'Site Layout Planning for Daylight and Sunlight: a good practice guide' by P J Littlefair 1991. In general, the BRE tests are based on the requirements of the British Standard, BS 8206 Part 2.

3.1.2 The standards set out in the BRE guide are intended to be used flexibly. In instances where there is a special requirement for daylight or sunlight, higher levels may be deemed necessary. In other situations, such as with urban developments, lower daylight and sunlight levels may be unavoidable. The following statement is quoted directly from the BRE guide:

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

3.2 Daylight to Windows

3.2.1 Diffuse daylight is the light received from the sun which has been diffused through the sky. Even on a cloudy day when the sun is not visible, a room will continue to be lit with light from the sky. This is diffuse daylight.

3.2.2 Diffuse daylight calculations should be undertaken to all main windows at adjoining residential properties. The calculations should be applied to non-domestic buildings where there is a reasonable expectation of daylight. The BRE guide states that windows to bathrooms, toilets, storerooms, circulation areas and garages need not be analysed.

3.2.3 The BRE guide contains three tests which measure diffuse daylight. These are explained in the following sections.

3.2.4 Test 1 Vertical Sky Component

The percentage of the sky visible from the centre of a window is known as the Vertical Sky Component. Diffuse daylight will be adversely affected if after a development the Vertical Sky Component is both less than 27% and less than 0.8 times its former value.

3.2.5 Test 2 No-Sky Line

The no-sky line test involves calculating the percentage of a room's area which can receive direct sky light. Diffuse daylight is likely to be adversely affected if after the development the area of a room receiving direct skylight is less than 0.8 times its former value.

3.2.6 Test 3 Average Daylight Factor

The Average Daylight Factor takes into account a range of variables. For example, the size of the window, the type of glazing, whether the room has more than one window and factors such as the reflectivity of the internal decor.

The BRE test is based on the British Standard BS 8206 Part 2, which recommends an Average Daylight Factor of 5% or more if there is no supplementary electric lighting, or 2% or more if supplementary lighting is provided. There are additional minimum recommendations for dwellings of 2% for kitchens, 1.5% for living rooms and 1% for bedrooms.

3.3 Sunlight availability to windows

- 3.3.1 The BRE sunlight tests should be applied to all main living rooms and conservatories which have a window which faces within 90 degrees of due south. The guide states that kitchens and bedrooms are less important, although care should be taken not to block too much sunlight. In non-domestic buildings, any spaces which are deemed to have a specific requirement for sunlight should be checked.
- 3.3.2 The BRE guide recommends that main living room windows should receive at least 25% of the total annual probable sunlight hours, including at least 5% of the annual probable sunlight hours during the winter months between 21st September and 21st March. Sunlight availability will be adversely affected if both the total number of sunlight hours falls below these targets and is less than 0.8 times the amount before the development.

3.4 Overshadowing to Gardens and Open Spaces

- 3.4.1 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, and allotments
 - 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
- 3.4.2 The BRE guide recommends that for an open space to appear adequately lit throughout the year, no more than 40% and preferably no more than 25% of its area should be prevented from receiving any sunlight at all on 21st March. Sunlight availability will be adversely affected if these targets are not met and the amount of sunlight received on 21st March is less than 0.8 times the amount before the development.

4 RESULTS OF THE STUDY

4.1 Windows & Amenity Areas Considered

4.1.1 Appendix 1 provides a plan to indicate the positions of the windows and gardens analysed in this study. We have taken a prudent approach by testing the lowest and nearest neighbouring windows.

4.2 Numerical Results

4.2.1 Appendix 2 lists the detailed numerical daylight and sunlight test results. The results are interpreted below.

4.3 Daylight to Windows

4.3.1 The Vertical Sky Component test and Average Daylight Factor test are used to measure the amount of diffuse daylight in each room. The Vertical Sky Component test measures the access to visible sky from a point at the centre of each main window. Our results show that some of the windows at 12 and 14 Belmont Street fail the Vertical Sky Component test. Where a fail result occurs, it does not automatically follow that daylighting will be of a poor standard. Depending on factors such as room depth (which in this case we have taken to be approximately half the overall property depth) and the size of its window, a room may still receive satisfactory levels of daylight. This can be checked by applying the Average Daylight factor test – which takes into account the additional variables such as window size and room depth. In the case of the Belmont Street development, the results of the Average Daylight Factor test indicate that the impact of the development will be relatively low.

