



**Reading Borough Council  
New Build Ph1: Wensley Road**

Daylight, Sunlight and  
Overshadowing Assessment  
Additional Information

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## 1. Impact on neighbouring site

This document provides a response to BRE report received in relation to the planning application submitted to Reading Borough Council for the redevelopment of the area located at Wensley Road (Ref. 200122).

### Impact on the surrounding buildings

The daylight and sunlight assessment described in the original document describes the results of the daylight and sunlight availability received on the facades of the properties immediately surrounding the proposed development. This document presents additional information based on the comments received as described below.

Firstly, a 25-degree line check was conducted placing an angled plane at the height corresponding to the centre of the lowest windows.

Where a minimal intersection was encountered, an additional plane was placed on the floor above until no intersection was found.

This angular check provides an initial understanding of the likely impact on the existing surrounding properties. Where an intersection is identified, this could result in loss of light. The facade analysis presented in the original document provides information about the likely daylight and sunlight levels achieved on each point of the facades. However, further studies have been conducted to quantify the daylight achieved at the centre of the most critical windows, i.e. those which are most likely to experience a reduction.

The images below indicate that some planes marginally intersect the proposed buildings. A VSC analysis at the centre of their windows was carried out. Images 12, 13, 16 and 19 show the expected view from the centre of one of the most significant windows, i.e. the windows which are most obstructed and which achieve the lowest VSC levels.

Numerical results are presented for the windows located in proximity of the proposed dwellings and for which a marginal intersection was found in the angular test. The location of the properties and the windows tested is shown on pages 6 and 7.

The VSC results show that all the windows achieve and exceed the value of 27%, which is the minimum performance recommended in the BRE guide. There is only one window (n.06) achieving a VSC value of 26.52. A comparison with the existing condition is also provided, although this is not technically required in case minimum

daylight levels are achieved. The retained values show that all the assessed windows are compliant with the BRE recommendations. In particular, the results for window no. 06 indicate that the VSC is 27.96 in the current configuration and 26.52 in the proposed configuration. The expected reduction (5%) is, therefore, within the acceptable levels indicated in the guidelines.

In terms of sunlight availability, none of these windows face 90 degrees of due south; therefore, the numerical Annual and Winter APSH tests have not been conducted.

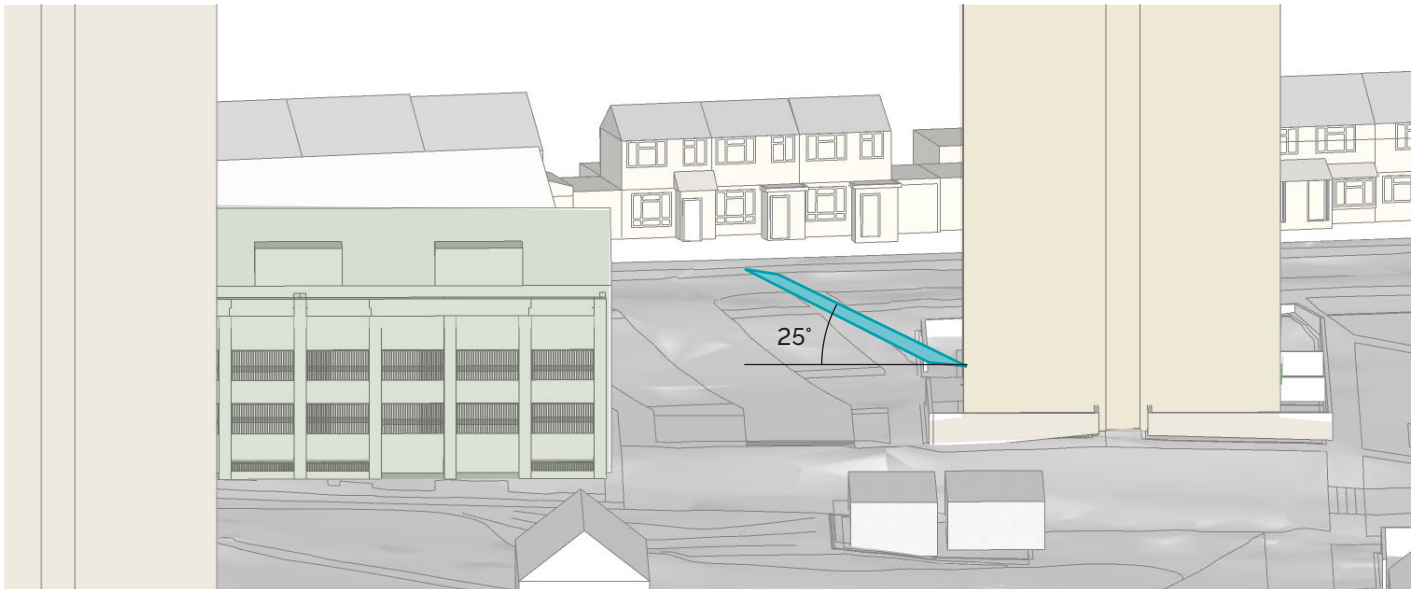
### Assessment of the proposed development

