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# Planning Sunlight and Daylight Report

At

Infill House
Rear of 62 Mansfield Road
Hampstead
London
NW3 2HU

For

Allan Group

28 March 2014

**BLDA Consultancy,**
211 Design Centre East, Chelsea Harbour, London, SW10 0XF
Tel: **020 7838 5555** Fax: 020 7838 5556
Email: consultancy@blda.co.uk

**BLDA Architects Ltd**

5987/GO/TJ

**revision: 0 28 MAR 2014**

## CONTENTS

## 1 Introduction

**1.1** The development site is situated off Mansfield Road, at the corner with Courthope Road, in Hampstead north west London.

**1.2** This report considers the possible Sunlight and Daylight impact of the proposed dwelling to the rear of 62 Mansfield Road, on to the adjacent existing residential ground floor flat at 62 Mansfield Road. This report also considers the internal daylight levels to the proposed habitable rooms within the development.

**1.3** The location of 62 Mansfield Road is outlined in red on Figure 1 below.

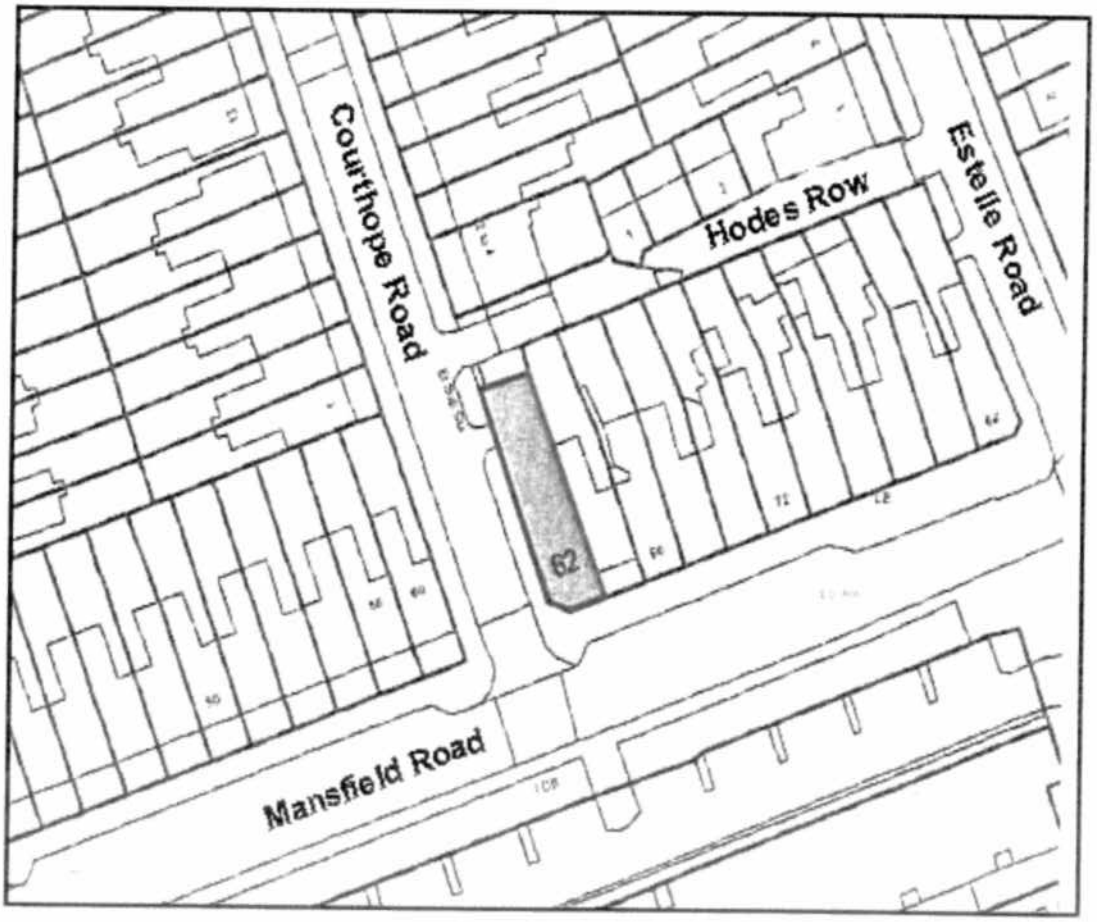



Figure 1. Location of 62 Mansfield Road

## 2 Scope of this report

**2.1** This report considers the sunlight and daylight issues against the criteria set out for national discretionary guidance in the publication Site Layout Planning for Daylight and Sunlight[1] (SLP) published by the Building Research Establishment (BRE) in 2011. The document SLP refers both to particular amounts of daylight and sunlight and to a method of setting alternative target values for skylight. The LPA has not set such alternative target values. The document SLP states in its own introduction on page 1 that:

