

10. DAYLIGHT, SUNLIGHT, OVERSHADOWING & SOLAR GLARE

Introduction

- 10.1 This ES Chapter assesses the likely significant effects of the Development on the environment in respect of daylight, sunlight, overshadowing and solar glare. This chapter has been prepared by Point 2 Surveyors, Rights to Light Consultancy. Where appropriate this Chapter also identifies proposed mitigation measures to prevent, minimise or control likely negative daylight, sunlight and overshadowing effects arising from the Development and reports the subsequent anticipated residual effects.
- 10.2 The Chapter, which tests the effect of the Development against the existing Site conditions, assesses the likely significant effects of the Development in terms of:
- Daylight and sunlight amenity to the residential properties around the Site;
 - Overshadowing to amenity spaces and open space around the Site; and
 - Solar Glare to those buildings, roads and transport links surrounding the Site.

Policy Context

National Planning Policy Frameworkⁱ

- 10.3 There is no legislation which specifically references daylight, sunlight and overshadowing effects.

National Planning Policy Frameworkⁱⁱ

- 10.4 Page 37 of the NPPF states:

"Where there is an existing or anticipated shortage of land for meeting identified housing needs, it is especially important that planning policies and decisions avoid homes being built at low densities and ensure that developments make optimal use of the potential of each site. In these circumstances: ...

...c) local planning authorities should refuse applications which they consider fail to make efficient use of land, taking into account the policies in this Framework. In this context, when considering applications for housing, authorities should take a flexible approach in applying policies or guidance relating to daylight and sunlight, where they would otherwise inhibit making efficient use of a site (as long as the resulting scheme would provide acceptable living standards)."

*Planning Practice Guidance*ⁱⁱⁱ

- 10.5 The Planning Practice Guidance (PPG) (Ref. 14.2) is an online resource for planning practitioners. Specific to daylight and sunlight and building form, Paragraph 25** include whole para ID of the PPG states:

"Some forms pose specific design challenges, for example how taller buildings meet the ground and how they affect local wind and sunlight patterns should be carefully considered."

- 10.6 In respect to building scale it states at paragraph 26 that:

"Account should be taken of local climatic conditions, including daylight and sunlight, wind, temperature and frost pockets."

- 10.7 Paragraph 003 states that:

"Light intrusion occurs when the light 'spills' beyond the boundary of the area being lit. For example, light spill can impair sleeping, cause annoyance to people, compromise an existing dark landscape and/or affect natural systems (e.g. plants, animals, insects, aquatic life). It can usually be completely avoided with careful lamp design selection and positioning:"

Regional Planning Policy^{iv}

- 10.8 The London Plan – Spatial Development Strategy for London Consolidated with Alterations since 2011 (March 2016)

- 10.9 The key policies from the London Plan iv of relevance to this assessment are detailed below:

Policy 7.6 states:

"... buildings and structures should... not cause unacceptable harm to the amenity of surrounding land and buildings, particularly residential buildings, in relation to privacy, overshadowing, wind and micro-climate".

- 10.10 Policy 7.7 notes that large buildings should not adversely affect their surroundings in terms of overshadowing and solar reflected glare:

"Location and design of tall buildings should not affect their surroundings adversely in terms of microclimate, wind turbulence, overshadowing, noise, reflected glare, aviation, navigation and Tele Communication interference."

The London Plan – 2017 and Intend to Publish version December 2019

- 10.11 A draft London Plan^v was published in 2017 and presents targets and objectives for development in London between 2019 and 2041. The consultation period ended on Friday 2nd March. This has since been superseded by the release of the Intend to Publish version (December 2019). Consideration will be given to the requirements of both the current London Plan 2016 and the emerging intend to publish London Plan 2019^{vi}. Given the intent to publish the most recent London Plan (2019), the plan has been afforded weight in its reference. The adopted London Plan remains the development plan until such time that the intended new London Plan has been published.
- 10.12 The key policy from the Intend to Publish London Plan (2019) of relevance to this assessment is detailed below:

"Policy D9 – 'Tall Buildings' states: "Wind, daylight, sunlight penetration and temperature conditions around the building(s) and neighbourhood must be carefully considered and not compromise comfort and the enjoyment of open spaces".

Building Research Establishment Guidelines: Site Layout Planning for Daylight and Sunlight 2011, A Guide to Good Practice, Second Edition^{vii}

- 10.13 The Site Layout Planning for Daylight and Sunlight ("BRE Guidelines") provide advice on site layout planning to achieve good sunlighting and daylighting within buildings, and in the open spaces between them. It is intended for building designers, developers, consultants and Local Planning Authorities (LPAs). It is intended to be used in conjunction with the interior daylight recommendations in the British Standard BS8206 Part II and the Applications Manual Window Design of the Chartered Institute of Building Services Engineers (CIBSE). The advice it gives is not mandatory and should not be used as an instrument of planning policy. Of particular relevance, it states:

"This guide is a comprehensive revision of the 1991 edition of Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice. It is purely advisory and the numerical target values within it may be varied to meet the needs of the development and its location...the aim of the document is to help rather than constrain the designer. Though it gives numerical guidelines, these should be interpreted flexibly because natural lighting is only one of many factors in site layout design. In special circumstances, the developer or the planning authority may wish to use different target values. For example, in a historic city centre, or in an area with modern high rise buildings, a higher degree of obstruction may be unavoidable if new developments are to match the height and proportions of existing buildings." (para 1.6).

Assessment Methodology

- 10.14 The daylight and sunlight assessments in this Chapter are based upon the BRE Guidelines^{vii}. All relevant standards within the BRE Guidelines are set out in the following paragraphs.
- 10.15 Residential receptors/ properties are usually most sensitive to daylight and sunlight availability. This assessment therefore considers the effects of the Development on residential properties that surround the Site.
- 10.16 Commercial properties are generally deemed to have a greater reliance upon supplementary electric lighting and have, therefore, not been included within the assessment.
- 10.17 This Chapter tests the effect of the Development against the existing Site conditions.

Daylight

- 10.18 The BRE Guidelines provide different methods for assessing daylight for existing and proposed residential accommodation. These are, however, based upon the same fundamental principles. The methods relevant in this assessment are the Vertical Sky Component (VSC) method, the No Sky Line (NSL) and the Average Daylight Factor (ADF).

VSC Method

- 10.19 VSC is a quantified measurement of the amount of skylight falling on a vertical wall or window. This is the ratio of the direct sky luminance on a vertical wall at the reference point for the simultaneous horizontal luminance under and unobstructed sky. The Commission International de l'Eclairage (CIE) 'standard' overcast sky is used, the ratio is then expressed as a percentage. The maximum value achievable is approximately 40% for a completely unobstructed vertical wall.
- 10.20 VSC may be calculated by using the sky light indicator or Waldram Diagram. For calculation purposes, trees may be ignored unless they form dense continuous belts. The computer model created for daylight assessments presented within the Appendices in support of this chapter uses Waldram Diagrams.

Balconies

- 10.21 The BRE Guidelines acknowledge that existing windows with balconies above them typically receive less daylight:

"...Because the balcony cuts out the top part of the sky, even a modest obstruction opposite may result in a large relative impact on the VSC, and on the area receiving direct skylight. One way to demonstrate this would be to carry out an additional calculation of the VSC and area receiving direct skylight, for both the existing and proposed situations, without the balcony in place. For example, if the proposed VSC with the balcony was under 0.8 times the existing value with the balcony, but the same ratio for the values without the balcony was well over 0.8, this would show that the presence of the balcony, rather than the size of the new obstruction, was the main factor in the relative loss of light." (para 2.2.11)

- 10.22 Where neighbouring residential properties surrounding the Site are served by balconies, an additional assessment with the balcony removed has been undertaken to demonstrate whether the presence of the balcony is having a limiting and disproportionate effect in daylighting terms with the introduction of the Development.

NSL Method

- 10.23 The NSL method is a measure of the distribution of daylight at the 'working plane' within a room. In houses, the 'working plane' means a horizontal 'desktop' plane of 0.85 metre (m) in height. The NSL divides those areas of working plane in a room which receive direct sky light through the windows from those areas of the working plane which cannot. If a significant area of the working plane lies beyond the NSL (i.e. it receives no direct sky light) then the distribution of daylight in the room would be poor and supplementary electric lighting may be required.
- 10.24 The potential effect of the daylighting distribution in the surrounding existing buildings is established by plotting the NSL in each of the main rooms. For houses, this includes living rooms, dining rooms and kitchens. Bedrooms are also analysed although they are less important in terms of the amount of daylight received.
- 10.25 Information on the internal room configurations has been obtained for residential properties surrounding the Development that have been assessed using the NSL method. A comprehensive set of layout plans have been obtained for the following neighbouring key properties: Eden Walk and 3 Brook Street.
- 10.26 Where the internal configurations of neighbouring rooms have been assumed, room depths between 4 to 5m have been applied, unless the building footprint dictates otherwise. Where the building is non-uniform and irregular in shape, the assumed room follows the footprint. It can be noted that single aspect room-arrangements have been adopted in a 'worse-case' scenario. The layouts have, therefore, been assumed in a robust way to capture the extent a neighbouring property experiences a change in daylight potential via the NSL test. The BRE guidelines acknowledge this point at paragraph 2.2.10 that states; *"If an existing building*

contains rooms lit from one side only and greater than 5m deep, then a greater movement of the no sky line may be unavoidable".

ADF Method

10.27 The ADF method, assessed using the guidelines set out in the BRE Guidelines, is derived from BS8026, Lighting for Buildings – Code of Practice for Daylighting^{viii} and is a more complex and representative calculation to determine the natural internal luminance (daylight). The ADF is defined in the BRE Guidelines as:

"A ratio of total daylight flux incident on a reference area to the total area of the reference area, expressed as a percentage of outdoor luminance on a horizontal plane, due to an unobstructed sky of assumed or known luminance distribution."

10.28 This daylight assessment method considers the diffuse visible transmittance of the glazing to the room in question (i.e. how much light gets through the window glass); the net glazed area of the window in question; the total area of the room surfaces (ceiling, walls, floor and windows); and the angle of visible sky reaching the window/windows in question. It also makes allowance for the average reflectance of the internal surfaces of the room and of external obstruction. The BRE Guidelines and BS8206 recommend that for a fairly light-coloured room, an internal reflectance value of 0.5 can be assumed.

10.29 The BRE Guidelines and BS8026 provide for minimum levels of ADF being:

- Bedrooms - 1%;
- Living Room – 1.5%; and
- Kitchen – 2%.

