

The GHM Jackson 1972 Children's Settlement Trust

Hulbert Road, Havant

Lighting Assessment

April 2020

Executive Park, Avalon Way, Anstey, Leicester, LE7 7GR

Tel: 0116 234 8000

Email: nigel.mann@wyg.com

Document Control

Project: Hulbert Road, Havant

Client: The GHM Jackson 1972 Children's Settlement Trust

Job Number: A

File Origin: O:\Acoustics Air Quality and Noise\Active Projects

Document Checking:

Prepared by:	Lewis Young <i>Environmental Consultant</i>	Initialled: LY
--------------	--	----------------

Checked by:	Nathan Allen <i>Senior Environmental Consultant</i>	Initialled: NA
-------------	--	----------------

Verified by:	Nigel Mann <i>Director</i>	Initialled: NM
--------------	-------------------------------	----------------

Issue	Date	Status
1	20 th April 2020	First Issue
2	21 st April 2020	Second Issue – Minor Amendments
3		

Contents Page

1.0	Introduction.....	1
2.0	Policy, Legislation and Relevant Agencies	2
3.0	Methodology.....	6
4.0	Baseline.....	9
5.0	Lighting Assessment.....	13
6.0	Design Standards and Guidance.....	16
7.0	Conclusions	18

Figures

Figure 1 – Site Location

Figure 2 – Light Monitoring Locations

Figure 3 – Modelled Ecological Receptor Locations

Figure 4 – Indicative External Lighting Scheme

Figure 5 – 3D Representation of Proposed Model

Appendices

Appendix A – Report Terms & Conditions

1.0 Introduction

WYG Environment Planning Transport has been commissioned by The GHM Jackson 1972 Children's Settlement Trust to undertake a Lighting Assessment in support of the planning application for a proposed residential development at Hulbert Road, Havant.

1.1 Site Location and Context

The approximate national grid reference of the site is 108228:469344. The proposed site is bounded by:

- Hulbert Road to the east, with Neville's Park, woodland and residential buildings beyond;
- Woodland to the south, with retail services beyond along Purbrook Way;
- The A3(M) to the west, with woodland, Oaklands Catholic School and further residential buildings beyond;
- Woodland to the north, with Hulbert Road joining up to the A3(M) beyond.

Reference should be made to Figure 1 for a visual representation of the application site and surrounding area.

1.2 Lighting Design and Assessment - Overview

The proposed development will require the installation of a number of luminaires that have the potential to increase existing light levels at sensitive receptor locations within the vicinity of the site. The following stages have therefore been undertaken in order to produce a suitable lighting layout and assess potential impacts:

- Baseline survey;
- Quantitative assessment of potential lighting impacts at existing light sensitive receptors bordering the proposed development site, based on the proposed external lighting design and;
- Formulation of appropriate mitigation measures, where necessary, in order to minimise the potentially detrimental impacts of the proposed lighting scheme.

The results of the assessment are detailed in the following sections of this report.

2.0 Policy, Legislation and Relevant Agencies

2.1 Documents Consulted

The following documents were consulted during the undertaking of this assessment:

- Guidance Notes for the Reduction of Obtrusive Light, The Institution of Lighting Professionals, 2020;
- Bats and Artificial Lighting in the UK, The Institution of Lighting Professionals 2018
- National Planning Policy Framework, Ministry of Housing, Communities & Local Government, February 2019;
- Planning Practice Guidance on Light Pollution, Ministry of Housing, Communities & Local Government, 1st November 2019;
- Environmental Protection Act, 1990;
- Statutory Nuisance from Insects and Artificial Light, Guidance on Sections 101 to 103 of the Clean Neighbourhoods and Environment Act 2005, DEFRA 2006;
- Artificial Lighting and Wildlife Interim Guidance: Recommendations to Help Minimise the Impact of Artificial Lighting, Bat Conservation Trust, 2014;
- BS EN 12464-2: Lighting of Work Places - Outdoor Work Places, British Standards Institute, 2007;
- BS EN 13201-4: Road Lighting – Methods of Measuring Lighting Performance, 2003;
- BS 5489-1: Code of Practice for the Design of Outdoor Lighting - Lighting of Roads and Public Amenity Areas, British Standards Institute, 2013;
- PLG 04- Guidance on Undertaking Environmental Lighting Impact Assessments, ILP, 2013;
- Havant Borough Core Strategy Local Development Framework 2011, and;
- Havant Borough Local Plan (Allocations) 2014.

