

# **DAYLIGHT, SUNLIGHT & OVERSHADOWING ASSESSMENT**

Joel Street

Produced by XCO<sub>2</sub> for Philip Pank Partnership LLP

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**XCO2**  
56 Kingsway Place, Sans Walk  
London EC1R 0LU

+44 (0)20 7700 1000  
mail@xco2.com  
xco2.com



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DAYLIGHT, SUNLIGHT & OVERSHADOWING ASSESSMENT

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Remarks	Draft						
Prepared by	GD						
Checked by	TK						
Authorised by	RM						
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## EXECUTIVE SUMMARY

The daylight, sunlight and overshadowing analysis indicates that there will not be a significant impact on surrounding properties arising from the proposed development at Joel Street. The onsite assessment indicates that the habitable rooms of the proposed development will achieve good levels of daylight and sunlight.

Daylight and Sunlight analysis was carried out for the proposed development at Joel Street, located within the London Borough of Hillingdon. This report outlines the results of the analysis for the planning application, assessing the daylight and sunlight impacts on surrounding buildings, as well as evaluating daylight and sunlight levels within residential units of the proposed scheme.

The methodology set out in this report is in accordance with BRE's "Site Layout Planning for Daylight and Sunlight, A Guide to Good Practice" by PJ Littlefair et al. (2022) which is accepted as good practice by Planning Authorities.

## ASSESSMENT OF NEIGHBOURING BUILDINGS

The following assessments were carried out:

- Daylight: 25 Degree Line
- Daylight: Vertical Sky Component
- Sunlight: Sunlight Access
- Sunlight: Sunlight Overshadowing

Computer modelling software was used to carry out the assessments. The model used was based on drawings and a 3D model provided by the design team together with desktop research on neighbouring properties.

### DAYLIGHT ASSESSMENT

A total of 112 windows from buildings surrounding the site were highlighted as being in close proximity to and facing the proposed development.

Daylighting levels for potentially affected windows of surrounding developments by the proposed development at Joel Street were found to be acceptable.

In summary, 104 windows passed the 25-degree line test and 8 windows achieve VSCs greater than 27% therefore meeting the BRE criteria.

Overall, the development is not anticipated to have any notable impact on the daylight received by neighbouring properties.

### SUNLIGHT ASSESSMENT

A total of 57 windows from buildings surrounding the site were assessed for sunlight access.

In summary, 54 windows passed the 25-degree line test and the remaining 3 windows satisfied the BRE criteria for APSH and WPSH.

Overall, the proposed development at Joel Street is not considered to have any notable impact on sunlight access to windows of surrounding developments.

### OVERSHADOWING ASSESSMENT

14 amenity areas were identified to be in close proximity to the proposed development. All the amenities in close proximity of the site receive more than 2 hours of sunlight for more than 50% of their areas and therefore pass the BRE guidance.

## DAYLIGHT, SUNLIGHT & OVERSHADOWING ASSESSMENT

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Table 1: Daylight results summary for neighbouring buildings

<b>Number of windows tested</b>	<b>112</b>
Number of windows passing the 25° initial test	104
Number of windows with a VSC higher than 27%	8
Number of windows that do not meet any of the above criteria	0

Table 2: Sunlight results summary for neighbouring buildings

<b>Total number of windows facing within 90° of south</b>	<b>57</b>
Number of south facing windows passing the 25° initial test	54
Number of south facing windows with APSH greater than 25% and WPSH greater than 5%, or of at least 0.8 of their former existing value	3
Number of windows that do not meet any of the above criteria	0

### ASSESSMENT OF THE PROPOSED SCHEME

A daylight and sunlight assessment was also carried out for all the residential units within the proposed scheme. The targets and parameters taken into consideration are outlined in the Methodology chapter of this report.

#### DAYLIGHT ASSESSMENT

The rooms evaluated in the internal daylight assessment include open plan kitchen, living room, dining spaces, and bedrooms within the proposed development.

The assessment was carried out for the 4 proposed dwellings of the scheme. All habitable rooms – 4 KLDs and 8 bedrooms – within these dwellings have been included in the assessment.

The results indicated that all the habitable rooms pass the BRE guidance.

Overall, the proposed development as a whole is anticipated to achieve good levels of daylighting to all dwellings and habitable spaces, and is therefore considered to provide good quality of accommodation to the future occupants in terms of daylight.

#### SUNLIGHT ASSESSMENT

The assessment was carried out for all 4 dwellings across the scheme.

The analysis has shown that all living rooms will receive more than 4 hours of solar exposure on March 21 therefore receiving a high level rating according to the BRE Guide.

Overall, it can be concluded that the proposed design offers optimum accessibility to sunlight all living spaces within the Joel Street development.

#### OVERSHADOWING

Open spaces should retain a reasonable amount of sunlight throughout the year. The BRE states that for an amenity space to *“appear adequately sunlit throughout the year, at least half of the area should receive at least two hours of sunlight on 21 March”*.

4 open or amenity spaces were found in the proposed development. 1 out of the 4 amenity spaces receives 2 hours or more for more than 50% of its space on March 21. As for the remaining 3 amenity spaces, they marginally fall short of the guidance receiving 2 hours or more sunlight over only circa 45% of their respective areas on March 21 and are expected to achieve higher levels of sunlight in the summer months.

### INTRODUCTION

The site is located in a suburban environment and the interpretation of the results requires careful consideration of the BRE guidance.

This report assesses the daylight, sunlight and overshadowing impacts the proposed new build residential development may have on the existing properties and open spaces surrounding the site, as well as evaluating daylight and sunlight levels within residential units of the proposed scheme.

The approach is based on the BRE's "*Site Layout Planning for daylight and sunlight, a Guide to good practice*" PJ Littlefair et al 2022, which is generally accepted as good practice by Town and Country Planning authorities.

It should be noted that although the numerical values stated by the BRE provide useful guidance to designers, consultants and planning officials, these are purely advisory and may vary depending on context. Dense urban areas, for example, may often experience greater site constraints when compared to low-rise suburban areas, and thus a high degree of obstruction is often unavoidable. Appendix F of the BRE document is dedicated to the use of alternative values and it also demonstrates the manner in which the criteria for skylight was determined for the summary given above, i.e. the need for 27% vertical sky component for adequate daylighting.

This figure of 27% was achieved using the following methodology: a theoretical road was created with two storey terraced houses upon either side, approximately twelve metres apart. The houses have windows at ground and first floor level, and a pitched roof with a central ridge. Thereafter, a reference point was taken at the centre of a ground floor window of one of the properties and a line was drawn from this point to the central ridge of the property on the other side of the road.

The angle of this line equated to 25 degrees (the 25 degrees referred to in the summaries given with reference to the criteria for skylight). This 25-degree line obstructs 13% of the totally unobstructed sky available, leaving a resultant figure of 27% which is

deemed to give adequate daylighting. This figure of 27% is the recommended criteria referred to in this report. It will be readily appreciated that in an urban area, this kind of urban form and setting is unlikely and impractical.

Furthermore, the BRE guidance also focuses on 'relative change' which is likely to be exaggerated given the low rise nature of the existing structures on site. Where there is more than a 20% reduction in VSC, this does not mean that the level of daylight will be unacceptable but, rather, that there may be a noticeable change in daylight levels to the occupants.



# DAYLIGHT, SUNLIGHT & OVERSHADOWING ASSESSMENT

## SITE

The proposed development is a residential scheme within the London Borough of Hillingdon. The proposed development comprises 4 detached houses creating 4 dwellings of 2 storeys each.

Site analysis was carried out to identify any potential daylight and sunlight impacts on the surrounding development. Relevant properties tested in this report and near the proposed development are annotated in the figure below.

The following neighbouring buildings were tested in detail for the impact assessment:

- Ascott Court
- 62-74 Farmlands
- 61 Farmlands
- 225-227 Joel Street
- 229 Joel Street
- 231 Joel Street
- 231A Joel Street
- 233 Joel Street

 Site Location



Figure 1: Site location and neighbouring buildings assessed

## SECTION 1: ASSESSMENT OF NEIGHBOURING BUILDINGS

### METHODOLOGY

The impact assessment is based on guidelines set out in the BRE “Site Layout Planning for Daylight and Sunlight, A Guide to Good Practice” (2022).

#### DAYLIGHT

##### *DAYLIGHT TO SURROUNDING WINDOWS*

A plane is drawn at 25 degrees from the horizontal, at the centre of an existing window. If the new development intersects with this plane, the internal daylight levels of the surrounding windows may be reduced. When an obstruction of the 25-degree plane occurs, a more detailed assessment involving the Vertical Sky Component of the affected window would need to be carried out.

##### *ABSOLUTE VERTICAL SKY COMPONENT (VSC)*

The Vertical Sky Component is the ratio of the direct sky illuminance falling on the vertical wall at a reference point, to the simultaneous horizontal illuminance under an unobstructed sky. To maintain good levels of daylight, the Vertical Sky Component of a window needs to be 27% or greater. If the VSC is less than 27%, then a comparison of existing and proposed levels of VSC level would need to be calculated.

##### *RELATIVE VERTICAL SKY COMPONENT*

Good levels of daylighting can still be achieved if VSC levels are within 0.8 of their former value.

#### SUNLIGHT

##### *ACCESS TO SUNLIGHT (APSH)*

The BRE test relates mainly to existing living room windows, although care should be taken to ensure that kitchens and bedrooms receive reasonable amounts of sunlight. Annual Probable Sunlight Hour (APSH) assessment is carried out when there is an obstruction within the 25-degree line and the window is facing

within 90 degrees due south. The APSH assessment states that the existing living room window should receive at least:

- 25% of annual probable sunlight hours (APSH) throughout the year;
- 5% of annual probable sunlight hours during the winter months;
- not less than 80% of its former sunlight hours during either period;
- not more than a 4% reduction in sunlight received over the whole year (APSH).

The term ‘annual probable sunlight hours’ refers to the long-term average of the total of hours during a year in which direct sunlight reaches the unobstructed ground (when clouds are taken into account). The ‘winter probable sunlight hours’ is used to mean the same but only for the winter period (21 September – 21 March).