10.30 Where a room serves more than one purpose, the minimum ADF should be for the room type with the highest value.

Sunlight

10.31 The BRE Guidelines provide two methods for assessing sunlight, depending on whether the assessment is for an existing neighbouring property or a proposed property/building. However, the methods are similar and relate to methods of assessing the Annual Probable Sunlight Hours (APSH) at a reference point.

10.32 For existing residential properties, the BRE Guidelines state in Section 3.2.3 that:

"all main living rooms of dwellings...should be checked if they have a window facing within 90° of due south, kitchens and bedrooms are less important, although care should be taken not to block too much sun."

10.33 Section 3.2.4 continues:

"If the main living room to a dwelling has a main window facing within 90° of due north, but a secondary window facing within 90° of due south, sunlight to the secondary window should be checked."

10.34 The BRE Guidelines suggest that when assessing sunlight for existing neighbouring buildings, the point at the centre of the window on the outside window face can be used. Section 3.2.5 states:

"If this window point can receive at least one quarter of APSH, including at least 5% of APSH in the winter months between 21 September and 21 March, then the room should still receive enough sunlight."

10.35 All windows facing within 90° of due south and serving habitable residential rooms within properties surrounding the Site are assessed for sunlight.

10.36 Where an existing surrounding room is served by additional windows to those facing within 90° of due south, all windows are assessed, even any additional window serving the room is facing within 90° of due north. This is done in order to understand the true level of sunlight amenity to the room in question.

10.37 This methodology is in accordance with the BRE Guidelines for the assessment and establishing effect significance (Appendix I paragraph I6). It does not duplicate sunlight values. It measures the total sunlight availability to all windows.

Overshadowing

10.38 The BRE Guidelines acknowledge that sunlight in the space between buildings has an important effect on the overall appearance and ambience of a development. It states:

"...good site layout planning for daylight and sunlight should not limit itself to providing good natural light inside buildings. Sunlight in the space between buildings has an important effect on the overall appearance and ambience of a development." (para 3.3.1)

Sun on the Ground

- 10.39 The method for assessing sun on the ground is the 'sun-on-ground indicator'. The BRE Guidelines suggest that the Spring Equinox (21st March) is a suitable date for the assessment. Using specialist software, the path of the sun is tracked to determine where the sun would reach the ground and where it would not. This assessment reviews the total percentage of an area that receives at least two hours of direct sunlight on the 21st March.
- 10.40 The BRE Guidelines suggest that for a garden or amenity area to appear adequately sunlit throughout the year, no more than half (50%) of the area should be prevented by buildings from receiving two hours of sunlight on the 21st March. If as a result of new development an existing garden or amenity area does not meet the above, and the area which can receive two hours of sun on 21st March is less than 0.8 times its former value, then the loss of sunlight is likely to be noticeable.

Solar Glare

- 10.41 The BRE Guidelines makes the following statement regarding the potential for reflected solar glare on a development:

"Glare or solar dazzle can occur when sunlight is reflected from a glazed façade or area of metal cladding. This can affect road users outside and the occupants of adjoining buildings. The problem can occur either when there are large areas of reflective tinted glass or cladding on the façade, or when there are areas of glass or cladding, which slope back so that high altitude sunlight can be reflected along the ground. Thus solar dazzle is only a long-term problem for some heavily glazed (or mirror clad) buildings. Photovoltaic panels tend to dazzle because they are designed to absorb light."

- 10.42 The CIE (Commission Internationale de L'Eclairage) 146:2002 Collection on glare states:

"Disability glare is glare that impairs vision (CIE, 1987). It is caused by scattering of light inside the eye [...]. The veiling luminance of scattered light will have a significant effect on visibility when intense light sources are present in the peripheral visual field and the contrast of objects to be seen is low. "

"Disability glare is most often of importance at night when contrast sensitivity is low and there may well be one or more bright light sources near to the line of sight, such as car headlights, streetlights or floodlights. But even in daylight conditions disability glare may be of practical significance: think of traffic lights when the sun is close to them, or the difficulty viewing paintings hanging next to windows."

- 10.43 The BRE guidelines outline a brief methodology for evaluation of the scale of a solar glare issue: *"If it is likely that a building may cause solar dazzle, the exact scale of the problem*

should be evaluated...by identifying key locations such as road junctions and windows of nearby buildings, and working out the number of hours of the year that sunlight can be reflected to these points."

- 10.44 Solar glare assessments simulate the path of the sun for the entire year around a development in order to establish the locations, times, duration and direction of solar reflections and identify where these may affect sensitive locations, with a particular focus on road users or railways.
- 10.45 The assessment is carried out using a specialist software applied to a three-dimensional AutoCAD model of the building and its surrounding context. In the first instance, the glazing in the building is replaced by coloured mirrors. This will then clearly show the location of all instances of solar glare around the Site throughout the year. From this information, the most sensitive viewpoints around the Site are established.
- 10.46 A further (worst case scenario) solar glare assessment is then undertaken from each of these viewpoints. An image for the viewpoint is produced, indicating the area from which a typical reflection occurs. The image illustrates a focal point at 10° from the centre of the visual axis, and concentric circles from 20° to 90°. These provide a reference from which potential issues can be judged.
- 10.47 In order to understand the overall effect in solar glare terms, all of the instances, duration of those instances and angles of those instances as seen from the assessment points are plotted onto a grid, creating the Calendar Graphs for each viewpoint.
- 10.48 The Calendar Graphs' axes show the 365 days of the year along the X axis and time of day on the Y axis. The light grey illustrates the times of daylight during each day and the dark grey illustrates the times of night. The yellow, green, orange and red colours indicate when Solar Glare may occur, and, depending on the colour, the angle at which it is likely to occur from the receptor. If a band of colour is tall, it means that solar glare is likely to occur for an extended period of time during that day. If the band of colour is thin and long on the graph, it means solar glare may occur on each day but only for a limited time.

Limitations and Assumptions

Daylight (VSC and NSL methodologies)

- 10.49 It has not been possible to obtain full internal layouts to those properties surrounding the Site (with the exception of those residential components situated to the north within Hawker

Place). In the absence of detailed internal layouts and dimensions internal configurations of neighbouring rooms have been assumed, room depths of 4.2m have been applied (or half the building depth of the building), unless the building footprint dictates otherwise. Where the building is non-uniform and irregular in shape, the assumed room follows the footprint. The use of the rooms behind the fenestration have been assumed from external observations and informed by planning records and online marketing materials. This represents the best practice and robust approach where access to the neighbouring properties is unavailable.

- 10.50 It can be noted that single aspect room-arrangements have been adopted in a 'worse-case' scenario. The layouts have, therefore, been assumed in a robust way to capture the extent a neighbouring property experiences a change in daylight potential via the NSL test. The BRE guidelines acknowledge this point at paragraph 2.2.10vii that states; "*If an existing building contains rooms lit from one side only and greater than 5m deep, then a greater movement of the no sky line may be unavoidable*".

Sunlight (Solar Glare)

- 10.51 Solar Glare methodology, for practical reasons a representative selection of locations for potential glare instances have been considered. Whilst the chosen viewpoint locations provide a good sample of the overall impacts, there will be similar effects at other points in the vicinity.
- 10.52 There are no adopted analytical or numerical acceptability criteria for the assessment of solar glare.
- 10.53 As detailed specification of the façade materials is unavailable, it has been assumed that the only façade material capable of producing specular reflections will be the glazing. The assessment assumed a reflectance value of 15% for the glazing in the absence of any details in relation to the glass material properties. It has been assumed that all other external surfaces will have a matt finish.
- 10.54 Should any other external surfaces not have a matt finish and have a specular reflective component, then the number of instances of solar reflection to each viewpoint would increase significantly. Full details of material properties would be needed to enable a detailed analysis in relation to the significance of these reflections.
- 10.55 The assessment has not accounted for the limits of the windscreen or for possible use of drivers' visors, which in reality could mitigate some glare instances.

- 10.56 The duration of each glare occurrence as shown on the Glare Calendars assumes a stationary viewer at the specified viewpoint. In relation to this study, however, the viewer (train driver or motorists) will in fact move through the reflected beam, and this will potentially reduce the significance of the instance. Conversely the impact could be more significant if the train is travelling along the path of a long-reflected beam.
- 10.57 We have assumed a clear sky throughout the year for our assessment. Frequently, the sky will be overcast, particularly in the winter months, which is often when the most significant adverse effects occur due to the sun's low altitude. The assessment therefore represents a worst-case scenario, which in the UK winter, will rarely occur.
- 10.58 In the event that potential glare impacts upon the rail line are identified, it will be necessary to consider the Rail Safety and Standards Board (RSSB) document titled "Signal Sighting Assessment Requirements One: June 2016" as a guideline to better understand the signal sighting requirements. However, we are not rail safety experts and any interpretation of the document would need to be confirmed by RSSB and Network Rail.

Effects Significance

- 10.59 The assessment of potential effects as a result of the Development has taken into account both the Demolition and Construction Stage, and Operational Stage. Magnitude of change and the sensitivity of the affected receptor/receiving environment are both assessed on a scale of Major, Moderate, Minor and, Negligible. A summary of the significance matrix is provided in Table 10.1.

Daylight, Sunlight and Sun on the Ground

- 10.60 The results of each assessment are compared against the criteria set out in the BRE Guidelines. The BRE Guidelines are predicated upon a suburban environment. Therefore, a degree of flexibility can be applied when assessing the significance of daylight and sunlight effects in urban locations. The BRE Guidelines state:

"Adverse effects occur when there is a significant decrease in the amount of skylight and sunlight reaching an existing building where it is required, or in the amount of sunlight reaching an open space... The assessment of effect will depend on a combination of factors, and there is no simple rule of thumb that can be applied." (Appendix I – para 14)

- 10.61 In view of the above, the interpretation of the daylight and sunlight results must be assessed in terms of the quantum of light lost or gained, not purely on the percentage of change. The percentage value may well be misleading, particularly where the baseline values are small. In

these situations, a small change in the quantum of light could represent a high percentage change in the overall figure, implying that there would be a significant change in daylight and sunlight whereas in reality, the difference would be negligible.

10.62 The significance table below provides categorical thresholds and criteria for which the extent of possible changes is perceived. The significance level should be used in conjunction with the results discussion. The numerical criteria provided within the BRE Guidelines are presented in the Table 10.1.

