



Lighting Impact Assessment:

Land at Dutton Lane, Eastleigh

Determinari-001 Ltd

14th May 2026



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This report has been prepared by Hawkins Environmental Limited for the sole purpose of assisting in gaining planning consent for the proposed development described in the introduction of this report.

This report has been prepared by Hawkins Environmental Limited with all reasonable skill, care and diligence, and taking account of the manpower and resources devoted to it by agreement with the client. Information reported herein is based on the interpretation of data collected and has been accepted in good faith as being accurate and valid.

This assessment takes into account the prevailing conditions at the time of the report and assesses the impact of the development (if applicable) using data provided to Hawkins Environmental Limited by third parties. The report is designed to assist the developer in refining the designs for the proposed development and to demonstrate to agents of the Local Planning Authority that the proposed development is suited to its location. This should be viewed as a risk assessment and does not infer any guarantee that the site will remain suitable in future, nor that there will not be any complaints either from users of the development or from impacts emanating from the development site itself.

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1. INTRODUCTION

Hawkins Environmental Limited has been instructed by get Determinari-001 Ltd to undertake a Lighting Impact Assessment for retrospective development at Dutton Lane, Eastleigh.

This Lighting Impact Assessment evaluates the likely effects of the existing lighting installed at the site known as Land at Dutton Lane, Eastleigh. The assessment supports a retrospective planning application for the change of use of the site, comprising storage and distribution (Class B8) within the southern and central areas, and general industry/storage and distribution (Classes B2/B8) within the northern section, together with all associated infrastructure.

The site is already illuminated; however, additional lighting is proposed in accordance with relevant British Standards to ensure task-specific safety and operational efficiency across the site

The purpose of this report is to assess the effects resulting from artificial lighting that will be required for safe and secure operation of the application site. Potential effects of the proposed lighting have been assessed against the existing baseline conditions contributed by the luminaires.

Obtrusive light or light pollution is any light that strays to areas other than where it is intended and can include light intrusion (spill light) into neighbouring properties, upward light (which can create sky glow) and visual source intensity (glare). It could also create effects upon ecological receptors in the area, particularly with respect to bat roosts and foraging corridors.

The assessment adheres to the principles of Government planning policy in relation to lighting, specifically enacted by the *National Planning Policy Framework (NPPF)*.

The recommended approach for assessing the impacts of lighting, specifically the Institution of Lighting Professionals “*Guidance Note 1 for the Reduction of Obtrusive Light* (GN01:2021) and the Institution of Lighting Professionals PLG 04 document “*Guidance on Undertaking Environmental Lighting Impact Assessments*”.

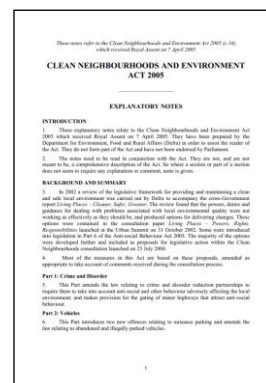
The assessment has been carried out in accordance with the published guidance documents from the ILP. These quantify the levels of direct upward light, light intrusion, viewed source intensity and glare regarded as acceptable for varying environmental zones.

2. NATIONAL & LOCAL PLANNING POLICY

2.1. Environmental Protection Act 1990 / Clean Neighbourhoods and Environment Act 2005

Since 2005, artificial light has been incorporated as a potential statutory nuisance. An amendment to section 79 of the Environmental Protection Act 1990, contained within the Clean Neighbourhoods and Environment Act 2005 states:

“Artificial light emitted from premises so as to be prejudicial to health and nuisance constitutes a ‘Statutory Nuisance’ and it shall be the duty of every local authority to cause its area to be inspected from time to time to detect any statutory nuisances which ought to be dealt with under section 80 and, where a complaint of a statutory nuisance is made to it by a person living within its area, to take such steps as are reasonably practicable to investigate the complaint”.



2.2. National Planning Policy Framework (2024)

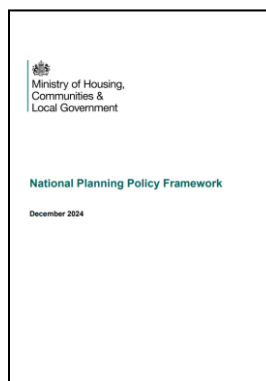
The National Planning Policy Framework (NPPF) was first published on the 27th March 2012 and revised July 2018, February 2019, July 2021, September 2023, December 2023 with the latest version published in December 2024.

The NPPF outlines the Government's planning policies for England and determines how they should be applied. It provides a framework within which Local Planning Authorities are required to prepare their own locally-prepared plans, where both the policies within the NPPF and the local plan are material planning considerations against which planning decisions are determined. These distinctive local and neighbourhood plans should be interpreted and applied in order to meet the needs and priorities of their communities.

The NPPF notes *“The purpose of the planning system is to contribute to the achievement of sustainable development, including the provision of homes, commercial development, and supporting infrastructure in a sustainable manner”* (Paragraph 7). The NPPF notes sustainable development should be delivered with three main dimensions: economic; social and environmental (Paragraph 8).

The NPPF supports a presumption in favour of development, unless the adverse impacts of that development outweighs the benefits it notes *“that sustainable development is pursued in a positive way, at the heart of the Framework is a presumption in favour of sustainable development”* (Paragraph 10).

With regard to light pollution, the NPPF was updated in December 2024, section 198 states that the following elements are to be considered: *Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should: a) mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to*



significant adverse impacts on health and the quality of life; b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason; and c) limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation. “

2.3. Planning Practice Guidance (2019)

The Light Pollution Planning Practice Guidance (NPPG) was launched on 6th March 2014 and has undergone regular revision, with the most recent changes to Noise Guidance published in November 2019. The PPG provides additional guidance and interpretation to the Government's strategic policies, outlined within the NPPF, in a web-based resource. The PPG provides guidance for assessing the effects of proposed artificial lighting.

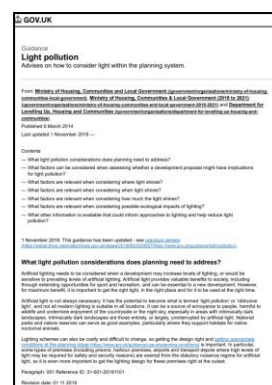
The guidance states:

“Artificial lighting needs to be considered when a development may increase levels of lighting, or would be sensitive to prevailing levels of artificial lighting. Artificial light provides valuable benefits to society, including through extending opportunities for sport and recreation, and can be essential to a new development. However, for maximum benefit, it is important to get the right light, in the right place and for it to be used at the right time”.

