



# LIGHTING CONSULTANCY

Exterior Lighting Design Specialists

## **John Barker Place, Hitchin S38 Lighting Design**

### **Environmental Impact Assessment & Lighting Design Category Selection Process**

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**JOHN BARKER PLACE, HITCHIN – S278 LIGHTING DESIGN**  
**EXTERNAL LIGHTING ASSESSMENT**

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## **1.0 INTRODUCTION**

This external lighting environmental impact assessment is a desk top exercise to establish the baseline conditions and the likely impact to the surrounding environment for the proposed new development at John Barker Place, Hitchin.

## **2.0 LEGAL REQUIREMENTS**

This section summarises government policy on the environment with respect to external lighting.

### **2.1 STATUTORY DOCUMENTS**

The Clean Neighbourhoods and Environment Act 2005 suggests under Town and County Planning (Assessment of Environmental Effects) Regulations 1988, developers should submit an assessment of the impact proposed external lighting will have on the environment.

While not specifically requiring external lighting schemes to be submitted for approval it does suggest planning authorities have the right to request such information as part of the approval process.

The Clean Neighbourhoods and Environment Act 2005 has made light pollution a statutory nuisance under the Environmental Protection Act 1990, which came into force on 6th April 2006.

Section 79 of the Environmental Protection Act 1990 (c43) is amended as follows: "artificial light emitted from premises so as to be prejudicial to health or a nuisance."

Although this specific act refers to artificial light emitted from a premise, it is good practice to ensure any newly installed external street lighting does not emit light on property frontages, nor should any new installation produce excessive upward light (known as light pollution) or be installed so as to 'over light' any street in relation to the external street lighting requirements detailed in the British and European lighting standards.

No prescriptive limits or rules are set for such assessments, but the following guidance documents have been referred to while compiling this assessment and in producing the external street lighting design for this specific project:

- British and European Standards for External Street lighting – BS 5489-1:2020 & BSEN 13201-2:2015
- Guidance notes for the reduction of obtrusive light – The Institution of Lighting Professionals (ILP)
- Environmental considerations for exterior lighting – Chartered Institution of Building Services Engineers (CIBSE).
- Outdoor Environment. Lighting guide 6 – CIBSE.
- CDM 2015 Regulations.

### 3.0 SITE LOCATION

The proposed site location for the new development at John Barker Place, Hitchin.



## 4.0 BASELINE CONDITIONS

The following describes the site in relation to existing sources of lighting. A review of areas and features of the landscape are also described.

The surrounding area is built up and mainly consists of residential dwellings with some rural areas.

All the surrounding streets are currently lit by systems of street lighting which are owned and maintained by the local council.

Sensitive receptors to light are surrounding residential properties and local wildlife.

The Institution of Lighting Professionals published a reference document GN01/21 – Guidance notes for the reduction of obtrusive light, which provides definitions of environmental zones and levels of permissible light trespass.

Using Table 2 below, it would indicate that the area would be classified as: E3 Medium District Brightness Areas.

| Table 2: Environmental Zones |             |                            |                                                                                                                         |
|------------------------------|-------------|----------------------------|-------------------------------------------------------------------------------------------------------------------------|
| Environmental Zones          | Surrounding | Lighting Environment       | Examples                                                                                                                |
| E0                           | Protected   | Dark                       | Astronomical Observable dark skies, UNESCO starlight reserves, International Dark Sky Association (IDA) dark sky places |
| E1                           | Natural     | Dark                       | Relatively uninhabited rural areas, National Parks, Areas of Outstanding Natural Beauty, IDA buffer zones etc.          |
| E2                           | Rural       | Low District Brightness    | Sparsely inhabited rural areas, village or relatively dark outer suburban locations                                     |
| E3                           | Suburban    | Medium District Brightness | Well inhabited rural and urban settlements, small town centres of suburban locations                                    |
| E4                           | Urban       | High District Brightness   | Town/city centres with high levels of night-time activity                                                               |

| Table 3: Maximum values of vertical illuminance on properties |                        |                    |         |       |        |        |
|---------------------------------------------------------------|------------------------|--------------------|---------|-------|--------|--------|
| Light Technical Parameter                                     | Application Conditions | Environmental Zone |         |       |        |        |
|                                                               |                        | E0                 | E1      | E2    | E3     | E4     |
| Illuminance in the vertical plane (Ev)                        | Pre-curfew             | n/a                | 2 lux   | 5 lux | 10 lux | 25 lux |
|                                                               | Post-curfew            | n/a                | 0.1 lux | 1 lux | 2 lux  | 5 lux  |

| Table 6: Maximum values of upward light ratio (ULR) of luminaires |                    |    |     |    |    |
|-------------------------------------------------------------------|--------------------|----|-----|----|----|
| Light Technical Parameter                                         | Environmental Zone |    |     |    |    |
|                                                                   | E0                 | E1 | E2  | E3 | E4 |
| Upward light ratio (ULR) /%                                       | 0                  | 0  | 2.5 | 5  | 15 |

## **5.0 IMPACT ASSESSMENT CONCLUSION**

The proposed lighting scheme will ensure that the neighbouring residences do not have light spillage onto their property as that would be deemed to be unacceptable in line with current guidelines.

It is proposed that the lighting impact can be minimised by using accepted methods of lighting control, essentially limiting illuminance and controlling light spill.

It is proposed that the street lighting shall be installed on 6m lighting columns. Generally lighting shall be selected to provide safety and security without polluting the boundary site residents.

