

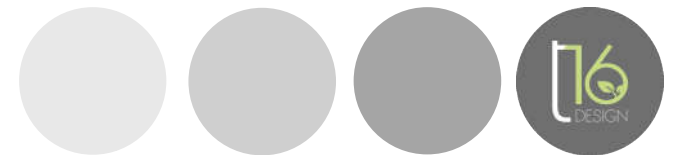


Prepared For: Ponders End Properties Ltd.

250 High Street, Ponders End

Daylight and Sunlight Assessment for Planning

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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 redevelopment of the site at 250 High Street, Ponders End.

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. However, the BRE Report 'Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice' 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 8206: Part 2: 'Lighting for Buildings - Code of Practice for Daylighting'

1.4 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



Site Location



2.1 The site is at 250 High Street, Ponders End and is currently occupied by The Goat public house.

2.2 It sits within an area characterised by a mix of residential, commercial and light industrial uses.

2.3 The proposal is for the development of the land at the rear of the pub and to the side, providing additional facilities for the pub itself and residential dwellings to the rear

2.4 The impacts of the scheme on all residential neighbours potentially affected by the scheme have been considered. In addition, the daylight levels within the newly proposed habitable rooms have been assessed.

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

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 (WPSH) (APSH) for sunlight

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. 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.

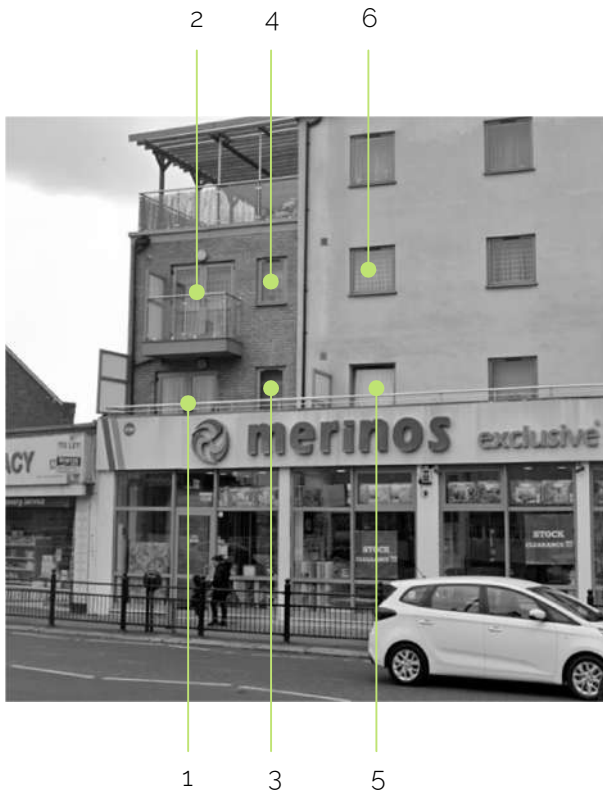
3.5 Only windows which face within 90° of due south need be assessed for sunlight.

3.6 APSH can also be used to assess the impact on external spaces such as gardens. In this instance no gardens are considered within close enough proximity to the site to be affected by the proposal.

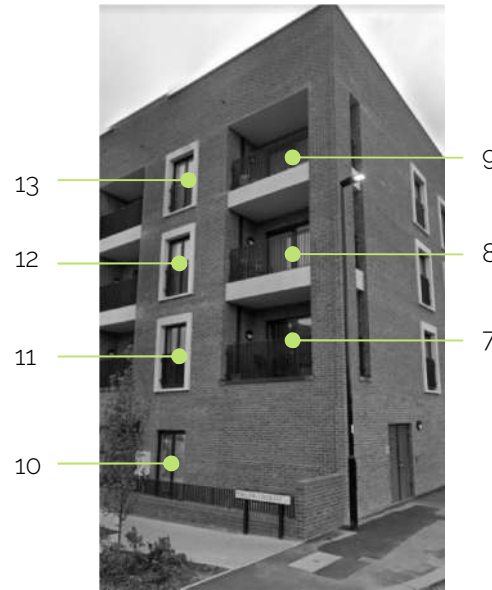
4.0 Modelling & Data Sources

- 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 A 3D model has been provided by the Architect. This model is exported into the specialist daylight analysis 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 Drawn information on the properties has been provided to us by the design team in the form of 2D drawings and 3D models giving the site as existing and proposed and photographs of the site and surroundings. Web-based mapping sources and planning records for neighbouring buildings have also been used.

5.0 Window Schedules



235 Ponders End Road



Belling Crescent



254 Ponders End Road

6.0 BRE Guidance Targets

6.1 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.

6.2 Specifically, the guidance gives figures for the VSC and APSH, as a percentage reduction that is "permissible" for the effect on existing windows.

6.3 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."

6.4 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 80% of its 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), and 80% of its former value.

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 of the assessed windows meet the 80% criteria for daylight. The scheme is compliant with BRE guidelines for daylight and there will therefore be no noticeable impact on neighbouring residents in terms of daylight.

