LAND EAST OF LUNCE'S HILL, HAYWARDS HEATH

Lighting Impact Assessment

794-DES-ARC-30465
Land East of Lunce's Hill
Haywards Heath - Lighting
Impact Assessment
LIA-P04
13 February 2025

rpsgroup.com

Document status

Version	Purpose of document	Authored by	Reviewed by	Approved by	Review date
LIA-P01	Planning	Rajendra Patel	David Bolus	Rajendra Patel	05/12/24
LIA-P02	Planning	Rajendra Patel	David Bolus	Rajendra Patel	13/12/24
LIA-P03	Planning	Rajendra Patel	David Bolus	Rajendra Patel	14/01/25
LIA-P03	Planning	Rajendra Patel	David Bolus	Rajendra Patel	13/02/25

Approval for issue

Rajendra Patel  13 February 2025

Prepared by:

RPS

Rajendra Patel
Technical Director - Building Services

1 Newhall Street
Birmingham, West Midlands B3 3NH

T +44 121 622 8520
E rajendra.patel@rpsgroup.com

Prepared for:

Catesby Strategic Land Limited and Rurban Estates Limited

ISSUE	DATE	REMARKS
LIA-P01	December 2024	First Issue – Draft.
LIA-P02	December 2024	Planning comments incorporated.
LIA-P03	January 2025	Clause 2.2 NPPF updated. Clause 1.1 updated. Site layout updated.
LIA-P04	February 2025	Site layout updated.

Contents

Appendices

1 INTRODUCTION

1.1 An outline planning application is to be made for the erection of up to 130 dwellings (Use Class C3), together with the change of use of an existing building for flexible commercial and/or community use, associated outdoor space and landscaping, drainage infrastructure, hard and soft landscaping, parking, access, and associated works. ("the Site").

1.2 The application site straddles the boundary of Lewes District Council and Mid Sussex District Council.

1.3 This report assesses, in terms of artificial lighting, the likely effects of the Site. It incorporates a summary of the impacts which are detailed in Table 10.2.

1.4 The report describes the:

- assessment methodology;
- baseline conditions at the Application Site and surroundings;
- likely environmental effects;
- mitigation measures required to prevent, reduce or offset any adverse effects;
- likely residual effects after these measures have been employed.

2 PLANNING POLICY CONTEXT

2.1 National Legislation

European Union (EU) legislation forms the basis for defining light pollution in the UK. The E U Environmental Impact Assessment (EIA) Directive 85/337/EECi came into force in 1985 and applies to a wide range of public and private projects, specifically concerns the use of artificial lighting and its effects upon the environment.

The Environmental Protection Act 1990ii is an Act of UK Parliament that defines, as of 2008, within England and Wales and Scotland, the fundamental structure and authority for waste management and control of emissions into the environment, including that of artificial lighting. The Environmental Protection Act, Part III, Section 79 - Statutory Nuisances states that artificial light emitted from premises may be interpreted as having adverse effects towards health and may lead to nuisances.

British Standards Institution, BS EN 12464-2 – Lighting of Work Places – Part 2, Outdoor Work Places outlines the specific lighting requirements to enable people to perform outdoor visual tasks efficiently and accurately, especially during the hours of darkness. The degree of visibility and comfort required in a wide range of outdoor places is governed by the type and duration of activity. This standard specifies requirements for lighting of tasks in most outdoor places and their associated areas in terms of quantity and quality of illumination.

Other national legislation includes:

- British Standards Institution, BS EN 13201-2 – Road lighting – Part 2, Performance requirements. This national legislation outlines the standards for the lighting of roadways.
- The Chartered Institute of Building Services Engineers (CIBSE) Lighting Guide. This national legislation outlines outdoor lighting design considerations. The document provides valuable assistance for lighting designers to make decisions about how the health and safety of the environment is enhanced, whilst considering the visual pleasantness of artificial lighting in urban and rural areas.

2.2 National Planning Policy Framework (NPPF) (December 2024)

Section 15 of the NPPF, titled “Conserving and enhancing the natural environment”, paragraph 198, discusses the approach to minimising the impact of light pollution.

> **“198c). 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 limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation.