#### OVERSHADOWING

##### *SUNLIGHT TO AMENITY SPACES*

Open spaces should retain a reasonable amount of sunlight throughout the year. The BRE states that for an amenity space to “appear adequately sunlit throughout the year, at least half of the area should receive at least 2 hours of sunlight on 21 March”. Where this is not achieved, the difference between the area achieving 2 hours of sun on 21 March should be no less than 0.8 times its former value.

### DAYLIGHT ASSESSMENT

The analysis indicates that the proposed development is unlikely to have a significant impact on neighbouring windows in terms of daylight. The following subsections detail the findings for each neighbouring building individually.

#### ASCOTT COURT

This building is located to the south of the development. Figure 2 shows the assessed windows.

20 no. windows were assessed for this building. The results show that all 20 windows pass the 25° line initial test. Therefore, all windows meet the BRE criteria.

The table below summarises the findings. Detailed results are presented in the Appendix.



Figure 2: Ascott Court windows

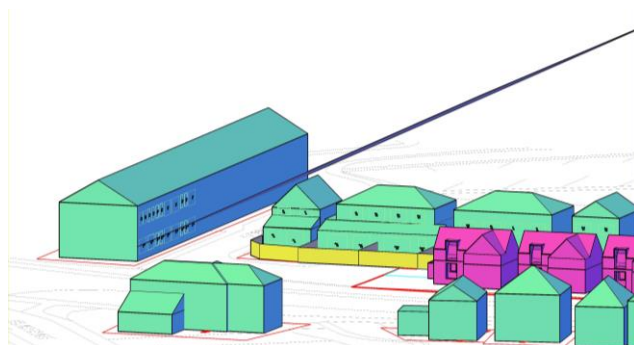


Figure 3: Ascott Court 25° line test

Table 3: Daylight results summary for Ascott Court

Number of windows tested	20
Number of windows passing the 25° initial test	20
Number of windows with a VSC higher than 27%	0
Number of windows that do not meet any of the above criteria	0

### 62-74 FARMLANDS

These buildings are located to the west of the development. Figure 4 shows the assessed windows.

46 no. windows were assessed facing the development. The results show that 39 out of the 46 windows assessed pass the 25° initial test and these windows belong to the properties of 65-74 Farmlands.

The remaining 7 windows do not pass the 25° initial test however receive a VSC of higher than 27%. Therefore, all the windows pass the BRE criteria.

The table below summarises the findings. Detailed results are presented in the Appendix.



Figure 4: 62-74 Farmlands windows

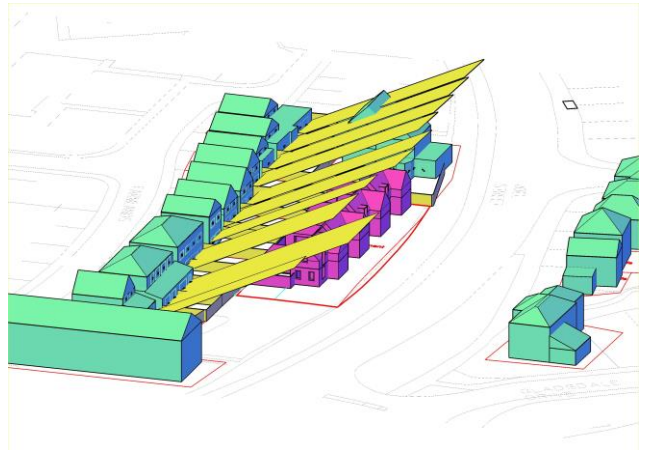


Figure 5: 62-74 Farmlands 25° lines test

Table 4: Daylight results summary for 62-74 Farmlands

Number of windows tested	46
Number of windows passing the 25° initial test	39
Number of windows with a VSC higher than 27%	7
Number of windows that do not meet any of the above criteria	0



### 61 FARMLANDS

These buildings are located to the north of the development. Figure 6 shows the assessed windows.

12 no. windows were assessed facing the development. The results show that 11 out of the 12 windows assessed pass the 25° initial test. The remaining window does not pass the 25° initial test however receive a VSC of higher than 27%.

Therefore, all the windows pass the BRE criteria.

The table below summarises the findings. Detailed results are presented in the Appendix.



Figure 6: 61 Farmlands windows

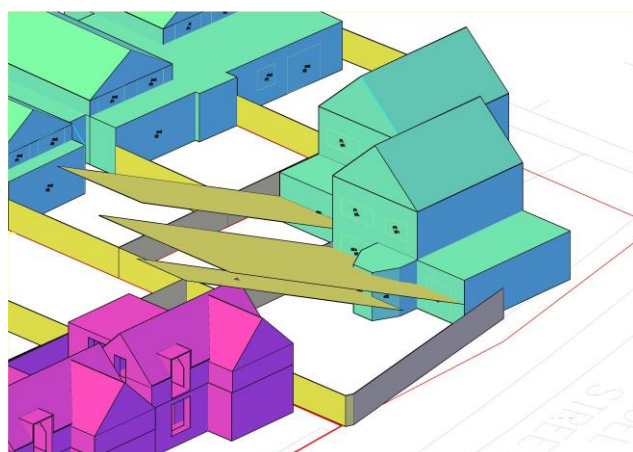


Figure 7: 61 Farmlands 25° line test

Table 5: Daylight results summary for 61 Farmlands

<b>Number of windows tested</b>	<b>12</b>
Number of windows passing the 25° initial test	11
Number of windows with a VSC higher than 27%	1
Number of windows that do not meet any of the above criteria	0

225-227 JOEL STREET

These buildings are located to the east of the development. Figure 8 shows the assessed windows.

10 no. windows were assessed facing the development. The results show that all 10 windows assessed pass the 25° initial test. Therefore, all the windows pass the BRE criteria.

The table below summarises the findings. Detailed results are presented in the Appendix.



Figure 8. 225-227 Joel Street windows

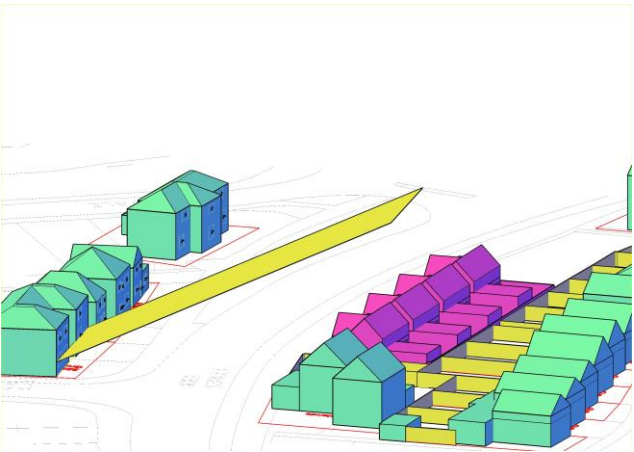


Figure 9: 225-227 Joel Street 25° line test

Table 6: Daylight results summary for 225-227 Joel Street

Number of windows tested	10
Number of windows passing the 25° initial test	10
Number of windows that do not meet any of the above criteria	0

229-231 JOEL STREET

These buildings are located to the east of the development. Figure 10 shows the assessed windows.

10 no. windows were assessed facing the development. The results show that all 10 windows assessed pass the 25° initial test. Therefore, all the windows pass the BRE criteria.

The table below summarises the findings. Detailed results are presented in the Appendix.



Figure 10. 229-231 Joel Street windows

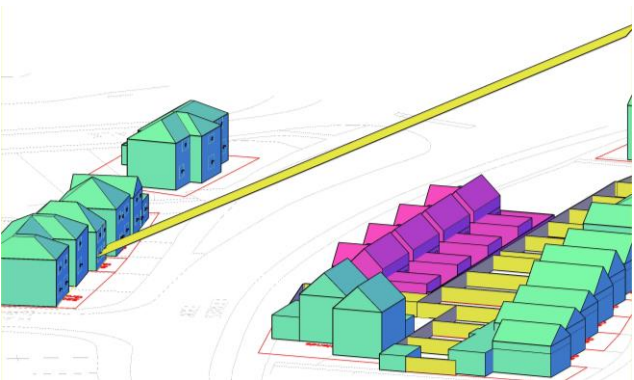


Figure 11: 229-231 Joel Street 25° line test

Table 7: Daylight results summary for 229-231 Joel Street

Number of windows tested	10
Number of windows passing the 25° initial test	10
Number of windows that do not meet any of the above criteria	0



231A JOEL STREET

This building is located to the east of the development. Figure 12 shows the assessed windows.

5 no. windows were assessed facing the development. The results show that all 5 windows assessed pass the 25° initial test. Therefore, all the windows pass the BRE criteria.

The table below summarises the findings. Detailed results are presented in the Appendix.



Figure 12. 231A Joel Street windows

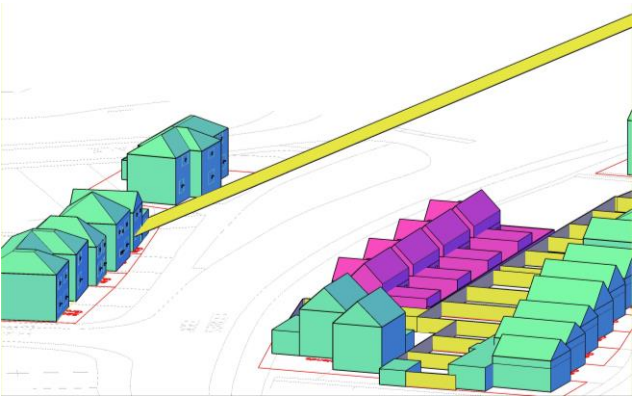


Figure 13: 231A Joel Street 25° line test

Table 8: Daylight results summary for 231A Joel Street

Number of windows tested	5
Number of windows passing the 25° initial test	5
Number of windows that do not meet any of the above criteria	0

233 JOEL STREET

This building is located south east of the development. Figure 14 shows the assessed windows.

9 no. windows were assessed facing the development. The results show that all 9 windows assessed pass the 25° initial test. Therefore, all the windows pass the BRE criteria.

The table below summarises the findings. Detailed results are presented in the Appendix.



