

Chapter 10: Daylight, Sunlight, Overshadowing, Solar Glare and Light Intrusion

DAYLIGHT, SUNLIGHT, OVERSHADOWING, SOLAR GLARE AND LIGHT INTRUSION	
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SUPPORTING APPENDIX	ES Volume 3: Appendix: Daylight, Sunlight, Overshadowing, Solar Glare and Light Intrusion Annex 1: Planning Policy and Guidance; Annex 2: Methodology and Baseline; Annex 3: Drawings; Annex 4: Daylight and Sunlight Results; Annex 5: Overshadowing Results; Annex 6: Solar Glare Viewpoints
KEY CONSIDERATIONS	The following key daylight, sunlight and overshadowing issues have been assessed within this ES chapter both during the demolition and construction stage and once the Proposed Development is complete and operational: • Alterations to daylight and sunlight at sensitive surrounding properties; • Overshadowing to sensitive surrounding amenity areas; • A qualitative assessment of solar glare effects at nearby sensitive road locations; and • A qualitative assessment of light intrusion at neighbouring receptors. A technical assessment of solar glare and light intrusion will be undertaken at reserved matters stage should the detailed design be likely to give rise to effects at sensitive receptors. Consideration has been given to surrounding emerging schemes in terms of cumulative effects. A standalone report titled "Daylight and Sunlight Potential" considers the levels of daylight and sunlight within the Proposed Development has been submitted separately as part of the Application.
CONSULTATION	An EIA Scoping Report was prepared and submitted to Gravesham Borough Council (GBC) on the 11th August 2022 requesting a Scoping Opinion from GBC. A copy of the EIA Scoping Report is provided in ES Volume 3, Appendix EIA Methodology – Annex 1. A Scoping Opinion was received on 16th September 2022 (refer to ES Volume 3, Appendix EIA Methodology – Annex 2). In summary, the Scoping Opinion notes that it would be appropriate to cover the light intrusion and solar glare in the operational stages of development within the EIA. This assessment has been undertaken qualitatively, and it noted in paragraph 10.97 and 10.98. A technical assessment of solar glare and light intrusion will be undertaken at the Reserved Matters stage. It is further noted that "The applicant's attention is also drawn to the location of the site on the riverfront, directly opposite the lock entrance to Tilbury Docks where ships are manoeuvred by tug to enter and leave the impounded docks. This is also an area where ships manoeuvre onto wharves to load and discharge cargos during hours of darkness as the tide allows. Any appraisal of the potential for light pollution therefore should have regard to navigational safety on the River Thames and the applicant is advised to engage with the PLA to discuss this aspect". A qualitative assessment of light intrusion to the riverfront is provided at paragraph 10.197.

ASSESSMENT METHODOLOGY

Defining the Baseline

- 10.1** A baseline characterisation was completed by firstly undertaking a review of the surrounding land uses, using information and data sources from the Council (Valuation Office Agency (VOA) website)¹ and Google Maps². Information and data derived from these sources has been reviewed to determine the uses of existing buildings, with the accuracy of existing conditions confirmed using Google Maps.

¹ Valuation Office Agency; <https://www.gov.uk/government/organisations/valuation-office-agency>

² Google Maps; <https://www.google.com/maps>

- 10.2** From the review of the surrounding context, a 3D computer model was developed for the existing surrounding properties and amenity areas as well as the existing conditions. The model is based on photogrammetry and the best available information that could be attained, including site photos, plans, sections and elevations from the local planning portal³ and Google Maps street view. Using professional judgement, properties, amenity areas and viewpoints present in the baseline condition in close enough proximity to the site to be affected by the Proposed Development were identified.

- 10.3** A site visit to undertake measured survey (Scan2CAD) was carried out in June 2022 to model the surrounding properties. The conditions recorded are not considered to have changed from the site visit undertaken to the time of writing this ES chapter.

Evolution of the Baseline

- 10.4** An evolved baseline scenario, which assumes all Cumulative Schemes in the surrounding environment are built out in the absence of the Proposed Development. As discussed in paragraph 10.15, there are no relevant cumulative schemes. Therefore, for the purposes of this ES chapter, an evolved baseline is not considered further as it would not change from the baseline conditions assessed.

- 10.5** A Daylight and Sunlight Design Guide Report, submitted separately as part of the Application, has been prepared to demonstrate the daylight and sunlight potential of future development within the Site itself, as well as overshadowing of internal communal amenity areas. As these internal receptors are not yet existing and therefore cannot experience a 'change' or 'impact' in daylight and sunlight conditions, they are assessed separately and are not discussed further within this ES chapter.

Impact Assessment Methodology

Demolition and Construction

- 10.6** Owing to the evolving and changing nature of demolition and construction activities, the assessment of potential effects during construction of the Proposed Development on daylight, sunlight, overshadowing and solar glare to surrounding receptors has not been modelled. The construction of the new building on the site would have a gradual effect upon the levels of daylight, sunlight and overshadowing as the massing of the Proposed Development increases over time. It is therefore considered that the completed Proposed Development represents the worst-case assessment in terms of likely resultant effects. A qualitative assessment has been undertaken using professional judgement and experience.

Phasing

- 10.7** Whilst the Proposed Development is phased, the assessment of the completed Proposed Development represents a worst case scenario in terms of effects and therefore a phased assessment is not undertaken. Reference should be made to the Demolition and Constructions and Completed Development sections of this ES chapter (paragraph 10.80).

Completed Development

- 10.8** The following scenarios have been assessed and are reported within this chapter of the ES, and are discussed further below:

- Existing Baseline; and
- Proposed Development.

Existing Baseline

- 10.9** The baseline scenario is depicted below in **Figure 10.1** and within **ES Volume 3, Appendix: Daylight, Sunlight, Overshadowing, Solar Glare and Light Intrusion – Annex 3**.

³ Gravesham Council Planning Portal; <https://www.gravesham.gov.uk/planning/view-comment-planning-application>

Figure 10.1 Existing Baseline



- 10.10** This scenario considers the existing daylight, sunlight and overshadowing condition of the site and surrounding context assumed for the purposes of this ES chapter.

Proposed Development

- 10.11** The Proposed Development scenario is depicted below in **Figure 10.2** and within **ES Volume 3, Appendix: Daylight, Sunlight, Overshadowing, Solar Glare and Light Intrusion – Annex 3**.

Figure 10.2 Proposed Development



- 10.12** Given the outline nature of the Application, the maximum extents of the parameter envelope have been considered. As such, this scenario consists of the maximum parameters of the completed Proposed Development in the context of the surrounding environment.

- 10.13** In assessing the potential daylight, sunlight and overshadowing effects of the Proposed Development on the surrounding residential receptors and amenity spaces, comparisons are made against the Existing Baseline scenario.

- 10.14** The qualitative solar glare and light intrusion assessments are not comparative and therefore consider the completed Proposed Development in isolation.

Cumulative Schemes

- 10.15** Owing to cumulative schemes' scale and/or distance from the site and sensitive receptors, it is considered that there is no potential for cumulative overshadowing effects at surrounding sensitive receptors. This has been determined using professional judgement and by measuring the angle the angle to the horizontal subtended by the cumulative schemes at the level of the lowest of the lowest windows at neighboring properties, which is less than 25 degrees. BRE Guidelines suggests that in this is unlikely to have a substantial effect of diffuse skylight.

- 10.16** Therefore, there would be no cumulative effects and a technical assessment is not required.

Methodology

- 10.17** The full methodology is found within **ES Volume 3, Appendix: Daylight, Sunlight, Overshadowing, Solar Glare and Light Intrusion – Annex 2**.

- 10.18** The assessments have been undertaken in line with national, regional and local policy and guidance. The relevant documents are listed and summarised within **ES Volume 3, Appendix: Daylight, Sunlight, Overshadowing, Solar Glare and Light Intrusion – Annex 1**.

Daylight

- 10.19** The following methodologies are used to assess daylight:

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

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

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

Sunlight

- 10.22** The Annual Probable Sunlight Hours (APSH) is used to assess sunlight.

- 10.23** APSH is a measure of sunlight that a given window may expect over a year period. The BRE Guidelines⁴ recognise that sunlight is less important than daylight in the amenity of a room and is heavily influenced by orientation. North-facing windows may receive sunlight on only a handful of occasions in a year, and windows facing eastwards or westwards will only receive sunlight for some of the day. The BRE Guidelines state that only windows with an orientation within 90° of south need be assessed. Therefore, in terms of sunlight, only windows facing within 90° of due south are assessed for APSH as north facing windows will not receive direct sunlight.

- 10.24** The baseline of both total APSH and Winter Probable Sunlight Hours (PSH) are assessed. The APSH and Winter PSH have different BRE Guidelines criteria (refer **ES Volume 3, Appendix: Daylight, Sunlight, Overshadowing, Solar Glare and Light Intrusion – Annex 1**). For the assessment of the impacts of the Proposed Development on neighbouring properties, the total APSH and Winter PSH are reported separately, to provide a more detailed assessment reflecting the different sunlight conditions.

⁴ British Research Establishment (BRE) 'Site Layout Planning for Daylight and Sunlight: a guide to good practice' (BRE209) Third Edition, 2022.

Overshadowing

- 10.25** The following methodologies are used to assess overshadowing impacts on neighbouring sensitive amenity areas:
- Transient overshadowing; and
 - Sun Hours on Ground.

Transient Overshadowing

- 10.26** The Transient Overshadowing methodology is used to assess overshadowing. This method is initially used as a screening exercise to determine which amenity areas should be included for the purpose of the Sun Hours on Ground assessment.
- 10.27** BRE Guidelines suggest that 'sun hours on ground' assessment should be undertaken on the equinox (21st March / 21st September). Using specialist software, the path of the sun has been tracked to determine where the sun would reach the ground and where it would not on these dates.
- 10.28** The assessment of potential effects as a result of Transient Overshadowing is therefore based on the results of this specialist software and professional judgement, taking into consideration the conditions of the existing site and surrounding area, and comparing these conditions against the resultant impact of the Proposed Development.

