Chapter 11: Daylight, Sunlight, Overshadowing, Solar Glare and Light Pollution

DAYLIGHT, SUNLIGHT, OVERSHADOWING, SOLAR GLARE AND LIGHT POLLUTION	
AUTHOR	GIA
COMPARISON OF EFFECTS	The assessment presented within this ES Chapter is based on the revised proposals (referred to as the 'Proposed Development'), as described in Chapter 0 'Preface' and Chapter 4 'The Proposed Development'. A comparison of the findings and conclusions of this assessment against those of the December 2018 ES in relation to daylight, sunlight, overshadowing, solar glare and light pollution is provided in the section of this ES Chapter titled '*Comparison of Effects*'.
SUPPORTING APPENDIX	***ES Volume 3 – Appendix: Daylight, Sunlight, Overshadowing, Solar Glare and Light Pollution*** **(for ease of reference, hereafter referred in this ES Chapter as *'ES Volume 3 – Appendix: DSO')*** Annex 1: Legislative and Planning Policy Context; Annex 2: Methodology; Annex 3: Drawings; Annex 4: Daylight and Sunlight Impact Assessment; Annex 5: Overshadowing Assessment; Annex 6: Solar Glare Assessment; and Annex 7: Light Pollution Assessment.
KEY CONSIDERATIONS	The following are the key daylight, sunlight, overshadowing, solar glare and light pollution issues which have been assessed within this ES Chapter: • Changes to daylight and sunlight amenity within surrounding properties due to construction works; • Changes to overshadowing of surrounding outdoor amenity spaces due to construction works; • Changes to daylight and sunlight amenity to surrounding properties as a result of the Proposed Development once complete; • Changes to overshadowing of surrounding outdoor amenity spaces as a result of the Proposed Development once complete; • The potential for solar glare effects on sensitive view points surrounding road users and train drivers as a result of the Proposed Development once compete; and • The potential for light pollution effects from the commercial elements of the Proposed Development on existing receptors.
CONSULTATION	The scope of the daylight, sunlight, overshadowing, solar glare and light pollution assessment was presented to the LBS and discussed as relevant throughout the 2018 pre-application consultation process. An EIA Scoping Report was prepared and submitted to the LBS for discussion on the 24th September 2018 in relation to the 2018 Environmental Statement (ES) (see ***ES Chapter 2 – EIA Methodology (Volume 1)***). Informal feedback on the Scoping Report was received from the LBS on the 29th November 2018 in the form of a high level review (the 'LBS Review') with recommendations for consideration within the ES – a summary of the key points raised in the review in terms of the approach and methodology is presented within Annex A of this ES Chapter. This table signposts where these issues have been addressed within the chapter. In addition to the Scoping Process, following submission of the planning application, the 2018 ES was reviewed by an independent third party (Land Use Consultants (LUC)) on behalf of the LBS. The feedback received from LUC on the 2018 ES was responded to at the time and has been, as relevant be incorporated into this 2021 ES, thus ensuring that the ES for the amended scheme is comprehensive in terms of scope and requested clarifications and points raised previously by LUC on behalf of the LBS pursuant to Regulation 25 of the EIA Regulations. The 2018 scoping process was undertaken in detail and has provided the Applicant, Trium and GIA with sufficient knowledge of the site and the surrounding area to be able to determine the scope of the EIA for the 2021 Proposed Development. In October 2020, an EIA scoping note was issued to the GLA (see ***ES Chapter 2 – EIA Methodology (Volume 1)***). The note confirms that in determining the scope of the EIA for the amended scheme, reference has been made to the September 2018 Scoping Report, the November 2018 LBS Review, the 2018 ES, the 2019 ES Addendum and the LUC Review. A further scoping meeting (virtual) was held with the GLA on 8th September 2021 to review and confirm the approach to the EIA.

ASSESSMENT METHODOLOGY

Defining the Baseline

Current Baseline Conditions

11.1 An existing baseline characterisation has been completed by firstly undertaking a review of the surrounding land uses, using information and data sourced from the Council (VOA website[1]). This review was undertaken for all surrounding properties that are considered likely to be sensitive to the Proposed Development (reference to the Proposed Development throughout this ES Chapter unless specified otherwise refers to the 'revised scheme') as well as sensitive surrounding amenity spaces, sensitive road and rail junctions, identified as potentially sensitive receptors.

11.2 From the review of the surrounding context, a 3D computer model was developed for the existing surrounding properties and existing buildings on-site using a full topographical survey (carried out in January 2018), photogrammetric survey and site photographs (carried out in February 2018). The survey information has been reviewed and is considered to remain valid at the time of writing this ES Chapter.

11.3 It should be noted that the baseline assessments within this ES Chapter were undertaken in December 2020, as part of the December 2020 ES. However, a desktop review of the Baseline Conditions has been carried out since then in order to determine whether there would be any material changes. It is considered that the assessment of the Baseline undertaken in December 2020 remains materially unchanged (the site and the area surrounding the site in terms of built form has not changed since the Baseline Conditions were tested for the December 2020 ES) and as such, is considered that an updated Baseline assessment is not required.

11.4 The understanding of the Baseline Conditions is shown in drawings presented within ***ES Volume 3 – Appendix: DSO, Annex 3***.

Evolution of the Baseline – Glasshouse (2-4 Melior Place)

11.5 A future baseline scenario has also taken into account the consented Glasshouse scheme at 2-4 Melior Place within the cumulative scenario; this is because this scheme is consented (and so an approved project in EIA Regulations terms) and is located immediately adjacent to the Proposed Development site and is residential in use. It is therefore entirely appropriate to consider this as a potentially sensitive future receptor to the Proposed Development.

2020 Assessments and Approach to the Assessment of the October 2021 Design Evolution

11.6 The assessments presented within this ES Chapter are based on the results of assessments of the December 2020 scheme. Throughout 2021 further discussions have been held between the Applicant, the GLA and LBS on the design of the Proposed Development and these discussions have resulted in some further design evolution to the December 2020 scheme that are of relevance to the daylight, sunlight, overshadowing, solar glare and light pollution assessments and assessment of the likely significant daylight, sunlight, overshadowing, solar glare and light pollution effects of the Proposed Development.

11.7 The design evolution element that is considered to be of relevance for the purposes of these assessments is the massing alteration of the eastern end of the building at the upper floors.

11.8 The design evolution is described in more detail in ***ES Chapter 3 - Alternatives and Design Evolution (Volume 1).***

11.9 GIA has reviewed the design evolution and has concluded (drawing on the results of the previous assessments and its professional opinion) that the evolved October 2021 design is not materially different enough to warrant a rerun of the daylight, sunlight, overshadowing, solar glare and light pollution assessments. This is, in summary, for the following reasons:

[1] VOA website, http://cti.voa.gov.uk/cti/refs.asp?lcn=0&EBAR=1

- The reduction in massing of the Proposed Development is minor and only between Levels 13 and 15. As such, it is considered that any changes in daylight, sunlight and overshadowing at surrounding receptors would not be noticeable at surrounding properties and amenity areas;
- Any solar reflections that could occur at the top of the main building between Levels 13 and 15 would not be in the periphery of a road user or train drivers line of sight and, therefore, are considered not to change the level of effect as reported for the December 2020 scheme; and
- It is considered that the massing reduction would have no material bearing on the light pollution assessment undertaken for the December 2020 scheme.

Cumulative Effects Assessment

11.10 The cumulative effects assessment considers the potential for cumulative effects associated with the Proposed Development coming forward with other surrounding existing or approved schemes (referred to as cumulative schemes) to the potentially sensitive receptors considered throughout this assessment. The December 2020 cumulative effects assessment considered the following:

- **Cumulative Scenario A:** The Proposed Development in conjunction with Capital House (consented); and
- **Cumulative Scenario B:** The Proposed Development in conjunction with Capital House, The Edge (consented) and the Sellar Scheme (in for planning).

11.11 Since the cumulative daylight, sunlight and overshadowing assessments were undertaken in December 2020 for the December 2020 scheme, there have been minor changes to the planning status of some cumulative schemes. However, and as discussed further in the '*Cumulative Effects Assessment*' section of this ES Chapter, these changes are not considered such as to require an updated cumulative assessment.

11.12 Throughout the remainder of this ES Chapter, references to the Proposed Development therefore refers to the December 2020 scheme as previously tested and the subsequent design evolution (discussed above) which has resulted in the October 2021 scheme. The approach to this assessment (specifically the qualitative review of the 2021 design evolution and conclusions drawn on the likely significant daylight, sunlight, overshadowing, solar glare and light pollution effects of the Proposed Development based on testing and professional opinion (as well as review of the status of the cumulative schemes)) was discussed and agreed with the GLA at the EIA scoping meeting on the 8th September 2021.

Impact Assessment Methodology

Methodology

11.13 The following methodologies are used to assess the impact of the completed Proposed Development on the surrounding properties. Details of the methodology can be found in ***ES Volume 3 – Appendix: DSO, Annex 2***, and outline summaries are presented below, including criteria within **Table 11.1**.

Daylight

- Vertical Sky Component (VSC); and
- No Sky Line (NSL) Method;

11.14 In terms of daylight, both VSC and NSL should be seen as complementary assessments.

11.15 Vertical sky component (VSC) is a 'spot' measure of the skylight reaching the mid-point of a window from an overcast sky. It represents the amount of visible sky that can be seen from that reference point, from over and around an obstruction in front of the window. That area of visible sky is expressed as a percentage of an unobstructed hemisphere of sky, and, therefore, represents the amount of daylight available for that particular window.

11.16 No-sky line (NSL) is a measure of the distribution of diffuse daylight within a room. The NSL simply follows the division between those parts of a room that can receive some direct skylight from those that cannot. If from a point in a room on the working plane (a plane 850mm above the floor) it is possible to see some sky then that point will lie inside the NSL contour. Conversely, if no sky is visible from that point then it would lie outside the contour.

Sunlight

- Annual Probable Sunlight Hours (APSH).

11.17 Annual probable sunlight hours (APSH) is a measure of sunlight that a given window may expect over a year period. The BRE guidance recognises that sunlight is less important than daylight in the amenity of a room and is heavily influenced by orientation. North facing windows may receive sunlight on only a handful of occasions in a year, and windows facing eastwards or westwards will only receive sunlight for some of the day. The BRE guidance states that only windows with an orientation within 90 degrees of south need be assessed. Therefore, in terms of sunlight, only rooms facing south are assessed for APSH as north facing rooms will not receive direct sunlight.

11.18 The baseline both total APSH and winter PSH are assessed - the APSH and winter PSH have different BRE criteria (refer **Table 11.1**). For the assessment of the Proposed Development, the total APSH and winter PSH are reported separately, to provide a more detailed assessment reflecting the different sunlight conditions.

Overshadowing

- Transient Overshadowing; and
- Sun Hours on Ground.

11.19 Both transient overshadowing and Sun Hours on ground assessments determine the extent of overshadowing on surrounding amenity areas. Transient overshadowing is initially used as a screening exercise to determine which amenity areas should be included for the purpose of the Sun Hours on Ground assessment.

11.20 For large amenity areas (such as the River Thames and Thames Riverside Path) transient overshadowing is used as the main assessment given the difficulties to quantify using the Sun Hours on Ground assessment.

11.21 For smaller amenity areas with distinct boundaries, Sun Hours on Ground is used as the main assessment.

11.22 The BRE Criteria summarised in **Table 11.1** are used as guidance for the assessments. Numerical analysis and professional judgement has also been used to determine the scale and nature of the potential effects.

11.23 In general, should the modelled results meet the criteria in **Table 11.1**, the assessed receptor is considered to receive an acceptable level of either daylight or sunlight.

Table 11.1 Summary of BRE criteria

Topic	Method	2011 BRE Criteria
Daylight	Vertical Sky Component (VSC)	A window may be adversely affected if the VSC measured at the centre of the window is less than 27% and less than 0.8 times its former value.
	No Sky Line (NSL)	A room may be adversely affected if the daylight distribution (no sky line) is reduced beyond 0.8 times its existing area.
Sunlight	Annual Probable Sunlight Hours (APSH)	A window may be adversely affected if a point at the centre of the window receives for the whole year, less than 25% of the APSH including at least 5% of the PSH during the winter months (21 September to 21 March) and less than 0.8 times its former sunlight hours during either period, and (for existing neighbouring buildings), if there is a reduction in total APSH which is greater than 4%.
Overshadowing	Sun on Ground	An area of amenity space or garden may be adversely affected if less than half (50%) of the area is prevented by buildings from receiving two hours of sunlight on the 21st

Topic	Method	2011 BRE Criteria
		March (as suggested by the BRE guidelines[2]) and the area which can receive some sun on the 21st March is less than 0.8 times its former value.

Solar Glare

11.24 Solar reflections off a building are particularly important at railway signals, road junctions including pedestrian crossings, and traffic signals, as glare from a development can cause temporary blinding of drivers. Typically, those elements of a Proposed Development considered reflective are either glazed elements or specular metal cladding. An assessment has been conducted to determine the time of day, period of year, duration and positioning of potential solar glare according to the driver's line of sight. The assessment does not however, measure the intensity of the reflection but merely the occurrence and duration.

11.25 Solar Glare is not a comparative assessment; the fact it may occur in the baseline does not necessarily justify its occurrence as a result of a Proposed Development. Therefore, the assessment considers the effect of the Proposed Development in absolute terms (i.e. no reference against the Baseline condition).

Light Pollution

11.26 Light pollution is defined as any light emitting from artificial sources into spaces where it is unwanted, such as spillage of light from office or commercial buildings onto residential accommodation, where this would cause nuisance to the occupants

11.27 Light Intrusion is the spilling of light beyond the boundary of a Proposed Development. It is assessed as vertical illuminance in lux (Ev), measured flat at the centre of the receptor being assessed.

11.28 As for the solar glare assessment, light pollution is not a comparative assessment; the fact it may occur in the baseline does not necessarily justify its occurrence as a result of the Proposed Development. Therefore, the assessment considers the effect of the Proposed Development in absolute terms (i.e. no reference against the Baseline condition), by reference to the relevant guidance levels.

11.29 The site is located in an environmental zone E4 (see ***ES Volume 3 – Appendix: DSO, Annex 2*** for further details), the ILP guidance[3] allows for a maximum pre-curfew (before 11pm) light intrusion level of 25 lux and a maximum post-curfew (after 11pm) light intrusion level of 5 lux. The lower level required post-curfew is to avoid light pollution affecting adjacent receptors (the sleep of neighbouring residents).

Assumptions and Limitations

11.30 No assumptions are made in relation to construction as no technical assessments are undertaken in relation to construction. It is however assumed that the Completed Development is the worst-case scenario for daylight, sunlight and overshadowing and therefore, the construction phase is not quantitatively assessed within this ES Chapter.