*"The advice given here is not mandatory and this document should not be seen as an instrument of planning policy"*

**2.2** The British Standard current for this subject is BS 8206-2:2008 – code of practice for daylighting[2].

**2.3** The Code for Sustainable Homes (CSH)[3], first launched in December 2006, became operational in April 2007, and being a mandatory assessment for all new build housing from 1st May 2008. The CSH refers back to the benchmark levels set out in SLP and those set out in the British Standard for daylight, but has no criteria for bedrooms, nor any criteria for sunlight.

**2.4** We have carried out a technical sunlight and daylight study, to assess the possible impact of the proposed dwelling at the rear of 62 Mansfield Road on to the existing ground floor flat of the main house at 62 Mansfield Road. This report also considers the internal daylight levels to the proposed habitable rooms within the development itself. In the context of this report, habitable rooms are considered as living rooms, kitchens and bedrooms.

**2.5** The analyses used in this chapter are:

2.5.1 **For sunlight**: The sun light protractor method and sunlight availability indicator for 51.5° N as set out in Appendix A of SLP.

2.5.2 **For daylight ADF**: The principles set out in section 2 of SLP together with the concept of average daylight factor (***df***) as set out in both Appendix C of SLP - interior daylighting recommendations – and in BS 8206-2:2008:code of practice for daylighting. Also an assessment of percentage loss.

[1] Littlefair, P.J (2011) Site Layout Planning for Daylight and Sunlight, A guide to good practice, IHS and BRE

# 3 Methodology

## 3.1 For Sunlight at a Building

3.1.1 The methodology used is that of the sun light protractor method and sunlight availability indicator for 51.5° N as set out in Appendix A of Site Layout Planning for daylight and sunlight: A guide to good practice (SLP).

3.1.2 This method considers sunlight at a reference point. On looking out from the reference point the angular size of an obstructing building is assessed by reference to its ratio of Distance/Height relative to the reference point. The composite obstruction profile is plotted using this ratio. The resultant plot of obstructions for any given reference point is then overlaid on the Building Research Establishment (BRE) sunlight availability indicator for 51.5 degrees north.

3.1.3 The concept of available sunlight takes into account the probability of cloud obscuring the sun from a given reference point in addition to the change of sunrise and sunset times. Very approximately at 51.5 degrees north, BRE anticipate an average of 4 hours and 4 minutes of sunlight per day throughout the year on the basis only of cloud as an obstruction. The sunlight indicator takes into account the lower sun angles of the winter months.

3.1.4 The resultant assessment provides a percentage of annual probable sunlight hours at a given point. This assessment is for sunlight on the outside face of a building.

3.1.5 The recommended levels of sunlight stated in BS code of practice is given as:

"Interiors in which the occupants have a reasonable expectation of direct sunlight and should receive at least 25% of probable sunlight hours. At least 5% of probable sunlight hours should be received during the winter months (21st September to 21st March)."

There is a rider to the above which states:

"The degree of satisfaction is related to the expectations of sunlight. If a room is necessarily north facing or if the building is in a densely-built urban area, the absence of sunlight is more acceptable than when its exclusion seems arbitrary." There is no requirement for a dwelling to receive sunlight, and of

[2] Lighting for Buildings. Code of Practice for Daylighting BS 8206-2: 2008, British Standards Institution, 2008

course many do not. The BRE guidance suggests that sunlight assessments should only be made for windows, or walls in which there are windows, that face within 90° of due south.

### 3.2 For Daylight at a Building

3.2.1 An accurate prediction is made of the amount of daylight within a room using the concept of Average Daylight factor (*df*). This assessment is carried out in accordance with section 2 and Appendix C of SLP - interior daylighting recommendations – and in accordance with BS 8206-2:2008:code of practice for daylighting. The reference levels for such daylighting are also given in these documents.