2.3 Planning Practice Guidance (PPG) Natural Environment

This Guidance details key issues in implementing policy to regulate artificial light and light pollution. The guidance identifies that artificial light offers valuable benefits to society. It also identifies artificial light is not always necessary and has the potential to create 'light pollution' or 'obtrusive light'. It can be a source of annoyance to people, harmful to wildlife, undermine enjoyment of the countryside or detract from enjoyment of the night sky.

PPG outlines the possibility of when light pollution may arise. This can be defined as below:

- Does the new development proposal, materially alter light levels outside the development and/or have the potential to adversely affect the use or enjoyment of nearby buildings or open spaces?
- Does an existing lighting installation make the proposed location for a development unsuitable, for example, this might be because:
  - the artificial light has a significant effect on the locality;
  - users of the proposed development (e.g. a hospital) may be particularly sensitive to light intrusion from the existing light source.
- Does the proposal have a significant impact on a protected site or species e.g. located on, or adjacent to, a designated European site or where there are designated European protected species that may be affected?
- Is the proposed development in or near to a protected area of dark sky or an intrinsically dark landscape where it may be desirable to minimise new light sources?
- Are forms of artificial light with a potentially high impact on wildlife (e.g. white or ultraviolet light) being proposed close to sensitive wildlife receptors or areas, including where the light shines on water?
- Does the proposed development include smooth, reflective building materials, including large horizontal expanses of glass, particularly near water bodies because it may change natural light, creating polarised light pollution that can affect wildlife behaviour)?

2.4 Local Policy – East Sussex County Council

ESCC preference is that all new developments are provided with an adoptable energy efficient street lighting scheme. The level of street lighting is normally decided in conjunction with the Local Planning Authority at the outline design stage. Some parishes prefer a low level of lighting or even none at all, in order to maintain the character of their rural villages. ESCC insist upon adoptable standard lighting being provided at new junctions on A class, B class and some important C class roads and also at all

roundabouts and mini-roundabouts. ESCC insist that all lighting designs must be procured through their own Highway Lighting Team, for which ESCC will make a reasonable charge.

2.5 Local Policy – West Sussex County Council

Streetlights, illuminated signs and illuminated bollards on West Sussex highways are maintained under a PFI contract (contract term 2010 - 2035). The PFI Service Provider is Tay Valley Lighting (West Sussex) Limited. The Operating Sub Contractor is Enerveo (formerly SSE Contracting).

West Sussex County Council has a street lighting specification and section 3:- Guidance on applying design standards in West Sussex details design requirements.

2.6 Local Policy – Mid Sussex County Council

Mid Sussex District Plan 2014 – 2031 policy DP29, dealing with noise air and light pollution requires:-

- The impact on local amenity, intrinsically dark landscapes and nature conservation areas of artificial lighting proposals (including floodlighting) is minimised, in terms of intensity and number of fittings;
- applicants to demonstrate good design including fittings to restrict emissions from proposed lighting schemes.

The policy highlights that degree of the impact of light pollution from a new development is likely to be greater in rural locations, especially where it is in or close to specially designated areas and sites.

3 ASSESSMENT METHODOLOGY

3.1 Guidance Note1 for the Reduction of Obtrusive Light 2021, (GN01-21), published by the Institute of Lighting Professionals (ILP) and Town and Country Planning (Environmental Impact Assessment) Regulations 2017 provide the basis for the methodology of this assessment.

3.2 The site was visited on 8th October 2024, during the daytime and again at night-time, to assess the general ambience from the site itself and from each of the viewpoints discussed in Section 4 and which are detailed in Appendix A. From the visit an assessment of magnitude and significance was made. This was based upon the criteria and gradings provided in the significance matrix as follows:-

Table 3.1 : Significance Matrix

Sensitivity / Value of Receptor	Magnitude of Effect		
	High	**Medium**	**Low**
High (England/UK/International)	Major	Major/ Moderate	Moderate
Medium (County/Region)	Major/ Moderate	Moderate	Moderate/ Minor
Low (Local/Unitary Authority)	Moderate	Moderate/ Minor	Minor

3.3 It is important to consider the effects of lighting on different potential receptors of landscape. These receptors include:

- specific areas or features of historical or wildlife interest such as conservation areas, listed buildings, nature reserves or known populations of rare species. Viewpoints are taken to the south of the restored quarry site which is due to become a nature reserve;
- dark landscapes and other relevant countryside designations that may be included in structure or local plans;
- the appearance of the landscape by day, including the effects of lighting apparatus on skylines, key views, and landscape character generally;

- local residents, especially where bedrooms may be affected by increased light levels at night;
- astronomers, including local observers and astronomical societies, as well as any scientific observatories; and
- motorists, cyclists and pedestrians, together with any traffic lights, junctions or transport signalling systems in the locality.