11.31 For the existing surrounding sensitive receptors where layout information was not available, assumptions have been made as to the use and internal configuration of the rooms (from external observations) behind the fenestration observed. In such cases a standard 4.3m (14ft) room depth has been assumed, unless the building form dictated otherwise. This is common practice where access to buildings for surveying is unavailable. Obtaining these room layouts enables precise evaluation of the diffuse levels of daylight within each of the rooms via the No Sky Line (NSL). Layouts have been obtained for the following properties:

- The Glasshouse (existing and consented);
- 16 Melior Street;
- 8 Melior Street;
- 103 -114 Guinness Court;
- 1-15 Guinness Court;
- Raquel Court;
- 8-20 Snowsfields; and
- 41 Snowsfields.

11.32 Floor levels have been assumed for surrounding properties where access has not been obtained. With the working plane located 850mm above the finished floor level, this has the potential to affect the assessment of NSL.

11.33 For VSC and NSL, it is important to note that all windows that serve bedrooms have a lower requirement for daylight according to the BRE (BRE Para 2.2.8).

11.34 For solar glare, the assessment undertaken in the Proposed Development scenario is the worst-case scenario and has been undertaken assuming year-long clear skies. In reality, the probability of clear skies varies throughout the year, with the most cloud cover in the winter months and least in the summer months.

11.35 For solar glare, although great care has been taken in identifying typical viewpoints, this does not guarantee that there are no additional sensitive locations where reflected solar glare could present a particular risk. For practical reasons, the area of the assessment has been limited to the area surrounding the Proposed Development. This area extends to approximately 600 m around the site in all directions. At greater distances, the likelihood of solar reflections causing significant glare is reduced as the time that buildings will reflect is reduced and the area of façade visible constitutes a reduced angle and so reduces the possibility of the whole sun disk being reflected. This approach to solar glare assessment within EIA has been adopted using professional judgement and by reference to Commission Internationale L'Eclairage (CIE) Collection On Glare 2002[4].

11.36 Whilst it is noted in the BRE Guidelines that solar reflections from a new development can affect occupants of adjoining properties. Reflections to occupants at the surrounding buildings is not considered to present the same level of risk as to road and rail users and has therefore not been assessed within this ES Chapter.

11.37 The solar glare assessment has been undertaken of the Proposed Development prior to the addition of the PV cells to the horizontal fins on southern façade of the main building and the PV panels on the warehouse roof. It is likely that the horizontal fins would shield instances of the solar glare to viewpoints where the façade in question is visible. Owing to the PV cells being located on the top of the horizontal fins, these would not add any additional reflective materiality to the façade which is not already covered in the solar glare assessment. The PV panels on the warehouse roof are not highly reflective and would not be visible from viewpoints assessed at surrounding roads and railways. Therefore, the assessment of solar glare within this ES Chapter remains valid.

11.38 For light pollution, the assessment undertaken for the Proposed Development scenario is a worst-case scenario that has been undertaken with an assumed standard lighting design that could differ from what would be implemented but provides a realistic worst-case scenario. The light fittings used for this lighting simulation represent typical recessed office luminaires regularly spaced on the proposed office ceilings within the proposed commercial building in order to achieve an average illuminance of 500 lux across the working plane. This assessment assumes that all luminaires are switched on at once and no blinds or shading devices are deployed for the purpose of the light pollution assessment. It also assumes that all the lights on every commercial floor within the development are switched on through the night.

11.39 More detail on the assumptions made for each of the assessments undertaken can be found within the appendix in methodology section ***ES Volume 3 – Appendix: DSO, Annex 2***.

[2] Building Research Establishment (BRE) Guidelines: Site Layout Planning for Daylight and Sunlight 2011, A Guide to Good Practice, Second Edition, 2011
[3] Institute of Lighting Professionals (ILP), 2011, Guidance Notes for the Reduction of Obtrusive Light GN01:2011, 2011.
[4] CIE International Commission on Illumination (2002): 'CIE Collection on Glare – CIE 146-147:2002', Commission Internationale De L'Eclariage, Vienna

Methodology for Defining Effects

Receptor Sensitivity

11.40 In terms of sensitivity, nearby existing residential dwellings (receptors) are considered highly sensitive to daylight and sunlight levels, and specifically habitable rooms within the properties such as living rooms, kitchens and bedrooms, in accordance with the BRE Guidelines. All existing residential receptors assessed are considered highly sensitive due to the expectation of natural light and are given equal weighting, and therefore each individual receptor is not assigned a level of sensitivity as per general EIA methodology i.e. high, medium, low or very low (see ***ES Chapter 2 - EIA Methodology (Volume 1)***).

11.41 Commercial spaces such as offices and retail areas are not considered sensitive receptors and are therefore not assessed as industry standard and recommended by BRE (Section 2.2)

11.42 For transient overshadowing, all public and private areas of open space such as playgrounds, playing fields, parks, squares and gardens in close proximity to the site are considered highly sensitive within the assessment.

11.43 For solar glare, road users and train drivers are sensitive receptors and are considered highly sensitive within the assessment.

11.44 For light pollution, residential receptors are assessed as they are considered highly sensitive. Residential receptors in close proximity to the commercial elements of the Proposed Development have been assessed.

Nature and Scale of Effect (and Effect Significance)

11.45 As the approach is to categorise all existing residential receptors being assessed as highly sensitive (not assign a level of sensitivity as per general EIA methodology), this results in the assessment of the magnitude of impact being synonymous with the determining the scale of effect. Therefore, the key terminology used to describe the scale of an effect is as follows:

- Major;
- Moderate;
- Minor; and
- Negligible.

11.46 More information on how the scale of effect has been determined for each type of assessment being undertaken has been discussed in the following sections of this ES Chapter.

11.47 The nature of the effects may be either adverse (negative or detrimental) or beneficial (advantageous or positive).

Effect Significance

11.48 The BRE Guidelines do not advise on the significance of an effect but where an effect exceeds of the guidance, it is considered significant. The following criteria is applied:

- 'Moderate' or 'Major' effects are deemed to be 'significant';
- 'Minor' or 'Negligible' effects are considered 'not significant'.

11.49 When assigning significance per property for daylight and sunlight, consideration has been given to the proportion of rooms / windows affected, as well as the percentage alterations, absolute changes, existing levels, retained levels and any other relevant factors, such as orientation, balconies, overhangs or design features.

11.50 Considerations such as absolute change existing levels and retained levels may also apply for overshadowing. As such, the assessment criteria / thresholds are not applied mechanistically, and professional judgement is used from review of the numerical analysis.

Scale of Effect - Daylight

11.51 For daylight, the BRE Guidelines outline the approach within the Appendix I, in terms of assigning criteria to assess the effects:

> "Adverse impacts occur when there is a significant decrease in the amount of skylight […] reaching an existing building where it is required […]. The assessment of impact will depend on a combination of factors, and there is no simple rule of thumb that can be applied."
>
> "Where the loss of skylight […] fully meets the guidelines, the impact is assessed as negligible or minor adverse. Where the loss of light is well within the guidelines, or only a small number of windows […] lose light (within the guidelines), a classification of negligible impact is more appropriate. Where the loss of light is only just within the guidelines and a larger number of windows […] are affected, a minor adverse impact would be more appropriate, especially if there is a particularly strong requirement for daylight […] in the affected building […]."
>
> "Where the loss of skylight […] does not meet the guidelines in this book, the impact is assessed as minor, moderate or major adverse. Factors tending towards a minor adverse impact include:
>
> - Only a small number of windows […] are affected;
> - The loss of light is only marginally outside the guidelines;
> - An affected room has other sources of skylight […]; and/or
> - The affected building […] has a low level of requirement for skylight […]."

11.52 The classification of major adverse is documented within Paragraph 7 of the BRE Guidelines:

> "Factors tending towards a major adverse impact include:
>
> - a large number of windows […] are affected;
> - the loss of light is substantially outside the guidelines;
> - all the windows in a particular property are affected; and
> - the affected indoor […] spaces have a particular strong requirement for skylight […], e.g. a living room in a dwelling […]."

11.53 Where the BRE Guidelines are met, the effects will be considered negligible.

11.54 With regard to the BRE Guidelines, the initial numerical criteria for determining the scale of effect is based on percentage alterations from the existing baseline, as seen in **Table 11.2**.

Table 11.2 Daylight - Percentage Alterations from the Existing Baseline

Scale of Effect	Daylight Criteria
Negligible	0-19.9% alteration
Minor	20-29.9% alteration
Moderate	30-39.9% alteration
Major	≥ 40% alteration

11.55 If the retained VSC levels are ≥ 27% and the NSL levels are >80%, the effects are considered negligible, regardless of the alteration as seen in **Table 11.2**.

11.56 When assigning significance per property however, consideration has been given to the proportion of rooms / windows affected, as well as the percentage alterations, absolute changes, existing levels, retained levels and any other relevant factors, such as orientation, balconies, overhangs or design features. As such, the criteria

in **Table 11.2** are not applied mechanistically. All effects greater than minor adverse are considered significant.

11.57 It is acknowledged that the values in the BRE Guidelines are derived on the basis of a 2-3 storey suburban model, therefore the application of its guidelines in inner urban environments should be treated flexibly. This form of assessment does not take account of context or detailed matters such as window size, room use, room size, window number or dual aspect rooms. This assessment also assumes that all obstructions to the sky are 100% non-reflective. It should be noted that the BRE Guidelines acknowledges this and state, in Paragraph 2.2.3;

'The numerical values given here are purely advisory. Different criteria may be used based on the requirements for daylighting in an area viewed against other site layout constraints.'

11.58 Clearly in more urban environments, if development is to meet the scale and proportion of neighbouring buildings, large factor reductions are very difficult to avoid. As such, in dense urban environments it is suggested that weight should also be given to the retained values rather than just the percentage change. Professional experience suggests that a more realistic retained VSC level in a dense urban environment is 15%.

11.59 This is supported by the Greater London Authority's hearing report for the Monmouth House and Featherstone Street development (application reference: P2015/3136/FUL) where it was considered in Para 120, Page 31:

'For general guidance, whilst the BRE guidelines recommend a target value of 27% VSC when measured on an absolute scale, that value is derived from a low density suburban housing model. In an inner city urban environment, VSC values in excess of 20% should be considered as reasonably good, and VSC in the mid-teens should be acceptable.'

Scale of Effects - Sunlight

11.60 For sunlight, the BRE Guidelines outline the approach within the accompanying Annex 4, in terms of assigning criteria to assess the effects:

"Adverse impacts occur when there is a significant decrease in the amount of […] sunlight reaching an existing building where it is required […]. The assessment of impact will depend on a combination of factors, and there is no simple rule of thumb that can be applied."

"Where the loss of skylight […] fully meets the guidelines, the impact is assessed as negligible or minor adverse. Where the loss of light is well within the guidelines, or only a small number of windows […] lose light (within the guidelines), a classification of negligible impact is more appropriate. Where the loss of light is only just within the guidelines and a larger number of windows or open space are affected, a minor adverse impact would be more appropriate, especially if there is a particularly strong requirement for […] sunlight in the affected building […]."

"Where the loss of […] sunlight does not meet the guidelines in this book, the impact is assessed as minor, moderate or major adverse. Factors tending towards a minor adverse impact include:

- Only a small number of windows […] are affected;
- The loss of light is only marginally outside the guidelines;
- An affected room has other sources of […] sunlight; and/or
- The affected building […] only has a low level of requirement for […] sunlight."

11.61 The classification of major adverse is documented within Paragraph 7 of the BRE Guidelines:

"Factors tending towards a major adverse impact include:

- a large number of windows […] are affected;
- the loss of light is substantially outside the guidelines;
- all the windows in a particular property are affected; and
- *the affected indoor […] spaces have a particular* strong requirement for […] sunlight, e.g. a living room in a dwelling or a children's playground."

11.62 Where the BRE Guidelines are met, the effects will be considered negligible.

11.63 With regard to the BRE Guidelines, the initial numerical criteria for determining the scale of effect is based on percentage alterations from the existing baseline, as seen in **Table 11.3**. Using the BRE criteria, professional judgement has then been used to determine the extent of daylight and sunlight effects. All effects greater than minor are considered significant.

Table 11.3 Sunlight - Percentage Alterations from the Existing Baseline (both total and winter PSH)

Scale of Effect	Sunlight Criteria
Negligible	0-19.9% alteration
Minor	20-29.9% alteration
Moderate	30-39.9% alteration
Major	≥ 40% alteration

11.64 If the retained total APSH levels are ≥ 25% with at least 5% of this occurring in the winter months, the effects are considered negligible, regardless of the alteration.

Scale of Effects - Overshadowing

Transient Overshadowing

11.65 The BRE Guidelines do not include criteria for the scale and nature of effects and subsequent significance of transient overshadowing other than to identify the different times of the day and year when shadow would be cast over a surrounding area.

11.66 The assessment of potential effects as a result of transient overshadowing is therefore based on professional judgement, taking into consideration the conditions of the existing site and surrounding area, and comparing these conditions against the effect of the Proposed Development. All effects greater than minor adverse are considered significant.

Sun Hours on Ground

11.67 It is suggested in the BRE Guidelines that for an area to appear adequately sunlit throughout the year, at least half (50%) of any assessment area should see direct sunlight for at least two hours on the 21st March. If, as a result of new development, an existing assessment area will not meet BRE Guidelines and the area which can receive two hours of direct sunlight on 21st March is reduced to less than 0.8 times its former area, then the loss of sunlight is likely to be noticeable.

11.68 Where the results show compliance with the BRE Guidelines criteria, the occupants are unlikely to experience any noticeable change to their sunlight amenity levels. For the purposes of this assessment, such an effect would be considered negligible and not significant.

11.69 Should the relevant criteria not be achieved, a judgement has to be made as to the scale and nature of effects and their resultant significance based on the level of loss, retained sunlight levels and the relevant baseline scenario.

11.70 **Table 11.4** sets out the numerical criteria adopted in relation to the sun on ground assessment. All effects greater than minor are considered significant.

Table 11.4 Sun Hours on Ground Criteria

Scale of Effect	Numerical Criteria on 21st March
Negligible	Over 50% of the amenity area will receive 2 hours of sunlight or less than 20% alteration in area which receives 2 hours of direct sunlight.
Minor	20-29.9% reduction or increase in the area which receives 2 hours of direct sunlight (and below 50% retained area).
Moderate	30-39.9% reduction or increase in the area which receives 2 hours of direct sunlight (and below 50% retained area).
Major	≥ 40% reduction or increase in the area which receives 2 hours of direct sunlight (and below 50% retained area).

Scale of Effects - Solar Glare

11.71 Solar Glare is not a comparative assessment; the fact it may occur in the baseline does not necessarily justify its occurrence as a result of a Proposed Development. Therefore, the assessment considers the effect of the Proposed Development in absolute terms.

11.72 There are no quantitative criteria within the BRE Guidelines or elsewhere regarding acceptable levels of solar glare.

11.73 Professional judgement has therefore been applied to assign the significance of solar glare arising from the Proposed Development and to determine the criteria for assessing the scale and nature of solar glare effects. All effects greater than minor are considered significant.

11.74 Multiple viewpoints are chosen for each of the traffic lanes or signals affected from a location. If for example, one location has multiple lanes or traffic signals, multiple viewpoints will be assessed from this single location to ensure that all effects are fully understood.

