Gondar Gardens,
West Hampstead, London NW6

Daylight and Sunlight Report

31st July, 2018

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Daylight and Sunlight Report

Gondar Gardens,
West Hampstead,
London, NW6

Prepared for:-

LifeCare Residences Limited
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Prepared By	**Date**
James M A Crowley	31st July 2018

Contents

Appendices

This report is solely for the benefit of **LifeCare Residences Limited** and the benefit cannot be transferred to any other party without the express written consent of CHP Surveyors Limited.

CHP Surveyors Limited

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1.0 Introduction

1.1 We have been instructed by LifeCare Residences Limited to determine the implications the proposals for the site onto Gondar Gardens will have upon the daylight and sunlight amenity in respect of the existing surrounding residential properties with reference to the Building Research Establishment's 2011 publication "Site Layout Planning for Daylight and Sunlight. A Guide to Good Practice.", as one of many factors that needs to be considered in site layout design. This publication is referred to in the Camden Core Strategy, Camden Development Policy PD29 and Camden Planning Guidance 6, but that it is noted that the guidelines need to be applied flexibly.

2.0 Principles

2.1 To assist in the understanding of the analysis that have been undertaken as part of this report, attached at Appendix A is a summary we have prepared of the BRE Guidelines, titled the Principles of Daylight and Sunlight.

3.0 Information

3.1 We have had reference to the following information:-

Ordnance Survey

Site plan

CHP Surveyors Limited

Site photographs and online research.

Rolfe Judd

Proposed drawings referenced 5388T(20)E01B to 04B, P00B, P0_1A, P0_2A, P01B to P04B and S01B

4.0 Proposals

4.1 The proposals are the redevelopment of reservoir street frontage to provide 28 residential units in 2 blocks from lower ground to 3rd floors, following substantial demolition of roof and internal structure of reservoir and subsequent re-landscaping.

5.0 Neighbouring Properties

5.1 From our on-site observations, the neighbouring residential properties that require to be analysed in accordance with the BRE Guidelines are:-

- South Mansions
- Chase Mansions
- 9 Gondar Gardens

6.0 Methodology

6.1 Within the Camden Local Plan (2017) under Policy A1 – Managing the impact of the development, it states: -

"*The Council will seek to protect the quality of life of occupiers and neighbours. We will grant permission for development unless this causes unacceptable harm to amenity.*"

Within this document it also states that any application will take into account and make reference to the Building Research Establishment's publication "*Site Layout Planning for Daylight and Sunlight. A guide to good practice.*"

Within Camden Planning Guidance CPG6 it states: -

"*A daylight and sunlight report should assess the impact of the development, following the methodology set out in the most recent version of the Building Research Establishment's publication "Site Layout Planning for Daylight and Sunlight. A guide to good practice.*"

6.2 Based on survey information, online research and onsite observations, we have produced a 3D computer model of the neighbouring residential properties to the site. This includes their window locations and internal configuration. We have not had access to any of the neighbouring properties and therefore the internal configuration and which windows serve habitable rooms has been based on online information or onsite observations. Where the nature of the room is unclear, we have for the purposes of our analysis considered it as a habitable room. We have then produced a 3D computer model of the existing structures on the site and the proposals.

6.3 Using a specialist computer programme, we have undertaken the analysis set out in the BRE Guidelines, both in the existing situation to provide a base line and following the implementation of the proposals. There is no requirement to consider the implications during the development process as this will only have short term implications and generally during this stage would only result in an improvement in the neighbouring properties access to natural light.

6.4 As clearly stated within the BRE Guidelines the aims are to help designers not constrain them and that the numerical values contained within this document should be interpreted flexibly since natural light is only one of many factors in site layout design. It also states that different target levels may be used in urban locations where this site is.

6.5 The numerical values contained within the BRE Guidelines to establish whether the proposals will have a significant effect on the daylight enjoyed by the neighbouring properties are whether their windows achieve a VSC of 27% or 0.8 times the existing or an ADF of at least 1% for a bedroom, 1.5% for a living room and 2% for a kitchen. It also states that where a window is located below a projecting balcony, provided an analysis with this removed demonstrates that the proposed values are within 0.8 times the existing, the proposals will not have a significant impact on daylight. It should however be appreciated that these numerical values need to be applied flexibly especially as the site is located within an urban rather than sub-urban location.

6.6 In relation to daylight, the BRE Guidelines also set out numerical values for daylight distribution and seeks to ensure that a significant portion or at least 0.8 times the existing area of each habitable room lies in front of the NSL.