3.2.2 The procedure is, as with the sunlight analysis, to describe in terms of the Distance/Height ratio all physical obstructions to light paths with reference to a subject position. These obstructions are then plotted against the light distribution from a CIE Standard Overcast Sky[4] as defined by the Commission Internationale de l'Eclairage (CIE).

3.2.3 The resulting daylight at the external face of the building can be computed. This is known as the Vertical Sky Component (VSC). The parameters of window size, glass transmissivity, room size and internal surface reflectances are then evaluated against the VSC for the window location. The resulting assessment gives a measure of internal daylight as a *df* value known as Average Daylight Factor.

3.2.4 The approach advocated by SLP, but not by BS 8206-2:2008, is to use only the external VSC measurement at existing surrounding property. Because this approach does not consider any of the window or room qualities, including window size for example, we prefer the more detailed average daylight factor approach and assessment.

3.2.5 The Average Daylight Factor tests takes into account window size, room size, internal reflectances in addition to external light levels at the window. VSC is a measurement made externally only and does not describe daylight internally.

[3] Code for Sustainable Homes, BRE Global, DCLG, November 2010

[4] This is a completely overcast sky, the mathematical definition of which is given at Appendix H of SLP as a luminance ratio.

3.2.6 The suggested average daylight factor levels in SLP are:

- Bedrooms 1.0%df
- Living Room 1.5%df
- Kitchens 2.0%df
- Living/Kitchens 2.0%df

The assessment of adequate light internally in general relates to the quantum of light remaining as set out in BS 8206-2:2008 (in this instance measured as average daylight factor – *df*) rather than how much light is taken away.

## 4 The Drawings

**4.1** The 3D computer model simulated to assess the potential impact of the proposed dwelling, and the internal daylight conditions within the habitable rooms, has used the following drawings by Barbara Weiss Architects, dated June 2013, but received March 2014.

| DRAWING TITLE : | DRAWING NUMBER | REVISION |
|---|---|---|
| Site Plan | PL(00)01 | REV B |
| Proposed Lower Ground Floor Plan | PL(01)01 | REV C |
| Proposed Ground Floor Plan | PL(01)00 | REV B |
| Proposed Sections | PL(02)00 | REV C |
| Proposed Front Elevation | PL(03)00 | REV B |
| Proposed Roof Plan | PL(02)01 | REV B |
| OS Site Plan | OS Map Ref:TQ2785NE TitleNo.NGL860868 | |

4.2 The 3D computer model simulated to assess sunlight and daylight within the existing ground floor flat at 62 Mansfield Road has used the following drawings obtained from the planning website of the London Borough of Camden, prepared by Allan Properties Limited, dated May/June 2008. These drawings relate to the part change of use to the rear of the ground floor shop into a residential flat at existing 62 Mansfield Road.

| DRAWING TITLE : | DRAWING NUMBER | |
|---|---|---|
| Proposed Plan and Front Elevation | 20435/05 | |
| Proposed Rear and Side Elevations | 20435/06 | |
| Proposed LGF & Ground Floor Plan | PL(01)00 | Rev B |
| Proposed First Floor & Roof Plan | PL(01)01 | Rev B |
| Proposed Sections | PL(02)00 | Rev B |
| Proposed Sections | PL(02)01 | Rev A |
| Proposed Front Elevation | PL(03)00 | Rev B |
| Proposed 3D Views | PH-02 | Rev A |
| Proposed Street View | PH-03 | Rev A |

## 5 The Scheme

5.1 The proposed dwelling is located to the rear of the existing property known as 62 Mansfield Road. The rear of the property, known as the development site was an existing garage, but currently large parts of the structure have been demolished.

5.2 The proposals consist of the development of a two storey dwelling above ground floor level, with a basement floor level below ground. The dwelling consists of a combined kitchen and living room, a hallway and W/C at ground floor level. At lower ground/basement level there is a master bedroom with a shower room, a study room, a bathroom and a patio garden area. The proposed site proposed is shown in red below.