Sun Hours on Ground

- 10.29** It is suggested in the BRE Guidelines that for an area to appear adequately sunlit throughout the year, at least half (50%) of any assessment area should see direct sunlight for at least two hours on the 21st March. If, as a result of the Proposed Development, an existing assessment area will not meet the BRE Guidelines criteria and the area which can receive two hours of direct sunlight on 21st March is reduced to less than 0.8 times its former area, then the loss of sunlight is likely to be noticeable.
- 10.30** Where the results show compliance with the BRE Guidelines criteria, the occupants are unlikely to experience any noticeable change to their sunlight amenity levels. For the purposes of this assessment, such an effect would be considered negligible and not significant. Should the relevant criteria not be achieved, a judgement has to be made as to the scale and nature of effects and their resultant significance based on the level of loss, retained sunlight levels and the relevant baseline scenario.

Summary of BRE Guidelines Criteria for Daylight, Sunlight and Overshadowing

- 10.31** The BRE Guidelines criteria for daylight, sunlight and overshadowing is summarised in **Table 10.1**. Numerical analysis and professional judgement have also been used to determine the scale and nature of the potential effects.

Table 10.1 Summary of BRE Guidelines Criteria

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

Solar Glare

- 10.32** Solar glare is particularly important at pedestrian crossings, road junctions and railway lines, where glare can cause temporary blinding of road users and train drivers. Typically, elements considered to be reflective are either glazed apertures or specular metal cladding.

- 10.33** The BRE Guidelines includes the following statement in regard to the potential for reflected solar glare from a new development:

"Glare or solar dazzle can occur when sunlight is reflected from a glazed façade. This can affect road users outside and the occupants of adjoining buildings. The problem can occur either when there are large areas of reflective 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..."

- 10.34** Typically, only highly glazed buildings are considered, where reflective elements of the façade are visible from sensitive receptors such as road and railway junctions. Solar glare effects can only be quantitatively assessed where the façade details of a proposed building are known and can be technically assessed using specialist software based on guidance from the CIE Collection on Glare 2002⁵.

- 10.35** Due to the outline nature of the Application, the façade details are not yet known and as such a technical assessment cannot be undertaken. However, a map showing the location of potentially sensitive receptors is provided within this ES chapter and a qualitative assessment of the potential façades is undertaken, based on reasonable assumptions of materiality of façades and their reflective properties. At reserved matters stage, should the detailed design for the outline components be likely to comprise any significant effects, technical assessments will be undertaken.

Light Intrusion

- 10.36** The Institute of Lighting Practitioners ILP Guidance Notes⁶ (ILP Guidance) suggested lighting level values to ascertain the acceptability of a proposals artificial lighting levels. It defines light intrusion as the spilling of light beyond the boundary of a proposal.

- 10.37** Light intrusion assessments are been necessary where sources of unwanted artificial light spill onto surrounding sensitive receptors, such as residential properties. Light intrusion typically occurs where highly glazed office proposals are located in close proximity (approximately 20m or less) to sensitive receptors.

- 10.38** As the uses and lighting strategy of the Proposed Development are not yet known, a technical assessment cannot be undertaken. However, sensitive receptors are identified within this ES chapter. At reserved matters stage, should the detailed design for the outline components be likely to comprise any significant effects, technical assessments will be undertaken

Methodology for Defining Effects

Receptors and Receptor Sensitivity

- 10.39** In terms of sensitivity, existing surrounding residential properties (i.e. receptors) are considered highly sensitive to daylight and sunlight levels, and specifically habitable rooms within the properties such as living rooms, kitchens and bedrooms, in accordance with BRE Guidelines. All existing residential receptors assessed within this ES chapter are considered highly sensitive due to the expectation of natural light and are given equal weighting, and therefore each individual residential receptor is treated as highly sensitive.

- 10.40** The BRE Guidelines suggest that bedrooms need less daylight than kitchens and living rooms, given that the primary use of the room is for sleeping. In terms of daylight distribution, bedrooms should also be analysed although they are less important (BRE Guidelines 2.2.10). The BRE Guidelines also consider bedrooms and kitchens to be less important with regards to sunlight.

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

- 10.42** For Overshadowing, all public areas of open space such as parks and squares, neighbouring communal amenity areas and private gardens are considered highly sensitive.

- 10.43** All viewpoints considered for Solar Glare are considered highly sensitive to instances of reflection which could affect a road users' responsiveness.

⁵ International Commission on Illumination (CIE) Collection On Glare 2002 146/147:2002

⁶ The Institute of Lighting Practitioners (ILP): The Guidance Notes for the Reduction of Obtrusive Light, 2021

Magnitude of Impact

- 10.44 The key terminology used to describe the magnitude of impacts are as follows and are determined with reference to the BRE Guidelines criteria presented within **Table 10.2**:
- High;
 - Medium;
 - Low; and
 - No impact.

Defining the Effect

- 10.45 The effects are defined by reference to BRE Guidelines, which outline the methodology by which an adverse effect may be considered to occur. However, as noted in national, regional and local policy, as well as in BRE Guidelines, an appropriate degree of flexibility should be applied to the criteria presented below.

Daylight

- 10.46 For daylight, the BRE Guidelines outline the approach within the accompanying Appendix I, in terms of assigning criteria to assess the effects:
- “Adverse impacts occur when there is a significant decrease in the amount of skylight [...] reaching an existing building where it is required [...]. The assessment of impact will depend on a combination of factors, and there is no simple rule of thumb that can be applied.”
- “Where the loss of skylight [...] fully meets the guidelines, the impact is assessed as negligible or minor adverse. Where the loss of light is well within the guidelines, or only a small number of windows [...] lose light (within the guidelines), a classification of negligible impact is more appropriate. Where the loss of light is only just within the guidelines and a larger number of windows [...] are affected, a minor adverse impact would be more appropriate, especially if there is a particularly strong requirement for daylight [...] in the affected building [...].”
- “Where the loss of skylight [...] does not meet the guidelines in this book, the impact is assessed as minor, moderate or major adverse. Factors tending towards a minor adverse impact include:
- Only a small number of windows [...] are affected;
 - The loss of light is only marginally outside the guidelines;
 - An affected room has other sources of skylight [...]; and/or
 - The affected building [...] has a low level of requirement for skylight [...].”
- 10.47 The classification of major adverse impacts is documented within Paragraph 7 of BRE Guidelines:
- “Factors tending towards a major adverse impact include:
- a large number of windows [...] are affected;
 - the loss of light is substantially outside the guidelines;
 - all the windows in a particular property are affected; and
 - the affected indoor [...] spaces have a particular strong requirement for skylight [...], e.g. a living room in a dwelling [...].”
- 10.48 The numerical criteria for determining the category of effect for Vertical Sky Component (VSC) and No-Sky Line (NSL) is based on percentage alterations, as seen in **Table 10.2**.

Table 10.2 Percentage Alterations from the Baseline (VSC and NSL)

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

- 10.49 Where BRE Guidelines criteria are met and there is an alteration below 20%, the effects will be considered negligible. Additionally, if the retained VSC levels are ≥27% and the NSL levels are >80%, the effects are considered negligible, regardless of the alteration.
- 10.50 When assigning significance per property however, consideration has been given to the proportion of rooms / windows affected, as well as the percentage alterations, absolute changes, existing levels, retained levels (including retained ADF levels where appropriate) and any other relevant factors, such as orientation, balconies, overhangs or design features. The criteria are therefore not applied mechanistically.

Sunlight

- 10.51 For sunlight, the BRE Guidelines outline the approach of assigning criteria to assess the effects:
- “Adverse impacts occur when there is a significant decrease in the amount of [...] sunlight reaching an existing building where it is required [...]. The assessment of impact will depend on a combination of factors, and there is no simple rule of thumb that can be applied.”
- “Where the loss of skylight [...] fully meets the guidelines, the impact is assessed as negligible or minor adverse. Where the loss of light is well within the guidelines, or only a small number of windows [...] lose light (within the guidelines), a classification of negligible impact is more appropriate. Where the loss of light is only just within the guidelines and a larger number of windows or open space are affected, a minor adverse impact would be more appropriate, especially if there is a particularly strong requirement for [...] sunlight in the affected building [...].”
- “Where the loss of [...] sunlight does not meet the guidelines in this book, the impact is assessed as minor, moderate or major adverse. Factors tending towards a minor adverse impact include:
- Only a small number of windows [...] are affected;
 - The loss of light is only marginally outside the guidelines;
 - An affected room has other sources of [...] sunlight; and/or
 - The affected building [...] only has a low level of requirement for [...] sunlight.”
- “Factors tending towards a major adverse impact include:
- a large number of windows [...] are affected;
 - the loss of light is substantially outside the guidelines;
 - all the windows in a particular property are affected; and
 - the affected indoor [...] spaces have a particular strong requirement for skylight [...], e.g. a living room in a dwelling [...].”

- 10.52 With regard to BRE Guidelines criteria, the initial numerical criteria for determining the scale of effect is based on percentage alterations from the baseline, as seen in **Table 10.3**. Using the BRE criteria, professional judgement has then been used to determine the extent of sunlight effects.

Table 10.3 Percentage Alterations from the Baseline (Annual and Winter PSH)

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

- 10.53 If the retained total APSH levels are ≥ 25% with at least 5% of this occurring in the winter months, the effects are considered negligible in line with BRE Guidelines, regardless of the alteration.
- 10.54 When assigning significance per property however, consideration has been given to the proportion of rooms / windows affected, as well as the percentage alterations, absolute changes, existing levels, retained levels and any other relevant factors, such as orientation, balconies, overhangs or design features. The criteria are therefore not applied mechanistically.

Overshadowing

Transient Overshadowing

- 10.55 BRE Guidelines does not include criteria for the scale and nature of effects and subsequent significance of Transient Overshadowing other than to identify the different times of the day and year when shadow would be cast over a surrounding area.
- 10.56 The assessment of potential effects as a result of Transient Overshadowing is therefore based on professional judgement, taking into consideration the conditions of the existing site and surrounding area, and comparing these conditions against the resultant impact of the Proposed Development.