6.7 With regards to sunlight, the BRE Guidelines seek that all windows within 90 degrees of due south achieve 25% APSH with at least 5% during the winter months. Where this is not achieved and the difference between the existing and proposed APSH is more than 4%, the BRE Guidelines state that the proposals will not have a noticeable effect on sunlight provided the total APSH, as well as during the winter months, are within 0.8 times the existing.

7.0 Daylight

7.1 With regards to daylight the neighbouring residential properties, as the proposals will subtend a 25° line drawn from their lowest window in accordance with the BRE Guidelines we have calculated the Vertical Sky Component (VSC) to all habitable rooms both in the existing and proposed situation. This establishes the amount the amount of daylight enjoyed on the face of the window.

7.2 The BRE Guidelines state that if the VSC calculated at the centre of each window is 27% or more than enough skylight should be reaching the window. If with the new development in place the window does not achieve 27% VSC but is more than 0.8 times its former value then the guidelines state that skylight is unlikely to be seriously affected.

7.3 The BRE Guidelines in relation to daylight also makes reference to BS8206 Part 2 which contains advice and guidance on internal daylighting. This should also be read in conjunction with the Guidelines.

7.4 BS8206 Part 2 makes reference to two analysis, the Average Daylight Factor (ADF) and the No Sky Line (NSL).

7.5 The ADF analysis takes into account the size of the window in question, the size of the room it serves and whether any other windows serve the room. The recommended minimum ADF levels depend on the room use with the criteria being 2% for kitchens, 1.5% for lounges and 1% for bedrooms. Where the required level of VSC is not achieved this is a more detailed analysis to ensure that the daylight within the room is appropriate.

7.6 In addition to the above, to ensure that the room will achieve good daylight distribution the No Sky Line (NSL) is plotted. The BRE Guidelines state that for a room to enjoy good daylight

distribution a significant area of the room should not lie behind the NSL but specifically states that bedrooms are less important than living rooms.

7.7 South Mansions

7.7.1 This property is located to the south of the site.

7.7.2 This property provides residential accommodation over three floors.

7.7.3 For the windows within this property serving habitable rooms we have carried out a VSC analysis. As set out in the table attached at Appendix C, where a VSC of greater than 27% is or at least 0.8 times the existing is achieved, the recommended minimum ADF is achieved.

7.7.4 We have also considered the daylight distribution within each room by plotting the NSL. As demonstrated by the results set out in the table attached at Appendix C, in all instances a significant portion of the room lies in front to the NSL.

7.7.5 The results of our analysis demonstrates that the aims of the BRE Guidelines are achieved

7.8 1-6 Chase Mansions

7.8.1 This property is located immediately to the north of the site.

7.8.2 This property provides residential accommodation over three floors.

7.8.3 For the windows within this property serving habitable rooms we have carried out a VSC analysis. As set out in the table attached at Appendix C, where a VSC of greater than 27% is or at least 0.8 times the existing is achieved, the recommended minimum ADF is achieved.

7.8.4 We have also considered the daylight distribution within each room by plotting the NSL. As demonstrated by the results set out in the table attached at Appendix C, in all instances a significant portion of the room lies in front to the NSL.

7.8.5 The results of our analysis demonstrate that the aims of the BRE Guidelines are achieved.

7.9 9 Gondar Gardens

7.9.1 This property is located to the west of the site on the opposite side of Gondar Gardens

7.9.2 This property provides residential accommodation over two floors.

7.9.3 For the windows within this property serving habitable rooms we have carried out a VSC analysis. As set out in the table attached at Appendix C, where a VSC of greater than 27% is or at least 0.8 times the existing is achieved, the recommended minimum ADF is achieved.

7.9.4 We have also considered the daylight distribution within each room by plotting the NSL. As demonstrated by the results set out in the table attached at Appendix C, in all instances a significant portion of the room lies in front to the NSL.

7.9.5 The results of our analysis demonstrates that the aims of the BRE Guidelines are achieved

8.0 Internal Analysis

8.1 In accordance with the BRE Guidelines and with reference to the London Housing Design Guide we have considered the Average Daylight Factor the habitable rooms to each unit will achieve.

8.2 All habitable rooms within the proposals will achieve or exceed the recommended minimum ADF these being 1% for a bedroom and 1.5% for a living room.