The aim is to identify and predict, in an appropriate level of detail, the effects of the proposed lighting on built heritage, local wildlife resources, the landscape and local communities during the construction phase and, finally, at occupancy of the development.

4 BASELINE CONDITIONS

4.1 The assessment site for the proposed development currently comprises farmland / grassland. There is one building on the site which is located adjacent Lunce's Hill. The site does not produce sky glow.

4.2 To the north of the site there is farmland and existing and emerging dwellings.

4.3 To the east of the site is woodland.

4.4 To the south is a farmland which is separated from the site from an existing line of boundary trees and vegetation.

4.5 Immediately to the west of the site is Lunce's Hill. On the opposite side of the road there are two recently constructed housing estates.

4.6 Weather conditions during the survey were dry with light cloud.

4.7 The table below lists the potential receptors at the viewpoints used for the assessment which are graphically detailed in Appendix A.

Table 4.1: Receptor Locations

Viewpoint	Location	Visual Receptor(s)
VP1	Colwell Lane	Road users / pedestrians / residents
VP2	PRoW	Users of Public Right of Way
VP3	PRoW	Users of Public Right of Way
VP4	PRoW	Users of Public Right of Way
VP5	Lunce's Lane	Road users / pedestrians
VP6	PRoW	Users of Public Right of Way
VP7	Lunce's Lane	Road users / pedestrians
VP8	Lunce's Lane	Road users / pedestrians

5 LIKELY EFFECTS

5.1 Environmental Zone

In order to provide a guide with regard to the acceptable level of brightness within a site, the Environmental Zone in which the site is situated needs to be identified in accordance with the Institute of Lighting Professionals (ILP) Guidance Note for the Reduction of Obtrusive Light 2021, (GN01-21). From table 5.1, we would classify the Environmental Zone of the Site as being E2.

Table 5.1: Environmental Zones

Sensitivity	Definition
E0	Protected / Dark: Astronomical Observable dark skies, UNESCO starlight reserves, IDA dark sky places
E1	Natural / Dark: Relatively uninhabited rural areas, National Parks, Areas of Outstanding Natural Beauty, IDA buffer zones etc
E2	Rural / Low district brightness: 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

5.2 Receptor Sensitivity

The receptor groups are defined in order to identify their sensitivity in relation to the proposed development. This is dependent upon:

- the duration of the view of the proposed works or site;
- their interest in the visual environment; and
- their juxtaposition in relation to the site and resulting sightlines.

The sensitivity of the receptor groups is broadly defined as:-

Table 5.2: Receptor Sensitivity

Sensitivity	Definition
Critical	The duration of their view is continuous, dusk till dawn, • or their interest in the visual environment is critical. • or their activity requires excellent viewing conditions (For example train drivers). • or their juxtaposition to the site provides excellent sightlines.
High	The duration of their view is prolonged; dusk till dawn, • or their interest in the visual environment is high. • or their juxtaposition to the site provides good sightlines.
Moderate	The duration of their view is moderate; day and evening, • or their interest in the visual environment is low. • or their juxtaposition to the site provides moderate sightlines.
Low	The duration of their view is low; transient, • or their interest in the visual environment is low. • or their juxtaposition to the site provides poor sightlines.

5.3 Viewpoints

Each of the following viewpoints has been assessed in relation to the potential effects of lighting on the receptors. The potential effects identified generally take the form of sky glow, light presence and glare. Different receptor groups are affected to a greater or lesser extent dependent on their sensitivity. The table below summarises the receptor sensitivity at each of the viewpoints.