Sun Hours on Ground

- 10.57 It is suggested in the BRE Guidelines that for an area to appear adequately sunlit throughout the year, at least half (50%) of any assessment area should see direct sunlight for at least two hours on the 21st March. If, as a result of the Proposed Development, an existing assessment area will not meet the BRE Guidelines criteria and the area which can receive two hours of direct sunlight on 21st March is reduced to less than 0.8 times its former area, then the loss of sunlight is likely to be noticeable.
- 10.58 Where the results show compliance with the BRE Guidelines criteria, the occupants are unlikely to experience any noticeable change to their sunlight amenity levels. For the purposes of this assessment, such an effect would be considered negligible and not significant. Should the relevant criteria not be achieved, a judgement has to be made as to the scale and nature of effects and their resultant significance based on the level of loss, retained sunlight levels and the relevant baseline scenario.
- 10.59 **Table 10.4** sets out the numerical criteria adopted in relation to the Sun Hours on Ground assessment. All effects greater than minor adverse are considered significant.

Table 10.4 Percentage Alterations from the Baseline (Sun Hours on Ground)

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

Solar Glare and Light Intrusion

- 10.60 The methodology for defining solar glare and light intrusion effects are based on qualitative assessments, based on the criteria set out in BRE, CIE and ILP guidance notes (see **ES Volume 3, Appendix: Daylight, Sunlight, Overshadowing, Solar Glare and Light Intrusion – Annex 2**).
- 10.61 Additionally, professional judgement has been applied in considering the Parameter Plans and Design Codes to understand the uses of future development within the site, potential façade materiality and lighting strategy.

Categorising Likely Significant Effects

- 10.62 BRE Guidelines does not advise on significance of an effect. Where an effect is determined as in excess of the recommended criteria it is considered significant. Therefore, the following criteria are applied:
- ‘Moderate’ or ‘Major’ effects (beneficial or adverse) are deemed to be ‘significant’; and
 - ‘Minor’ or ‘Negligible’ effects (beneficial or adverse) are considered ‘not significant’.
- 10.63 Appendix H paragraph 19 of BRE Guidelines notes that an adverse impact on one property cannot be balanced against negligible or beneficial impacts on another and in these instances, it is more appropriate to quote a range of impacts. Therefore, where appropriate and there is a range in the magnitude of impacts to windows / rooms at a particular building, the overall effect may be expressed as a range.

- 10.64 The nature of the effects may be either adverse (negative or detrimental) or beneficial (advantageous or positive) and are identified as such. Throughout demolition and construction, effects are considered ‘temporary’, ‘local’, and ‘direct’. Effects, once the Proposed Development is complete and operation are considered ‘permanent’, ‘local’ and ‘direct’.

Assumptions and Limitations

- 10.65 No assumptions are made in relation to demolition, construction and phasing as no technical assessments are undertaken in relation to construction. It is however assumed that the Completed Development is the worst-case scenario for daylight, sunlight and overshadowing and therefore, the construction phase is not quantitatively assessed within this chapter.
- 10.66 Given the outline nature of the application, the Proposed Development assesses the maximum extents of the parameter envelope. At reserved matters stage, once detailed designs are proposed, the massing of future development would remain similar or reduce in scale from the maximum parameter envelope of the Proposed Development. Depending on the final massing of detailed designs and subsequent level of obstruction, the daylight, sunlight and overshadowing effects to surrounding receptors would remain similar or reduce from those reported in this ES chapter.
- 10.67 For the existing surrounding sensitive receptors where layout information was not available, assumptions have been made as to the use and internal configuration of the rooms (from external observations) behind the fenestration observed. In such cases a standard 4.3m (14ft) room depth has been assumed, unless the building form dictated otherwise. This is common practice where access to buildings for surveying is unavailable. Obtaining these room layouts enables precise evaluation of the diffuse levels of daylight within each of the rooms via the No Sky Line (NSL). It has not been possible to obtain floorplans for any of the surrounding properties assessed and therefore the internal configurations have been assumed.
- 10.68 Floor levels have been assumed for surrounding properties where access has not been obtained. With the working plane located 850mm above the finished floor level, this has the potential to affect the assessment of NSL.
- 10.69 As the detailed façade designs and lighting strategy are not yet available, due to the outline nature of the Proposed Development application, solar glare and light intrusion assessments are not available. Potentially sensitive receptors to solar glare and light intrusion are identified within this ES chapter. Should future detailed design comprise any elements likely to give to significant effects, further assessments will be undertaken.

RECEPTORS AND RECEPTOR SENSITIVITY

Existing Receptors

- 10.70 The sensitive receptors are listed in **Table 10.5**.

Daylight and Sunlight

- 10.71 Residential buildings are considered sensitive daylight and sunlight changes and assessed in this ES chapter as shown in **Figure 10.3** and listed in **Table 10.5**. As noted in the methodology, residential buildings are considered highly sensitive to changes in daylight and sunlight.
- 10.72 From a review of surrounding properties, there are none with windows facing within 90 degrees of due south with the potential to be affected by the Proposed Development and as such no properties are sensitive to sunlight changes.

Overshadowing

- 10.73 For Overshadowing, public and private areas of outdoor areas of amenity are considered highly sensitive. Additionally, the waterbodies are sensitive in relation to ecological considerations and therefore assessed. Each of these areas are shown in **Figure 10.4**.

Figure 10.3 Daylight Receptors

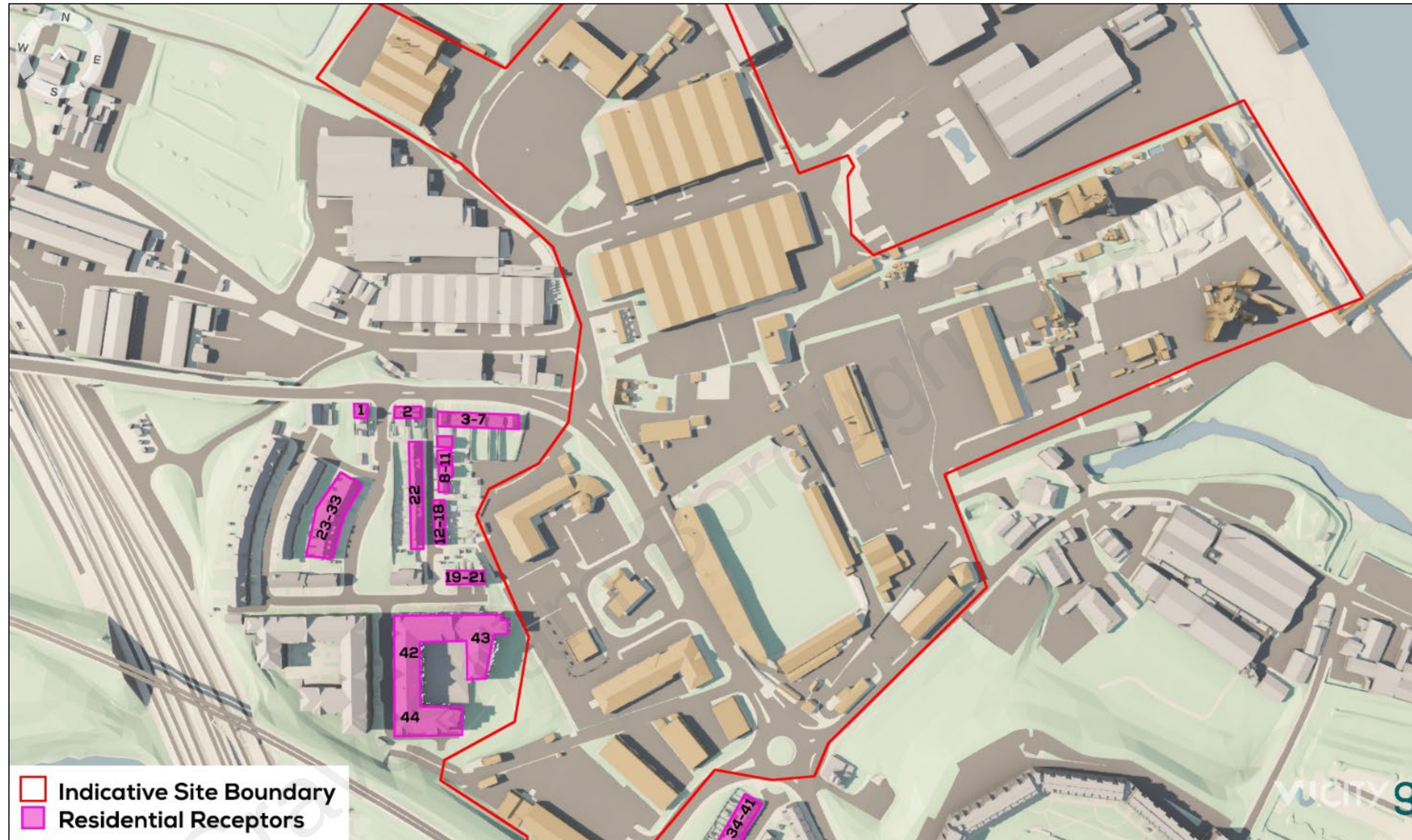


Figure 10.4 Overshadowing Receptors



Table 10.5 List of Receptors

Address	Description	Sensitivity
Daylight Receptors		
1. Galley Hill Road 24-25	Residential	High
2. Galley Hill Road 20-23	Residential	High
3. Galley Hill Road 19-18	Residential	High
4. Galley Hill Road 16-17	Residential	High
5. Galley Hill Road 14-15	Residential	High
6. Galley Hill Road 12-13	Residential	High
7. Galley Hill Road 10-11	Residential	High
8. Taunton Road 1-2	Residential	High
9. Taunton Road 3-4	Residential	High
10. Taunton Road 5-6	Residential	High
11. Taunton Road 7-8	Residential	High
12. Taunton Road 12-13	Residential	High
13. Taunton Road 14	Residential	High
14. Taunton Road 15	Residential	High
15. Taunton Road 16	Residential	High
16. Taunton Road 17	Residential	High
17. Taunton Road 18	Residential	High
18. Taunton Road 19	Residential	High
19. Rising Bollards 57	Residential	High
20. Rising Bollards 56	Residential	High
21. Rising Bollards 55	Residential	High
22. Taunton Road 20-38	Residential	High
23. Snowden Hill 11	Residential	High
24. Snowden Hill 10	Residential	High
25. Snowden Hill 9	Residential	High
26. Snowden Hill 8	Residential	High
27. Snowden Hill 7	Residential	High
28. Snowden Hill 6	Residential	High
29. Snowden Hill 5	Residential	High
30. Snowden Hill 4	Residential	High
31. Snowden Hill 3	Residential	High
32. Snowden Hill 2	Residential	High
33. Snowden Hill 1	Residential	High
34. Railway Street 44	Residential	High
35. Railway Street 50	Residential	High
36. Railway Street 46	Residential	High
37. Railway Street 48	Residential	High
38. Railway Street 38	Residential	High
39. Railway Street 40	Residential	High
40. Railway Street 42	Residential	High
41. Railway Street 36	Residential	High