4.3.2 The BRE No Sky Line test measures the distribution of daylight within each room. 58 of the 62 tested pass the No Sky Line test. The four windows that fail, fail by a relatively small margin. (Before/after ratios of 0.72 and above – against the BRE target of 0.8).

4.3.3 Whilst there is some minor transgression of the BRE recommendations we are of the opinion that the results may be deemed to be acceptable bearing in mind the urban context of the site.

4.4 Sunlight to Windows

- 4.4.1 Windows 24, 26, 28, 30, 36 and 37 fail the BRE direct sunlight hours tests. However, there are two mitigating factors to mention. Firstly the windows only just face within 90 degrees of due south i.e. they do not benefit from an ideal southerly aspect. Had the windows faced outside of 90 degrees of due south, they would not be required to be tested for direct sunlight under the BRE guidelines. Secondly, in urban locations it is very often not possible to achieve recommended levels of direct sunlight – particularly during the winter months. The net effect of these two factors is that it is not practical avoid transgression of the BRE recommendations in this area.
- 4.4.2 All other windows tested pass both the total annual sunlight hours test and the winter sunlight hours test.

4.5 Overshadowing to Gardens and Open Spaces

- 4.5.1 All neighbouring gardens pass the BRE overshadowing to gardens and open spaces test. The proposed development will not cause more than 40% of any garden or amenity area to remain in permanent shadow on the 21st March.

4.6 Conclusion

- 4.6.1 We are of the opinion that in general the impact of the development will be relatively low. Whilst we have identified some transgression of the BRE recommendations, we are of the opinion that the development design may be deemed to be acceptable when taking into account all material planning considerations which affect layout design.

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 External areas will have been inspected from best vantage points or a standard twelve-foot surveyor's ladder. We shall have undertaken the survey following the guidelines of the RICS publication "Surveying Safely".
- 5.1.3 Where limited access is available, reasonable assumptions will have been made.
- 5.1.4 Right of Light Consulting have endeavoured to include in the report those matters, which they have knowledge of or of which they have been made aware, that might adversely affect the validity of the opinion given.
- 5.1.5 Right of Light Consulting have indicated the sources of all information used in the report.
- 5.1.6 Right of Light Consulting will notify those instructing them immediately and confirm in writing if for any reason the report requires any correction or qualification.
- 5.1.7 Right of Light Consulting confirm that they have not entered into any arrangement where the amount or payment of fees is in any way dependent on the outcome of a planning decision.
- 5.1.8 Right of Light Consulting confirm that they have used their best endeavours to ensure that the facts stated in this report are correct and that the opinions expressed represent a true and complete professional opinion.

5.2 Project Specific

- 5.2.1 None

APPENDICES

APPENDIX 1

WINDOW & GARDEN KEY

Key

- Window 1 ● Window reference
- Development site
- Neighbouring Residential Properties
- Neighbouring Gardens & Amenity Areas