Table 5.2: Receptor at Viewpoint

Viewpoint	Visual Receptor(s)	Sensitivity at night
VP1	Road users / pedestrians Residents	N/A Moderate
VP2	Users of Public Right of Way	N/A
VP3	Users of Public Right of Way	N/A
VP4	Users of Public Right of Way	N/A
VP5	Road users / pedestrians	Low
VP6	Users of Public Right of Way	N/A
VP7	Road users / pedestrians	Low
VP8	Road users / pedestrians	N/A

5.4 Summary

Based on an environmental zone classification of E2 the likely effects of the proposals are as follows:

- A slight increase in sky glow, site aura and light presence, during both construction and occupation, may be perceived by the local population and may result in the alteration of wildlife patterns in the area.
- A possible increase in light ‘glare’, during both construction and occupation, which may have an effect on the visual comfort of local residents.
- Temporary visual intrusion of the construction processes upon the surrounding landscape.

The above effects can be mitigated as detailed in the following section.

6 MITIGATION MEASURES

6.1 The final lighting scheme to the Proposed Development, expected to be agreed through a planning condition, will need to be calculated and designed to meet the following criteria, regulations, standards and guidelines:

Regulations

- Health & Safety at Work etc, 1974
- Health & Safety Commission, Approved Code of Practice 1992
- Regulations 8 of the Workplace (Health, Safety and Welfare) Regulations 1992 (Lighting)

Good Practice Guidance

- International Commission on Illumination (CIE).
- CIE 115 - Recommendations for the lighting of roads for motor and pedestrian traffic Second Edition (2010)
- CIE 136-2000 Guide to the Lighting of Urban Areas (2000)
- Society of Light and Lighting (SLL) – Code of Lighting
- Society of Light and Lighting – Lighting Guides
- Society of Light and Lighting – Fact Files

British Standards Institution (BSI)

- BS EN 13201-2 Road Lighting
- BS5489-1: Code of practice for the design of road lighting Part 1 : Lighting of Roads and public amenity areas.

The Institution of Lighting Professionals (ILP)

- Lighting the Environment: A Guide to Good Urban Lighting, 1995 (ILP);

Bat Conservation Trust

- Artificial Lighting and Wildlife

6.2 Lighting solutions will be selected to avoid over-lighting thus reducing light pollution. Luminaires will be selected to minimise the upward spread of light near to, or above, the horizon. Luminaire controllers will reduce spill light and glare.

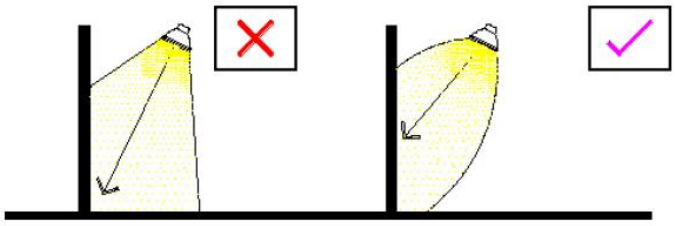
6.3 Glare will be kept to a minimum by ensuring the main beam angle of luminaires directed towards any potential observer is kept below 70°. Higher mounting heights will allow for lower beam angles to be installed, which will assist in reducing glare.

6.4 Solutions which will comply with the mitigation measures detailed above are set out below:-

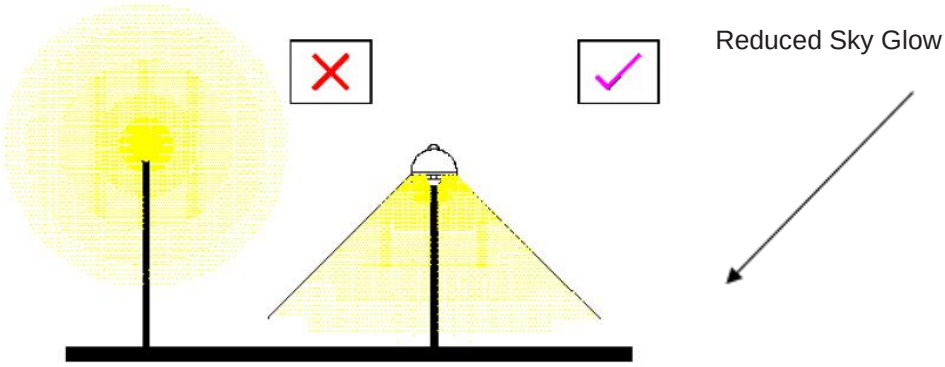
- Lighting will be provided in the form of column mounted lanterns. Where possible, lanterns will be pointed into the development and away from the adjacent sites. The optics in the lanterns will control the distribution of light avoiding overspill, sky glow and glare.