2.2 Legislative Framework

Light pollution was introduced within the Clean Neighbourhoods and Environment Act (2005) as a form of statutory nuisance under the Environmental Protection Act (1990), which was amended to include the following nuisance definition:

"(fb) artificial light emitted from premises so as to be prejudicial to health or nuisance;"

Although light was described as a statutory nuisance, no prescriptive limits or rules have been set for assessment. Guidance within the National Planning Policy Guidance with regards to light pollution has been referred to while producing this assessment as well as documents produced by the International Commission on Illumination (CIE), Institute of Lighting Professionals (ILP) and the Chartered Institute of Building Services Engineers (CIBSE).

2.3 Planning Policy and Guidance

2.3.1 National Policy

The National Planning Policy Framework (NPPF), February 2019 principally brings together and summarises the suite of Planning Policy Statements (PPS) and Planning Policy Guidance (PPG) which previously guided planning policymaking. The NPPF broadly retains the principles of PPS 23: Planning and Pollution Control and with regard to light pollution, paragraph 180 states that;

"180 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. limits the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation."

The National Planning Practice Guidance web-based resource was launched by the Department for Communities and Local Government (DCLG) on 6 March 2014 and updated for lighting on the 1st November 2019 to support the National Planning Policy Framework and make it more accessible. It states that "for maximum benefit, the best use of artificial light is about getting the right light, in the right place and providing light at the right time". In light of this guidance, the assessment has considered the following implications of the proposed lighting design.

- *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.*
- *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', consideration should be made for:

- where the light shines;
- when the light shines;

- how much light shines; and
- possible ecological impact.

2.3.2 Local Policy

Following a review of the Havant Borough Core Strategy Local Development Framework 2011, the following policies were identified as being relevant to potential light impacts associated with the proposed scheme:

"DM10 Pollution

Development that may cause pollution of water, air or soil or pollution through noise, smell, smoke, fumes, gases, steam, dust, vibration, light, heat, electromagnetic radiation and other pollutants will only be permitted where all of the following relevant criteria can be met:

5. External lighting is of the minimum level of illumination and duration required for security and operational purposes.

6. External lighting would not interfere with safe navigation in either Chichester or Langstone Harbours and other coastal locations."

Following a review of the Havant Borough Local Plan (Allocations) 2014, the following policies were identified as being relevant to potential light impacts associated with the proposed scheme:

"Policy DM18 Protecting New Development from Pollution

Planning permission will be granted for development provided that projected levels of air, noise, vibration, light, water or other pollution do not have significant negative affect on the amenity of future occupiers or users of the proposed development."

This report seeks to prove that the lighting used will be compliant with these local policies.

3.0 Methodology

The Lighting Assessment includes the establishment of baseline ambient light conditions and an evaluation of impacts associated with the indicative lighting design. This includes an assessment of change in light obtrusion at existing ecological receptor locations.

Light modelling was undertaken using DIALux software, an independent lighting model which is capable of calculating daylight and artificial lighting scenes in interior and exterior scenarios. The model incorporates ILP, CIE 112 and BS EN 12464-2 calculation methodologies and is commonly used for lighting impact assessment.

3.1 Lighting Design

An indicative lighting scheme was created for the proposed residential development at Hulbert Road, Havant. The design of the lighting has been undertaken in a manner such as to address two potentially conflicting needs; namely, on one hand, to provide a safe environment for the movement of residents when the natural lighting levels fall and, on the other hand, to meet the light obtrusion limitations stated within the relevant standards and guidance in order to avoid any detriment to local amenity and wildlife.

The roadways within the site have been lit to P4 (5Lux, Emin 1lx) and the footpath along Hulbert Road has been lit to lighting class A1 (5 Lux, Emin 0.15lx), as specified within BS EN 13201-2: Road Lighting - Performance Requirements, 2003.

3.2 Quantitative Lighting Assessment

3.2.1 Obtrusive Light

Baseline light conditions were determined during a site survey of the existing site and the surrounding area. A lighting model was subsequently developed to represent the proposed external lighting scheme and to enable the obtrusive light from the proposed development to be calculated at local ecological receptors. The ILP has developed an Environmental Zone classification system for the categorisation of sensitive receptor locations based on typical levels of baseline obtrusive light. This is summarised in Table 1.

Table 1. Environmental Zone Classification

Category	Description	Examples
E0	Dark landscapes	UNESCO Starlight Reserves, IDA Dark Sky Parks
E1	Intrinsically dark landscapes	National Parks, Areas of Outstanding National Beauty, etc

Category	Description	Examples
E2	Low district brightness areas	Village or relatively dark outer suburban urban locations
E3	Medium district brightness	Small town centres or suburban locations
E4	High district brightness areas	Town/city centres with high levels of night-time activity

For each Environmental Zone, recommended obtrusive light limits for exterior lighting installations have also been determined. These are summarised in Table 2.

