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Daylight and Sunlight Study 27 West End Lane, London NW6 4QJ

8 September 2015



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DAYLIGHT AND SUNLIGHT STUDY 27 West End Lane, London NW6 4QJ

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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 27 West End Lane, London NW6 4QJ.
- 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 14 Mutrix Road, Sycamore Court, 24 West End Lane, 1 to 6 Wharfedale House and 1 to 25 Holmesdale House. The study is based on 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' by P J Littlefair 2011.
- 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. The results confirm that all neighbouring windows pass the BRE diffuse daylight and direct sunlight tests. The development also satisfies the BRE overshadowing to gardens and open spaces requirements.
- 1.1.4 In summary, the proposed development will have a low impact on the light receivable by its neighbouring properties. Right of Light Consulting confirms that the development design satisfies all of the requirements set out in the BRE guide 'Site Layout Planning for Daylight and Sunlight'.

2 INFORMATION SOURCES

2.1 Documents Considered

2.1.1 This report is based on drawings:

Street Plot

1000-110 1000-110E 1000-111 1000-112 1000-113 1000-114	Ground Floor Proposed Ground Floor Existing First Floor GA Plan Proposed Second Floor GA Plan Proposed Third Floor GA Plan Proposed Roof Plan Proposed	Rev A Rev A Rev A Rev A Rev A
1000-200 1000-201 1000-202 1000-202E	Block Sections Block Sections Block Elevations Existing Elevations	Rev C Rev C Rev A Rev A

3 METHODOLOGY OF THE STUDY

3.1 BRE Guide: 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) guide 'Site Layout Planning for Daylight and Sunlight: a guide to good practice' by P J Littlefair 2011. 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. 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 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 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.

Diffuse daylight calculations should be undertaken to all rooms where daylight is required, including living rooms, kitchens and bedrooms. Usually, if a kitchen is less than 13m² it is considered to be a non-habitable room and the daylight tests need not be applied. The BRE guide states that windows to bathrooms, toilets, storerooms, circulation areas and garages need not be analysed.

3.2.2 The BRE guide contains two tests which measure diffuse daylight:

3.2.3 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 may 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.

3.2.4 Test 2 Daylight Distribution

The BRE guide states that where room layouts are known, the impact on the daylighting distribution can be found by plotting the 'no sky line' in each of the main rooms. The no-sky line is a line which separates areas of the working plane that can and cannot have a direct view of the sky. Daylight may be adversely affected if after the development the area of the working plane in a room which can receive direct skylight is reduced to less than 0.8 times its former value.

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.
- 3.3.2 The BRE guide states that sunlight availability may be adversely affected if the centre of the window:
 - receives less than 25% of annual probable sunlight hours, or less than 5% of annual probable sunlight hours between 21 September and 21 March and
 - receives less than 0.8 times its former sunlight hours during either period and
 - has a reduction in sunlight received over the whole year greater than 4% of annual probable sunlight hours.

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
 - 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.

3.4.2 The BRE guide recommends that at least 50% of the area of each amenity space listed above should receive at least two hours of sunlight on 21st March. If as a result of new development an existing garden or amenity area does not meet the above, and the area which can receive two hours of sun on 21st March is less than 0.8 times its former value, then the loss of light is likely to be noticeable.

4 RESULTS OF THE STUDY

4.1 Windows & Amenity Areas Considered

4.1.1 Appendix 1 provides a plan and photographs to indicate the positions of the windows and gardens analysed in this study.

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 All main habitable room windows pass the Vertical Sky Component test with the exception of windows 8 at 2 Mutrix Road and 42 at Sycamore Court. However, these windows are already hampered by a projecting wing and overhangs. The BRE guide acknowledges that where a window has an overhang, as is the case with windows 8 and 42, a larger relative reduction in VSC may be unavoidable, as the building itself contributes to its poor daylighting. One way to test whether the building is the main factor in poor daylighting is to test the windows without the obstructions in place. In this instance without the overhangs in place, windows 8 and 42 would surpass the BRE criteria. The results are presented in appendix 4. The proposed development therefore satisfies the BRE daylight requirements.