- Glare will be kept to a minimum by ensuring the main beam angle of luminaires directed towards any potential observer is kept below 70°. Higher mounting heights allow for the provision of lower beam angles, which assists in reducing glare.

Spill Light evident in Example 1 may be reduced.



Obtrusive Sky Glow evident in Example 2 may be reduced.



6.5 In order to comply with recommendations made by the Bat Conservation Trust, the following measures will be implemented in the technology used to deliver the lighting installation:-

- Use of narrow spectrum light sources to lower the range of species affected by lighting.
- Use of light sources that emit minimal ultra-violet light.
- Lights that peak higher than 550 nm.
- Avoidance of white and blue wavelengths of the light spectrum to reduce insect attraction and where white light sources are installed in order to manage the blue short wavelength content they will be of a warm / neutral colour temperature >4,200 kelvin.

7 DESIGN PROPOSALS

7.1 Proposed Development

Street lighting will be provided in the form of column mounted LED lanterns similar to those detailed below. Lanterns will be pointed into the development and away from the adjacent sites. Lantern optics will control the distribution of light avoiding overspill, sky glow and glare. If required, street lighting will be provided with timeclock controls enabling switching off of fittings which will reduce the night time effect of the lighting installation on the surrounding environment.

Figure 7.1 Typical Dark Sky Compliant Lanterns

7.2 Private Residential Lighting

Residents of the new development are likely to install their own external lighting fittings. These fittings are likely to be secured via a planning condition and to be in line with the recommendations made in Section 6.

8 RESIDUAL EFFECTS

8.1 The assessment has identified that the application site is on the border of a residential location and for safety reasons, artificial light will be required. There are two adjacent residential estates. Both new estates have street lighting installed. The proposed lighting solution for the new residential development, if artificial lighting is required, will be based on BS5489-1 (P4 for low traffic flow).

Construction Effects

8.2 During the construction phase, there will be occasions when work extends into the hours of darkness, with the consequent need for vehicular lighting and task lighting for particular operations.

8.3 In order that the effect from lighting associated with the construction phase activities is minimised, measures will need to be incorporated to minimise light spill.

8.4 Additional measures, such as anti-glare barriers could also be provided, where deemed appropriate.

8.5 Any new sources of lighting would be temporary and short term during this phase. On this basis the effect of lighting during the construction phase is considered to be Minor Adverse.

Effects on Completion and Occupation

8.6 On completion and occupation, artificial lighting will be present. By use of dark sky compliant lanterns and the avoidance of over lighting, light spill will be minimised. Luminaires will be installed facing into the Site.

8.7 Overall, although the introduction of artificial lighting at the site will have an effect, the mitigation measures incorporated into the design will mean that the significance of the impact is considered to be Minor Adverse.

9 CUMULATIVE EFFECTS

9.1 The likely cumulative effect of artificial lighting may be a slight increase in sky glow when viewed locally to the Site.

10 SUMMARY

10.1 The existing site currently consists of unlit grassland / farmland. The proposed lighting solution will be sympathetic to the local surroundings to avoid over lighting, sky glow and glare.

10.2 The lighting solution will need to provide greater levels of light than the baseline conditions, to comply with current standards and to provide a safe and secure environment for residents.

10.3 The proposed lighting solution for the residential areas will be based on BS5489-1:2020 Class P4 scheme (for low traffic flow) producing an average illuminance of 3 lux and other roads appropriate to the class of use. Where ecology surveys have identified the presence of bat species through the site, the movement patterns will affect the street lighting design and areas of "dark corridor" will need to be maintained.

10.4 By careful selection and location of luminaires the development will be successfully lit with minor adverse effects to the adjacent areas. The impact of artificial lighting is unavoidable as would be expected for any new development.

10.5 The potential effects will be managed such that the potential increase in the general ambience of the area will be balanced against the overall existing illuminance in order to minimise sky glow.

10.6 The overall impact of the lighting to the Site will be Minor Adverse based on **Table 10.1**: Residual Effects taken from Professional Lighting Guide – PLG 04 – Guidance on Undertaking Environmental Lighting Impact Assessments – Institute of Lighting Professionals).

