



Land North of Oak Cottage, Boorley Green

Lighting Strategy & Assessment

On behalf of **McCarthy Stone**

McCARTHY STONE
Life, well lived

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1 Introduction

1.1 Overview

- 1.1.1 Stantec have been commissioned by McCarthy Stone ('the Applicant') to prepare a Lighting Strategy and Assessment to support a full planning application for a retirement living apartment block and two detached dwellings at land north of Oak Cottage, Boorley Green, SO32 2DH' (the 'Site').
- 1.1.2 The planning application is for 50 1 & 2no. bedroom retirement living apartments and 2no. 3-bedroom detached houses, and associated infrastructure and green space (the 'Proposed Development').
- 1.1.3 The Site is located within the administrative boundary of Eastleigh Borough Council (EBC), opposite MacDonald Botley Park Hotel & Spa, Winchester (B3354) in Boorley Green, Southampton.

1.2 Aims and Objectives

- 1.2.1 The key aims and objectives of this lighting assessment are to:
 - Identify national and local planning policy, guidance, standards and legislation as relevant to artificial lighting for the Proposed Development;
 - Establish the minimum exterior artificial lighting required to construct and operate the Proposed Development safely and securely;
 - Assess the potential effects of the minimum exterior artificial lighting required for the Proposed Development on light sensitive receptors; and
 - Outline potential mitigation measures for the design of lighting so obtrusive light is minimised to within guideline levels.
- 1.2.2 It should be noted that the terms 'light pollution' and 'obtrusive light' are used interchangeably to mean light shining where it is neither intended or wanted.
- 1.2.3 The recommendations of this report will be used to inform the preparation of a lighting design during subsequent detailed design stage of the Proposed Development, which will be secured by planning condition and submitted for approval to EBC.

2 Methodology

- 2.1.1 Baseline conditions, and potentially sensitive receptors have been established and understood through desk-based survey utilising freely available maps, street photography¹, GIS databases² and light pollution data³.
- 2.1.2 This report presents a qualitative assessment of the effects of construction and operational lighting from the proposed development on sensitive receptors against the existing baseline lighting conditions. The assessment accounts for in-built mitigation designed into the Proposed Development.
- 2.1.3 The lighting assessment of the Proposed Development has given due regard to the IPL GN01 and ILP PLG04.
- 2.1.4 The qualitative assessment considers the effects of obtrusive light on sensitive receptors. A quantitative assessment has not been undertaken as a lighting design is not available at this stage of the design process. It is expected that a full lighting design will be a condition of the planning permission. Therefore, professional judgement has been used to apply an understanding of typical lighting conditions and their quantitative effects to qualitatively assess the Proposed Development.
- 2.1.5 The impacts of lighting effects during construction and operation are assessed against the criteria outlined in **Table 1.1** which is taken from the ILP PLG04. The level of effect has been determined using this criterion based on professional judgement, and by giving consideration to both positive and negative lighting effects associated with the Proposed Development.

Table 2.1: Lighting Assessment Criteria (adapted from ILP PLG 04 Guidance on Undertaking Environmental Lighting Impact Assessment (2013))

Nature	Level	Description
Positive	Major/ substantial beneficial effects	Significant improvement in night environment and/or reductions in glare, light intrusion and sky glow etc
	Moderate beneficial effects	Noticeable improvement in night environment and/or reductions in glare, light intrusion and sky glow etc
	Minor beneficial effects	Slight improvement in night environment and/or reductions in glare, light intrusion and sky glow
Neutral	None/ negligible	No significant effect or overall effects balancing out
Negative	Minor adverse effects	Slight increase in visibility of site, glare, light intrusion and sky glow etc
	Moderate adverse effects	Noticeable increase in visibility of site, glare, light intrusion and sky glow etc

¹ Google Earth and Google Streetview, including historic images accessed through Google Earth. Aerial images up to 2024 and Streetview March 2023. Available at <https://earth.google.com/web/> [Accessed July 2024]

² DEFRA (2023), Multi-Agency Geographic Information for the Countryside, Available at: <https://magic.defra.gov.uk/MagicMap.aspx> [Accessed July 2024]

³ Jurij Stare, NASA, Microsoft, TomTom (2012-2024). Black Marble VIIRS, Lunar BRDF-Adjusted Nighttime Lights Years as visualised through www.lightpollutionmap.info [Accessed July 2024]

	Major adverse effects	Significant problems with increase in visibility of site, glare, light intrusion and sky glow etc
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- 2.1.6 The lighting strategy has been developed on the masterplan submitted with the planning application as shown in **Appendix A**. These have been combined in informing the assessment conclusions.

3 The Site and Proposed Development

3.1 The Site

- 3.1.1 The Site lies to the west of the B3354 Winchester Road, on land opposite the Macdonald Botley Park Hotel and Spa.
- 3.1.2 Immediately to the north and west of the Site is the consented Boorley Gardens residential development (planning reference: O/15/75953), which is currently under construction with a number of homes already occupied by residents.
- 3.1.3 The Boorley Gardens residential development is divided from the north of the Site by an existing public footpath. To the south of the Site there are a small number of residential dwellings located 10 m from the Site boundary, and further southwest is a large open grass field. The local area is predominately residential, with the village of Boorley Green to the east of Winchester Road.

3.2 The Proposed Development

- 3.2.1 The proposals include 50 one and two-bedroom Retirement Living apartments, as well as communal facilities, extensive landscaping, and associated parking as well as two 3-bed detached properties.
- 3.2.2 A full planning application is being submitted for:

“50 no. retirement living apartments and 2no. 3 bedroom open market houses with communal facilities and car parking”
- 3.2.3 The site layout of the Proposed Development is shown in **Appendix A**.

4 Legislation, Policy and Guidance

4.1 Introduction

- 4.1.1 This section provides a review of the relevant national legislation and policy, local policy and guidance relevant to the assessment of obtrusive light in relation to the Proposed Development.

4.2 Legislation

The Clean Neighbourhoods and Environment Act

- 4.2.1 The Clean Neighbourhoods and Environment Act 2005 (CNEA) amended Section 79 of the Environmental Protection Act 1990 by extending the statutory nuisance regime to include light nuisance, by stating the following:

“(fb)...artificial light emitted from premises so as to be prejudicial to health or a nuisance...”

“Subsection (1)(fb) does not apply to artificial light emitted from - (a) an airport; (b) harbour premises; (c) railway premises, not being relevant separate railway premises; (d) tramway premises; (e) a bus station and any associated facilities; (f) a public service vehicle operating centre; (g) a goods vehicle operating centre; (h) a lighthouse; (i) a prison.”