Address	Description	Sensitivity
42. Phoenix Court 12-32-46-59-73-86-99-103	Residential	High
43. Phoenix Court 104-151	Residential	High
44. Phoenix Court 1-11-33-45-60-72-87-98	Residential	High
Overshadowing Receptors		
1. Galley Hill Road 10-11	Rear Garden	High
2. Galley Hill Road 12	Rear Garden	High
3. Galley Hill Road 13	Rear Garden	High
4. Galley Hill Road 14	Rear Garden	High
5. Galley Hill Road 15	Rear Garden	High
6. Galley Hill Road 16	Rear Garden	High
7. Galley Hill Road 17	Rear Garden	High
8. Taunton Road 01	Rear Garden	High
9. Taunton Road 02	Rear Garden	High
10. Taunton Road 03	Rear Garden	High
11. Taunton Road 04	Rear Garden	High
12. Taunton Road 05	Rear Garden	High
13. Taunton Road 06	Rear Garden	High
14. Taunton Road 07	Rear Garden	High
15. Taunton Road 08	Rear Garden	High
16. Taunton Road 12	Rear Garden	High
17. Taunton Road 13	Rear Garden	High
18. Taunton Road 14	Rear Garden	High
19. Taunton Road 15	Rear Garden	High
20. Taunton Road 16	Rear Garden	High
21. Taunton Road 17	Rear Garden	High
22. Taunton Road 18	Rear Garden	High
23. Taunton Road 19a	Rear Garden	High
24. Taunton Road 19b	Rear Garden	High
25. Black Eagle Drive Play Area	Play Area	High
26. Swanscombe Peninsula (SSSI)	Public Realm	High
27. River Thames	Water bodies	High
28. Robins Creek	Water bodies	High

Solar Glare

- 10.74** For Solar Glare, road and railway viewpoints with the potential to see reflections arising from the Proposed Development are considered to be of high sensitivity. The details of the Proposed Development are not yet available to undertake a technical assessment, the potential for solar glare has been qualitatively considered at the road and rail viewpoints listed below and shown in **Figure 10.5:**
- **Road viewpoints:** 1 (A226 along Galley Hill Road) and 2 (B2175 along Stonebridge Road); and
 - **Railway viewpoints:** A (east from Swanscombe Station) and B (northwest from Northfleet Station).
- 10.75** Indicative viewpoints have been placed at these locations (**ES Volume 3, Appendix: Daylight, Sunlight, Overshadowing, Solar Glare and Light Intrusion – Annex 6**), to demonstrate which blocks would a) be visible and b) require considered façade design for future development to mitigate effects.

Figure 10.5 Solar Glare Receptors



Light Intrusion

10.76 Light intrusion effects may occur where sensitive residential or ecological receptors are located in close proximity (approximately 20m or less) to sources of high powered artificial lighting. Given the outline nature of the planning application, the detailed lighting design is not yet available. However, the potential for light intrusion effects has been qualitatively considered at the following sensitive receptors, which are close enough proximity to potential sources of light intrusion to be affected:

- Phoenix Court 104-151;
- Future residential uses internal to the site;
- Swanscombe Peninsula (SSSI); and
- Riverfront docks.

BASELINE CONDITIONS

- 10.77** The full daylight and sunlight baseline assessment results are presented in **ES Volume 3, Appendix: Daylight, Sunlight, Overshadowing, Solar Glare and Light Intrusion – Annex 2**.
- 10.78** Within the 44 residential receptors sensitive to daylight and sunlight assessed, a total of 979 windows serving 401 habitable rooms were assessed to determine the existing daylight levels. There are no residential receptors with window / rooms facing within 90 degrees of the site and therefore a baseline condition for sunlight is not relevant.
- 10.79** There are no receptors sensitive to sunlight and therefore sunlight is not considered in the baseline condition.
- 10.80** For daylight in the baseline condition, 508 of the 979 (51.9%) windows would meet the BRE Guidelines criteria for VSC and 291 of the 401 rooms (72.6%) would meet the BRE Guidelines criteria for NSL.
- 10.81** The full overshadowing baseline assessment results are presented in **ES Volume 3, Appendix: Daylight, Sunlight, Overshadowing, Solar Glare and Light Intrusion – Annex 5**. A total of 28 amenity areas have been assessed using BRE's assessment that an area should receive at least two hour sun on 50% of their total area. A total of 6 areas would not meet BRE's criteria. The remaining 19 areas meet or exceed this recommendation. The baseline condition of the public amenity, Swanscombe Peninsula (SSSI), and water bodies, Robins Creek and River Thames can be seen in the transient overshadowing plots, where it can be seen that these areas receive two or more hours of sunlight on 50% of their total area on March 21st.
- 10.82** Solar glare and light intrusion are not comparative assessments; the fact that solar glare and light intrusion may occur in the baseline condition does not justify reflections occurring from the Proposed Development. Therefore, the baseline condition is not relevant in relation to solar glare and light intrusion, as the assessments considers the Proposed Development in isolation.

POTENTIAL EFFECTS

Demolition and Construction

- 10.83** The magnitude of impact and resultant potential effect in relation to the daylight, sunlight, overshadowing and solar glare on the surrounding receptors would vary throughout the demolition and construction phase, depending on the level of obstruction caused.
- 10.84** During the construction phase, a number of tall temporary structures are likely to be present on-site. In some cases, scaffolding, cranes and hoarding would marginally increase the size of the Proposed Development's maximum massing, however this would be temporary and is unlikely to result in additional noticeable effects due to the scale of these structures and their transient nature.
- 10.85** The construction of the new building on the site would have a gradual effect upon the levels of daylight, sunlight and overshadowing as the massing of the Proposed Development increases over time. It is therefore considered that the completed Proposed Development represents the worst-case assessment in terms of likely resultant effects. The effects during the demolition and construction works would almost certainly be less than that of the Proposed Development, given that the extent of permanent massing would increase throughout the construction programme, until the Proposed Development is complete.
- 10.86** The effect in terms of solar glare would range from being negligible effects during demolition, gradually increasing as construction works progress and the façades of the Proposed Development are installed. Therefore, the effects as set out in the assessment of the Completed Development scenario below represents the worst-case scenario.
- 10.87** Therefore, the effects have the potential to be adverse on surrounding receptors. It is considered that the effects would be temporary and no worse than those presented by the completed Proposed Development without mitigation.
- 10.88** Reference should therefore be made to the assessments of the completed Proposed Development in relation to potential daylight, sunlight, overshadowing, solar glare and light intrusion effects which are discussed in the sections below.

Completed Development

- 10.89** The full daylight assessment for the Completed Development can be found within **ES Volume 3, Appendix: Daylight, Sunlight, Overshadowing, Solar Glare and Light Intrusion – Annex 4**.
- 10.90** The VSC and NSL reductions are summarised below in **Table 10.6**. A total of 44 buildings have been assessed for daylight and all windows and rooms assessed within 25 of these would meet BRE's criteria for both VSC and NSL, which are highlighted in blue. Overall, of the 979 windows assessed for VSC, 927 (94.7%) would meet BRE's criteria and for NSL, 362 of the 401 (90.3%) rooms assessed.
- 10.91** The remaining 19 buildings are discussed in further detail below.

Table 10.6 Daylight Results of the Proposed Development at Surrounding Sensitive Receptors (VSC and NSL)

Address	VSC						NSL					
	Total No. of Windows	No. Windows that meet BRE criteria	Below BRE Guidelines criteria				Total No. of Rooms	No. Rooms that meet the 0.8 times former value criteria	Below BRE Guidelines criteria			
			20-29.9% Reduction	30-39.9% Reduction	>40% Reduction	Total			20-29.9% Reduction	30-39.9% Reduction	>40% Reduction	Total
Galley Hill Road 24-25	14	14	0	0	0	0	8	8	0	0	0	0
Galley Hill Road 20-23	28	27	1	0	0	1	18	18	0	0	0	0
Galley Hill Road 19-18	16	14	0	1	1	2	8	8	0	0	0	0
Galley Hill Road 16-17	29	29	0	0	0	0	9	9	0	0	0	0
Galley Hill Road 14-15	14	14	0	0	0	0	8	8	0	0	0	0
Galley Hill Road 12-13	11	11	0	0	0	2	11	11	0	0	0	0
Galley Hill Road 10-11	12	10	0	2	0	2	8	8	0	0	0	0
Taunton Road 1-2	16	16	0	0	0	0	10	10	0	0	0	0
Taunton Road 3-4	17	17	0	0	0	0	10	10	0	0	0	0
Taunton Road 5-6	12	12	0	0	0	0	10	10	0	0	0	0
Taunton Road 7-8	19	19	0	0	0	0	11	11	0	0	0	0