11.75 Whilst multiple viewpoints may be identified, professional judgement has been used to determine the effect at the location, rather than the individual perspectives at a signal traffic junction. Factors that could influence the nature, scale and resultant significance of effect may include:

- Sunlight availability probability;
- Area of façade off which reflections are visible;
- Period of time when reflections are visible;
- Angle at which reflections are visible from line of sight;
- Views of the development being obscured for example by trees; and/or
- The time of day at which the solar reflection will occur for example during peak traffic times.

11.76 The factors in **Table 11.5** will be used to ascertain the possible scale of effect for each view and the factors listed above will then be taken into consideration to determine the overall significance for the designated viewpoint.

Table 11.5 Solar Glare Criteria

Scale of Effect	Description
Negligible	No reflections are visible or if visible all occur at angles greater than 30° from the driver's line of sight and so, as stated by the CIE, will be of "little significance".
Minor	Solar reflections are visible within 30° to 10° or between 10° to 5° of the driver's line of sight for a short period of time
Moderate	Solar reflections are visible within 10° and 5° of the driver's line of sight occurring for a long period of time.
Major	Solar reflections are visible within 5° of a driver's line of sight.

Scale of Effects - Light Pollution

11.77 Light pollution is not a comparative assessment; the fact it may occur in the baseline does not necessarily justify its occurrence as a result of a Proposed Development. Therefore, the assessment considers the effect of the Proposed Development in absolute terms, by reference to the ILP guidance.

11.78 The ILP Guidance Notes do not provide details on assigning of a scale (and so significance) to effects for light pollution, therefore this is based on professional judgement considering the extent of the residential façade adversely affected as well as the extent to which the thresholds set out in the guidance are exceeded.

11.79 The following criteria for determining the scale and nature of effects has been used:

Table 11.6 Light Pollution Criteria

Scale of Effect	Sunlight Criteria
Negligible	A small alteration from the existing scenario which is unlikely to be noticeable to the receptor. This may involve a small number of technical infringements of the numerical level suggested in the appropriate guidelines which should also been viewed in context.
Minor	An alteration from the existing scenario which may be noticeable to the sensitive receptor. This may include a number of marginal infringements of the numerical level suggested in the appropriate guidelines which should be viewed in context.
Moderate	An alteration from the existing scenario which may cause a moderate noticeable change to the sensitive receptor. This may consist of a large proportion of infringements of the numerical values suggested in the relevant guidelines and/or a small percentage of significant infringements.
Major	An alteration from the existing scenario which may cause a major noticeable change to the sensitive receptor. This may consist of a large proportion of significant infringements of the numerical values suggested within the relevant guidelines.

11.80 All effects greater than minor are considered significant.

BASELINE CONDITIONS

Existing Receptors

Daylight and Sunlight

11.81 The assessment methodology section confirms that existing residential buildings are high sensitive receptors that may be affected by the Proposed Development and are relevant to this assessment.

11.82 A map of sensitive receptors for daylight and sunlight can be seen in **Figure 11.1**.

Figure 11.1 Sensitive Receptors for Daylight and Sunlight

11.83 The list of daylight and sunlight receptors shown in **Figure 11.1** are as follows:

- The Glasshouse (2-4 Melior Street)
- 16 Melior Street
- 8 Melior St-36 Snowsfields
- 103 -114 Guinness Court
- 1-15 Guinness Court
- Raquel Court
- La Salette Church
- 14 Melior Street
- Snowsfields Primary School
- 8-20 Snowsfields
- 38 Snowsfields
- 39 Snowsfields
- 40 Snowsfields
- 41 Snowsfields
- 42 Snowsfields
- 62 Weston Street
- 64 Weston Street
- 66 Weston Street

Overshadowing

11.84 Existing amenity areas are sensitive receptors that may be affected by the Proposed Development and therefore assessments are undertaken to determine the sunlight availability of these areas. In terms of overshadowing, amenity areas are considered to be of high sensitivity.

11.85 Sensitive amenity areas for overshadowing can be seen in **Figure 11.2** and are listed below:

- St John's Church Park (1);
- Communal gardens serving St Olaves Estate (2); and
- Communal area serving Melior Street and Fenning Street (3).

11.86 The amenity areas assessed can be seen in **Figure 11.2**.

Figure 11.2 Amenity Areas Assessed for Overshadowing

Solar Glare

11.87 The assessment methodology section identifies road and rail users as sensitive receptors to solar glare impacts. In terms of solar glare road and rail receptors are considered highly sensitive and therefore have been included within the assessment. More details can be found within ***ES Volume 3 – Appendix: DSO, Annex 6***.

11.88 Multiple viewpoints are chosen for each of the traffic lanes from a location. As such a total of 19 locations on the nearby roads and railways have been identified. A map of the locations considered for solar glare can be seen in **Figure 11.3** and **Figure 11.4**.

11.89 The sensitive viewpoints assessed are shown in **Figure 11.3** and listed below:

- N1; (road users)
- E1, E2; (road users)
- S1, S2, S3, S4; (road users)
- W1, W2, W3, W4; (road users)
- TNW1, TNW2, TNW3; (rail users)
- TW1, TW2, TW3; (rail users)
- TSE1, TSE2. (rail users)

Figure 11.3 Sensitive Road and Rail Receptors for Solar Glare (West)

→ Building visible from the viewpoint

→ Building NOT visible from the viewpoint or visible beyond 30° of the driver's line of sight

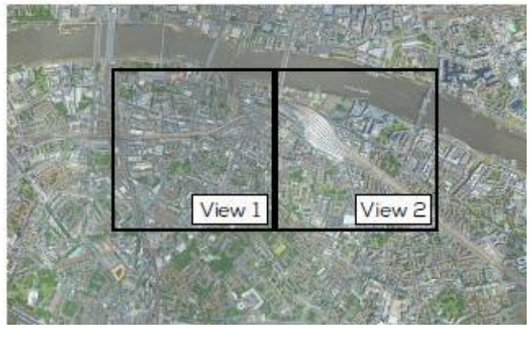

Figure 11.4 Sensitive Road and Rail Receptors for Solar Glare (East)

Fig. 12: View 2: Site Plan - Viewpoints

→ Building visible from the viewpoint

→ Building NOT visible from the viewpoint or visible beyond 30° of the driver's line of sight

Current Baseline Conditions

11.90 Within the 18 properties considered as sensitive receptors (comprising residential, mixed use, and educational), a total of 514 windows serving 277 rooms were assessed to determine the existing daylight levels (for the daylight assessment) and 142 rooms were assessed to determine the existing sunlight levels (for the sunlight assessment).

11.91 In the current baseline conditions, the existing Glasshouse 2-4 Melior Place is assessed. The consented residential Glasshouse 2-4 Melior Place development is assessed as a future sensitive receptor in Cumulative Scenarios A and B.

11.92 The full daylight and sunlight baseline assessment results are presented in ***ES Volume 3 – Appendix: DSO, Annex 4***.

Daylight

11.93 Regarding daylight conditions in the baseline scenario, 198 (38.5%) of the 514 windows assessed meet BRE criteria for VSC by achieving a VSC level of 27% or above. For NSL, 188 (67.9%) out of 277 rooms assessed meet the BRE criteria with 80%. For further detail on the properties and windows assessed, please refer to ***ES Volume 3 – Appendix: DSO.***

Sunlight

11.94 Ten properties surrounding the site are sensitive to daylight alterations. The sunlight conditions in the baseline scenario show that 70 (58.8%) of the 119 rooms assessed within the surrounding sensitive receptors meet the BRE criteria for both total and winter PSH. For further detail on the properties assessed, please refer to ***ES Volume 3 – Appendix: DSO.***

Overshadowing

11.95 The full baseline overshadowing results can be found within ***ES Volume 3 – Appendix: DSO, Annex 5***.

11.96 The Sun Hours on ground assessment shows that both of the surrounding amenity areas assessed meet the BRE criteria.

POTENTIAL EFFECTS

Demolition and Construction

11.97 The magnitude of impact and resultant potential effect in relation to the daylight and sunlight amenity and overshadowing for the surrounding properties and amenity areas will vary throughout the construction phase, depending on the level of obstruction caused. The impact will almost certainly be less than that of the completed Proposed Development, given that the extent of permanent massing will increase throughout the construction phase, until the buildings are complete. It is considered that the potential impacts would vary throughout the construction period and gradually increase to the potential effects identified for the completed Proposed Development.

11.98 During the period of construction works, a number of tall cranes are likely to be present on-site. It is considered highly unlikely that any significant adverse impact in relation to daylight, sunlight, overshadowing, solar glare, or light spillage will be caused to neighbouring properties as a result of these construction related activities. Any effects would be temporary, and most likely **negligible** and not significant.

11.99 Effects are likely to steadily increase as the superstructure is built and then clad. It is therefore considered that the completed Proposed Development represents the worst-case assessment in terms of likely daylight, sunlight overshadowing, solar glare and light pollution effects.

11.100 On this basis, no further consideration is given in this ES Chapter to likely significant environmental effects attributable to daylight, sunlight, overshadowing, solar glare and light pollution as a result of the demolition and construction works phase. The remainder of this ES Chapter focuses on the effects relating to the completed Proposed Development.

Completed Development

Daylight to Surrounding Sensitive Receptors

11.101 The full daylight assessment for the Proposed Development can be found within ***ES Volume 3 – Appendix: DSO, Annex 4***.

11.102 Overall, of the 514 windows assessed for VSC, 321 (62.5%) meet the BRE criteria. Of the 277 rooms that the windows assessed serve, 238 (85.9%) of these rooms meet the BRE criteria for NSL.

11.103 Six of the 18 properties assessed will experience little or no alterations below 20% for both VSC and NSL, and the effect on daylight to these properties is considered to be **Negligible** (not significant). These are listed below and highlighted in blue in **Table 11.7**:

- 38 Snowsfields;
- 39 Snowsfields;
- 40 Snowsfields;
- 42 Snowsfields;
- 64 Weston Street; and
- 66 Weston Street.

Table 11.7 Summary of VSC and NSL Levels with the Proposed Development

Address	VSC						NSL					
	Total No. of Windows	No. Windows that meet BRE criteria	Below BRE Guidelines				Total No. of Rooms	No. Rooms that meet the 0.8 times former value criteria	Below BRE Guidelines			
			20-29.9% Reduction	30-39.9% Reduction	>40% Reduction	Total			20-29.9% Reduction	30-39.9% Reduction	>40% Reduction	Total
The Glasshouse	5	0	1	0	4	5	2	1	0	0	1	1
16 Melior Street	66	57	3	1	5	9	18	18	0	0	0	0
8 Melior St-36 Snowsfields	141	70	14	17	40	71	66	65	1	0	0	1
103 -114 Guinness Court	42	42	0	0	0	0	30	26	3	1	0	4
1-15 Guinness Court	41	21	20	0	0	20	30	22	2	4	2	8
Raquel Court	55	15	14	26	0	40	27	27	0	0	0	0
La Salette Church	25	24	1	0	0	1	5	5	0	0	0	0
14 Melior Street	7	2	5	0	0	5	3	3	0	0	0	0
Snowsfields Primary School	30	12	18	0	0	18	15	10	5	0	0	5
8-20 Snowsfields	24	0	0	0	24	24	19	2	6	6	5	17
38 Snowsfields	8	8	0	0	0	0	8	8	0	0	0	0
39 Snowsfields	14	14	0	0	0	0	8	8	0	0	0	0
40 Snowsfields	14	14	0	0	0	0	8	8	0	0	0	0
41 Snowsfields	4	4	0	0	0	0	4	3	1	0	0	1
42 Snowsfields	20	20	0	0	0	0	16	16	0	0	0	0
62 Weston Street	9	9	0	0	0	0	9	7	2	0	0	2
64 Weston Street	8	8	0	0	0	0	8	8	0	0	0	0
66 Weston Street	1	1	0	0	0	0	1	1	0	0	0	0
Total	**514**	**321**	**76**	**44**	**73**	**193**	**277**	**238**	**20**	**11**	**8**	**39**

The Glasshouse (2-4 Melior Place)

11.104 A total of five windows serving two rooms were assessed for daylight within this building.

11.105 For VSC, none of the windows assessed would meet the BRE criteria.

11.106 Of the affected windows, one would experience alterations in VSC levels between 20-29.9% which is considered to equate to a Minor Adverse effect. The remaining four affected windows would experience an alteration in excess of 40% which is considered a Major Adverse effect.

11.107 For NSL one of the two rooms assessed would meet the BRE Guidelines criteria which would therefore be considered to equate to a Negligible effect.

11.108 The affected room (R4/F01) would experience an alteration in NSL levels in excess of 40% which is considered a Major Adverse effect.

11.109 Overall, the likely effect to daylight on this building is considered to be **Major Adverse** (significant).

16 Melior Street

11.110 A total of 66 windows serving 18 rooms were assessed for daylight within this building.

11.111 For VSC, 57 of the 66 windows assessed would meet the BRE Guidelines criteria and are therefore considered to experience a Negligible effect.

11.112 Of the affected windows, three would experience alterations in VSC levels between 20-29.9% which is considered to equate to a Minor Adverse effect and one would experience an alteration between 30-39.9% which is considered a Moderate Adverse effect. The remaining five affected windows would experience an alteration in excess of 40% which is considered a Major adverse effect.

11.113 It should be noted that three of the 9 affected windows serve bedrooms, which according to the BRE Guidelines have a lower requirement for daylight (BRE Para 2.2.8).

11.114 In addition, the other six affected windows that do not serve bedrooms are located within deep recessed balconies which would restrict the access to daylight. The BRE Guidelines suggest that the presence of balconies may be the "*main factor in the relative loss of light*" (Paragraph 2.2.11).

11.115 For NSL all of the rooms assessed would meet the BRE Guidelines criteria which would therefore be considered to equate to a Negligible effect.

11.116 Overall, due to three of the 9 affected windows serving bedrooms and the presence of large balconies which may obstruct daylight, the effect to daylight on this building is considered to be **Minor Adverse** (not significant).

8 Melior St - 36 Snowsfields

11.117 A total of 141 windows serving 66 rooms were assessed for daylight within this building.

11.118 For VSC, 70 of the 141 windows assessed would meet the BRE Guidelines criteria and are therefore considered to experience a Negligible effect.

11.119 Of the affected windows, 14 would experience alterations in VSC levels between 20-29.9% which is considered to equate to a Minor Adverse effect and 17 would experience an alteration between 30-39.9% which is considered a Moderate Adverse effect. The remaining 40 affected windows would experience an alteration in excess of 40% which is considered a Major adverse effect.

11.120 It should be noted that 45 of the 70 affected windows serve bedrooms, which according to the BRE Guidelines have a lower requirement for daylight (BRE Para 2.2.8).

11.121 In addition, it is important to note that this neighbouring property has large balconies with recessed windows that would restrict the access to daylight. The BRE Guidelines suggest that the presence of balconies may result in the, *"main factor in the relative loss of light"* (Paragraph 2.2.11).