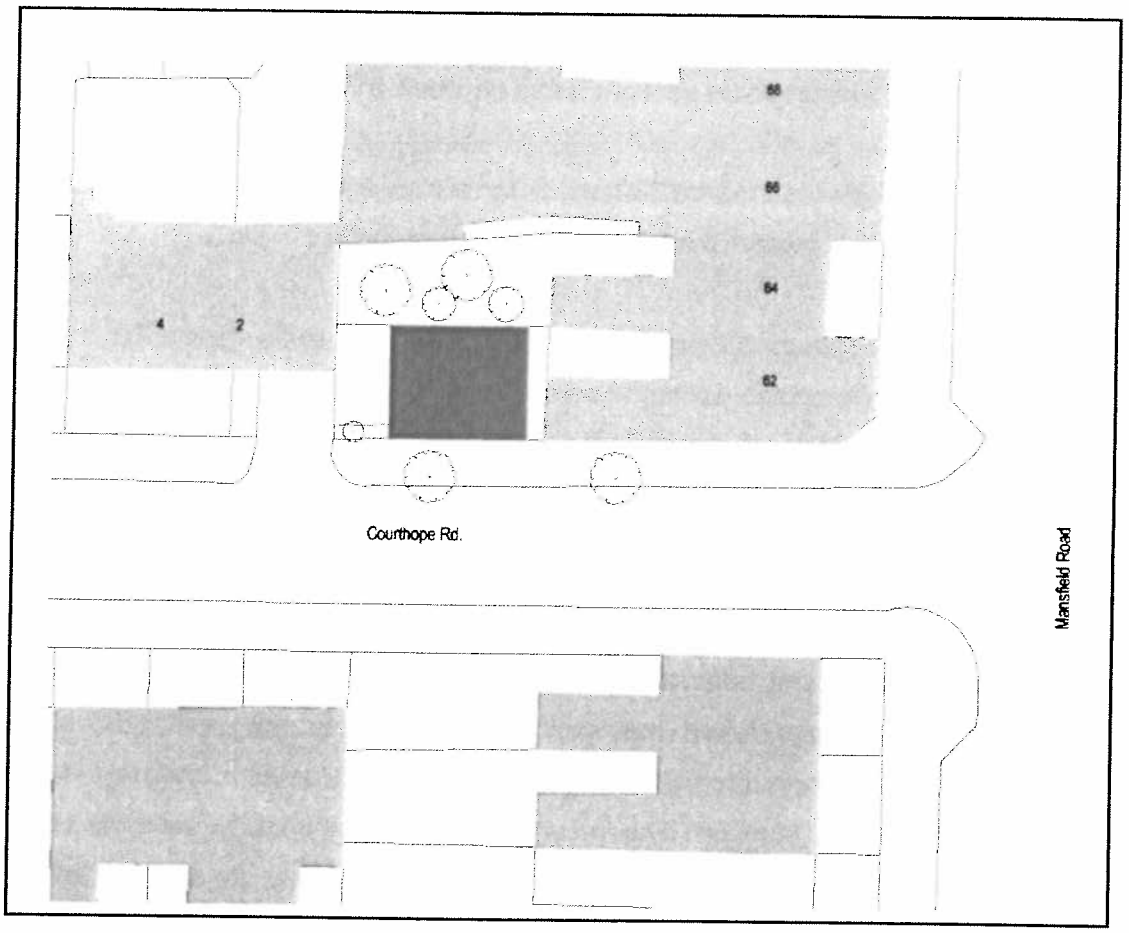



Figure 2. Proposed Site Plan

## 6 Description of the Surroundings

**6.1** The immediate surrounding buildings consist of typically three to four storey residential homes, with a mixture of large town houses and a six storey purpose built block of flats across from Mansfield Road.

## 7 Sunlight

### 7.1 Sunlight to Existing 62 Mansfield Road

7.1.1 BRE discretionary guidance states if a living room of an existing dwelling has a main window facing within 90 degrees of due south, and any part of a new development subtends an angle of more than 25 degrees to the horizontal measured from the center of the window, then sunlight levels to the existing

dwelling may be adversely affected. This will be the case if the center of the window:

- Receives less than 25% of annual probable sunlight hours, or less than 5% of annual probable sunlight hours between 21st September and 21st March, and
- Receives less than 0.8 times its former sunlight hours during either period (a reduction greater than 20% with the development in place), and
- Has a reduction in sunlight received over the whole year greater than 4% of annual probable sunlight hours.