8.4 It is our opinion that the aims of the London Housing Design Guide and BRE Guidelines are met.

9.0 Sunlight

9.1 The Guidelines require that all windows within 90° of due south should be considered. It states that if the window achieves 25% of the Annual Probable Sunlight Hours (APSH), including at least 5% during the winter months. If this is not achieved, provided they achieve 0.8 times the existing values or the difference in total APSH is less than 4% APSH, the implementation of the proposals should not have an adverse effect on sunlight. The Guidelines also state that they

need to be applied flexibly, taking into account the design of the neighbouring properties, their relationship to the boundary and that bedrooms are less important.

9.2 1-6 Chase Mansions

9.2.1 The results of our analysis as set out in the table attached at Appendix D demonstrates that except for three windows to the lower ground floor, the numerical values contained within the BRE Guidelines are achieved.

9.2.2 For the three windows that do not achieve these, they serve bedrooms, which the BRE Guidelines states are less important. It also states that the numerical values need to be applied flexibly due to the close proximity of these windows to the boundary. We therefore consider that the aims of the BRE Guidelines are achieved.

10.0 Conclusion

10.1 The site is located in a dense urban environment with some neighbouring properties having been constructed close to their boundary.

10.2 The results set out in the table attached at Appendix C demonstrates that based on either a VSC or ADF analysis all rooms will exceed the numerical values contained within the BRE Guidelines and that the rooms will also achieve good daylight distribution.

10.3 With regards to the proposed accommodation, our analysis demonstrates that in all instances the recommended minimum ADF as set out in the BRE Guidelines and the London Housing Design Guide are achieved or exceeded.

10.4 Concerning sunlight, our analysis demonstrates that taking into account the room use and close proximity of the windows to the boundary and therefore the need to apply the numerical values flexibly the aims of the BRE Guidelines are met.

10.5 As a result of the careful design of the proposals, the aims of the Building Research Establishments publication (2011) "Site layout planning for Daylight and Sunlight A guide to good practice" are achieved.

Appendix A

Principles of Daylight and Sunlight

In 2011 the Building Research Establishment (BRE) published a handbook called "*Site Layout Planning for Daylight and Sunlight. A Guide to Good Practice.*"

As stated within the Introduction of this document, the main aim is:-

"*To help to ensure good conditions in the local environment, considered broadly, with enough sunlight and daylight on or between buildings for good interior and exterior conditions.*"

Within the introduction the document goes onto state:-

"*The advice given here is not mandatory and this document should not be seen as an instrument of planning policy. It's aim is to help, rather than constrain the Designer. Although it gives numerical guidelines, these should be interpreted flexibly...*"

It must therefore be appreciated as can be seen from the above extracts of the Introduction of this document and reiterated throughout, the handbook is for guidance only.

DAYLIGHT

When considering daylight, the handbook introduces a number of ways of assessing this. The first check is to establish whether the proposals will subtend an angle of 25^0 from the centre of the window. If it does not then it is considered there will be good daylight.

(i) No Sky Line

This divides those areas that can see direct daylight from those which cannot and helps to indicate how good the distribution of daylight is in a room. The guidelines is that, should the implementation of a scheme result in the area receiving direct skylight less than 0.8 times the existing area, then this will be noticeable to the occupier.

(ii) Vertical Sky Component (VSC)

This may be calculated using either the skylight indicators of Waldram Diagrams contained within the handbook and is the ratio of the direct sky illuminance falling on the vertical wall at a reference point, to the simultaneous horizontal illuminance under an unobstructed sky.

The principle is that from the face of a window, with no obstruction 50% of the hemisphere is visible which equates to 40% VSC.

The Handbook sets out different guidelines when considering both new developments and existing buildings adjacent to a development, but in both situations these are applicable to principal rooms, such as kitchens and living rooms.

New Developments

In general a building will retain the potential for good interior diffuse lighting provided that on all its main faces:-

(a) an obstruction, measured in a vertical section perpendicular to the main face, from a point 2m above ground level, subtends an angle of more than 25^0 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 of 27% or more.

Existing Buildings

If any part of a new building or extension measured in a vertical section perpendicular to a main window wall or an existing building, from the centre of the lowest window, subtends an angle of more than 25^0 to the horizontal, then the diffuse daylighting of the existing building may be adversely affected. This will be case if either:-

(a) the 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 level is a room which can receive direct sunlight is reduced to less than 0.8 times its former value.

(iii) Average Daylight Factor (ADF)

This takes into account not only the obstruction externally, but also the size of the window concerned and the area of the room it serves. In addition, depending on the nature of the room, the handbook sets out different levels of ADF, with kitchens only being 2%, lounges 1.5% and bedrooms 1%.

