Land R/O, London Road,

Crawley, RH10

Daylight and Sunlight Assessment

Job No: 6002

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Contents

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1.0 Introduction

1.1 This daylight and sunlight assessment has been prepared to support a planning application for the proposed development of the Land Rear of London Road, Crawley, RH10

1.2 The report assesses the proposals in respect of daylight, sunlight and overshadowing matters, having regard to industry standard guidance. The report concludes that the proposal is acceptable and in accordance with planning policy requirements in relation to daylight and sunlight.

1.3 There is no existing specific National Planning Policy relating to the prospective impacts of developments on daylight and sunlight on their surrounding environment.

1.4 However, 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.

1.5 It has been developed in conjunction with daylight and sunlight recommendations in BS EN 17037:2018 'Daylighting in Buildings'

1.6 This reference document is accepted as the authoritative work in the field on daylight, sunlight and overshadowing and is specifically referred to in many Local Authorities' planning policy guidance for daylighting.

1.7 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 sits to the rear of London Road, Crawley, and it is currently occupied by a single house and a large unoccupied piece of Land to the rear.

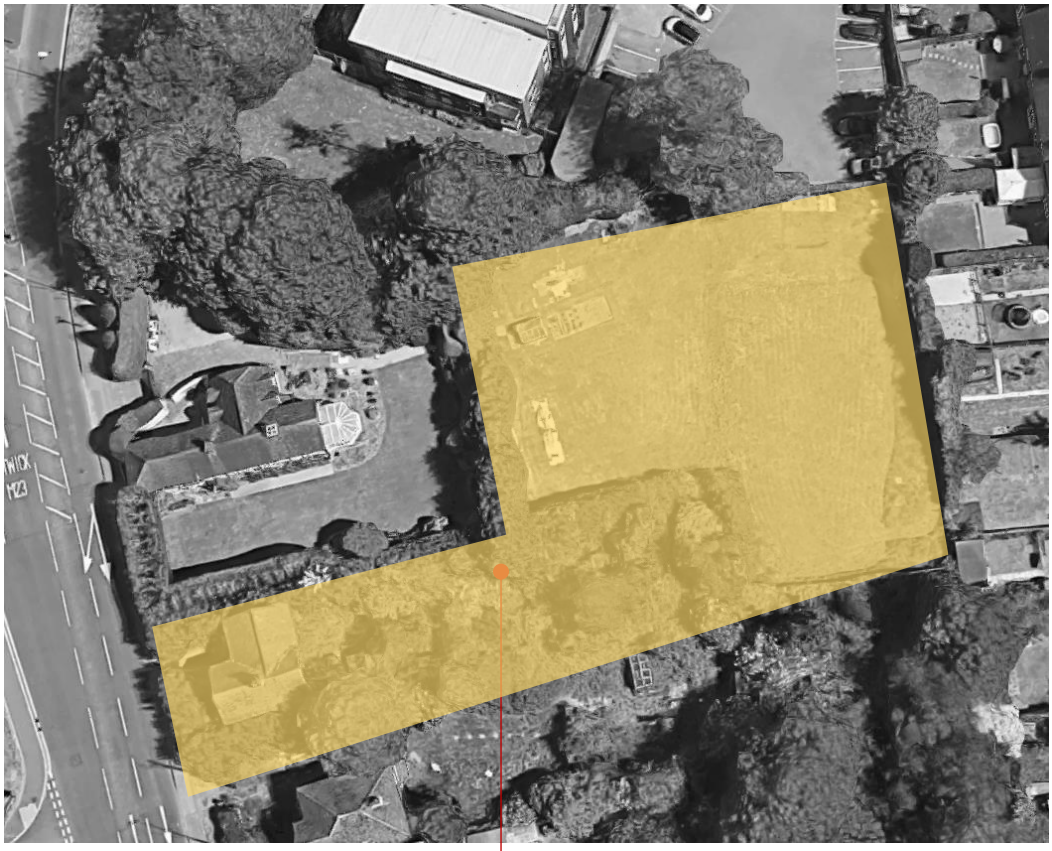
2.2 The proposal is for a the demolition of the existing house to be replaced by a two storey house at the front of the site. In addition to this four new blocks will be built on the empty plot of land providing 3 additional houses, 19 flats and 4 totalling 27 new units.

