



1 Russell Road

Gravesend

Daylight and Sunlight Assessment

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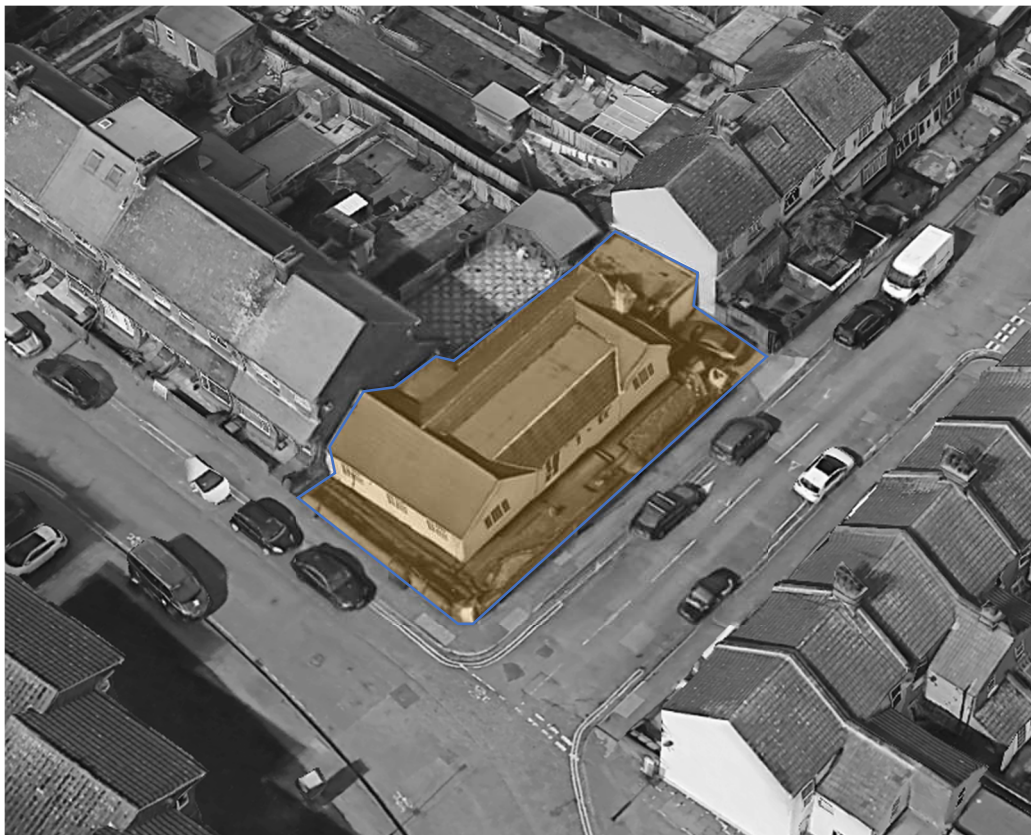
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1.0 Introduction

- 1.1 This daylight and sunlight assessment has been prepared in relation to a planning application for a proposed new residential development on the site at 1 Russell Road, Gravesend.
- 1.2 The report assesses the impacts of the proposals in relation to daylight, sunlight and overshadowing matters, having regard to industry standard guidance.
- 1.3 The report concludes that the proposal is acceptable and in accordance with planning policy requirements in relation to daylight and sunlight.
- 1.4 There is no existing specific National Planning Policy relating to the prospective impacts of developments on daylight and sunlight on their surrounding environment.
- 1.5 However, the NPPF (Para 129) does refer to daylight and sunlight in relation to density, encouraging Local Planning Authorities to take a flexible approach to applying policies and guidance relating to the impacts of proposals where they would otherwise inhibit making effective use of the site.
- 1.6 The BRE Report 'Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice' (3rd Edition, 2022) is the established National guidance to aid the developer to prevent and/or minimise the impact of a new development on the availability of daylight and sunlight in the environs of the site and the assessment of light within proposed new dwellings.
- 1.7 It refers in turn to the daylight and sunlight recommendations in BS EN 17037: 2018+A1:2021 (with UK Annexe): 'Daylight in Buildings'
- 1.8 These reference documents are accepted as the authoritative works in the field on daylight, sunlight and overshadowing and the BRE guidance specifically referred to in many Local Authorities' planning policy guidance for daylighting.
- 1.9 The methodology therein has been used in numerous lighting analyses and the standards of permissible reduction in light are accepted as the industry standards.

