82-84 High Street,

Ruislip, HA4

Daylight and Sunlight Assessment

Job No: 5739.1

Issued: June, 2024

Issue No.: 1

Contents

Document Prepared By:	Document Authorised By:
Samuel Westover	Bernice Waterman
Dated:	Dated:
24.06.24	24.06.24
Signed:	Signed:

1.0 Introduction

1.1 This daylight and sunlight assessment has been prepared to support the planning application for the redevelopment of the 82-84, High Street, Ruislip, HA4.

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. It has been developed in conjunction with daylight and sunlight recommendations in BS EN 17037: 'Daylight in Buildings'

1.5 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. 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

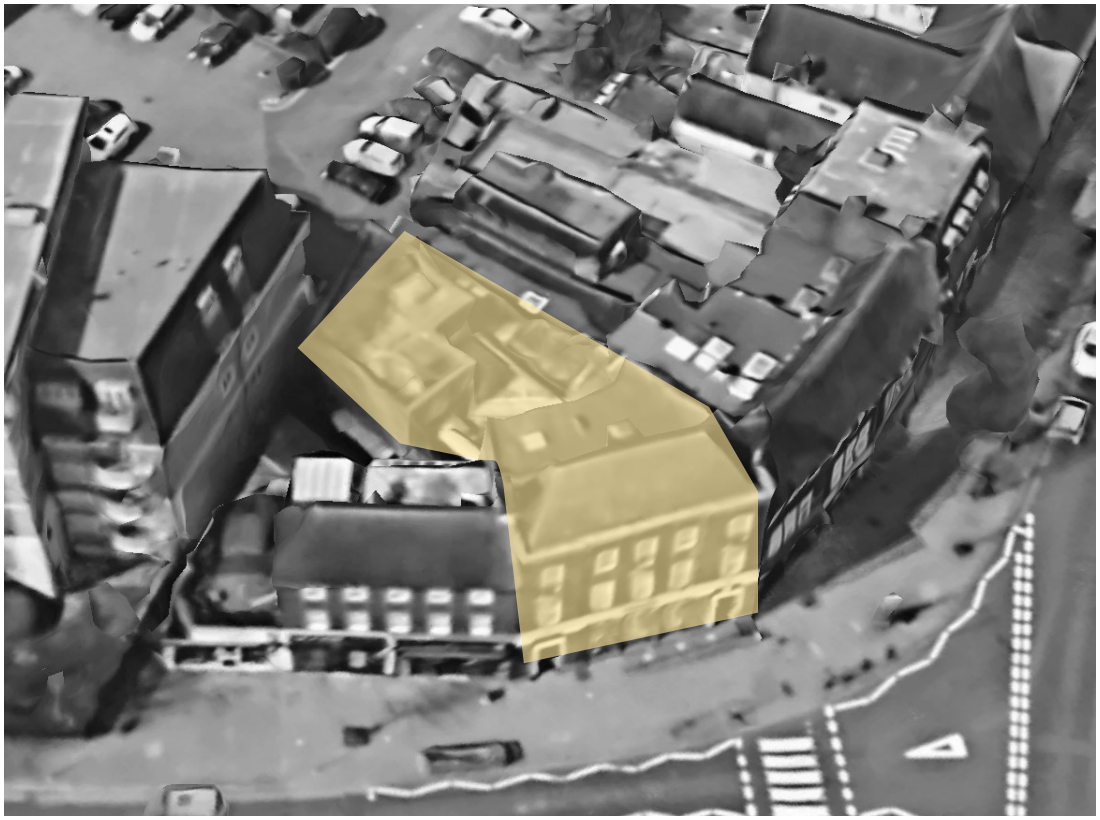
2.1 The proposal site sits to the rear of 82 -84 High Street, Ruislip HA4 and it is currently occupied by a three storey former bank.

2.2 The proposal is for an infill extension, a first storey connection from the front of the site to the rear and an internal refurbishment to provide 5 residential dwellings.

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.

2.5 In addition to assessing the impacts of the scheme on neighbours, daylight within the proposed new dwellings within the new building have 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
- Target Daylight Factor (DF_T) 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 An additional test that can be undertaken is the No Sky Line (NSL) test, also referred to as Daylight Distribution.

3.5 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.

3.6 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.

3.7 Only windows which face within 90° of due south need be assessed for sunlight. This is looked at in Section 9.

3.8 APSH can also be used to assess the impact on external spaces such as gardens in this instance no residential amenity spaces need assessing.

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 and a model 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, NSL and APSH, as a percentage reduction that is "permissible" for the effect on existing windows.

