
64 Middleton Road, London, E8 4BS
Daylight and Sunlight Study

Rev: A

Date: 10th February 2022

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SCOPE

Model Environments was appointed by JA Property Lets Ltd to assess the potential impact upon natural light access to neighbouring properties due to a proposed residential dwelling. The proposal comprises a two-storey detached residential dwelling occupying part of the land to the rear of number 64 Middleton Road.

Impact has been assessed using the criteria set out in '*Site layout planning for daylight and sunlight – a guide to good practice*' by PJ Littlefair, published by the Building Research Establishment (BRE). Whilst the guide itself states that its guidelines are not mandatory, they are those predominantly referenced for daylight and sunlight standards in the UK.

It is important to note that with any modelling exercise there are assumptions and approximations that must be made. As far as possible, details of all assumptions and approximations used are supplied as part of the report: these should be read carefully. All results are based on the output from computer modelling software and should be taken as an indication of the likely final situation, but these conditions cannot be guaranteed.

EXECUTIVE SUMMARY

The impact of the proposal upon the access to natural light for neighbouring properties is predicted to be well within BRE recommended limits and is fully compliant with good practise guidelines.

For the thirteen neighbouring windows tested, daylight levels are predicted to remain at their previous level or to be reduced to no less than 0.9 times their former value.

Sunlight levels for eight neighbouring ground floor windows that may serve living rooms are predicted to remain at their previous level, or to be reduced to no less than 0.9 times their former value. All windows tested are predicted to continue to receive good levels of sunlight access throughout the year.

Access to sunlight for the neighbouring gardens of numbers 60 and 62 Middleton Road are predicted to remain at previous levels. Both gardens are predicted to continue to receive good levels of sunlight throughout the year.

METHODOLOGY

There are no national planning policy guidelines on sunlight, daylight and the effects of overshadowing. At the local level, the document *Site Layout Planning for Daylight and Sunlight, A Guide to Good Practice* by Paul Littlefair of the Building Research Establishment (BRE, 2011) has been adopted into many council's Unitary Plans and, even where some local authorities have not explicitly adopted the methodology, it is widely recognised as the best available means of determining potential impacts of this type. This assessment has been carried out in accordance with the best practice guidelines stated in this reference.

It should be noted that the guide says of itself that the intention is to help rather than constrain the designer, and that its advice is not mandatory. Further, whilst the document provides numerical guidelines for various natural light derived parameters, it advises that these should be applied flexibly.

The BRE guidelines describe three separate parameters to quantify the potential effect of a new building on the light levels of its neighbours:

- **Daylight** – i.e. the impacts of all direct and indirect sunlight during the daytime;
- **Sunlight** – i.e. the impacts of only the direct sunlight; and
- **Overshadowing of Gardens and Open spaces.**

The table below summarises the criteria used for assessment in this study.

Parameter	Criteria	Acceptability Criteria	Source
Daylight	Angle to sky from the horizontal	Maximum 25°	BRE
	Vertical sky component (VSC)	Greater than 27%	BRE
	Average and Median daylight factor (ADF / MDF)	Greater than 1-2% dependant on room use	BRE/BS 8206/BS EN17037
	Percentage of the working plane behind the "No-Sky Line" (NSL)	"Significant Part"/80%*	BRE/BS 8206
Sunlight	Annual probable sunlight hours (APSH) - full year	Greater than 25%**	BRE
	Winter probable sunlight hours (WPSH) - winter months	Greater than 5%**	BRE

* Whilst the guidelines describe the methodology for determining the percentage of the working plane that has a direct view of the sky, it does not give an acceptability criterion, only that supplementary electric lighting will be required if a "significant part" of the working plane lies beyond the no-sky line. However, the Code for Sustainable Homes and BS 8206 suggest that each room requires a minimum of 80%.

** Applies only to main living rooms, not to bedrooms, kitchens or other non-habitable rooms.

Daylight Assessment Methodology

The BRE guidelines propose several methods to assess daylight. Firstly, the 25° rule is used as a screening method to select windows requiring full investigation. If a construction subtends an angle greater than 25° from the horizontal when viewed from a neighbouring window, that window requires further investigation.

The BRE guidelines propose that the impact to daylight be measured by the Vertical Sky Component (VSC), calculated for selected windows in the existing and proposed cases, and the values compared. The VSC is a general measure of the potential daylight available to a window. If, in the proposed case, the value of the VSC drops below 27% and drops below 0.8 times its former value, then occupants of the affected building will notice the reduction in daylight.

Sunlight Assessment Methodology

The BRE Report states that a new development may adversely affect the level of sunlight at an existing building if the centre of the window in a main living room receives less than one quarter of the annual probable sunlight hours in a year or less than 5% of annual probable sunlight hours between 21 September - 21 March *and* is less than 0.8 times its former value in either period *and* has a reduction of APSH over 4%. The BRE guide suggest testing main living room windows that face within 90° of south for access to sunlight.