In summary, VSC gives a good indication as to whether sufficient daylight is going to be enjoyed, because it is a calculation on the face of the window, however if all the information can be obtained to calculate ADF's, this is a more realistic analysis.

SUNLIGHT

This is measured in a similar method to calculating VSC and relates to windows within 90^0 of due south.

The BRE handbook has calculated that the total annual probable sunlight hours amount to 1486.

Again the handbook sets out criteria for both new developments and existing buildings.

(i) New Developments

In general, a dwelling or non-domestic building which has a particular requirement for sunlight will appear reasonably sunlit provided that:-

(a) at least one main window wall faces within 90^0 of due south

or

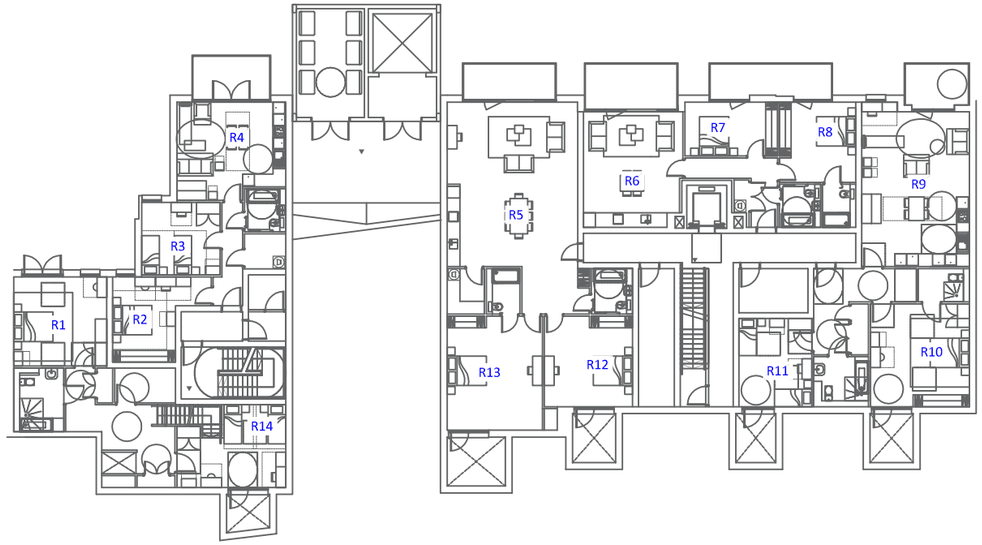
(b) on this window wall, all points on a line 2m above ground level are within 4m (measured sideways) of a point which receives at least a quarter of annual probable sunlight hours, including at least 5% of annual probable sunlight hours during the winter months, between 21 September and 21 March.

(ii) Existing Buildings

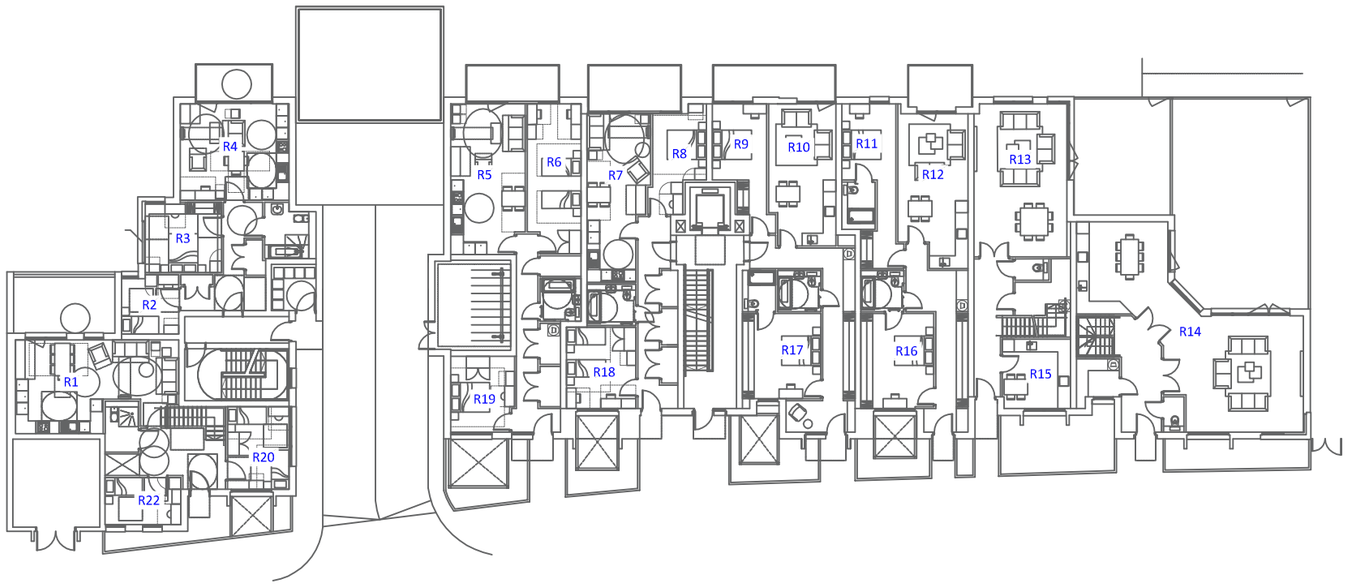
If a living room of an existing dwelling has a main window facing within 90^0 of due south, and any part of a new development subtends an angle of more than 25^0 to the horizontal measured from the centre of the window in a vertical section perpendicular to the window, then the sunlight of the existing dwelling may be affected. This will be the case if a point at the centre of the window, in the plane of the inner window wall, receives in the year less than one quarter of annual probable sunlight hours including at least 5% of annual probable sunlight hours in the Winter months between 21 September and 21 March or less than 0.8 times its former sunlight hours during either period.