11.122 For NSL all but one of the rooms assessed would meet the BRE Guidelines criteria which would therefore be considered to equate to a Negligible effect.

11.123 The affected room (R6(3)/F01) would experience an alteration in VSC between 20-29.9% which is considered to equate to a Minor Adverse effect. This room would retain 51.9% NSL, which may be considered acceptable within an urban location.

11.124 Overall, the effect to daylight on this building is considered to be **Major Adverse** (significant).

103 -114 Guinness Court

11.125 A total of 42 windows serving 30 rooms were assessed for daylight within this building.

11.126 For VSC, all 42 windows assessed would meet the BRE Guidelines criteria and are therefore considered to experience a Negligible effect.

11.127 For NSL 26 of the 30 rooms assessed would meet the BRE Guidelines criteria which would therefore be considered to equate to a Negligible effect.

11.128 The four affected room would experience an alteration in VSC between 20-29.9% which is considered to equate to a Minor Adverse effect.

11.129 Overall, due to the high level of BRE Guidelines compliance for VSC and Minor Adverse effect to only three rooms for NSL, the effect to daylight on this building is considered to be **Negligible** (not significant).

1-15 Guinness Court, 14 Melior Street and Snowfields Primary School (three buildings)[5]

11.130 A total of 78 windows serving 48 rooms were assessed for daylight within these three buildings.

11.131 For VSC, 35 of the 78 windows assessed would meet the BRE Guidelines criteria and are therefore considered to experience a Negligible effect.

11.132 Of the affected windows, all 43 would experience alterations in VSC levels between 20-29.9% which is considered to equate to a Minor Adverse effect.

11.133 For NSL 35 of the 48 rooms assessed would meet the BRE Guidelines criteria which would therefore be considered to equate to a Negligible effect.

11.134 Of the affected rooms, seven would experience alterations in VSC levels between 20-29.9% which is considered to equate to a Minor Adverse effect and four would experience an alteration between 30-39.9% which is considered a Moderate Adverse effect. The remaining two affected rooms would experience an alteration in excess of 40% which is considered a Major Adverse effect.

11.135 Overall, due to all windows experiencing either a Negligible or Minor Adverse effect and a high level of BRE compliance for NSL, the effect to daylight on these four buildings is considered to be **Minor Adverse** (not significant).

Raquel Court

11.136 A total of 55 windows serving 27 rooms were assessed for daylight within this building.

11.137 For VSC, 15 windows assessed would meet the BRE Guidelines criteria and are therefore considered to experience a Negligible effect.

11.138 Of the affected windows, 14 would experience alterations in VSC levels between 20-29.9% which is considered to equate to a Minor Adverse effect and 26 would experience alterations in VSC levels between 30-39.9% which is considered to equate to a Moderate Adverse effect.

11.139 It should be noted that 18 of the 40 affected windows serve bedrooms, which according to the BRE Guidelines

[5] Buildings discussed together due to the similar effect experienced, and close proximity in relation to the Proposed Development.

have a lower requirement for daylight (BRE Para 2.2.8).

11.140 At the remaining 22 windows, serving living-kitchen-diners, living rooms and assumed residential uses, VSC values from 19.5-24.9% are retained and therefore may be considered to remain well daylit.

11.141 For NSL all 27 rooms assessed would meet the BRE Guidelines criteria which would therefore be considered to equate to a Negligible effect.

11.142 Overall, due to all windows experiencing either a Minor or Moderate Adverse effect, serving either bedrooms or retaining good levels of daylight and BRE compliance for NSL, the effect to daylight is considered to be **Minor Adverse** (not significant).

La Salette Church

11.143 A total of 25 windows serving 5 rooms were assessed for daylight within this building.

11.144 For VSC, 24 windows assessed would meet the BRE Guidelines criteria and are therefore considered to experience a Negligible effect.

11.145 The affected windows would experience alterations in VSC levels between 20-29.9% which is considered to equate to a Minor Adverse effect.

11.146 For NSL all 5 rooms assessed would meet the BRE Guidelines criteria which would therefore be considered to equate to a Negligible effect.

11.147 Overall, due to the only experiencing a Minor Adverse effect, and BRE compliance for NSL, the effect to daylight is considered to be **Negligible** (not significant).

8 – 20 Snowfields

11.148 A total of 24 windows serving 19 rooms were assessed for daylight within this building.

11.149 For VSC, none of the windows assessed would meet the BRE Guidelines criteria.

11.150 Of the affected windows, all would experience alterations in VSC levels in excess of 40% which is considered a Major adverse effect.

11.151 For NSL none of the rooms assessed would meet the BRE Guidelines criteria.

11.152 Of the affected rooms, six would experience alterations in VSC levels between 20-29.9% which is considered to equate to a Minor Adverse effect and six would experience an alteration between 30-39.9% which is considered a Moderate Adverse effect. The remaining five affected rooms would experience an alteration in excess of 40% which is considered a Major adverse effect.

11.153 It is important to note that due to the position of this neighbouring property, daylight availability is obscured from the east by the presence of the Vinegar Yard Warehouse and by the properties on Melior Street to the west. This property receives the majority of its daylight directly from the north which is a cleared site in the Baseline scenario. Due to this neighbour's close proximity to the site, any development to the north of this property would result in adverse daylight conditions. This is specifically due to the property's direct and channelled view over the site as well as overhanging walkway at 1st floor level which serves to restrict the level of light to these windows and enforce their reliance of light directly over the site of the Proposed Development.

11.154 Overall, the effect to daylight on this building is considered to be **Major Adverse** (significant).

41 Snowfields and 62 Weston Street (Two Buildings)

11.155 A total of 13 windows serving 13 rooms were assessed for daylight within these two buildings.

11.156 For VSC, all of the windows assessed would meet the BRE Guidelines criteria and are therefore considered to experience a Negligible effect.

11.157 For NSL 10 of the 13 rooms assessed would meet the BRE Guidelines criteria which would therefore be considered to equate to a Negligible effect.

11.158 Of the affected rooms, all three would experience alterations in VSC levels between 20-29.9% which is considered to equate to a Minor Adverse effect.

11.159 Overall, due to only Negligible effects to VSC and the high level of BRE compliance for NSL, the effect to daylight on these two buildings is considered to be **Negligible** (not significant).

Sunlight to Surrounding Sensitive Receptors

11.160 The full sunlight assessment can be found in ***ES Volume 3 – Appendix: DSO, Annex 4*** and the results are presented in **Table 11.8**.

11.161 Of the 119 rooms assessed for sunlight, 102 (86%) would meet the BRE criteria for both total and winter PSH and are considered to experience a **Negligible** effect (not significant).

11.162 The buildings presented in **Table 11.8** highlighted in blue (for ease of reference) experience little to no change in sunlight levels with the completed Proposed Development in place and are therefore considered to experience a **Negligible** effect (not significant) and are not discussed further.

11.163 The remaining properties which do not meet the BRE Guidelines are considered further.

Table 11.8 Summary of APSH levels with the Proposed Development

Address	Total No. of Rooms	No. Rooms that meet BRE criteria	Total APSH			Winter APSH		
			Below BRE Guidelines			Below BRE Guidelines		
			20-29.9% Reduction	30-39.9% Reduction	>40% Reduction	20-29.9% Reduction	30-39.9% Reduction	>40% Reduction
16 Melior Street	12	10	0	0	2	0	0	0
8 Melior St-36 Snowsfields	50	38	6	6	0	0	0	0
103 -114 Guinness Court	16	16	0	0	0	0	0	0
Raquel Court	12	12	0	0	0	0	0	0
Snowsfields Primary School	3	3	0	0	0	0	0	0
39 Snowsfields	4	4	0	0	0	0	0	0
41 Snowsfields	4	4	0	0	0	0	0	0
62 Weston Street	9	9	0	0	0	0	0	0
64 Weston Street	8	8	0	0	0	0	0	0
66 Weston Street	1	1	0	0	0	0	0	0
Total	**119**	**105**	**6**	**6**	**2**	**0**	**0**	**0**

16 Melior Street

11.164 A total of 12 rooms were assessed for sunlight within this property.

11.165 10 of the 12 rooms assessed would meet BRE criteria for both total and winter PSH, which is therefore considered to equate to Negligible effect.

11.166 Of the affected rooms for winter PSH, all would meet the BRE criteria for APSH and are therefore considered to experience a Negligible effect.

11.167 For total APSH, the two affected rooms would experience alterations in excess of 40% which is considered a Major Adverse effect.

11.168 Overall, due to the high level of BRE compliance for winter PSH and only two windows being affected for total APSH, this building is considered to experience a **Minor Adverse** effect (not significant).

8 Melior St - 36 Snowsfields

11.169 A total of 50 rooms were assessed for sunlight within this property.

11.170 38 of the 50 rooms assessed would meet BRE criteria for both total and winter PSH, which is therefore considered to equate to a Negligible effect.

11.171 Of the affected rooms for winter PSH, all would meet the BRE criteria for APSH and are therefore considered to experience a Negligible effect.

11.172 For total APSH, of the affected rooms, six would experience an alteration between 20-29.9% which is considered a Minor Adverse effect and six would experience an alteration between 30-39.9% which is considered a Moderate Adverse effect.

11.173 It should be noted that this property has large balconies which according to the BRE can block sunlight, "*especially in summer*" (BRE Paragraph 3.2.9).

11.174 Overall, due to the high level of BRE compliance for winter PSH and total APSH potentially being affected by the presence of large balconies, this building is considered to experience a **Minor Adverse** effect (not significant).

Overshadowing

Transient Overshadowing

11.175 The full transient overshadowing results for the Proposed Development can be found within ***ES Volume 3 – Appendix: DSO, Annex 5*** and are discussed below.

21st March

11.176 Overall, on 21st March, the Communal Gardens serving Melior Street and Fenning Street, located west adjacent to the site would be cast under shadow by the Proposed Development from 08:00GMT to approximately 12:00 GMT. To determine in greater detail whether the impact on the Communal Gardens (serving Melior Street and Fenning Street) is BRE compliant, a sun hour on ground assessment was conducted for this area. Shadows do not reach St John's Church Yard and is therefore considered **Negligible** (not significant).

21st June

11.177 On 21st June, the Communal gardens serving Melior Street and Fenning Street would be cast under shadow by the Proposed Development from 06:00BST to 13:00BST and from thereon would receive approximately five hours of uninterrupted sunlight. This amenity area is therefore considered to experience a **Minor Adverse** effect (not significant) from overshadowing

11.178 St John's Church Park and communal gardens serving St Olaves Estate experience no overshadowing on any amenity areas throughout the day. The effect of overshadowing is therefore considered **Negligible** (not significant).

21st December

11.179 On December 21st, with the exception of the Communal Gardens (serving Melior Street and Fenning Street), there is no overshadowing on any amenity areas throughout the day. It is worth noting that the shadow cast by the proposed development affects only a small portion of the Communal Gardens (serving Melior Street and Fenning Street). This area is already in shadow for the majority of the time owing to the low height of the sun in the sky during winter, therefore the majority of the shadows would be cast by the existing surrounding buildings. The effect of overshadowing on December 21st by the Proposed Development is therefore considered **Negligible** (not significant).

Sun Hours on Ground

Communal Gardens serving Melior Street and Fenning Street

11.180 The assessment shows that as a result of the Proposed Development, the total area receive at least 2 hours on sunlight changes from 67% in the baseline scenario to 65% when completed. Therefore, this area would meet BRE criteria in the Proposed Development scenario, which requires that more than 50% of the area receives two or more hours of direct sunlight on March 21st. This is area therefore would experience a **Negligible** (not significant) effect. Additionally, the supplementary sun exposure test on March 21st shows that the majority of the area would receive 2 to 6+ hours of sunlight on this day, which does not differ materially from the baseline scenario. On June 21st, the majority of the area would experience 6+ hours of sunlight.

St John's Church Park

11.181 The assessment shows that the total area receive at least 2 hours on sunlight does not change from 95% in the baseline scenario to the completed Proposed Development scenario. Therefore, this area would meet BRE criteria in the Proposed Development scenario, which requires that more than 50% of the area receives two or more hours of direct sunlight on March 21st. This is area therefore would experience a **Negligible** (not significant) effect. Additionally, the supplementary sun exposure test on March 21st shows that the majority of the area would receive 6+ hours of sunlight on this day, which does not differ materially from the baseline scenario. On June 21st, the total area experiencing 6+ hours of sunlight increases.

Solar Glare

11.182 The full solar glare assessment can be found in ***ES Volume 3 - Appendix: DSO, Annex 6***.

11.183 The assessment has been undertaken from signalised railways, road junctions and pedestrian crossings nearby which are considered sensitive in terms of solar glare (noted by the reference N1, N2, etc.) - the receptor locations are shown in **Figures 11.3** and **11.4**. At each identified location more than one view may be assessed as there may be multiple traffic signals or lanes which may be adversely affected (noted by the reference N1A N1B, etc.).

11.184 Out of the 19 sensitive locations tested, the building is not visible from 11 of them (black arrows in **Figures 11.3** and **11.4**). These are:

- Train Line West - TW1;
- Train Line West - TW2;
- Train Line West - TW3;
- Train Line Northwest - TNW1;
- Train Line Northwest - TNW2;
- Union Street - W1;
- Snowfields - W3;
- Long Lane A2198 - W4;
- Tooley Street - N1;
- Weston Street - S4; and
- Bermondsey Street - E2.

11.185 The effects on these locations are therefore considered **Negligible** (not significant)

11.186 Therefore, eight remaining junctions require consideration for solar glare.

11.187 In accordance with the solar glare significance criteria highlighted in the methodology section, solar reflections occurring at angles greater than 30° from the driver's line of sight will not affect the driver's responsiveness (and therefore can be considered Negligible). In addition, viewpoints where the portion of the façade of the Proposed Development visible is very small and the distance is greater than 15° of a driver's line of sight are also considered Negligible. The list of the junctions which are considered to experience **Negligible** effects (not significant) are:

- TSE1; and
- TSE2.

11.188 Of the remaining six junctions, the results of the modelling identify solar reflections occurring within 30° to 10° or between 10° to 5° of the driver's line of sight for a short period of time resulting in **Minor Adverse** effects (not significant). The Minor Adverse effects are due to mitigating factors such as reflections occurring from a small section of façade, potential reflections occurring over a short period of time, unaffected traffic signals and being able to deploy a car's visors which would shield the majority or all of the reflections, the direct view of the sun in the sky if the building is not built. The locations which experience Minor Adverse effects are listed below and these viewpoints do not require further discussion:

- S3
- W2; and
- TNW3.

11.189 Of the remaining three locations, further detailed discussed is presented below.

Crucifix Lane - E1 (Two viewpoints)

11.190 Two different viewpoints have been considered at this location looking at different traffic signals from one lane.

11.191 From viewpoints E1a and E1b instances of solar reflection may be visible on the façade of the Proposed Development between 08:00GMT to 10:00GMT and 14:00GMT to 16:00GMT from mid-August to mid-April. The reflections would occur from approximately 5° of the driver's line of sight for E1a and 18° from viewpoint E1b.