4.4 Sunlight to Windows

4.4.1 All windows which face within 90 degrees of due south have been tested for direct sunlight. All windows pass both the total annual sunlight hours test and the winter sunlight hours test. The proposed development therefore satisfies the BRE direct sunlight to windows requirements.

4.5 Overshadowing to Gardens and Open Spaces

4.5.1 The results of the overshadowing test show that sunlight availability after the development will be no less than 0.99 its former value. This is better than the BRE minimum requirement which permits sunlight to be reduced by up to 0.8 times. The proposed development therefore passes the BRE overshadowing to gardens and open spaces test.

4.6 Conclusion

4.6.1 The proposed development will have a low impact on the light receivable by its neighbouring properties. Right of Light Consulting confirms that the development design satisfies all of the requirements set out in the BRE guide 'Site Layout Planning for Daylight and Sunlight'.

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 We have undertaken the survey following the guidelines of the RICS publication "Surveying Safely".
- 5.1.3 We have used our best endeavours to ensure all relevant windows within the neighbouring properties have been identified.
- 5.1.4 Where limited access is available, reasonable assumptions will have been made.
- 5.1.5 We have adopted the conventional approach of assessing all habitable rooms within domestic properties.
- 5.1.6 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.

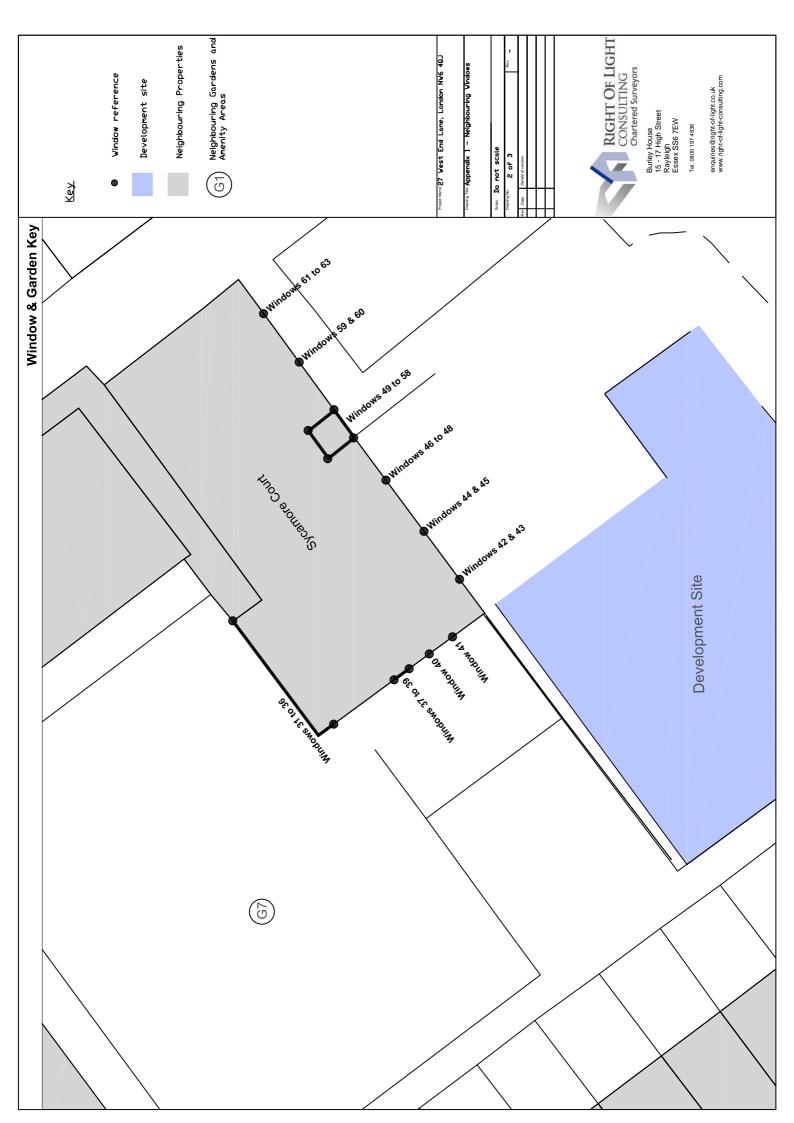
5.2 Project Specific

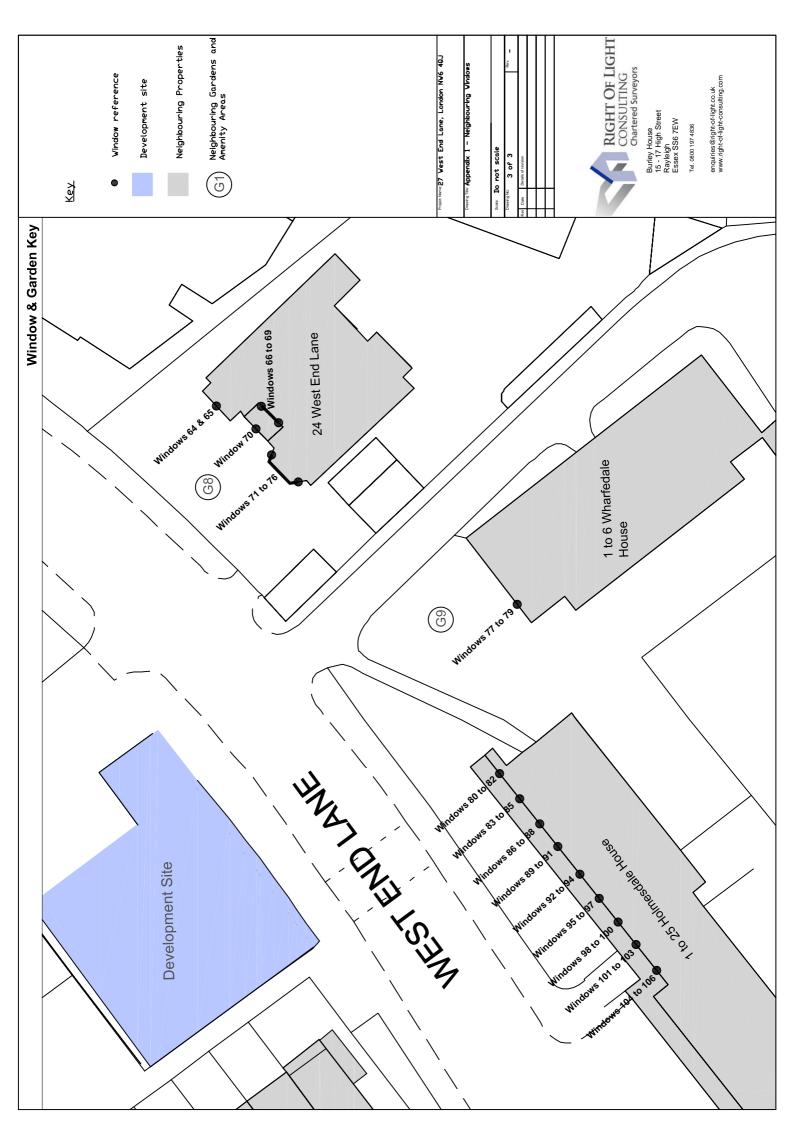
5.2.1 None



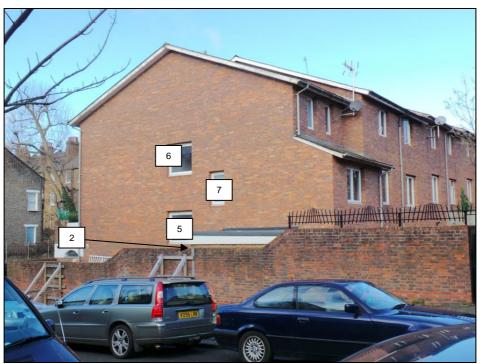
APPENDIX 1
WINDOW & GARDEN KEY







Neighbouring Windows



2 Mutrix Road



2 Mutrix Road



4 Mutrix Road



6 Mutrix Road



8 Mutrix Road



8 Mutrix Road



10 Mutrix Road



10 Mutrix Road



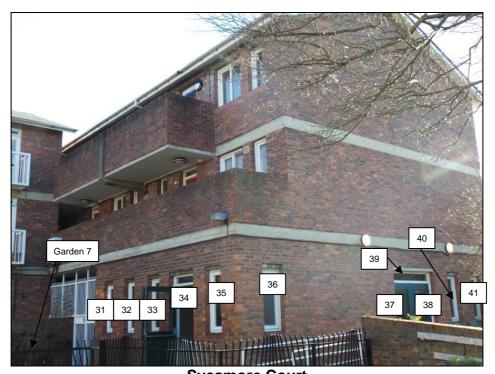
12 Mutrix Road



14 Mutrix Road



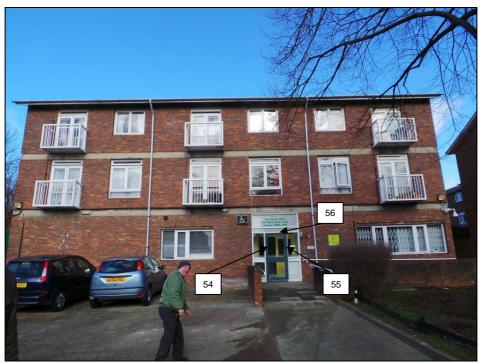
14 Mutrix Road



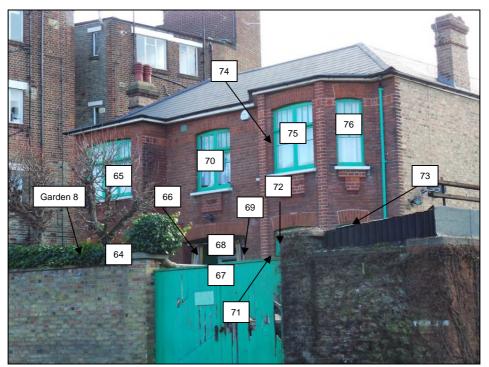
Sycamore Court



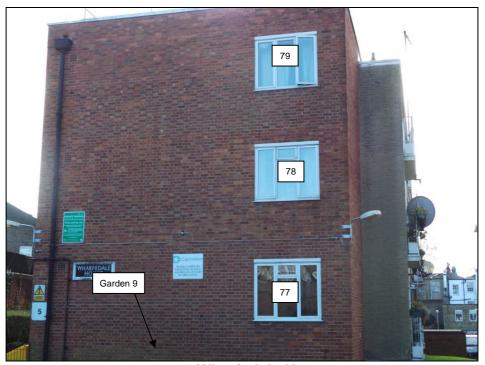
Sycamore Court



Sycamore Court



24 West End Lane



1 to 6 Wharfedale House



1 to 25 Holmesdale House



1 to 25 Holmesdale House



1 to 25 Holmesdale House

APPENDIX	2	
DAYLIGHT AND SUNLIC		

Appendix 2 - Vertical Sky Component 27 West End Lane, London NW6 4QJ