Project Name: **10a Belmont Street, Camden, London NW1 10**

Drawing Title: **Appendix 1 - Neighbouring Windows**

Scale: **Do not scale** Date: **21.04.2009**

Drawing No: **1** Rev: **-**

Sheet 1 of 1

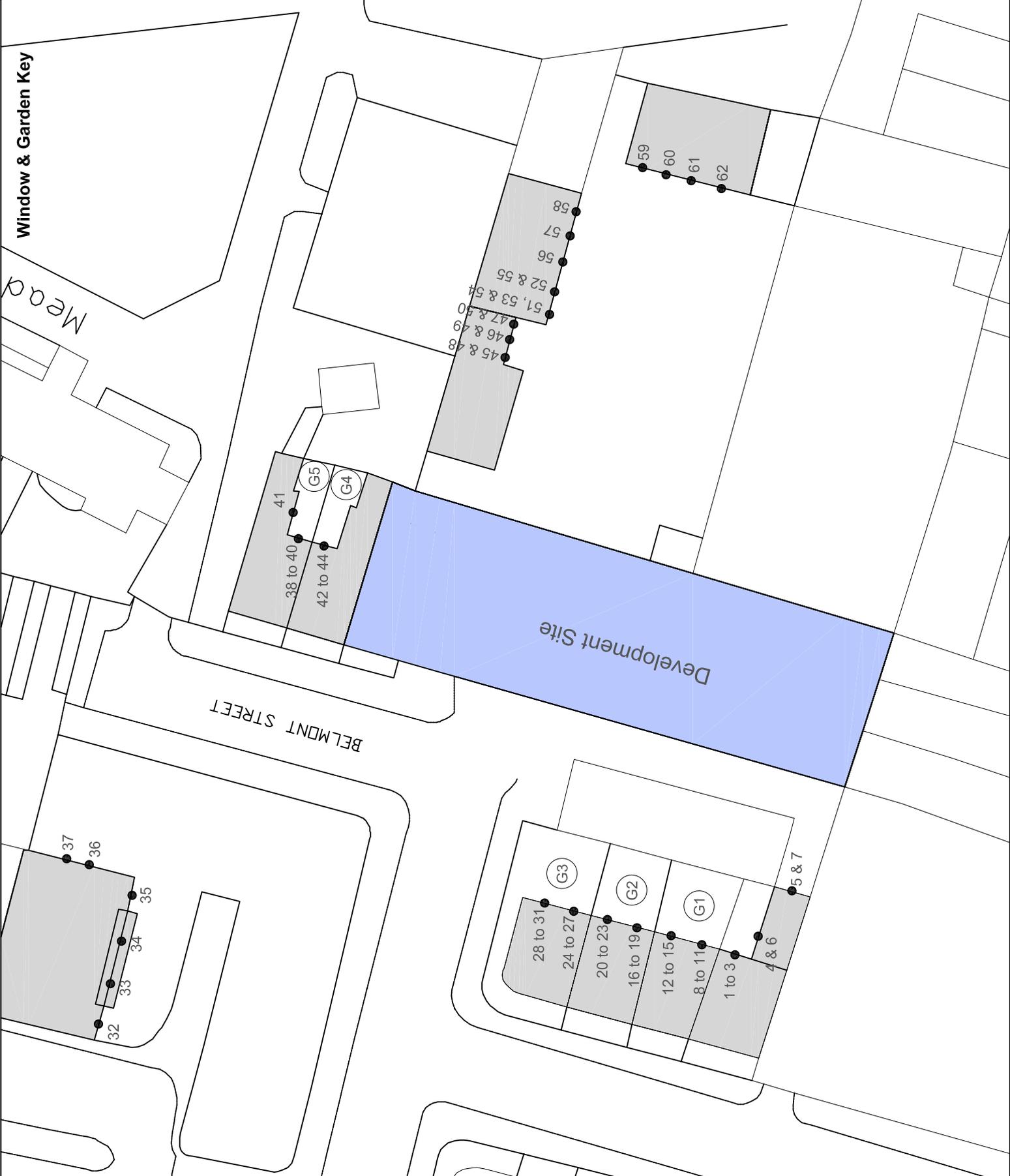
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APPENDIX 2

DAYLIGHT AND SUNLIGHT RESULTS

Appendix 2 - Daylight and Sunlight Results
10a Belmont Street, Camden, London NW1 10