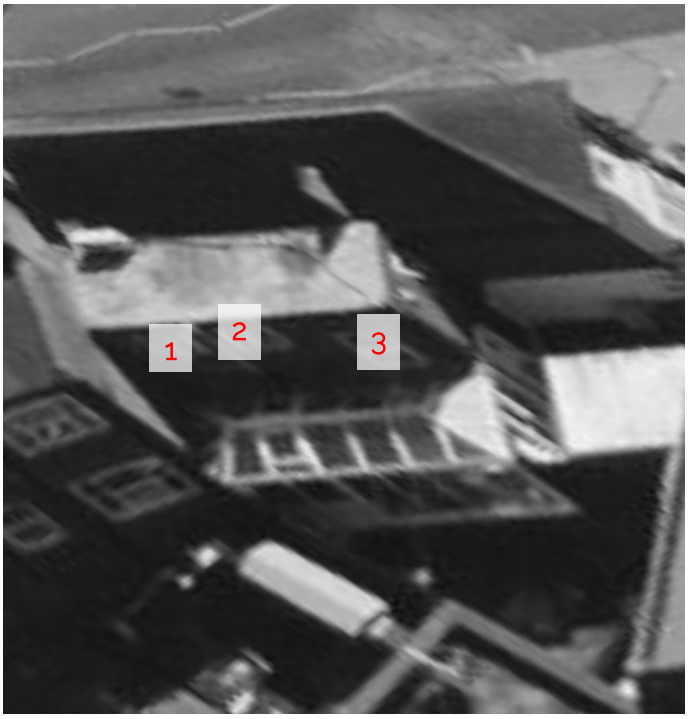
5.3 It is worth noting the following statement in the Guidance introduction:

- "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."

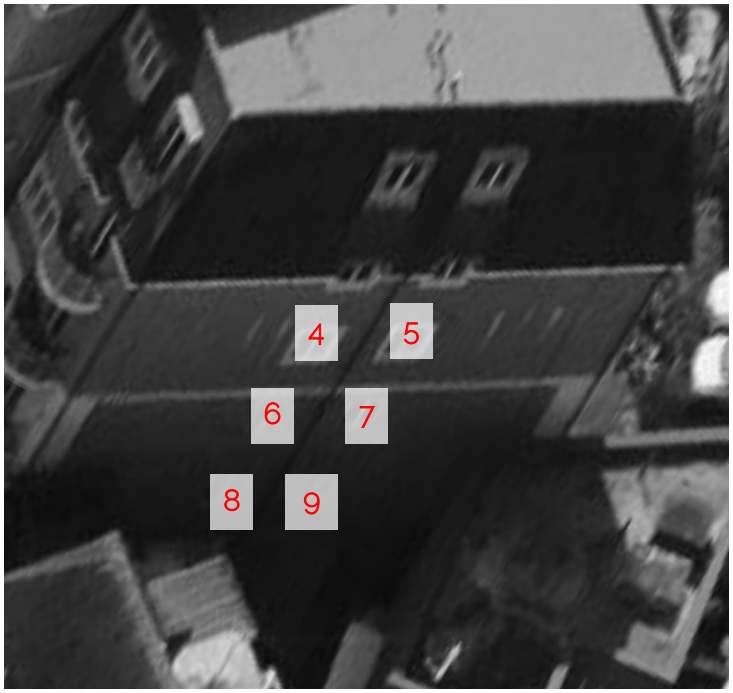
5.4 The relevant BRE recommendations for daylight and sunlight are:

- 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

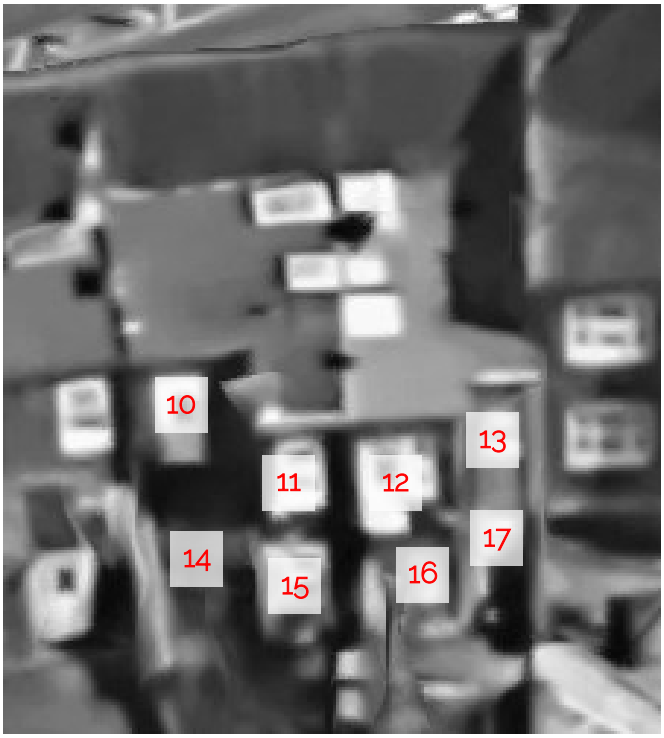
6.0 Window Schedules



2 Ickenham Road (Rear Elevation)



8 Ickenham Road (Side Elevation)



78-80 High Street, Ruislip (Rear Elevation)

7.0 Daylight Impact Results

7.1 The Vertical Sky Component has been calculated for each of the 17 assessed windows for both the existing and proposed conditions.

