



42 The Larches,

Hayes, UB10

Daylight and Sunlight Assessment

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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 site located at 42 The Larches, Hayes, UB10.
- 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 site is located at 42 The Larches, Hayes, UB10 and it is currently occupied by a end-terraced dwelling.
- 2.2 The proposal involves is for the construction of a two storey dwelling in the empty plot of land next to the dwelling.
- 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

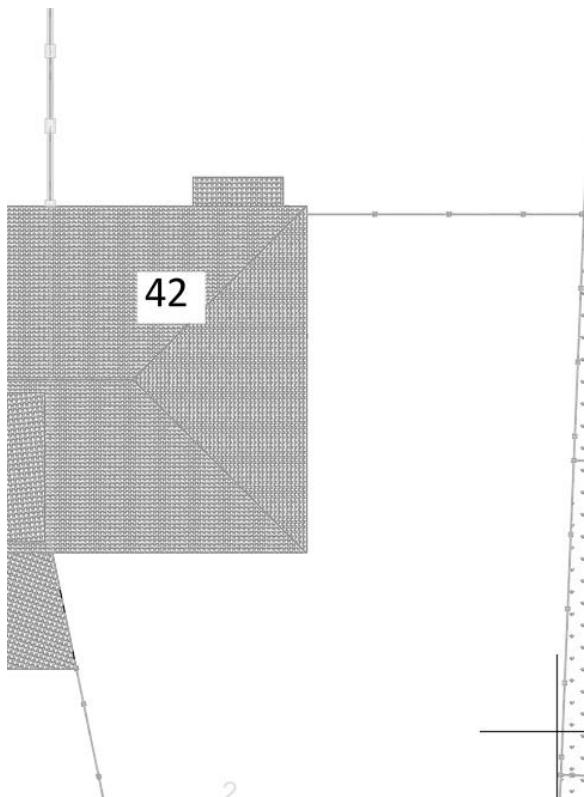


3.0 Methodology

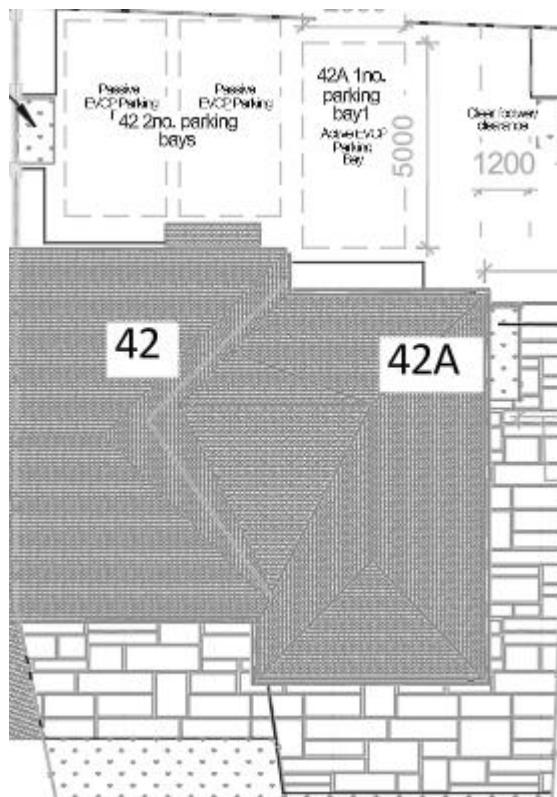
- 3.1 For this analysis, we have undertaken the most common calculations for the change in daylight and sunlight to existing buildings, as recommended in BRE Digest 209. These are:
 - Vertical Sky Component (VSC) for daylight impacts and Daylight Factor (DF) for daylight within the proposal
 - Annual 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 Sunlight 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 The existing and proposed block plans are shown below.
- 4.6 Web-based mapping sources and planning records for neighbouring buildings have also been used.



Existing Block Plan



Proposed Block Plan



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



40 – 42, The Larches (Rear Elevation)



44 – 48, The Larches (Rear Elevation)



7.0 Daylight Impact Results

- 7.1 The Vertical Sky Component has been calculated for each of the 18 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	38.71	38.71	100.00%	Yes
2	39	38.98	99.95%	Yes
3	39.08	39.01	99.82%	Yes
4	38.97	38.82	99.62%	Yes
5	38.98	38.24	98.10%	Yes
6	38.91	31.65	81.34%	Yes
7	35.93	35.88	99.86%	Yes
8	35.32	35.26	99.83%	Yes
9	29.88	29.33	98.16%	Yes
10	37.75	33.21	87.97%	Yes
11	36.54	35.55	97.29%	Yes
12	36.12	34.99	96.87%	Yes
13	36.29	35.29	97.24%	Yes
14	35.96	35.27	98.08%	Yes
15	35.14	34.51	98.21%	Yes
16	35.52	35.14	98.93%	Yes
17	35.35	35.01	99.04%	Yes
18	35.74	35.45	99.19%	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, all 10 windows fall into this category.
- 8.2 The Annual Probable Sunlight Hours has been calculated for 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 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
- 8.4 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.
- 8.5 The results below show that the assessed windows retain in excess of 25% of available annual sunlight hours and 5% of hours during the winter months.
- 8.6 The scheme is therefore compliant with BRE guidance in relation to sunlight impacts