2.3 The impacts of the scheme on all residential neighbours potentially affected by the scheme have been considered.

2.4 The design has been formulated with consideration of the impacts on the neighbouring dwellings.

2.5 Further details on the location of neighbours and their windows are given in Section 5.0

2.6 In addition to assessing the impacts of the scheme on neighbours, daylight within the proposed new dwellings within the extension has also been assessed.



Site Location

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 impacts and Daylight Factor (DF) for daylight within the proposal
- Annual Probable Sunlight Hours and Winter Probable Sunlight Hours (WPSH) (APSH) 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.

3.5 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.

3.6 Only windows which face within 90° of due south need be assessed for sunlight. This is looked at in Section 8.

3.7 APSH 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 planning records for neighbouring buildings have also been used.

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:

5.4 "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.

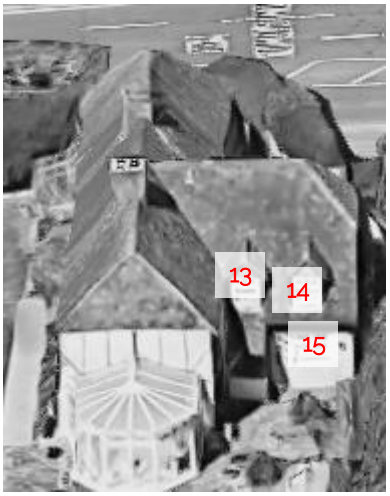
5.5 Although it gives numerical guidelines, these should be interpreted flexibly because natural lighting is only one of the many factors in site layout design."

5.6 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.