Appendix B

Sources



LOWER GROUND FLOOR



GROUND FLOOR

KEY

CHP Surveyors Ltd
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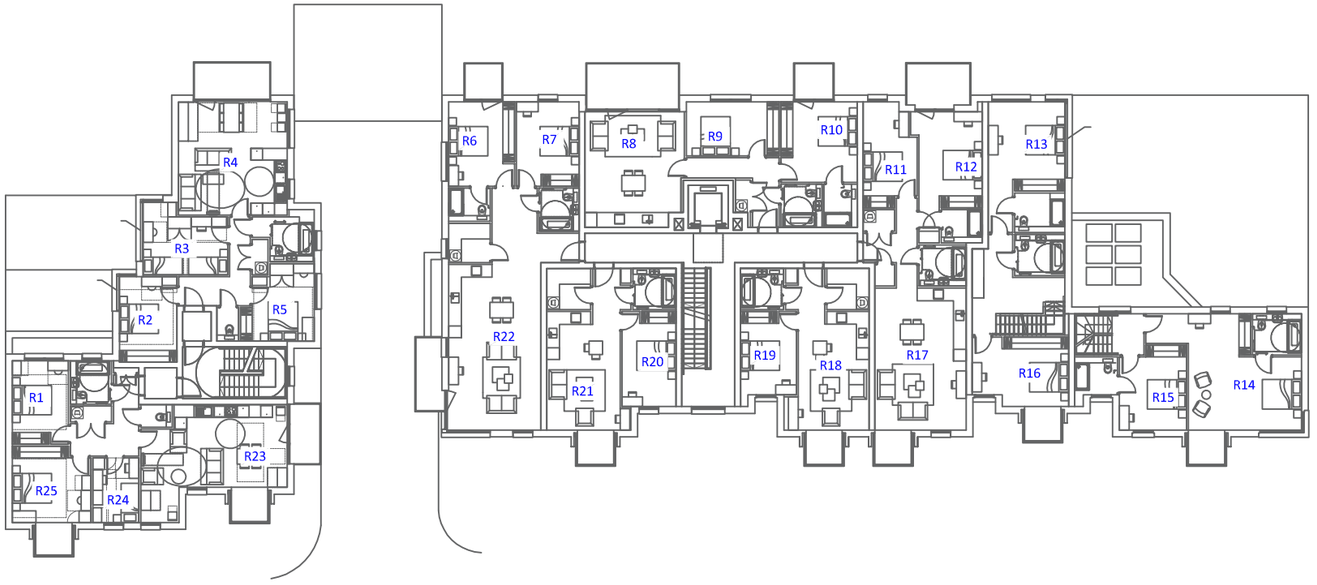
PROJECT TITLE
Gondar Gardens