The PPG notes:

- *“Will a new development, or a proposed change to an existing site, be likely to materially alter light levels in the environment around the site and/or have the potential to adversely affect the use or enjoyment of nearby buildings or open spaces?”*
- *Will the impact of new lighting conflict with the needs of specialist facilities requiring low levels of surrounding light (such as observatories, airports and general aviation facilities)? Impacts on other activities that rely on low levels of light such as astronomy may also be a consideration, but will need to be considered in terms of both their severity and alongside the wider benefits of the development.*
- *Is the development in or near a protected area of dark sky or an intrinsically dark landscape where new lighting would be conspicuously out of keeping with local nocturnal light levels, making it desirable to minimise or avoid new lighting?*
- *Would new lighting have any safety impacts, for example in creating a hazard for road users?*
- *Is a proposal likely to have a significant impact on a protected site or species? This could be a particular concern where forms of artificial light with a potentially high impact on wildlife and ecosystems (e.g. white or ultraviolet light) are being proposed close to protected sites, sensitive wildlife receptors or areas, including where the light is likely to shine on water where bats feed.*
- *Does the proposed development include smooth, reflective building materials, including large horizontal expanses of glass, particularly near water bodies? (As it may change natural light, creating polarised light pollution that can affect wildlife behaviour.)*

If the answer to any of the above questions is ‘yes’, local planning authorities and applicants should think about:



- *where the light shines;*
- *when the light shines;*
- *how much light shines; and*
- *possible ecological impacts”.*

3. LIGHTING GUIDANCE

3.1. Guidance Note 01: The Reduction of Obtrusive Light (GN01:2021)

Published in 2021 by the Institution of Lighting Professionals (ILP), “*Guidance Note 1 for the reduction of obtrusive light*” (known as GN01) provides advice on guidance regarding ensuring obtrusive light and light pollution is kept to a minimum. Any Lighting Strategy shall be informed by this industry guidance note which aims to reduce the potential for obtrusive light to occur.

GN01 outlines the main considerations when considering artificial light within a proposed development. Some of these considerations are highlighted in **Figure 3.1**.

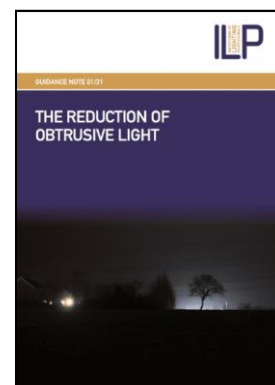
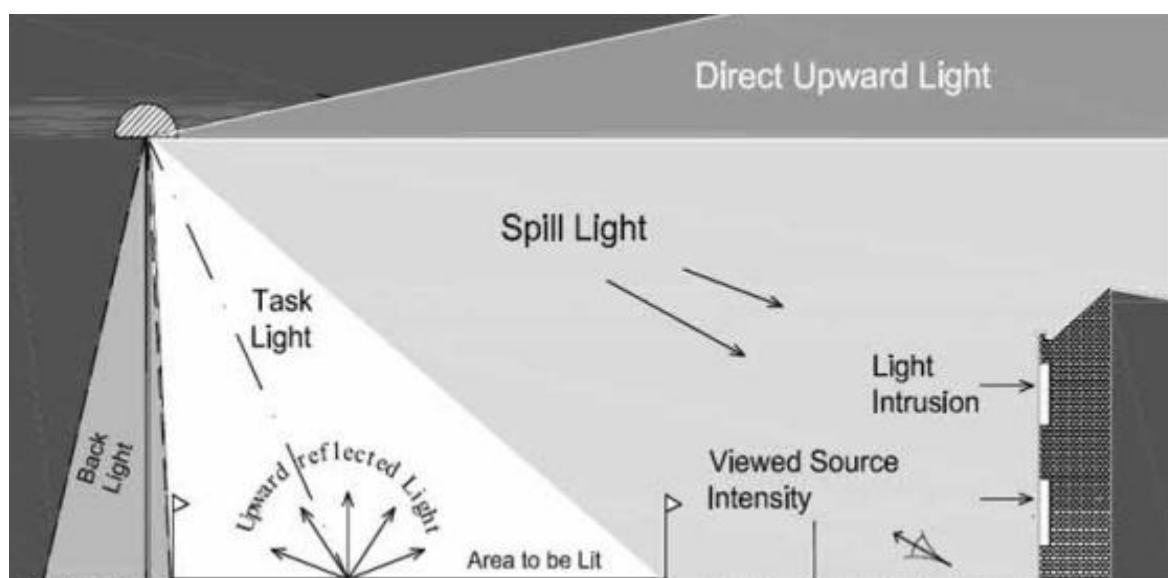


Figure La.1: GN01 Light Spill



One the concepts introduced in the ILP Guidance Note is how different “*Environmental Zones*” can be used to characterise different lighting environments, which can then be used to inform lighting design and lighting control. Environmental Zones E0 to E4 are identified in **Table 3.1** below.

Table 3.1: GN01 Environmental Zones

Zone	Surrounding	Lighting Environment	Examples
E0	Protected	Dark (SQM 20.5+)	Astronomical Observable dark skies, UNESCO starlight reserves, IDA dark sky places
E1	Natural	Dark (SQM 20 to 20.5)	Relatively uninhabited rural areas, National Parks, Areas of Outstanding Natural Beauty, IDA buffer zones etc.
E2	Rural	Low district brightness (SWM ~15 to 20)	Sparsely inhabited rural areas, village or relatively dark outer suburban locations
E3	Suburban	Medium district brightness	Well inhabited rural and urban settlements, small town centres of suburban locations
E4	Urban	High district brightness	Town / City centres with high levels of night-time activity

Note 1-Where an area to be lit lies close to the boundary of two zones the obtrusive light limitation values used should be those applicable to the most rigorous zone (see comment below)

Note 2 -Rural zones under protected designations should use a higher standard of policy

Note 3- Zone E0 must always be surrounded by an E1 Zone

Note 4- Zoning should be agreed with the local planning authority. Due to local requirements a more stringent zone classification may be applied to protect special / specific areas

Note 5 -SQM (Sky Quality Meter) is referenced by the International Dark Skies Association (IDA). SQM is an instrument used to measure the luminance of the night sky. It is typically used by astronomers to quantify skyglow, using units of magnitudes per square arcsecond. the scale is between 16:00 (a bright night sky) and 22:00 (the least light pollution). The criteria for zone E0 was revised in mid 2019, with the new requirements not being made retrospective

Note 6- Astronomical Observable Dark Skies will offer clearer views of the Milky Way and of other objects such as the Andromeda Galaxy and the Orion Nebula

Note 7- Although values of SQM 20 to 20.5 may not offer clear views of astronomical dark sky objects such as the Milky Way, these skies will have their own relative intrinsic value in the UK

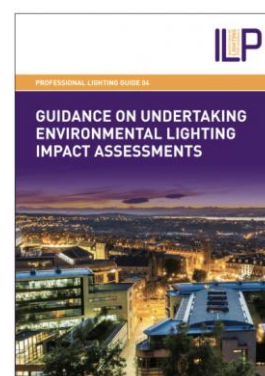
3.2. Professional Lighting Guide 04: Guidance on Undertaking Environmental Lighting Impact Assessments (2013)

Institution of Lighting Professionals (ILP) PLG 04 “Guidance on Undertaking Environmental Lighting Impact Assessments” (published in 2013) provides the guidance on how to conduct lighting impact assessment. PLG 04 notes:

“...this document is designed to provide an explanation of, and guidance on, the process for producing a Lighting Assessment...to remove or minimise environmental problems”

PLG 04 recommends completion of the following to inform the assessment:

- Desk based assessment of the project area and its surrounds. The desk-based assessment will comprise a review of relevant legislation and development plan policy to determine the key lighting policy at a regional and local level. The location



of light sensitive receptors in and surrounding the project area will be identified with input from the project landscape/visual and ecology teams and will consider both construction and operational lighting.