Table 2. Obtrusive Light Limitations for Exterior Lighting Installations

Environmental Zone	Max Sky Glow ULR ^(a) (%)	Light Trespass (into Windows) Ev (lx) ^(b)		Source Intensity I (kcd)		Building Luminance Pre-curfew Average L ^(c) (Cd.m ⁻²)
		Pre-curfew ^(d)	Post-curfew ^(e)	Pre-curfew ^(d)	Post-curfew ^(e)	
E0	0	0	0	0	0	0
E1	0	2	1 ^(*)	2.5	0	0
E2	2.5	5	1	7.5	0.5	5
E3	5.0	10	2	10	1.0	10
E4	15.0	25	5	25	2.5	25

NOTE: (a) Upward light ratio of the installation - maximum permitted percentage of luminaire flux for the total installation that goes directly into the sky.
(b) Vertical Illuminance measured flat at the glazing at the centre of the window.
(c) Luminance.
(d) Typically considered to be between 07:00 and 23:00
(e) Typically considered to be between 23:00 and 07:00
(*) Permitted only from public road light installations

The assessment determined the lighting levels and Environmental Zone classification in the vicinity of the proposed development based upon information gathered during the baseline survey. Modelling of the lighting scheme was undertaken and predicted obtrusive light values compared with the relevant guidelines, as detailed within Table 2.

The potential environmental effects of the proposed development are identified, in so far as current knowledge of the site and development allows. The significance of potential environmental effects is assessed according to their scale (magnitude) and the sensitivity of the receptors.

For the purposes of this assessment, the effects of the development are considered to be 'significant' if:

- The development is predicted to exceed the maximum sky glow ULR at any surrounding receptor; and,

Hulbert Road, Havant

Lighting Assessment



- The development is predicted to cause either an exceedance of the ILP obtrusive light trespass limitation at a receptor or if the development is predicted to cause an increase of more than 10% at an existing receptor where the ILP obtrusive light trespass limitation is already being exceeded.

4.0 Baseline

This section provides a review of the existing lighting levels at the site in order to provide a benchmark against which to assess potential impacts associated with the development.

4.1 Baseline Survey

4.1.1 Survey Conditions

A baseline lighting survey was undertaken on the 6th February 2020. Due to the time of year the survey was undertaken after 18:00 to establish the existing pre-curfew lighting conditions.

The survey was conducted using a Digital Lux Meter which meets CIE photopic spectral response, with a maximum resolution of 0.01 lux. The survey was undertaken with a meter resolution of 0.01 lux.

4.1.2 Existing Light Sources

Existing light sources surrounding the site are road traffic (vehicle headlights) from Hulbert road and the A3.

Survey Locations

Light monitoring was undertaken at a number of survey locations to determine variations in baseline light levels within the vicinity of the site. Where possible, monitoring at the boundary of the receptor locations was undertaken to provide the best possible representation of existing light obtrusion. Where this was not possible, monitoring was undertaken at the most appropriate representative location. Reference should be made to Figure 2 for an illustrative site map of the monitoring locations.

The purpose of the survey is fourfold:

- The survey enables quantified light levels at (or as near as possible to) local sensitive receptor locations to be measured;
- The site survey also provides an understanding of any significant landforms and vegetation that can potentially provide a pathway screen between light sources and receptors;
- The survey enables the ILP environmental zone to be determined based on sound, quantified evidence; and,
- The survey enables existing significant sources of artificial light and natural screens to be accounted for outside of the quantified model predictions.

Hulbert Road, Havant

Lighting Assessment



The survey therefore provides a robust understanding of the current artificial lighting illuminance levels currently experienced around the development site. The locations of all the light monitoring locations are summarised in Table 3 below and the results from the survey are contained in Table 4 and Table 5 below.

A series of measurements were taken at key points; a horizontal ground level measurement and four vertical measurements at 1.5m facing north, east, south and west in general accordance with the recommended monitoring method in the statutory guidance issued by the ILP. Illuminance levels can vary quite significantly over relatively small distances and even with slight changes in the plane of the lens. Therefore, the range of measurements taken over a monitoring period was recorded, in order to determine minimum and maximum illuminance at receptor façades.

Table 3. Baseline Light Monitoring Locations

Reference	Monitoring Location	Purpose of Survey	Key Local Sources of Light
L1	Onsite near western boundary close to A3.	Lighting levels onsite.	No Key Local Sources of Light
L2	Onsite near western boundary close to A3.	Lighting levels onsite.	
L3	Onsite near western boundary close to A3.	Lighting levels onsite.	
L4	Onsite along path.	Lighting levels onsite.	
L5	Onsite along path.	Lighting levels onsite.	
L6	Onsite along eastern boundary close to Hulbert Road.	Lighting levels onsite.	
L7	Onsite along eastern boundary close to Hulbert Road.	Lighting levels onsite.	
L8	Onsite along eastern boundary close to Hulbert Road.	Lighting levels onsite.	
L9	Onsite along eastern boundary close to Hulbert Road.	Lighting levels onsite.	
L10	Onsite along eastern boundary close to Hulbert Road.	Lighting levels onsite.	
L11	Onsite along eastern boundary close to Hulbert Road.	Lighting levels onsite.	
L12	On Hulbert Road near roundabout.	Lighting levels on Hulbert Road and roundabout.	
L13	On Hulbert Road near roundabout.	Lighting levels on Hulbert Road and roundabout.	