11.192 It should be noted that the broken-up nature of the façade closest to the drivers' line of sight would result in scattered reflections that would be visible for only a limited period of time. This assessment also assumes clear skies at the precise time that the sun is in the location needed to create reflections. For these reasons, from these two viewpoints, the effect from solar glare is considered to be Minor Adverse.

11.193 In addition, from this location there are two traffic signals serving a single lane. Should one be adversely affected, drivers could alternatively refer to the other unaffected traffic signal.

11.194 The position of the Proposed Development also results in the sun path being blocked from the drivers view from this location. By definition, reflected sunlight has a lower intensity than direct sunlight and therefore, any reflections caused would have a lower dazzling effect than the direct sunlight that would dazzle drivers should the Proposed Development not be built.

11.195 Overall, owing to the broken-up nature of the façade and very brief instances of reflection and the availability of multiple unaffected traffic signals, the likely effect of solar glare at the Crucifix Lane junction is considered to be **Minor Adverse** (not significant).

Weston Street - S1

11.196 One viewpoint has been considered at this location looking at a junction.

11.197 From viewpoint S1 instances of solar reflection may be visible on the façade of the Proposed Development between 07:00GMT to 08:00GMTand 13:00GMT to 14:00GMT from mid-October to mid-February. The reflections would occur from approximately 5° of the driver's line of sight from viewpoint S1.

11.198 Although potential reflections occur close to the centre of a drivers' line of sight, it is important to note that only a very thin section of façade is visible from this location which would result in potential reflections being visible for only a short period of time. This assessment also assumes clear skies at the precise time that the sun is in the location needed to create reflections. As potential reflections form this location occur in the winter months, there is only a 20% probability of clear skies from January to February, and a 20-40% probability from October to November. Therefore, the likelihood of clear skies at the precise moment the sun is at the needed angle, is very low.

11.199 Overall, owing to the very thin section of façade visible resulting in very brief instances of reflection, the effect of solar glare at this junction is considered to be **Minor Adverse** (not significant).

Kirby Grove - S2

11.200 One viewpoint has been considered at this location looking at a junction.

11.201 From viewpoint S2 instances of solar reflection may be visible on the façade of the Proposed Development between 09:00GMT to 10:00GMT and 12:00GMT and 14:00GMT from mid-September to mid-November and mid-January to mid-March. On small angled portions of the façade, there is potential for reflections between mid-November to mid-January, mid-August to mid-September and mid-March to mid-April. The reflections would occur from approximately 10° of the driver's line of sight from viewpoint S2.

11.202 It should be noted that the majority of the façade has a broken-up nature which would result in scattered reflections that would not be continuously visible. This assessment also assumes clear skies at the precise time that the sun is in the location needed to create reflections.

11.203 In addition, all potential solar reflections occur above the driver's visor cut-off line and therefore should reflections occur, the driver could deploy their visor to mitigate any reflections.

11.204 Overall, although the reflections would be broken-up by solid elements of the façade and all solar reflections occur above the driver's visor cut-off line, given that there is potential for reflections at 10º of a driver's line of sight the effect of solar glare at this junction is considered to be **Moderate Adverse** (significant).

Light Pollution

11.205 The light pollution assessment can be found in ***ES Volume 3 – Appendix: DSO, Annex 7***.

11.206 At all properties assessed, the results of the assessment indicate that pre-curfew (before 11pm), the levels of light trespass would be very limited and well within the 25 lux level suggested by the ILP for a city centre location for all other residential buildings assessed.

11.207 At all buildings assessed post-curfew, the levels of light intrusion would also be within the ILP criteria of 5 lux and therefore all properties would experience a **Negligible** effect (not significant).

MITIGATION AND MONITORING MEASURES

Demolition and Construction

11.208 No technical analysis of the likely significant effects on the surrounding properties and amenity spaces during the demolition and construction phases were carried out.

11.209 During construction works, tall cranes are likely to be on-site. The presence of such machinery is temporary, and due their proportions, any impact upon daylight, sunlight or overshadowing amenity is likely to be Negligible (not significant). No significant solar glare or light are considered likely as a result of construction activities.

11.210 The potential daylight, sunlight, overshadowing and solar glare effects of the construction of the Proposed Development will vary during demolition and construction and likely gradually increase to the maximum effect identified by the completed Development assessments, as the superstructure is built and then clad. Light pollution effects from the Proposed Development would occur as a result of the completed Proposed Development. Therefore, no additional mitigation in relation to daylight, sunlight, overshadowing, solar glare and light pollution.

Completed Development

Daylight and Sunlight

11.211 In relation to daylight, the Proposed Development will result in not significant effects to the majority of properties. The following properties would experience significant effects:

- The Glasshouse (2-4 Melior Street) (existing)

- 8 Melior St - 36 Snowsfields; and
- 8 – 20 Snowfields.

11.212 In relation to sunlight no significant effects would occur as a result of the Proposed Development.

11.213 Given the scale of the massing proposed and the urban context of the site, the significant effects are likely to be unavoidable in relation to new development. No further mitigation measures have been considered.

Overshadowing

11.214 The Proposed Development will result in one instance of a **Minor Adverse** (not significant) effect to the Communal gardens serving Melior Street and Fenning Street on June 21st. On the key date, March 21st, effects to all amenity areas are considered **Negligible** (not significant).

Solar Glare

11.215 The assessment undertaken for solar glare is a worst-case scenario and assumes clear skies. For the 19 locations assessed, 14 are considered **Negligible** (not significant) and five are considered **Minor Adverse** (not significant). One viewpoints (S2) is considered to experience a **Moderate Adverse** (significant) effect.

11.216 No further mitigation measures have been considered.

Light Pollution

11.217 None of the sensitive receptors assessed would be significantly affected by light intrusion from the Proposed Development, each experiencing **Negligible** effects and therefore no mitigation is required.

RESIDUAL EFFECTS

11.218 The residual effects resulting from the December 2020 scheme[6] are summarised in **Table 11.9**.

Table 11.9 Summary of Residual Effects - December 2020 Scheme

Receptor	Receptor Sensitivity	Residual Effect (Nature and Scale)	Effect Significance	Geo	D I	P T	St Mt Lt
Demolition and Construction							
Surrounding receptors, including Residential properties, Amenity areas	Refer '*Assessment Methodology – Demolition and Construction*' – It is considered that the completed Proposed Development represents the worst-case assessment in terms of likely daylight, sunlight, overshadowing, solar glare and light spillage effects. (see below).						
Completed Development							
Daylight, sunlight, overshadowing, solar glare and light pollution							
Daylight to surrounding sensitive receptors	High	Negligible to 10 properties: • 103 -114 Guinness Court • La Salette Church • 38 to 42 Snowsfields • 62 to 66 (evens) Weston Street	Not Significant	L	D	P	Lt
Sunlight to surrounding sensitive receptors	High	Minor Adverse to 5 properties: • 16 Melior Street • 1-15 Guinness Court • Raquel Court • 14 Melior Street • Snowsfields Primary School					
		Major Adverse to 3 properties: • The Glasshouse • 8 Melior St-36 Snowsfields • 8-20 Snowsfields	Significant	L	D	P	Lt
		Negligible to 8 properties: • 103 -114 Guinness Court • Raquel Court • Snowsfields Primary School • 39 Snowsfields • 41 Snowsfields • 62 Weston Street • 64 Weston Street • 66 Weston Street	Not Significant	L	D	P	Lt
		Minor Adverse to 2 properties: • 16 Melior Street • 8 Melior St-36 Snowsfields					
Surrounding sensitive amenity areas	High	Negligible to all amenity areas	Not Significant	L	D	P	Lt
Surrounding sensitive road and rail users	High	Negligible to 13 locations Minor Adverse to 5 locations	Not Significant	L	D	P	Lt
		Moderate Adverse to 1 location.	Significant				
Sensitive surrounding light pollution receptors	High	Negligible all properties assessed	Not Significant	L	D	P	Lt

Notes:
Residual Effect
- Scale = Negligible / Minor / Moderate / Major
- Nature = Beneficial or Adverse

Geo (Geographic Extent) = Local (L), Borough (B), Regional (R), National (N)
D = Direct / I = Indirect
P = Permanent / T = Temporary
St = Short Term / Mt = Medium Term / Lt = Long Term

[6] Although the assessment and therefore the residual effects are based on the December 2020 scheme, it is considered that they are also reflective of the revised October 2021 scheme.

Receptor	Receptor Sensitivity	Residual Effect (Nature and Scale)	Effect Significance	Geo	D I	P T	St Mt Lt
N/A = not applicable / not assessed							

LIKELY SIGNIFICANT EFFECTS

11.219 For daylight, there are ten instances of negligible effects and five instances of minor adverse. The following remaining three buildings experience major adverse effects are considered to be significant:.

- The Glasshouse (2-4 Melior Street) (existing)
- 8 Melior St - 36 Snowsfields; and
- 8 – 20 Snowfields.

11.220 It is important to note that many of the windows that experience moderate or major adverse percentage changes in daylight and/or sunlight fall into one or more of the following categories:

- a) are located beneath balconies or overhangs;
- b) they have low levels of light and are thus susceptible to large percentage alterations;
- c) they serve less sensitive spaces such as bedrooms.

11.221 For sunlight, all eight buildings assessed are considered to experience not significant effects, with eight buildings experiencing negligible effects and two experiencing minor adverse effects.

11.222 For overshadowing on March 21st , the Proposed Development will result in no significant effects for all amenity areas. On June 21st, a minor adverse effect would occur at the Communal gardens serving Melior Street and Fenning Street, seeing good levels of sunlight on the majority of the area throughout this day and is therefore is not considered to be a significant effect.

11.223 For solar glare, of the 20 locations assessed the Proposed Development will result in 19 instances not significant effects, with 14 negligible effects and five minor adverse effects. One location, Kirby Grove (viewpoint S2) would experience a Moderate Adverse which is considered to be a significant effect.

11.224 For light pollution, the Proposed Development will result in negligible and therefore not significant effects to all properties assessed.

CLIMATE CHANGE

Daylight

11.225 Following the guidance published by BRE, daylight assessments are carried out under an assumed overcast sky.

11.226 The methodologies used to quantity the levels of daylight are the Vertical Sky Component (VSC) or No Sky Line (NSL). Of these, none are explicit measurements of light but rather the VSC is expressed as percentages of the total amount of light received at an unobstructed location. The NSL by contrast is a percentage of the room that can see the sky.

11.227 Being percentages, the daylight assessments above do not depend on the absolute amount of daylight outside and, since they also assume an overcast sky, they are independent of the cloud coverage or the annual number of sunlight hours.

11.228 By following the current BRE methodology, therefore, the numeric daylight results are not affected by changes in climate.

11.229 Climate change projections suggests that the average cloud coverage will be slightly reduced, although no information is provided on how this will affect global and diffuse illuminance and irradiance levels. Whilst the relationship between cloud cover and daylight illuminance is not is not defined as part of the projections it is probably reasonable to assume as cloud coverage is reduced, the overall amount of usable daylight increases. However, this would not impact the conclusions within this report which are based on numeric daylight assessments.

11.230 Therefore, the current BRE criteria and the results of the associated daylight assessments are not influenced by, nor would they be altered by climate change.

Sunlight

11.231 To quantify the amount of sunlight that a residential window can be expected to receive throughout the years, Annual Probable Sunlight Hours (APSH) are used. This is a set of 100 fixed locations in the sky representing possible sun positions throughout the year.

11.232 The point locations were published by BRE and are based on hourly sunlight availability. A change in climate that might result in more annual sunlight hours (currently 1481 in London) would not result in more than 100 APSH test points, since this is a fixed number.

11.233 If in a future revision of the daylighting guide, BRE were to keep the current methodology but update the set of 100 reference points to reflect a slightly sunnier climate, it can be expected that the locations of the points on the sky dome may shift, whilst their overall number will remain the same.

11.234 Therefore, an APSH assessment following the current methodology but relying on a (hypothetical) updated set of test points will likely produce comparable but not necessarily identical results.

11.235 The future climate in the UK is likely to be somewhat sunnier, however, unless the BRE methodology is changed, this would not be reflected in an APSH assessment.

11.236 Therefore, the current BRE criteria and the results of the associated sunlight assessments are not influenced by, nor would they be altered by climate change.

Overshadowing

11.237 Overshadowing assessments are undertaken through either a Transient Overshadowing or Sun Hours on Ground assessment. These can be undertaken on any day of the year although the equinox is most common.

11.238 The assessment assumes a day with no cloud cover and so the maximum potential sunlight is assessed. From the climate projections, the future climate in the UK is likely to be somewhat sunnier but unless the methodology is changed, this will not reflect in an overshadowing assessment.

11.239 Therefore, the current BRE criteria and the results of the associated overshadowing assessments are not influenced by, nor would they be altered by climate change.

Solar Glare

11.240 As with overshadowing, the solar glare assessment assumes a year with no cloud cover and so the maximum potential sunlight is assessed.

11.241 From the climate projections, the future climate in the UK is likely to be somewhat sunnier but unless the methodology is changed, this will not reflect in a solar glare assessment.

Light Pollution

11.242 Light spillage can be defined as any light emitting from artificial sources into spaces where this light would be unwanted.

11.243 Light intrusion is the spilling of light beyond the boundary of a Proposed Development. It is assessed as vertical illuminance in lux (Ev) measured from the centre of the sensitive receptor.

11.244 As it considers the effect and intensity of artificial light spillage from the proposed building upon sensitive

receptors, and is not influenced by natural light sources, no future change in climate will affect the analysis undertaken.

CUMULATIVE EFFECTS ASSESSMENT

11.245 This section of the chapter assesses the potential effects of the Proposed Development in combination with the potential effects of other cumulative schemes within the surrounding area, as listed within ***ES Chapter 2 - EIA Methodology (Volume 1)***. From this list, the following cumulative schemes have been included within the assessment due to its close proximity the site:

- Capital House;
- The Edge;
- Sellar Scheme.

11.246 All other cumulative schemes are considered too far from the Proposed Development to cause cumulative effects for this discipline.

11.247 Two cumulative scenarios have been assessed against a baseline scenario (which includes the consented Glasshouse scheme being fully built out):

- Baseline v Cumulative Scenario A (Proposed Development in conjunction with Capital House)
- Baseline v Cumulative Scenario B (Proposed Development in conjunction with Capital House, The Edge and Sellar Scheme)

11.248 Since the cumulative assessment was undertaken in December 2020, the status of some of the cumulative schemes have changed. The changes to the cumulative schemes that are considered of relevance to the daylight, sunlight and overshadowing assessments are detailed below:

- LBS' Planning Committee resolved to grant the planning application at Becket House 60-68 – 20/AP/0944 (referred to within this ES as the 'Edge Scheme' on 20th July 2021. It is therefore no longer an 'undetermined' cumulative scheme, but for the purposes of this ES is treated as an approved scheme. However, as the Edge scheme has been inherently tested as part of the main assessment as well as the cumulative assessment presented below, the change in status of the scheme is immaterial to the assessment undertaken in December 2020 and therefore no updates to the cumulative assessment are considered to be required.