- 4.2.2 Therefore, since 6 April 2006, artificial light can be considered to be a statutory nuisance unless it is from exempt premises. It should be noted that road lighting is not exempt from the CNEA, although they are unlikely to qualify as a statutory nuisance as they are not strictly located on a premises.
- 4.2.3 Guidance produced by the Department of Environment, Food and Rural Affairs (DEFRA) in April 2006, on Section 101 to 103 of the CNEA, extends the duty on local authorities to ensure their areas are checked periodically for existing sources of statutory nuisances.
- 4.2.4 If a light nuisance is considered by a local authority to exist, the local authority must serve a notice on the person responsible requiring the abatement of the nuisance, and/or restricting or prohibiting its recurrence.
- 4.2.5 Section 103 extends the defence of ‘best practical means’ to those statutory nuisances where light is emitted from industrial, trade or business premises and also from relevant outdoor sports facilities.

4.3 National Policy

National Planning Policy Framework

- 4.3.1 The National Planning Policy Framework (NPPF) was updated in December 2024 and amended in January and February 2025. The NPPF includes a number of references to consider the effects of artificial lighting.

- 4.3.2 Paragraph 198 of the NPPF states:

“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:

c) limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation.” (Page 57).

- 4.3.3 A draft NPPF was published in December 2025 for consultation, which retains this emphasis but does not propose any additional changes relating to artificial lighting.

National Planning Practice Guidance

- 4.3.4 The Government’s Planning Practice Guidance (PPG) web-based resource presents specific guidance on light pollution⁴ (obtrusive light) including a number of questions to be considered. In developing planning policy and the development and assessment of lighting schemes.
- 4.3.5 The essence of these questions has been absorbed into the subsequent applicable Local Policy and Technical Advice Notes.

4.4 Local Policy

Eastleigh Borough Local Plan (2016-2036)

- 4.4.1 The Eastleigh Borough Local Plan 2016-2036, adopted on 25 April 2022, is a comprehensive plan that sets out the policies and plans to guide future development in the Eastleigh Borough up to the year 2036.
- 4.4.2 This plan is used to determine planning applications in the Borough and replaces the ‘saved’ policies in the Adopted Local Plan 2001-2011. It includes various policies related to housing, infrastructure, environment, and more. The plan also includes detailed maps of the borough.

“New development will be assessed to consider its impact on residential amenity. This covers the amenity of existing residents living at or near the development and also the amenity of new residents. Residential amenity covers a variety of issues including overlooking, loss of daylight, loss of outlook, noise, fumes and dust and the impact of floodlighting and security lighting. It includes the design of garden space and parking arrangements in addition to building design.”

- 4.4.3 **Policy DM8, Pollution** states that:

*“Development will not be permitted if it is likely to cause loss of amenity or impact on public health or other unacceptable environmental impacts through.... **light intrusion**, both generally and with respect to the South Downs National Park’s status as an International Dark Night Skies reserve”*

“Lighting can have a significant impact on people’s perception of their environment and the South Downs to the north east of the Borough is specifically designated as a Dark Sky reserve due to its low levels of light pollution (the areas of the National Park closest to the Borough are designated as Dark Sky Zone E1(b) Transition Zone in the South Downs Local Plan dark night skies policy). At night, the main distinction between urban and rural areas is that the former are lit and the latter are not. Light spillage is a material consideration because it can cause discomfort and loss of privacy and obscure the night sky. However, well designed lighting can improve people’s perception of public safety and the environment. Lighting to the sky, onto hedgerows and directly into waterways can cause impacts on bats, nocturnal species and migratory fish.

⁴ Guidance on Light Pollution, advice on how to consider light within the planning system (2014, updated 2019)
Available at: <https://www.gov.uk/guidance/light-pollution> (Accessed July 2024)

“The Council will seek to ensure that lighting from development does not cause unacceptable environmental or amenity impacts, whilst also providing appropriate illumination (for example in respect of highway and community safety or sporting facilities).”

4.5 British Standards

- 4.5.1 **BS 5489-1:2020 Design of road lighting. Lighting of roads and public amenity areas:** BS 5489-1 is a revision of the British Standard for road lighting design. It provides guidance and recommendations that are intended to support the BS EN 13201 series. This document provides recommendations on the general principles of road lighting including aesthetic and technical aspects, operation, and maintenance, means of minimising energy consumption and limiting the impact on the environment. The guidance provides recommendations for the design of lighting for urban centres, public amenity areas and smart cities.
- 4.5.2 **BS EN 13201-2:2015; Road lighting – Performance requirements (Revised February 2020):** Defines road lighting performance requirements, detailed as lighting classes, and considers the environmental aspect of road lighting.
- 4.5.3 **BS EN 12464-2:2024 Light and lighting. Lighting of work places Outdoor work places:** This European Standard specifies lighting requirements for outdoor work places, which meet the needs for visual comfort and performance.
- 4.5.4 **BS 5266-1:2025 - Code of practice for the emergency lighting of premises.** Guidance on the application and practice of emergency lighting. providing adequate safety to people in the event that normal lighting is interrupted.

4.6 Guidance

Institution of Lighting Professionals

ILP Guidance Notes for the Reduction of Obtrusive Light (2021) (ILP GN01)

- 4.6.1 This guidance provides advice on lighting including the recommendation to local planning authorities to specify Environmental Zones for exterior lighting based on the existing external ambient lighting levels in the area. These documents also provide design guidance including maximum obtrusive lighting (lighting pollution) level limits for each Environmental Lighting Zone – focusing on reflected light and glare in particular. The ILP publication is based on the International Commission on Illumination (CIE) Guide On The Limitation Of The Effects Of Obtrusive Light From Outdoor Lighting Installations, 2nd Edition:2017 (CIE150:2017).

ILP Professional Lighting Guide 04: Guidance on Undertaking Environmental Lighting Impact Assessments (2013) (ILP PLG04)

- 4.6.2 This document provides practical guidance on the production and assessment of lighting impacts within new developments alongside good practice design principals. The guide covers guidance on undertaking lighting surveys, taking photographs and measurements at night and the core content to be addressed within Lighting Assessment reports.

ILP GP12: Towards Understanding Skyglow (2007)

- 4.6.3 This document provides information on the mechanics of skyglow, levels of skyglow resulting from different luminaires and design considerations to reduce skyglow caused by artificial lighting.