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Address	VSC						NSL					
	Total No. of Windows	No. Windows that meet BRE criteria	Below BRE Guidelines criteria				Total No. of Rooms	No. Rooms that meet the 0.8 times former value criteria	Below BRE Guidelines criteria			
			20-29.9% Reduction	30-39.9% Reduction	>40% Reduction	Total			20-29.9% Reduction	30-39.9% Reduction	>40% Reduction	Total
Taunton Road 12-13	11	11	0	0	0	0	4	3	1	0	0	1
Taunton Road 14	5	5	0	0	0	0	3	1	2	0	0	2
Taunton Road 15	2	2	0	0	0	0	2	1	0	0	1	1
Taunton Road 16	2	2	0	0	0	0	2	0	0	0	2	2
Taunton Road 17	3	3	0	0	0	0	2	0	0	1	1	2
Taunton Road 18	3	3	0	0	0	0	2	0	1	0	1	2
Taunton Road 19	1	1	0	0	0	0	1	0	0	0	1	1
Rising Bollards 57	9	7	0	1	1	2	4	4	0	0	0	0
Rising Bollards 56	9	7	1	1	0	2	4	4	0	0	0	0
Rising Bollards 55	13	12	0	0	1	1	6	6	0	0	0	0
Taunton Road 20-38	63	63	0	0	0	0	42	39	2	0	1	3
Snowden Hill 11	7	7	0	0	0	0	5	5	0	0	0	0
Snowden Hill 10	7	7	0	0	0	0	5	5	0	0	0	0
Snowden Hill 9	7	7	0	0	0	0	5	5	0	0	0	0
Snowden Hill 8	7	7	0	0	0	0	5	5	0	0	0	0
Snowden Hill 7	7	7	0	0	0	0	5	5	0	0	0	0
Snowden Hill 6	4	4	0	0	0	0	3	3	0	0	0	0
Snowden Hill 5	4	4	0	0	0	0	3	3	0	0	0	0
Snowden Hill 4	4	4	0	0	0	0	3	3	0	0	0	0
Snowden Hill 3	4	4	0	0	0	0	3	3	0	0	0	0
Snowden Hill 2	4	4	0	0	0	0	3	3	0	0	0	0
Snowden Hill 1	5	5	0	0	0	0	3	3	0	0	0	0
Railway Street 44	8	6	2	0	0	2	7	6	1	0	0	1
Railway Street 50	13	9	3	0	1	4	10	8	1	1	0	2
Railway Street 46	6	5	1	0	0	1	6	4	1	1	0	2
Railway Street 48	7	5	1	0	1	2	7	4	2	0	1	3
Railway Street 38	9	9	0	0	0	0	8	8	0	0	0	0
Railway Street 40	9	9	0	0	0	0	7	7	0	0	0	0
Railway Street 42	9	9	0	0	0	0	7	7	0	0	0	0
Railway Street 36	9	9	0	0	0	0	8	8	0	0	0	0
Phoenix Court 12-32-46-59-73-86-99-103	199	199	0	0	0	2	42	42	0	0	0	0
Phoenix Court 104-151	217	184	13	12	8	33	48	31	2	3	12	17
Phoenix Court 1-11-33-45-60-72-87-98	124	124	0	0	0	0	25	25	0	0	0	0
Total	979	927	22	17	13	56	401	362	13	6	20	39

Galley Hill Road 20-23

- 10.92** A total of 28 windows serving 18 rooms were assessed for daylight within this building.
- 10.93** For VSC, 27 of the 28 (96.4%) windows assessed would meet BRE's criteria and are therefore considered to experience a Negligible effect. The affected windows would experience an alteration in VSC of 24.7% which is considered a Minor Adverse effect.
- 10.94** For NSL, based on the assumed layouts, all rooms assessed would meet BRE's criteria and so are considered to experience a Negligible effect.
- 10.95** Overall, due to the levels of compliance, the effect is considered **Negligible** (not significant).

Galley Hill Road 19-18

- 10.96** A total of 16 windows serving eight rooms were assessed for daylight within this building.
- 10.97** For VSC, 14 of the 16 (87.5%) windows assessed would meet BRE's criteria and are therefore considered to experience a Negligible effect. Of the two affected windows, one would experience an alteration in VSC of

46.8% which is considered a Moderate Adverse effect whilst one would experience an alteration of 47.6% which is considered a Major Adverse effect. Both windows have low baseline values (below 6.8% VSC) and so the absolute alterations, which equate to 2.5% VSC, would not be noticeable. As such, the percentage reductions are disproportionate to what the occupants would experience.

- 10.98** For NSL, based on the assumed layouts, all rooms assessed would meet BRE's criteria and so are considered to experience a Negligible effect.
- 10.99** Overall, due to the levels of compliance, the effect is considered **Negligible** (not significant).

Galley Hill Road 12-13

- 10.100** A total of 11 windows serving 11 rooms were assessed for daylight within this building.
- 10.101** For VSC, nine of the 11 (81.8%) windows assessed would meet BRE's criteria and are therefore considered to experience a Negligible effect. Of the two affected windows, both would experience an alteration in VSC of 20.6% which is considered a Minor Adverse effect, however, is only very slightly (0.6%) above BRE's criteria. As such, the change is not likely to be noticeable.

10.102 For NSL, based on the assumed layouts, all rooms assessed would meet BRE's criteria and so are considered to experience a Negligible effect.

10.103 Overall, due to the levels of compliance and based on professional opinion, the effect is considered **Negligible to Minor Adverse** (not significant).

Galley Hill Road 10-11

10.104 A total of 12 windows serving eight rooms were assessed for daylight within this building.

10.105 For VSC, 10 of the 12 (83.3%) windows assessed would meet BRE's criteria and are therefore considered to experience a Negligible effect. Of the two affected windows, both would experience an alteration in VSC of 31% which is considered a Moderate Adverse effect. However, both windows would retain 21% VSC. Based on the assumed floorplan, this window serves a room with additional windows which are unaffected so and the room would remain daylight overall.

10.106 For NSL, based on the assumed layouts, all rooms assessed would meet BRE's criteria and so are considered to experience a Negligible effect.

10.107 Overall, based on professional judgement, the effect is considered **Negligible to Minor Adverse** (not significant).

Taunton Road 14

10.108 A total of five windows serving three rooms were assessed for daylight within this building.

10.109 For VSC, all windows assessed would meet BRE's criteria and so are considered to experience a Negligible effect.

10.110 For NSL, based on the assumed layouts, one of the three (33.3%) rooms assessed would meet BRE's criteria and are therefore considered to experience a Negligible effect.

10.111 Of the two affected rooms, both would experience an alteration in NSL of 22% and 29% which is considered a Minor Adverse effect.

10.112 Overall, based on professional judgement, the effect is considered **Negligible** (not significant).

Taunton Road 15

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

10.114 For VSC, both windows assessed would meet BRE's criteria and so are considered to experience a Negligible effect.

10.115 For NSL, based on the assumed layouts, one of the two (50%) rooms assessed would meet BRE's criteria and are therefore considered to experience a Negligible effect.

10.116 The affected room is at first storey and is likely to serve a bedroom where daylight distribution is less important. It would experience an alteration in NSL of 56% which is considered a Major Adverse effect.

10.117 Overall, based on professional judgement, the effect is considered **Minor Adverse** (not significant).

Taunton Road 16

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

10.119 For VSC, both windows assessed would meet BRE's criteria and so are considered to experience a Negligible effect.

10.120 For NSL, based on the assumed layouts, both rooms assessed see losses greater than recommended by BRE.

10.121 Of the two affected rooms, one is at ground floor, which is likely to serve a primary living space, and first storey, which is likely to be a bedroom where daylight distribution is less important. Both would experience an alteration in NSL greater than 40% which is considered a Major Adverse effect.

10.122 Overall, given the compliance for VSC and based on professional judgement, the effect is considered **Minor Adverse** (not significant).

Taunton Road 17

10.123 A total of three windows serving two rooms were assessed for daylight within this building.

10.124 For VSC, all windows assessed would meet BRE's criteria and so are considered to experience a Negligible effect.

10.125 For NSL, based on the assumed layouts, both rooms assessed see losses greater than recommended by BRE.

10.126 Of the two affected rooms which are of unknown use, one at ground level is likely to be a primary living space based on external observation, would experience an alteration in NSL of 34% which is considered a Moderate Adverse effect whilst. The second is at first storey, and may serve a bedroom, where daylight distribution is less important, and would experience an alteration of 53% which is considered a Major Adverse effect.

10.127 Overall, due to the based on professional judgement, the effect is considered **Minor Adverse** (not significant).

Taunton Road 18

10.128 A total of three windows serving two rooms were assessed for daylight within this building.

10.129 For VSC, all windows assessed would meet BRE's criteria and so are considered to experience a Negligible effect.

10.130 For NSL, based on the assumed layouts, both rooms assessed see losses greater than recommended by BRE.

10.131 Of the two affected rooms, based on external observation, one at ground level is likely to be a primary living space and would experience an alteration in NSL of 27% which is considered a Minor Adverse effect whilst. The second is at first storey, likely to serve a primary living space and would experience an alteration of 52% which is considered a Major Adverse effect.

10.132 Overall, due to the VSC compliance and based on professional judgement, the effect is considered **Minor Adverse** (not significant).

Taunton Road 19

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

10.134 For VSC, the single window assessed would meet BRE's criteria and so is considered to experience a Negligible effect.

10.135 For NSL, based on the assumed layouts, the single room assessed see losses greater than recommended by BRE.

10.136 The affected room at first storey and is of unknown use. It would experience an alteration in NSL of 43 % which is considered a Major Adverse effect.

10.137 Overall, based on professional judgement, the effect is considered **Minor Adverse** (not significant).

Rising Bollards 57

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

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

10.140 Of the two affected windows, one would experience an alteration in VSC of 39% which is considered a Moderate Adverse effect whilst one would experience of 84% which is considered a Major Adverse effect. Both windows have low baseline values (below 3.3% VSC) and so the alterations would not be noticeable to the occupants. As such, the percentage changes are disproportionate to what the occupants would experience.

10.141 For NSL, based on the assumed layouts, all rooms assessed would meet BRE's criteria and so are considered to experience a Negligible effect.

10.142 Overall, due to the disproportionate percentage changes and based on professional judgement, the effect is considered **Negligible** (not significant).

Rising Bollards 56

- 10.143** A total of nine windows serving four rooms were assessed for daylight within this building.
- 10.144** For VSC, seven of the nine (77.8%) windows assessed would meet BRE's criteria and are therefore considered to experience a Negligible effect.
- 10.145** Of the two affected windows, one would experience an alteration in VSC of 29.7% which is considered a Minor Adverse effect whilst one would experience an alteration between 37.7% which is considered a Moderate Adverse effect. Both windows have low baseline values (below 3.7% VSC) considered a Major Adverse effect. Both windows have low baseline values (below 3.3% VSC) and so the alterations would not be noticeable to the occupants. As such, the percentage changes are disproportionate to what the occupants would experience.
- 10.146** For NSL, based on the assumed layouts, all rooms assessed would meet BRE's criteria and so are considered to experience a Negligible effect.
- 10.147** Overall, due to the disproportionate percentage changes and based on professional judgement, the effect is considered **Negligible** (not significant).