4.1.3 Survey Results

The results of the monitoring are displayed in Table 4, with the skyglow measurements displayed in Table 5.

Table 4. Survey Results

Reference	Recorded Illuminance (Lux)				
	Facing Up	Facing North	Facing East	Facing South	Facing West
L1	0.10	0.05	0.06	0.08	0.06
L2	0.08	0.05	0.07	0.07	0.05
L3	0.09	0.06	0.05	0.07	0.07
L4	0.10	0.04	0.06	0.06	0.04
L5	0.09	0.12	0.06	0.08	0.05
L6	0.15	0.06	0.07	0.06	0.05
L7	0.10	0.09	0.13	0.08	0.08
L8	0.12	0.07	0.08	0.09	0.07
L9	0.11	0.07	0.11	0.09	0.07
L10	0.15	0.09	0.10	0.08	0.06
L11	0.13	0.10	0.09	0.11	0.06
L12	0.14	0.26	0.12	0.11	0.06
L13	0.19	0.14	0.15	0.20	0.07

Table 5. Skyglow Measurements

Reference	Value
L1-L5	14.83
L6-L11	17.04
L12-L13	17.09

Following the environmental lighting survey, it was concluded that the proposed development site and the surrounding area should be classified as 'Environmental Zone E2 – Low district brightness, in accordance with the ILP guidance limits outlined within Table 2, which is considered to be representative of relatively dark outer suburban locations. Therefore, the permitted light trespass limit at an offsite receptor in the pre-curfew period (typically considered to be 07:00-23:00) is 5 lux and in the post curfew period (typically considered to be 23:00-07:00) is 1 lux.

4.2 Receptors

The term 'receptors' includes any persons, locations or systems that may be susceptible to changes in environmental factors as a consequence of the development.

4.2.1 Ecological Receptors

Lighting associated with the operational phase of the proposed development has the potential to impact on receptors of ecological sensitivity within the vicinity of the site. The Conservation of Habitats and Species Regulations (2017) and subsequent amendments require competent authorities to review planning applications and consents that have the potential to impact on European designated sites (e.g. Special Areas of Conservation). Following a review of the site and immediate surrounding area ecological receptors were highlighted as shown in Table 6 and Figure 3. These receptors were placed at heights of 4m in the DIALux lighting model.

Table 6 Light-sensitive Ecological Receptors

ID	Description
Eco 1	North of the residential development site. West of the footpath.
Eco 2	
Eco 3	
Eco 4	
Eco 5	
Eco 6	
Eco 7	
Eco 8	
Eco 9	
Eco 10	North of the residential development site. East of the footpath and Hulbert Road.
Eco 11	
Eco 12	
Eco 13	
Eco 14	
Eco 15	
Eco 16	
Eco 17	
Eco 18	East of the residential development site. East of the footpath and Hulbert Road.
Eco 19	
Eco 20	
Eco 21	
Eco 22	
Eco 23	East of the residential development site. West of the footpath.
Eco 24	
Eco 25	Directly south of the residential development site.
Eco 26	
Eco 27	
Eco 28	Directly north of the residential development site.
Eco 29	

5.0 Lighting Assessment

Potential impacts associated with light spill from the proposed windows at locations in the vicinity of the site were assessed as described in the following sections.

5.1 Obtrusive Light Modelling

An indicative external lighting scheme for the development was developed and modelled using DIALux software based upon plans for the proposed development. Reference should be made to Figure 4 for the indicative external lighting design and to Figure 5 for a 3D representation of the proposed model.

The model is only able to accurately represent the effects of solid structures such as buildings and walls on light obtrusion. Non-solid barriers such as trees and hedges cannot be accurately modelled and therefore the effects of these are dealt with qualitatively outside the model calculations.

The ULR of the proposed development has been calculated and referenced to the maximum permitted limitations for the relevant Environmental Zones of the receptor locations, as detailed in Table 2.