ILP Guidance Note 9 Domestic Exterior Lighting: Getting It Right (2019)

- 4.6.4 This note advises on how best to install domestic exterior lighting to ensure it serves the required purpose and provides the correct level of illumination. This includes domestic security, porch, garden/ exterior area and route lighting.

ILP Guidance Note 8: Bats and Artificial Lighting in the UK (2023)

- 4.6.5 This is a joint publication with the Bat Conservation Trust. This document provides guidance on general principles of lighting to mitigate adverse effects on areas where bats are known to be present and/or commuting to feeding areas. The document provides specific guidance in relation to lighting levels and colour temperature impacts on different bat species. The document sets out advice for ecologists, lighting designers, planning officers and developers to ensure that all parties work together to achieve the most effective solution in delivering an appropriate lighting solution whilst minimising the adverse effects on bats.

Chartered Institute of Building Services Engineers (CIBSE) / Society of Light and Lighting (SLL)

CIBSE/SLL Lighting Guide 06: The Outdoor Environment (2016) (SLL LG6)

- 4.6.6 Provides general and specific lighting design criteria for the outdoor environment. The guide covers many technical aspects which are likely to be of interest to designers. It presents lighting solutions to basic visual problems and individual characteristics of outdoor lighting applications.

CIBSE/SLL Lighting Guide 09: Lighting for Communal Residential Buildings (2022) (SLL LG9)

- 4.6.7 This guide provides information for non-specialists about lighting for most constituent areas of communal residential buildings. These may include student residences at a university, hostels, children's homes, residential homes for the elderly, nursing homes, hospices, NHS staff accommodation or school boarding houses. Capacity can vary from a small flat shared between four students to a large residential home providing 24-hour care and all meals for 100 elderly people.

5 Existing Conditions

5.1 Introduction

- 5.1.1 A desk-based review of publicly available information has been undertaken, in order to inform the existing lighting conditions, and to understand the context of the Proposed Development within its existing environmental setting.
- 5.1.2 The following sources of publicly available information were reviewed as part of the desk-based review:
- Google Earth & Google Street View (Accessed July 2024);
 - Defra Multi-Agency Geographic Information for the Countryside (MAGIC) Map Application (Accessed July 2024); and
 - Satellite based 'light pollution' data Visible Infrared Imaging Radiometer Suite (VIIRS) (Accessed July 2024).

5.2 The Site

- 5.2.1 The Site is currently unlit and occupied by a small number of semi-permanent outbuildings and open grassy areas bound by trees and vegetation.

5.3 The Study Area

- 5.3.1 The assessment Study Area consists of the Site and the receptors within 100 m of the of the Site boundary.
- 5.3.2 The north and west of the Site is bound by thick vegetation separating the Site from the new residential properties located along Kittiwake Place and Chaffinch Gardens, associated with the new Bellway Boorley Gardens development (planning reference: O/15/75953). Whilst the development is still under construction, a number of homes are anticipated to be occupied, and therefore streetlighting provision has been installed. These appear to be LED streetlamps on approximately 6-8 m columns. Light egress from these luminaires would therefore be expected within the Site from the adjacent development once operational. Light egress from windows and personal individual exterior luminaires can also be expected. However, it is anticipated that the proposed new landscape planting at the boundary will screen the Site from light spill.
- 5.3.3 Winchester Road (B3354), bordering the east of the Site, is illuminated by LED streetlamps on approximately 6 m columns. These are located on alternating sides along the length of the street approaching the lit B3354 roundabout to the north of the Site. Luminaires appear to be horizontally mounted and are assumed as fully cut-off with no direct upward light. The extent of rear spill from these luminaires to the Site has not been determined although is anticipated to be minimal based on the performance of a typical LED optic, along with the thick vegetation surrounding the site. To the north past the B3354 roundabout is a collection of new homes associated with the Boorley Gardens residential development.
- 5.3.4 Winchester Road continues to the lit intersection with Maddoxford Lane to the southeast of the Site with a fully cut off LED luminaire mounted onto an electricity pole. Further south is a Peartree Inn pub, and further residential properties. A small section of Winchester Road, between the Proposed Development Site boundary and the intersection with Maddoxford Road, is unlit.

- 5.3.5 To the east of the Site, on the other side of the Winchester Road bounded by thick vegetation, is the Macdonald Botley Park Hotel and Spa. Further to the east is residential properties located along the lit Sandy Fid Way. Light egress from the residential properties is not expected due to the distance from the Site and the vegetation screening on Winchester Road.
- 5.3.6 The Site is immediately bordered to the south east by residential houses, including Oak Cottage, Appletree Cottage, Bushey Dene House, other properties and isolated storage units/sheds.
- 5.3.7 The south of the Site is bordered by a line of hedges separating the Site from a residential property off the Winchester Road.