Overshadowing Assessment Methodology

The 21st of March is an indicative date for shadows. If an area receives no direct sunlight at any time on that date, it will not have received any sunlight all winter. The BRE Report states that *“no more than 50% of a garden should receive less than 2 hours sunlight on 21st March and, if as the result of a new development, an existing garden does not meet these guidelines, and the area that can receive 2 hours of direct sun on March 21st is less than 0.8 time its former value, then the loss of sunlight is likely to be noticeable”*.

The Impact of Fences and Vegetation

It is important to note that according to the BRE Report, calculations do not normally consider vegetation (trees, hedges etc.) or fences. The exception is when evergreen vegetation forms a continuous barrier that would be permanent throughout the year or where an opaque fence or wall is over 1.5m high.

THE MODEL

The calculations were made using Ecotect 5.6 software from Autodesk Ltd and Radiance from Lawrence Berkeley Laboratories. Three-dimensional electronic models suitable for daylight/sunlight analysis were constructed to represent the current site conditions and the proposed development.

The model included a representation of buildings adjacent to the development site, up to a distance judged to have an influence on the availability of natural light due to their proximity to the proposal, and by using the 25° screening test. The model was based on photographs, drawings, and information supplied by the design team in February 2022, as well as information found concurrently online. Estimations were made in the absence of other information, and these are made explicit where applicable throughout the report.

IDENTIFICATION OF WINDOWS

Thirteen windows were identified for testing due to their proximity to the proposal, and by applying the 25° rule. These were: one window at the rear of number 60 Middleton Road; four windows at the rear of number 62 Middleton Road; one window at the rear of number 64 Middleton Road; one window at the rear of number 66 Middleton Road; two windows at the front of number 23 Albion Square; two windows at the front of number 24 Albion Square; and two windows at the rear of number 25 Albion Square.

The images below show and label the windows tested.

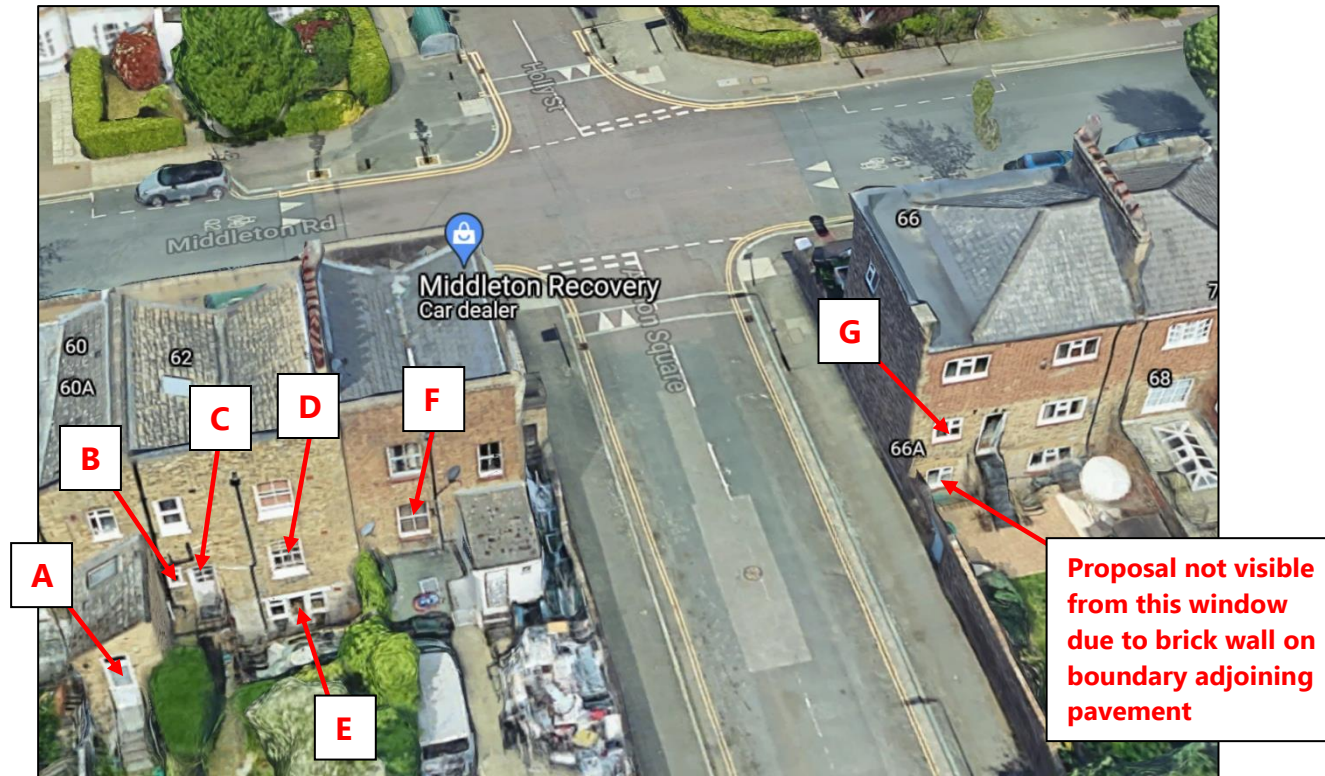


Image 1: Identification of windows



Image 2: Identification of windows



Image 3: Identification of windows

DAYLIGHT RESULTS

The table below shows the predicted access to daylight in the existing and proposed conditions, for the windows identified for testing.