5.1.1 Model Ecological Results

While some bat species, such as Pipistrelle are more tolerant with light levels above this criterion, it reflects worst-case assumptions concerning the sensitivity of those species present to background illuminance levels. It is believed that most bat emergence requires light levels below 1 lux for late emerging species, up to 14 lux for those that emerge earlier (Noctule and Pipistrelle). These lighting levels of 1 lux are required to ensure that bat commuting, and foraging routes are not impacted and that dark corridors beyond the limits of the site are retained. As such, the assessment criteria represents worst case scenario in terms of impacts on emergence, commuting and foraging (Bat Conservation Trust, 2011).

When determining the likely impacts of lighting associated with the proposed development on sensitive ecological receptors, the assessment has considered the effect of lighting pre-mitigation. Impacts are considered potentially significant where predicted illuminance exceeds 1 lux at ecological receptors. If this is the case, further consideration should be given to mitigation measures.

Reference should be made to Figure 3 for a visual representation of the modelled ecological receptor locations and Figure 4 for the indicative external lighting scheme.

Table 7 below, shows that light trespass associated with the proposed residential development does not exceed 1 lux at any of the ecological receptor locations assessed. The surrounding woodland will remain unaffected by the indicative lighting scheme of the development.

Hulbert Road, Havant

Lighting Assessment



Table 7 Ecological Receptor Assessment Results

ID	Predicted Model Illuminance
Eco 1	0.11
Eco 2	0.15
Eco 3	0.19
Eco 4	0.16
Eco 5	0.20
Eco 6	0.20
Eco 7	0.27
Eco 8	0.14
Eco 9	0.18
Eco 10	0.05
Eco 11	0.08
Eco 12	0.05
Eco 13	0.06
Eco 14	0.06
Eco 15	0.08
Eco 16	0.09
Eco 17	0.08
Eco 18	0.12
Eco 19	0.15
Eco 20	0.17
Eco 21	0.08
Eco 22	0.03
Eco 23	0.24
Eco 24	0.80
Eco 25	0.58
Eco 26	0.70
Eco 27	0.76
Eco 28	0.65
Eco 29	0.29

Hulbert Road, Havant

Lighting Assessment



As illustrated by Table 7, worst-case light trespass associated with the proposed development does not exceed 1 lux at any of the modelled locations assessed adjacent to the site boundary, including the ecological receptors within the tree line to the north, east and south of the site. As such the proposed development is not predicted to result in any significant adverse impacts with respect to local sensitive ecological receptors surrounding the site.

As the development is in the outline stage, in order to achieve the results presented above any lighting scheme should follow the best practice guidance presented in Section 6 below.

6.0 Design Standards and Guidance

Any future detailed lighting design for the site should follow the national standards set out below.

6.1.1 National Standards

- BS EN 12464-2: Lighting of Work Places - Outdoor Work Places, 2014;
- BS 5489-1: Code of Practice for the Design of Outdoor Lighting - Lighting of Roads and Public Amenity Areas, 2013; and,
- BS EN 13201-2: Road Lighting - Performance Requirements, 2003;

6.1.2 Best Practice Design

As well as meeting the statutory design standards outlined above, the future lighting design should seek to meet a number of criteria to ensure that the environmental effects of artificial lighting are managed to a high standard. These criteria are:

- In accordance with the ILP guidance, the area surrounding the proposed development site has been classified as an ILP E2 Environmental Zone and as such, the illuminance levels at the windows of residential properties should not exceed 5 lux in the pre-curfew period (typically considered to be 07:00 to 23:00) and 1 lux in the post-curfew period (typically considered to be 23:00 to 07:00);
- All external lighting schemes must not have an upward lighting ratio (ULR) of more than 1%;
- All new column mounted luminaires should be fitted with flat glass where appropriate to aid 0% upward light discharge;
- Where appropriate, luminaires on the site boundary should be fitted with light baffles to prevent light spill;
- Lighting should be controlled via light level sensors;
- The location and design of luminaires will be such as to minimise the impact on surrounding ecological receptors;
- The location and design of luminaires will be such as to minimise the impact on the A3(M) to the west of the site;

Hulbert Road, Havant

Lighting Assessment



- The use of directional LED lights within any future design is recommended as these can minimise light spillage beyond the boundaries of the site and can provide a more focused beam of light for areas which require lighting;
- The proposed schemes of lighting should include provisions for white light sources (4000k). The lighting assessment shows compliance with guidance by the Bat Conservation Trust which specifies lights to be < 4200 kelvin in colour to avoid white and blue wavelengths of the light spectrum which serves to reduce insect attraction;
- Lighting along the roads should be uniform and achieve the criteria set out in BS EN 13201-2: Road Lighting - Performance Requirements, 2003 for residential roads;

7.0 Conclusions

WYG Environment Planning Transport has been commissioned by The GHM Jackson 1972 Children's Settlement Trust to undertake a Lighting Assessment in support of the planning application for a proposed residential development at Hulbert Road, Havant.