5.4 Environmental Lighting Zone

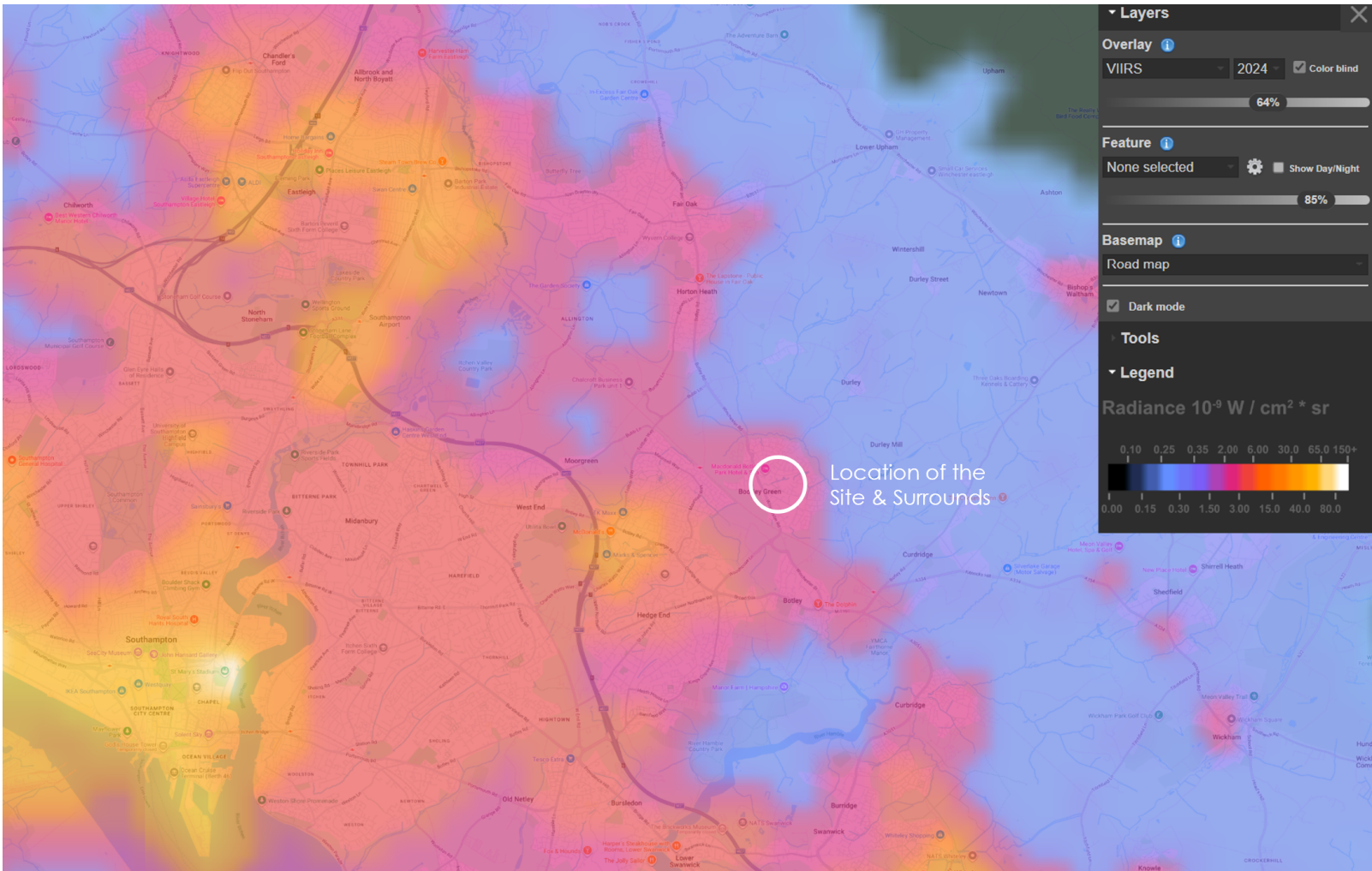
- 5.4.1 ILP GN01 and ILP PLG04 (**Section 4.6**) detail Environmental Zones based on The Guide on the Limitation of the Effects of Obtrusive Light from Outdoor Lighting Installations from the International Commission on Illumination (CIE150). These are based on the existing character and ambient lighting levels at a given site or receptor and describe the various lighting environments and surrounding context. For the purpose of this report, the phrase Environmental Lighting Zone (ELZ) has been used to reduce potential confusion with any other zoning applicable to environmental considerations.

Table 5.1 – Environmental Lighting Zones

Environmental Zone	Surrounding ^{*1}	Lighting Environment	Examples
E0	Protected	Dark	Astronomical Observable dark skies, UNESCO starlight reserves, IDA dark sky places.
E1	Natural	Intrinsically 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.
<i>*1 is understood as the adjacent area(s) rather than immediate context.</i>			

- 5.4.2 The ELZ classification determines the obtrusive light limitations at the Site and any sensitive receptors within the wider study area.
- 5.4.3 By reference to ILP GN01-21, the Site and immediate surrounding area, is considered to be classified as suburban ELZ E3, following the descriptive text of with 'Medium district brightness' and 'well inhabited urban settlements'.
- 5.4.4 The Site is situated within the Southampton area and is therefore located within the residual sky glow/light pollution area of the town, as shown in **Figure 4.1**.

Figure 5.1: VIIRS Light Pollution Data of the Site and Surrounds.



5.5 Sensitive Receptors

- 5.5.1 The receptors shown in **Table 5.2** have been identified following the recommended receptor type for consideration in or near the Site within ILP Guidance 04 (2013). The receptors are grouped by type and/or location based on an understanding of the baseline conditions identified through the desk-based study.
- 5.5.2 Receptor types that were not identified within the study area of assessment are not shown in **Table 5.2** including Areas of Outstanding Natural Beauty, National Parks, World Heritage Sites and Sites of Special Scientific Interest.

Table 5.2: Identified Receptors within the Site and Surrounds

Receptor Type	Identified Receptor	Approximate Distance and Bearing to the Site	Consideration for Assessment
Residential Amenity	Residents on Winchester Road.	Adjacent to the south and southeast of the Site boundary	The residential properties back directly onto the southern border of the Site. Therefore, there is the potential for light intrusion, glare and sky glow from any new column mounted lighting to be installed within the south of the site.
	Existing and future residents on Chaffinch Gardens (currently under construction as part of the Boorley Gardens Planning Application).	Adjacent to the west of the Site boundary	There is potential that new residential properties within the Boorley Gardens development will back directly onto the western border of the Site. This residential receptor is currently separated by vegetation, however there is the potential for light intrusion, glare and sky glow from new column mounted lighting to be installed within the Site.
	Existing and future residents on Kittiwake Place (currently in construction as part of the Boorley Gardens Planning Application).	Adjacent to the north of the Site boundary	There is potential that new residential properties within the proposed Boorley Gardens development will back directly onto the northern border of the Site. This residential receptor is currently separated by vegetation, however there is the potential for light intrusion, glare and sky glow from new column mounted lighting to be installed within the Site.
	Future residents within the Proposed Development.	Within the Site	Future residents within the Proposed Development have the potential for light intrusion and glare from lighting within the access roads and car park of the Proposed Development.

Receptor Type	Identified Receptor	Approximate Distance and Bearing to the Site	Consideration for Assessment
Transport Safety	Winchester Road	Adjacent to the east of the Site boundary	Due to the natural screening present along the currently lit Winchester Road there is minimal impact of glare to vehicle users from the Proposed Development expected. This receptor will not be considered further in this assessment.
	Chaffinch Gardens and Kittiwake Place (currently under construction)	Adjacent to the north and west of the Site boundary	Due to the natural screening and buffer area between the receptor and the Site there is minimal impact of glare to vehicle users from the Site expected. This receptor will not be considered further in this assessment.
Local outdoor leisure centres such as country parks.	Boorley Green Park	500 m southeast of the Site boundary	Minimal visual impact of glare and sky glow from the Site expected due to the distance and natural buffer zone from the Site. This receptor will not be considered further in this assessment.
Conservation Areas	Botley Conservation Area	~1.5 km southeast of the Site boundary	The Site is not within a conservation area. Botley Conversation Area is ~1.5 km south with no visual connection due to screening from vegetation at the Site boundary and existing infrastructure associated with Boorley Green and Botley.
Listed Buildings and Features/Heritage Assets	Listed building within the village of Hedge End	~1 km west of the Site boundary	There is no clear visual connection between the Site and the receptor due to the distance which means there is natural screening from existing vegetation and existing residential properties.