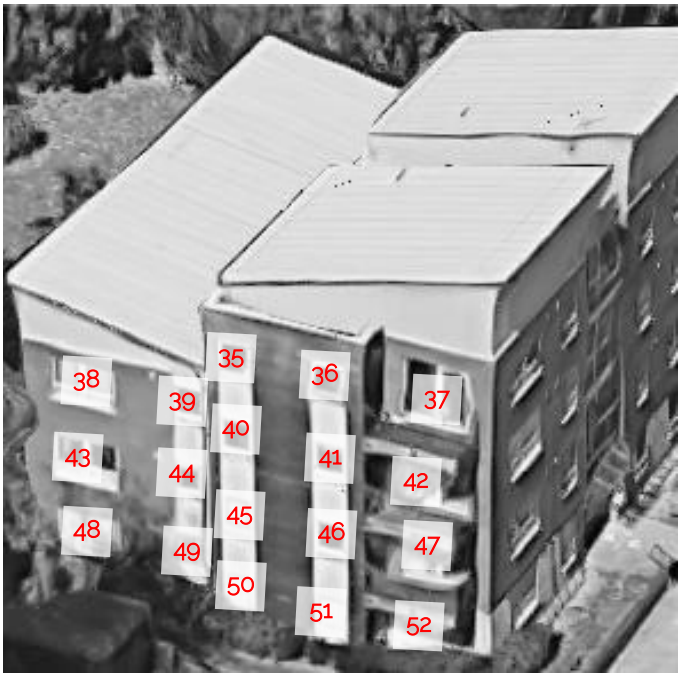
6.0 Window Schedules

50 London Road (Side Elevation)



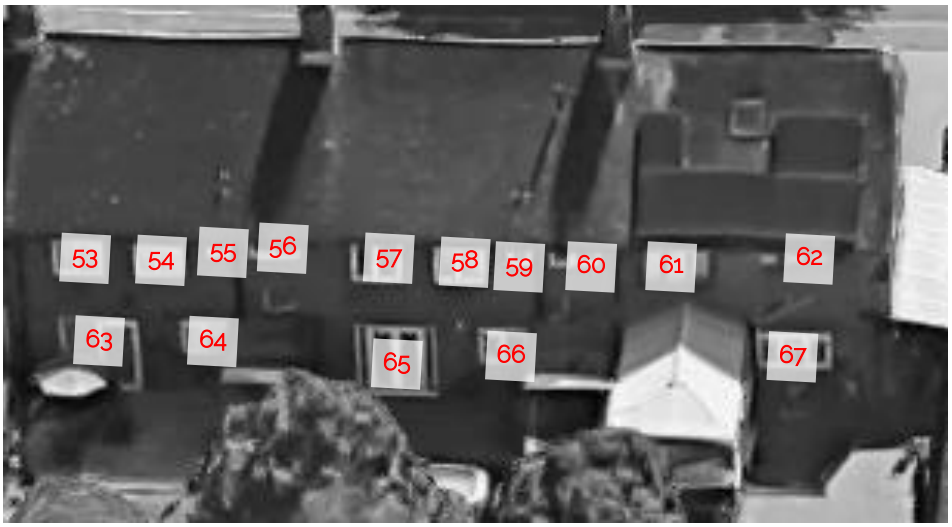
50 London Road (Rear Elevation)

Bader Court (Rear Elevation)

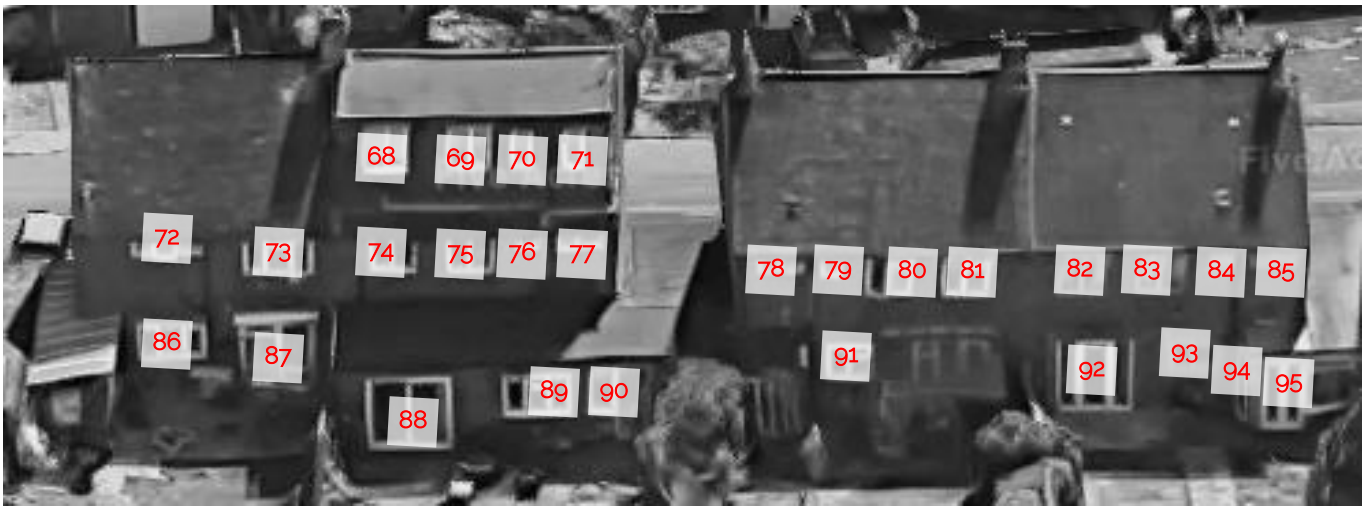


Bader Court (Side Elevation)