Figure 14. 233 Joel Street windows

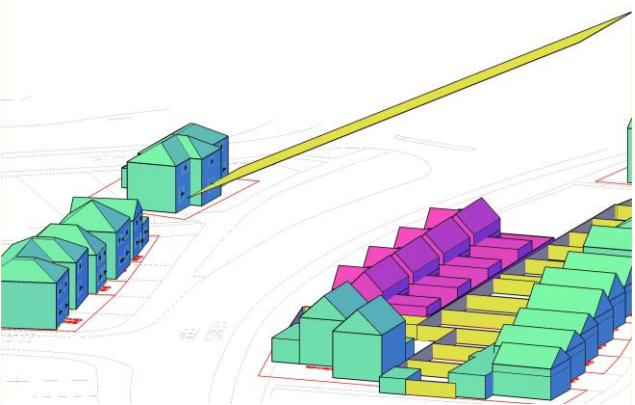


Figure 15: 233 Joel Street 25° line test

Table 9: Daylight results summary for 233 Joel Street

Number of windows tested	9
Number of windows passing the 25° initial test	9
Number of windows that do not meet any of the above criteria	0

SUNLIGHT ASSESSMENT

The analysis indicates that the proposed development is unlikely to have a significant impact on neighbouring south facing windows in terms of sunlight.

The BRE guide states that:

*“if a living room of an existing dwelling has a main window facing within 90° of due south, and any part of a new development subtends an angle of more than 25° to the horizontal measured from the centre of the window in a vertical section perpendicular to the window, then the sunlighting of the existing dwelling may be adversely affected”*

A total of 57 windows from buildings surrounding the site were highlighted as facing the development and within 90° of due south.

The analysis indicated that 54 out of the 57 windows pass the 25° initial test. The remaining 3 windows have an APSH greater than 25% and a WPSH greater than 5%.

The table below shows the results summary. The detailed results can be found in the Appendix.

Overall, the proposed development is not considered to have any notable impact on sunlight access to windows of surrounding developments.

Table 10: Sunlight results summary

Total number of windows facing within 90° of south	57
Number of south facing windows passing the 25°/45° initial test	54
Number of south facing windows with APSH greater than 25% and WPSH greater than 5%, or of at least 0.8 of their former existing value	3
Number of windows that do not meet any of the above criteria	0

OVERSHADOWING ASSESSMENT

The analysis indicates that the proposed development will not have any impact on the sunlight received by neighbouring amenity spaces.

A review of the site plan showed that there are 13 amenity or open spaces in close proximity to the proposed development, as shown in the figure below. A Solar Access Analysis was undertaken on these amenity areas for the full 24 hours on 21 March as set out by the BRE.

The images show that at least 50% of the analysed spaces will receive more than 2 hours of sunlight on 21

March under proposed conditions, meeting the BRE requirements for overshadowing.

The proposed development is not considered to have any significant impact on sunlight access to neighbouring amenity and open spaces.