Receptor Type	Identified Receptor	Approximate Distance and Bearing to the Site	Consideration for Assessment
Designated nature reserves, local/regional/national	Moorgreen Meadows Site of Special Scientific Interest (SSSI)	~1.9 km west of the Site boundary	No impact of light intrusion from the Site expected due to the distance and natural buffer zone from the Site. This receptor will not be considered further in this assessment.
	Wildern Local Nature Reserve	~2 km south west of the Site boundary	No impact of light intrusion from the Site expected due to the distance and natural buffer zone from the Site. This receptor will not be considered further in this assessment.
Biodiversity – General	Common pipistrelle bat activity along the north and northwest boundary, some of which use of the orchard trees in the south of site	Retained trees on northern and north western border of the Site	There is the potential for light intrusion from the Proposed Development on to the habitats used by ecological receptor (bats).
Dark Sky Core (E0)	South Downs Dark Sky Reserve	~5 km east of the Site boundary	Due to location from the Site and residual sky glow from Southampton, the Dark Sky Core will not be considered further within this assessment.

6 Lighting Performance Requirements

6.1 Introduction

- 6.1.1 Lighting is required during operation for the safe access of residential properties by vehicles and pedestrians. Safe access includes both safe movement through identifying routes and obstructions as well as perception of personal and property safety in the surroundings. This recognises the expected age of residents in the retirement living accommodation, and potential poorer qualities of sight from aging eyes. Lighting is also required for basic external amenities, and external social spaces allowing effective use of the Proposed Development through the hours of dusk and into darkness (or to curfew on social applications).
- 6.1.2 The lighting required during operation will be kept to the minimum illuminance levels to achieve the above objectives. Lighting will also be required for the safe and secure construction of the Proposed Development.

6.2 Obtrusive Lighting Thresholds

- 6.2.1 **Table 5.1** summarises the key obtrusive light limitations for the respective Environmental Lighting Zones.
- 6.2.2 ILP GN01 provides an extended method for determining acceptable luminaire intensity based on the distance of the observer and viewed light source size. This method may be applied if potential adverse effects are identified in future design stages.

Table 6.1: Obtrusive Light Limitations for Exterior Lighting Installations – General Observers – adapted from ILP GN01

Environmental Lighting Zone	Sky Glow Maximum values of upward light ratio (ULR) [URL/%] (1)	Light Intrusion Maximum values of vertical illuminance on properties Illuminance in the vertical plane (Ev) [Lux]		Glare Luminaire Intensity I [candelas]		Maximum permitted values of average surface Luminance(cd/m ²) (2)	
		Pre Curfew	Post Curfew	Pre Curfew	Post Curfew	Building façade luminance	Sign luminance
E0	0	n/a	n/a	0	0	<0.1	<0.1
E1	0	2	<0.1*	2500	0	<0.1	50
E2	2.5	5	1	7500	500	5	400
E3	5.0	10	2	10,000	1,000	10	800
E4	15	25	5	25,000	2,500	25	1,000

Definitions

ULR = Upward Light Ratio of the Installation is the maximum permitted percentage of luminaire flux for that goes directly into the sky.

Ev = Vertical Illuminance in Lux and is measured flat on the glazing at the center of the window

L = Luminance in Candelas per Square Meter Cd/m²

Curfew = The time after which stricter requirements (for the control of obtrusive light) will apply; often a condition of use of lighting applied by the local planning authority.

(1) This does not take into account the effect of light reflected upwards from ground that also contributes to sky glow. This is the traditional method to limit sky glow and is suitable to compare different single luminaires or the cumulative results of a scheme.

(2) The values apply to both pre- and post-curfew, except that in zones 0 and 1 the values shall be zero post curfew. The values for signs do not apply to signs for traffic control purposes.

* If the installation is for public (road) lighting then this may be up to 1 lx.

6.3 Ecological Requirements

6.3.1 ILP GN08 – Bats and Artificial Lighting (2023) provides illuminance levels and luminaire requirements for lighting schemes within close proximity to bat habitat ecological receptors.

6.3.2 Two months of bat surveys, including a transect survey, have been undertaken to detail species and locations (Eco Support, 2024). Common pipistrelle bat activity (along with other bat species including brown long-eared and Daubenton's bat) has been confirmed along the north and northwest boundary, some of which use the orchard trees in the south of site. These areas have been classified as key habitats and specified as 'dark corridors' for foraging or commuting allowing travel between the graveyard to the east and the forest to the northwest. There was very little activity on the buildings surrounding the eastern and southern boundary during emergence surveys.

6.3.3 **Figure 6.1** below presents a Bat Activity Map of the Site.

Figure 6.1 – Bat Activity Map (Eco Support, 2024)



- 6.3.4 The orchard trees in the south of the Site will be removed and cleared to allow a clear platform for the Proposed Development. However, the retained boundary trees and vegetation within the north and north west of the Site should remain unlit.
- 6.3.5 For the trees to be considered unlit, illuminance levels equivalent to 'complete darkness' within a buffer or feature are required. It is appropriate to consider values of 0.2 lux on the horizontal plane and 0.4 lux on the vertical plane as acceptable levels within a dark feature. It should be noted that these figures remain lower than levels expected on moonlit nights.
- 6.3.6 Luminaires must be placed horizontally with no upward tilt on columns of an appropriate height to reduce spill. Warm white light Corelated Colour Temperature (CCT) of 2700 Kelvin (K) or lower is to be used to reduce blue light interference with ecology.

6.4 Demolition / Construction Lighting

- 6.4.1 Construction lighting is required for the safety of workers and security of premises and materials through the hours of darkness.
- 6.4.2 Night-time task lighting will be limited to within standard working hours and as such is only anticipated to be required during winter months when days are shorter (sunrise ~08:00 and sunset ~16:00).
- 6.4.3 For task-based lighting, illuminance values consistent with Table 5.3 in BS EN 12464-2 are anticipated.
- 6.4.4 In addition to task lighting, illumination is required around compounds, site offices and welfare facilities. In these instances, the values of 5 lux for pedestrian routes and 10 lux for shared pedestrian and vehicle routes are considered applicable based on Table 5.1 in BS EN 12464-2. Lighting should be reduced when not required for safety purposes. Security lighting should be kept at the minimum level needed for visual and security protection. If appropriate, to reduce the need for fixed visible lighting outside working hours, the use of infrared flood lighting and CCTV systems should be considered for security.
- 6.4.5 Lighting may also be present in warning beacons/strobes on construction vehicles whilst operating or moving. These instances are anticipated to be for short and intermittent periods.