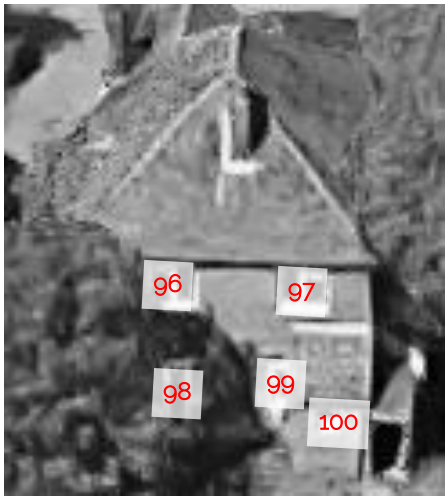
6.0 Window Schedules



31 – 35 Five Acres (Rear Elevation)



23 – 29 Five Acres (Rear Elevation)



46 London Road (Rear Elevation)

7.0 Daylight Impact Results

7.1 The Vertical Sky Component has been calculated for each of the 100 assessed windows for both the existing and proposed conditions.

7.2 As can be seen in the results below, all windows retain in excess of 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	37.46	36.51	97.46%	Yes
2	37.37	36.11	96.63%	Yes
3	37.36	36.05	96.49%	Yes
4	37.32	36.18	96.95%	Yes
5	37.32	36.42	97.59%	Yes
6	37.35	36.80	98.53%	Yes
7	36.12	34.77	96.26%	Yes
8	36.00	34.42	95.61%	Yes
9	35.75	34.08	95.33%	Yes
10	35.38	33.88	95.76%	Yes

7.0 Daylight Impact Results

Vertical Sky Component				
Window	Existing VSC	Proposed VSC	% Retained	Meets BRE Guidance?
11	36.00	34.74	96.50%	Yes
12	35.96	35.16	97.78%	Yes
13	35.31	34.34	97.25%	Yes
14	36.08	35.10	97.28%	Yes
15	32.63	31.08	95.25%	Yes
16	39.25	39.25	100.00%	Yes
17	37.10	37.10	100.00%	Yes
18	39.21	39.06	99.62%	Yes
19	39.21	39.00	99.46%	Yes
20	39.21	38.96	99.36%	Yes
21	39.21	38.83	99.03%	Yes
22	37.29	36.61	98.18%	Yes
23	36.16	36.05	99.70%	Yes
24	38.87	38.37	98.71%	Yes
25	38.86	38.19	98.28%	Yes
26	38.85	38.07	97.99%	Yes
27	38.85	37.68	96.99%	Yes
28	35.91	34.05	94.82%	Yes
29	35.17	34.96	99.40%	Yes
30	38.00	37.12	97.68%	Yes
31	38.00	36.80	96.84%	Yes
32	37.97	36.57	96.31%	Yes
33	37.94	35.85	94.49%	Yes
34	34.96	31.99	91.50%	Yes
35	39.21	39.16	99.87%	Yes
36	39.21	39.17	99.90%	Yes
37	36.74	36.69	99.86%	Yes
38	38.92	37.58	96.56%	Yes
39	33.70	32.62	96.80%	Yes
40	39.13	38.23	97.70%	Yes

7.0 Daylight Impact Results

Vertical Sky Component				
Window	Existing VSC	Proposed VSC	% Retained	Meets BRE Guidance?
41	39.13	38.39	98.11%	Yes
42	35.62	35.02	98.32%	Yes
43	38.05	34.75	91.33%	Yes
44	32.77	30.13	91.94%	Yes
45	38.36	36.04	93.95%	Yes
46	38.36	36.48	95.10%	Yes
47	34.61	33.39	96.48%	Yes
48	36.70	31.44	85.67%	Yes
49	30.21	26.09	86.36%	Yes
50	37.30	33.61	90.11%	Yes
51	37.31	34.28	91.88%	Yes
52	33.54	31.63	94.31%	Yes
53	36.71	35.40	96.43%	Yes
54	36.81	35.37	96.09%	Yes
55	36.67	35.11	95.75%	Yes
56	36.98	35.33	95.54%	Yes
57	37.12	35.29	95.07%	Yes
58	37.24	35.26	94.68%	Yes
59	37.06	34.94	94.28%	Yes
60	37.35	35.10	93.98%	Yes
61	37.69	35.16	93.29%	Yes
62	37.67	34.74	92.22%	Yes
63	33.18	31.79	95.81%	Yes
64	34.16	33.21	97.22%	Yes
65	32.89	30.73	93.43%	Yes
66	34.44	32.65	94.80%	Yes
67	35.22	31.03	88.10%	Yes
68	38.54	37.03	96.08%	Yes
69	38.60	37.12	96.17%	Yes
70	38.27	36.78	96.11%	Yes