Reference	Use Class	Vertical Sky Component			
Kelelelice	Use Class	Before	After	Loss	Ratio
2 Mutrix Pood					
2 Mutrix Road					
Window 1	Habitable	23.2%	19.0%	4.2%	0.82
Window 2	Habitable	16.4%	16.4%	0.0%	1.0
Window 3	Habitable	21.0%	16.9%	4.1%	0.8
Window 4	Habitable	18.0%	14.5%	3.5%	0.81
Window 5	Habitable	29.3%	29.2%	0.1%	1.0
Window 6	Habitable	31.7%	31.7%	0.0%	1.0
Window 7	Habitable	30.9%	30.7%	0.2%	0.99
Window 8	Habitable	19.5%	13.6%	5.9%	0.7
Window 9	Habitable	22.9%	20.1%	2.8%	0.88
Window 10	Habitable	20.1%	17.3%	2.8%	0.86
4 Mutrix Road					
Window 11	Habitable	27.0%	21.8%	5.2%	0.81
Window 12	Habitable	28.0%	22.9%	5.1%	0.82
Window 13	Habitable	33.3%	28.0%	5.3%	0.84
Window 14	Habitable	22.1%	19.3%	2.8%	0.87
6 Mutrix Road					
Window 15	Habitable	26.4%	22.6%	3.8%	0.86
Window 16	Habitable	29.3%	25.2%	4.1%	0.86
Window 17	Habitable	33.0%	28.4%	4.6%	0.86
Window 18	Habitable	22.0%	19.5%	2.5%	0.89
8 Mutrix Road					
Window 19	Habitable	24.7%	21.5%	3.2%	0.87
Window 20	Habitable	32.7%	29.5%	3.2%	0.9
Window 21	Habitable	20.1%	18.4%	1.7%	0.92
10 Mutrix Road					
Window 22	Habitable	26.3%	25.4%	0.9%	0.97
Window 23	Habitable	32.2%	29.9%	2.3%	0.93
Window 24	Habitable	19.3%	18.0%	1.3%	0.93