- A baseline nighttime (plus daytime survey if required) lighting survey (if required) will be carried out using digital light meters to determine existing light conditions in the vicinity of the project and to classify the relevant Environmental Zone.
- Obtrusive light modelling of the project lighting design or a lighting strategy will be carried out based on the worst-case scenario.
- The modelling results will be used to inform the Lighting Impact Assessment based on the significance criteria presented in PLG 04.
- The assessment of the cumulative effects of the project in combination with other relevant developments.

PLG 04 provides obtrusive light limits based on the Environmental Zone which should be applied to all new lighting in an area. **Table 3.2** summarises these limits below.

Table 3.2: Obtrusive Light Limitations for Exterior Lighting Installations

Environ. Zone	Sky Glow ULR (Max %)	Light Intrusion (into Windows) E _v (lux)		Luminaire Intensity I (candelas)		Building Luminance Pre-curfew
		Pre-curfew	Post-curfew	Pre-curfew	Post-curfew	
E0	0	0	0	0	0	0
E1	0	2	0 (1 *)	2,500	0	0
E2	2.5	5	1	7,500	500	5
E3	5.0	10	2	10,000	1,000	10
E4	15	25	5	25,000	2,500	25

Notes to table:

ULR (Upward Light Ratio) is the maximum permitted percentage of luminaire flux that goes directly into the sky;

E_v is Vertical Illuminance in Lux;

I is Luminance in Candelas per square metre; and

Curfew refers to a time when the local planning authority has agreed that the lighting installation should be switched off; this typically refers to 23h00 – 07h00.

() Permitted only from Public road lighting installations up to a maximum of 1.0 lux.*

PLG 04 suggests that Lighting Impact Assessment report should follow a number of specific stages:

1. Site Description (including identification of Environmental Zones)
2. Method of Assessment

3. Baseline Assessment
4. Proposed Development (including details of the design and limits)
5. Residual Effects (i.e. outlining the changes caused by lighting)
6. Potential Mitigation
7. Conclusions

PLG 04 also provides guidance on the effect descriptors, for both positive and negative effects. **Table 3.3** summarises these descriptors.

Table 3.3: PLG 04 Effects Table (replicated from PLG04)

Nature	Level	Descriptions	Remedial needs
Positive	Major/substantial beneficial effects	Significant improvement in night environment and/or reductions in glare, spill light and sky glow	
	Moderate beneficial effects	Noticeable improvement in night environment and/or reductions in glare, spill light and sky glow	
	Minor beneficial effects	Slight improvement in night environment and/or reductions in glare, spill light and sky glow	
Neutral	None/negligible	No significant effect or overall effects balancing out	None
Negative	Minor adverse effects	Slight increase in visibility of site, glare and sky glow etc	Development appropriate levels and type of mitigation
	Moderate adverse effects	Noticeable increase in visibility of site, glare and sky glow etc	
	Major adverse effects	Significant increase in visibility of site, glare and sky glow etc	

PLG 04 provides guidance on assessing significance of impacts. The guidance notes that the magnitude of an impact and its significance are not necessarily linked. It notes *“increased lighting levels may be substantial, but if the local sensitivity to light is low, the significance may be low. Conversely, even a small change in a sensitive location may have important consequences and must be addressed”*.

3.3. British Standards

While there is no single statutory UK policy exclusively governing lighting for open storage yards, the design of external lighting for industrial and storage uses is informed by established British and international standards together with recognised industry guidance. The lighting design for the site at Dutton Lane draws upon the following key documents:

- BS EN 12464-2:2014 – Lighting of outdoor workplaces, which sets out recommended maintained illuminance levels, uniformity requirements, and glare control criteria for outdoor industrial tasks, including storage areas, circulation routes, and loading operations.
- BS 5489-1:2020 – Code of practice for the design of road lighting, which provides guidance relevant to site access roads, vehicle manoeuvring areas, and general safety lighting within industrial environments.
- Institution of Lighting Professionals (ILP) Guidance Notes for the Reduction of Obtrusive Light GN01:2021, which defines environmental zone limits and acceptable thresholds for light spill, glare, and upward light in relation to surrounding sensitive receptors.

These documents collectively ensure that lighting within the site is appropriate for safe operational use, while also controlling potential environmental impacts on surrounding residential and commercial receptors.

3.4. BS EN 12464-2:2014 – Lighting of Outdoor Workplaces

British Standard BS EN 12464-2:2014 – Lighting of Outdoor Workplaces provides guidance on the lighting requirements for a wide range of outdoor industrial and commercial environments. The standard is intended to ensure suitable visual conditions for personnel carrying out tasks, operating vehicles, and moving safely within outdoor work areas.

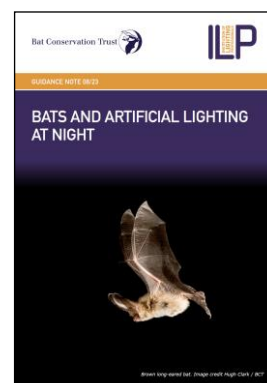
For open storage yards such as the Dutton Lane site, the standard identifies appropriate maintained illuminance levels and uniformity requirements based on the nature of activity, ranging from low-detail intermittent tasks through to more active handling and vehicle-based operations. Table 17 of the standard provides guidance values for generic outdoor work areas, and Table 17.1 has been applied as the most appropriate baseline reference for this development, given the flexible and variable nature of operations across the site.

The lighting strategy for the site has therefore been designed on a task-based but generic approach, ensuring that adequate illumination is provided across circulation routes, yard areas, and loading/unloading zones to support safe and efficient operation. The design also incorporates appropriate glare control and light distribution characteristics to ensure compliance with the principles of the standard while minimising spill light beyond the site boundary.