7.1.2 There is no sunlight requirement for windows that face within 90 degrees of due north.

7.1.3 We have taken sunlight assessments to rear facing residential rooms of the existing ground floor flat to 62 Mansfield Road. The ground floor rooms are a living room and bedroom which face directly on to the proposed development site. We have taken the sunlight assessments both with and without the proposed single storey development in place in order to evaluate the possible reduction in sunlight. The results of the sunlight study demonstrate that the existing bedroom contains north facing windows only. As stated above, there is no sunlight requirement for windows that face within 90 degrees of due north. At the existing living room, which has both north and west facing windows, there would be high levels of sunlight retained following development of the single storey dwelling.

7.1.4 Therefore, following development of the single storey dwelling, the existing ground floor bedroom and living room at 62 Mansfield Road would still achieve sunlight levels that meet and exceed the BRE guidance.

7.1.5 The results of the sunlight Annual and Winter Probable Sunlight Hours (APSH and WPSH) assessments are shown in Table 1 below and the test locations for this study are shown at Appendix 1 of this report.

| Impact of Proposed Development on to 62 Mansfield Rd - Sunlight Results | | | | | | | |
|---|---|---|---|---|---|---|---|
| Floor Ref. | Room Ref. | Room Use. | Window Ref. | Before (Existing) After (Proposed) | (APSH) Annual % | (WPSH) Winter % | Pass/ Fail |
| **Impact on Existing 62 Mansfield Road - Ground Floor Flat** | | | | | | | |
| Ground | R1 | Bedroom | W1 | Existing | *North Facing | | N/A |
| | | | | Proposed | | | |
| Ground | R1 | Bedroom | W2 | Existing | *North Facing | | N/A |
| | | | | Proposed | | | |
| Ground | R1 | Bedroom | W3 | Existing | *North Facing | | N/A |
| | | | | Proposed | | | |
| Ground | R2 | Living room | W4 | Existing | *North Facing | | N/A |
| | | | | Proposed | | | |
| Ground | R2 | Living room | W5 | Existing | *North Facing | | N/A |
| | | | | Proposed | | | |
| Ground | R2 | Living room | W6 | Existing | *North Facing | | N/A |
| | | | | Proposed | | | |
| Ground | R2 | Living room | W7 | Existing | 46 | 13 | PASS |
| | | | | Proposed | 46 | 13 | |
| Ground | R2 | Living room | W8 | Existing | 42 | 10 | PASS |
| | | | | Proposed | 42 | 10 | |
| * Window faces within 90 degrees of North | | | | | | | |

Table 1. Sunlight to Existing Ground Floor Flat at 62 Mansfield Road

### 7.2 Sunlight to Proposed Rooms within New Dwelling rear of 62 Mansfield Road

7.2.1 We have carried out sunlight assessments on the proposed development at the rear of 62 Mansfield Road. We have carried out the assessments to the habitable rooms within the scheme, this being the ground floor living/kitchen and the lower ground floor bedroom.

7.2.2 The results of the study show that the ground floor living/kitchen room has the main windows to the room, those which can receive direct sunlight, facing south-east. These windows would receive sunlight levels substantially above the sunlight levels required to meet the BRE criteria. The results of this test are shown in table 2 below.

7.2.3 The lower ground floor bedroom does not have any windows that can receive direct sunlight, therefore this assessment is not applicable for basement/lower ground floor habitable rooms. A window plan can be found in Appendix 1 of this report.

| Proposed Dwelling rear of 62 Mansfield Road - Sunlight Assessments | | | | | Available Sunlight Hours | | |
|---|---|---|---|---|---|---|---|
| Floor Ref. | Room Ref. | Room Use. | Window Ref. | Building | Annual % | Winter % | Pass/Fail |
| **Proposed Infill House** | | | | | | | |
| Ground | R1 | Living room Kitchen area | W1 | Proposed | 41 | 12 | PASS |
| Ground | R1 | Living room Kitchen area | W2 | Proposed | 41 | 11 | PASS |

Table 2. Sunlight to Proposed Dwelling rear of 62 Mansfield Road

## 8 Daylight

### 8.1 Daylight to Existing 62 Mansfield Road

8.1.1 The BRE discretionary guidance recommends that for habitable rooms the minimum Average Daylight Factor (ADF) levels should be:

- Bedrooms 1.0%df
- Living Room 1.5%df
- Kitchens 2.0%df
- Living/Kitchens 2.0%df

8.1.2 We have assessed the daylight ADF levels at the adjacent existing residential ground floor living room and bedroom at 62 Mansfield Road. We have carried out the daylight ADF test on both a before and after development scenario of the proposed dwelling to evaluate the possible reduction in daylight at the existing rooms.