The assessment has concluded that the risk of the proposed residential development resulting in ecological disturbances will be low. The risk of the proposed development resulting in significant exceedances of 1 lux along the wildlife and landscape corridor to the north, east and south of the site is considered to be low. As such, dark corridors beyond the limits of the site are expected to be retained.

The assessment demonstrates that the proposed development does not conflict with any national or local planning policies.

Units and Abbreviations Used

CIBSE	Chartered Institute of Building Services Engineers
CIE	Commission on Illumination
ILP	Institute of Lighting Professionals
LDF	Local Development Framework
LP	Local Plan
CS	Core Strategy
DPD	Adopted Development Plan Documents
SPD	Adopted Supplementary Planning Documents
SG	Endorsed Supplementary Guidance Documents
NGR	National Grid Reference
PPS	Planning Policy Statement
NPPF	National Planning Policy Framework
Lx	Lux
ULR	Upward Lighting Ratio
WYG	WYG Planning and Environment

Figures



Tel: 0116 234 8000
Fax: 0116 234 8002
e-mail: leicester@wyg.com

WYG ENVIRONMENT

This map is based upon Ordnance Survey material reproduced by WYG on behalf of Her Majesty's Stationery Office, © Crown Copyright. Unauthorised reproduction infringes Crown copyright and may lead to civil proceedings.
Licence Number AL 553611

Project:

Hulbert Road, Havant

Client:

The GHM Jackson 1972
Children's Settlement Trust

Drawing Title:

Figure 1: Site Location

creative minds safe hands

DRAWN BY	CHECKED BY	DATE	REVISION
LY	NA	20.04.20	A



Executive Park
Avalon Way
Anstey
Leicester
LE7 7GR



Tel: 0116 234 8000
Fax: 0116 234 8002
e-mail: leicester@wyg.com

WYG ENVIRONMENT

This map is based upon Ordnance Survey material reproduced by WYG on behalf of Her Majesty's Stationary Office, © Crown Copyright. Unauthorised reproduction infringes Crown copyright and may lead to civil proceedings. Licence Number AL 553611

Project:

Hulbert Road, Havant

Client:

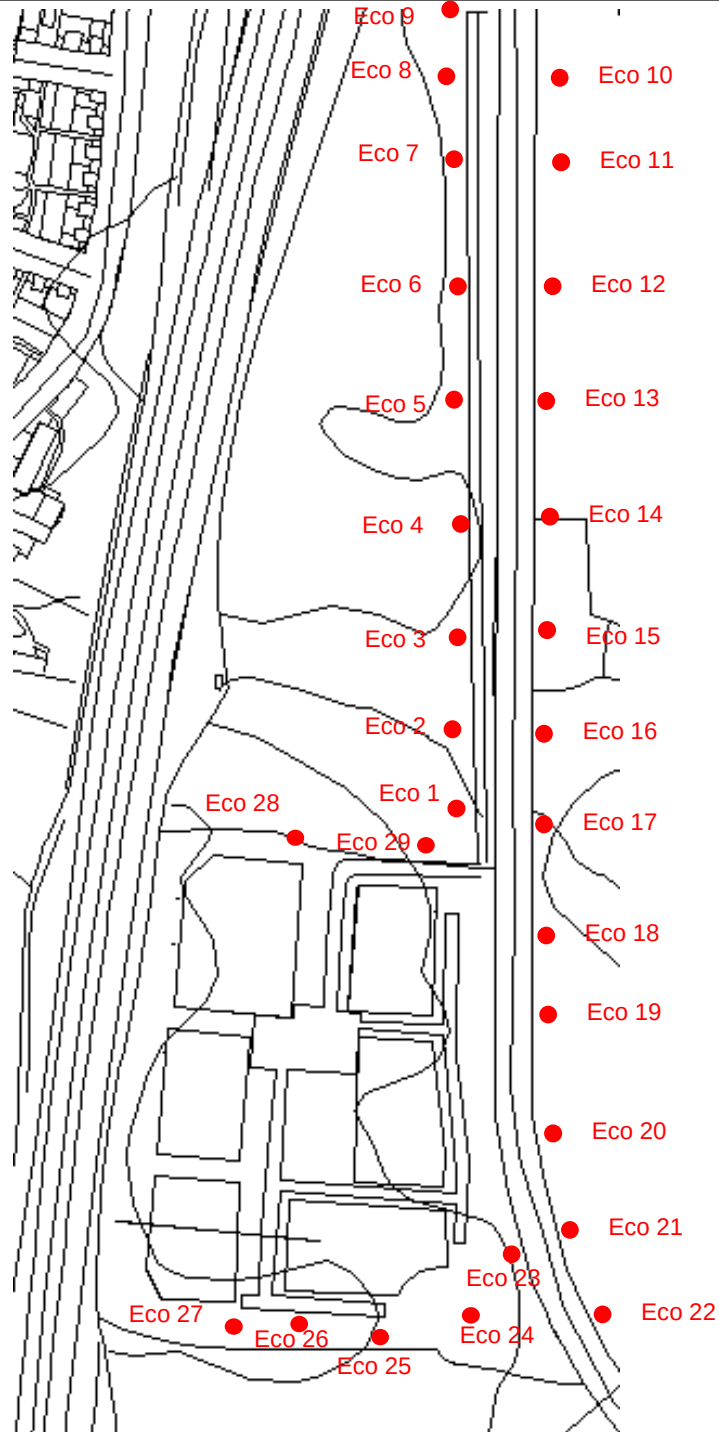
The GHM Jackson 1972
Children's Settlement Trust