Demolition and Construction

11.249 It is considered that the construction of the Proposed Development, in combination with each of the cumulative schemes, would have a gradual increasing effect upon the levels of daylight, sunlight and overshadowing as the massing of the Proposed Development increases over time, particularly as the superstructure is built and then clad.

11.250 The assessment of the effects of the completed Proposed Development in the cumulative assessment scenario (see for the 'Completed Development' below) provides a 'worst case' assessment of construction effects. Therefore, reference should be made to the assessments of the Proposed Development discussed in the sections below.

11.251 On this basis, no further consideration is given in this section to effects to daylight, sunlight, overshadowing, solar glare and light pollution as a result of the demolition and construction works. The remainder of this ES Chapter focuses on the effects relating to the completed Proposed Development (in conjunction with the surrounding cumulative schemes).

Completed Development – Cumulative Scenario A

11.252 The full daylight assessment for the Proposed Development as part of Cumulative Scenario A can be found within ***ES Volume 3 – Appendix: DSO, Annex 4*** and is summarised in **Table 11.10**. All unaffected buildings in **Table 11.10** are shaded in blue.

11.253 Overall, of the 578 windows assessed for VSC, 243 windows (42%) meet the BRE criteria. Of the 296 rooms that the windows assessed serve, 242 (81.7%) of these rooms meet the BRE criteria for NSL.

11.254 Of the 18 properties tested, four are shown in blue in **Table 11.10** and will experience no alteration greater than 20% for either VSC or NSL. The effect on daylight to these properties is therefore considered **Negligible** (not significant).

Table 11.10 Cumulative Scenario A - Summary of VSC and NSL levels of the Future Baseline v Proposed Development + Capital House

Address	VSC						NSL					
	Total No. Of Windows	No. Windows That Meet BRE Criteria	Below BRE Guidelines				Total No. Of Rooms	No. Rooms That Meet The 0.8 Times Former Value Criteria	Below BRE Guidelines			
			20-29.9% Reduction	30-39.9% Reduction	>40% Reduction	Total			20-29.9% Reduction	30-39.9% Reduction	>40% Reduction	Total
16 Melior Street	66	21	2	3	40	45	18	16	2	0	0	2
8 Melior St-36 Snowsfields	141	53	6	29	53	88	66	64	1	1	0	2
103 -114 Guinness Court	42	30	12	0	0	12	30	24	5	1	0	6
1-15 Guinness Court	41	21	8	12	0	20	30	22	2	3	3	8
Raquel Court	55	12	10	33	0	43	27	27	0	0	0	0
La Salette Church	25	8	0	10	7	17	5	4	1	0	0	1
14 Melior Street	7	0	0	6	1	7	3	3	0	0	0	0
Snowsfields Primary School	30	10	20	0	0	20	15	10	5	0	0	5
8-20 Snowsfields	24	0	0	0	24	24	19	2	5	4	8	17
38 Snowsfields	8	4	3	1	0	4	8	8	0	0	0	0

39 Snowsfields	14	7	3	4	0	7	8	8	0	0	0	0
40 Snowsfields	14	7	7	0	0	7	8	8	0	0	0	0
41 Snowsfields	4	4	0	0	0	0	4	3	1	0	0	1
42 Snowsfields	20	9	8	3	0	11	16	11	3	2	0	5
62 Weston Street	9	8	1	0	0	1	9	7	2	0	0	2
64 Weston Street	8	8	0	0	0	0	8	8	0	0	0	0
66 Weston Street	1	1	0	0	0	0	1	1	0	0	0	0
Glasshouse (Consent)	69	40	1	5	23	29	21	16	0	1	4	5
Total	**578**	**243**	**81**	**106**	**148**	**335**	**296**	**242**	**27**	**12**	**15**	**54**

16 Melior Street

11.255 A total of 66 windows serving 18 rooms were assessed for daylight within this building.

11.256 For VSC, 21 of the 66 (31.8%) windows assessed would meet BRE's criteria and are therefore considered to experience a Negligible effect.

11.257 Of the 45 affected windows, two would experience an alteration in VSC between 20-29.9% which is considered a Minor Adverse effect and three would experience an alteration between 30-39.9% which is considered a Moderate Adverse effect. The remaining 40 windows would experience an alteration in excess of 40% which is considered a Major Adverse effect.

11.258 For NSL, 16 of the 18 (88.9%) rooms assessed would meet BRE's criteria and are therefore considered to experience a Negligible effect.

11.259 Of the two affected rooms, both would experience an alteration in NSL between 20-29.9% which is considered a Minor Adverse effect.

11.260 Overall, the effect is considered **Major Adverse** (significant) as compared to Minor Adverse (not significant) in the Proposed Development scenario. The additional impacts would occur as a result of Capital House.

8 Melior St-36 Snowsfields

11.261 A total of 141 windows serving 66 rooms were assessed for daylight within this building.

11.262 For VSC, 53 of the 141 (37.6%) windows assessed would meet BRE's criteria and are therefore considered to experience a Negligible effect.

11.263 Of the 88 affected windows, six would experience an alteration in VSC between 20-29.9% which is considered a Minor Adverse effect and 29 would experience an alteration between 30-39.9% which is considered a Moderate Adverse Effect. The remaining 53 windows would experience an alteration in excess of 40% which is considered a Major Adverse effect.

11.264 For NSL, 64 of the 66 (97%) rooms assessed would meet BRE's criteria and are therefore considered to experience a Negligible effect.

11.265 Of the two affected rooms, one would experience an alteration in NSL between 20-29.9% which is considered a Minor Adverse effect whilst one would experience an alteration between 30-39.9% which is considered a Moderate Adverse Effect.

11.266 Overall, the effect is considered **Major Adverse** (significant), which does not change when compared the Proposed Development scenario.

103 -114 Guinness Court

11.267 A total of 42 windows serving 30 rooms were assessed for daylight within this building.

11.268 For VSC, 30 of the 42 (71.4%) windows assessed would meet BRE's criteria and are therefore considered to experience a Negligible effect.

11.269 Of the 12 affected windows, all would experience an alteration in VSC between 20-29.9% which is considered a Minor Adverse effect.

11.270 For NSL, 24 of the 30 (80%) rooms assessed would meet BRE's criteria and are therefore considered to experience a Negligible effect.

11.271 Of the six affected rooms, five would experience an alteration in NSL between 20-29.9% which is considered a Minor Adverse effect whilst one would experience an alteration between 30-39.9% which is considered a Moderate Adverse Effect.

11.272 Overall, the effect is considered **Minor Adverse** (significant) as compared to Negligible (not significant) in the Proposed Development scenario. The additional impacts would occur as a result of Capital House.

1-15 Guinness Court, 14 Melior Street, Snowsfields Primary School

11.273 A total of 78 windows serving 48 rooms were assessed for daylight within this building.

11.274 For VSC, 31 of the 78 (39.2%) windows assessed would meet BRE's criteria and are therefore considered to experience a Negligible effect.

11.275 Of the 47 affected windows, 28 would experience an alteration in VSC between 20-29.9% which is considered a Minor Adverse effect whilst 18 would experience an alteration between 30-39.9% which is considered a Moderate Adverse Effect. The remaining window would experience an alteration beyond 40% which is considered a Major Adverse effect.

11.276 For NSL, 35 of the 48 (72.9%) rooms assessed would meet BRE's criteria and are therefore considered to experience a Negligible effect.

11.277 Of the 13 affected rooms, seven would experience an alteration in NSL between 20-29.9% which is considered a Minor Adverse effect and three would experience an alteration between 30-39.9% which is considered a Moderate Adverse Effect. The remaining three rooms would experience an alteration in excess of 40% which is considered a Major Adverse effect.

11.278 Overall, the effect is considered **Minor Adverse** (not significant) to all three buildings, which does not change when compared the Proposed Development scenario.

Raquel Court

11.279 A total of 55 windows serving 27 rooms were assessed for daylight within this building.

11.280 For VSC, 12 of the 55 (21.8%) windows assessed would meet BRE's criteria and are therefore considered to experience a Negligible effect.

11.281 Of the 43 affected windows, 10 would experience an alteration in VSC between 20-29.9% which is considered a Minor Adverse effect whilst 33 would experience an alteration between 30-39.9% which is considered a Moderate Adverse Effect.

11.282 For NSL, all rooms assessed would meet BRE's criteria and so are considered to experience a Negligible

effect.

11.283 Overall, the effect is considered **Minor Adverse** (not significant), which does not change when compared the Proposed Development scenario.

La Salette Church

11.284 A total of 25 windows serving five rooms were assessed for daylight within this building.

11.285 For VSC, eight of the 25 (32%) windows assessed would meet BRE's criteria and are therefore considered to experience a Negligible effect.

11.286 Of the 17 affected windows, 10 would experience an alteration in VSC between 30-39.9% which is considered a Moderate Adverse effect whilst seven would experience an alteration in excess of 40% which is considered a Major Adverse effect.

11.287 For NSL, four of the five (80%) rooms assessed would meet BRE's criteria and are therefore considered to experience a Negligible effect.

11.288 The affected room would experience an alteration in NSL between 20-29.9% which is considered a Minor Adverse effect.

11.289 Overall, the effect is considered **Minor Adverse** (not significant), as compared to Negligible (not significant) the Proposed Development scenario. The additional impacts would occur as a result of Capital House.

8-20 Snowsfields

11.290 A total of 24 windows serving 19 rooms were assessed for daylight within this building.

11.291 For VSC, all 24 windows assessed see losses greater than recommended by BRE.

11.292 Of the 24 affected windows, all would experience an alteration in VSC greater than 40% which is considered a Major Adverse effect.

11.293 For NSL, two of the 19 (10.5%) rooms assessed would meet BRE's criteria and are therefore considered to experience a Negligible effect.

11.294 Of the 17 affected rooms, five would experience an alteration in NSL between 20-29.9% which is considered a Minor Adverse effect and four would experience an alteration between 30-39.9% which is considered a Moderate Adverse Effect. The remaining eight rooms would experience an alteration in excess of 40% which is considered a Major Adverse effect.

11.295 Overall, the effect is considered **Major Adverse** (significant), which does not change when compared the Proposed Development scenario.

38 to 42 Snowsfields (five buildings)

11.296 A total of 60 windows serving 44 rooms were assessed for daylight within these eight terraced buildings.

11.297 For VSC, 31 of the 60 (51.6%) windows assessed would meet BRE's criteria and are therefore considered to experience a Negligible effect.

11.298 Of the 29 affected windows, 21 would experience an alteration in VSC between 20-29.9% which is considered a Minor Adverse effect and eight would experience an alteration between 30-39.9% which is considered a Moderate Adverse Effect.

11.299 For NSL, 38 of the 44 (86.3%) rooms assessed would meet BRE's criteria and so are considered to experience a Negligible effect.

11.300 Of the six affected rooms, four would experience an alteration in VSC between 20-29.9% which is considered a Minor Adverse effect and two would experience an alteration between 30-39.9% which is considered a Moderate Adverse Effect.

11.301 Overall, the effect to these five buildings is considered **Minor Adverse** (not significant), as compared to Negligible (not significant) the Proposed Development scenario. The additional impacts would occur as a result of Capital House.

62 Weston Street

11.302 A total of nine windows serving nine rooms were assessed for daylight within this building.

11.303 For VSC, eight of the nine (88.9%) windows assessed would meet BRE's criteria and are therefore considered to experience a Negligible effect.

11.304 The affected window would experience an alteration in VSC between 20-29.9% which is considered a Minor Adverse effect.

11.305 For NSL, seven of the nine (77.8%) rooms assessed would meet BRE's criteria and are therefore considered to experience a Negligible effect.

11.306 Of the two affected rooms, both would experience an alteration in NSL between 20-29.9% which is considered a Minor Adverse effect.

11.307 Overall, the effect is considered **Minor Adverse** (not significant), as compared to Negligible (not significant) the Proposed Development scenario. The additional impacts would occur as a result of Capital House.

Glasshouse (2-4 Melior Place) (consent)

11.308 A total of 69 windows serving 21 rooms were assessed for daylight within this building.

11.309 For VSC, 40 of the 69 (58%) windows assessed would meet BRE's criteria and are therefore considered to experience a Negligible effect.

11.310 Of the 29 affected windows, one would experience an alteration in VSC between 20-29.9% which is considered a Minor Adverse effect and five would experience an alteration between 30-39.9% which is considered a Moderate Adverse Effect. The remaining 23 windows would experience an alteration in excess of 40% which is considered a Major Adverse effect.

11.311 The majority of windows would retain levels of VSC ranging from 15-27% and therefore may be considered to remain well daylit.

11.312 For NSL, 16 of the 21 (76.2%) rooms assessed would meet BRE's criteria and are therefore considered to experience a Negligible effect.

11.313 Of the five affected rooms, one would experience an alteration in NSL between 30-39.9% which is considered a Moderate Adverse effect whilst four would experience an alteration in excess of 40% which is considered a Major Adverse effect.

Overall, the cumulative effect of the Proposed Development in conjunction with Capital House to the consented Glasshouse is considered **Minor Adverse** (not significant). The significance of daylight effect to consented Glasshouse sees an improvement when compared to the impacts to the existing Glasshouse in the Proposed Development scenario.

Cumulative Scenario A - Sunlight to Surrounding Sensitive Receptors

11.314 The full sunlight assessment for Cumulative Scenario A can be found in ***ES Volume 3 – Appendix: DSO, Annex 4*** and the results are presented in **Table 11.11**.

11.315 Of the 119 rooms assessed for sunlight, 102 (86%) would meet the BRE criteria for both total and winter PSH and are considered to experience a **Negligible** effect (not significant).