7.0 Daylight Impact Results

Vertical Sky Component				
Window	Existing VSC	Proposed VSC	% Retained	Meets BRE Guidance?
71	38.28	36.81	96.16%	Yes
72	36.77	34.25	93.15%	Yes
73	37.68	34.97	92.81%	Yes
74	37.95	35.29	92.99%	Yes
75	38.06	35.45	93.14%	Yes
76	37.37	34.86	93.28%	Yes
77	37.73	35.14	93.14%	Yes
78	38.31	35.91	93.74%	Yes
79	37.90	35.62	93.98%	Yes
80	38.40	36.35	94.66%	Yes
81	38.42	36.51	95.03%	Yes
82	38.44	36.77	95.66%	Yes
83	38.46	36.90	95.94%	Yes
84	37.89	36.54	96.44%	Yes
85	38.52	37.24	96.68%	Yes
86	33.72	29.87	88.58%	Yes
87	30.39	27.58	90.75%	Yes
88	34.28	30.15	87.95%	Yes
89	36.63	32.03	87.44%	Yes
90	32.92	29.08	88.34%	Yes
91	34.05	30.64	89.99%	Yes
92	35.21	33.60	95.43%	Yes
93	36.85	34.81	94.46%	Yes
94	19.62	18.66	95.11%	Yes
95	32.23	30.39	94.29%	Yes
96	37.89	37.17	98.10%	Yes
97	38.53	37.73	97.92%	Yes
98	33.69	32.76	97.24%	Yes
99	28.48	28.08	98.60%	Yes
100	36.52	35.40	96.93%	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, 9 windows fall into this category. 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).

8.2 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

8.3 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.

8.4 The results below show that all of the assessed windows retain over 25% of annual hours and over 5% of winter hours or where this isn't the case retain 80% of their existing value.

8.5 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?
1	83.23	82.67	N/A	18.572	11.989	N/A	Yes
2	83.23	82.12	N/A	15.177	15.177	N/A	Yes
3	83.23	81.22	N/A	30.284	30.284	N/A	Yes
4	83.30	80.46	N/A	30.284	29.175	N/A	Yes
5	83.23	80.53	N/A	30.423	23.423	N/A	Yes
6	82.81	81.22	N/A	23.631	12.405	N/A	Yes
7	80.87	78.10	N/A	14.35	14.35	N/A	Yes
8	80.94	76.65	N/A	11.43	11.43	N/A	Yes
9	82.19	78.52	N/A	10.40	10.40	N/A	Yes
10	79.21	76.30	N/A	30.21	29.66	N/A	Yes
11	82.74	80.18	N/A	30.21	29.11	N/A	Yes
12	82.54	80.80	N/A	30.21	28.21	N/A	Yes
13	42.97	41.93	N/A	30.28	27.44	N/A	Yes
14	47.54	46.50	N/A	30.21	27.51	N/A	Yes
15	41.93	39.78	N/A	29.80	28.21	N/A	Yes
16	69.92	69.92	N/A	27.86	25.09	N/A	Yes
17	58.91	58.91	N/A	27.93	23.63	N/A	Yes
18	68.95	68.95	N/A	27.37	23.70	N/A	Yes
19	68.95	68.95	N/A	26.20	23.28	N/A	Yes
20	68.95	68.95	N/A	27.93	25.36	N/A	Yes
21	68.95	68.88	N/A	27.72	25.99	N/A	Yes
22	68.40	68.19	N/A	11.50	10.53	N/A	Yes
23	54.05	54.05	N/A	16.35	15.38	N/A	Yes
24	68.95	68.12	N/A	4.57	3.79	82.82%	Yes
25	68.95	67.36	N/A	25.16	25.16	N/A	Yes
26	68.95	67.01	N/A	16.70	16.70	N/A	Yes
27	68.95	66.74	N/A	24.67	24.67	N/A	Yes
28	68.33	64.52	N/A	24.67	24.67	N/A	Yes
29	53.78	53.78	N/A	24.67	24.67	N/A	Yes