6.5 Operational Lighting

On-Site Roadway, Parking, Paths and Circulation

- 6.5.1 The primary external activities within the Proposed Development are anticipated to be movement of people and vehicles between residences to locations outside of the Proposed Development. This will include movement by residents, staff and visitors. McCarthy & Stone have delivered multiple developments with performance requirements and indicative designs based upon the precedence and brand standards set by these developments, with consideration of the context of the Site and high sensitivity to obtrusive light.
- 6.5.2 The most relevant design guides and standards in determining appropriate illuminance levels are SLL LG9 and BS EN12464-2 recognising the hybrid private/institutional nature of the Proposed Development and allowing for safe illuminance for any supporting staff. BS 5489 and BS EN 13201 parts 1 and 2 are also useful in determining illuminance levels for the roadways and parking areas within the scheme.
- 6.5.3 Due to the roads and paths being located within private property the illuminance values of the British Standards are not a requirement within the Proposed Development.

- 6.5.4 Section 3.13 of SLL LG9 states target illuminance values for pathways and car parks as 10 lux, it does however go on to state that for care homes 20-30 lux is applicable based upon on the reduced visual acuity and slower rates of adaption from internal illuminance levels to external levels for older eyes. SLL LG9 also highlights facial recognition as a safety consideration. Whilst the Proposed Development of retirement living caters for higher aged occupants it is not a care home and is largely independent living. An awareness of the limitations of older eyes should be considered in uniformity and avoiding excessive contrast.
- 6.5.5 BS EN 12464-2 and BS 5489 both state 5 lux with 0.25 uniformity for light traffic parking areas. This is notably lower than both sets of values listed within SLL LG9. Pedestrian walkways are also listed as 5 lux within BS EN 12146-2.
- 6.5.6 If roadways on the Site are considered with reference to BS EN 13201-1 (**Table 6.2**) and BS EN 13201-2 (**Table 6.3**) a P4 road classification is suggested. Based on the SLL LG9 guidance facial recognition is included as a requirement.

Table 6.2: Annotated Extract from BS EN 13201-1 - Table 4 — Parameters for the selection of lighting class P

Parameter	Selection	Weighting Value V_w^a
Travel Speed	Low, ≤40km/h (25mph)	1
	Very Low (Walking speed)	0
User Intensity	Busy	1
	Normal	0
	Quiet	-1
Traffic Composition	Pedestrians, cyclists and motorised traffic	2
	Pedestrians and motorised traffic	1
	Pedestrians and cyclists only	1
	Pedestrians only	0
	Cyclists only	0
Parked vehicles	Present	1
	Not Present	0
Ambient luminosity	High	1
	Moderate	0
	Low	-1
Facial Recognition	Necessary	Additional requirements
	Not necessary	No additional requirements
Total of Weighting Values (WVS)		2
Lighting Class (based on $P = 6 - WVS$)		P4

Table 6.3: Annotated Extract from BS EN 13201-2 - Table 3 — P lighting classes

Class	Horizontal Illuminance			Additional requirement if facial recognition is necessary	
	$\bar{E}$ (average) minimum maintained	Maximum Average ^{*1}	E_{min} [maintained]	$E_{v,min}$ [maintained]	$E_{sc,min}$ [maintained]
P1	15.0	22.5	3.0	5.0	5.0
P2	10.0	15.0	2.0	3.0	2.0
P3	7.5	11.3	1.5	2.5	1.5
P4	5.0	7.5	1.0	1.5	1.0
P5	3.0	4.5	0.6	1.0	0.6
P6	2.0	3.0	0.4	0.0	0.2
*1 - To provide for uniformity, the actual value of the maintained average illuminance shall not exceed 1,5 times the minimum maintained average value indicated for the class - values are shown for ease of reference					

6.5.7 Based on the varying guidance and classification it is determined that general average initial illuminance across the Proposed Development will not exceed 10 lux for all external roadways and parking. Based on initial average illuminance, future maintained illuminance values will have an anticipated minimum maintenance factor of 0.7 (resulting in 7 lux) and will remain consistent with or above values stated within the British Standards for quiet car parking, circulation, and roadways.

6.5.8 Some localised increases above the 10 lux may be required at communal building entrances to provide for the task of accessing buildings and considering some adaptation zones.

Other Tasks Areas

6.5.9 External tasks by night are expected to be limited to basic storage access and rubbish removal for which the target of 10 lux is considered appropriate.

Emergency Lighting

6.5.10 External emergency lighting is only anticipated for the communal exits of the apartment building. Emergency lighting should be provided to a “place of safety”. This is typically interpreted as the boundary to the public realm, however, muster points may be present within the Proposed Development. Provision of illumination to these routes and locations is required.

7 Lighting Strategy

7.1 Introduction

- 7.1.1 Detailed Lighting designs and specifications have not been undertaken at this stage of design for the planning application. The following narrative strategy is provided to establish the expected lighting approaches on Site from which an informed assessment of likely potential impacts and effects can be made. The narrative discusses embedded mitigation to limit the potential for obtrusive light.

7.2 Construction Lighting

Fixed Building and Compound Lighting

- 7.2.1 Whilst construction facilities are temporary, it is possible to provide considerate lighting around fixed elements such as offices, welfare facilities and storage compounds.
- 7.2.2 Luminaires should be mounted at heights and spacings to avoid excess tilt and resulting direct upward light and source visibility. Bulkhead luminaires should be shielded on upper portions to reduce direct upward light.
- 7.2.3 Photocells and presence detection can be applied to circulation areas.
- 7.2.4 Lighting should be reduced when not required for safety purposes. Security lighting should be kept at the minimum level needed for visual and security protection; If appropriate, to reduce the need for fixed visible lighting outside working hours, the use of infrared flood lighting and CCTV systems should be considered for security.
- 7.2.5 Visual screening, such as hoardings should be applied around areas illuminated for extended periods.

Temporary Task Lighting

- 7.2.6 Construction lighting should be directed so it does not create light intrusion outside of the immediate working area. All lighting related to the works will be designed and fitted to minimise light intrusion onto any sensitive habitat such as hedgerows and mature trees. Luminaire mounting heights will be selected to avoid excess tilt on luminaires. By the same measure extensive area floodlight from temporary masts is not considered appropriate.
- 7.2.7 The duration of lighting will be limited to the time tasks are being undertaken and within agreed working hours.
- 7.2.8 Temporary screening may be applied to avoid light spill onto sensitive receptors.