Table 10.1: Residual Effects

Nature	Ref	Level	Descriptions	Remedial needs
Positive	1	Major/substantial beneficial effects	Significant improvement in night environment and/or reductions in glare, spill light and sky glow etc	
	2	Moderate beneficial effects	Noticeable improvement in night environment and/or reductions in glare, spill light and sky glow etc	
	3	Minor beneficial effects	Slight improvement in night environment and/or reductions in glare, spill light and sky glow	
Neutral	4	None/negligible	No significant effect or overall effects balancing out.	None
Negative	5	Minor adverse effects	Slight increase in visibility of site, glare, and sky glow etc	Develop appropriate levels and type of mitigation
	6	Moderate adverse effects	Noticeable increase in visibility of site, glare, and sky glow etc	
	7	Major adverse effects	Significant problems with increase in visibility of site, glare, and sky glow etc	

10.7 **Table 10.2** contains a summary of the likely effects of the proposed development.

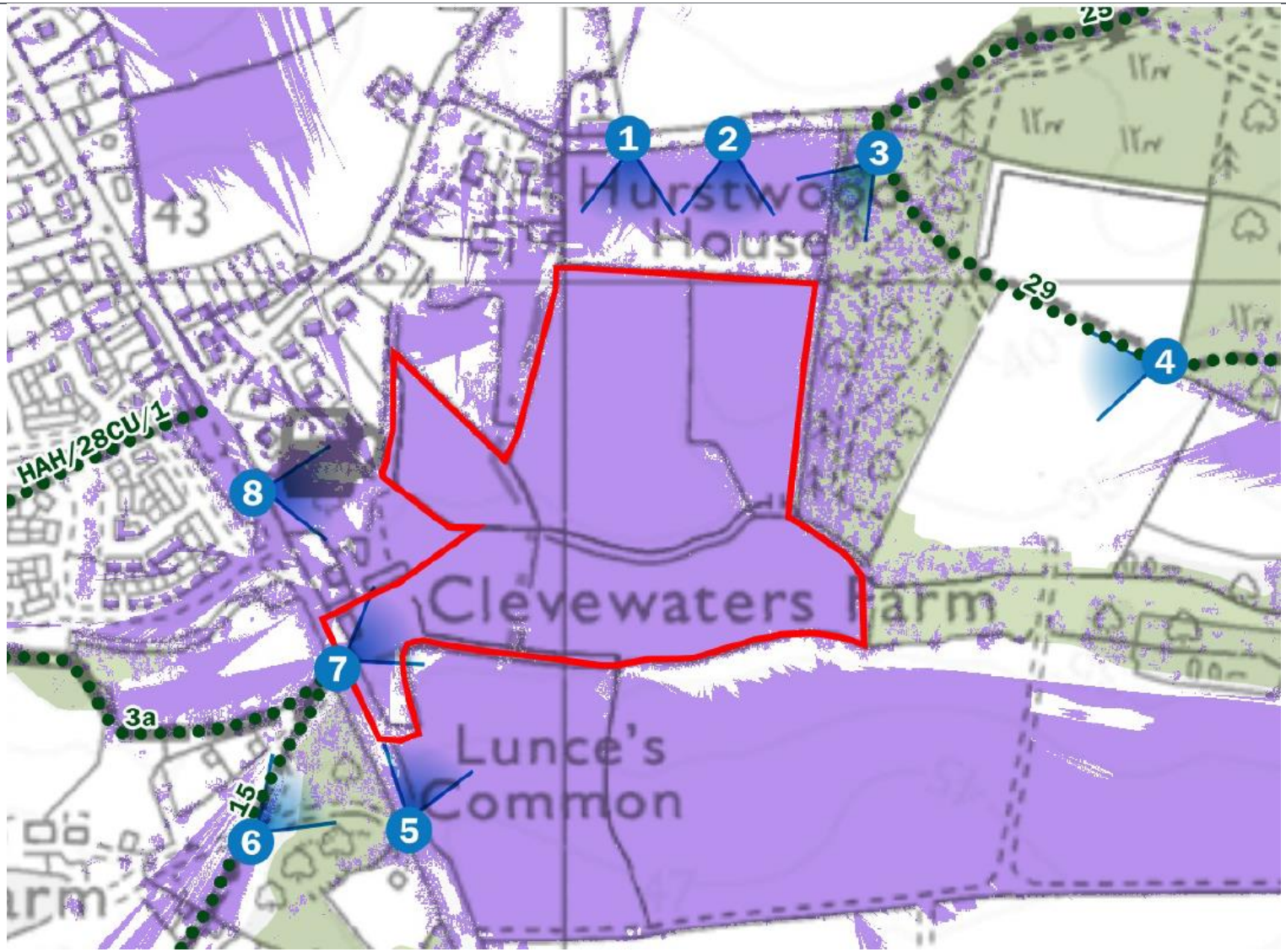
Table 10.2: Level of Effect – Lighting

Potential Effect	Nature of Effect (Permanent/Temporary)	Significance (Major/Moderate/Minor) (Beneficial/Adverse/Negligible)	Mitigation / Enhancement Measures	Geographical Importance*							Residual Effects (Major/Moderate/Minor) (Beneficial/Adverse/ Negligible)
				I	UK	E	R	C	B	L	
Construction											
Increase in sky glow, site aura and light presence to local residences.	Temporary	Major	Minimise site glow and use of anti-glare barriers.							√	Minor Adverse
Increase in light 'glare' to local residences.	Temporary	Moderate	Minimise site glow and use of anti-glare barriers.							√	Minor Adverse
Increase in light 'glare' to drivers on local roads	Temporary	Minor	Minimise site glow and use of anti-glare barriers.							√	Minor Adverse
Temporary visual intrusion of the construction processes to local residence	Temporary	Moderate	Minimise site glow and use of anti-glare barriers.							√	Minor Adverse
Completed Development (change of use from farmland / grazing land to residential area)											
Increase in sky glow, site aura and light presence	Permanent	Major	Specification of dark sky compliant luminaires and avoid over lighting. Time-clock controlled circuits will reduce the overall night-time impact of the artificial lighting installation.							√	Minor Adverse