Reference	Use Class	Vertical Sky Component						Daylight to Windows						Sunlight to Windows							
		Existing		Proposed		Ratio	Result	Existing	Proposed	No-Sky Line		Ratio	Result	Average Daylight Factor		Total Sunlight Hours		Winter Sunlight Hours		Ratio	Result
		Proposed	Ratio	Proposed	Ratio					Target	Existing			Proposed	Existing	Proposed	Existing	Proposed	Existing		
1 to 64 Hardington																					
Window 32 (Ground)	Sup Light	34%	1.00	34%	1.00	Pass	94%	94%	1.00	Pass	2.0%	2.3%	2.3%	61%	59%	0.97	Pass	25%	23%	0.92	Pass
Window 33 (Ground)	Sup Light	20%	0.95	19%	1.00	Pass	96%	96%	1.00	Pass	2.0%	2.5%	2.5%	24%	24%	1.00	Pass	21%	21%	1.00	Pass
Window 34 (Ground)	Sup Light	19%	0.95	18%	1.00	Pass	95%	95%	1.00	Pass	2.0%	2.4%	2.4%	22%	22%	1.00	Pass	20%	20%	1.00	Pass
Window 35 (Ground)	Sup Light	33%	0.97	32%	1.00	Pass	95%	95%	1.00	Pass	2.0%	2.2%	2.2%	54%	53%	0.98	Pass	21%	20%	0.95	Pass
Window 36 (Ground)	Sup Light	27%	0.96	26%	1.00	Pass	97%	97%	1.00	Pass	2.0%	2.7%	2.7%	22%	21%	0.95	Pass	4%	3%	0.75	Fail
Window 37 (Ground)	Sup Light	27%	0.96	26%	1.00	Pass	97%	97%	1.00	Pass	2.0%	2.7%	2.7%	23%	21%	0.91	Pass	5%	3%	0.60	Fail
12 and 14 Belmont Street																					
Window 38 (Second)	Bedroom	34%	0.88	30%	0.99	Pass	97%	96%	0.99	Pass	1.0%	2.0%	1.8%	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Window 39 (First)	Bedroom	33%	0.88	29%	0.99	Pass	97%	96%	0.99	Pass	1.0%	2.2%	2.0%	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Window 40 (Ground)	Bedroom	19%	0.84	16%	0.99	Pass	96%	95%	0.99	Pass	1.0%	1.5%	1.4%	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Window 41 (Ground)	Kitchen	14%	0.50	7%	0.72	Fail	76%	55%	0.72	Fail	2.0%	1.2%	0.8%	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Window 42 (Second)	Bedroom	34%	0.76	26%	0.94	Pass	97%	91%	0.94	Pass	1.0%	1.9%	1.6%	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Window 43 (First)	Bedroom	32%	0.78	25%	0.94	Pass	97%	91%	0.94	Pass	1.0%	2.2%	1.8%	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Window 44 (Ground)	Bedroom	21%	0.95	20%	0.94	Pass	96%	90%	0.94	Pass	1.0%	1.6%	1.6%	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
21 and 23 Belmont Street																					
Window 45 (First)	Sup Light	21%	1.00	21%	1.00	Pass	99%	99%	1.00	Pass	2.0%	3.0%	2.9%	32%	32%	1.00	Pass	16%	16%	1.00	Pass
Window 46 (First)	Sup Light	27%	0.96	26%	1.00	Pass	99%	99%	1.00	Pass	2.0%	3.0%	2.9%	54%	53%	0.98	Pass	21%	20%	0.95	Pass
Window 47 (First)	Sup Light	29%	0.93	27%	1.00	Pass	99%	99%	1.00	Pass	2.0%	3.0%	2.9%	46%	42%	0.91	Pass	19%	17%	0.89	Pass
Window 48 (Ground)	Sup Light	18%	1.00	18%	1.00	Pass	97%	97%	1.00	Pass	2.0%	3.9%	3.8%	28%	28%	1.00	Pass	13%	13%	1.00	Pass
Window 49 (Ground)	Sup Light	21%	0.95	20%	1.00	Pass	97%	97%	1.00	Pass	2.0%	3.9%	3.8%	35%	35%	1.00	Pass	11%	11%	1.00	Pass
Window 50 (Ground)	Sup Light	20%	0.90	18%	1.00	Pass	97%	97%	1.00	Pass	2.0%	3.9%	3.8%	33%	30%	0.91	Pass	10%	9%	0.90	Pass
Window 51 (Second)	Sup Light	29%	0.93	27%	0.99	Pass	50%	49%	0.99	Pass	2.0%	1.3%	1.3%	46%	44%	0.96	Pass	19%	18%	0.95	Pass
Window 52 (Second)	Sup Light	29%	0.93	27%	0.99	Pass	50%	49%	0.99	Pass	2.0%	1.3%	1.3%	46%	44%	0.96	Pass	18%	18%	1.00	Pass
Window 53 (First)	Sup Light	26%	0.96	25%	0.99	Pass	39%	38%	0.99	Pass	2.0%	1.0%	1.0%	40%	37%	0.93	Pass	13%	12%	0.92	Pass
Window 54 (Ground)	Sup Light	22%	0.95	21%	0.99	Pass	58%	57%	0.99	Pass	2.0%	1.7%	1.6%	44%	42%	0.95	Pass	10%	10%	1.00	Pass
Window 55 (Ground)	Sup Light	24%	0.96	23%	1.00	Pass	97%	97%	1.00	Pass	2.0%	3.4%	3.3%	47%	44%	0.94	Pass	13%	13%	1.00	Pass
Window 56 (Ground)	Sup Light	24%	0.96	23%	1.00	Pass	97%	97%	1.00	Pass	2.0%	3.4%	3.3%	44%	42%	0.95	Pass	11%	11%	1.00	Pass
Window 57 (Ground)	Sup Light	23%	0.96	22%	1.00	Pass	97%	97%	1.00	Pass	2.0%	3.4%	3.3%	42%	42%	1.00	Pass	10%	10%	1.00	Pass
Window 58 (Ground)	Sup Light	20%	0.95	19%	1.00	Pass	97%	97%	1.00	Pass	2.0%	3.4%	3.3%	38%	36%	0.95	Pass	7%	7%	1.00	Pass