DRAWING TITLE
Internal Room Map

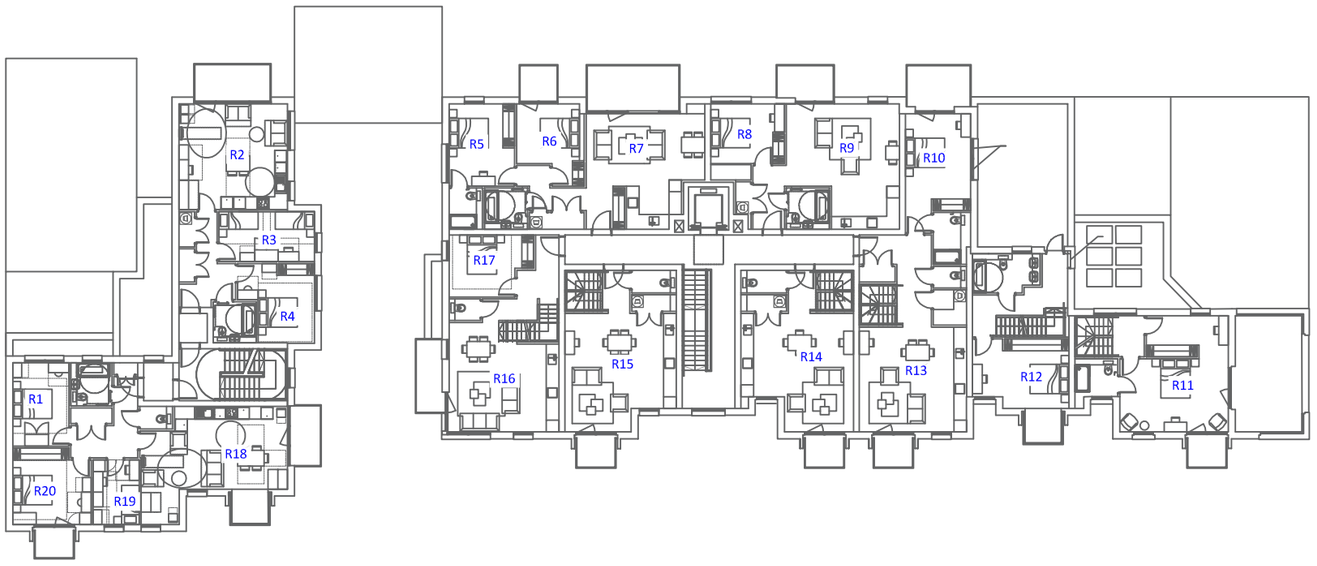
SCALE	DATE	ISSUE
NTS	31-07-2018	-

DWG NO	REV
1379_100	

Sources



FIRST FLOOR



SECOND FLOOR

KEY

CHP Surveyors Ltd
2-6 Boundary Row, London, SE1 8HP www.chp.gb.com

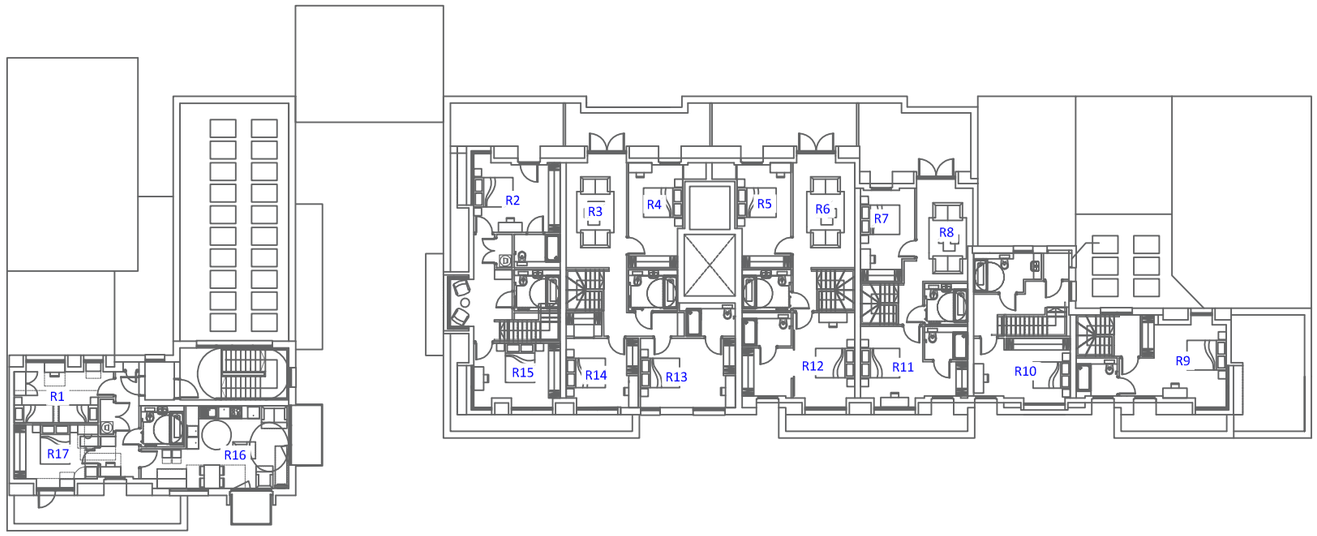
PROJECT TITLE
Gondar Gardens

DRAWING TITLE
Internal Room Map

SCALE	DATE	ISSUE
NTS	31-07-2018	-

DWG NO	REV
1379_101	

Sources



THIRD FLOOR

KEY

CHP Surveyors Ltd
2-6 Boundary Row, London, SE1 8HP www.chp.gb.com

PROJECT TITLE
Gondar Gardens

DRAWING TITLE
Internal Room Map

SCALE	DATE	ISSUE
NTS	31-07-2018	-

DWG NO	REV
1379_102	

Appendix C

Gondar Gardens, West Hampstead, London NW6

Daylight Results

				ADF	VSC	VSC	VSC	VSC	NOSKY	
LEVEL	WINDOW	ROOMUSE	ROOM	PROPOSED	EXISTING	PROPOSED	LOSS	% LOSS	EXISTING	PROPOSED
9 Gondar Gardens										
LEV 0	W1	KITCHEN	R1	>2.0	36.7	21.2	15.5	42.2	>80%	>80%
	W2				26.3	26.3	0.0	0.0		
LEV 1	W3	BEDROOM	R2	>2.0	37.3	23.5	13.8	37.0	>80%	100%
1-6 Chase Mansions										