3.5. Bats and Artificial Lighting in the UK (2018)

“Bats and Artificial Lighting in the UK”, published by the Bat Conservation Trust and Institution of Lighting Professionals (GN08/18) in 2018, provides guidance for artificial lighting and bats. The guidance states the following:

“It is acknowledged that, especially for vertical calculation planes, very low levels of light (<0.5 lux) may occur even at considerable distances from the source if there is little intervening attenuation. It is therefore very difficult to demonstrate ‘complete darkness’ or a ‘complete absence of illumination’ on vertical planes where some form of lighting is proposed on site, despite efforts to reduce them as far as possible and where horizontal plane illuminance levels are zero. Consequently, where ‘complete darkness’ on a feature or buffer is required, it may be appropriate to consider this to be where illuminance is at or below 0.2 lux on the horizontal plane, and at or below 0.4 lux on the vertical plane. These figures are still lower than what may be expected on a moonlit night and are in line with research findings for the illuminance found at hedgerows used by lesser horseshoe bats, a species well known for its light adverse behaviour”.



4. SITE DESCRIPTION AND SCOPING

4.1. Overview

The application site, known as Land at Dutton Lane, Eastleigh, comprises an established open storage and industrial yard located within a predominantly commercial and industrial area. The site is currently subject to a retrospective planning application for change of use, comprising storage and distribution (Class B8) within the southern and central areas, and general industry/storage and distribution (Classes B2/B8) within the northern section, together with all associated infrastructure.

The site accommodates a series of open storage yards, providing seven individual plots for mixed industrial uses, together with circulation routes, access arrangements, and ancillary infrastructure. The surrounding area is characterised by a mix of industrial premises, commercial uses, transport infrastructure, and some residential receptors at greater distance. Existing artificial lighting from surrounding land uses and the local highway network contributes to a moderate to high ambient night-time brightness.

The site is already served by external lighting; however, additional and upgraded lighting is proposed to ensure safe operation of the storage yards, vehicle movements, and general site activities during hours of darkness.

4.2. Classification of Environmental Zone

The site is located within a developed industrial area on the edge of Eastleigh, where baseline lighting levels are influenced by surrounding commercial premises, security lighting, and highway illumination. In accordance with the Institution of Lighting Professionals' *Guidance Notes for the Reduction of Obtrusive Light* (GN01:2021), the site is considered to fall within Environmental Zone E3 (suburban/medium district brightness).

This classification reflects the balance between existing artificial lighting and the presence of nearby residential receptors. As such, while the surrounding area is not intrinsically dark, there remains a requirement to carefully control obtrusive light to prevent unacceptable impacts in terms of glare, light spill, and visual intrusion.

4.3. Site Context and Lighting Sensitivity

The site is set within an industrial context but is not entirely isolated from sensitive receptors. Residential properties are located within the wider area and may experience views towards parts of the site, particularly from upper-floor windows.

The baseline night-time environment is influenced by existing industrial and highway lighting; however, the introduction or modification of lighting within the site has the potential to increase vertical illuminance at nearby receptors and introduce additional sources of glare if not appropriately controlled.

Operationally, the lighting design must support the safe use of the site, including vehicle manoeuvring, loading and unloading activities, and general circulation within the open storage yards. This requires adequate illumination levels, good uniformity, and effective glare control to ensure safe working conditions.

4.4. Local Planning Policy and Lighting Considerations

Within the local planning context, external lighting is controlled through policies set out in the Eastleigh Borough Local Plan, which seek to protect residential amenity, minimise environmental impacts, and promote high-

quality design. These policies require that external lighting is justified by operational need and designed to minimise unnecessary illumination, ensuring that lighting is carefully controlled in terms of its intensity, direction, and duration.

Lighting proposals must demonstrate that light spill beyond the site boundary is minimised and that potential impacts such as glare, sky glow, and visual intrusion are appropriately mitigated. Particular consideration is required where sensitive receptors are present, including nearby residential properties, to ensure that lighting does not result in unacceptable effects on amenity. Accordingly, luminaires should be appropriately specified, positioned, and shielded to suit their context, directing light only to the areas where it is required for safe and effective operation of the site.

4.5. Environmental Constraints and Sensitivity

The site itself is of low ecological sensitivity, comprising hardstanding and previously developed land used for industrial and storage purposes. There are no identified ecological features of significance within or immediately adjacent to the site.

Notwithstanding this, consideration has been given to the wider environment, including the need to minimise upward light and avoid unnecessary sky glow. The primary environmental constraint relates to nearby residential receptors, where lighting effects may be more noticeable during hours of darkness.

Accordingly, the lighting design has been developed to limit light spill, control glare, and ensure that luminaires are appropriately specified and oriented to minimise visibility from surrounding properties.

4.6. Application of Lighting Guidance and Standards

This assessment has been undertaken with reference to the Institution of Lighting Professionals' *Guidance Notes for the Reduction of Obtrusive Light* (GN01:2021), which establishes recommended limits for obtrusive light based on Environmental Zone classification. For a site within Environmental Zone E3, these limits define acceptable thresholds for vertical illuminance at nearby receptors, source intensity, and upward light, and form the primary basis for assessing potential lighting effects.

The lighting design has also been informed by relevant British Standards, in particular BS EN 12464-2:2014 *Lighting of outdoor workplaces*. Given the nature of the site as an open storage facility with mixed and variable industrial activities, a task-specific lighting class has not been assigned to individual operations. Instead, Table 17 (specifically Table 17.1) has been applied to provide a suitable generic lighting level for outdoor working areas, ensuring an appropriate baseline of illumination for safe access, circulation, and general operational activities across the site.

This approach ensures that lighting provision is proportionate to the typical and flexible use of the storage yards, while maintaining safe working conditions for vehicle movements and manual tasks. The design has further been developed to ensure that luminaires incorporate appropriate optical control to limit glare and light spill, and that illumination is directed only to those areas where it is required.

Overall, the lighting strategy seeks to balance operational safety requirements with environmental considerations, ensuring compliance with relevant standards while minimising potential impacts on surrounding receptors.

Figure 4.1: Existing Site Location Plan



4.7. Study Area

The desktop study area was determined by assessing the potential receptors that could be affected by a change in artificial lighting. This included nearby existing residential development, roadways, and any identified ecology receptors.

There are some existing residential properties near the site which are considered potentially sensitive to changes in lighting; with receptor locations indicated in **Appendix 1**.

Human Amenity Receptors

- 01 Dwellings Dutton Lane – 27m East

Human Safety Receptor

- 01 Traffic user- Bishopstoke Road (B3037) - 47m South

5. METHOD OF ASSESSMENT

5.1. Methodology

The assessment has been carried out in accordance with the published guidance documents from the ILP. These quantify the levels of direct upward light, light intrusion, viewed source intensity and glare regarded as acceptable for varying environmental zones.

The Lighting Impact Assessment is desk-top based. The methodology employed for this assessment is appropriate to the location of the site. It comprises a desk-top study of the legislative, policy and guidance context; consultation with the design team; a desk-top survey in which the baseline conditions were estimated based on industry guidance; confirmation of the general expected light levels for the relevant Environmental Zone in which the site is located; evaluation of the likely effects of the approved lighting using appropriate assessment criteria; indicative layout and associated light spill modelling.