Appendix 2 - Vertical Sky Component 27 West End Lane, London NW6 4QJ

Reference Use Class		Vertical Sky Component					
Reference	Out Class	Before	After	Loss	Ratio		
40.M () D							
12 Mutrix Road							
Window 25	Habitable	29.2%	27.3%	1.9%	0.93		
Window 26	Habitable	31.8%	30.4%	1.4%	0.96		
Window 27	Habitable	17.0%	16.3%	0.7%	0.96		
14 Mutrix Road							
Window 28	Habitable	29.0%	27.5%	1.5%	0.95		
Window 29	Habitable	31.5%	30.4%	1.1%	0.97		
Window 30	Habitable	16.7%	16.2%	0.5%	0.97		
Sycamore Court							
Window 31	Habitable	22.3%	22.3%	0.0%	1.0		
Window 32	Habitable	24.0%	24.0%	0.0%	1.0		
Window 33	Habitable	25.2%	25.2%	0.0%	1.0		
Window 34	Habitable	25.5%	25.5%	0.0%	1.0		
Window 35	Habitable	27.0%	27.0%	0.0%	1.0		
Window 36	Habitable	32.8%	31.5%	1.3%	0.96		
Window 37	Habitable	33.0%	29.3%	3.7%	0.89		
Window 38	Habitable	33.0%	28.4%	4.6%	0.86		
Window 39	Habitable	33.7%	30.0%	3.7%	0.89		
Window 40	Habitable	33.3%	27.0%	6.3%	0.81		
Window 41	Non Habitable	33.4%	25.3%	8.1%	0.76		
Window 42	Habitable	34.2%	24.8%	9.4%	0.73		
Window 43	Habitable	35.5%	32.2%	3.3%	0.91		
Window 44	Habitable	36.6%	31.5%	5.1%	0.86		
Window 45	Habitable	34.4%	33.0%	1.4%	0.96		
Window 46	Habitable	33.7%	27.9%	5.8%	0.83		
Window 47	Habitable	34.0%	31.2%	2.8%	0.92		
Window 48	Habitable	35.4%	34.6%	0.8%	0.98		
Window 49	Habitable	29.8%	29.1%	0.7%	0.98		
Window 50	Habitable	34.4%	30.7%	3.7%	0.89		
Window 51	Habitable	32.7%	29.7%	3.0%	0.91		
Window 52	Habitable	34.5%	31.0%	3.5%	0.9		
Window 53	Habitable	34.5%	31.5%	3.0%	0.91		