Table 10.1: Significance Matrix - Daylight, Sunlight, Sun-on-the-Ground

Significance Level	Criteria
Major Adverse	VSC, NSL & APSH Total loss or major/substantial alteration to key elements/features of the baseline (pre-Development) conditions such that the post Development character/composition/attributes will be fundamentally changed. Major infringements (40%+) of the numerical values suggested within the BRE Guidelines. Retained VSC levels below 15%.
Moderate Adverse	VSC, NSL & APSH Loss or alteration to one or more key elements/features of the baseline conditions such that post Development character/composition/attributes of the baseline will be materially changed. Moderate infringements (30.1% - 40%) of the numerical values suggested in the BRE Guidelines. Retained VSC levels greater than 15.01% but less than 17.9%
Minor Adverse	VSC, NSL & APSH A minor shift away from baseline conditions. Change arising from the loss/alteration will be discernible/detectable but not material. The underlying character/composition/attributes of the baseline condition will be similar to the pre-Development circumstances/situation. Marginal infringements (20.1% - 30%) of the numerical values suggested in the BRE Guidelines. Retained VSC levels greater than 18% but less than 19.9%.
Negligible	VSC, NSL & APSH Very little change from baseline conditions. Change barely distinguishable, approximating to a 'no change' situation. No alteration or a small alteration from the existing baseline conditions which is within the numerical levels suggested in the BRE Guidelines. Retained VSC levels 20% or greater

10.63 The assessment criteria specified within the BRE Guidelines only suggests where a change in daylight and/or sunlight may be noticeable to the occupants. It does not further define effects beyond this. For the purposes of this assessment, effects classified as Moderate or greater are considered to be 'significant'. These effects have also been described as Negligible, Minor, Moderate or Major Adverse using professional judgement, and by reference to the criteria summarised within Table 10.1 above. Given the baseline condition of the Site is unusually low-rise for the context of the surrounding environment, the Development will not translate into beneficial effects in respect of the neighbouring building's amenity and is therefore not

applicable within the significance criteria within this Chapter.

10.64 In respect of Table 10.1 above and recognising the weight of the retained values within the context of a low-rise baseline condition, the effect of the Development upon the daylight amenity to the properties surrounding the Site is considered to be permanent, direct and of minor adverse effect in situations where:

- Despite VSC alterations to the windows serving the room, the NSL alteration to the room is fully BRE compliant and at least 20% VSC is retained by the main window/s; and;
- Despite NSL alterations to the room, the VSC alteration to all windows serving the room is fully BRE compliant or at least 20% VSC is retained by the main window/s; and
- All VSC and NSL alterations applicable to the room are no greater than 30% of their baseline values or, if not, the room's main window/s retain at least 20% VSC or at least 66% (two-thirds) of the room area can still benefit from direct skylight at working plane height (NSL).

10.65 Changes and likely effects that are made as a result of the implementation of the Development will be permanent.

Sun Hours on the Ground (SHOG) (Overshadowing)

10.66 The assessment criteria recommended by the BRE Guidelines for SHOG outlines the minimum requirements that neighbouring amenity spaces should receive and experience. The Guidelines do not further define the effects beyond these requirements. In party with the minimum requirements, and for the purpose of this assessment and Chapter, the effects have been classified as Negligible and Minor and are considered not significant and those Moderate and Major are considered significant. The effects have been described and determined through close interpretation of the results of the associated detailed analysis.

10.67 The changes that are experienced as a result of the Development will be permanent.

Table 10.2: Significance Matrix – Sun Hours on the Ground

Significance Level	Criteria
Major Adverse	The amenity spaces experiences change of 20.01 greater than 20.01% its former value on March 21 st The amenity space experiences change greater than 40.01%
Moderate Adverse	50% of the amenity surface area receives less than 2 hours sun on the ground on March 21 st The amenity space experiences change between 30.01% and 40%
Minor Adverse	50% of the amenity surface area receives less than 2 hours sun on the ground on March 21 st The amenity space experiences change between 20.01% and 30%.

Significance Level	Criteria
Negligible	50% of the amenity surface area receives a minimum of 2 hours sun on the ground on March 21st The amenity space experiences change of 20% or less from its former value on March 21st

Solar Glare

- 10.68 Glare can be divided into two categories. Discomfort glare (otherwise known as psychological glare) results in a reaction to avoid looking towards a bright source of light, or difficulty in being able to see in order to carry out a task. Disability glare (otherwise known as physiological glare) is caused by light from bright sources being scattered across the retina. The result is that vision is impaired by the veiling effect caused by the scattered light.
- 10.69 Discomfort glare has not been assessed as it is a subjective psychological response to bright light. Disability glare resulting from solar reflection from building facades can give rise to increased risk of accidents, and it is this category of glare which is therefore the subject of detailed analysis in this assessment.
- 10.70 There are no quantitative criteria within the 2011 BRE Guidelines regarding acceptable levels of solar glare. There is, however, research which suggests that the significance of a glare occurrence is largely dependent upon its angle from the line of sight and the relevance of this with respect to the human field of vision:

"The fovea centralis, also generally known as the fovea, is a part of the eye, located in the centre of the macula region of the retina. The fovea is responsible for sharp central vision (also called foveal vision), which is necessary in humans for reading, watching television or movies, driving, and any activity where visual detail is of primary importance."

(B. Colbert, et al., *Anatomy, Physiology, and Disease, An Interactive Journey for Health Professions, 1st edn, 2016*)

- 10.71 Glare occurrences that could encroach on the foveal view (3° from the visual axis) are likely to cause significant visual impairment or distraction. It is also likely that the viewer's line of sight will vary from the chosen view direction at each Viewpoint. To account for this, along with the likely range of movement of the eye, it is considered that lengthy occurrences within approximately 10° of the centre of the visual axis are potentially the most hazardous. In this scenario, the adverse impact would often be considered major and mitigation would be required. Figure 10.1 provides further information on the human field of view.
- 10.72 Between 10° and 30° corresponds to Near Periphery field of view, therefore where glare occurs between these angles, the impact would be considered minor or moderate depending upon the location and use of the adjacent sensitive receptor and the duration of the glare.

10.73 An angle of greater than 30° corresponds to the Far Periphery field of view (based on Plate 02) and therefore the risk of reflective solar glare causing a hazard is reduced. As such, the impact would be considered to be of very minor significance.

Baseline Conditions

Existing Baseline

10.74 This section describes the baseline environmental conditions that exist at the Site in the absence of the Development. To inform the baseline conditions, a three-dimensional AutoCAD model of the existing baseline scenario was constructed. Detailed drawings (drawings P2367/32-34) of this scenario assessment model can be found in Appendix 10.1. These also indicate the locations of the surrounding residential properties in relation to the Site.

10.75 The model was analysed in order to ascertain the baseline levels of daylight and sunlight amenity within the surrounding residential properties against the minimum recommended values detailed in the BRE Guidelines and described.

10.76 The baseline condition of the Site is considered extremely low-rise, consisting of a retail warehouse and a large vacant space to the west (functioning as a car park). By virtue of the relatively uncommon baseline condition, development on the vacant is likely to translate into losses of light to neighbouring buildings.

10.77 All surrounding buildings have been assessed in their current condition. There are no emerging schemes that require consideration within the baseline condition.

10.78 The neighbouring baseline Site context has been adopted and assessed in 2020 and comprises of a low-rise condition.

VSC

10.79 In terms of the VSC, the existing baseline demonstrates that 841 out of 1029 windows (81%) record levels ranging from 20% to 87.93%. The strict application of the BRE Guidelines outlines a VSC target value of 27% for windows contained within the neighbouring buildings. The VSC methodology highlights that 674 windows record 27% or more in their existing condition.

NSL

10.80 In terms of NSL, the results of the existing condition demonstrate that 549 out of 572 rooms (96%) record daylight distribution exceeding 90% of the total room area. These results are considered exception and by virtue of the extremely low-lying baseline of the Site. In these circumstances, it would be prudent to consider the retained values of the proposed condition of the associated neighbouring buildings.

APSH

10.81 In terms of sunlight, the APSH demonstrates that 413 out of 429 rooms (96%) will meet or exceed the recommended annual target values of 25%. The winter assessment demonstrates that 417 out of 429 rooms (97%) will meet or exceed the winter target values of 5%.

10.82 As part of the extended sunlight analysis, overshadowing has also been considered. The technical analysis shows that all but 3 surrounding amenity spaces will meet or exceed the minimum requirement of 50% surface area that receives at least 2 hours of sun.

Future Baseline

10.83 The future baseline of the Development can be seen in drawings P2367/32-34 within Appendix 10.1 of the report. The future baseline, if the Development were not to proceed, would continue to comprise of a low-lying development with the demolition extending to the warehouse situated on the existing parcel of land.

Likely Significant Effects**Demolition and Construction and Phasing**

10.84 Owing to the evolving and changing nature of demolition and construction and any phasing activities, the assessment of potential effects during the demolition and construction of the Development on daylight, sunlight, overshadowing, and solar glare to surrounding sensitive receptors have not been modelled and analysed.

10.85 Effects in relation to daylight, sunlight, overshadowing, light pollution and solar glare would vary throughout the demolition and construction stage. They would, however, be less than the effects of the completed Development.

10.86 Those effects, which may be perceptible during construction, would be similar or less when compared to those of the completed Development set out below. On this basis, there is no need to consider any further daylight, sunlight, overshadowing, light pollution and solar glare effects throughout the demolition and construction works.

Completed Development

Daylight to Surrounding Buildings

10.87 There are 1029 windows serving 572 assessment rooms surrounding the Site. These have all been assessed in terms of both VSC and NSL, with the Development built out. Full detailed results can be found at Appendix 10.2. These are summarised in Table 10.3 and Table 10.4 below.