The methodology takes guidance from the Institution of Lighting Professionals PLG 04 document “*Guidance on Undertaking Environmental Lighting Impact Assessments*”. This sets out industry best practice for conducting the assessment.

The desktop study involved research into relevant legislation, policy and guidance relating to obtrusive light. It also involved studying of ordnance survey maps, plans and aerial photography views to identify likely receptor locations.

5.2. Potential Effects from Artificial Light

The following potential effects can arise from inappropriately designed artificial lighting:

- **Effects from light intrusion from exterior lighting on residents (through windows)**

Light intrusion (or light spill) is the term for the spilling of light beyond the boundary of the area being lit. The ILP Guidance Notes places a limit on the amount of vertical Illuminance which falls upon the centre of a dwelling window. The suggested maxima values quoted are relative to the amount of light measured as a baseline without the presence of the obtrusive light source.

- **Effects from luminous source intensity on residents and sightseers**

ILP GN01/21 advises limits luminous source intensity from luminaires to an observer. The greatest effects are usually encountered from poorly aimed floodlights or security lighting, or from lighting which is located too close to properties.

- **Effects from upward light (or sky glow)**

Light emitted above the horizontal either directly from luminaires or indirectly as reflected light from surfaces such as the landscape or buildings, has the potential to cause sky glow. The ILP “*Guidance Notes for the Reduction of Obtrusive Light*” places limits on the percentage of direct upward light emitted from the luminaires in their installed attitude, which is dependent upon the Environmental Zone in which the site lies. Indirect upward light is subject to surface reflectance properties. It is not easily quantifiable but is unlikely to be as significant as direct upward light from luminaires.

- **Effects from disability glare on transport users**

The lighting is designed to be installed such that glare is minimised in accordance with the ILP guidance notes.

5.3. Obtrusive Light Limitations

In the absence of suitable statutory guidance, the ILP “*Guidance Notes for the Reduction of Obtrusive Light*” GN01:2021 is typically used, to provide suitable assessment criteria against which to assess the likely effects of artificial lighting.

The relevant criteria of upward light, light intrusion and direct source intensity are outlined in **Table 3.2**.

5.4. Significance Criteria

The significance of an effect from artificial lighting has been based upon the sensitivity of the receptor and the magnitude of change at that receptor due to the revised conditions.

PLG 04 provides guidance on assessing the magnitude of an impact (as described in **Table 3.3**) and the significance of impacts. The guidance notes that the magnitude of an impact and its significance are not necessarily linked. It notes “*increased lighting levels may be substantial, but if the local sensitivity to light is low, the significance may be low. Conversely, even a small change in a sensitive location may have important consequences and must be addressed*”.

Consequently, one must assess the sensitivity of a receptor in order to determine significance. PLG 04 and GN01 does not specifically provide guidance on receptor sensitivity. However, it does hint that the Environmental Zone would play a factor (e.g. E0 would be more sensitive to changes in lighting than E4), as well as the type of receptor itself.

6. BASELINE CONDITIONS

The site is located within an established industrial area on Dutton Lane, Eastleigh. The site currently comprises seven individual yard areas, some of which will require artificial lighting to ensure safety, security, and amenity during night-time operations.

The wider surrounding area features a mix of lit and unlit roads. The nearby A335 and A3024 corridors to the south and west are illuminated highway routes and contribute to the general sky glow and baseline luminance within the area. In contrast, sections of Dutton Lane and adjacent access routes remain partially unlit, resulting in a varied lighting environment across the local context.

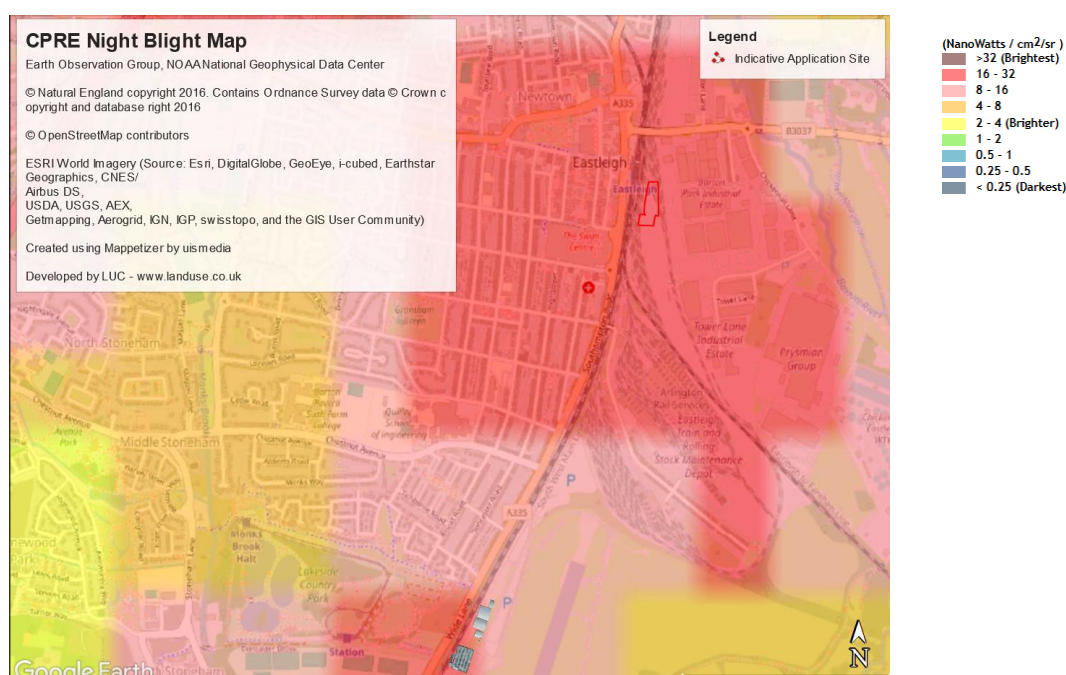
Within and around the site boundary, there are examples of private bulkhead and security lighting associated with neighbouring industrial units and service yards. These installations are likely to contribute to the overall local lighting environment, even in the absence of direct street lighting in some areas.

Overall, the site is situated within a predominantly lit industrial setting, with existing light sources from nearby roads, commercial premises, and private security lighting contributing to a moderate ambient brightness typical of such operational environments in Eastleigh.

CPRE night blight mapping (available at <https://nightblight.cpre.org.uk/maps/>) indicates significant levels of skyward radiance within and in the immediate surrounds of the site. Night blight mapping for the area is shown in **Figure 6.1**.

The night blight mapping indicates that the Application Site is consistent with criteria for an E3 Environmental Zone, as it shows a 'Medium District Brightness' to average level of baseline luminance in the vicinity of the Application Site.