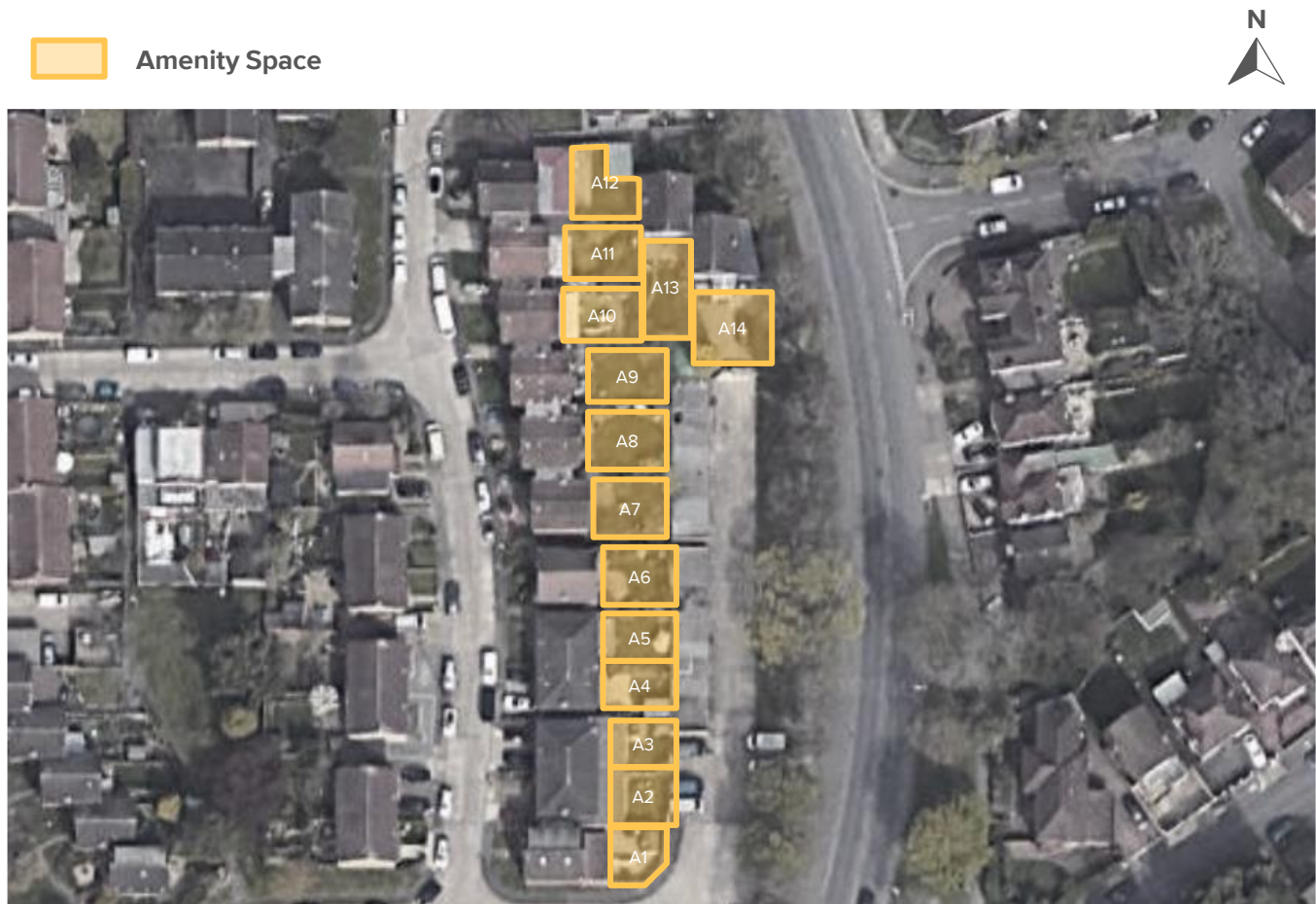


Figure 16: Open space located to the south of the development site

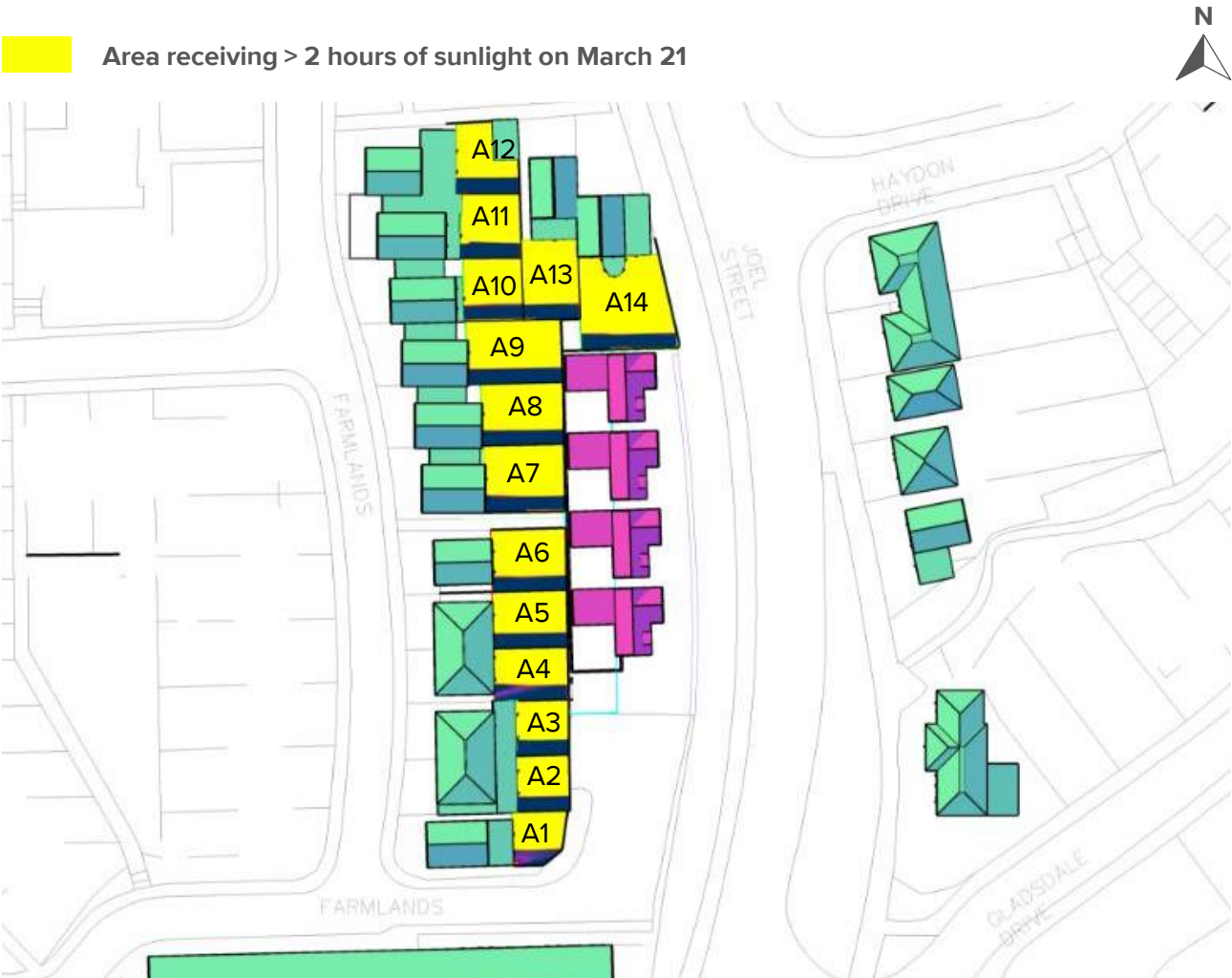


Figure 17: Overshadowing results



## DAYLIGHT, SUNLIGHT & OVERSHADOWING ASSESSMENT

Table 11: Amenity Results for Surrounding Buildings

Amenity	Amenity Area (m <sup>2</sup> )	Lit Area Existing	Lit Area Proposed	Meets Criteria
A1	53.2	39.9 m <sup>2</sup> (75%)	39.9 m <sup>2</sup> (75%)	Meets BRE Guidance
A2	59.9	42.2 m <sup>2</sup> (70%)	42.2 m <sup>2</sup> (70%)	Meets BRE Guidance
A3	60.5	42.5 m <sup>2</sup> (70%)	42.5 m <sup>2</sup> (70%)	Meets BRE Guidance
A4	80.2	54.5 m <sup>2</sup> (68%)	54.5 m <sup>2</sup> (68%)	Meets BRE Guidance
A5	87.1	61.3 m <sup>2</sup> (70%)	61.1 m <sup>2</sup> (70%)	Meets BRE Guidance
A6	94.8	70.2 m <sup>2</sup> (74%)	68.8 m <sup>2</sup> (74%)	Meets BRE Guidance
A7	108.8	80.7 m <sup>2</sup> (74%)	80.7 m <sup>2</sup> (74%)	Meets BRE Guidance
A8	104.4	75.6 m <sup>2</sup> (72%)	75.6 m <sup>2</sup> (72%)	Meets BRE Guidance
A9	76.0	55.5 m <sup>2</sup> (73%)	55.5 m <sup>2</sup> (73%)	Meets BRE Guidance
A10	123.1	90.7 m <sup>2</sup> (74%)	90.6 m <sup>2</sup> (74%)	Meets BRE Guidance
A11	79.6	58.9 m <sup>2</sup> (74%)	58.9 m <sup>2</sup> (74%)	Meets BRE Guidance
A12	72.5	50.7 m <sup>2</sup> (70%)	50.7 m <sup>2</sup> (70%)	Meets BRE Guidance
A13	93.0	74.1 m <sup>2</sup> (80%)	74.1 m <sup>2</sup> (80%)	Meets BRE Guidance
A14	163.8	132.6 m <sup>2</sup> (81%)	128.8 m <sup>2</sup> (79%)	Meets BRE Guidance

## SECTION 2: ASSESSMENT OF PROPOSED SCHEME

### METHODOLOGY

The assessment is based on guidelines set out in the BRE “Site Layout Planning for Daylight and Sunlight, A Guide to Good Practice” (2022).

The methodology is based on the British Research Establishment’s (BRE) publication “Site Layout Planning for Daylight and Sunlight - A Guide to Good Practice,” by PJ Littlefair et al. (2022).

The BRE publication Site Layout Planning for Daylight and Sunlight gives advice on site layout planning to achieve good daylighting in buildings. It is important to note that the advice given in the BRE guide is “*not mandatory*” and “*its aim is to help rather than constrain the designer*”.

### DAYLIGHT

The BRE guidelines refer to the British Standard BS EN 17037 *Daylight in Buildings* recommendations. This stipulates the calculation of the amount of daylight in a space using one of two methods: prediction of illuminance levels using hourly data, or the use of the daylight factor. For this assessment, the method predicting illuminance levels using hourly data is used. For daylight levels in dwellings, BS EN 17037 refers to the UK National Annex which outlines the illuminance level needed in a room according to its occupancy. These are as follows:

- 100 lux for bedrooms
- 150 lux for living rooms and
- 200 lux for kitchens, or rooms with kitchens

The calculation is carried out taking into consideration the relative illuminance values, the amount of daylight hours, and the area of the room. For a room to be compliant with the BRE guidance it must reach the required illuminance levels for at least 50% of the daylight hours across 50% of the room area.

This is measured by the Spatial Daylight Autonomy (sDA) metric. sDA is defined as the percentage area of the analysed space that is above a certain lux level for a certain percentage of time.

In addition to the amount of light reaching the working plane, this assessment takes into consideration surface materials and in particular their reflectance.

These calculations are carried out using Radiance based software approved by the BRE.

### SUNLIGHT

Sunlight is valued within a space, and according to the BRE guidance access to sunlight can be quantified. BS EN 17037 recommends that a space should receive a minimum of 1.5 hours of direct sunlight on the 21<sup>st</sup> of March – the equinox. The guidance rates the amount of access to daylight as below:

- 1.5 hours as the minimum
- 3 hours as a medium level
- 4 hours as a high level

The BRE guidance states that “*in housing, the main requirement for sunlight is in living rooms, where it is valued at any time of day but especially in the afternoon. Sunlight is also required in conservatories. It is viewed as less important in bedrooms and in kitchens, where people prefer it in the morning rather than the afternoon.*”

The guidance states at least one habitable room is required to meet the criteria per dwelling.

### OVERSHADOWING

Open spaces should retain a reasonable amount of sunlight throughout the year. The BRE states that for an amenity space to “*appear adequately sunlit throughout the year, at least half of the area should receive at least two hours of sunlight on 21 March*”.



### DAYLIGHT ASSESSMENT

The analysis indicates that the habitable spaces of the proposed development will receive good levels of daylighting.

A total of 4 no. of units located on 2 floors of the development that are included in the assessment. All habitable rooms (kitchens/living/dining rooms, KLDs, and bedrooms) within these dwellings were assessed.

The references of the evaluated dwellings and the corresponding habitable rooms can be found in the appendix. The tables below show the daylight results for all the assessed rooms.

For the calculations, the following assumptions have been made:

- 50% interior wall reflectance
- 70% interior ceiling reflectance
- 20% interior floor reflectance
- 20% exterior surface reflectance
- 68% light transmission for vertical glazing

The 4 dwellings consist of 12 habitable rooms that encompass 4 KLDs and 8 bedrooms.

The results show that all 4 kitchen/living/dining rooms meet the BRE recommendations.

As for the bedrooms, all 8 bedrooms meet the BRE recommendations.

Detailed results can be found within Appendix D - proposed scheme .

Table 12: Daylight results summary

Number of habitable rooms tested	12
Number of kitchen/living/dining rooms	4
Number of kitchen/living/dining rooms meeting the BRE recommendations	4
Number of kitchen/living/dining not meeting any of the above criteria	0
Number of bedrooms	8
Number of bedrooms meeting the BRE recommendations	8
Number of bedrooms not meeting any of the above criteria	0

SUNLIGHT ASSESSMENT

The analysis indicates that the south facing living spaces of the proposed development will receive good levels of sunlighting.

All living rooms within the proposed development have at least one window facing within 90° due south to maximise sunlight access.

A total of 4 no. living rooms located on the ground floor of the development are included in the assessment.

The references of the evaluated living rooms can be found in the appendix.

All 4 living rooms receive more than 4 hours of sunlight on March 21 and therefore achieve a high level of sunlight exposure according to the BRE guidance.

Table 13. Sunlight Results for Joel Street

Number of living rooms tested	4
Number of living rooms receiving more than 4 hours of sunlight	4
Number of living rooms receiving only more than 3 hours of sunlight	0
Number of living rooms receiving only more than 1.5 hours of sunlight	0
Number of living rooms not meeting the above	0

### OVERSHADOWING ASSESSMENT

The analysis indicates that the open spaces of the proposed development will receive adequate sunlight.

A review of the site plan showed that there are 4 amenity or open spaces which are part of the proposed development, as shown in the figure below. A Solar Access Analysis was undertaken on these amenity areas for the full 24 hours on 21 March as set out by the BRE.

1 out of the 4 amenity spaces receives more than 2 hours of sunlight on March 21 for more than 50% of its area.

The remaining 3 amenity spaces receive more than 2 hours of sunlight on March 21 for about 41% of their areas. It should be noted, however, that these spaces are expected to be used most frequently during the summer seasons where the angle of sun is far less acute. As a result, the spaces are expected to receive significantly greater levels of sunlight during those seasons.

Therefore, the amenity spaces that are found in the proposed development receive a significant amount of sunlight for their purpose.