Drawing Title:

Figure 2: Light Monitoring
Locations

creative minds safe hands

DRAWN BY	CHECKED BY	DATE	REVISION
LY	NA	28.02.20	A



Executive Park
Avalon Way
Anstey
Leicester
LE7 7GR



Tel: 0116 234 8000
Fax: 0116 234 8002
e-mail: leicester@wyg.com

WYG ENVIRONMENT

This map is based upon Ordnance Survey material reproduced by WYG on behalf of Her Majesty's Stationery Office, © Crown Copyright. Unauthorised reproduction infringes Crown copyright and may lead to civil proceedings.
Licence Number AL 553611

Project:

Hulbert Road, Havant

Client:

The GHM Jackson 1972
Children's Settlement Trust

Drawing Title:

Figure 3: Modelled Ecological
Receptor Locations

creative minds safe hands

DRAWN BY	CHECKED BY	DATE	REVISION
LY	NA	20.04.20	A



Executive Park
Avalon Way
Anstey
Leicester
LE7 7GR



Tel: 0116 234 8000
Fax: 0116 234 8002
e-mail: leicester@wyg.com

WYG ENVIRONMENT

This map is based upon Ordnance Survey material reproduced by WYG on behalf of Her Majesty's Stationery Office, © Crown Copyright. Unauthorised reproduction infringes Crown copyright and may lead to civil proceedings. Licence Number AL 553611

Project:

Hulbert Road, Havant

Client:

The GHM Jackson 1972
Children's Settlement Trust

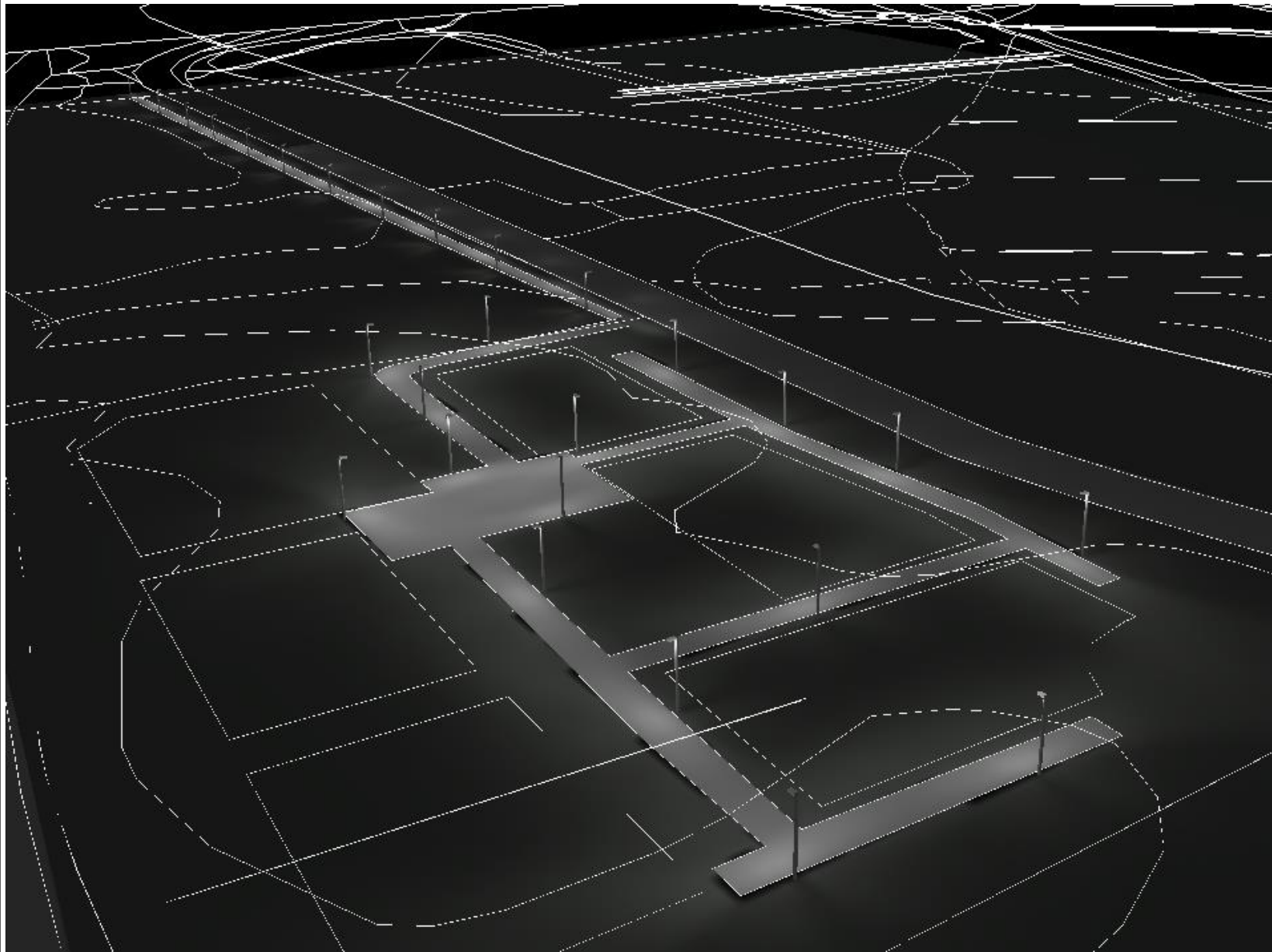
Drawing Title:

Figure 4: Indicative External
Lighting Scheme

Symbol	Luminaire
●	16 * DW Windsor Kirium Pro1 8LED 3k D1 CLO 550mA UMSUG 42 0014 0000 100 at 6m height
●	11 * DW Windsor z Kirium Mini 1:- 1LX2 Footpath at 5m height

creative minds safe hands

DRAWN BY	CHECKED BY	DATE	REVISION
LY	NA	20.04.20	A



Executive Park
Avalon Way
Anstey
Leicester
LE7 7GR



Tel: 0116 234 8000
Fax: 0116 234 8002
e-mail: leicester@wyg.com

WYG ENVIRONMENT

This map is based upon Ordnance Survey material reproduced by WYG on behalf of Her Majesty's Stationery Office, © Crown Copyright. Unauthorised reproduction infringes Crown copyright and may lead to civil proceedings. Licence Number AL 553611

Project:
Hulbert Road, Havant

Client:
The GHM Jackson 1972
Children's Settlement Trust

Drawing Title:
Figure 5: 3D Representation
of Proposed Model

creative minds safe hands

DRAWN BY	CHECKED BY	DATE	REVISION
LY	NA	20.04.20	A

Appendices

Appendix A Report Terms & Conditions

This Report has been prepared using reasonable skill and care for the sole benefit of The GHM Jackson 1972 Children's Settlement Trust ("the Client") for the proposed uses stated in the report by [WYG Environment Planning Transport Limited] ("WYG"). WYG exclude all liability for any other uses and to any other party. The report must not be relied on or reproduced in whole or in part by any other party without the copyright holder's permission.

No liability is accepted or warranty given for; unconfirmed data, third party documents and information supplied to WYG or for the performance, reliability, standing etc of any products, services, organisations or companies referred to in this report. WYG does not purport to provide specialist legal, tax or accounting advice.

The report refers, within the limitations stated, to the environment of the site in the context of the surrounding area at the time of the inspections'. Environmental conditions can vary and no warranty is given as to the possibility of changes in the environment of the site and surrounding area at differing times. No investigative method can eliminate the possibility of obtaining partially imprecise, incomplete or not fully representative information. Any monitoring or survey work undertaken as part of the commission will have been subject to limitations, including for example timescale, seasonal and weather-related conditions. Actual environmental conditions are typically more complex and variable than the investigative, predictive and modelling approaches indicate in practice, and the output of such approaches cannot be relied upon as a comprehensive or accurate indicator of future conditions. The "shelf life" of the Report will be determined by a number of factors including; its original purpose, the Client's instructions, passage of time, advances in technology and techniques, changes in legislation etc. and therefore may require future re-assessment.

The whole of the report must be read as other sections of the report may contain information which puts into context the findings in any executive summary.

The performance of environmental protection measures and of buildings and other structures in relation to acoustics, vibration, noise mitigation and other environmental issues is influenced to a large extent by the degree to which the relevant environmental considerations are incorporated into the final design and specifications and the quality of workmanship and compliance with the specifications on site during construction. WYG accept no liability for issues with performance arising from such factors.