2.0 Project Summary

- 2.1 The proposal site is at 1 Russell Road, Gravesend and is currently occupied by a single storey dwelling.
- 2.2 The proposal is for the demolition of the existing buildings on the site and the construction of a new residential development of 1 new house and six flats, rising to a maximum height of 3 storeys.
- 2.3 The impacts of the scheme have been assessed, in line with BRE guidance. Generally, it is the impacts on residential neighbours which are of primary concern.
- 2.4 Further details on the location of the assessed neighbours and their windows are given in Section 5.0.



Site as Existing

3.0 Methodology

- 3.1 For this analysis, we have undertaken the most common calculations for the change in daylight and sunlight to existing buildings, as recommended in BRE Digest 209. These are:
- Vertical Sky Component (VSC) for daylight
 - Annual Probable Sunlight Hours and Winter Probable Sunlight Hours (A/WPSH) for sunlight impacts
- 3.2 The VSC method measures the general amount of light available on the outside plane of the window as a ratio (%) of the amount of total unobstructed sky viewable following introduction of visible barriers such as buildings. The maximum value is just under 40% for a completely unobstructed vertical wall.
- 3.3 The VSC is calculated using computer simulation under a CIE overcast sky. This works by simulating the amount of visible sky from the centre point of each window. It is not affected by orientation and so all potentially affected windows are assessed.
- 3.4 Annual Probable Sunlight Hours (APSH) and Winter Probable Sun light Hours (WPSH) are a measure of the amount of potential direct sunlight that is available to a given surface. APSH covers sunlight over the whole year and WPSH from September 21st to March 21st. The number of total available hours is calculated from a data file in the software, built up over a number of years of actual weather data records.
- 3.5 Only windows which face within 90° of due south need be assessed for sunlight.
- 3.6 PSH can also be used to assess the impact on external spaces such as gardens. This is looked at in Section 9.

4.0 Modelling & Data Sources

- 4.1 The first stage of the analysis is to create the analysis model of the existing site condition and the proposal. This allows us to analyse the impact of the proposal when compared to the existing condition.
- 4.2 2D drawings have been provided by the design team. These drawings are used to construct a 3D analysis model which is exported into the specialist daylight software. Calculations are then run, for both existing and proposed scenarios.
- 4.3 Sufficient detail is added to the model for the analysis. In accordance with BRE recommendations, trees and foliage have been omitted from the calculations.
- 4.4 Information on the properties has been provided to us by the design team in the form of drawings, giving the site as existing and proposed and photographs of the site and surroundings.
- 4.5 Web-based mapping sources and photos have been used to establish the location and size of neighbouring windows.