All luminaires are to have electronic drivers. The light source specified for this lighting scheme is LED, this is a low lumen output high efficiency light source.

The electronic drivers and LED's running together produce a very efficient street lighting system which reduces overall energy usage and environmental impact on natural resources.

Desk top calculations and assessments on the proposed street lighting installation indicate (with respect to identified sensitive receptors) that overall surrounding light pollution levels will not be significantly influenced by the proposed street lighting.

These accepted methods have all been adopted within the proposed lighting design to keep the overall impact of the lighting to a minimum.

In summary it is our considered opinion that the proposed street lighting installation will not have any significant negative impact on the immediate environment with respect to lighting pollution or energy usage and that all sensible steps have been taken within the design stage of this lighting scheme to keep the impact to the environment to a minimum.

## 6.0 LIGHTING DESIGN SELECTION PROCESS

It has been assessed that the lighting levels shall be in accordance with the British Standard BS 5489-1:2020 and BS EN 13201-2:2015 recommendations.

The proposed lighting shall meet a P4 class as selected from BS 5489-1:2020 table A.5.

**Road lighting classification: P4**

Minimum maintained average illuminance (Eav):  $\geq 5.00 \leq 7.50$  lux

Minimum illuminance (Emin):  $> 1.00$  lux

Uniformity (Uo) = 0.20 (20%) Lux

The street lighting proposals are to use a total of:

- **Nine** new HCC specification galvanised steel lighting columns of 6m nominal height with new Urbis Axia 2.1 5187 3.12klm NW LED Lanterns mounted at 0° tilt to the horizontal plane.
- **Three** new HCC specification galvanised steel lighting columns of 6m nominal height with new Urbis Axia 2.1 5167 2.75klm NW LED Lanterns mounted at 0° tilt to the horizontal plane.

All new lanterns are to be complete with a 5 pin Telensa Node and a 7 Pin NEMA socket. All Lanterns have integrated rear shields to reduce light spill into sensitive areas.

Electrical supply connections shall be DNO.

Stats provided by the client shows no HV cables. There is a Gas service of unknown pressure (likely to be LP). The contractor will need to obtain up to date utility plans prior to installing any lighting columns.

Works should be carried out in accordance with current BS 7671, G39/1, and HSE regulations.

Hand digging shall be required for the installation and removal of the lighting columns.

No illuminated sign details have been supplied by the client for this scheme.

Street lighting works shall be carried out by a competent contractor who shall be registered under HERS (Highway Electrical Registration Scheme) and that their operatives are suitably qualified under the National Highway Sector Scheme 8. The Lighting Authority shall request proof of accreditation and authorisation of any subcontractor to perform such duties. The Lighting Authority reserves the right to request a resubmission of any Test Certificates.

## 7.0 SITE SAFETY, CDM AND RISK ASSESSMENTS

All street lighting installation works should be carried out whilst taking into account the current Health and Safety regulations and also where applicable the current CDM2015 regulations. Projects after the 6<sup>th</sup> April 2015 shall comply with CDM2015 or be in the transitional process.

As the 'Designer' under the CDM2015 Regulations, MMA Lighting Consultancy expects the 'Client' to fully understand their duties and responsibilities under the current CDM2015 Regulations; this statement is set out to make the client aware of "client duties" required under CDM2015. As a designer it is our responsibility to reduce and eliminate foreseeable health and safety risks to anyone effected by the project, take steps to reduce or control risks that cannot be eliminated and take account of any pre-construction information provided to us by the client or principal designer. On submission of this design to the client, the client must pass the full MMA Lighting Consultancy design pack onto the Principal Designer (if involved) for inclusion in the pre-construction information and health and safety file.

Under CDM2015 a project is notifiable if construction work lasts longer than 30 working days AND has more than 20 workers working simultaneously at any point, or exceeds 500 person days. An F10 form must be submitted if the above applies and the form can be found online at [www.hse.gov.uk](http://www.hse.gov.uk).

This form must be submitted by the Client to the Health and Safety Executive. The only exception to this is where the project is for a domestic scheme, in this instance the responsibility automatically passes to the Contractor (or Principal Contractor). The Principal Designer can assume the responsibility for notification of a domestic project, but only where there is a written agreement between the domestic client and the Principal Designer that that they will carry out the client duties. Works that do not exceed the 30 day, 20 workers or 500 person days rule may still need to have the CDM2015 regulations applied but may not be notifiable. It is advised that the companies CDM2015 regulations trained personnel assess the project and make the necessary arrangements to meet the CDM2015 regulation requirements.

**If in doubt it is recommended that the company seeks professional advice.**

As designers under the CDM2015 regulations it is our duty to recommend that an 'HEA' approved contractor be used for the electrical installation works. All lighting installation works should comply with the IET 18<sup>th</sup> Edition Wiring Regulations (BS 7671 The IET Wiring Regulations). This is the national standard to which all domestic and industrial wiring installations must conform to.

A Generic Risk assessment should be carried out by the approved contractor prior to the commencement of any site work. Specific Risk Assessments should then be carried out for all electrical street lighting works.

It is recommended that the approved contractor undertakes site supervision of the new installation at all times. Once the contractor has completed the installation works the contractor is to confirm the installation complies with the IET 18<sup>th</sup> Edition Wiring Regulations by producing electrical test certificates. All electrical test certificates shall be submitted to overseeing organisation.

Prepared By: -

..... (Signed) ..... (Print Name) ..... (Date)

Rev

..... (Signed) ..... (Print Name) ..... (Date)