LEV 0	W1	BEDROOM	R1	-	17.8	15.5	2.3	12.9	>80%	>80%
	W2	BEDROOM	R2	1.1	26.1	12	14.1	54.1	>80%	55%
	W3	BEDROOM	R3	1.3	31.3	17.4	13.9	44.4	>80%	67%
LEV 1	W1	LIVING	R1	-	21.3	19	2.3	10.9	>80%	>80%
	W2	BEDROOM	R2	1.3	31.2	16.2	15.0	48.0	>80%	73%
	W3	BEDROOM	R3	1.5	38.4	23.6	14.8	38.6	>80%	>80%
LEV 2	W1	BEDROOM	R1	-	32.6	31.8	0.7	2.3	>80%	>80%
	W2	BEDROOM	R2	1.6	32.2	22.3	9.9	30.8	>80%	>80%
	W3	BEDROOM	R3	-	38.9	30.3	8.6	22.1	>80%	>80%
1 South Mansions										
LEV 0	W2	BEDROOM	R2	-	38.2	28.7	9.5	24.8	>80%	>80%
	W3	KITCHEN	R3	>2.0	38.1	26.8	11.3	29.7	>80%	>80%
	W4				38.1	24.4	13.7	36.0		
	W5	LIVING	R4	1.5	38.1	22.8	15.3	40.2	>80%	>80%
	W6				38.1	19.7	18.4	48.3		
LEV 1	W1	HABITABLE-UNKNOWN	R1	1.4	13.7	8.3	5.4	39.6	>80%	75%
	W2	HABITABLE-UNKNOWN	R2	>2.0	18.3	14.4	3.9	21.5	>80%	>80%
	W3	HABITABLE-UNKNOWN	R3	-	12.8	12.6	0.2	1.3	>80%	>80%
LEV 2	W1	HABITABLE-UNKNOWN	R1	-	24.0	21.5	2.5	10.4	>80%	>80%
	W2	HABITABLE-UNKNOWN	R2	-	25.3	23.3	2.0	8.0	>80%	>80%
	W3	HABITABLE-UNKNOWN	R3	-	23.4	23.3	0.1	0.2	>80%	>80%