**Appendix 2 - Daylight and Sunlight Results
10a Belmont Street, Camden, London NW1 10**

Reference	Use Class	Daylight to Windows						Sunlight to Windows											
		Vertical Sky Component			No-Sky Line			Average Daylight Factor			Total Sunlight Hours			Winter Sunlight Hours					
		Existing	Proposed	Ratio	Result	Existing	Proposed	Ratio	Result	Target	Existing	Proposed	Ratio	Result	Existing	Proposed	Ratio	Result	
<u>27 Belmont Street</u>																			
Window 59 (Ground)	Sup Light	24%	21%	0.88	Pass	98%	97%	0.99	Pass	2.7%	2.0%	0.99	Pass	n/a	n/a	n/a	n/a	n/a	n/a
Window 60 (Ground)	Sup Light	24%	21%	0.88	Pass	98%	97%	0.99	Pass	2.8%	2.0%	0.99	Pass	n/a	n/a	n/a	n/a	n/a	n/a
Window 61 (Ground)	Sup Light	21%	19%	0.90	Pass	98%	96%	0.98	Pass	2.7%	2.0%	0.98	Pass	n/a	n/a	n/a	n/a	n/a	n/a
Window 62 (Ground)	Sup Light	16%	14%	0.88	Pass	97%	97%	1.00	Pass	3.1%	2.0%	1.00	Pass	n/a	n/a	n/a	n/a	n/a	n/a

n/a = window does not face within 90 degrees of due south; or serves a kitchen or bedroom and does not need to be tested for direct sunlight.

**Appendix 2 - Overshadowing to Gardens and Open Spaces
10a Belmont Street, Camden, London NW1 10**

Reference	Total Area	Area receiving no sunlight on 21 st March		Area receiving at least some sunlight on 21 st March		Result				
		Existing	Proposed	Existing	Proposed		Ratio			
<u>4 to 8 Belmont Street</u> Garden 1	41 m ²	13.1 m ²	32%	13.1 m ²	32%	27.4 m ²	68%	1.00	Pass	
	Garden 2	37 m ²	14.2 m ²	38%	14.2 m ²	38%	23.3 m ²	62%	1.00	Pass
	Garden 3	53 m ²	14.6 m ²	28%	14.7 m ²	28%	38.2 m ²	72%	1.00	Pass
<u>12 and 14 Belmont Street</u> Garden 4	19 m ²	16.5 m ²	89%	16.5 m ²	89%	2.1 m ²	11%	1.00	Pass	
	Garden 5	18 m ²	13.3 m ²	75%	13.5 m ²	76%	4.5 m ²	25%	0.96	Pass

APPENDIX 3

OVERSHADOWING TO GARDENS AND OPEN SPACES

Appendix 3 : Overshadowing to Gardens and Open Spaces



Key:



Receives no sunlight at all on 21st March before and after the development.

Receives no sunlight at all on 21st March before the development; but will receive at least some sunlight on 21st March after the development (light improved).

Receives at least some sunlight on 21st March before the development; but will receive no sunlight after the development (light loss).

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

Notes:

- Contours derived in accordance with BRE Digest 209 : Sit Layout Planning for Daylight and Sunlight

Project Name: 10a Belmont Street, Camden, London NW1 10

Drawing Title: BRE Overshadowing Test

Scale: Do not scale Date: 21.04.2009

Drawing No: 1 Rev. -

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- 21.04.09 BRE Overshadowing Test



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