Appendix 2 - Vertical Sky Component 27 West End Lane, London NW6 4QJ

Reference	Use Class				
		Before	After	Loss	Ratio
Window 54	Habitable	4.3%	4.3%	0.0%	1.0
Window 55	Non Habitable	0.3%	0.2%	0.1%	0.67
Window 56	Habitable	0.1%	0.1%	0.0%	1.0
Window 57	Habitable	36.5%	34.7%	1.8%	0.95
Window 58	Habitable	34.4%	33.9%	0.5%	0.99
Window 59	Habitable	36.4%	35.4%	1.0%	0.97
Window 60	Habitable	34.3%	34.0%	0.3%	0.99
Window 61	Habitable	34.0%	32.6%	1.4%	0.96
Window 62	Habitable	36.0%	35.3%	0.7%	0.98
Window 63	Habitable	35.1%	34.9%	0.2%	0.99
24 West End Lane					
Window 64	Habitable	33.7%	33.0%	0.7%	0.98
Window 65	Habitable	34.1%	33.8%	0.3%	0.99
Window 66	Habitable	9.1%	8.4%	0.7%	0.92
Window 67	Habitable	8.8%	8.1%	0.7%	0.92
Window 68	Habitable	1.4%	1.3%	0.1%	0.93
Window 69	Habitable	8.8%	8.7%	0.1%	0.99
Window 70	Habitable	32.4%	32.0%	0.4%	0.99
Window 71	Habitable	23.0%	23.0%	0.0%	1.0
Window 72	Habitable	34.7%	33.7%	1.0%	0.97
Window 73	Habitable	31.2%	30.3%	0.9%	0.97
Window 74	Habitable	25.5%	25.5%	0.0%	1.0
Window 75	Habitable	35.1%	34.6%	0.5%	0.99
Window 76	Habitable	33.6%	33.1%	0.5%	0.99
1 to 6 Wharfedale House					
Window 77	Habitable	30.1%	29.0%	1.1%	0.96
Window 78	Habitable	33.2%	32.7%	0.5%	0.98
Window 79	Habitable	36.1%	35.9%	0.2%	0.99
1 to 25 Holmesdale House					
Window 80	Habitable	10.1%	8.6%	1.5%	0.85
Window 81	Habitable	12.4%	11.8%	0.6%	0.95

Appendix 2 - Vertical Sky Component 27 West End Lane, London NW6 4QJ

Reference	Use Class	Vertical Sky Component					
		Before	After	Loss	Ratio		
Window 82	Habitable	15.7%	15.5%	0.2%	0.99		
Window 83	Habitable	8.5%	7.3%	1.2%	0.86		
Window 84	Habitable	14.0%	13.4%	0.6%	0.96		
Window 85	Habitable	17.2%	17.1%	0.1%	0.99		
Window 86	Habitable	10.6%	9.5%	1.1%	0.9		
Window 87	Habitable	13.0%	12.5%	0.5%	0.96		
Window 88	Habitable	16.3%	16.1%	0.2%	0.99		
Window 89	Habitable	10.7%	9.8%	0.9%	0.92		
Window 90	Habitable	13.1%	12.6%	0.5%	0.96		
Window 91	Habitable	16.3%	16.2%	0.1%	0.99		
Window 92	Habitable	10.6%	9.9%	0.7%	0.93		
Window 93	Habitable	14.3%	13.9%	0.4%	0.97		
Window 94	Habitable	17.4%	17.3%	0.1%	0.99		
Window 95	Habitable	10.5%	9.9%	0.6%	0.94		
Window 96	Habitable	13.0%	12.7%	0.3%	0.98		
Window 97	Habitable	16.2%	16.2%	0.0%	1.0		
Window 98	Habitable	10.4%	9.8%	0.6%	0.94		
Window 99	Habitable	12.7%	12.5%	0.2%	0.98		
Window 100	Habitable	15.9%	15.8%	0.1%	0.99		
Window 101	Habitable	9.7%	9.2%	0.5%	0.95		
Window 102	Habitable	12.9%	12.6%	0.3%	0.98		
Window 103	Habitable	15.6%	15.6%	0.0%	1.0		
Window 104	Habitable	6.6%	6.2%	0.4%	0.94		
Window 105	Habitable	8.5%	8.3%	0.2%	0.98		
Window 106	Habitable	10.7%	10.7%	0.0%	1.0		