Vertical Sky Component			
Window	Existing VSC	Proposed VSC	% Retained
1	14.659	14.448	98.56%
2	38.081	37.976	99.72%
3	31.535	31.434	99.68%
4	37.972	37.912	99.84%
5	35.954	35.954	100.00%
6	37.898	37.894	99.99%
7	15.076	14.416	95.62%
8	16.654	16.318	97.98%
9	17.816	17.816	100.00%

Vertical Sky Component			
Window	Existing VSC	Proposed VSC	% Retained
10	31.733	30.679	96.68%
11	32.012	31.465	98.29%
12	34.306	33.975	99.04%
13	36.522	36.522	100.00%
14	35.698	35.364	99.06%
15	38.586	38.497	99.77%
16	24.049	23.839	99.13%
17	34.943	34.901	99.88%

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, 13 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 windows retain 100% of current value and there is no impact on neighbouring sunlight.

8.5 The scheme is therefore compliant with BRE guidance for sunlight.

8.0 Sunlight Impact Results

Annual Probable Sunlight Hours			
Window	Existing Hrs Received	Proposed Hrs Received	Percentage Retained
1	33.96%	33.77%	99.44%
2	70.86%	70.83%	99.96%
3	68.46%	68.41%	99.94%
4	70.85%	70.82%	99.96%
5	68.26%	68.26%	100.00%
6	70.68%	70.68%	100.00%
7	15.07%	15.07%	100.00%
8	17.46%	17.46%	100.00%
9	18.23%	18.23%	100.00%
10	39.16%	39.16%	100.00%
11	41.90%	41.90%	100.00%
12	44.24%	44.24%	100.00%
13	45.47%	45.47%	100.00%

Winter Probable Sunlight Hours			
Window	Existing Hrs Received	Proposed Hrs Received	Percentage Retained
1	20.92%	20.92%	100.00%
2	31.01%	31.01%	100.00%
3	29.98%	29.98%	100.00%
4	31.03%	31.03%	100.00%
5	29.15%	29.15%	100.00%
6	31.03%	31.03%	100.00%
7	11.56%	11.56%	100.00%
8	13.94%	13.94%	100.00%
9	14.70%	14.70%	100.00%
10	16.07%	16.07%	100.00%
11	18.80%	18.80%	100.00%
12	21.14%	21.14%	100.00%
13	22.37%	22.37%	100.00%

9.0 Daylight Within the Proposal

9.1 Average Daylight Factor (ADF) values have been calculated for each of the habitable rooms in the proposed new units at basement level, in accordance with BRE methodology, using a CIE overcast sky at an illuminance value of 8500 lux.

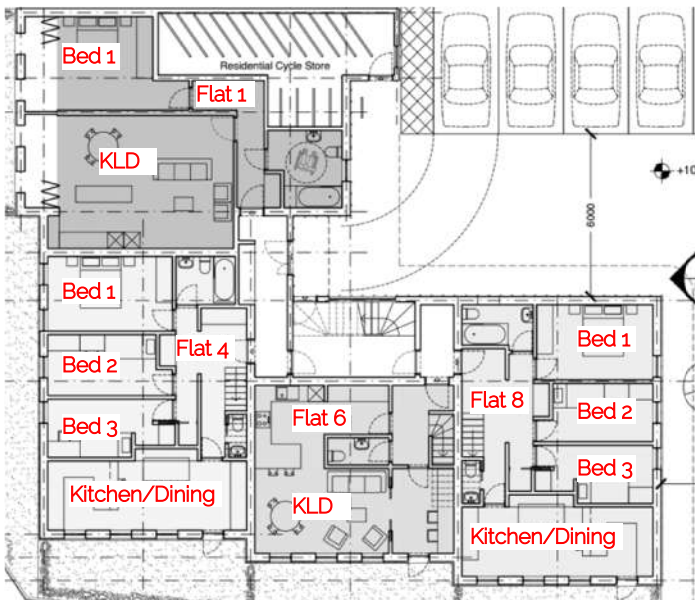
9.2 The calculations have assumed a white ceiling, cream walls and mid-grey carpet or wooden floor.

9.3 The benchmark values for each room type which are recommended by the BRE guidance and BS8206:2 are:

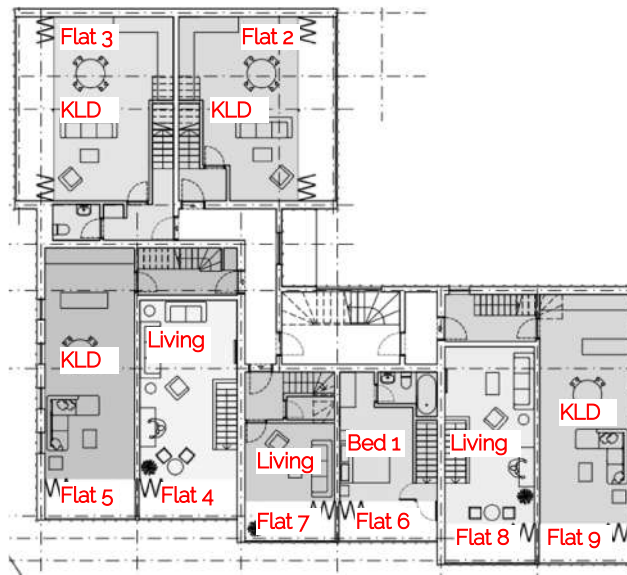
- Kitchens: 2%
- Living Rooms: 1.5%
- Dining Rooms: 1.5%
- Bedrooms: 1%