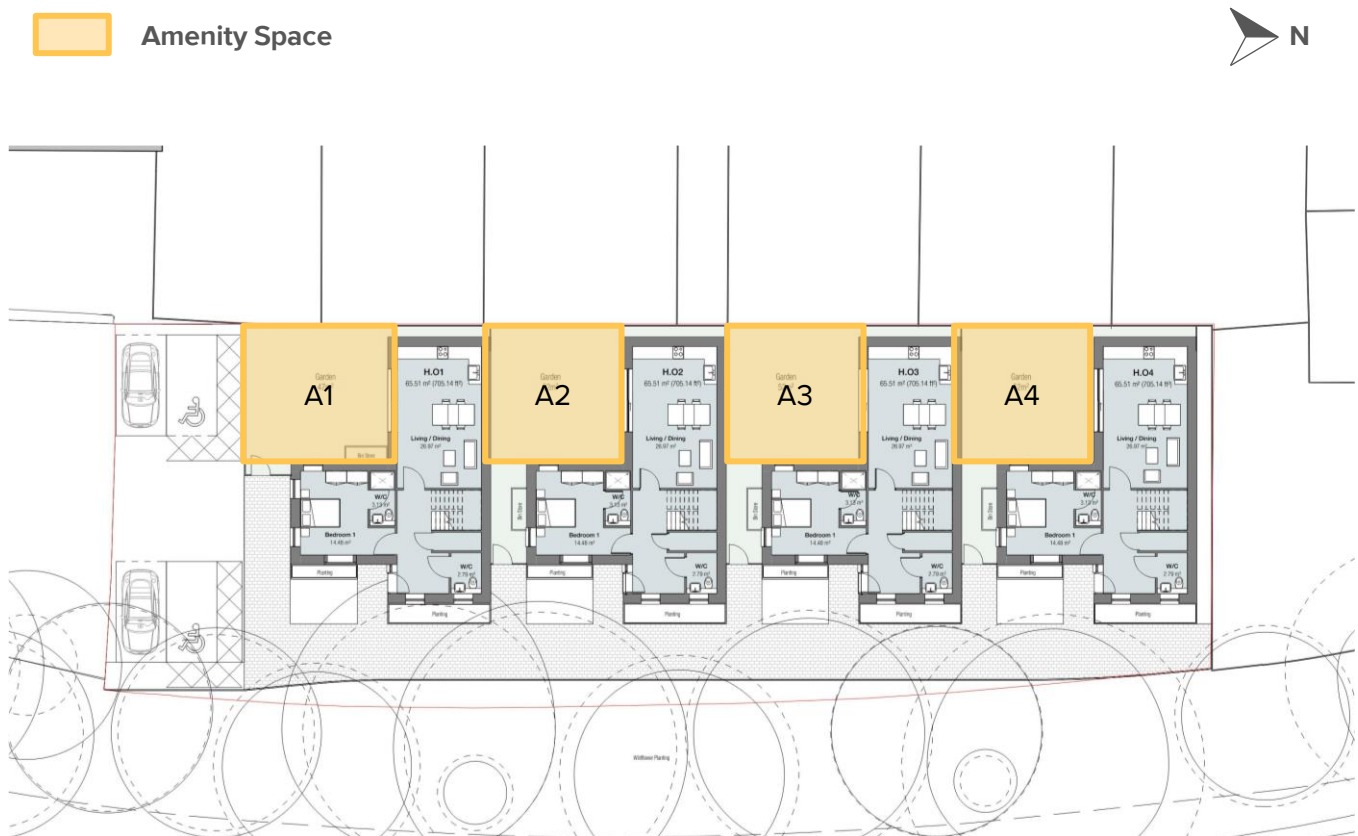


Figure 18: Amenity and open spaces in close proximity to development site

## DAYLIGHT, SUNLIGHT & OVERSHADOWING ASSESSMENT

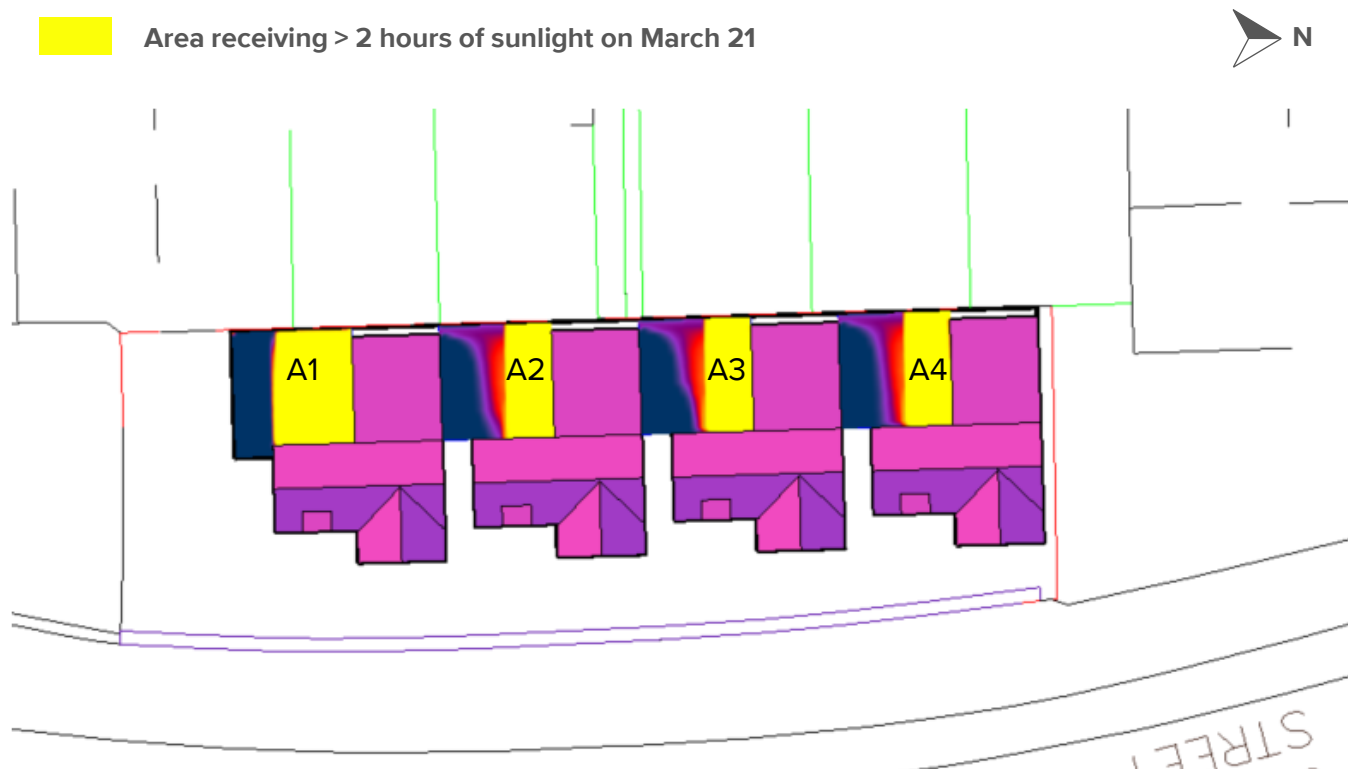


Figure 19: Overshadowing results for the proposed development.

Table 14: Overshadowing results summary for the proposed development

Amenity Reference	Amenity Area (m <sup>2</sup> )	Lit Area Proposed (m <sup>2</sup> )	Proposed Lit Area (%)	Comments
A1	44.8	27.9	62%	Meets BRE Guidance
A2	40.5	16.8	41%	Falls slightly short of the BRE Guidance
A3	40.5	16.8	41%	Falls slightly short of the BRE Guidance
A4	40.4	16.6	41%	Falls slightly short of the BRE Guidance

### CONCLUSION

The daylight, sunlight and overshadowing analysis indicates that there will not be a significant impact on surrounding properties arising from the proposed development at Joel Street. The onsite assessment indicates that the habitable rooms of the proposed development will achieve good levels of daylight and sunlight.

#### ASSESSMENT OF NEIGHBOURING BUILDINGS

##### *DAYLIGHT ASSESSMENT*

A total of 112 windows from buildings surrounding the site were highlighted as being in close proximity to, and facing the proposed development.

Daylighting levels for potentially affected windows of surrounding developments by the proposed development were found to be acceptable.

In summary,

- 104 out of 112 windows passed the 25-degree line test;
- 8 of the remaining 8 windows achieved VSCs greater than 27%;

Overall, the development is not anticipated to have any notable impact on the daylight received by neighbouring properties.

##### *SUNLIGHT ASSESSMENT*

A total of 57 windows from buildings surrounding the site were assessed for sunlight access. The analysis indicated that 54 of the 57 windows passed the 25-degree line test. All of the remaining 3 windows satisfied the BRE criteria for annual probable sunlight hours (APSH) and winter probable sunlight hours (WPSH).

Therefore, the proposed development at Joel Street is not considered to have any notable impact on sunlight access to windows of surrounding developments.

##### *OVERSHADOWING ASSESSMENT*

A solar access analysis was undertaken for a total of 14 amenity spaces for the full 24 hours on 21<sup>st</sup> of March. All the amenity spaces are predicted to have a minimum of 2 hours of sunlight on 21 March over at least 50% of each assessed amenity space.

The proposed development is therefore not considered to have any significant impact on sunlight access to the amenity spaces surrounding the site.

#### ASSESSMENT OF PROPOSED SCHEME

##### *DAYLIGHT ASSESSMENT*

The rooms evaluated in the internal daylight assessment include open plan kitchen, living room, dining spaces, and bedrooms within the proposed development.

The assessment was carried out for 4 no. dwellings across the scheme. All habitable rooms within these dwellings have been included in the assessment.

The analysis results indicated that all the rooms satisfy the recommendations set out by the BRE Guide.

Overall, the proposed development as a whole is anticipated to achieve good levels of daylighting to all dwellings and habitable spaces, and is therefore considered to provide good quality of accommodation to the future occupants in terms of daylight.

### ***SUNLIGHT ASSESSMENT***

The assessment was carried out for 4 no. dwellings across the scheme.

A total of 4 living spaces with at least one main window facing within 90° of due south each were assessed for solar access.

The analysis has shown that all living rooms will achieve adequate annual and winter sunlight based on the BRE Guide.

Overall, it can be concluded that the proposed design offers optimum accessibility to sunlight in living spaces considering the context and limitations of the site.