Figure 6.1: CPRE Night Blight Mapping



7. PROPOSED DEVELOPMENT

7.1. Overview

The following section summarises the proposed lighting strategy for the site at Land at Dutton Lane, Eastleigh. The development is a retrospective planning application, and the site is already in operation as an open storage facility comprising seven-yard areas used for mixed industrial (B2/B8) purposes.

At present, the site does not benefit from a comprehensive permanent external lighting system, with operational activity primarily occurring during daylight hours. In order to support safe and efficient operation during periods of darkness, a purpose-designed lighting scheme is proposed. This provides task-specific illumination to key operational areas including vehicle circulation routes, access points, and loading and unloading zones.

The lighting design has been developed as a single coordinated scheme for the site. No provision is made for independent or additional lighting installations outside of this design. Where future operational requirements arise that necessitate changes to lighting provision, these would be subject to separate assessment to ensure continued compliance with relevant standards and environmental controls.

7.2. Lighting Criteria

The lighting strategy for the site has been developed on a task-specific basis, reflecting the operational characteristics of an open storage yard environment comprising seven individually defined yard areas. The site is primarily used for storage and associated industrial activities, with vehicle movements and operational tasks occurring within clearly defined circulation and working zones.

The design has been tailored to the functional requirements of each yard area, ensuring that illumination is provided where it is needed to support safe and efficient operation. The lighting approach responds directly to the layout of the site, operational boundaries, and the nature of activity within each zone.

Each yard is served by 6-metre-high lighting columns positioned to provide effective spread and overlap of illumination across the operational areas. This arrangement results in a maintained average illuminance of approximately 20 lux within the principal working and manoeuvring zones, with a minimum uniformity of approximately 0.25. This is considered appropriate for the defined operational use of the site, providing sufficient visibility for vehicle movements, loading activities, and general yard operations.

Importantly, the lighting design has been developed to work in conjunction with the site layout, where natural light spill from the proposed luminaires contributes to a transitional level of illumination across communal circulation areas. These areas are not intended to be primary working zones but benefit from incidental illumination, which supports safe vehicular movement between yard areas and access points without the need for additional dedicated lighting infrastructure.

Given the structured layout of the site and the provision of internal lighting columns, dedicated wayfinding lighting is not required. The combination of overlapping light distribution and incidental spill light ensures that vehicle routes remain legible and safely navigable during periods of darkness.

The lighting system will be controlled through appropriate switching arrangements to ensure that illumination is provided only when operationally required, thereby reducing unnecessary energy consumption and limiting light emissions during periods of inactivity.

The design has also been developed in accordance with the Institution of Lighting Professionals' *Guidance Notes for the Reduction of Obtrusive Light* (GN01:2021), ensuring that light spill, upward light, and glare are appropriately controlled. Luminaires will be selected and oriented to ensure that light is directed only to the operational areas within the site boundary, with particular attention given to minimising visibility beyond the site.

7.3. Environmental Lighting Limits

Based on an Environmental Zone of E3, **Table 7.1** outlines the obtrusive lighting limits for this site. The criteria shown are the maximum parameters for obtrusive light emanating from the development site, based upon the Environmental Zone.

Table 7.1: Obtrusive Light Limitations for Exterior Lighting Installations

Environ. Zone	Sky Glow ULR (Max %)	Light Intrusion (into Windows) E _v (lux)		Luminaire Intensity I (candelas)		Building Luminance Pre-curfew
		Pre-curfew	Post-curfew	Pre-curfew	Post-curfew	
E3	2.5	5	10	10,000	1,000	10

Notes to table:

ULR (Upward Light Ratio) is the maximum permitted percentage of luminaire flux that goes directly into the sky;

E_v is Vertical Illuminance in Lux;

I is Luminance in Candelas per square metre; and

Curfew refers to a time when the local planning authority has agreed that the lighting installation should be switched off; this typically refers to 23h00 – 07h00.

() Permitted only from Public road lighting installations up to a maximum of 1.0 lux.*

7.4. Lighting Strategy

The Proposed Development at Dutton Lane, Eastleigh will require lighting to support safety, security, and operational tasks in specific areas of the site during hours of darkness. The lighting has been designed to be fit for purpose and sensitive to nearby human and ecological receptors, with the objective of minimising unnecessary light spill, glare, and upward light.

Proposed illumination will be provided using flood and area lighting luminaires mounted predominantly on 6-metre-high columns, which form the design basis for the lighting strategy across the site. This mounting height has been selected to achieve appropriate light distribution across the open storage yards, supporting safe vehicle movement and operational activities while maintaining control over obtrusive light.

Where site-specific operational requirements necessitate it, column heights may be increased locally up to 8 metres to ensure adequate coverage and uniformity. Under no circumstances will lighting columns exceed 10 metres in height.

Where available, luminaires with integral LED technology and manufacturer-provided photometric data will be specified. This enables accurate modelling of each luminaire's photometric distribution, ensuring that the potential effects of light spill beyond the site boundary are properly assessed and mitigated. Where

manufacturer-specific photometric data is not available, representative luminaires with comparable performance characteristics have been used for modelling purposes to ensure a robust assessment of lighting impacts.

Table 7.2: Recommended Lighting Strategy – Flood Lights

Location	Open Storage Area (Yards)
Correlated Colour Temperature	4000K
Light Source	LED (Light Emitting Diode)
Height	6m (No Greater than 10m)
Mounting Arrangement	Column Mounted
Luminaire Tilt	30 degrees
Upward Light Ratio	0%
Example Luminaire	
Controls Options	Photocell Controlled: ON at DUSK, OFF at DAWN.
Other Limitations	Must not exceed 30 Degree beam angle, luminaires on the east side of the site to reduce any Light Spill to neighbouring Residential properties.

7.5. Mitigation by Design

The potential effects of artificial lighting at the Dutton Lane site have been mitigated through the proposed lighting strategy, prepared by a suitably competent lighting professional. The design follows principles of good lighting practice and utilises appropriate luminaires and mounting arrangements to ensure that operational areas are safely and effectively illuminated while avoiding obtrusive light effects that would exceed the recommended limits for Environmental Zone E3.

Lighting has been provided only within defined operational yard areas where night-time activity, including vehicle movements and loading operations, may occur. Areas of the site used predominantly for daytime storage or infrequent activity do not require dedicated lighting provision and are therefore not illuminated, avoiding unnecessary energy use and reducing potential light spill beyond the site boundary.

The lighting system is designed as a fixed operational installation and will operate on automated photocell controls, ensuring that illumination is provided only during periods when it is required for safe operation of the

site. This approach ensures efficient use of lighting whilst minimising unnecessary operation during periods of inactivity.

Where required, luminaires incorporate optical control measures such as directional shielding and cut-off distribution to ensure that light is directed only onto the operational areas and does not result in significant spill or glare to surrounding receptors.

Indicative light spill diagrams provided in the assessment represent a conservative worst-case scenario based on unmitigated output. In practice, the installed lighting design benefits from shielding, mounting geometry, and directional control, ensuring that actual operational light levels are more contained within the site boundary than shown in theoretical modelling.