Table 10.3: VSC summary with the Development Completed

Address	Total that Meet BRE Guidelines	Below BRE Guidelines				Total No. of Windows
		20-29% Loss	30-39.9% Loss	>=40% Loss	Total	
Ashdown Court, 2E Fulbourne Road	33	0	0	0	0	33
Delamere Court, 2 Hawker Place	103	15	9	10	34	137
Cannock Court, 3 Hawker Place	212	24	18	28	70	282
35 Hale End Road	5	0	0	0	0	5
33 Hale End Road	4	0	0	0	0	4
31 Hale End Road	5	0	0	0	0	5
29 Hale End Road	5	0	0	0	0	5
27 Hale End Road	5	0	0	0	0	5
25 Hale End Road	5	0	0	0	0	5
23 Hale End Road	5	2	0	0	2	7
21 Hale End Road	9	0	0	0	0	9
19 Hale End Road	4	1	0	0	1	5
17 Hale End Road	4	2	0	0	2	6
15 Hale End Road	5	4	2	0	6	11
11 Hale End Road	4	0	3	2	5	9
9 Hale End Road	0	0	6	0	6	6
7 Hale End Road	0	0	6	0	6	6
5 Hale End Road	0	0	6	0	6	6
3 Hale End Road	0	0	8	0	8	8
96-118 Corbett Road	42	7	9	2	18	60
848 Forest Road	0	5	0	0	5	5
846 Forest Road	2	1	0	0	1	3
844 Forest Road	2	1	0	0	1	3
842 Forest Road	0	3	0	0	3	3
840 Forest Road	0	1	2	0	3	3
838 Forest Road	0	1	2	0	3	3
836 Forest Road	1	1	1	0	2	3
834 Forest Road	2	0	1	0	1	3
832 Forest Road	2	1	0	0	1	3
830 Forest Road	2	1	0	0	1	3
828 Forest Road	2	1	0	0	1	3

Address	Total that Meet BRE Guidelines	Below BRE Guidelines				Total No. of Windows
		20-29% Loss	30-39.9% Loss	>=40% Loss	Total	
826 Forest Road	2	1	0	0	1	3
824 Forest Road	3	0	0	0	0	3
822 Forest Road	3	2	0	0	2	5
1-18 Foundry Mews	29	0	0	0	0	29
867 Forest Road	7	0	0	0	0	7
1a Fulbourne Road	5	0	0	0	0	5
1 Fulbourne Road	8	0	0	0	0	8
3 Fulbourne Road	7	0	0	0	0	7
5 Fulbourne Road	8	0	0	0	0	8
7 Fulbourne Road	9	0	0	0	0	9
9 Fulbourne Road	9	0	0	0	0	9
11 Fulbourne Road	9	0	0	0	0	9
13 Fulbourne Road	9	0	0	0	0	9
15 Fulbourne Road	9	0	0	0	0	9
17 Fulbourne Road	9	0	0	0	0	9
19 Fulbourne Road	7	0	0	0	0	7
21 Fulbourne Road	10	0	0	0	0	10
23 Fulbourne Road	7	0	0	0	0	7
25 Fulbourne Road	7	0	0	0	0	7
27 Fulbourne Road	9	0	0	0	0	9
29 Fulbourne Road	7	0	0	0	0	7
31 Fulbourne Road	9	0	0	0	0	9
33 Fulbourne Road	9	0	0	0	0	9
35 Fulbourne Road	9	0	0	0	0	9
37 Fulbourne Road	9	0	0	0	0	9
39 Fulbourne Road	9	0	0	0	0	9
41 Fulbourne Road	9	0	0	0	0	9
Bedgebury Court, 1 Hawker Place	100	0	0	0	0	100
Gallery Court, 67 Fulborne Road	42	8	0	0	8	50
Total	832	82	73	42	197	1029

10.88 The VSC method of assessment indicates that 81% of windows tested will meet the recommended levels of the BRE Guidelines. The results demonstrate that 832 out of 1029 will not experience a change in light exceeding the advisory numerical levels recommended by the BRE Guidelines.

Table 10.4: NSL summary with the Development Completed

Address	Total that Meet BRE Guidelines	Below BRE Guidelines				Total No. of Rooms
		20-29% Loss	30-39.9% Loss	>=40% Loss	Total	
Ashdown Court, 2E Fulborne Road	24	0	0	0	0	24
Delamere Court, 2 Hawker Place	63	0	4	2	6	69
Cannock Court, 3 Hawker Place	145	6	7	22	35	180
35 Hale End Road	4	0	0	0	0	4
33 Hale End Road	3	0	0	0	0	3
31 Hale End Road	3	0	0	0	0	3
29 Hale End Road	4	0	0	0	0	4
27 Hale End Road	3	0	0	0	0	3

Address	Total that Meet BRE Guidelines	Below BRE Guidelines			Total	Total No. of Rooms
		20-29% Loss	30-39.9% Loss	>=40% Loss		
25 Hale End Road	3	0	0	0	0	3
23 Hale End Road	4	0	0	0	0	4
21 Hale End Road	5	0	0	0	0	5
19 Hale End Road	4	0	0	0	0	4
17 Hale End Road	4	0	0	0	0	4
15 Hale End Road	7	0	0	0	0	7
11 Hale End Road	5	0	1	0	1	6
9 Hale End Road	4	0	0	0	0	4
7 Hale End Road	4	0	0	0	0	4
5 Hale End Road	2	1	1	0	2	4
3 Hale End Road	2	3	1	0	4	6
96-118 Corbett Road	22	0	0	0	0	22
848 Forest Road	4	0	0	0	0	4
846 Forest Road	3	0	0	0	0	3
844 Forest Road	3	0	0	0	0	3
842 Forest Road	3	0	0	0	0	3
840 Forest Road	3	0	0	0	0	3
838 Forest Road	3	0	0	0	0	3
836 Forest Road	3	0	0	0	0	3
834 Forest Road	3	0	0	0	0	3
832 Forest Road	3	0	0	0	0	3
830 Forest Road	3	0	0	0	0	3
828 Forest Road	3	0	0	0	0	3
826 Forest Road	3	0	0	0	0	3
824 Forest Road	3	0	0	0	0	3
822 Forest Road	5	0	0	0	0	5
1-18 Foundry Mews	27	0	0	0	0	27
867 Forest Road	4	0	0	0	0	4
1a Fulbourne Road	2	0	0	0	0	2
1 Fulbourne Road	3	0	0	0	0	3
3 Fulbourne Road	2	0	0	0	0	2
5 Fulbourne Road	3	0	0	0	0	3
7 Fulbourne Road	2	0	0	0	0	2
9 Fulbourne Road	2	0	0	0	0	2
11 Fulbourne Road	2	0	0	0	0	2
13 Fulbourne Road	2	0	0	0	0	2
15 Fulbourne Road	2	0	0	0	0	2
17 Fulbourne Road	2	0	0	0	0	2
19 Fulbourne Road	2	0	0	0	0	2
21 Fulbourne Road	3	0	0	0	0	3
23 Fulbourne Road	2	0	0	0	0	2
25 Fulbourne Road	2	0	0	0	0	2
27 Fulbourne Road	3	0	0	0	0	3
29 Fulbourne Road	2	0	0	0	0	2
31 Fulbourne Road	2	0	0	0	0	2
33 Fulbourne Road	2	0	0	0	0	2
35 Fulbourne Road	2	0	0	0	0	2
37 Fulbourne Road	2	0	0	0	0	2
39 Fulbourne Road	2	0	0	0	0	2
41 Fulbourne Road	2	0	0	0	0	2
Bedgebury Court, 1 Hawker Place	48	0	0	0	0	48
Gallery Court, 67 Fulborne Road	37	0	0	0	0	37
Total	524	10	14	24	48	572

10.89 The NSL method of assessment indicates that 92% of rooms tested meet the recommended levels of the BRE Guidelines. The results demonstrate that 524 out of 572 rooms will not experience a change in light exceeding the advisory numerical levels recommended in the BRE Guidelines.

10.90 The BRE Guidelines states that:

"...the diffuse daylighting of the existing building may be adversely affected if either the VSC measured at the centre of an existing main window is less than 27% and less than 0.8 times its former value [or] the area of the working plane in a room which can receive direct skylight is reduced to less than 0.8 times its former value."

10.91 Where the Development will result in fully BRE compliant VSC and NSL alterations to the windows and rooms within a property, the effect of the development upon the daylight amenity to that property is considered to be Negligible and therefore not significant. These properties comprise:

- | | |
|-----------------------------------|-----------------------------------|
| ▪ Ashdown Court, 2E Fulborne Road | ▪ 11 Fulbourne Road |
| ▪ 35 Hale End Road | ▪ 13 Fulbourne Road |
| ▪ 33 Hale End Road | ▪ 15 Fulbourne Road |
| ▪ 31 Hale End Road | ▪ 17 Fulbourne Road |
| ▪ 29 Hale End Road | ▪ 19 Fulbourne Road |
| ▪ 27 Hale End Road | ▪ 21 Fulbourne Road |
| ▪ 25 Hale End Road | ▪ 23 Fulbourne Road |
| ▪ 21 Hale End Road | ▪ 25 Fulbourne Road |
| ▪ 824 Forest Road | ▪ 27 Fulbourne Road |
| ▪ 1-18 Foundry Mews | ▪ 29 Fulbourne Road |
| ▪ 867 Forest Road | ▪ 31 Fulbourne Road |
| ▪ 1a Fulbourne Road | ▪ 33 Fulbourne Road |
| ▪ 1 Fulbourne Road | ▪ 37 Fulbourne Road |
| ▪ 3 Fulbourne Road | ▪ 39 Fulbourne Road |
| ▪ 5 Fulbourne Road | ▪ 41 Fulbourne Road |
| ▪ 7 Fulbourne Road | ▪ Bedgebury Court, 1 Hawker Place |
| ▪ 9 Fulbourne Road | |

[Delamere Court, 2 Hawker Place](#)

10.92 Delamere Court is a residential building occupying multiple flats on every floor level. The VSC results demonstrate that 103 out of 137 windows (75%) will meet the recommended values of the BRE Guidelines. In the building's existing condition, the results show that 80 of all the

assessed windows exceed 25% VSC. This level of direct daylight is considered exceptional within an urban environment and the extent of the low-lying existing baseline of the Site should be minded when interpreting the results. Of those 34 windows that do not meet the strict application of the BRE Guidelines, the results show that 25 windows record an existing VSC ranging from 20% - 38.21%. In terms of retention, 15 windows that do not meet the suggested target values outlined in BRE record VSC ranging from 15% - 26.79%.

10.93 In terms of the NSL, the results demonstrate that 63 out of 69 rooms (91%) will meet the strict application of the BRE Guidelines. The technical analysis shows that 4 of the affected rooms (room ref: R20/140; R23/140; R19/141; R20/141) will benefit from at least 59% direct daylight at a working plane. NSL retention levels of these figures are considered good and acceptable within an urban environment by reference to Appendix F of the BRE Guidance. 4 of these rooms (R19/141; R20/141; R21/140; R22/140) that do not meet the strict application of the BRE Guidelines are understood to be situated below overhanging balconies of which reduces the skyline available at the working plane level. Often there is a trade-off between benefitting from greater daylight amenity or an outdoor recreational amenity.

10.94 Overall, the effect upon the daylight amenity is considered Moderate Adverse and therefore is significant.

[Cannock Court, 3 Hawker Place](#)

10.95 Situated to the north of the Site, this building contains residential receptors on all floors and is considered sensitive by virtue of the proximity to the Development. The VSC results demonstrate that 212 out of 282 windows (75%) will meet the strict application of the BRE Guidelines. Of the 70 windows that do not meet the strict application of the BRE Guidelines, 53 instances record retained values between 15% and 26.38%. Retained levels in the mid-teens is deemed acceptable when read in conjunction with Appendix F of the BRE Guidelines. Of the 53 windows do not meet the recommended target levels, 18 windows record VSC levels above 20.01. Further breakdown of the 53 windows that do not meet the recommended target values, the technical results demonstrate that 25 windows will retain between 15%-18% and 9 windows will retain 18.01%-20%.