Rising Bollards 55

- 10.148** A total of 13 windows serving six rooms were assessed for daylight within this building.
- 10.149** For VSC, 12 of the 13 (92.3%) windows assessed would meet BRE's criteria and are therefore considered to experience a Negligible effect.
- 10.150** The affected window would experience an alteration in VSC greater than 40% which is considered a Major Adverse effect. However, this window has a baseline value of 0.1% VSC and so the alteration would not be noticeable to the occupants.
- 10.151** For NSL, based on the assumed layouts, all rooms assessed would meet BRE's criteria and so are considered to experience a Negligible effect.
- 10.152** Overall, based on professional judgement, the effect is considered **Negligible** (not significant).

Taunton Road 20-38

- 10.153** A total of 63 windows serving 42 rooms were assessed for daylight within this building.
- 10.154** For VSC, all windows assessed would meet BRE's criteria and so are considered to experience a Negligible effect.
- 10.155** For NSL, based on the assumed layouts, 39 of the 42 (92.9%) rooms assessed would meet BRE's criteria and are therefore considered to experience a Negligible effect.
- 10.156** Of the three affected rooms based on assumed layouts, two would experience an alteration in NSL of 21% which is considered a Minor Adverse effect however would retain 70% and 75% NSL, and therefore daylight remains is well distributed. The final room would experience an alteration greater than 40% which is considered a Major Adverse Effect. This room is obstructed in the baseline condition (with a baseline value of 26% NSL) and therefore the percentage change is disproportionate to what the occupant would experience.
- 10.157** Overall, based on professional judgement, the effect is considered **Negligible to Minor Adverse** (not significant).

Railway Street 44

- 10.158** A total of eight windows serving seven rooms were assessed for daylight within this building.
- 10.159** For VSC, six of the eight (75%) windows assessed would meet BRE's criteria and are therefore considered to experience a Negligible effect. Of the two affected windows, both would experience an alteration in VSC of 21% and 26% which is considered a Minor Adverse effect.
- 10.160** For NSL, based on the assumed layouts, six of the seven (85.7%) rooms assessed would meet BRE's criteria and are therefore considered to experience a Negligible effect.
- 10.161** The affected room would experience an alteration in NSL of 20% which is considered a Minor Adverse effect. Based on assumed layouts this room would retain 71% NSL.

- 10.162** Overall, based on professional judgement, the effect is considered **Negligible to Minor Adverse** (not significant).

Railway Street 50

- 10.163** A total of 13 windows serving 10 rooms were assessed for daylight within this building.
- 10.164** For VSC, nine of the 13 (69.2%) windows assessed would meet BRE's criteria and are therefore considered to experience a Negligible effect. Of the four affected windows, three would experience an alteration in VSC between 20-29.9% which is considered a Minor Adverse effect whilst one would experience an alteration of 41% which is considered a Major Adverse effect. These windows are located at the ground floor by the rear extension, thereby self-obstructing in terms of daylight. However, these windows would retain good levels of daylight.
- 10.165** For NSL, based on the assumed layouts, eight of the 10 (80%) rooms assessed would meet BRE's criteria and are therefore considered to experience a Negligible effect.
- 10.166** Of the two affected rooms, one would experience an alteration in NSL of 21% which is considered a Minor Adverse effect whilst one would experience an alteration of 37% which is considered a Moderate Adverse effect.
- 10.167** Overall, based on professional judgement, the effect is considered **Negligible to Minor Adverse** (not significant).

Railway Street 46

- 10.168** A total of six windows serving six rooms were assessed for daylight within this building.
- 10.169** For VSC, five of the six (83.3%) windows assessed would meet BRE's criteria and are therefore considered to experience a Negligible effect. The affected window would experience an alteration in VSC of 20.9% which is considered a Minor Adverse effect, however, only marginally beyond BRE's criteria for a noticeable change.
- 10.170** For NSL, based on the assumed layouts, four of the six (66.7%) rooms assessed would meet BRE's criteria and are therefore considered to experience a Negligible effect.
- 10.171** Of the two affected rooms, one would experience an alteration in NSL of 23% which is considered a Minor Adverse effect whilst one would experience an alteration between 30% which is considered a Moderate Adverse Effect.
- 10.172** Overall, based on professional judgement, the effect is considered **Negligible to Minor Adverse** (not significant).

Railway Street 48

- 10.173** A total of seven windows serving seven rooms were assessed for daylight within this building.
- 10.174** For VSC, five of the seven (71.4%) windows assessed would meet BRE's criteria and are therefore considered to experience a Negligible effect. Of the two affected windows, one would experience an alteration in VSC of 22.3% which is considered a Minor Adverse effect. The second window, which sees alteration greater than 40% and considered a Major Adverse Effect, has a very low baseline value and so the change is disproportionate to what the occupant would experience.
- 10.175** For NSL, based on the assumed layouts, four of the seven (57.1%) rooms assessed would meet BRE's criteria and are therefore considered to experience a Negligible effect.
- 10.176** Of the three affected rooms, two would experience an alteration in NSL between 20-29.9% which is considered a Minor Adverse effect whilst one would experience an alteration greater than 40% which is considered a Major Adverse effect.
- 10.177** Overall, based on professional judgement, the effect is considered **Negligible to Minor Adverse** (not significant).

Phoenix Court 104-151

- 10.178** A total of 217 windows serving 48 rooms were assessed for daylight within this building.

- 10.179** For VSC, 184 of the 217 (84.8%) windows assessed would meet BRE's criteria and are therefore considered to experience a Negligible effect. Of the 33 affected windows, 12 would experience an alteration in VSC between 20-29.9% which is considered a Minor Adverse effect and 13 would experience an alteration between 30-39.9% which is considered a Moderate Adverse Effect. The remaining eight windows would experience an alteration in excess of 40% which is considered a Major Adverse effect.
- 10.180** Each of these windows are located on a setback elevation are therefore obstructed by the buildings own design. Most of the affected windows would retain levels of VSC which may be considered adequate (20% to 26% VSC) however lower levels are retained at windows located within the corner (12% VSC to 19% VSC).
- 10.181** For NSL, based on the assumed layouts, 31 of the 48 (64.6%) rooms assessed would meet BRE's criteria and are therefore considered to experience a Negligible effect.
- 10.182** Of the 17 affected rooms, two would experience an alteration in NSL between 20-29.9% which is considered a Minor Adverse effect and three would experience an alteration between 30-39.9% which is considered a Moderate Adverse Effect. The remaining 12 rooms would experience an alteration in excess of 40% which is considered a Major Adverse effect.
- 10.183** Alterations of this magnitude can be anticipated where a sensitive property is located adjacent a development site, particularly where the constraints of the buildings own architecture obstructs daylight availability. As such, any development would be likely to result in a similar magnitude of impact. Overall, based on professional judgement, due to the scale of impacts and taking into consideration the retained levels of daylight, the effect is considered **Minor to Moderate Adverse** (significant).

Sunlight

- 10.184** None of the sensitive properties have any habitable rooms with windows facing within 90 degrees south and therefore the Proposed Development would result in any changes to sunlight. A sunlight assessment is therefore not required.

Overshadowing

- 10.185** The full overshadowing assessment for the Proposed Development can be found within **ES Volume 3, Appendix: Daylight, Sunlight, Overshadowing, Solar Glare and Light Intrusion – Annex 5** and is summarised below.

Transient Overshadowing

21st March (Equinox)

- 10.186** From sunrise, at approximately 08:00 GMT, portions of the Galley Hill Road (1-7) and Taunton Road (8-24) rear gardens would be overshadowed by the Proposed Development. The rear gardens are already partially overshadowed in the existing condition. Over half of the Black Eagle Drive play area (25) would see overshadowing from the Proposed Development and strip of shadow from the Proposed Development would be cast over a strip of Swanscombe Peninsula (SSSI) (26). From 09:00 GMT, the Proposed Development shadow moves away from the Galley Hill Road (1-7) and Taunton Road (8-24) rear gardens, which are unaffected by shadow from the Proposed Development for the remainder of the day. The Proposed Development shadow reduces at Black Eagle Drive play area (25), clearing completely by 12:00 GMT for the remainder of the day. The Proposed Development shadow traverses across Swanscombe Peninsula (SSSI) (26) throughout the morning and the remainder of the afternoon until sunset. However, the shadows reducing in size so that only the portions of Swanscombe Peninsula (SSSI) (26) in the immediate vicinity of the Proposed Development would be overshadowed. Most of Swanscombe Peninsula (SSSI) (26) would be unaffected throughout the day. Between 13:00 GMT and 17:00 GMT, the easternmost blocks of the Proposed Development would cast shadow over a small portion of the River Thames (27) and a small portion of Robins Creek (28) would be overshadowed between 16:00 GMT and 17:00 GMT.

21st June (Summer Solstice)

- 10.187** Sunrise occurs at approximately 06:00 BST. At this time, portions of the Galley Hill Road (1-7) and Taunton Road (8-24) rear gardens would be overshadowed by the Proposed Development, which are already partially overshadowed in the existing condition. Most of Black Eagle Drive play area (25) would see overshadowing from the Proposed Development at this time, and strip of shadow from the Proposed Development would be cast over a strip of Swanscombe Peninsula (SSSI) (26). From 07:00 BST, the Proposed Development shadow moves away from the Galley Hill Road rear gardens with only areas (1) and (2) (10-12 Galley Hill Road rear gardens) partially in shadow. The Taunton Road rear gardens (8-24) remain overshadowed. By 09:00 BST, all the rear gardens are unaffected by shadow from the Proposed Development for the remainder of the day. Throughout the morning, the Proposed Development shadow reduces at Black Eagle Drive play area (25), so

that only the portion in the immediate vicinity of the Proposed Development is affected. This shadow at Black Eagle Drive play area (25) clears completely by 12:00 GMT for the remainder of the day. The Proposed Development shadow traverses across Swanscombe Peninsula (SSSI) (26) throughout the morning and the remainder of the afternoon until sunset. However, the shadows reducing in size so that only the portions of Swanscombe Peninsula (SSSI) (26) in the immediate vicinity of the Proposed Development would be overshadowed. Most of Swanscombe Peninsula (SSSI) (26) would be unaffected throughout the day. The River Thames (27) would not be affected on this day and Robins Creek (28) would see a period of overshadowing between 18:00 GMT and 19:00 GMT.