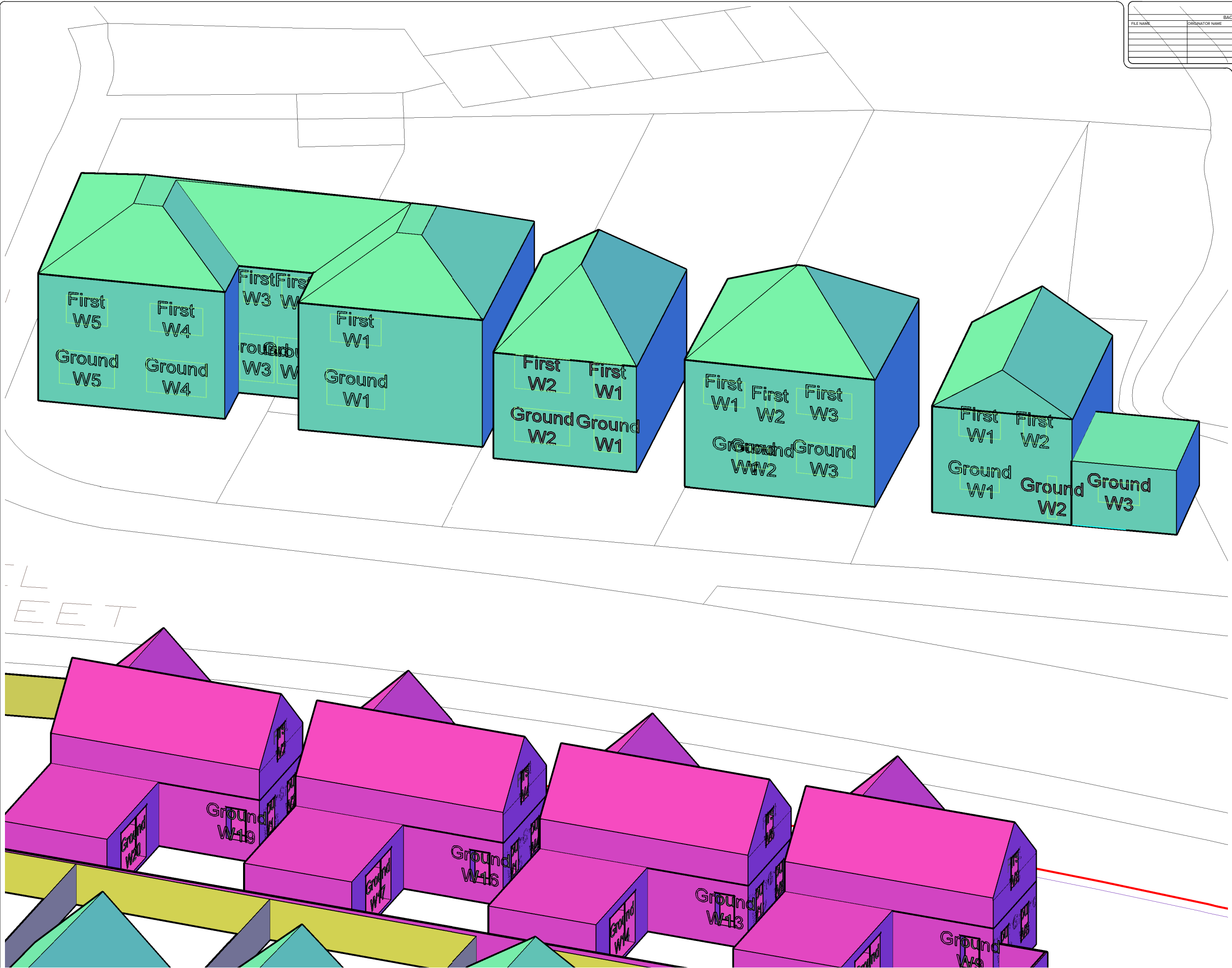
### ***OVERSHADOWING ASSESSMENT***

A solar access analysis was undertaken for a total of 4 amenity spaces for the full 24 hours on 21<sup>st</sup> of March in line with the BRE guidance.

1 out of the 4 amenity spaces are predicted to achieve a minimum of 2 hours of sunlight on 21 March over at least 50% of their areas. Whereas the remaining 3 amenity areas are expected to higher levels of sunlight in the summer months.

The open spaces of the proposed development are therefore considered to be adequately sunlit.

## APPENDIX A - WINDOW REFERENCE FOR NEIGHBOURING BUILDINGS



DO NOT SCALE					
BACKGROUND DRAWING INFORMATION					
FILE NAME	ORIGINATOR NAME	DESCRIPTION NAME	REV	DATE	REC'D

Notes

Rev	Date	Description	Chk'd	Appr

DRAFT

XCO<sub>2</sub>

The Gymnasium,  
56 Kingsway Place,  
Surrey, London  
EC1R 0LU  
+44 (0) 20 7700 1000  
mailto:xco2.com  
www.xco2.com

Client  
Philip Pank Partnership Ltd

Architect  
Metashape

Project  
Joel Street

Title  
Neighbouring Window Reference  
225-233 Joel Street

Scale: A3 N.T.S	Drawn GD	Checked TK	Date 28.07.23
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Drawing Number 9953_DSO_01	Revision A
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## Notes

ev	Date	Description	Chk'd	Appr

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the Gymnasium,  
6 Kingsway Place,  
Hans Walk, London  
E1R 0LU  
Tel: (0) 20 7700 1000  
Email: [mail@xco2.com](mailto:mail@xco2.com)  
www.xco2.com

Client  
Philip Pank Partnership Ltd

Architect  
**Metashape**

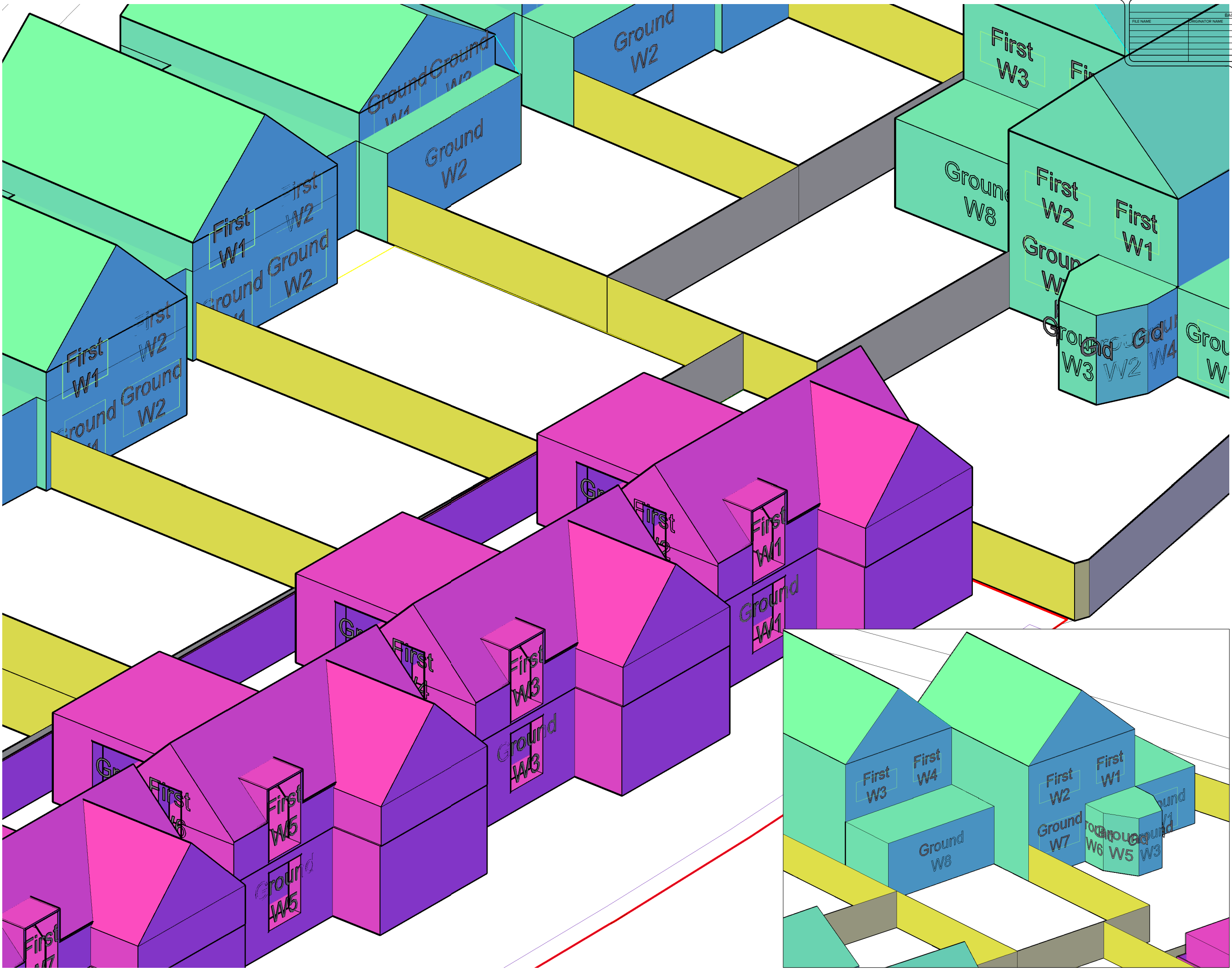
Project  
Joel Street

Title  
Neighbouring Window Reference  
Ascott Court & 70-74 Farmlands

Scale@A3	Drawn	Checked	Date
N.T.S	GD	TK	28.07.23

Drawing Number  
9953\_DSO\_02

4



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XCO<sub>2</sub>

The Gymnasium,  
56 Kingsway Place,  
Surrey, London  
EC1R 0LU  
+44 (0) 20 7700 1000  
mailto:xco2.com  
www.xco2.com

Client  
Philip Pank Partnership Ltd

Architect  
Metashape

Project  
Joel Street

Title  
Neighbouring Window Reference  
61-69 Farmlands (Inset: 61-62)

Scale	Drawn	Checked	Date
BA3	GD	TK	28.07.23

Drawing Number  
9953\_DSO\_03

Revision  
A

### APPENDIX B - DETAILED DAYLIGHT RESULTS FOR NEIGHBOURING BUILDINGS

Building	Floor	Window no.	25-degree plane test	VSC tests		
				Proposed VSC 27%?	Existing VSC (%)	Relative VSC >0.8?
Ascott Court	Ground	W1	Pass	-	-	-
Ascott Court	Ground	W2	Pass	-	-	-
Ascott Court	Ground	W3	Pass	-	-	-
Ascott Court	Ground	W4	Pass	-	-	-
Ascott Court	Ground	W5	Pass	-	-	-
Ascott Court	Ground	W6	Pass	-	-	-
Ascott Court	Ground	W7	Pass	-	-	-
Ascott Court	Ground	W8	Pass	-	-	-
Ascott Court	Ground	W9	Pass	-	-	-
Ascott Court	First	W1	Pass	-	-	-
Ascott Court	First	W2	Pass	-	-	-
Ascott Court	First	W3	Pass	-	-	-
Ascott Court	First	W4	Pass	-	-	-
Ascott Court	First	W5	Pass	-	-	-
Ascott Court	First	W6	Pass	-	-	-
Ascott Court	First	W7	Pass	-	-	-

## DAYLIGHT, SUNLIGHT & OVERSHADOWING ASSESSMENT

Building	Floor	Window no.	25-degree plane test	VSC tests		
				Proposed VSC 27%?	Existing VSC (%)	Relative VSC >0.8?
Ascott Court	First	W8	Pass	-	-	-
Ascott Court	First	W9	Pass	-	-	-
Ascott Court	First	W10	Pass	-	-	-
Ascott Court	First	W11	Pass	-	-	-
74 Farmlands	Ground	W1	Pass	-	-	-
74 Farmlands	Ground	W2	Pass	-	-	-
74 Farmlands	First	W1	Pass	-	-	-
74 Farmlands	First	W2	Pass	-	-	-
72-73 Farmlands	Ground	W1	Pass	-	-	-
72-73 Farmlands	Ground	W2	Pass	-	-	-
72-73 Farmlands	Ground	W3	Pass	-	-	-
72-73 Farmlands	Ground	W4	Pass	-	-	-
72-73 Farmlands	First	W1	Pass	-	-	-
72-73 Farmlands	First	W2	Pass	-	-	-
72-73 Farmlands	First	W3	Pass	-	-	-
72-73 Farmlands	First	W4	Pass	-	-	-
70-71 Farmlands	Ground	W1	Pass	-	-	-
70-71 Farmlands	Ground	W2	Pass	-	-	-
70-71 Farmlands	Ground	W3	Pass	-	-	-
70-71 Farmlands	Ground	W4	Pass	-	-	-