10.96 In terms of the NSL, the technical results demonstrate that 145 out of 180 rooms (81%) will meet the recommended target values outlined in the BRE Guidelines. Given the existing Site's low-lying context, those windows situated on the boundary and in close proximity are likely to experience existing levels of NSL considered extraordinary for the urban setting. As such, the results show that in every instance of alteration beyond the BRE's permissible 20% from former change the existing NSL exceeds 85%, with 34 rooms demonstrating at least 92% in

their existing condition. Reductions have translated into 16 rooms retaining at least 50% of their direct daylight at a working plane level and is a good indicator for acceptable daylight distribution for the context of the neighbouring area.

10.97 Overall, the effect on the daylight amenity is considered Moderate Adverse and is therefore significant.

[23 Hale End Road](#)

10.98 This property is a residential receptor situated to the east of the Site. The VSC results demonstrate that 5 out of 7 windows (71%) will meet the recommended target values of the BRE Guidelines. Two windows (window ref: W2/250 and W3/250) that do not meet the strict application of the BRE Guidelines record retained results that fall beyond the BRE's permissible 20% from value by 4% and is arguable whether this loss is still noticeable.

10.99 In terms of the NSL, the results demonstrate full BRE compliance (commensurate with the BRE's permissible 20% from former change).

10.100 Overall, the effect upon the daylight amenity is considered Minor Adverse and therefore not significant.

[19 Hale End Road](#)

10.101 This property is a residential building situated to the east of the Site. The VSC results demonstrate that 4 out of 5 windows (80%) will meet the recommended values outlined by the BRE Guidelines. The 1 window (window ref: W1/270) that experiences alterations beyond the BRE Guidelines demonstrates a retained value of 25.44% and is considered exceptional within the context of the area.

10.102 In terms of the NSL, the results demonstrate full BRE compliance (commensurate with the BRE's permissible 20% from former change).

10.103 The overall effect upon the daylight amenity is considered Negligible and therefore not significant.

[17 Hale End Road](#)

10.104 This building hosts a residential component throughout all levels. The VSC results demonstrate that 4 out of 6 windows (66%) will meet the strict application of the BRE Guidelines. Those

two windows (window ref: W3/280 and W1/281) that do not meet the recommended target values of the BRE, record retained values in excess of 26%.

10.105 In terms of the NSL, the results demonstrate full BRE compliance (commensurate with the BRE's permissible 20% from former change).

10.106 The overall effect upon the daylight amenity is considered Negligible and therefore not significant.

[15 Hale End Road](#)

10.107 The VSC results demonstrate that 5 out of 11 windows (45%) will meet the strict application of the BRE Guidelines. In every instance of alteration beyond the BRE's permissible 20% from former change, the windows record a retained value in excess of 25%.

10.108 The overall effect upon the daylight amenity is considered Negligible and therefore not significant.

[11 Hale End Road](#)

10.109 The VSC results demonstrate that 4 out of 9 windows (44%) will meet the strict application of the BRE Guidelines. Where there are alterations beyond the BRE's permissible 20% from former value, 3 windows record retained levels in excess of 25%. The remaining two windows (window ref: W1/300 & W2/300) demonstrate extremely low levels of VSC, 2.49% and 4.99% respectively. Whilst the Site has translated into changes beyond the BRE Guidelines, these changes are considered disproportionate by virtue of the sensitivity and the actual recorded losses are small.

10.110 In terms of the NSL, the results demonstrate that 5 out of 6 rooms (83%) will meet the strict application of the BRE Guidelines. The single room (room ref: R1/300) of alteration beyond the BRE's permissible 20% from former value records a retained value of 45%, falling just short of the industry's recommended minimum target value.

10.111 The overall effect upon the daylight amenity is considered Minor Adverse and therefore not significant.

[9 Hale End Road](#)

10.112 The VSC results demonstrate that 0 out of 6 windows will meet the strict application of the

BRE Guidelines. The technical results show that whilst these rooms do not meet the BRE's permissible 20% from former value, in every instance the windows exceed 20% VSC.

10.113 In terms of the NSL, the results demonstrate full BRE compliance (commensurate with the BRE's permissible 20% from former change).

10.114 The overall effect upon the daylight amenity is considered Negligible and therefore not significant.

[7 Hale End Road](#)

10.115 The VSC results demonstrate that 0 out of 6 windows will meet the BRE's recommended target values. In every instance of alteration beyond the BRE's permissible 20% from former value, the windows retain a VSC of at least 22%.

10.116 In terms of the NSL, the results demonstrate full BRE compliance (commensurate with the BRE's permissible 20% from former change).

10.117 The overall effect upon the daylight amenity is considered Negligible and therefore not significant.

[5 Hale End Road](#)

10.118 The VSC results demonstrate that 0 out of 6 windows will meet the strict application of the BRE Guidelines. In all 6 instances of alteration beyond the BRE's permissible 20%, the windows retain at least 22%. Levels of this nature are considered very good within an urban environment by reference to Appendix F of the BRE Guidelines.

10.119 In terms of the NSL, the results demonstrate that 4 out of 6 rooms (66%) will meet the strict application of the BRE Guidelines. Where there are alterations beyond the BRE's permissible 20% from former change, 1 room (room ref: R1/330) records a change within 2% beyond the permissible 20% from former change and is arguable whether any additional change in light will be noticeable. In respect of both alterations (room ref: R1/330 & R2/331) the rooms will retain an NSL of 76% and 61%, respectively.

10.120 The overall effect upon the daylight amenity is considered Minor Adverse and therefore not significant.

[3 Hale End Road](#)

10.121 The VSC results demonstrate that 0 out of 8 windows will meet the strict application of the BRE Guidelines. However, in all instances where the windows do not comply with the BRE's permissible 20% from former change, they retain a VSC exceeding 22%.

10.122 The NSL results demonstrate that 2 out of 6 rooms (33%) will meet the strict application of the BRE Guidelines. The results show that 3 out of the 4 rooms that do not meet the recommended target values fall within 4% beyond the BRE's permissible 20% from former change. In all instances, the results show that the retain NSL records between 58% and 78% and is recognised as a good indicator for acceptable levels of direct daylight at the working plane.

10.123 The overall effect upon the daylight amenity is considered Minor Adverse and therefore not significant.

[96 – 118 Corbett Road](#)

10.124 The building contains residential receptors and is situated to the south-east of the Site. The VSC results demonstrate that 42 out of 60 windows (70%) will meet the strict application of the BRE Guidelines. The technical analysis shows that of the 18 windows that do not meet the recommended target values, 6 windows demonstrate a retained value of 20% or more. There are a further 3 windows that record a retained value between 15% and 20% and is recognised as acceptable within an urban environment when read in conjunction with Appendix F of the BRE Guidelines. There are 9 windows that record a retained VSC below 15% as a result of the implementation of the Development. In terms of room uses, there are 7 windows (that do not meet the strict application of the BRE Guidelines) that serve bedrooms, which are recognised by the BRE to carry less expectation for natural light when compared to a living room.

10.125 In terms of the NSL, the results demonstrate full BRE compliance (commensurate with the BRE's permissible 20% from former change).

10.126 The overall effect upon the daylight amenity is considered Moderate Adverse and therefore significant.

[848 Forest Road](#)

10.127 This residential receptor is situated to the south of the Site. The VSC results demonstrate that

0 out of 5 windows will meet the strict application of the BRE Guidelines. In every instance of alteration beyond the BRE Guidelines, the retained values demonstrate a VSC of at least 15% with 5 of the 6 windows recording between 23% and 26%. The BRE advocate the use alternative target values when assessing an urban location through the application of Appendix F.

10.128 In terms of the NSL, the results demonstrate full BRE compliance (commensurate with the BRE's permissible 20% from former change).

10.129 The effect upon the daylight amenity is considered Minor Adverse and therefore not significant.

[846 Forest Road](#)

10.130 The residential receptor is situated to the south of the Site. The VSC results demonstrate that 2 out of 3 windows (66%) will meet the strict application of the BRE Guidelines. The single instance of alteration (window ref: W1/370) records a retained VSC level of 25.51%, direct daylight considered very good within the urban location of the building.

10.131 In terms of the NSL, the results demonstrate full BRE compliance (commensurate with the BRE's permissible 20% from former change).

10.132 The effect upon the daylight amenity is considered Negligible and therefore not significant.

[844 Forest Road](#)

10.133 The residential building is located on the southern boundary of the Site. The VSC results demonstrate that 2 out of 3 windows (66%) will meet the recommended target values of the BRE. The 1 window (window ref: W6/380) that does not meet the BRE's target value records a retained value of 26.18%. This result far exceeds the minimum requirement of VSC for the environment and is considered very good.

10.134 In terms of the NSL, the results demonstrate full BRE compliance (commensurate with the BRE's permissible 20% from former change).

10.135 The effect upon the daylight amenity is considered Negligible and therefore not significant.

[842 Forest Road](#)

10.136 The VSC results demonstrate that 0 out of 3 windows will meet the strict application of the BRE Guidelines, by virtue of the outlook of the building facing the existing low-lying Site. The results shows that in all 3 instances of alterations, the windows record a retained VSC values between 26%-27%, of which is considered very good.

10.137 In terms of the NSL, the results demonstrate full BRE compliance (commensurate with the BRE's permissible 20% from former change).

10.138 The effect upon the daylight amenity is considered Negligible and therefore not significant.

[840 Forest Road](#)

10.139 The VSC results demonstrate that 0 out of 3 windows will meet the strict application of the BRE Guidelines. In every instance of alteration, the windows record a retained minimum of 25% VSC. This considered very good within the context of the area.

10.140 In terms of the NSL, the results demonstrate full BRE compliance (commensurate with the BRE's permissible 20% from former change).

10.141 The effect upon the daylight amenity is considered Negligible and therefore not significant.

[838 Forest Road](#)

10.142 The VSC results record 0 out of 3 windows that will meet the strict application of the BRE Guidelines. In all instances of alteration, the windows record retained VSC values of 25% or more and is recognised as very good levels of direct daylight within an urban environment.

10.143 In terms of the NSL, the results demonstrate full BRE compliance (commensurate with the BRE's permissible 20% from former change).

10.144 The overall effect upon the daylight amenity is considered Negligible and therefore not significant.

[836 Forest Road](#)

10.145 The VSC results demonstrate that 1 out of 3 windows (33%) will meet the strict application of the BRE Guidelines. In both instances of alterations, the windows record a minimum

retained VSC value of 26%, which is considered very good.

10.146 In terms of the NSL, the results demonstrate full BRE compliance (commensurate with the BRE's permissible 20% from former change).