Vehicle Mounted Lighting

- 7.2.9 Vehicle lights should be properly directed, and lenses must be intact to prevent un-necessary glare and breakout of obtrusive light (this is also an MOT requirement).
- 7.2.10 Temporary warning lights and beacons will be limited to the time a vehicle is integration or movement.

7.3 Operational Lighting

Overview

- 7.3.1 Whilst aiming for an unobtrusive development, consideration is also given to performance requirements discussed in **Section 6**.
- 7.3.2 All lighting solutions will consider the requirements for the Environmental Lighting Zone. The following core external lighting types are anticipated within the Proposed Development:
- **Columns** – Column based lighting is capable of providing general illuminance to areas with a reasonable degree of uniformity subject to mounting heights and columns spacings. Any column heads will be mounted horizontally with fully cut-off optics meaning no direct upward light. Column heights of ~6m are anticipated. Luminaires will be mounted horizontally and with fully cut-off optics. A warm white colour temperature $\leq 2700\text{Kelvin}$ will be used. As the light sources on columns are above head height these are capable of providing some lighting for facial recognition. Luminaires will make use of additional optical controls such as louvers, rear cowls and back shields where applicable to reduce light falling outside of the target areas and glare.
 - **Bollards** – Bollards have the potential to provide a more discreet source of illumination as they sit lower within the landscape and setting. Bollards where used will be fully cut-off with no direct upward light. A warm white colour temperature $\leq 3000\text{Kelvin}$ will be used along with optics that minimise spill light to areas outside of the pathways and areas being illuminated.
 - **Building mounted access and security lighting** – Lighting at entrances to residences will be building mounted wall luminaires or canopy mounted downlights. Lighting to these locations will be triggered by presence detection (and photocell) with an appropriate time-out to return to darkness meaning light is only active when required. Luminaires will provide localised lighting to the entrance area and not illuminated out into the shared landscape. Whilst future occupiers may seek to amend their external lighting, a requirement to maintain dark skies considerate external lighting or the as originally installed lighting (consistent with the development as a whole) may be included by covenant on properties being transferred to private ownership.
 - **Landscape Lighting** – Landscape lighting may be applicable to the west facing lawn area of the building to provide some use and access to external areas at night. No ground or spike mounted spotlights will be used, with any low level landscape lighting limited to fully cut-off “mushroom” or “pagoda” style luminaires. Any pergola mounted lighting will be direct down light to pillars or centrally with no upward distribution.
 - **External Emergency Lighting** – Emergency lighting in the event of loss of power is required at communal exits from the communal residential building. These are likely to be the main entrance court, and the two exits on the north and south of the building. These luminaires will be provided with emergency power from either internal batteries or a central battery. Luminaires on primary entrance and exits used under normal conditions may be combined with the regular lighting for these entrances. On emergency only exits luminaires are anticipated to be non-maintained and only operational in the event of an emergency. Non-maintained emergency luminaires may have broader distributions to provide light out onto escape routes, and as such may not have fully cut-off optics. As these are for temporary and emergency use only, they are not considered within the assessment. Consideration should be given to orientation and intensity of any indicator sources on emergency luminaires to avoid over prominence.
 - **Internal Lighting and Light Egress** - Illuminance levels within properties will largely be determined by the resident, it is recognised that these may be greater than typical

residential applications based on age of residents, however not to the extent of comparison with commercial premises.

- The size and scale of glazing is consistent with typical residential development with no expansive areas of glazing facing out of the Proposed Development. Internal window treatments will vary by residence.

7.3.3 The graphic shown in **Appendix B** shows the anticipated zonings and application of lighting solutions.

Access Road and Parking

7.3.4 The primary vehicle movement through the Site from the access point at the lit Winchester Road will be lit by low level bollard luminaires, with no upward light and light shields to restrict light spill outside of the highway areas. Extra care will be taken on the northern section of the site to minimise light spill to the ecologically sensitive area at the northern boundary.

7.3.5 The car parks within the south of the Site will be lit by bollard luminaires to reduce light spill and glare into the residential property adjacent to the Site and those within the Proposed Development.

7.3.6 The car parks to the north are associated with the apartment blocks and may require bollard luminaires to increase illuminance levels and uniformity within the area. Spill shields should be implemented to reduce light spill to the ecologically sensitive areas.

7.3.7 The car parks are expected to be in operation throughout the day and night with the potential for dimming to be implemented past curfew hours (~22:00 until ~7:00).

7.3.8 It is noted that the use of bollard lighting within car parks will require greater number of luminaires to meet the requirements. It is suggested instead that bollards are used as a method of wayfinding. There is potential in future design stages for column lighting to be implemented along the vehicle movement route and within the southern car park to increase the illumination uniformity. All column lighting implemented must meet the requirements of the nearby sensitive receptors.

Footpaths for Apartments

7.3.9 Due to the minimal movement areas within the Proposed Development and implementation of column mounted luminaires within the primary roads, lighting the western footpaths is not deemed necessary for safety.

7.3.10 Bollard luminaires (adhering to the obtrusive light performance requirements) may be implemented in these areas in the future.

Lighting at Building Entry

7.3.11 As stated in **Section 7.3.1** the external security lighting should be wall mounted and on a sensor to reduce unnecessary lighting levels - see building mounted access and security lighting within **Section 7.3.1**.

Landscape and External Amenity

7.3.12 See landscape lighting within **Section 7.3.1**.

Ecological Requirements

- 7.3.13 A dark corridor will be maintained at least 5 m from the northern treeline, with a maximum of 0.5 lux at 4m height above the ground.
- 7.3.14 Wildlife sensitive lighting to be used along the western boundary to avoid disturbing bats (as per requirements set out in ILP GN08) and badgers.
- 7.3.15 Any areas identified with badger activity, and the locations of the recommended biodiversity enhancements such as bat boxes, hedgerows, and trees shown in the Habitat Enhancement Plan, will be considered as receptors when preparing the detailing lighting design plan.

8 Potential Impacts

- 8.1.1 In the absence of a detailed and calculated design, a qualitative assessment has been made based on the assumption that the recommended approach will be implemented as discussed within **Section 7**.
- 8.1.2 The following table summarises the receptors surrounding the Site, their existing baseline condition, and the potential impacts from lighting associated with the Proposed Development.