Increase in light 'glare' to local residences	Permanent	Moderate	Specification of dark sky compliant luminaires and avoid over lighting.							√	Minor Adverse
Increase in light 'glare' to drivers on local roads	Permanent	Minor	Specification of dark sky compliant luminaires and avoid over lighting.							√	Minor Adverse
Cumulative Effects to site											
Increase in sky glow, site aura, light presence and glare.	Permanent	Moderate	Specification of dark sky compliant luminaires and avoid over lighting.							√	Minor Adverse

*** Geographical Level of Importance**
I = International; UK = United Kingdom; E = England; R = Regional; C = County; B = Borough; L = Local

Appendix A

Viewpoints


1
2
3
4
5
6
7
8
25
29
15
3a
HAH/28CU/1
43
Clevewaters Farm
Lunce's Common

Appendix B

Viewpoint Photographs

	Day	Night
VP1		
VP2		
VP3		

	Day	Night
VP4		
VP5		
VP6		

	Day	Night
VP7		
VP8		

Appendix C

Site Layout

PLANNING

- Site boundary *(8.88ha)*
- Public Right of Way (PRoW)
- Historic byway

1. Proposed point of vehicular, cycle and pedestrian access
2. Proposed primary street with 2m footpaths
3. Proposed shared space street
4. Proposed private drive
5. Brook crossing area
6. Proposed recreational footpaths
7. Proposed attenuation basin
8. Existing vegetation and trees retained and enhanced
9. Proposed boundary planting
10. Proposed play area
11. Proposed wildflower meadow
12. Scrub planting bordered by fencing to provide 15m buffer from Ancient Woodland
13. Flexible commercial and/or community use – retention and restoration of existing barn and boundary wall
14. Proposed puffin crossing
15. Proposed pumping station
16. Proposed swale
17. Proposed earthworks bund

Rev.	Date	Description
C	28/08/2025	Amendments to footpath and middle parcel. Addition of swale, bund and pumping station.
B	31/07/2025	Amendments to south-eastern parcel to reduce hardstanding on southern edge
A	19/06/2025	Amendments post submission to address consultee comments

Land east of Lunce's Hill HAYWARDS HEATH

Illustrative Masterplan

Job ref:	Drawing number:	Revision:
604	P01	C

Scale:	Date:
1:2000 @ A3	August 2025

part of
edge Placemaking Group Ltd

The Old Saracen's Head
7 Buttermarket
Thame
Oxfordshire
OX9 3EW

01865 522395
enquiries@edgeUD.co.uk
www.edgeUD.co.uk