10.147 The effect upon the daylight amenity is considered Negligible and therefore not significant.

[834 Forest Road](#)

10.148 The VSC results show that 2 out of 3 windows (66%) will meet the recommended target values outlined in the BRE Guidelines. The single window (window ref: W1/430) that does not meet the strict application of the BRE Guidelines, serves a living room and retains a VSC value exceeding 26%.

10.149 In terms of the NSL, the results demonstrate full BRE compliance (commensurate with the BRE's permissible 20% from former change).

10.150 The effect upon the daylight amenity is considered Negligible and therefore not significant.

[832 Forest Road](#)

10.151 The VSC results demonstrate that 2 out of 3 windows (66%) will exceed the strict application of the BRE Guidelines. The single window (window ref: W3/440) that does not meet the strict application of the BRE Guidelines records a retained VSC value exceeding 26% and is considered very good.

10.152 In terms of the NSL, the results demonstrate full BRE compliance (commensurate with the BRE's permissible 20% from former change).

10.153 The effect upon the daylight amenity is considered Negligible and therefore not significant.

[830 Forest Road](#)

10.154 The VSC results record that 2 out of 3 windows (66%) will meet the strict application of the BRE Guidelines. The single window (window ref: W1/450) that does not meet the recommended target value of the BRE records a retained value exceeding 26%.

10.155 In terms of the NSL, the results demonstrate full BRE compliance (commensurate with the BRE's permissible 20% from former change).

10.156 The effect upon the daylight amenity is considered Negligible and therefore not significant.

[828 Forest Road](#)

10.157 The VSC methodology demonstrates that 2 out of 3 windows (66%) will meet or exceed the target values outlined in the BRE Guidelines. The single instance of alteration (window ref: W6/460) records a retained VSC value exceeding 26%.

10.158 In terms of the NSL, the results demonstrate full BRE compliance (commensurate with the BRE's permissible 20% from former change).

10.159 The effect upon the daylight amenity is considered Negligible and therefore not significant.

[826 Forest Road](#)

10.160 The VSC results of this building show that 2 out of 3 windows (66%) will meet or exceed the target values suggested by the BRE Guidelines. The single window that does not meet the strict application of the BRE Guidelines records a retained value in excess of 26%.

10.161 In terms of the NSL, the results demonstrate full BRE compliance (commensurate with the BRE's permissible 20% from former change).

10.162 The effect upon the daylight amenity is considered Negligible and therefore not significant.

[824 Forest Road](#)

10.163 The VSC results demonstrate that 3 out of 5 windows (60%) will meet the recommended target values set out by the BRE Guidelines. Where there are alterations beyond the BRE Guidelines, these two windows (window ref: W4/490 & W3/491) record VSC values of 20.73% and 24.23%, respectively. These retained values are considered very good within the context of the scheme.

10.164 In terms of the NSL, the results demonstrate full BRE compliance (commensurate with the BRE's permissible 20% from former change).

10.165 The effect upon the daylight amenity is considered Negligible and therefore not significant.

[Gallery Court, 67 Fulbourne Road](#)

10.166 The VSC results demonstrate that 42 out of 50 windows (84%) will meet the target values suggested by the BRE Guidelines. Where there are alterations, 6 out of 8 windows record changes within 5% beyond the BRE's permissible 20% from former change. Further, in every instance of alteration, the existing condition records VSC values below 6%, despite the low-lying existing extent of the Site. This is considered by virtue of the building's configuration and window placement. As such, any alteration in light is considered sensitive and is likely to trigger disproportionate changes.

10.167 In terms of the NSL, the results demonstrate full BRE compliance (commensurate with the BRE's permissible 20% from former change).

10.168 The effect upon the daylight amenity is considered Minor Adverse and therefore not significant.

Daylight Summary

10.169 Overall, in terms of daylight the Development is considered minor adverse given the low baseline condition and the extent of change. Whilst the recorded changes beyond the BRE Guideline classification have been noted, the low existing baseline and outlook position of the neighbouring buildings over the vacant site will result in any development translating into BRE transgressions.

Sunlight to Surrounding Buildings

10.170 There are 836 predominantly South-facing windows serving 429 residential rooms surrounding the Site which are relevant for sunlight amenity assessment. These have all been assessed in terms of total and winter APSH. Full detailed results can be found at Appendix 10.2. These are summarised in Table 10.5.

Table 10.5: Sunlight to surrounding Buildings

Address	Meet BRE Guidelines	No. of rooms below the APSH stated in BRE Guidelines								Total No. Rooms
		Below Threshold for Winter APSH				Below Threshold for Total APSH				
		20-30 %	30-40%	>40 %	Total	20-30 %	30-40%	>40 %	Total	
Ashdown Court, 2E Fulborne Road	8	0	0	0	0	0	0	0	0	8
Delamere Court, 2 Hawker Place	44	0	0	0	0	0	0	0	0	44
Cannock Court, 3 Hawker Place	165	0	0	15	15	0	0	15	15	180

Address	Meet BRE Guidelines	No. of rooms below the APSH stated in BRE Guidelines								Total No. Rooms
		Below Threshold for Winter APSH				Below Threshold for Total APSH				
		20-30 %	30-40%	>40 %	Total	20-30 %	30-40%	>40 %	Total	
35 Hale End Road	4	0	0	0	0	0	0	0	0	4
33 Hale End Road	3	0	0	0	0	0	0	0	0	3
31 Hale End Road	3	0	0	0	0	0	0	0	0	3
29 Hale End Road	4	0	0	0	0	0	0	0	0	4
27 Hale End Road	3	0	0	0	0	0	0	0	0	3
25 Hale End Road	3	0	0	0	0	0	0	0	0	3
23 Hale End Road	4	0	0	0	0	0	0	0	0	4
21 Hale End Road	5	0	0	0	0	0	0	0	0	5
19 Hale End Road	4	0	0	0	0	0	0	0	0	4
17 Hale End Road	3	0	0	1	1	0	1	0	1	4
15 Hale End Road	6	0	0	1	1	0	0	1	1	7
11 Hale End Road	4	0	0	2	2	0	0	2	2	6
9 Hale End Road	1	0	0	3	3	0	0	3	3	4
7 Hale End Road	2	0	0	2	2	0	0	2	2	4
5 Hale End Road	1	3	0	0	3	0	0	3	3	4
3 Hale End Road	4	1	0	0	1	0	0	2	2	6
96-118 Corbett Road	17	0	0	0	0	0	0	0	0	17
867 Forest Road	1	0	0	0	0	0	0	0	0	1
1a Fulbourne Road	1	0	0	0	0	0	0	0	0	1
1 Fulbourne Road	1	0	0	0	0	0	0	0	0	1
3 Fulbourne Road	1	0	0	0	0	0	0	0	0	1
5 Fulbourne Road	1	0	0	0	0	0	0	0	0	1
7 Fulbourne Road	2	0	0	0	0	0	0	0	0	2
9 Fulbourne Road	2	0	0	0	0	0	0	0	0	2
11 Fulbourne Road	2	0	0	0	0	0	0	0	0	2
13 Fulbourne Road	2	0	0	0	0	0	0	0	0	2
15 Fulbourne Road	2	0	0	0	0	0	0	0	0	2
17 Fulbourne Road	2	0	0	0	0	0	0	0	0	2
19 Fulbourne Road	1	0	0	0	0	0	0	0	0	1
21 Fulbourne Road	1	0	0	0	0	0	0	0	0	1
23 Fulbourne Road	1	0	0	0	0	0	0	0	0	1
25 Fulbourne Road	1	0	0	0	0	0	0	0	0	1
27 Fulbourne Road	1	0	0	0	0	0	0	0	0	1
29 Fulbourne Road	1	0	0	0	0	0	0	0	0	1
31 Fulbourne Road	2	0	0	0	0	0	0	0	0	2
33 Fulbourne Road	2	0	0	0	0	0	0	0	0	2
35 Fulbourne Road	2	0	0	0	0	0	0	0	0	2
37 Fulbourne Road	2	0	0	0	0	0	0	0	0	2
39 Fulbourne Road	2	0	0	0	0	0	0	0	0	2
41 Fulbourne Road	2	0	0	0	0	0	0	0	0	2
Bedgebury Court, 1 Hawker Place	48	0	0	0	0	0	0	0	0	48

Address	Meet BRE Guidelines	No. of rooms below the APSH stated in BRE Guidelines								Total No. Rooms
		Below Threshold for Winter APSH				Below Threshold for Total APSH				
		20-30 %	30-40%	>40 %	Total	20-30 %	30-40%	>40 %	Total	
Gallery Court, 67 Fulborne Road	29	0	0	0	0	0	0	0	0	29
Total	400	4	0	24	28	0	1	28	29	429

10.171 The APSH method of assessment indicates that 93% rooms tested meet the recommended levels of the BRE Guidelines. The results demonstrate that 400 out of 429 rooms will not experience a change in light exceeding levels recommended in the BRE Guidelines. Given the low-lying condition of the baseline, alterations are likely to exceed the BRE's permissible 20% from former change. As the baseline condition demonstrate exceptionally good levels of APSH, those results that do not meet the recommended target values are minded to be interpreted in respect of their retained values.

10.172 The BRE Guidelines states that:

"...the sunlighting of the existing building may be adversely affected...if the centre of the window receives less than 25% of annual probable sunlight hours, or less than 5% of annual probable sunlight hours between 21 September and 21 March and receives less than 0.8 times its former sunlight hours during either period and has a reduction in sunlight received over the whole year greater than 4% of annual probable sunlight hours."(para 3.1.15)

10.173 Where the Development will result in fully BRE compliant APSH alterations to the windows and rooms within a property, the effect of the Development upon the sunlight amenity to that property is considered to be permanent, direct and of Negligible effect. These properties comprise:

- Ashdown Court, 2E Fulbourne Road
- Delamere Court, 2 Hawker Place
- 19-35 Hale End Road
- 96 – 118 Corbett Road
- 867 Forest Road
- 1a - 41 Fulbourne Road
- Bedgebury Court, 1 Hawker Place
- Gallery Court, 67 Fulbourne Road

10.174 The properties described in the following sections will experience APSH alterations that are beyond BRE Guidelines.

[Cannock Court, 3 Hawker Place](#)

10.175 The APSH results demonstrate that 165 out of 180 rooms (92%) will meet the recommended target values outlined in the BRE Guidelines. In every instance (15 rooms) that do not meet the strict application of the BRE Guidelines, the proposed annual APSH exceeds the

recommended 25%, demonstrating retained values beyond 39% in very instance. In terms of the winter months, when the sun is lower, the technical results demonstrate that 7 rooms will record a retained value of 2%, 5 rooms will retain 3% and 3 rooms will retain 4% in their proposed condition.