Property	Window	Existing VSC	Proposed VSC	Ratio	BRE Compliance
60 Middleton Road	A	37%	36%	1.0	Pass
62 Middleton Road	B	22%	21%	1.0	Pass
	C	27%	25%	0.9	Pass
	D	34%	33%	1.0	Pass
	E	18%	18%	1.0	Pass
64 Middleton Road	F	32%	31%	1.0	Pass
66 Middleton Road	G	37%	36%	1.0	Pass
23 Albion Square	H	38%	37%	1.0	Pass
	I	36%	35%	1.0	Pass
24 Albion Square	J	37%	37%	1.0	Pass
	K	36%	35%	1.0	Pass
25 Albion Square	L	37%	37%	1.0	Pass
	M	37%	37%	1.0	Pass

Table 1: Daylight access for neighbouring properties

All windows tested pass BRE daylight impact guidance. Most windows are predicted to experience negligible, or no impact at all. Window C is predicted to experience a reduction in its existing VSC to no less than 0.9 times its former value; this is well within BRE daylight impact guidance, which states that the maximum recommended reduction is to no less than 0.8 times former value.

SUNLIGHT RESULTS

The BRE guide suggests testing for impacts to access to sunlight is appropriate for main living rooms facing within 90° of south. The use of the neighbouring rooms is not known, however eight windows that face within 90° of south that may serve living rooms were selected for testing. The Annual Probable Sunlight Hours (APSH), and Winter Probably Sunlight Hours (WPSH) were calculated, and the results are shown in the table below.

Property	Window	APSH Existing	APSH Proposed	Ratio	BRE Compliance	WPSH Existing	WPSH Proposed	Ratio	BRE Compliance
62 Middleton Road	D	75%	71%	0.9	Pass	35%	31%	0.9	Pass
	E	35%	35%	1.0	Pass	7%	7%	1.0	Pass
64 Middleton Road	F	73%	72%	1.0	Pass	35%	34%	1.0	Pass
66 Middleton Road	G	86%	84%	1.0	Pass	39%	37%	0.9	Pass
23 Albion Square	H	62%	62%	1.0	Pass	23%	23%	1.0	Pass
	I	60%	60%	1.0	Pass	22%	22%	1.0	Pass
24 Albion Square	J	62%	62%	1.0	Pass	23%	23%	1.0	Pass
	K	61%	61%	1.0	Pass	22%	22%	1.0	Pass

Table 2: Sunlight access for selection of predominantly south facing neighbouring windows possibly serving living rooms

The BRE Report recommends that windows qualifying for sunlight tests receive a minimum of 25% of available Annual Probable Sunlight Hours (APSH), and at least 5% of available Winter Probable Sunlight Hours (WPSH). All the windows tested exceed these limits for both APSH and WPSH in the proposed condition; this indicates that all the windows tested are predicted to receive good access to sunlight throughout the year. For most windows, the impact of the proposal is negligible or has no impact.

OVERSHADOWING

Two neighbouring gardens were selected for overshadowing sun-on-ground tests due to their proximity to the proposal: the rear gardens of numbers 60 and 62 Middleton Road. The results are shown in the table below.

Garden	Existing % Area Receiving 2+ Hours Sunlight on 21st March	Proposed % Area Receiving 2+ Hours Sunlight on 21st March	Ratio	BRE Compliance
60 Middleton Road	89%	89%	1.0	Pass
62 Middleton Road	75%	75%	1.0	Pass

Table 3: Sunlight access for neighbouring gardens

The BRE guide recommends testing for sunlight access on the 21st of March, and states that a garden or outdoor amenity space should continue to receive 2+ hours of sunlight across at least 50% of its area on this date, or if this condition is not met, that the area receiving 2+ sunlight hours not be reduced to less than 0.8 times its former size.

The proposal has a negligible, or no impact upon the two gardens tested.

CONCLUSION

The proposal is acceptable in terms of BRE impact guidance for daylight, sunlight, and overshadowing.

The impact upon daylight and sunlight access for all the windows tested is well within BRE recommended limits.

The effect of the proposal upon neighbouring gardens access to sunlight is compliant with BRE guidance.

Issue	Date	Remarks	Prepared	Checked
A	10 th February 2022		Harry Westaway	

This report has been prepared by Model Environments Limited with all reasonable skill, care and diligence, and taking account of the manpower and resources devoted to it by agreement with the client. Information reported herein is based on the interpretation of data collected and has been accepted in good faith as being accurate and valid.

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