8.1.3 The results of the daylight ADF study demonstrate that with the proposed development in place, the existing ground floor living room and bedroom would continue to receive high levels of daylight that would meet and exceed the BRE recommendations.

8.1.4 Therefore, following development of the proposed dwelling there will be no adverse daylight impact to existing residential rooms within the ground floor flat of 62 Mansfield Road. A window plan can be found in Appendix 1 of this report.

| Impact of Proposed Development on to 62 Mansfield Rd - Daylight Results | | | | | | | |
|---|---|---|---|---|---|---|---|
| Floor Ref. | Room Ref. | Room Use. | ADF Existing | ADF Proposed | Req'd ADF | % Diff | Pass/Fail |
| **62 Mansfield Road** | | | | | | | |
| Ground | R1 | Bedroom | 0.25 | 0.23 | | | |
| | | | 0.00 | 0.00 | | | |
| | | | 0.53 | 0.50 | | | |
| | | | 0.29 | 0.27 | | | |
| | | | 1.07 | 1.01 | 1.00 | 0.95 | PASS |
| Ground | R2 | Living room | 0.22 | 0.21 | | | |
| | | | 0.00 | 0.00 | | | |
| | | | 0.43 | 0.40 | | | |
| | | | 0.22 | 0.21 | | | |
| | | | 0.60 | 0.60 | | | |
| | | | 0.57 | 0.57 | | | |
| | | | 2.04 | 1.99 | 1.00 | 0.97 | PASS |

Table 3. Daylight ADF to Existing Ground Floor Flat at 62 Mansfield Road

## 8.2 Daylight to Proposed Rooms within New Dwelling rear of 62 Mansfield Road

8.2.1 We have carried out daylight assessments on the proposed dwelling at the rear of 62 Mansfield Road. We have carried out the assessments to the habitable rooms within the scheme, this being the ground floor living/kitchen and the lower ground floor bedroom. The study room at lower ground floor is not consisted a habitable room in this context.

8.2.2 The results of the daylight ADF study show that the ground floor living/kitchen would receive daylight levels substantially above the daylight levels required to meet the BRE criteria.

8.2.3 The lower ground floor bedroom can receive daylight through the light well, and the large windows specified would allow enough daylight to enter the room. The results show that the bedroom would meet the required daylight level recommended for a bedroom. The results of these tests are shown in table 4 below. A window plan can be found in Appendix 1 of this report.

| Proposed Dwelling rear of 62 Mansfield Road - Daylight Assessments | | | | | |
|---|---|---|---|---|---|
| Floor Ref. | Room Ref. | Room Use. | ADF Proposed | Req'd ADF | Pass/Fail |
| **Proposed Infill House** | | | | | |
| Lower Ground | R2 | Bedroom | 0.08<br>0.98 | | |
| | | | 1.06 | 1.00 | PASS |
| Ground | R1 | Living room Kitchen area | 0.03<br><br><br>0.61<br>0.03<br>0.61<br>0.08<br>0.77<br>1.27 | | |
| | | | 3.38 | 2.00 | PASS |

Table 4. Daylight ADF to Proposed Dwelling rear of 62 Mansfield Road

## 9 Conclusions

### 9.1 Sunlight and Daylight to Existing 62 Mansfield Road

9.1.1 We have analysed the possible sunlight and daylight impact of the proposed new dwelling at 62 Mansfield Road on to the residential rooms within in the ground floor flat of the existing adjacent 62 Mansfield Road. The assessments have been carried out to the existing habitable rooms before and after development of the proposed dwelling to evaluate to potential impact on to the rooms.

9.1.2 The results of the sunlight and daylight assessment concludes that with the proposed development in place, all tested to the existing bedroom and living room within the ground floor flat of existing 62 Mansfield Road would still achieve adequate levels of sunlight and daylight that meet and exceed the BRE criteria.