## DAYLIGHT, SUNLIGHT & OVERSHADOWING ASSESSMENT

Building	Floor	Window no.	25-degree plane test	VSC tests		
				Proposed VSC 27%?	Existing VSC (%)	Relative VSC >0.8?
70-71 Farmlands	First	W1	Pass	-	-	-
70-71 Farmlands	First	W2	Pass	-	-	-
70-71 Farmlands	First	W3	Pass	-	-	-
70-71 Farmlands	First	W4	Pass	-	-	-
69 Farmlands	Ground	W1	Pass	-	-	-
69 Farmlands	Ground	W2	Pass	-	-	-
69 Farmlands	First	W1	Pass	-	-	-
69 Farmlands	First	W2	Pass	-	-	-
68 Farmlands	Ground	W1	Pass	-	-	-
68 Farmlands	Ground	W2	Pass	-	-	-
68 Farmlands	First	W1	Pass	-	-	-
68 Farmlands	First	W2	Pass	-	-	-
67 Farmlands	Ground	W1	Pass	-	-	-
67 Farmlands	Ground	W2	Pass	-	-	-
67 Farmlands	First	W1	Pass	-	-	-
67 Farmlands	First	W2	Pass	-	-	-
66 Farmlands	Ground	W1	Pass	-	-	-
66 Farmlands	Ground	W2	Pass	-	-	-
66 Farmlands	First	W1	Pass	-	-	-
66 Farmlands	First	W2	Pass	-	-	-

## DAYLIGHT, SUNLIGHT & OVERSHADOWING ASSESSMENT

Building	Floor	Window no.	25-degree plane test	VSC tests		
				Proposed VSC 27%?	Existing VSC (%)	Relative VSC >0.8?
65 Farmlands	Ground	W1	Pass	-	-	-
65 Farmlands	Ground	W2	Pass	-	-	-
65 Farmlands	Ground	W3	Pass	-	-	-
64 Farmlands	Ground	W1	Further testing required	35.0%	-	-
64 Farmlands	Ground	W2	Further testing required	31.5%	-	-
64 Farmlands	Ground	W3	Further testing required	34.8%	-	-
63 Farmlands	Ground	W1	Further testing required	32.3%	-	-
63 Farmlands	Ground	W2	Further testing required	32.2%	-	-
63 Farmlands	First	W1	Further testing required	35.9%	-	-
63 Farmlands	First	W2	Further testing required	36.8%	-	-
61 Farmlands	Ground	W1	Pass	-	-	-
61 Farmlands	Ground	W2	Pass	-	-	-
61 Farmlands	Ground	W3	Further testing required	33.6%	-	-
61 Farmlands	Ground	W4	Pass	-	-	-
61 Farmlands	Ground	W5	Pass	-	-	-
61 Farmlands	Ground	W6	Pass	-	-	-
61 Farmlands	Ground	W7	Pass	-	-	-
61 Farmlands	Ground	W8	Pass	-	-	-
61 Farmlands	First	W1	Pass	-	-	-
61 Farmlands	First	W2	Pass	-	-	-

## DAYLIGHT, SUNLIGHT & OVERSHADOWING ASSESSMENT

Building	Floor	Window no.	25-degree plane test	VSC tests		
				Proposed VSC 27%?	Existing VSC (%)	Relative VSC >0.8?
61 Farmlands	First	W3	Pass	-	-	-
61 Farmlands	First	W4	Pass	-	-	-
225-227 Joel Street	Ground	W1	Pass	-	-	-
225-227 Joel Street	Ground	W2	Pass	-	-	-
225-227 Joel Street	Ground	W3	Pass	-	-	-
225-227 Joel Street	Ground	W4	Pass	-	-	-
225-227 Joel Street	Ground	W5	Pass	-	-	-
225-227 Joel Street	First	W1	Pass	-	-	-
225-227 Joel Street	First	W2	Pass	-	-	-
225-227 Joel Street	First	W3	Pass	-	-	-
225-227 Joel Street	First	W4	Pass	-	-	-
225-227 Joel Street	First	W5	Pass	-	-	-
229 Joel Street	Ground	W1	Pass	-	-	-
229 Joel Street	Ground	W2	Pass	-	-	-
229 Joel Street	First	W1	Pass	-	-	-
229 Joel Street	First	W2	Pass	-	-	-
231 Joel Street	Ground	W1	Pass	-	-	-
231 Joel Street	Ground	W2	Pass	-	-	-
231 Joel Street	Ground	W3	Pass	-	-	-
231 Joel Street	First	W1	Pass	-	-	-

## DAYLIGHT, SUNLIGHT & OVERSHADOWING ASSESSMENT

Building	Floor	Window no.	25-degree plane test	VSC tests		
				Proposed VSC 27%?	Existing VSC (%)	Relative VSC >0.8?
231 Joel Street	First	W2	Pass	-	-	-
231 Joel Street	First	W3	Pass	-	-	-
231A Joel Street	Ground	W1	Pass	-	-	-
231A Joel Street	Ground	W2	Pass	-	-	-
231A Joel Street	Ground	W3	Pass	-	-	-
231A Joel Street	First	W1	Pass	-	-	-
231A Joel Street	First	W2	Pass	-	-	-
233 Joel Street	Ground	W1	Pass	-	-	-
233 Joel Street	Ground	W2	Pass	-	-	-
233 Joel Street	Ground	W3	Pass	-	-	-
233 Joel Street	Ground	W4	Pass	-	-	-
233 Joel Street	Ground	W5	Pass	-	-	-
233 Joel Street	First	W1	Pass	-	-	-
233 Joel Street	First	W2	Pass	-	-	-
233 Joel Street	First	W3	Pass	-	-	-
233 Joel Street	First	W4	Pass	-	-	-



## APPENDIX C - DETAILED SUNLIGHT RESULTS FOR NEIGHBOURING BUILDINGS

Building	Floor	Window no.	25 degree plane test	APSH test			WPSH test			Total reduction <4%?
				Proposed APSH >25%?	Existing APSH (%)	Relative APSH >0.8?	Proposed WPSH >5%?	Existing WPSH (%)	Relative WPSH >0.8?	
68 Farmlands	Ground	W1	Pass	-	-	-	-	-	-	-
68 Farmlands	Ground	W2	Pass	-	-	-	-	-	-	-
68 Farmlands	First	W1	Pass	-	-	-	-	-	-	-
68 Farmlands	First	W2	Pass	-	-	-	-	-	-	-
67 Farmlands	Ground	W1	Pass	-	-	-	-	-	-	-
67 Farmlands	Ground	W2	Pass	-	-	-	-	-	-	-
67 Farmlands	First	W1	Pass	-	-	-	-	-	-	-
67 Farmlands	First	W2	Pass	-	-	-	-	-	-	-
66 Farmlands	Ground	W1	Pass	-	-	-	-	-	-	-
66 Farmlands	Ground	W2	Pass	-	-	-	-	-	-	-
66 Farmlands	First	W1	Pass	-	-	-	-	-	-	-
66 Farmlands	First	W2	Pass	-	-	-	-	-	-	-
63 Farmlands	Ground	W1	Further testing required	40.0%	-	-	10.0%	-	-	-
63 Farmlands	Ground	W2	Further testing required	42.0%	-	-	12.0%	-	-	-
61 Farmlands	Ground	W1	Pass	-	-	-	-	-	-	-
61 Farmlands	Ground	W2	Pass	-	-	-	-	-	-	-
61 Farmlands	Ground	W3	Further testing required	81.0%	-	-	24.0%	-	-	-
61 Farmlands	Ground	W5	Pass	-	-	-	-	-	-	-
61 Farmlands	Ground	W6	Pass	-	-	-	-	-	-	-
61 Farmlands	Ground	W7	Pass	-	-	-	-	-	-	-

## DAYLIGHT, SUNLIGHT & OVERSHADOWING ASSESSMENT

Building	Floor	Window no.	25 degree plane test	APSH test			WPSH test			Total reduction <4%?
				Proposed APSH >25%?	Existing APSH (%)	Relative APSH >0.8?	Proposed WPSH >5%?	Existing WPSH (%)	Relative WPSH >0.8?	
61 Farmlands	Ground	W8	Pass	-	-	-	-	-	-	-
61 Farmlands	First	W1	Pass	-	-	-	-	-	-	-
61 Farmlands	First	W2	Pass	-	-	-	-	-	-	-
61 Farmlands	First	W3	Pass	-	-	-	-	-	-	-
61 Farmlands	First	W4	Pass	-	-	-	-	-	-	-
225-227 Joel Street	Ground	W1	Pass	-	-	-	-	-	-	-
225-227 Joel Street	Ground	W2	Pass	-	-	-	-	-	-	-
225-227 Joel Street	Ground	W3	Pass	-	-	-	-	-	-	-
225-227 Joel Street	Ground	W4	Pass	-	-	-	-	-	-	-
225-227 Joel Street	Ground	W5	Pass	-	-	-	-	-	-	-
225-227 Joel Street	First	W1	Pass	-	-	-	-	-	-	-
225-227 Joel Street	First	W2	Pass	-	-	-	-	-	-	-
225-227 Joel Street	First	W3	Pass	-	-	-	-	-	-	-
225-227 Joel Street	First	W4	Pass	-	-	-	-	-	-	-
225-227 Joel Street	First	W5	Pass	-	-	-	-	-	-	-
229 Joel Street	Ground	W1	Pass	-	-	-	-	-	-	-
229 Joel Street	Ground	W2	Pass	-	-	-	-	-	-	-
229 Joel Street	First	W1	Pass	-	-	-	-	-	-	-
229 Joel Street	First	W2	Pass	-	-	-	-	-	-	-
231 Joel Street	Ground	W1	Pass	-	-	-	-	-	-	-
231 Joel Street	Ground	W2	Pass	-	-	-	-	-	-	-
231 Joel Street	Ground	W3	Pass	-	-	-	-	-	-	-
231 Joel Street	First	W1	Pass	-	-	-	-	-	-	-
231 Joel Street	First	W2	Pass	-	-	-	-	-	-	-
231 Joel Street	First	W3	Pass	-	-	-	-	-	-	-
231A Joel Street	Ground	W1	Pass	-	-	-	-	-	-	-