Overall, each of the properties assessed do not experience a material change in sunlight effect. The following properties are considered to experience a **Negligible** (not significant) effect:

- 103 -114 Guinness Court
- Raquel Court

- Snowsfields Primary School
- 39 Snowsfields
- 41 Snowsfields
- 62 Weston Street
- 64 Weston Street
- 66 Weston Street

11.316 The following properties are considered to experience a **Minor Adverse** (not significant) effect:

- 16 Melior Street
- 8 Melior St-36 Snowsfields

Completed Development – Cumulative Scenario B

Table 11.11 Cumulative Scenario B - Summary of VSC and NSL levels of the Future Baseline v Proposed Development + The Edge and Sellar

Address	VSC						NSL					
	Total No. Of Windows	No. Windows That Meet BRE Criteria	Below BRE Guidelines				Total No. Of Rooms	No. Rooms That Meet The 0.8 Times Former Value Criteria	Below BRE Guidelines			
			20-29.9% Reduction	30-39.9% Reduction	>40% Reduction	Total			20-29.9% Reduction	30-39.9% Reduction	>40% Reduction	Total
16 Melior Street	66	18	0	0	48	48	18	5	1	0	12	13
8 Melior St-36 Snowsfields	141	48	1	2	90	93	66	40	7	3	16	26
103 -114 Guinness Court	42	22	2	7	11	20	30	17	5	6	2	13
1-15 Guinness Court	41	21	0	0	20	20	30	15	1	2	12	15
Raquel Court	55	9	3	3	40	46	27	22	5	0	0	5
La Salette Church	25	7	0	1	17	18	5	1	0	2	2	4
14 Melior Street	7	0	0	0	7	7	3	0	0	0	3	3
Snowsfields Primary School	30	9	0	0	21	21	15	3	0	6	6	12
8-20 Snowsfields	24	0	0	0	24	24	19	0	0	0	19	19
38 Snowsfields	8	0	0	0	8	8	8	4	4	0	0	4
39 Snowsfields	14	0	2	2	10	14	8	3	4	0	1	5
40 Snowsfields	14	4	1	2	7	10	8	5	3	0	0	3
41 Snowsfields	4	1	2	1	0	3	4	1	1	2	0	3
42 Snowsfields	20	8	0	4	8	12	16	9	3	3	1	7
62 Weston Street	9	2	2	2	3	7	9	5	1	0	3	4
64 Weston Street	8	5	3	0	0	3	8	7	1	0	0	1
66 Weston Street	1	0	1	0	0	1	1	1	0	0	0	0
Glasshouse (Consent)	69	23	2	5	39	46	21	12	4	0	5	9
Total	**578**	**177**	**19**	**29**	**353**	**401**	**296**	**150**	**40**	**24**	**82**	**146**

Daylight

11.317 The full daylight assessment for the Proposed Development as part of Cumulative Scenario B can be found within ***ES Volume 3 – Appendix: DSO, Annex 4*** and is summarised in **Table 11.11**. All unaffected buildings in **Table 11.11** are shaded in blue.

11.318 Overall, of the 578 windows assessed for VSC, 177 windows (30.6%) meet the BRE criteria. Of the 296 rooms that the windows assessed serve, 150 (50.7%) of these rooms meet the BRE criteria for NSL.

11.319 Of the 18 properties tested, all would experience no alteration greater than 20% for either VSC or NSL.

11.320 The effect to these buildings is discussed in further detail below.

16 Melior Street

11.321 A total of 66 windows serving 18 rooms were assessed for daylight within this building.

11.322 For VSC, 18 of the 66 (27.3%) windows assessed would meet BRE's criteria and are therefore considered to experience a Negligible effect.

11.323 Of the 48 affected windows, all would experience an alteration in VSC greater than 40% which is considered a Major Adverse effect.

11.324 For NSL, five of the 18 (27.8%) rooms assessed would meet BRE's criteria and are therefore considered to experience a Negligible effect.

11.325 Of the 13 affected rooms, one would experience an alteration in NSL between 20-29.9% which is considered a Minor Adverse effect whilst 12 would experience an alteration greater than 40% which is considered a Major Adverse Effect.

11.326 Overall, the effect is considered **Major Adverse** (significant). Additional impacts would occur as a result of the Edge and Sellar Scheme beyond those of Cumulative Scenario A, however, the overall cumulative significance of effect does not change. When compared to the Proposed Development in isolation where this building is considered to experience a minor adverse effect, significant additional impacts occur.

11.327 8 Melior St-36 Snowsfields

11.328 A total of 141 windows serving 66 rooms were assessed for daylight within this building.

11.329 For VSC, 48 of the 141 (34%) windows assessed would meet BRE's criteria and are therefore considered to experience a Negligible effect.

11.330 Of the 93 affected windows, one would experience an alteration in VSC between 20-29.9% which is considered a Minor Adverse effect and two would experience an alteration between 30-39.9% which is considered a Moderate Adverse Effect. The remaining 90 windows would experience an alteration in excess of 40% which is considered a Major Adverse effect.

11.331 For NSL, 40 of the 66 (60.6%) rooms assessed would meet BRE's criteria and are therefore considered to experience a Negligible effect.

11.332 Of the 26 affected rooms, seven would experience an alteration in NSL between 20-29.9% which is considered a Minor Adverse effect and three would experience an alteration between 30-39.9% which is considered a Moderate Adverse Effect. The remaining 16 rooms would experience an alteration in excess of 40% which is considered a Major Adverse effect.

11.333 Overall, the effect is considered **Major Adverse** (significant). Additional impacts would occur as a result of the Edge and Sellar Scheme beyond those of Cumulative Scenario A, however, the overall cumulative significance of effect does not change. When compared to the Proposed Development in isolation where this building is considered to experience a major adverse effect, whilst additional impacts occur, the overall effect remains the same.

103 -114 Guinness Court

11.334 A total of 42 windows serving 30 rooms were assessed for daylight within this building.

11.335 For VSC, 22 of the 42 (52.4%) windows assessed would meet BRE's criteria and are therefore considered to experience a Negligible effect.

11.336 Of the 20 affected windows, two would experience an alteration in VSC between 20-29.9% which is considered a Minor Adverse effect and seven would experience an alteration between 30-39.9% which is considered a Moderate Adverse Effect. The remaining 11 windows would experience an alteration in excess of 40% which is considered a Major Adverse effect.

11.337 For NSL, 17 of the 30 (56.7%) rooms assessed would meet BRE's criteria and are therefore considered to experience a Negligible effect.

11.338 Of the 13 affected rooms, five would experience an alteration in NSL between 20-29.9% which is considered a Minor Adverse effect and six would experience an alteration between 30-39.9% which is considered a Moderate Adverse Effect. The remaining two rooms would experience an alteration in excess of 40% which is considered a Major Adverse effect.

11.339 Overall, the effect is considered **Major Adverse** (significant). Additional impacts would occur as a result of the Edge and Sellar Scheme beyond those of Cumulative Scenario A, where this building is considered to experience a minor adverse effect and a negligible effect in the Proposed Development scenario. Therefore, the significant additional impacts which occur are therefore a function of the Edge and Sellar schemes.

1-15 Guinness Court

11.340 A total of 41 windows serving 30 rooms were assessed for daylight within this building.

11.341 For VSC, 21 of the 41 (51.2%) windows assessed would meet BRE's criteria and are therefore considered to experience a Negligible effect.

11.342 Of the 20 affected windows, all would experience an alteration in VSC greater than 40% which is considered a Major Adverse effect.

11.343 For NSL, 15 of the 30 (50%) rooms assessed would meet BRE's criteria and are therefore considered to experience a Negligible effect.

11.344 Of the 15 affected rooms, one would experience an alteration in NSL between 20-29.9% which is considered a Minor Adverse effect and two would experience an alteration between 30-39.9% which is considered a Moderate Adverse Effect. The remaining 12 rooms would experience an alteration in excess of 40% which is considered a Major Adverse effect.

11.345 Overall, the effect is considered **Major Adverse** (significant). Additional impacts would occur as a result of the Edge and Sellar Scheme beyond those of Cumulative Scenario A and the Proposed Development scenario where the effect is considered minor adverse.

Raquel Court

11.346 A total of 55 windows serving 27 rooms were assessed for daylight within this building.

11.347 For VSC, nine of the 55 (16.4%) windows assessed would meet BRE's criteria and are therefore considered to experience a Negligible effect.

11.348 Of the 46 affected windows, three would experience an alteration in VSC between 20-29.9% which is considered a Minor Adverse effect and three would experience an alteration between 30-39.9% which is considered a Moderate Adverse Effect. The remaining 40 windows would experience an alteration in excess of 40% which is considered a Major Adverse effect.

11.349 For NSL, 22 of the 27 (81.5%) rooms assessed would meet BRE's criteria and are therefore considered to experience a Negligible effect.

11.350 Of the five affected rooms, all would experience an alteration in NSL between 20-29.9% which is considered a Minor Adverse effect.

11.351 Overall, the effect is considered **Major Adverse** (significant). Additional impacts would occur as a result of the Edge and Sellar Scheme beyond those of Cumulative Scenario A and the Proposed Development scenario where the effect is considered minor adverse.

La Salette Church

11.352 A total of 25 windows serving five rooms were assessed for daylight within this building.

11.353 For VSC, seven of the 25 (28%) windows assessed would meet BRE's criteria and are therefore considered to experience a Negligible effect.

11.354 Of the 18 affected windows, one would experience an alteration in VSC between 30-39.9% which is considered a Moderate Adverse effect whilst 17 would experience an alteration in excess of 40% which is considered a Major Adverse effect.

11.355 For NSL, one of the five (20%) rooms assessed would meet BRE's criteria and are therefore considered to experience a Negligible effect.

11.356 Of the four affected rooms, two would experience an alteration in NSL between 30-39.9% which is considered a Moderate Adverse effect whilst two would experience an alteration in excess of 40% which is considered a Major Adverse effect.

11.357 Overall, the effect is considered **Major Adverse** (significant). Additional impacts would occur as a result of the Edge and Sellar Scheme beyond those of Cumulative Scenario A, where the overall effect is considered minor adverse. When compared to the Proposed Development in isolation where this building is considered to experience a negligible effect, significant additional impacts occur.

14 Melior Street

11.358 A total of seven windows serving three rooms were assessed for daylight within this building.

11.359 For VSC, all seven windows assessed see losses greater than recommended by BRE.

11.360 Of the seven affected windows, all would experience an alteration in VSC greater than 40% which is considered a Major Adverse effect.

11.361 For NSL, all three rooms assessed see losses greater than recommended by BRE.

11.362 Of the three affected rooms, all would experience an alteration in NSL greater than 40% which is considered a Major Adverse effect.

11.363 Overall, the effect is considered **Major Adverse** (significant). Additional impacts would occur as a result of the Edge and Sellar Scheme beyond those of Cumulative Scenario A, where the effect is considered minor adverse. When compared to the Proposed Development in isolation, where this building is considered to experience a minor adverse effect, significant additional impacts occur.

Snowsfields Primary School

11.364 A total of 30 windows serving 15 rooms were assessed for daylight within this building.

11.365 For VSC, nine of the 30 (30%) windows assessed would meet BRE's criteria and are therefore considered to experience a Negligible effect.

11.366 Of the 21 affected windows, all would experience an alteration in VSC greater than 40% which is considered a Major Adverse effect.

11.367 For NSL, three of the 15 (20%) rooms assessed would meet BRE's criteria and are therefore considered to experience a Negligible effect.

11.368 Of the 12 affected rooms, six would experience an alteration in NSL between 30-39.9% which is considered a Moderate Adverse effect whilst six would experience an alteration in excess of 40% which is considered a Major Adverse effect.

11.369 Overall, the effect is considered **Major Adverse** (significant). Additional impacts would occur as a result of the Edge and Sellar Scheme beyond those of Cumulative Scenario A and the Proposed Development scenario, this building is considered to experience a minor adverse effect.

8-20 Snowsfields

11.370 A total of 24 windows serving 19 rooms were assessed for daylight within this building.

11.371 For VSC, all 24 windows assessed see losses greater than recommended by BRE.

11.372 Of the 24 affected windows, all would experience an alteration in VSC greater than 40% which is considered a Major Adverse effect.

11.373 For NSL, all 19 rooms assessed see losses greater than recommended by BRE.

11.374 Of the 19 affected rooms, all would experience an alteration in NSL greater than 40% which is considered a Major Adverse effect.

11.375 Overall, the effect is considered **Major Adverse** (significant). Additional impacts would occur as a result of the Edge and Sellar Scheme beyond those of Cumulative Scenario A and the Proposed Development scenario, however, the overall effect remains major adverse across all three scenarios.

38 to 42 Snowsfields (Five Buildings)

11.376 A total of 60 windows serving 44 rooms were assessed for daylight within this building.

11.377 For VSC, 13 of the 60 windows would meet BRE's criteria and are therefore considered to experience a Negligible effect.

11.378 Of the 47 affected windows, would experience an alteration in VSC between 20-29.9% which is considered a Minor Adverse effect and nine would experience an alteration between 30-39.9% which is considered a Moderate Adverse effect. The remaining 33 would experience alterations greater than 40% which is considered a Major Adverse effect.

11.379 For NSL, 22 of the 44 (50%) rooms assessed would meet BRE's criteria and are therefore considered to experience a Negligible effect.

11.380 Of the 22 affected rooms, 15 would experience an alteration in NSL between 20-29.9% which is considered a Minor Adverse effect and five would experience an alteration in NSL between 30-39.9% which is considered a Minor Adverse effect. The remaining two would experience alterations greater than 40% which is considered a Major Adverse effect.

11.381 Overall, the effect is considered **Moderate to Major Adverse** (significant). Additional impacts would occur as a result of the Edge and Sellar Scheme beyond those of Cumulative Scenario A, where the effect is considered minor adverse and the Proposed Development scenario where these buildings are considered to experience a negligible effect.

62 Weston Street

11.382 A total of nine windows serving nine rooms were assessed for daylight within this building.

11.383 For VSC, two of the nine (22.2%) windows assessed would meet BRE's criteria and are therefore considered to experience a Negligible effect.

11.384 Of the seven affected windows, two would experience an alteration in VSC between 20-29.9% which is considered a Minor Adverse effect and two would experience an alteration between 30-39.9% which is considered a Moderate Adverse Effect. The remaining three windows would experience an alteration in excess of 40% which is considered a Major Adverse effect.

11.385 For NSL, five of the nine (55.6%) rooms assessed would meet BRE's criteria and are therefore considered to experience a Negligible effect.

11.386 Of the four affected rooms, one would experience an alteration in NSL between 20-29.9% which is considered a Minor Adverse effect whilst three would experience an alteration greater than 40% which is considered a Major Adverse Effect.

11.387 Overall, the effect is considered **Moderate Adverse** (significant). Additional impacts would occur as a result of the Edge and Sellar Scheme beyond those of Cumulative Scenario A, where the effect is considered minor adverse and the Proposed Development scenario where these buildings are considered to experience a negligible effect.

64 Weston Street

11.388 A total of eight windows serving eight rooms were assessed for daylight within this building.

11.389 For VSC, five of the eight (62.5%) windows assessed would meet BRE's criteria and are therefore considered to experience a Negligible effect.

11.390 Of the three affected windows, all would experience an alteration in VSC between 20-29.9% which is considered a Minor Adverse effect.

11.391 For NSL, seven of the eight (87.5%) rooms assessed would meet BRE's criteria and are therefore considered to experience a Negligible effect.

11.392 The affected room would experience an alteration in NSL between 20-29.9% which is considered a Minor Adverse effect.

11.393 Overall, the effect is considered **Minor Adverse** (not significant). Additional impacts would occur as a result of the Edge and Sellar Scheme beyond those of Cumulative Scenario A and Proposed Development scenario, where the effect is considered negligible.

66 Weston Street

11.394 One window serving one room was assessed for daylight within this building.

11.395 For VSC, the single window assessed sees losses greater than recommended by BRE.

11.396 The affected window would experience an alteration in VSC between 20-29.9% which is considered a Minor Adverse effect.

11.397 For NSL, all rooms assessed would meet BRE's criteria and so are considered to experience a Negligible effect.

11.398 Overall, the effect is considered **Minor Adverse** (not significant). Additional impacts would occur as a result of the Edge and Sellar Scheme beyond those of Cumulative Scenario A and Proposed Development scenario, where the effect is considered negligible.