7.6. Summary of Lighting Approach

The proposed lighting scheme at Dutton Lane provides a coordinated, task-specific solution designed to support safe and efficient operation of the open storage yards during hours of darkness. The lighting has been carefully planned to align with the layout and functional use of the site, ensuring that illumination is provided only where required for operational safety.

The scheme does not rely on supplementary or ad hoc lighting provision and has been designed as a complete and self-contained installation. Each yard is served by appropriately positioned lighting columns to ensure adequate coverage of vehicle circulation routes and working areas, while maintaining control over light spill, glare, and upward light.

The lighting strategy ensures that operational requirements are met without over-provision, supporting safe access, movement, and working conditions across the site. By focusing lighting only within defined operational areas and utilising appropriate optical control, the design achieves a balance between functional safety and environmental protection.

Overall, the proposed lighting represents a proportionate and controlled solution that delivers the necessary levels of illumination for an open storage environment while minimising effects on surrounding receptors and ensuring compliance with relevant lighting guidance and standards.

8. LIGHTING IMPACT ASSESSMENT

8.1. Overview

The following section summarises the assessment of the proposed impact of the scheme.

Poorly designed lighting can contribute the following obtrusive light components which will be assessed in the following section:

- **Light spill, and specifically Light Intrusion to Windows;**
- **Sky glow;** and
- **Glare.**

Consideration of both human and ecological receptor are required.

8.2. Light Intrusion

Light intrusion to windows is one of the major considerations when assessing the potential impacts of the lighting strategy. Light intrusion to windows is typically modelled by calculating vertical illuminance (E_v), i.e. the level of light falling on a vertical surface. **Table 7.1** highlights the maximum recommended E_v based on the local Environmental Zone, post pre and post curfew.

Indicative light spill modelling has been conducted using Lighting Reality Pro lighting design software. Lighting Reality Pro provides Isolux contour maps showing how light spreads across the site. This helps to visualise how light will be distributed over the Open storage facility and can also be used to assess the development's potential impact on surrounding areas.

This assessment uses 2-dimensional lighting software for calculations, where site topography and light limiting features have not been accounted for within the design. This approach slightly limits the accuracy of the exact locations of Isolux contours shown on light spill mapping, but presents an absolute worst-case scenario, ensuring that lighting levels are not higher than those assessed.

It should be noted that the calculations do not include back shields as data for the type of luminaire proposed at this site is not available with back shields. Therefore, the calculations represent a worst-case scenario, without mitigation.

The results of the calculation of vertical illuminance can be seen in **Table 8.1** for the human and ecological receptors identified in **Section 4.2** of the report. These results present the “*worst case scenario*” and do not consider the features that may offer blocking/shielding effects.

Table 8.1: Vertical Calculation Results

Receptor Name	Pre-Curfew limit (Lux)	Post-Curfew limit (Lux)	Vertical illuminance (Pre-Curfew)	Vertical illuminance (post-curfew)	Pre- Curfew compliance	Post-Curfew
01 Human Amenity – Rear facades of Properties on Dutton Lane	5	10	2.59	2.59	YES	YES

Table 8.1 shows that **without mitigation**, pre and post-curfew vertical illuminance levels would be below the relevant E3 Environmental Zone limits outlined in PLG 04 and replicated in **Table 3.2** at the human amenity receptors.

8.3. Glare

There are two types of glare that needs to be considered:

- Disability Glare: Glare which impairs the vision of objects but may not cause discomfort.
- Discomfort Glare: Glare causing discomfort which may not impair the ability to see objects.

The Proposed Development has been designed to ensure that obtrusive light in the form of glare is minimised in line with obtrusive light guidance and criteria. Glare will be minimised by ensuring that the main beam angle of all luminaires are directed away from any potential observer into the centre of site wherever possible, and angled at less than 70 degrees from the horizontal. Therefore, it is not considered that glare will be an issue at any of the surrounding receptors.

8.4. Sky Glow

Sky glow is the brightening of the night sky caused by artificial lighting resulting from the reflection of radiation (visible and non-visible), scattered from the constituents of the atmosphere, for example gas molecules, aerosols and particulate matter.

Sky Glow comprises two separate components:

- Natural sky glow - sky glow which is attributable to radiation from celestial sources and luminescent processes in the Earth's upper atmosphere.
- Man-made sky glow - sky glow which is attributable to man-made sources of radiation, e.g. outdoor electric lighting.

Sky glow will be minimised by using modern LED integrated luminaires with good photometric control, angled at less than 70 degrees from the horizontal and by using additional shields as appropriate. Providing appropriate lighting is installed, the development is unlikely to have a noticeable impact upon local levels of sky glow.

8.5. Potential Mitigation

In addition to the mitigation measures incorporated into the lighting design as standard, since the proposed lighting design meets the requirements of the Environmental Zone **E3** limits, no further mitigation is required.

8.6. Summary of Residual Effects

8.6.1. Human Amenity

The assessment has shown that unmitigated, there could be an increase vertical illuminance, pre-curfew, at the closest sensitive human receptors, with the dwellings located closest to the proposed lights on Dutton Lane to experience the greatest impact. However, since the proposed lighting design meets the requirements of the Environmental Zone **E3** limits. Therefore, the residual effects are assessed to be insignificant, primarily due to the limited use of the site, the temporary nature of the impacts and the low likelihood of intrusive impacts. Furthermore, the lighting would be implemented in line with relevant British Standards and guidance through the implementation of the lighting design.

8.6.2. Human Safety

The assessment has shown that vertical illuminance will be below the E3 limits on Dutton Lane the mitigation measures proposed will limit glare. Therefore, providing the recommendations contained within this report are implemented, the lighting proposals should have a negligible impact on human safety.

8.6.3. Sky Glow

Providing the recommendations contained within this report are implemented, the lighting proposals should have a negligible impact on sky glow.

9. CONCLUSION

This report has considered the potential effects of artificial lighting associated with the proposed development at Land at Dutton Lane, Eastleigh. The assessment evaluates the likely impacts of the external lighting design on nearby residential receptors and the wider environment, with particular reference to obtrusive light, light spill, glare, and potential effects on ecological receptors.

9.1. Baseline Conditions

The application site is located within an established industrial area on the edge of Eastleigh and is considered appropriate for classification as Environmental Zone E3 in accordance with ILP GN01:2021 guidance. This reflects a context influenced by surrounding industrial uses, commercial activity, and highway lighting, which collectively contribute to a moderate baseline level of artificial illumination.

A desktop-based assessment has been undertaken using available mapping and contextual information to establish baseline conditions. This indicates that the site is not located within a naturally dark environment but within a wider urban-industrial landscape where artificial lighting is already a characteristic feature of the surrounding area.

Notwithstanding this, the presence of nearby residential receptors introduces a degree of sensitivity, particularly in relation to potential light spill and visibility of artificial lighting during evening and night-time hours.