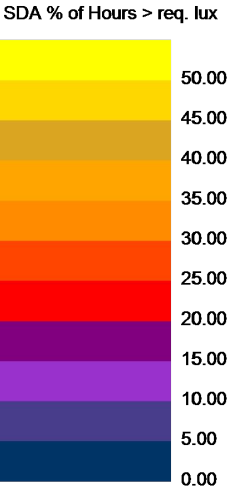
## DAYLIGHT, SUNLIGHT & OVERSHADOWING ASSESSMENT

Building	Floor	Window no.	25 degree plane test	APSH test			WPSH test			Total reduction <4%?
				Proposed APSH >25%?	Existing APSH (%)	Relative APSH >0.8?	Proposed WPSH >5%?	Existing WPSH (%)	Relative WPSH >0.8?	
231A Joel Street	Ground	W2	Pass	-	-	-	-	-	-	-
231A Joel Street	Ground	W3	Pass	-	-	-	-	-	-	-
231A Joel Street	First	W1	Pass	-	-	-	-	-	-	-
231A Joel Street	First	W2	Pass	-	-	-	-	-	-	-
233 Joel Street	Ground	W1	Pass	-	-	-	-	-	-	-
233 Joel Street	Ground	W3	Pass	-	-	-	-	-	-	-
233 Joel Street	Ground	W4	Pass	-	-	-	-	-	-	-
233 Joel Street	Ground	W5	Pass	-	-	-	-	-	-	-
233 Joel Street	First	W1	Pass	-	-	-	-	-	-	-
233 Joel Street	First	W3	Pass	-	-	-	-	-	-	-
233 Joel Street	First	W4	Pass	-	-	-	-	-	-	-

## APPENDIX D - PROPOSED SCHEME ROOM REFERENCE AND CONTOUR RESULTS

DO NOT SCALE				
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FILE NAME	ORIGINATOR NAME	DESCRIPTION NAME	REV	DATE REC'D

Notes



Rev	Date	Description	Chk'd	Appr	

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XCO<sub>2</sub>

The Gymnasium,  
56 Kingsway Place,  
Sears Walk, London  
EC1R 0LU  
+44 (0) 20 7700 1000  
mail@xco2.com  
www.xco2.com

Client

Philip Pank Partnership Ltd

Architect

Metashape

Project

Joel Street

Title

sDA and SE Results  
Ground Floor

Scale:BA3	Drawn	Checked	Date
N.T.S	GD	TK	28.07.23

Drawing Number

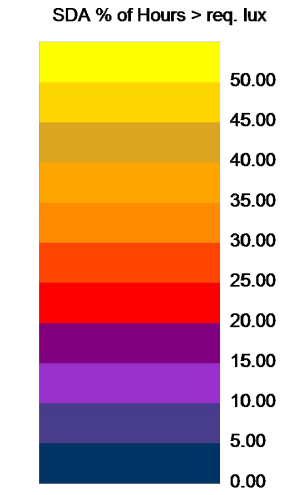
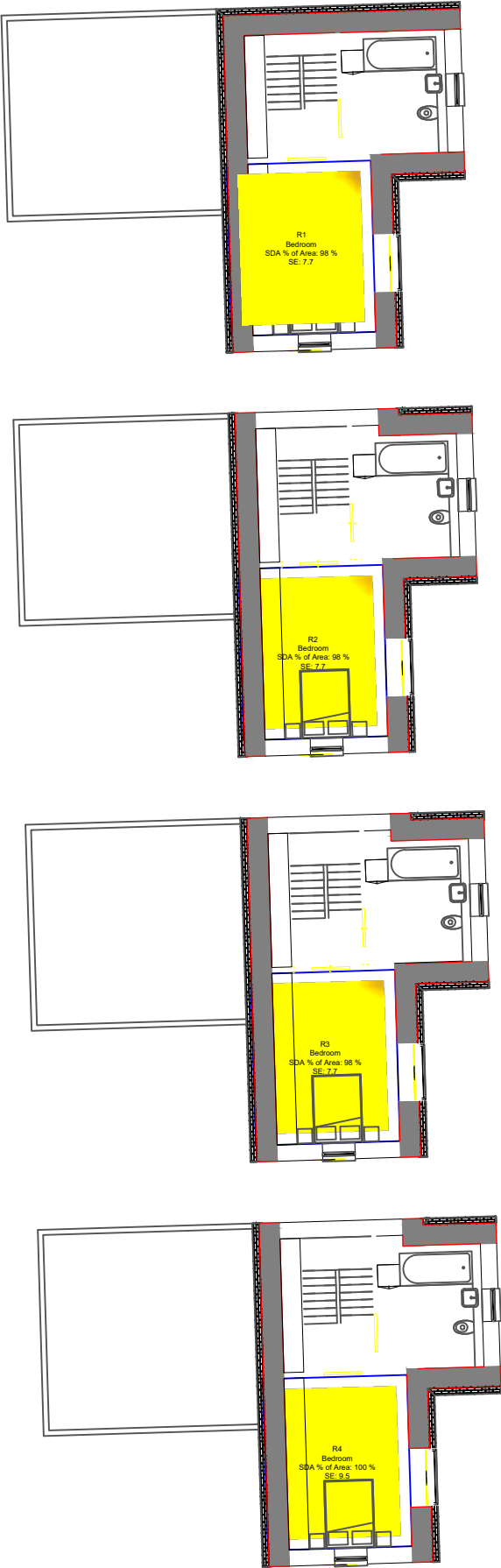
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Revision

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BACKGROUND DRAWING INFORMATION				
FILE NAME	ORIGINATOR NAME	DESCRIPTION NAME	REV	DATE REC'D



Rev	Date	Description	Chk'd	Appr

DRAFT

XCO<sub>2</sub>

The Gymnasium,  
56 Kingsway Place,  
Sera Walk, London  
EC1R 0LU  
+44 (0) 20 7700 1000  
mail@xco2.com  
www.xco2.com

Client  
Philip Pank Partnership Ltd

Architect  
Metashape

Project  
Joel Street

Title  
sDA and SE Results  
First Floor

Scale	Drawn	Checked	Date
BA3 N.T.S	GD	TK	28.07.23

Drawing Number	Revision
9953_IDL_02	A

### APPENDIX E – DETAILED DAYLIGHT RESULTS FOR PROPOSED SCHEME

Floor	Room	Room Use	Room area (m2)	Effective room area (m2)	Median lux	Area meeting required lux (m2)	Area meeting required lux (%)	Required lux	Required % of effective area
Ground	R1	Bedroom	12.80	8.84	554	8.84	100%	100	50%
Ground	R2	Bedroom	12.80	8.84	559	8.84	100%	100	50%
Ground	R3	Bedroom	12.80	8.84	555	8.84	100%	100	50%
Ground	R4	Bedroom	12.80	8.84	1046	8.84	100%	100	50%
Ground	R5	LKD	27.00	20.91	340	16.10	77%	200	50%
Ground	R6	LKD	27.00	20.91	276	14.77	71%	200	50%
Ground	R7	LKD	27.00	20.91	276	14.69	70%	200	50%
Ground	R8	LKD	27.00	20.91	281	14.77	71%	200	50%
First	R1	Bedroom	18.90	14.03	297	13.69	98%	100	50%
First	R2	Bedroom	18.90	14.03	302	13.78	98%	100	50%
First	R3	Bedroom	18.90	14.03	306	13.69	98%	100	50%
First	R4	Bedroom	18.90	14.03	430	14.03	100%	100	50%



### APPENDIX F – DETAILED SUNLIGHT RESULTS FOR PROPOSED SCHEME

Floor	Room	Room Use	Window Ref	Window orientation	Sunlight exposure (hrs)	Rating
Ground	R1	Bedroom	W1	88°N	3.6	High
			W2	178°	0.9	
			W18	178°	0.1	
			W19	268°	4.9	
			Total		8.5	
Ground	R2	Bedroom	W3	88°N	3.6	High
			W4	178°	1	
			W15	178°	0.2	
			W16	268°	4.9	
			Total		8.5	
Ground	R3	Bedroom	W5	88°N	3.6	High
			W6	178°	1	
			W12	178°	0.1	
			W13	268°	4.4	
			Total		8	
Ground	R4	Bedroom	W7	88°N	4.7	High
			W8	178°	9.3	

## DAYLIGHT, SUNLIGHT & OVERSHADOWING ASSESSMENT

Floor	Room	Room Use	Window Ref	Window orientation	Sunlight exposure (hrs)	Rating
			W9	268°	4.5	
			W10	178°	6.6	
			Total		9.3	
Ground	R5	LKD	W11	178°	6.2	High
			Total		6.2	
Ground	R6	LKD	W14	178°	6.4	High
			Total		6.4	
Ground	R7	LKD	W17	178°	6.6	High
			Total		6.6	
Ground	R8	LKD	W20	178°	6.3	High
			Total		6.3	
First	R1	Bedroom	W1	88°N	4.7	High
			W2	178°	5.7	
			Total		7.7	
First	R2	Bedroom	W3	88°N	4.7	High
			W4	178°	5.8	
			Total		7.7	
First	R3	Bedroom	W5	88°N	4.7	High
			W6	178°	5.8	
			Total		7.7	
First	R4	Bedroom	W7	88°N	4.7	High

DAYLIGHT, SUNLIGHT & OVERSHADOWING ASSESSMENT

Floor	Room	Room Use	Window Ref	Window orientation	Sunlight exposure (hrs)	Rating
			W8	178°	9.5	
			Total		9.5	

**XCO2**  
56 Kingsway Place, Sans Walk  
London EC1R 0LU

+44 (0)20 7700 1000  
mail@xco2.com  
xco2.com