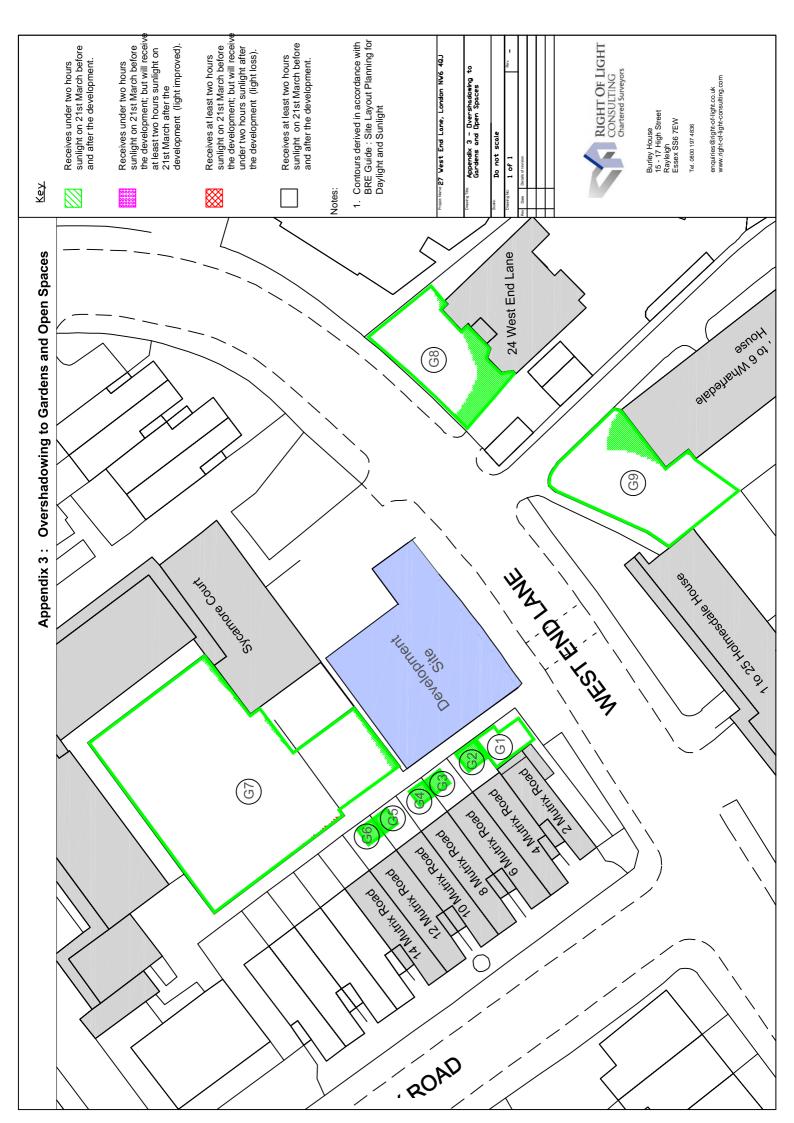
Appendix 2 - Sunlight to Windows 27 West End Lane, London NW6 4QJ