9.2. Residual Effects

The assessment demonstrates that, following implementation of the proposed lighting strategy and embedded design mitigation, the residual effects associated with artificial lighting are considered to be minor and not significant.

The lighting scheme has been designed as a task-specific solution to support safe operation of the seven open storage yard areas. Illumination is provided only where required for operational activity, including vehicle circulation routes, loading and unloading areas, and defined working zones within each yard. The design is based on 6-metre-high lighting columns, which provide appropriate distribution and overlap of light across each operational area, ensuring safe visibility for vehicle movements and general site activities. Where required, limited localised increases in mounting height (up to 8 metres) may be used to address site-specific coverage requirements, with an absolute maximum of 10 metres.

The lighting design avoids unnecessary over-provision by not extending illumination to areas of purely daytime or infrequent use. This ensures that lighting is focused on operational need, reducing potential light spill beyond the site boundary.

Lighting is controlled through automated systems, ensuring operation only when required during hours of darkness. This helps to minimise unnecessary operation during periods of inactivity and ensures that lighting provision remains proportionate to site use.

The use of directional luminaires and appropriate optical control ensures that light is contained within the site boundary as far as practicable, with particular attention given to limiting upward light and glare. As a result, external light spill to surrounding residential receptors is effectively controlled and is not expected to give rise to significant adverse effects.

Ecological impacts are also considered to be negligible. The lighting design has been structured to avoid unnecessary illumination of boundary features, ensuring that surrounding vegetation and peripheral areas remain largely unlit. This maintains the function of adjacent habitats as low-light corridors and minimises potential disturbance to nocturnal fauna.

In terms of sky glow and wider environmental effects, the combination of controlled luminaires, task-specific lighting distribution, and contained operational areas ensures that upward light emissions are limited and consistent with good practice expectations for an E3 environment.

9.3. Overall Conclusion

In conclusion, the proposed lighting scheme for the open storage yards at Land at Dutton Lane has been designed in accordance with relevant Institution of Lighting Professionals guidance and applicable British Standards, with a clear focus on task-specific, operationally necessary illumination.

The lighting strategy provides a balanced solution that ensures safe and effective operation of the site during hours of darkness while maintaining appropriate control over obtrusive light, glare, and light spill. The design is proportionate to the site's industrial use and reflects its location within an existing urban-industrial context.

The assessment demonstrates that, subject to the implementation of the proposed lighting design, the residual effects of artificial lighting are not significant. The modelling represents a conservative assessment of likely impacts, and in practice actual lighting effects are expected to be well contained within the site boundary due to the directional control of luminaires and the defined operational layout of the yard areas.

Accordingly, the proposed development is considered acceptable in lighting and environmental terms and is not expected to result in any significant adverse effects arising from artificial lighting.

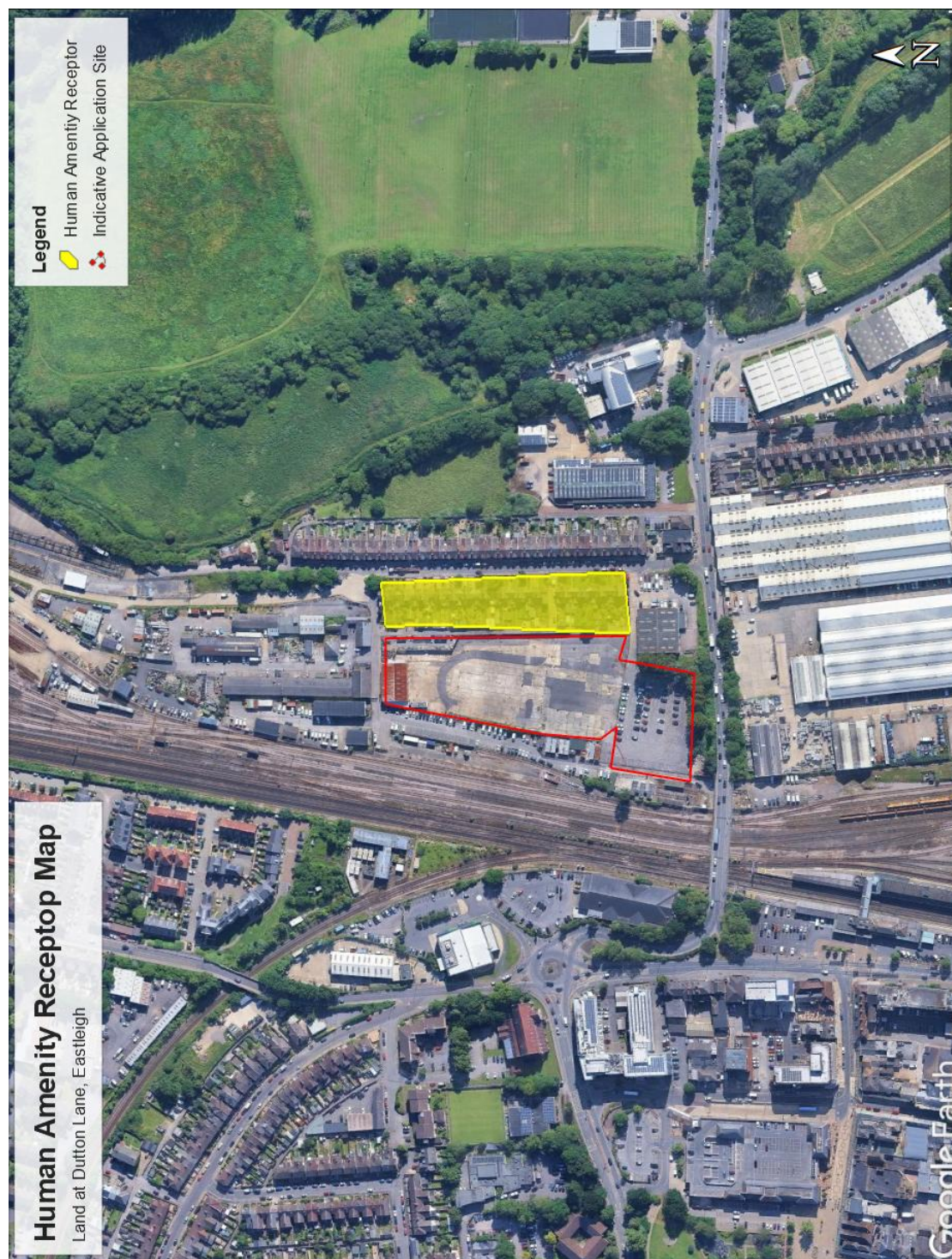
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Appendix 1 Human Receptor Map

Appendix 1: Human Receptor Map



Appendix 2

Vertical Illuminance Calculation Grids

Appendix 2: Vertical Illuminance Light Spill Model

See separate document

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Appendix 3 Light Spill Model

Appendix 3: Light Spill Model

See separate document