8.0 Sunlight Impact Results

Window	Annual Sunlight Hours			Winter Sunlight Hours			Meets Guidance?
	Ex. Hrs Received (%)	Prop. Hrs Received	% Retained	Ex. Hrs Received	Prop. Hrs Received	% Retained	
1	86.14	86.14	N/A	30.77	30.77	N/A	Yes
2	86.14	86.14	N/A	30.77	30.77	N/A	Yes
3	86.14	86.00	N/A	30.77	30.63	N/A	Yes
4	86.14	85.31	N/A	30.77	30.28	N/A	Yes
5	86.14	82.67	N/A	30.77	28.83	N/A	Yes
6	84.82	56.90	N/A	30.77	17.88	N/A	Yes
7	81.15	80.11	N/A	28.41	28.41	N/A	Yes
8	78.93	78.93	N/A	26.06	26.06	N/A	Yes
9	67.78	62.09	N/A	21.00	20.65	N/A	Yes
10	85.93	67.29	N/A	30.56	26.47	N/A	Yes

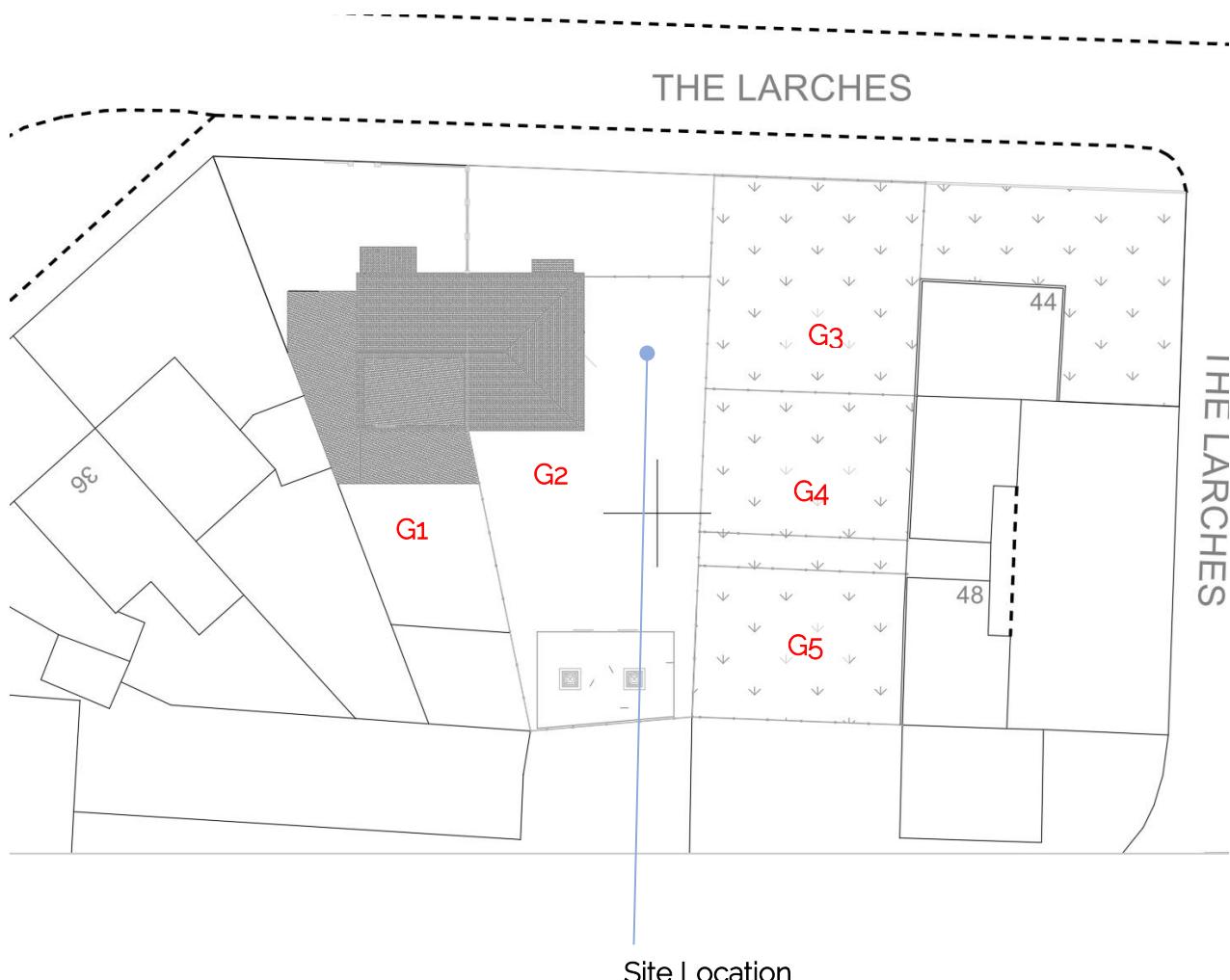
9.0 Sunlight To Neighbouring Gardens

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 were 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





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	79%	79%	100.00%	Yes
G2	73%	73%	100.00%	Yes
G3	82%	82%	100.00%	Yes
G4	72%	72%	100.00%	Yes
G5	78%	78%	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 42 the Larches, Hayes, UB10 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, retain in excess of 25% of available annual sunlight hours and 5% of hours during the winter months.
- 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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