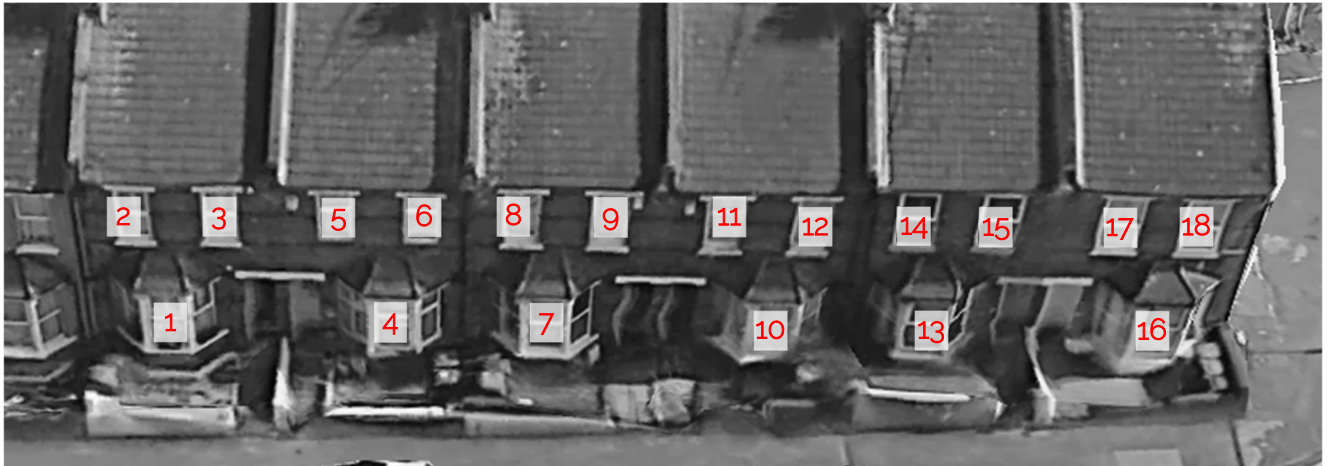


Architectural Visualisation - as Proposed

5.0 BRE Guidance Targets

- 5.1 The reference document for this analysis, BRE Digest 209, gives the methodology for undertaking the calculations. It also provides benchmark figures for the acceptable reduction in the daylight on existing properties which might be affected by development.
- 5.2 Specifically, the guidance gives figures for the VSC and APSH, as a percentage reduction that is "permissible" for the effect on existing windows.
- 5.3 It is worth noting the following statement in the Guidance introduction:
- "The guide is intended for building designers and their clients, consultants and planning officials. The advice given here is not mandatory and this document should not be seen 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.
- 5.4 The relevant BRE recommendations for daylight and sunlight are:
- The Vertical Sky Component measured at the centre of a window should be no less than 27, or if reduced to below this, no less than 0.8 times the former value.
 - The window should receive at least 25% of available annual sunlight hours and more than 5% during the winter months (September 21st to March 21st), or, where this is not the case, 80% of its former value.

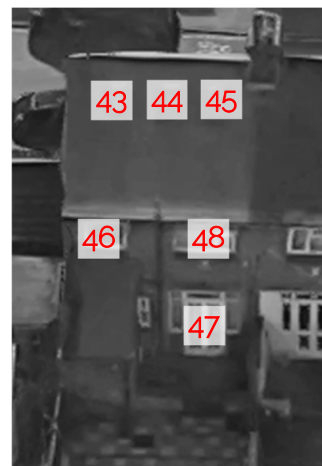
6.0 Window Schedules



2-12 Russell Road



1-11 Albion Terrace



25 Albion Terrace

7.0 Daylight Impact Results

- 7.1 The Vertical Sky Component has been calculated for each of the 48 assessed windows for both the existing and proposed conditions.
- 7.2 As can be seen in the results below, all windows retain 80% of their current values.
- 7.3 The scheme is therefore compliant with BRE recommendations in relation to daylight impacts.

Vertical Sky Component				
Window	Existing VSC	Proposed VSC	% Retained	Meets BRE Guidance?
1	38.232	36.907	96.54%	Yes
2	39.534	38.528	97.46%	Yes
3	39.523	38.245	96.77%	Yes
4	37.835	35.821	94.68%	Yes
5	39.509	37.990	96.15%	Yes
6	39.492	37.625	95.27%	Yes
7	37.396	34.454	92.13%	Yes
8	39.487	37.369	94.64%	Yes
9	39.482	36.915	93.50%	Yes
10	37.291	33.344	89.42%	Yes
11	39.486	36.708	92.96%	Yes
12	39.494	36.544	92.53%	Yes
13	37.585	33.494	89.12%	Yes
14	39.511	36.599	92.63%	Yes
15	39.519	36.759	93.02%	Yes
16	38.135	34.814	91.29%	Yes
17	39.528	37.030	93.68%	Yes
18	39.537	37.463	94.76%	Yes

7.0 Daylight Impact Results

Vertical Sky Component				
Window	Existing VSC	Proposed VSC	% Retained	Meets BRE Guidance?
19	39.181	38.440	98.11%	Yes
20	39.520	38.913	98.46%	Yes
21	39.211	38.412	97.96%	Yes
22	39.528	38.850	98.28%	Yes
23	38.988	37.921	97.26%	Yes
24	39.480	38.612	97.80%	Yes
25	38.968	37.800	97.00%	Yes
26	39.520	38.618	97.72%	Yes
27	38.902	37.265	95.79%	Yes
28	39.497	38.287	96.94%	Yes
29	38.885	37.139	95.51%	Yes
30	39.547	38.266	96.76%	Yes
31	38.688	36.517	94.39%	Yes
32	39.504	37.871	95.87%	Yes
33	38.874	37.082	95.39%	Yes
34	39.568	38.215	96.58%	Yes
35	38.871	37.401	96.22%	Yes
36	39.575	38.446	97.15%	Yes
37	39.583	38.670	97.69%	Yes
38	39.040	38.125	97.66%	Yes
39	39.587	38.834	98.10%	Yes
40	39.620	39.461	99.60%	Yes
41	39.620	39.563	99.86%	Yes
42	39.620	39.471	99.62%	Yes
43	86.018	85.412	99.30%	Yes
44	86.018	85.536	99.44%	Yes
45	86.018	85.624	99.54%	Yes
46	39.494	37.248	94.31%	Yes
47	36.389	36.389	100.00%	Yes
48	39.463	38.417	97.35%	Yes