21st December (Winter Solstice)

- 10.188** On this day, shadow is cast from 09:00 GMT. Due to the lower position of the sun in the sky, the shadows are longer. At this time, the Galley Hill Road (1-7) and Taunton Road (8-24) rear gardens are already overshadowed in the existing condition, with very small portions of additional shadow cast by the Proposed Development. Approximately half of the Black Eagle Drive play area (25) would see overshadowing from the Proposed Development and a long shadow from the Proposed Development would be cast over a strip of Swanscombe Peninsula (SSSI) (26). From 10:00 GMT, the Proposed Development shadow moves away from the Taunton Road (8-24) rear gardens, which are unaffected by shadow from the Proposed Development for the remainder of the day. Galley Hill Road rear gardens (1-7) would see small portions of shadowing between 10:00 GMT and 11:00 GMT from the Proposed Development. By 12:00 GMT, the shadow clears completely, and Galley Hill Road rear gardens (1-7) would be unaffected for the remainder of the day. Shadow from the Proposed Development reduces at Black Eagle Drive play area (25), clearing completely by 12:00 GMT for the remainder of the day. The Proposed Development shadow traverses across Swanscombe Peninsula (SSSI) (26) throughout the morning and the remainder of the afternoon until sunset. Most of Swanscombe Peninsula (SSSI) (26) would be unaffected throughout the day. The River Thames (27) would see overshadowing from the Proposed Development from 11:00 GMT until the end of the day at 17:00 GMT. Robins Creek (28) would not be affected by on this day by the Proposed Development.

Sun Hours on Ground

- 10.189** The Galley Hill Road (1-7) and Taunton Road (8-24) rear gardens see little to no change (0-4% reduction) in the total area which sees at least two hours of sun on March 21st, and therefore meet BRE's criteria for overshadowing. Additionally, from the sun exposure images (Figures 10 and 11 within **ES Volume 3, Appendix: Daylight, Sunlight, Overshadowing, Solar Glare and Light Intrusion – Annex 5**) it can be seen that the rear gardens receive six or more hours of sunlight on June 21st, when these private amenity areas are most likely to be enjoyed.
- 10.190** Black Eagle Drive play area (25) see little to no change (1% reduction) in the total area which sees at least two hours of sun on March 21st, and therefore meets BRE's criteria for overshadowing. Additionally, the sun exposure images for both March 21st and June 21st show that the area remains very well sunlit, with large portions receiving six or more hours of sunlight with the Proposed Development in situ.

Conclusions

- 10.191** The sun hours on ground assessment show that the rear gardens located on Galley Hill Road and Taunton Road (1-24) and the Black Eagle Drive play area (25) meet BRE's criteria and remain well sunlit. Therefore, the effect is considered **Negligible** (not significant).
- 10.192** Based on professional judgement, the effect to Swanscombe Peninsula (SSSI) (26), the River Thames (27) and Robins Creek (28) would be **Minor Adverse** (not significant). This is based on review of the transient overshadowing plots on the three key dates, March 21st, June 21st and December 21st. Whilst Swanscombe Peninsula (SSSI) would see periods of overshadowing from the Proposed Development throughout the year, these are localised to the areas in the immediate vicinity of the Proposed Development and the same portion would not be overshadowed for long periods of time. The vast majority of these areas would be unaffected by the Proposed Development.

Solar Glare

- 10.193** As stated in the BRE guidelines, solar glare or dazzle can occur when sunlight is reflected from a highly glazed or reflective façade. This usually occurs when there are large areas of reflective glass and particularly when this is angled back, thereby reflecting high altitude sunlight towards drivers. Thus, heavily glazed or mirrored buildings can result in solar glare effects.
- 10.194** The potential for solar glare effects arising from the future detailed design, which are currently proposed in outline, have been qualitatively considered.

10.195 The outline proposals are residential led, with retail, office, hotel and sports stadium uses. Whilst exact location of final location and façade are not yet known, reasonable assumptions have been made for the purposes of this qualitative assessment based upon the uses determined in the Parameter Plans and Design Codes. As such, the viewpoints potentially sensitive to solar glare effects have been considered.

Road Viewpoints

- **Viewpoint 1:** This location shows the indicative viewpoint of a road user travelling east along Galley Hill Road (A226), approaching the junction with Lower Road and Stonebridge Road. Road users from this viewpoint would have a view of Plot 2 perimeter blocks behind the traffic signals at this junction. Based on the Applicants proposed Land Use Zones, these blocks are would comprise mixed commercial and community uses at all three defined levels. These uses would be unlikely to comprise any large areas of glazed materiality likely to give rise to significant reflections. The upper portion of the blocks sitting behind would potentially be visible, which are of mixed Sui Generis and commercial use. Offices are typically highly glazed, however, as these are further from road users' direct line of sight and so reflections would be less likely to result in significant effects.
- **Viewpoint 2:** This location shows the indicative viewpoint of a road user travelling north west along Stonebridge Road (B2175), approaching the roundabout with Grove Road. Based on the Applicants proposed Land Use Zones, road users from this viewpoint would have a view of Plot 3 perimeter blocks, which are proposed mixed Sui Generis, commercial and parking uses. There is potential that that the emerging detailed design would comprise large areas of highly glazed materials on their façades, which is typical of office blocks.

Railway Viewpoints

- **Viewpoint A:** This location shows the indicative viewpoint of a train driver travelling east from Swanscombe station (Thameslink and Southeastern Rail). Train drivers would have an only oblique view of most of the Proposed Development., with the uppermost elements of the taller Plots 3, 4 and 5 blocks (mixed Sui Generis, commercial and hotel) visible on the left side of train drivers field of view. The commercial Plot 3 block, which is closest, would potentially comprise large areas of highly glazed materials on their façades. However, due to the distance would unlikely result in significant reflections. Due to the smaller size of Plot 2 blocks, views of these blocks would be mostly shielded by existing buildings, however, the southernmost block of Plot 2 (mixed Sui Generis, commercial and community uses), which fronts the railway line would potentially be visible directly within a train drivers' line of sight. Only a very small portion of the façade would be visible.
- **Viewpoint B:** This location shows the indicative viewpoint of a train driver travelling north west from Northfleet station (Thameslink and Southeastern Rail). Train drivers would have an oblique view of the Proposed Development. The Plot 2 blocks at the south east of the site, with the rest of the Proposed Development shielded by existing buildings. The southernmost block of Plot 2 (which are proposed mixed Sui Generis, commercial and community uses), which fronts the railway line would potentially be visible directly within a train drivers' line of sight, however, would be unlikely to comprise large areas of reflective materiality.

Conclusions

- 10.196** Overall, for road viewpoints 1, 2 and railway viewpoints A and B, the Proposed Development is visible within 5 degrees of a road users' line of sight and so there is the potential for significant reflections occurring within a road user or train drivers line of sight, ranging from **Negligible** (not significant) to **Major Adverse** (significant) effects. However, this is dependent on the final façade design and location of the blocks.
- 10.197** The Application will ensure that future development will be designed to mitigate the significant effects, by implementing the mitigation measures set out in this ES chapter (paragraph 10.211) to reduce the effects to **Minor Adverse** and not significant. Technical solar glare reports will be prepared to accompany any reserved matters applications where the potential for significant effects are identified.

Light Intrusion

- 10.198** The potential for light intrusions effects arising from the future detailed design, which are currently proposed in outline, have been qualitatively considered. As such, receptors which are sensitive to light spill from the Proposed Development, due to their residential uses, ecological status or safety issues have been qualitatively considered:

- Phoenix Court 104-151;
- Future residential uses internal to the site;
- Swanscombe Peninsula (SSSI);
- Riverfront Dock.

Phoenix Court 104-151 (existing residential receptor)

- 10.199** Phoenix Court 104-151 is located approximately 20m west of Plot 2 blocks (mixed commercial and community uses). It is unlikely that Plot 2 blocks would result in effects, as future development would not comprise will be highly glazed offices where high powered artificial lighting is used throughout the day and at night and any external lighting would be design in line with ILP Guidance. However, due to their proximity this neighbouring residential receptor, there is the potential for unwanted light to spill into the residential windows. Therefore, there is the potential for **Negligible** (not significant) to **Major Adverse** (Significant) effects. However, the lighting of the future detailed strategy will be designed sensitively with this in mind and with reference to the ILP Guidelines (2021) on light intrusion. Mitigation measures set out in paragraph 10.212 would reduce the effects to no greater than **Minor Adverse** (not significant).

Plots 5, 6, 7 and 16 (future residential receptors)

- 10.200** The future residential receptors within Plots 5, 6, 7, 8, 16 and 17 would be potentially within 20m of sources of light intrusion. Plot 3 is proposed for commercial usage and therefore may comprise highly glazed offices where high powered artificial lighting is used throughout the day and at night. potentially affecting future residential receptors within Plot 6 and 7. Plot 1 is a proposed stadium external lighting would potentially spill onto future residential receptors within Plot 5. Therefore, there is the potential for **Negligible** (not significant) to **Major Adverse** (Significant) effects. However, the lighting of the future detailed strategy will be designed sensitively with this in mind and with reference to the ILP Guidelines (2021) on light intrusion. Mitigation measures set out in paragraph 10.213 would reduce the effects to no greater than **Minor Adverse** (not significant).

Swanscombe Peninsula SSSI (ecological receptor)

- 10.201** From review of the use classes proposed by the Applicant, the portions of the site within approximately 20m of this receptor will comprise residential accommodation (Plots 18 and 19) which would not be lit to a significant level at night and result in light intrusion effects. The ground levels are proposed mixed commercial, community and parking uses, which would be unlikely to result in significant light spill effects. As such, mitigation is embedded within the design and any effects will **Negligible to Minor Adverse** (not significant). The lighting of the future detailed strategy will be designed sensitively with this in mind and with reference to the ILP Guidelines (2021) on light intrusion. Mitigation measures set out in paragraph 10.213 would reduce the effects to no greater than **Negligible** (not significant).