Gondar Gardens, West Hampstead, NW6 2018

Internal Daylight Results

LEVEL	ROOM	ROOM USE	REQUIRED	PASS/FAIL
Lower Ground	R1	Bedroom	1.0	PASS
	R2	Bedroom	1.0	PASS
	R3	Bedroom	1.0	PASS
	R4	Living	1.5	PASS
	R5	Living	1.5	PASS
	R6	Living	1.5	PASS
	R7	Bedroom	1.0	PASS
	R8	Bedroom	1.0	PASS
	R9	Living	1.5	PASS
	R10	Bedroom	1.0	PASS
	R11	Bedroom	1.0	PASS
	R12	Bedroom	1.0	PASS
	R13	Bedroom	1.0	PASS
	R14	Bedroom	1.0	PASS
Lev 0	R1	Living	1.5	PASS
	R2	Bedroom	1.0	PASS
	R3	Bedroom	1.0	PASS
	R4	Living	1.5	PASS
	R5	Living	1.5	PASS
	R6	Bedroom	1.0	PASS
	R7	Living	1.5	PASS
	R8	Bedroom	1.0	PASS
	R9	Bedroom	1.0	PASS
	R10	Living	1.5	PASS
	R11	Bedroom	1.0	PASS
	R12	Living	1.5	PASS
	R13	Living	1.5	PASS
	R14	Kitchen	2.0	PASS
	R15	Living	1.5	PASS
	R16	Bedroom	1.0	PASS
	R17	Bedroom	1.0	PASS
	R18	Bedroom	1.0	PASS
	R19	Bedroom	1.0	PASS
	R20	Bedroom	1.0	PASS
	R22	Bedroom	1.0	PASS
Lev 1	R1	Bedroom	1.0	PASS
	R2	Bedroom	1.0	PASS
	R3	Bedroom	1.0	PASS
	R4	Living	1.5	PASS
	R5	Bedroom	1.0	PASS
	R6	Bedroom	1.0	PASS
	R7	Bedroom	1.0	PASS
	R8	Living	1.5	PASS
	R9	Bedroom	1.0	PASS
	R10	Bedroom	1.0	PASS
	R11	Bedroom	1.0	PASS
	R12	Bedroom	1.0	PASS
	R13	Bedroom	1.0	PASS
	R14	Bedroom	1.0	PASS
	R15	Bedroom	1.0	PASS

Internal Daylight Results

	R16	Bedroom	1.0	PASS
	R17	Living	1.5	PASS
	R18	Living	1.5	PASS
	R19	Bedroom	1.0	PASS
	R20	Bedroom	1.0	PASS
	R21	Living	1.5	PASS
	R22	Living	1.5	PASS
	R23	Living	1.5	PASS
	R24	Bedroom	1.0	PASS
	R25	Bedroom	1.0	PASS
Lev 2	R1	Bedroom	1.0	PASS
	R2	Living	1.5	PASS
	R3	Bedroom	1.0	PASS
	R4	Bedroom	1.0	PASS
	R5	Bedroom	1.0	PASS
	R6	Bedroom	1.0	PASS
	R7	Living	1.5	PASS
	R8	Bedroom	1.0	PASS
	R9	Living	1.5	PASS
	R10	Bedroom	1.0	PASS
	R11	Bedroom	1.0	PASS
	R12	Bedroom	1.0	PASS
	R13	Living	1.5	PASS
	R14	Living	1.5	PASS
	R15	Living	1.5	PASS
	R16	Living	1.5	PASS
	R17	Bedroom	1.0	PASS
	R18	Bedroom	1.0	PASS
	R19	Living	1.5	PASS
	R20	Bedroom	1.0	PASS
Lev 3	R1	Bedroom	1.0	PASS
	R2	Bedroom	1.0	PASS
	R3	Living	1.5	PASS
	R4	Bedroom	1.0	PASS
	R5	Bedroom	1.0	PASS
	R6	Living	1.5	PASS
	R7	Bedroom	1.0	PASS
	R8	Living	1.5	PASS
	R9	Bedroom	1.0	PASS
	R10	Bedroom	1.0	PASS
	R11	Bedroom	1.0	PASS
	R12	Bedroom	1.0	PASS
	R13	Bedroom	1.0	PASS
	R14	Bedroom	1.0	PASS
	R15	Bedroom	1.0	PASS
	R16	Living	1.5	PASS
	R17	Bedroom	1.0	PASS

Appendix D

Gondar Gardens, West Hampstead, London NW6

Sunlight Results

		EXISTING			PROPOSED			% LOSS	
LEVEL	WINDOW	SUMMER	WINTER	TOTAL	SUMMER	WINTER	TOTAL	WINTER	TOTAL
1-6 Chase Mansions									
LEV 0	W2	24.7%	12.7%	37.3%	19.01%	0.0%	19.0%	100.00	49.06
	W3	36.6%	15.5%	52.1%	26.76%	0.7%	27.5%	95.48	47.30
LEV 1	W2	24.7%	14.1%	38.7%	20.42%	2.1%	22.5%	85.01	41.80
	W3	37.3%	19.7%	57.0%	33.80%	5.0%	38.7%	74.85	32.10
LEV 2	W2	26.1%	14.1%	40.1%	24.65%	6.3%	31.0%	54.97	22.80
	W3	38.7%	19.7%	58.5%	38.73%	12.0%	50.7%	39.30	13.26