8.0 Sunlight Impact Results

- 8.1 BRE guidance states that only windows which face within 90° of due south need be assessed for sunlight provision. In this instance, 3 windows fall into this category.
- 8.2 The Annual Probable Sunlight Hours has been calculated for each of these windows for both the existing and proposed conditions using the methodology described previously, both over the whole year, and through the "winter months" (September 21st until March 21st).
- 8.3 Windows not listed below face within 90° of north and do not need to be assessed.
- 8.4 The BRE guidance states that the sun lighting may be adversely affected if the centre of the window:
- Receives less than 25% of annual hours or less than 5% of winter hours and
 - Receives less than 80% of its current sunlight hours during either period and
 - Has a reduction in sunlight over the whole year greater than 4% of annual probable sunlight hours
- 8.5 It is clear from the wording of the above that all three clauses need to be met to qualify as an adverse impact. Thus, if the window does not meet any one of these criteria, the impact is acceptable.
- 8.6 The results below show that all of the assessed windows retain 80% of their existing values both annually and over the winter months.
- 8.7 The scheme is therefore compliant with BRE guidance in relation to sunlight impacts.

8.0 Sunlight Impact Results

	Annual Sunlight Hours			Winter Sunlight Hours			
Window	Ex. Hrs Received (%)	Prop. Hrs Received	% Retained	Ex. Hrs Received	Prop. Hrs Received	% Retained	Meets Guidance?
40	82.121	79.972	97.38%	29.660	27.789	93.69%	Yes
41	81.843	80.527	98.39%	29.660	28.482	96.03%	Yes
42	81.566	79.834	97.88%	29.591	27.997	94.61%	Yes

9.0 Sunlight to Neighbouring Gardens

- 9.1 Residential gardens are generally assessed using the sunlight hours test, but only on March 21st. The guidance describes a well-lit space as being one which receives at least 2 hours of direct sunlight on this date over 50% of its area.
- 9.2 BRE guidance also uses the "80%" rule for this test, whereby the effects are considered acceptable if the remaining sunlight level is in excess of 80% of the existing level. This clause applies if the space is reduced to less than 50% of the area well sunlit.
- 9.3 The gardens of the nearest neighbouring properties to the site were assessed using this methodology.
- 9.4 As can be seen, the neighbouring gardens retain over 80% of their existing area which receives 2 hours of sunlight on March 21st, and the scheme is therefore compliant with BRE guidance



Site Location

Amenity Sunlight Hours				
Garden	Existing Area Receiving 2 Hours	Proposed Area Receiving 2 Hours	% Retained	Meets BRE Guidance?
G1	100.00%	100.00%	100.00%	Yes
G2	100.00%	100.00%	100.00%	Yes
G3	100.00%	100.00%	100.00%	Yes

10.0 Conclusions

- 10.1 Using industry standard methodology, we have made numerical analyses to ascertain the effects of the proposal at 1 Russell Road, Gravesend, and the levels of change in daylight and sunlight for the windows and gardens of the neighbouring properties.
- 10.2 The main criteria used in this analysis to show compliance are the Vertical Sky Component for daylight impacts and Annual and Winter Probable Sunlight Hours for sunlight impacts
- 10.3 As has been shown, the effect on VSC is within the 80% guidance value for all of the assessed windows.
- 10.4 We conclude that these impacts are acceptable and within the BRE guidance recommendations.
- 10.5 In terms of sunlight, all of the assessed windows retain 80% of their existing values both annually and over the winter months.
- 10.6 The neighbouring gardens retain over 80% their existing area which receives 2 hours or more of direct sunlight on March 21st.
- 10.7 The scheme is therefore compliant with BRE guidance in relation to sunlight impacts.
- 10.8 From a planning perspective therefore, it is the conclusion of this report that the proposed development is entirely acceptable for planning, in daylight and sunlight terms.



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