10.176 The overall effect upon the sunlight amenity is considered Minor Adverse and therefore not significant.

[17 Hale End Road](#)

10.177 The APSH results demonstrate that 3 out of 4 rooms (75%) will meet the strict application of the BRE Guidelines. Where there is an alteration beyond the BRE Guidelines, the 1 instance records a retained annual APSH of 30%, exceeding the BRE's suggested 25%. In terms of the winter months, the single instance retains a value of 2%.

10.178 The overall effect upon the sunlight amenity is considered Minor Adverse and therefore not significant.

[15 Hale End Road](#)

10.179 The APSH results show that 6 out of 7 rooms (86%) will meet the strict application of the BRE Guidelines. The single instance of alteration beyond the suggested targets of the BRE Guidelines demonstrate a retained annual value of 21% and a winter retained value of 2%.

10.180 The overall effect upon the sunlight amenity is considered Moderate Adverse and therefore significant.

[11 Hale End Road](#)

10.181 The APSH results show that 4 out of 6 rooms (66%) will meet the recommended target values of the BRE Guidelines. The 2 instances of alteration (window ref: R2/300 & R1/301) demonstrate a retained annual APSH of 1% and 23%, respectively. Notably, the existing level of R2/300 demonstrates extremely low levels of direct sunlight, recording annual result of 6% and development is likely to translate into changes considered by virtue of the existing room and building configuration and outlook. In the winter months, the results show that 1 room (window ref: R2/300) will retain an APSH of 0% and the other room (window ref: R3/301) will record a winter APSH of 7%, exceeding the 5% recommended target value.

10.182 The overall effect upon the sunlight amenity is considered Moderate Adverse and therefore significant.

[9 Hale End Road](#)

10.183 The APSH results demonstrate that 1 out of 4 rooms (25%) will meet the strict application of the BRE Guidelines. In all 3 instances of alteration, the annual APSH retains at least 21%. 2 rooms (room ref:R1/311 & R2/311) are situated on the rear aspect of the building on the first floor and are likely to be bedrooms and is recognised by the BRE to carry less of an expectation when compared to living rooms. In the winter months, the technical results show that 2 of 3 rooms that do not meet the recommended target values record at least 7%, exceeding the BRE's minimum value of 5%. The remaining room (window ref: R2/310) records a retained winter APSH of 4%, just below the suggested 5%.

10.184 The overall effect upon the sunlight amenity is considered Minor Adverse and therefore not significant.

[7 Hale End Road](#)

10.185 The APSH results show that 2 out of 4 rooms (50%) will meet the strict application of the BRE Guidelines. In terms of the annual APSH, 1 room (room ref: R1/321) retains 21% and the other room (room ref: R2/321) retains 22%. In the winter months, the rooms retain 8% and 9%, respectively, exceeding the BRE's minimum winter target value requirement of 5%. Given that both of these rooms are situated at the rear of the building and on the first floor, it is likely that they serve bedrooms. The BRE recognises there is less of an expectation for natural light for this room classification when compared to a living room.

10.186 The overall effect upon the sunlight amenity is considered Minor Adverse and therefore not significant.

[5 Hale End Road](#)

10.187 The APSH results that 1 out of 4 rooms (25%) will meet the recommended target values of the BRE Guidelines. In all 3 instances of alteration beyond the BRE target values, the rooms retain annual APSH values ranging from 22%-24%, just short of strict application of the BRE Guideline's 25% target value. When applying Appendix F, these levels of sunlight are considered good within an urban location. In terms of the winter APSH, all rooms exceed the BRE's 5% requirement, recording between 6%-11% in the proposed condition.

10.188 The overall effect upon the sunlight amenity is considered Minor Adverse and therefore not significant.

3 Hale End Road

10.189 The APSH results demonstrate that 4 out of 6 (66%) will meet the recommended BRE target values. There are 2 rooms (room ref: R2/340 & R1/341) that do not meet the strict application of the BRE Guidelines. The annual APSH assessment records 1 room (room ref: R2/340) that retains a value of 19% and the remaining room (room ref: R1/341) that records an annual APSH of 23% and is likely to serve bedroom on the first floor of the building. Both rooms retain a winter APSH exceeding the BRE's target value of 5%, recording 8% and 12%, respectively.

10.190 The overall effect upon the sunlight amenity is considered Moderate Adverse and therefore significant.

Sun Hours on Ground - 2 Hours in the Sun

10.191 Full detailed sun on the ground assessment results are available within Appendix 10.3. A summary of results is presented in Table 10.6.

Table 10.6: SHOG results of the baseline and development conditions (March 21st)

Description	March 21 st		% alterations between baseline and with Development Conditions	Significance of Effect
	Baseline conditions (% of area receiving two hours of sun on 21 st March)	with Development Conditions (% of area receiving two hours of sun on 21 st March)		
35 Hale End Road	62.8	62.8	0	Negligible
33 Hale End Road	63.9	63.9	0	Negligible
31 Hale End Road	63.8	63.3	0.5	Negligible
29 Hale End Road	62.9	56.7	6.2	Negligible
27 Hale End Road	58.8	53.2	5.6	Negligible
25 Hale End Road	63	56.5	6.5	Negligible
23 Hale End Road	56.5	48.6	7.9	Negligible
21 Hale End Road	58.9	52.1	6.8	Negligible
19 Hale End Road	63.4	58.1	5.3	Negligible
17 Hale End Road	47.2	44.2	3	Negligible
15 Hale End Road	74.9	71.3	3.6	Negligible
11 Hale End Road	48.2	47.2	1	Negligible
9 Hale End Road	53.3	50.9	2.4	Negligible
7 Hale End Road	70.2	68.5	1.7	Negligible
5 Hale End Road	65.6	62.6	3	Negligible
3 Hale End Road	99.9	99.7	0.2	Negligible
Area south 3 Hale End Road	99.8	99.8	0	Negligible
Sterling House	95.2	91.9	3.3	Negligible
Bedgebury Court	100	100	0	Negligible

March 21st				
south				
Bedbury Court east	48.9	48.5	0.4	Negligible
Delamere Court west	98.6	96.8	1.8	Negligible
Delamere Court east	92.5	35	57.5	Major
Cannock Court west	80.4	80.3	0.1	Negligible
Cannock Court centre	84.8	84.8	0	Negligible
Cannock Court south-west	94.3	94.3	0	Negligible

10.192 Table 10.6 above clearly demonstrates the percentage of surface area of each amenity space that receives at least 2 hours of the surrounding amenity areas in their existing condition and the condition as a result of the implementation of the Development.

10.193 There are 24 instances where amenity spaces receive ample sunlight, exceeding the BRE's target value of 50% and commensurate with the permissible 20% from former value. These alterations are therefore considered negligible.

10.194 There is a single alteration that records change beyond 20% of the former value. The amenity space serving to the east of Delamere Court experiences more than 50% reduction of surface area that receives 2 hours in the sun as a result of the implementation of the Development. Interpretation of the extent of this result should also consider the exceptional baseline condition the Delamere east amenity space experiences. The amenity space in its baseline condition benefits from extremely high source of direct sunlight by virtue of the vacant space (demonstrating zero obstruction) that lies to its south. As a result of the proximity and situation of the amenity space on the vacant site's boundary, in any event that development is constructed on the vacant site opposite, the Site will experience losses in light.

Table 10.7: SHOG results of the baseline and development conditions (June 21st)

June 21st				
Description	Baseline conditions (% of area receiving two hours of sun on 21st June)	with Development Conditions (% of area receiving two hours of sun on 21st June)	% alterations between baseline and with Development Conditions	Significance of Effect
35 Hale End Road	98.6	98.6	0	Negligible
33 Hale End Road	99.8	99.8	0	Negligible
31 Hale End Road	99.8	99.8	0	Negligible
29 Hale End Road	99.8	98.8	1	Negligible
27 Hale End Road	98.9	98.9	0	Negligible
25 Hale End Road	98.6	98.6	0	Negligible
23 Hale End Road	98.6	98.4	0.2	Negligible
21 Hale End Road	99.4	99	0.4	Negligible
19 Hale End Road	98.4	96.5	1.9	Negligible
17 Hale End Road	98.3	95.1	3.2	Negligible

June 21st				
15 Hale End Road	96.6	92	4.6	Negligible
11 Hale End Road	91.6	82.4	9.2	Negligible
9 Hale End Road	95.4	85.9	9.5	Negligible
7 Hale End Road	98.3	92.8	5.5	Negligible
5 Hale End Road	96.5	86	10.5	Negligible
3 Hale End Road	100	99.4	0.6	Negligible
Area south 3 Hale End Road	99.8	99.8	0	Negligible
Sterling House	100	100	0	Negligible
Bedgebury Court south	100	100	0	Negligible
Bedgbury Court east	91	91	0	Negligible
Delamere Court west	99.7	99.7	0	Negligible
Delamere Court east	99	92.6	6.4	Negligible
Cannock Court west	98.1	98.1	0	Negligible
Cannock Court centre	100	100	0	Negligible
Cannock Court south-west	100	100	0	Negligible

10.195 Table 10.7 above shows the SHOG results on June 21st and has been included as part of the assessment as the summer months are those where outdoor amenity spaces are most likely to be used. All the neighbouring amenity spaces demonstrate extremely good levels of sunlight and all fall within the Negligible bracket of the significance criteria and are therefore considered not significant.

Solar Glare

10.196 Initially, an annual sequence of images is generated for the proposed scheme, taken at 15-minute intervals on the 21st of each month for half the year, with the other half being symmetric. These images visually depict solar reflections as patches of coloured reflected light on the buildings and terrain surrounding the site at 15-minute intervals. The annual sequence is used to identify sensitive locations in the proposed condition at which the glare reflection or reflections appear more intense. It is important to note that the annual sequence study assumes a worst case of the windows acting as a perfect mirror for the purposes of showing the annual pattern of reflections and assumes a clear sky throughout the year. Therefore, in reality, they overstate any potential glare.

10.197 The annual sequence assessment results show that:

- Generally, the instances of solar glare that have been recorded are typically intermittent within a pattern of broken, short-lived reflections of which the majority will be a long way off a typical train driver's and motorist's line of sight;

- There will be some instances of solar glare from the Proposed Development patterned on the neighbouring railway line travelling in a southbound direction between 8:00am and 9:30am between January and February and from October to November; and
- There are no instances of prolonged solar glare that occur at these viewpoints that are considered problematic or at a shallow angle to a head on view.

10.198 A solar glare analysis has been undertaken, the results of which are illustrated within Appendix 10.6. Drawing P2367/VP/01 within Appendix 10.6 identifies the locations of the viewpoints that have been considered in more detail.