The analysis of the Average Daylight Factor was conducted assuming the following factors:

- Glazing transmittance: 0.65  
(In line with the specifications detailed in the energy strategy report. Triple glazing will be specified).
- Maintenance factor: 0.82 (assuming good maintenance will be carried out in a location which is between an urban and suburban environment)
- Reflectance (walls): 0.5 assuming fairly light-coloured walls
- Reflectance (ceiling): 0.7
- Reflectance (floor): 0.2

The results of the Average Daylight Factor analysis show that while the majority of the rooms will achieve and exceed the minimum recommended values, there are some rooms in Block B which achieve lower values. This is mainly due to the large amount of obstruction caused by the recessed walls and the balconies located above the main windows. The percentage of glazing, compared to the internal floor area, also contributes to the reduction. Interim analyses were conducted to explore the possibility of increasing the size of windows and to improve the overall daylight availability. The design received for the final analysis accounts for feedback received from other technical consultants and considers factors which include security, privacy, openability of windows, potential for overheating and energy efficiency. It should be noted that the properties have been designed to achieve net Zero Carbon. This is a particularly demanding target as the fabric performance needs to be maximised through several measures, which include the reduction of glazing

to reduce heat losses. While efforts have been made to maximise daylight within the rooms and, therefore, the size of windows, attention has been paid to reduce heat losses and the predicted energy demand. Further information can be found in the Energy Strategy Report prepared by Hoare Lea.



Surrounding buildings

Proposed buildings

Figure 1: Diagram showing the concept of 25 degree-line test



Buildings passing the 25-degree line test

Buildings failing the 25-degree line test



Figure 2: Aerial view of the site



Figure 3. Aerial view of existing buildings

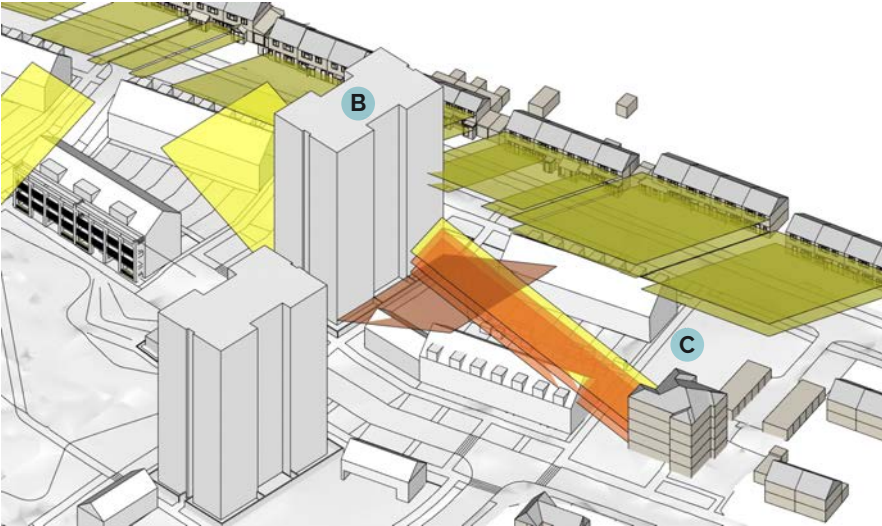


Figure 4. Angular check of the surrounding buildings - Proposed Site



Figure 5. Angular check of the surrounding buildings - Proposed Site



- Surrounding buildings passing the 25-degree line test
- Surrounding buildings failing the 25-degree line test