		Sunlight to Windows							
Reference	Use Class	Total Sunlight Hours		W	inter Su	nlight Ho	ours		
		Before	After	Loss	Ratio	Before	After	Loss	Ratio
2 Mutrix Road									
Window 2	Habitable	36%	36%	0%	1.0	12%	12%	0%	1.0
Window 5	Habitable	63%	63%	0%	1.0	16%	16%	0%	1.0
Window 6	Habitable	67%	66%	1%	0.99	20%	20%	0%	1.0
Window 7	Habitable	69%	68%	1%	0.99	21%	21%	0%	1.0
Sycamore Court									
Window 36	Habitable	61%	56%	5%	0.92	21%	16%	5%	0.76
Window 37	Habitable	61%	49%	12%	0.8	21%	10%	11%	0.48
Window 38	Habitable	61%	45%	16%	0.74	21%	8%	13%	0.38
Window 39	Habitable	62%	50%	12%	0.81	21%	10%	11%	0.48
Window 40	Habitable	61%	40%	21%	0.66	21%	6%	15%	0.29
Window 41	Habitable	61%	36%	25%	0.59	21%	5%	16%	0.24
Window 42	Habitable	74%	58%	16%	0.78	27%	12%	15%	0.44
Window 43	Habitable	70%	67%	3%	0.96	26%	23%	3%	0.88
Window 44	Habitable	73%	64%	9%	0.88	25%	16%	9%	0.64
Window 45	Habitable	68%	68%	0%	1.0	25%	25%	0%	1.0
Window 46	Habitable	74%	60%	14%	0.81	25%	11%	14%	0.44
Window 47	Habitable	70%	65%	5%	0.93	26%	21%	5%	0.81
Window 48	Habitable	70%	70%	0%	1.0	27%	27%	0%	1.0
Window 49	Habitable	60%	58%	2%	0.97	15%	14%	1%	0.93
Window 50	Habitable	69%	60%	9%	0.87	24%	15%	9%	0.63
Window 51	Habitable	67%	60%	7%	0.9	22%	15%	7%	0.68
Window 52	Habitable	71%	62%	9%	0.87	24%	15%	9%	0.63
Window 53	Habitable	70%	63%	7%	0.9	23%	16%	7%	0.7
Window 54	Habitable	6%	6%	0%	1.0	6%		6%	-
Window 55	Habitable	0%	0%	0%	1.0	0%	0%	0%	1.0
Window 56	Habitable	0%	0%	0%	1.0	0%	0%	0%	1.0
Window 57	Habitable	70%	68%	2%	0.97	24%	22%	2%	0.92
Window 58	Habitable	67%	67%	0%	1.0	25%	25%	0%	1.0
Window 59	Habitable	72%	71%	1%	0.99	25%	24%	1%	0.96
Window 60	Habitable	67%	67%	0%	1.0	25%	25%	0%	1.0
Window 61	Habitable	73%	68%	5%	0.93	24%	19%	5%	0.79
Window 62	Habitable	72%	71%	1%	0.99	25%	24%	1%	0.96
Window 63	Habitable	68%	68%	0%	1.0	25%	25%	0%	1.0
24 West End Lane									
Window 73	Habitable	35%	33%	2%	0.94	5%	5%	0%	1.0
Window 76	Habitable	35%	35%	0%	1.0	9%	9%	0%	1.0

Appendix 2 - Overshadowing to Gardens and Open Spaces 27 West End Lane, London NW6 4QJ

Reference	Total Area	Area receiving at least two hours of sunlight on 21st March							
		Before		After		Loss		Ratio	
2 Mutrix Road									
Garden 1 4 Mutrix Road	17.73 m2	3.47 m2	20%	3.47 m2	20%	0.0 m2	0%	1.0	
Garden 2 6 Mutrix Road	6.07 m2	0.0 m2	0%	0.0 m2	0%	0.0 m2	0%	1.0	
Garden 3 8 Mutrix Road	3.67 m2	0.0 m2	0%	0.0 m2	0%	0.0 m2	0%	1.0	
Garden 4 10 Mutrix Road	3.59 m2	0.0 m2	0%	0.0 m2	0%	0.0 m2	0%	1.0	
Garden 5 12 Mutrix Road	3.51 m2	0.0 m2	0%	0.0 m2	0%	0.0 m2	0%	1.0	
Garden 6 Sycamore Court	3.94 m2	0.0 m2	0%	0.0 m2	0%	0.0 m2	0%	1.0	
Garden 7 24 West End Lane	479.42 m2	472.37 m2	99%	471.64 m2	98%	0.73 m2	1%	0.99	
Garden 8 1 to 6 Wharfedale House	113.72 m2 <u>e</u>	86.76 m2	76%	86.76 m2	76%	0.0 m2	0%	1.0	
Garden 9	158.31 m2	143.48 m2	91%	143.48 m2	91%	0.0 m2	0%	1.0	

APPENDIX 3	
OVERSHADOWING TO GARDENS AND OPEN SPACES	



APPENDIX 4 ALTERNATIVE DAYLIGHT RESULTS	
ALTERNATIVE DATLIGHT RESULTS	

Appendix 4 - Alternative Vertical Sky Component 27 West End Lane, London NW6 4QJ

Reference	Use Class	Vertical Sky Component Before After Loss Ratio			
2 Mutrix Road Window 8	Habitable	34.2%	28.2%	6.0%	0.82
Sycamore Court					
Window 42	Habitable	36.8%	27.5%	9.3%	0.75