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?
30	68.95	65.84	N/A	24.67	21.55	N/A	Yes
31	68.95	64.10	N/A	24.67	19.82	N/A	Yes
32	68.95	63.62	N/A	24.67	19.33	N/A	Yes
33	68.95	61.95	N/A	24.67	17.67	N/A	Yes
34	68.33	58.28	N/A	25.16	15.11	N/A	Yes
35	73.11	73.11	N/A	27.72	27.72	N/A	Yes
36	73.11	73.11	N/A	27.72	27.72	N/A	Yes
37	63.62	63.62	N/A	19.89	19.89	N/A	Yes
38	75.05	75.05	N/A	28.83	28.83	N/A	Yes
39	66.04	66.04	N/A	27.65	27.65	N/A	Yes
40	73.11	73.11	N/A	27.72	27.72	N/A	Yes
41	73.11	73.11	N/A	27.72	27.72	N/A	Yes
42	58.35	58.35	N/A	19.89	19.89	N/A	Yes
43	74.84	70.69	N/A	28.62	24.46	N/A	Yes
44	65.63	64.38	N/A	27.37	26.13	N/A	Yes
45	72.90	72.90	N/A	27.51	27.51	N/A	Yes
46	72.90	72.90	N/A	27.51	27.51	N/A	Yes
47	58.00	58.00	N/A	19.54	19.54	N/A	Yes
48	73.53	62.02	N/A	27.65	16.15	N/A	Yes
49	63.34	54.47	N/A	26.47	17.60	N/A	Yes
50	71.59	64.86	N/A	26.54	19.82	N/A	Yes
51	71.66	66.46	N/A	26.61	21.41	N/A	Yes
52	55.37	52.11	N/A	18.23	14.97	N/A	Yes
96	53.92	53.71	N/A	17.12	17.12	N/A	Yes
97	57.59	57.24	N/A	19.13	19.13	N/A	Yes
98	42.69	41.51	N/A	4.57	4.57	100.00%	Yes
99	45.74	44.91	N/A	14.76	14.76	N/A	Yes
100	49.48	47.33	N/A	16.63	16.63	N/A	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 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 north of the site was assessed using this methodology.

9.4 As can be seen, the neighbouring gardens retain over 80% of their existing values and the scheme is therefore compliant with BRE guidance

Site Location

9.0 Sunlight to Neighbouring Gardens

Amenity Sunlight Hours				
Garden	Existing Area Receiving 2 Hours	Proposed Area Receiving 2 Hours	% Retained	Meets BRE Guidance?
G1	89%	88%	98.88%	Yes
G2	69%	68%	98.55%	Yes
G3	67%	67%	100.00%	Yes
G4	78%	78%	100.00%	Yes
G5	73%	73%	100.00%	Yes
G6	81%	81%	100.00%	Yes
G7	77%	77%	100.00%	Yes
G8	76%	76%	100.00%	Yes
G9	72%	72%	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 the land to the rear of London Road, Crawley, RH10 and the levels of change in daylight and sunlight for the windows 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 in all cases.

10.4 There will therefore be no adverse impact on neighbouring residents in terms of daylight.

10.5 In terms of sunlight, the assessed windows either receive more than 25% of annual hours and 5% of winter hours or retains 80% of their existing value for both annual and winter hours.

10.6 The neighbouring amenity spaces retain 80% of their existing value.

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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