Figure 6. Angular check of the surrounding buildings - Proposed Site



Figure 7. Aerial view of existing site situation

| Table 1: Detailed results of the Daylight Assessment - Impact on the surrounding buildings_Property A |                  |                  |        |                    |                    |
|-------------------------------------------------------------------------------------------------------|------------------|------------------|--------|--------------------|--------------------|
| Window Ref                                                                                            | VSC Existing (%) | VSC Proposed (%) | Pr/ Ex | Meets BRE Criteria | Window Orientation |
| 01                                                                                                    | 32.49            | 30.37            | 0.93   | YES                | 92°                |
| 02                                                                                                    | 32.60            | 28.24            | 0.87   | YES                | 95°                |
| 03                                                                                                    | 29.92            | 27.83            | 0.93   | YES                | 92°                |
| 04                                                                                                    | 37.86            | 32.25            | 0.85   | YES                | 270°N              |
| 05                                                                                                    | 37.83            | 34.61            | 0.92   | YES                | 271°N              |
| 06                                                                                                    | 27.96            | 26.52            | 0.95   | YES                | 271°N              |



Figure 8. Existing property



Figure 9. Labelled windows for VSC analysis



Figure 10. Existing property



Figure 11. Labelled windows for VSC analysis



Figure 12. Waldram diagram \_ Window number 03



Figure 13. Waldram diagram \_ Window number 06

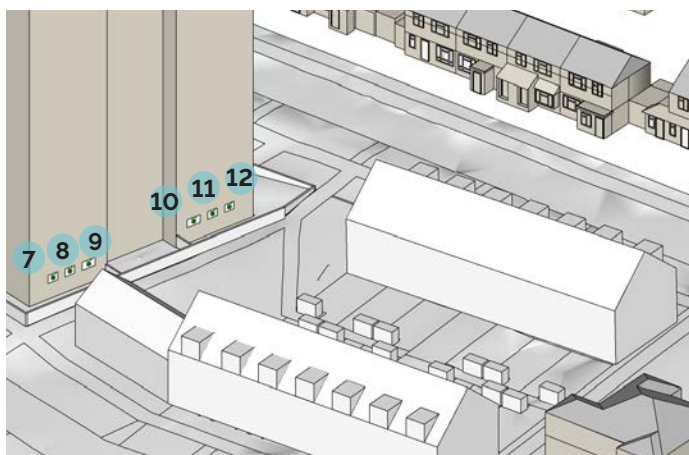


Figure 14. Labeled windows for VSC

**Table 2: Detailed results of the Daylight Assessment - Impact on the surrounding buildings\_Property B**

| Window Ref | VSC Existing (%) | VSC Proposed (%) | Pr/ Ex | Meets BRE Criteria | Window Orientation |
|------------|------------------|------------------|--------|--------------------|--------------------|
| 07         | 35.49            | 29.73            | 0.84   | YES                | 91°                |
| 08         | 35.84            | 30.14            | 0.84   | YES                | 91°                |
| 09         | 36.17            | 30.70            | 0.85   | YES                | 91°                |
| 10         | 37.25            | 32.59            | 0.87   | YES                | 90°                |
| 11         | 37.32            | 32.35            | 0.87   | YES                | 90°                |
| 12         | 37.36            | 31.89            | 0.85   | YES                | 90°                |



Figure 15. Existing tower

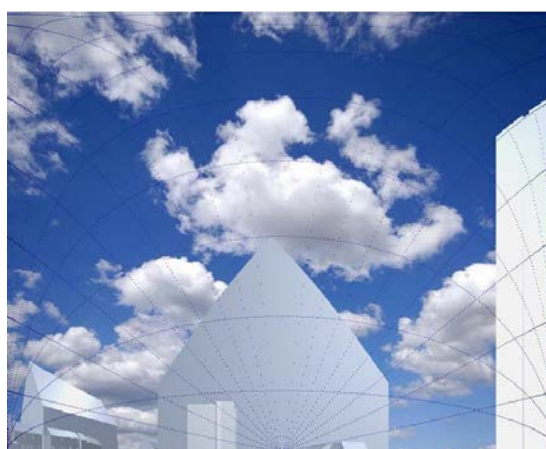


Figure 16. Waldram diagram \_ Window number 07



Figure 17. Labelled windows for VSC analysis

**Table 3: Detailed results of the Daylight Assessment - Impact on the surrounding buildings\_Property C**

| Window Ref | VSC Existing (%) | VSC Proposed (%) | Pr/ Ex | Meets BRE Criteria | Window Orientation |
|------------|------------------|------------------|--------|--------------------|--------------------|
| 13         | 26.32            | 22.47            | 0.85   | YES                | 256°               |
| 14         | 22.71            | 18.78            | 0.83   | YES                | 256°               |
| 15         | 30.43            | 25.81            | 0.85   | YES                | 257°               |



Figure 18. Existing property



Figure 19. Waldram diagram \_ Window number 13

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