7.2 As can be seen in the results below all windows retain over 80% of their existing value.

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	25.01	24.95	99.76%	Yes
2	28.85	28.50	98.79%	Yes
3	25.66	25.57	99.65%	Yes
4	35.43	35.40	99.92%	Yes
5	35.51	35.48	99.92%	Yes
6	28.12	28.05	99.75%	Yes
7	29.61	29.53	99.73%	Yes
8	18.59	18.49	99.46%	Yes
9	18.36	18.28	99.56%	Yes
10	33.1	33.10	100.00%	Yes
11	35.41	35.41	100.00%	Yes
12	34.58	34.58	100.00%	Yes
13	26.08	25.42	97.47%	Yes
14	26.53	26.53	100.00%	Yes
15	34.25	34.22	99.91%	Yes
16	32.31	32.04	99.16%	Yes
17	22.59	21.67	95.93%	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, 8 assessed 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 more than 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?
10	33.13	33.13	100.00%	2.77	2.77	100.00%	Yes
11	41.37	41.37	100.00%	8.87	8.87	100.00%	Yes
12	39.43	39.43	100.00%	7.83	7.83	100.00%	Yes
13	40.47	37.70	93.15%	7.35	6.10	83.02%	Yes
14	26.20	26.20	100.00%	2.08	2.08	100.00%	Yes
15	44.42	44.42	100.00%	7.62	7.62	100.00%	Yes
16	37.08	36.80	99.25%	5.61	5.34	95.06%	Yes
17	33.40	33.19	99.38%	3.53	3.40	96.08%	Yes

9.0 Daylight within the Proposal

9.1 This BRE and BS EN 17037 guidance allows for two alternative methods to assess daylight within new dwellings. This report uses the following method:

- Target Daylight Factor (DF_1)

.

9.2 The DF_T method is a complex and representative calculation to determine natural internal luminance.

9.3 It takes into account such factors as window size, number of windows available to the room, room size and layout, room surface reflectance, and the angle of visible sky reaching the window

9.4 Due to the complexity of the daylight entering the proposed rooms, the Target Daylight Factor approach is the most suitable calculation to give a realistic indication of the internal illuminance that will be experienced.

9.5 The calculations have assumed a white ceiling, cream walls and mid-grey carpet or wooden floor using reflectance values taken from the BS EN 170437 Guidance.

9.6 The benchmark values each room type which are recommended by the BRE guidance and BS:EN 17037:2018 are:

Table C2 – Target daylight factors (D) for London		
Level of recommendation	Target daylight factor D for half of assessment grid	Target daylight factor D for 95% of assessment grid
Minimum	2.1%	0.7%
Medium	3.5%	2.1%
High	5.3%	3.5%

9.7 It is deemed by the guidance that if the minimum DF criteria are met, then the occupiers of the dwelling will have sufficient daylight. As can be seen from the results below that all assessed habitable rooms meet and exceed the minimum levels of internal daylight.

9.0 Daylight Within the Proposal

Minimum Target Daylight Factor						
Unit	Room	0.7% DF Target Area	Area Receiving 0.7% DF	2.1% DF Target Area	Area Receiving 2.1% DF	Meets Standards?
Unit 1	Living/Kitchen/Dining	95%	96.50%	50%	71.20%	Yes
Unit 1	Bedroom 1	95%	97.40%	50%	78.90%	Yes
Unit 2	Living/Kitchen/Dining	95%	95.20%	50%	53.40%	Yes
Unit 2	Bedroom 1	95%	98.40%	50%	83.90%	Yes
Unit 3	Living/Kitchen/Dining	95%	96.90%	50%	74.80%	Yes
Unit 3	Bedroom 1	95%	97.90%	50%	80.30%	Yes
Unit 3	Bedroom 2	95%	98.60%	50%	84.70%	Yes
Unit 4	Living/Kitchen/Dining	95%	97.00%	50%	74.50%	Yes
Unit 4	Bedroom 1	95%	97.70%	50%	80.00%	Yes
Unit 5	Living/Kitchen/Dining	95%	95.30%	50%	53.50%	Yes
Unit 5	Bedroom 1	95%	98.60%	50%	85.40%	Yes

10.0 Conclusions

10.1 Using industry standard methodology, we have made numerical analyses to ascertain the effects of the proposal at 82-84 High Street, Ruislip, HA4 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 for the all of the assessed windows.

10.4 We conclude that these impacts are considered acceptable and within the BRE guidance recommendations..

10.5 In terms of sunlight, all of the assessed windows retain over 80% of their existing value.

10.6 The scheme is therefore compliant with BRE guidance in relation to sunlight impacts.

10.7 The new dwellings will benefit from daylight levels in excess of the requirements of BS EN 17037:2018 recommendations.

10.8 From a planning perspective therefore, it is the conclusion of this report that the proposed development is entirely acceptable in daylight and sunlight terms.

T16 Design Ltd.

T: 01206 572452

E: info@t16design.com

W: www.t16design.com