Table 8.1: Assessment of Sensitive Receptors

Receptor	Receptor Type and Sensitivity	Baseline Condition	Potential Impacts	
			Construction	Operation
Residents on Winchester Road	Health & Wellbeing Visual	Residential properties back directly onto the southern border of the Site. The residential receptor is currently separated from the Site by vegetation.	The potential of obtrusive light from construction light to the residential properties is considered minor if construction lighting follows the lighting strategy established in Section 6 .	The lighting strategy established in Section 6 seeks to minimise obtrusive light from the new external lighting to within guideline levels. The lighting associated with the Proposed Development entrance to the east on Winchester Road, and the car park associated with the detached properties, have the potential for glare to the residents on land to the east. With the use of good practice, lighting controls and considered orientations established in Section 6 the impact of the lighting scheme is considered minor. The properties will be separated from the site by proposed landscape planting and vegetation which will create natural shielding from the Proposed Development. Therefore the impact is considered negligible.

Receptor	Receptor Type and Sensitivity	Baseline Condition	Potential Impacts	
			Construction	Operation
Future Residents within the Site	Health & Wellbeing Visual	N/A	N/A	The lighting strategy established in Section 6 seeks to minimise obtrusive light from the new external lighting to within guideline levels. The positioning of bollard lighting within car parking areas within the Proposed Development should be designed with consideration to light intrusion and glare into future residential windows. The impact of the lighting scheme is therefore considered negligible.

Receptor	Receptor Type and Sensitivity	Baseline Condition	Potential Impacts	
			Construction	Operation
Existing & future residents on Chaffinch Gardens (currently in construction) and existing & future residents on Kittiwake Place (currently in construction), as well as other existing & future residents associated with the wider Boorley Gardens Planning Application	Health & Wellbeing Visual	Residential properties that may back directly onto the western and northern border of the Site. This residential receptor is currently separated by thick vegetation, however there is the potential for light intrusion from new lighting.	The potential of obtrusive light from construction light to the residential properties is considered minimal if construction lighting follows the lighting strategy established in Section 6 .	The lighting strategy established in Section 6 seeks to minimise obtrusive light from the new external lighting to within guideline levels. Lighting to the west of the proposed scheme will be shielded by the proposed apartment block and lighting from these elements are therefore considered negligible. The properties are also separated from the Site by existing vegetation on the boundary. The lighting associated with the carpark on the northern boundary has the potential for glare to the residents on land to the north. With the use of good practice, lighting controls and considered orientations established in Section 6 the impact of the lighting scheme is considered minor.

Receptor	Receptor Type and Sensitivity	Baseline Condition	Potential Impacts	
			Construction	Operation
Bat Activity	Ecology	There is confirmed common pipistrelle foraging and commuting activity along the north and northwest boundary, bats were also found to forage around the orchard in the south of site.	There is the potential for construction lighting to be less optimised for obtrusive light than the operation scheme. Therefore, there is potential for temporary minor adverse impacts. Any potential impacts will vary between times when construction work is in progress and periods where only security and minimal access light is present. Through careful placement and orientation of fixed and portable lighting increased illuminance to the boundary vegetation can be minimised, as set-out in the lighting strategy established in Section 6.	The lighting strategy established in Section 6 seeks to minimise obtrusive light from the new external lighting to within guideline levels. The illuminated car park is located adjacent to the existing habitats used by bats. With the use of good practice, lighting controls including bollards with spill shields and lower colour temperature and considered orientations established in Section 6 the impact of the lighting scheme is considered minor on ecology

9 Conclusion

- 9.1.1 The lighting strategy detailed within this report has been developed based on policy and guidance and establishes principles so that the lighting design for the Proposed Development can be delivered to minimise the impact of lighting to sensitive residential and ecological receptors.
- 9.1.2 As a form of residential land use, illuminance requirements are kept to their lowest practical values, noting the age of residents. Safety measures and facial recognition capabilities are considered within the entrance lighting. The impact of lighting solutions proposed can be understood by comparison to existing and equivalent residential developments.
- 9.1.3 The lighting strategy sets out expectations and requirements for the car park and access road to the east of the Proposed Development to adhere to glare and light intrusion to future residents. The use of well orientated and positioned luminaires, including back shields and low glare ratings within these areas alongside lighting control timings will reduce the potential for obtrusive light.
- 9.1.4 There is bat activity along the north and north west boundary of the Site, and bats also forage around the retained orchard in the south of site. The lit car park is located adjacent to the bat habitats. With the use of good practice, lighting controls including bollards with spill shields and lower colour temperature and considered orientations established in **Section 7** the impact of the lighting scheme is considered **minor on** ecology
- 9.1.5 At the next stage of design details will be available to allow the preparation of a lighting design that will follow the lighting strategy set out in this report. This will be secured as a condition to the planning permission. The lighting design of the Proposed Development will include Calculated Predictions (including horizontal and vertical isolines located at sensitive receptors) Obtrusive Light Calculations and a Luminaire Schedule and Plan as supporting evidence.

Appendix A Site Plan of Proposed Development



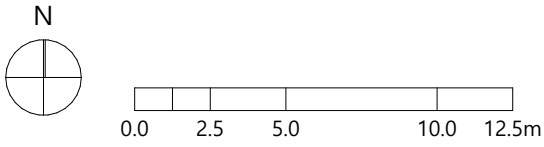
Floor	1B	2B	Total
GF	16	4	20
1F	13	9	22
2F	5	3	8
Total	34 (68%)	16 (32%)	50
Parking			
@ 1 per 2B	= 20		
@ 0.5 per 1B	= 15		
Total	= 35 required (35 shown)		

Outline of RL Block
from previous
planning submission

The design and location
of the proposed houses
are identical to the previously
approved planning application

LANDSCAPE TO BE UPDATED ONCE LAYOUT
FROM LANDSCAPE ARCHITECT IS RECEIVED.

rev.	date	changes description	status	issued by
P08	20/01/2026	minor changes to internal layout of RLA block	S3	KM
P07	19/01/2026	sub-station revised, privacy screens added, amendments to main block layout	S3	KM
P06	13/01/2026	apartments change	S3	KM



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DB

date created
Nov 2025
scale at A1
1:250

project title
McS Boorley Green
document title
Proposed Site Plan

region	project no.	stage no.	discipline	number
SO	- 2977	- 03	- AC	- 0120
status	suitability description	revision		
S3	Suitable for Review and Comment	P08		

Appendix B Lighting Applications by Area Application