Riverfront receptors

- 10.202** Light spill upon the riverfront, directly opposite the lock entrance to Tilbury Docks where ships are manoeuvred by tug to enter and leave the impounded docks has also been qualitatively considered from a navigational safety perspective.
- 10.203** From review of the of the use classes proposed by the Applicant, the portions of the Site within approximately 20m of this receptor will comprise residential accommodation which would not be lit to a significant level at night and result in light intrusion effects. The ground levels are proposed mixed commercial, community and parking uses, which would be unlikely to result in significant light spill effects. As such, mitigation is embedded within the design and any effects will **Negligible to Minor Adverse** (not significant). External directional lighting will be carefully designed to ensure that it does not interfere with the dockland activities and the PLA will be engaged as necessary. The lighting of the future detailed strategy will be designed sensitively with this in mind and with reference to the ILP Guidelines (2021) on light intrusion. Mitigation measures set out in paragraph 10.213 would reduce the effects to no greater than **Negligible** (not significant).

Daylight, Sunlight and Overshadowing Potential Summary

- 10.204** The assessment has shown very good sunlight potential across the Proposed Development, with 90.4% of the panels assessed receiving direct sunlight for at least one hour and a half on the equinox; 2.7% receiving at least one hour; 2.4% receiving at least half an hour and 4.6% receiving less than half an hour.
- 10.205** Overall, the proposed development has the potential to offer good daylight and sunlight amenity within the residential units, provided care is taken at detailed design stage.

MITIGATION, MONITORING AND RESIDUAL EFFECTS

Demolition and Construction Mitigation

- 10.206** For the reasons outlined earlier in this chapter, no technical analysis of the likely significant effects on the surrounding properties and amenity spaces during demolition, construction and phasing were carried out. However, general comments on the likely effects are discussed below. These are based on professional judgement and are set out as follows.
- 10.207** The effects during demolition and construction would gradually increase and vary until they reach the effects reported in the Proposed Development scenario. Therefore, once complete and operational, the Proposed Development scenario would represent the worst-case scenario for daylight, sunlight and overshadowing.
- 10.208** Technical analyses for solar glare and light intrusion have not been possible as the detailed designs for future development is not yet available. As such, qualitative assessments have been undertaken.
- 10.209** Given that any effects during the demolition and construction are not anticipated to be worse than when the buildings are complete and operational, no mitigation measures are required.

Completed Development Mitigation

- 10.210** For daylight, sunlight and overshadowing, the majority of effects are not significant and so no mitigation is considered necessary. Where one instance of a significant effect occurs, it is likely that this would reduce once the detailed design comes forward and the massing is articulated.
- 10.211** For solar glare, as the detailed design is not yet available and so the potential for effects is based on a worst case qualitative assessment ranging from **Negligible** (not significant) to **Major Adverse** (significant) at the road and rail viewpoints identified. The potential for solar glare will be considered throughout the detailed design process for Plots 2, 3, 4 and 5 blocks and potential effects will be mitigated through the below measures to ensure that effects are reduced to **Minor Adverse** and not significant:
- Orienting the facades to not reflect sunlight at a particular time or place;
 - Reducing any large areas of glazing or reflective cladding;
 - Introducing fins to minimise reflections from a particular section of the façade; and/or
 - Blocking the view of the building in question from receptors such as through planting trees in the line of sight.
- 10.212** For light intrusion, until further information on an emerging detailed scheme is available, the practicality of the measures is not yet known, and so residual light intrusion effects are based on a worst-case qualitative assessment ranging from **Negligible** (not significant) to **Major Adverse** (significant). In order to minimise any potential light intrusion effects from the commercial office elements upon the existing and introduced residential receptors, potential mitigation measures could include:
- Ensuring that any external lighting, such as the stadium, does not directly illuminate the sky;
 - Ensuring that any external lighting visible from any sensitive receptor is of low intensity;
 - Avoiding external lighting which directly illuminates the SSSI and the Riverfront docks in particular;
 - Provision of blinds for commercial offices;
 - Lighting strategies that reduce the output of luminaires closer to the façades; and
 - Light fittings controlled through the use of sensors which switch on and off the light according to office occupancy.
- 10.213** The details of any mitigation and its efficacy will be guided by ILP Guidance notes (2021) and presented and reported upon where relevant at reserved matters stage.
- 10.214** The potential for light intrusion will be considered throughout the detailed design process and potential effects will be mitigated through the above measures to ensure that effects are reduced to **Minor Adverse** and not significant.

RESIDUAL EFFECTS

10.215 All of the residual effects resulting from the Proposed Development, are presented in **Table 10.7**, identifying whether the effect is significant or not.

Table 10.7 Residual Effects

Receptor	Description of the Residual Effect	Scale and Nature	Significant / Not Significant	Geo	D I	P T	St Mt Lt
Demolition and Construction							
Refer to Completed Development for potential daylight, sunlight, overshadowing, solar glare effects and light intrusion effects below.							
Completed Development							
Daylight							
Galley Hill Road 24-25	Alterations in daylight at residential receptors	Negligible	Not significant	L	D	P	LT
Galley Hill Road 20-23			Not significant	L	D	P	LT
Galley Hill Road 19-18			Not significant	L	D	P	LT
Galley Hill Road 16-17			Not significant	L	D	P	LT
Galley Hill Road 14-15			Not significant	L	D	P	LT
Taunton Road 1-2			Not significant	L	D	P	LT
Taunton Road 3-4			Not significant	L	D	P	LT
Taunton Road 5-6			Not significant	L	D	P	LT
Taunton Road 7-8			Not significant	L	D	P	LT
Taunton Road 12-13			Not significant	L	D	P	LT
Taunton Road 14			Not significant	L	D	P	LT
Rising Bollards 57			Not significant	L	D	P	LT
Rising Bollards 56			Not significant	L	D	P	LT
Rising Bollards 55			Not significant	L	D	P	LT
Snowden Hill 11			Not significant	L	D	P	LT
Snowden Hill 10			Not significant	L	D	P	LT
Snowden Hill 9			Not significant	L	D	P	LT
Snowden Hill 8			Not significant	L	D	P	LT
Snowden Hill 7			Not significant	L	D	P	LT
Snowden Hill 6			Not significant	L	D	P	LT
Snowden Hill 5			Not significant	L	D	P	LT
Snowden Hill 4			Not significant	L	D	P	LT
Snowden Hill 3			Not significant	L	D	P	LT
Snowden Hill 2			Not significant	L	D	P	LT
Snowden Hill 1			Not significant	L	D	P	LT
Railway Street 38			Not significant	L	D	P	LT
Railway Street 40			Not significant	L	D	P	LT
Railway Street 42			Not significant	L	D	P	LT
Railway Street 36			Not significant	L	D	P	LT
Phoenix Court 12-32-46-59-73-86-99-103			Not significant	L	D	P	LT
Phoenix Court 1-11-33-45-60-72-87-98			Not significant	L	D	P	LT
Galley Hill Road 12-13			Not significant	L	D	P	LT

Northfleet Harbourside Chapter 10: Daylight, Sunlight, Overshadowing, Solar Glare and Light Intrusion

Receptor	Description of the Residual Effect	Scale and Nature	Significant / Not Significant	Geo	D I	P T	St Mt Lt
Galley Hill Road 10-11		Negligible to Minor Adverse	Not significant	L	D	P	LT
Taunton Road 20-38			Not significant	L	D	P	LT
Railway Street 44 to 50			Not significant	L	D	P	LT
Taunton Road 15-19		Minor Adverse	Not significant	L	D	P	LT
Phoenix Court 104-151		Minor to Moderate Adverse	Significant	L	D	P	LT
Overshadowing							
Rear Gardens at Galley Hill Road and Taunton Road (1-24)	Overshadowing of public and private amenity areas, ecological areas and water bodies	Negligible	Not significant	L	D	P	LT
Black Eagle Drive Play Area (25)			Not significant	L	D	P	LT
Swanscombe Peninsula (SSSI) (26) River Thames (27) Robins Creek (28)		Minor Adverse	Not significant	L	D	P	LT
Solar Glare							
Road viewpoints 1 and 2	Solar glare to road and rail viewpoints	Negligible to Minor Adverse	Not significant	L	D	P	LT
Rail viewpoints A and B		Negligible to Minor Adverse	Not significant	L	D	P	LT
Light Intrusion							
Phoenix Court 104-151	Light intrusion to sensitive receptors	Negligible to Minor Adverse	Not significant	L	D	P	LT
Future residential uses internal to the site		Negligible to Minor Adverse	Not significant	L	D	P	LT
Swanscombe Peninsula (SSSI)		Negligible	Not significant	L	D	P	LT
Riverfront Docks		Negligible	Not significant	L	D	P	LT
Key/Notes: Residual Effect Scale = Negligible / Minor / Moderate / Major Nature = Beneficial or Adverse Geo (Geographic Extent) = Local (L), Borough (B), Regional (R), National (N) D = Direct / I = Indirect P = Permanent / T = Temporary St = Short Term / Mt = Medium Term / Lt = Long Term N/A = not applicable / not assessed							

Moderate Adverse effects, which are considered significant. However, the alterations are localised to a portion of this building which constrained by its own design.

10.217 No sunlight impacts would occur.

10.218 In terms of overshadowing, all 24 private rear gardens located at Galley Hill Road and Taunton Road and Black Eagle Drive play area would experience **Negligible** (not significant) effects. Swanscombe Peninsula (SSSI) would see a **Minor Adverse** effect which is considered not significant overall.

10.219 For solar glare, based on the qualitative assessment, the effects are considered to range from **Negligible** to **Minor Adverse** (not significant), through implementing mitigation measures at detailed design stage where practicable.

10.220 The qualitative light intrusion assessment considers the potential for effects to the existing residential receptor Phoenix Court 104-151 as well as future residential uses internal to the site to see effects ranging from **Negligible** to **Minor Adverse** (not significant), dependant on the detailed design at reserved matters stage. Swanscombe Peninsula (SSSI) and Riverfront Docks would see **Negligible** (not significant) effects through mitigation measures implemented at detailed design stage where practicable.

LIKELY SIGNIFICANT EFFECTS

10.216 A total of 44 sensitive residential buildings have been assessed for changes in daylight as a result of the Proposed Development. Of these 33 would experience Negligible and four would experience **Negligible to Minor Adverse** effects, which are not significant. A further five would experience overall Minor Adverse effects, which are also considered to be not significant. Only Phoenix Court 104-151 would experience overall Minor to