Glasshouse (consent)

11.399 A total of 69 windows serving 21 rooms were assessed for daylight within this consented building.

11.400 For VSC, 23 of the 69 (33.3%) windows assessed would meet BRE's criteria and are therefore considered to experience a Negligible effect.

11.401 Of the 46 affected windows, two would experience an alteration in VSC between 20-29.9% which is considered a Minor Adverse effect and five would experience an alteration between 30-39.9% which is considered a Moderate Adverse Effect. The remaining 39 windows would experience an alteration in excess of 40% which is considered a Major Adverse effect.

11.402 For NSL, 12 of the 21 (57.1%) rooms assessed would meet BRE's criteria and are therefore considered to experience a Negligible effect.

11.403 Of the nine affected rooms, four would experience an alteration in NSL between 20-29.9% which is considered a Minor Adverse effect whilst five would experience an alteration greater than 40% which is considered a Major Adverse Effect.

11.404 Overall, the effect is considered **Moderate to Major Adverse** (significant). Additional impacts would occur as a result of the Edge and Sellar Scheme beyond those of Cumulative Scenario A, where the effect is considered minor adverse. A direct comparison with the Proposed Development scenario is not possible as the existing Glasshouse building was assessed.

Sunlight

11.405 The full sunlight assessment for Cumulative Scenario B can be found in ***ES Volume 3 – Appendix: DSO, Annex 4*** and the results are presented in **Table 11.8**.

11.406 Of the 131 rooms assessed for sunlight, 111 (84.7%) would meet the BRE criteria for both total and winter PSH and are considered to experience a **Negligible** effect (not significant).

11.407 The buildings presented in **Table 11.12** highlighted in blue (for ease of reference) experience little to no change in sunlight levels in this scenario and are therefore considered to experience a **Negligible** effect (not significant) and are not discussed further.

11.408 The remaining properties which do not meet the BRE Guidelines are considered further:

- 16 Melior Street
- 8 Melior St-36 Snowsfields

Table 11.12 Cumulative Summary of APSH levels with the Proposed Development

Address	Total No. of Rooms	No. Rooms that meet BRE criteria	Total APSH			Winter APSH		
			Below BRE Guidelines			Below BRE Guidelines		
			20-29.9% Reduction	30-39.9% Reduction	>40% Reduction	20-29.9% Reduction	30-39.9% Reduction	>40% Reduction
16 Melior Street	12	10	0	0		0	0	
8 Melior St-36 Snowsfields	50	32	0	0		0	0	
103 -114 Guinness Court	16	16	0	0	0	0	0	0
Raquel Court	12	12	0	0	0	0	0	0
Snowsfields Primary School	3	3	0	0	0	0	0	0
39 Snowsfields	4	4	0	0	0	0	0	0
41 Snowsfields	4	4	0	0	0	0	0	0
62 Weston Street	9	9	0	0	0	0	0	0
64 Weston Street	8	8	0	0	0	0	0	0
66 Weston Street	1	1	0	0	0	0	0	0
Glasshouse (consent)	12	12	0	0	0	0	0	0
Total	**131**	**111**	**0**	**0**	**20**	**0**	**0**	**20**

6 Melior Street

11.409 A total of 12 rooms were assessed for sunlight within this building of which 10 (83.3%) would meet the BRE's criteria for both Annual and Winter PSH.

11.410 For Annual PSH, 10 of the 12 (83.3%) rooms assessed would meet BRE's criteria and are therefore considered to experience a Negligible effect. The remaining two see losses greater than 40% which is considered a Major Adverse effect.

11.411 For Winter PSH, 10 of the 12 (83.3%) rooms assessed would meet BRE's criteria and are therefore considered to experience a Negligible effect. The remaining two see losses greater than 40% which is considered a Major Adverse effect.

11.412 Overall, the effect is considered M**ajor Adverse** (significant). Additional impacts would occur as a result of the Edge and Sellar Scheme beyond those of Cumulative Scenario A and Proposed Development scenario, where the effect is considered minor adverse.

8 Melior St-36 Snowsfields

11.413 A total of 50 rooms were assessed for sunlight within this building of which 32 (64%) would meet the BRE's criteria for both Annual and Winter PSH.

11.414 For Annual PSH, 32 of the 50 (64%) rooms assessed would meet BRE's criteria and are therefore considered to experience a Negligible effect. The remaining 18 see losses greater than 40% which is considered a Major Adverse effect.

11.415 For Winter PSH, 32 of the 50 (64%) rooms assessed would meet BRE's criteria and are therefore considered to experience a Negligible effect. The remaining 18 see losses greater than 40% which is considered a Major Adverse effect.

11.416 Overall, the effect is considered M**ajor Adverse** (significant). Additional impacts would occur as a result of the Edge and Sellar Scheme beyond those of Cumulative Scenario A and Proposed Development scenario, where

the effect is considered minor adverse.

Overshadowing

11.417 The full transient overshadowing results for the Cumulative Scenario A and B can be found within the ***ES Volume 3 - Appendix: DSO (Annex 5).***

Transient Overshadowing

11.418 The assessment results of Cumulative Scenarios A and B do not differ from those reported in the Proposed Development scenario. Therefore, reference should be made to the Proposed Development scenario and is not discussed in further detail here.

Sun Hours on Ground

11.419 In Cumulative scenario A, there is no additional overshadowing from Capital House to of the sensitive amenity areas assessed St John's Church Park and Communal area serving Melior Street and Fenning Street. Therefore, the effect remains **Negligible** (not significant).

11.420 Within Cumulative scenarios B, the Communal Gardens serving Melior Street and Fenning Street would be redeveloped with the Edge and Sellar schemes coming forward. Therefore, this amenity area does not exist in these scenarios and as such, is not relevant for assessment. St John's Church Park experiences no additional

Light Pollution and Solar Glare

11.421 In terms of light pollution and solar glare, both assessments are carried out in absolute terms on the Proposed Development and therefore are considered within a cumulative scenario.

COMPARISON OF EFFECTS

11.422 **Table 11.13** below presents the residual effects of the 2018 Proposed Development to allow for a comparison with the residual effects of the December 2020 scheme[7] (**Table 11.9**).

Table 11.13 Summary of Residual Effects - 2018 Proposed Development

Receptor	Receptor Sensitivity	Residual Effect (Nature and Scale)	Effect Significance	Geo	D I	P T	St Mt Lt
Demolition and Construction							
Surrounding receptors, including Residential properties, Amenity areas	Refer '*Assessment Methodology – Demolition and Construction*' – It is considered that the completed Proposed Development represents the worst-case assessment in terms of likely daylight, sunlight, overshadowing, solar glare and light spillage effects. Refer Residual Effects for the Completed Development (see below).						
Completed Development							
Daylight, sunlight, overshadowing, solar glare and light pollution							
Daylight to surrounding sensitive receptors	High	Negligible to 8 properties	Not Significant	L	D	P	Lt
		Minor Adverse to 5 properties and Major Adverse to 3 properties.	Significant				
	High	Negligible to 8 properties	Not Significant	L	D	P	Lt
Sunlight to surrounding sensitive receptors		Minor Adverse to 2 properties.	Significant				
Surrounding sensitive amenity areas	High	Negligible to one amenity area	Not Significant	L	D	P	Lt
		Moderate Adverse to one amenity area.	Significant				
Surrounding sensitive road and rail users	High	Negligible to 14 locations	Not Significant	L	D	P	Lt
		Minor Adverse to 3 locations and Moderate Adverse to 1 location.	Significant				
Sensitive surrounding light pollution receptors	High	Negligible to 5 properties	Not Significant	L	D	P	Lt
		Moderate Adverse to 3 properties. (reduced to Negligible if mitigation measures are applied)	Significant				

Notes:
Residual Effect
- Scale = Negligible / Minor / Moderate / Major
- Nature = Beneficial or Adverse

Geo (Geographic Extent) = Local (L), Borough (B), Regional (R), National (N)
D = Direct / I = Indirect
P = Permanent / T = Temporary
St = Short Term / Mt = Medium Term / Lt = Long Term
N/A = not applicable / not assessed

11.423 **Table 11.9** and **Table 11.13** demonstrates that the majority of residual effects to daylight, sunlight, overshadowing, solar glare and light pollution remain consistent between the 2018 Proposed Development and the December 2020 scheme. No additional likely significant effects have been identified as a result of the revised proposals. However, a likely significant effect has been removed in relation to overshadowing.

11.424 In terms of daylight and sunlight amenity, the effects identified as a result of the December 2020 scheme range from negligible to major adverse and this is consistent with the daylight and sunlight results identified as a result of the 2018 Proposed Development. Although noting that additional receptors have been included within the assessment of the revised proposals. The additional receptors are La Salette Church and the consented Glasshouse, which is considered in the cumulative scenario.

11.425 In terms of solar glare, the effects identified as a result of the December 2020 scheme range from negligible to moderate adverse and this is consistent with the solar glare results identified for the 2018 Proposed Development. Two additional solar glare viewpoints have been identified to experience minor adverse solar glare effects.

11.426 In addition, the significant light pollution effects identified in the 2018 ES are no longer identified in the 2021 ES. In respect of light pollution, the assessments assume 500 lux across the working plane in both the 2018 ES and the 2020 E1. The reason the effects are negligible for the Proposed Development is the increased distance from the light emitting portions of the Proposed Development to the sensitive buildings to the south. The southern part of the 2018 Proposed Development was positioned closer to the existing sensitive buildings to the south and the Proposed Development steps further back. Therefore, in the Proposed Development the number of lumen per sqm reduces as there is a greater distance from the light emitting portion to the sensitive receptors. The greater the distances, the smaller the lux levels experienced at these sensitive properties. With

[7]Although the residual effects presented within Table 11.9 are specific to the December 2020 scheme, they are also considered to be reflective of the revised October 2021 scheme.

regards to the cumulative assessment, the 2018 ES assessed the cumulative effects of the 2018 Proposed Development in combination with the consented 'Quill' scheme (planning ref: 14/AP/4640). The results identified negligible effects on four of the seventeen properties assessed. For the remaining properties, the cumulative effects identified remained the same as the effects of the main assessment. As this scheme has now been superseded with the more recent consented scheme at this site (planning ref: 18/AP/0900) of which has been assessed within this ES Chapter, the cumulative assessment of the Quill scheme is not considered as part of this ES Chapter.

11.427 The cumulative assessment of the December 2020 scheme involves two cumulative scenarios assessing different cumulative schemes to that assessed in the 2018 ES Chapter. Therefore, the results are not comparable. In conclusion, the assessment of the December 2020 scheme in the cumulative scenario therefore identifies additional and different effects including likely significant effects in relation to daylight, sunlight and overshadowing. This is due in part to the Proposed Development and also the emerging surrounding development context.

11.428 Upon review of the October 2021 scheme and taking into account the changes to the cumulative schemes, it is considered that the Proposed Development would not be materially affected and therefore the results of the 2020 cumulative effects assessment remains valid.

ANNEX A

LBS Review

Summary of Matter Raised in Scoping Opinion	Reference in the ES Chapter / Application Documentation
Paragraph 1.64 The proposed scope of assessment of existing surrounding sensitive receptors should include the residential properties in Guinness Court and Carmarthen Place, the student accommodation in Weston Street and the Snowsfields Primary School.	Guinness Court and Snowsfields Primary School are included within our assessment, Carmarthen Place and the student accommodation in Weston Street have not been included within our assessment as they are at a sufficient distance from the site whereby we would expect the daylight levels to remain unchanged or within 0-19.9% reduction of the former value, which will be classed as negligible (see **Table 11.3** – Percentage Alterations from the Existing Baseline). This view is corroborated by the properties located near Carmarthen Place and the student accommodation in Weston Street (Raquel Court, Guinness Trust properties and Snowsfield Primary School) experiencing only minor alterations.
Paragraph 1.65 The proposed assessment methodology is considered appropriate. The two-hours sun-on-ground test should be run for the public open space on the corner of Fenning Street and Melior Street. Justification should be provided for the 20-metre cut-off the light pollution assessment.	The two-hours sun-on-ground test for the public open space on the corner of Fenning Street and Melior Street has been undertaken – see Annex 5, pages 48 to 51. In relation to the 20-metre cut-off for the light pollution assessment, this is standard practice, however all sensitive receptors (including those outside this cut-off area) have been included within the analysis – see Annex 7.
Paragraph 1.66 The use and internal layout of rooms in existing surrounding sensitive properties should be ascertained, so far as reasonably possible, by researching publicly accessible online planning and/or estate agency records to obtain floor plans, where possible. Where such information is not readily available, estimation based on external observation would be appropriate.	Floorplans have been obtained where possible through the methods suggested. Where we have not been able to source detailed internal floor-plans we have made reasonable assumptions as to the internal layouts of the rooms behind the fenestration. Unless the building form dictates otherwise, we assume a standard 4.2m deep room (14ft) for residential properties and the 6m (20ft) deep from for commercial properties.
Paragraph 1.67 It is agreed that the significance of daylight and sunlight effects should be determined by reference to the recommendations in Appendix I of the BRE guide. The following scale of effect should be used to categorise magnitudes of change in daylight and sunlight to buildings and amenity spaces where retained levels will be below BRE standard target values (i.e. less than 27% VSC, 80% NSL, 25% APSH annually, 5% APSH in winter and 50% of a garden/amenity space receiving at least two hours of sunlight on 21 March): BRE adherent/change of 0% to 20% = negligible change • Change of 21% to 30% = low magnitude of change • Change of 31% to 40% = medium magnitude of change • Change of more than 40% = high magnitude of change	Magnitude of impacts is detailed in the Methodology section of this ES Chapter and in **Tables 11.3** and **11.4**.
Paragraph 1.68 Summary tables should be provided for each assessment stating the number of receptors in each property or group of properties that fall into each of the above four bands.	These can be seen within the chapter, **Table 11.8** as an example.
Paragraph 1.69 If alternative target values for daylight and sunlight access are to be proposed in the ES, these should be developed in accordance with Appendix F of the BRE guide and appropriate justification provided. If the level of adherence to such alternative target is to be included in the ES, this should supplementary to, not in place of, the level of adherence to BRE standard target values.	At this time no alternative target values have been considered.
Paragraph 1.70 If alternative baselines are to be considered in accordance with Appendix F of the BRE guide, for example an extant planning permission or mirror-image building of the same height and size as the existing neighbouring building, it would be inappropriate for them to be treated in the same way as the existing baseline and for the target to be set at 0.8 times the values for the alternative baselines.	At this time no alternative baseline values have been considered.
Paragraph 1.71 The Cumulative Assessment referred to in paragraph 282 of the EIA Scoping Report should assess the effects of the cumulative scenario (i.e. proposed development and other cumulative schemes) against the existing baseline.	This is noted in the Cumulative Effects Assessment starting on paragraph 11.245. The consented Glasshouse scheme is a reasonably foreseeable residential scheme located immediately adjacent to the Proposed Development and it is therefore appropriate to consider this as a potentially sensitive future receptor within a future cumulative scenario.