Viewpoint 1

10.199 In relation to viewpoint 1, with reference to Solar Glare Analysis calendar diagram P2167/GC/01, there are no instances of solar reflection that occur within 3 degrees. There are instances of solar reflection between 10 degrees and 30 degrees that are intermittent during the early weeks of April and the later weeks of August/ early weeks of September between 5:30am and 6:00am. Other instances of Solar Glare between 10 degrees and 30 degrees can be seen in the later parts of the day between 5:00pm and 5:30pm in March and September. There are some instances recording glare within 30 degrees between April to May and August to September in the early hours from 5:30am to 7:00am and from 5:00pm to 5:30pm, notably these instances are extremely intermittent. This is also indicated by the viewpoint simulation drawing P2367/GV/01.

Viewpoint 2

10.200 The results show there are no instances of solar reflection that occur within 3 degrees. There are some instances of solar reflection between 10 degrees and 30 degrees that occur between the later weeks of January until mid-February from 4:00pm until 4:30pm. There are further instances that occur between mid- October and mid-November 3:30pm until 4:00pm. The results also show instances of Solar Glare within 30 degrees from January until early March between the hours of 3:00pm and 4:30pm. There are further instances from September until late December between the hours of 2:30pm and 4:00pm. This is also in the viewpoint indication drawing P2367/GV/02.

Viewpoint 3

10.201 Viewpoint 3 is situated on the railway looking southbound along the tracks. Solar Glare Analysis calendar diagram P2367/GC/03 shows that there are some instances of solar reflection from mid-January to mid-February between the hours of 8:30am and 9:30am and

later on in the year from the beginning of October to the end of November between the hours of 8:00am and 9:00am. All other instances that occur at more than 30 degrees from the eye line of the train driver travelling southbound and are therefore not significant. This is also indicated by the viewpoint simulation drawing P2367/GV/03.

Viewpoint 4

10.202 Viewpoint 4 is situated along the railways looking northbound along the tracks. The Solar Glare Analysis calendar diagram P2367/GC/03 shows there are instances within 30 degrees during the early weeks of January between 12:30pm and 12:45pm and in the later months from the end of November through to the end of December between 12:00pm and 12:30pm. All other instances occur at more than 30 degrees from the eye line of the train driver travelling northbound along the rail line and are therefore not significant. This is also indicated by the viewpoint simulation drawings P2367/GV/04.

10.203 In summary, as can be seen from the glare calendars, the instance of glare within 30 degrees of the chosen view directions are very limited in both frequency and duration. The typical duration of these instances is a few minutes, and mostly less than 2 minutes. Whilst the location or indeed existence of railway signals, it is unlikely that such instances of glare would cause a nuisance or impaired vision. It should also be noted that on the southbound track, the view of the actual sun (rather than its reflection from the windows) will be much more dominant and frequent. The view/impact of the actual sun is not shown in glare calendars as this is a naturally occurring and existing phenomenon.

10.204 Given the limitation and intermittency of the solar reflection frequency and duration, the effect of significance is considered Minor Adverse and therefore not significant.

Sunlight Summary

10.205 In terms of APSH assessment of sunlight, the Development is considered minor adverse, by virtue of the outlook of those rooms having a view over the unusual, vacant site and the extent of the change in direct light levels. In respect of the SHOG, whilst the BRE test data identifies one area that experiences levels beyond the BRE Guidelines (on March 21st), it is clear during the summer months (June 21st) where people are likely to use the amenity space, retained levels of light are improved.

Mitigation Measures

10.206 Point 2 has worked closely with JTP Architects throughout the design phasing to produce a

scheme that mitigates undesirable daylight and sunlighting to the neighbouring buildings. A number of phases and iterations have been undertaken to establish the most effective, mitigating scheme in relation to massing and tower block configuration (with particular attention to the northern boundary where the proximity of those residential receptors are the most sensitive). No additional mitigation measures are proposed.

Residual Effects

10.207 As no additional mitigation measures are proposed, the residual effects remain as assessed earlier in this Chapter.

Cumulative Effects

10.208 The cumulative schemes are set out in Chapter 2 EIA Methodology. All schemes are too distant from the Site to give rise to likely significant cumulative effects with respect to daylight, sunlight, overshadowing and solar glare.

Summary

10.209 Point 2 Surveyors have been instructed to undertake a Daylight and Sunlight assessment of The Patchworks Site and the potential changes in natural light the Development may have on the surrounding buildings.

10.210 The report has undertaken methodologies associated with daylight and sunlight. The VSC and NSL in methodologies have been undertaken to understand the effect of the implementation of the Development on the neighbouring building's daylight, whilst APSH and SHOG (2 hours on the ground) assessments have been applied to quantify the potential changes in sunlight to the neighbouring buildings and their amenity spaces. These methodologies are recognised by the BRE Guidelines and have been adopted by National and Regional policies and plans.

10.211 National Policies such as the NPPF and the National Planning Practice Guidance have been referred to conjunction with regional and local policies such as The London Plan.

10.212 The baseline condition has assessed 60 residential receptors that surround the low-lying Site. In relation to the daylight methodologies, the existing VSC baseline demonstrates that 841 out of 1029 windows (81%) record levels ranging from 20% to 87.93%. The strict application of the BRE Guidelines outlines a VSC target value of 27% for windows contained within the neighbouring buildings and as such, the VSC methodology further highlights that 674 (66%) windows record 27% or more in their existing condition. In terms of NSL, the results of the

existing condition demonstrate that 549 out of 572 rooms (96%) record daylight distribution exceeding 90% of the total room area.

10.213 The sunlight assessment, the APSH, demonstrates that 96% of rooms in their existing baseline condition will achieve annual direct sunlight exceeding the BRE's 25% target value. The existing results of the SHOG methodology demonstrates that all but 3 amenity spaces will receive at 2 hours of sun to at least 50% of the surface area, complying with the strict application of the BRE Guidelines.

10.214 Further assessments have been undertaken to establish the potential effect of the Development on the neighbouring buildings. The results of the daylight assessment show that 33 buildings demonstrate compliance with the strict application of the BRE Guidelines and are considered Negligible and not significant. Where there are changes beyond the BRE Guidelines and retained values have been considered, 3 buildings are recognised as Moderate Adverse and significant. There are also 6 buildings considered Minor Adverse and not significant and 17 buildings considered Negligible and not significant. Overall, the scheme is considered Minor Adverse, this is given the low existing baseline condition and the retained values of those windows/rooms that have been affected. Whilst the changes beyond the BRE Guidelines have been noted, they have been considered in conjunction with the extremely low existing baseline where when assessed against, any development will translate into BRE transgressions.

10.215 In respect of the APSH, of those buildings that experience change beyond the strict application of the BRE Guidelines, 3 buildings are considered Moderate and therefore significant. There are 5 buildings that are considered Minor and therefore not significant. The SHOG methodology, that records the percentage of amenity space that receives at least 2 hours of sun, demonstrates that 24 out of 25 neighbouring amenity spaces (96%) will meet the strict application of the BRE Guidelines and are considered Negligible. The single case of alteration, to the east amenity space at Delamere Court experiences change beyond the BRE Guidelines and is considered Major Adverse. The Delamere east amenity space in its baseline condition benefits from extremely high source direct sunlight by virtue of the vacant space (demonstrating zero obstruction) that lies to its south. As a result of the proximity and situation of the amenity space on the vacant site's boundary, in any event that development is constructed on the vacant site opposite, the site will experience losses in light. In the summer months (June 21st) the retained levels of light of every amenity space are improved.

10.216 The solar as can be seen from the glare calendars, the instance of glare within 30 degrees of the chosen view directions are very limited in both frequency and duration. The typical duration of these instances is a few minutes, and mostly less than 2 minutes. Whilst the location is of the railway signals is, it is unlikely that such instances of glare would cause a

nuisance or impaired vision. The extent of the solar reflection is therefore considered Minor Adverse and not significant.

10.217 Mitigation of the scheme has been addressed throughout the design phase, with proactive liaison between Point 2 and JTP Architects concerning the massing and configuration of the blocks. Particular attention was paid to the buildings situated on the northern boundary of the Site.

10.218 All residual effects will be permanent. Whilst the results of the daylight and sunlight methodologies demonstrate initial shortfalls when applying the strict application of the BRE Guidelines, the retained values have been considered during the assessment.

10.219 Table 10.8 contains a summary of the likely significant effects of the Development.

Table 10.8: Table of Significance – Daylight, Sunlight, Overshadowing & Solar Glare

Potential Effect	Nature of Effect (Permanent/Temporary)	Significance (Major/Moderate/Minor) (Beneficial/Adverse/Negligible)	Mitigation / Enhancement Measures	Geographical Importance*					Residual Effects (Major/Moderate/Minor) (Beneficial/Adverse/Negligible)										
				I	UK	E	R	C		B	L								
Construction																			
Loss of daylight and sunlight to neighbouring residential properties	Temporary	Construction phasing has not been assessed or modelled in the chapter. The effects of the construction phase would be similar or less than those of the completed development.	N/A																N/A
Completed Development																			
Loss of daylight and sunlight to neighbouring residential properties	Permanent	There are limited Moderate Adverse instances, with the majority of changes considered Negligible. Overall, the changes are considered Minor Adverse on the basis of unusually low-lying baseline condition and encouraging levels of retained values.	Mitigation has been undertaken in the phase of the programme, working closely with JTP architects to reduce instances of undesirable daylight and sunlight																Whilst there are some instances that are recognised as Moderate Adverse, there are a number of buildings that are considered Negligible and Minor Adverse. The results of the daylight and sunlight methodologies demonstrate initial shortfalls when applying the strict application of the BRE Guidelines, recognition of the low lying baseline condition has been extended and the retained values are considered encouraging for the neighbouring context. Given the retained values and vast number of Negligible instances, the overall residual effect is considered Minor Adverse.
Cumulative Effects																			
N/A	N/A	Cumulative effects have not been considered within this chapter as those neighbouring schemes that benefit from consented planning have been adopted within the baseline condition.																	N/A

*** Geographical Level of Importance**

I = International; UK = United Kingdom; E = England; R = Regional; C = County; B = Borough; L = Local

REFERENCES

-
- ⁱ Achieving Appropriate Densities (2019) National Planning Policy Framework
- ^{iv} *The London Plan (2016) The Spatial Development Strategy for London Consolidated with Alterations Since 2011*
- ^v The London Plan (2017) The Spatial Development Strategy for London (Draft for Public Consultation)
- ^{vi} The London Plan (2019) The Spatial Development Strategy for Greater London (Intend to Publish)
- ^{vii} *British Research Establishment (BRE) Site Layout Planning for **Daylight** and **Sunlight**: A Guide to Good Practice*
- ^{viii} British Standard (BS) 8206 Part 2: Lighting for buildings. Code of Practice for Daylighting 2008