9.4 It is deemed by the guidance that if the ADF 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 recommended levels of internal daylight.

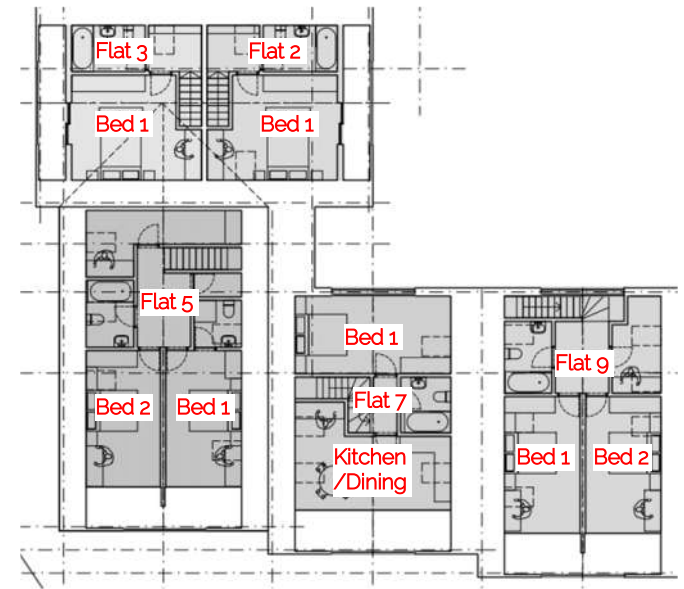
9.0 Daylight Within the Proposal



Ground Floor



First Floor



Second Floor

9.0 Daylight Within the Proposal

Average Daylight Factor				
Unit	Floor	Room	Target ADF	Actual ADF
1	Ground	Kitchen/Living/Dining	2.00%	6.43%
1	Ground	Bed 1	1.00%	7.62%
2	First	Kitchen/Living/Dining	2.00%	10.49%
2	Second	Bed 1	1.00%	4.68%
3	First	Kitchen/Living/Dining	2.00%	10.62%
3	Second	Bed 1	1.00%	4.71%
4	Ground	Kitchen/ Dining	2.00%	6.82%
4	Ground	Bed 1	1.00%	5.93%
4	Ground	Bed 2	1.00%	4.27%
4	Ground	Bed 3	1.00%	4.33%
4	First	Living	1.50%	8.25%
5	First	Kitchen/Living/Dining	2.00%	7.31%
5	Second	Bed 1	1.00%	10.48%

Average Daylight Factor				
Unit	Floor	Room	Target ADF	Actual ADF
5	Second	Bed 2	1.00%	10.53%
6	Ground	Kitchen/Living/Dining	2.00%	3.98%
6	First	Bed 1	1.00%	10.33%
7	First	Living	1.50%	10.69%
7	Second	Kitchen/Living/Dining	2.00%	11.79%
7	Second	Bed 1	1.00%	11.61%
8	Ground	Kitchen/ Dining	2.00%	7.02%
8	Ground	Bed 1	1.00%	4.87%
8	Ground	Bed 2	1.00%	4.38%
8	Ground	Bed 3	1.00%	4.46%
8	First	Living	1.50%	8.33%
9	First	Kitchen/Living/Dining	2.00%	7.36%
9	Second	Bed 1	1.00%	10.46%
9	Second	Bed 2	1.00%	10.55%

10.0 Conclusions

10.1 Using industry standard methodology, we have made numerical analyses to ascertain the effects of the proposal at 250 High Street, Ponders End and the levels of change in daylight and sunlight for the windows of the neighbouring properties as well as internal daylight within the proposed habitable rooms.

10.2 The main criteria used in this analysis to show compliance are the Vertical Sky Component and Annual Probable Sunlight Hours tests for impacts and the Average Daylight Factor test for daylight within the proposal.

10.3 As has been shown, the effect on VSC is within the 80% guidance value in all cases. There will therefore be no adverse impact on neighbouring residents in terms of daylight.

10.4 In terms of sunlight, all windows retain in excess of 80% of their current values and so the scheme accords with BRE guidance in relation to sunlight.

10.5 There will therefore be no adverse impact on sunlight receipt to neighbouring properties.

10.6 The proposed habitable rooms will all receive daylight levels in excess of the requirements of BS8206:2

10.7 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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