9.1.3 Therefore the proposed development at 62 Mansfield Road, would not cause an adverse impact to sunlight and daylight levels at the living room and bedroom of the existing ground floor flat at 62 Mansfield Road. With this result, it follows that the upper floors to existing 62 Mansfield Road would also not be adversely impacted by the proposed development. Other adjacent residential properties located at a further distance away from the proposed development site would not be adversely affected.

### 9.2 Sunlight and Daylight to Proposed Rooms within New Dwelling rear of 62 Mansfield Road

9.2.1 We have analysed the sunlight and daylight levels at the proposed new dwelling rear of 62 Mansfield Road. The results of the assessment concludes that with the proposed development in place, all tested habitable rooms would achieve sunlight and daylight levels that meet and exceed the BRE criteria.

**28th March 2014**

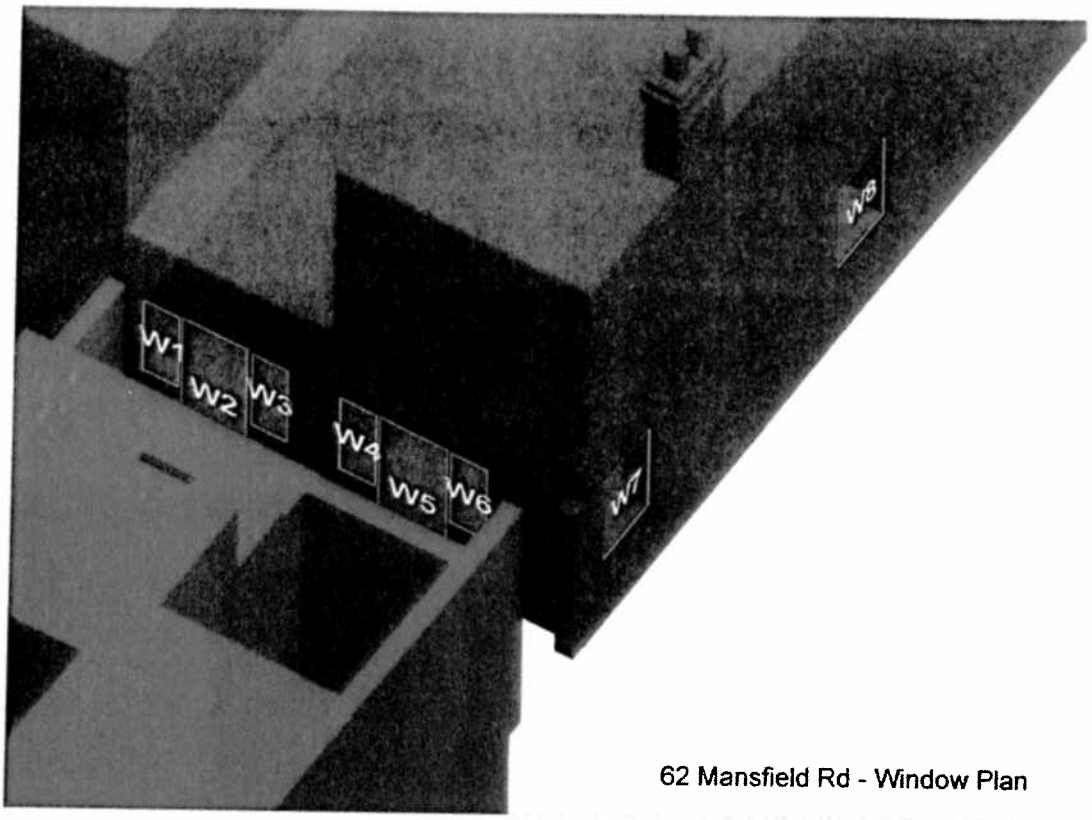
**Gilsen Osman** B.Sc.(Hons) AssocRICS

Sunlight and Daylight Surveyor
BLDA Consultancy
211 Design Centre East
Chelsea Harbour
London
SW10 0XF

tel: 020 7838 5555
fax: 020 7838 5556
email go@blda.co.uk

**APPENDIX 1**

SUNLIGHT AND DAYLIGHT ASSESSMENT LOCATION PLANS




62 Mansfield Rd - Window Plan