

Design Considerations & Environmental Report

Westbury Leigh – S38

DESIGN CONSIDERATIONS & ENVIRONMENTAL REPORT

Document Issue Sheet

Revision	Project Number	Document Reference	Prepared By	Date	Verified	Date
R0	WLC897	WLC897-DCR-001	[redacted]	12/05/2023	[redacted]	23/05/2023
R1	WLC897	WLC897-DCR-001		20/10/2023		20/10/2023

This Design Considerations & Environmental Report has been prepared for our client as stated within our appointment only and expressly for the purposes set out in an appointment and we owe no duty of care to any third parties in respect of its content. Therefore, unless expressly agreed by us in signed writing, we hereby exclude all liability to third parties, including liability for negligence, save only for liabilities that cannot be so excluded by operation of applicable law. This report has been based solely on the specific design assumptions and criteria stated herein.

Williams Lighting Consultants Ltd.
Office 6, Stonehouse Business Centre, 1a Middle Row, Chipping Norton, OX7 5NH
t: 01608 642530 e: info@wlclighting.co.uk
web: www.wlclighting.co.uk

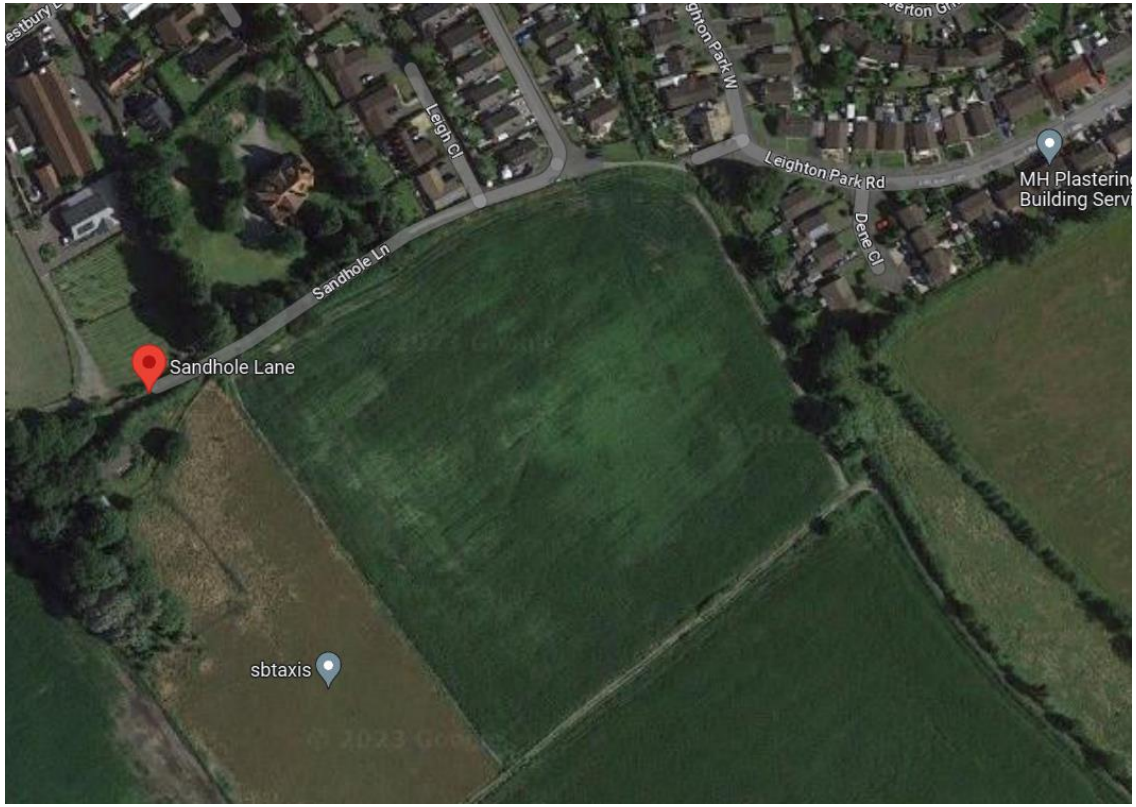
Contents

1. Introduction 3
2. Safety Fences – Lighting Columns 4
3. Maintenance Activities 5
4. Health and Safety 6
5. Design Considerations 7
6. Environmental Considerations 8
7. Environmental Residual Effects 10

1. Introduction

1.1 This Design Considerations & Environmental Report has been prepared by Williams Lighting Consultants Ltd. for and on behalf of the Client. The report assesses the requirements for safety fences (lighting protection), design considerations, Health and Safety requirements, environmental impacts and future maintenance schedules associated with the proposed lighting equipment.

1.2 Site Location:



2. Safety Fences – Lighting Columns

2.1 All lighting columns are to be positioned at least 0.8m from the kerb edge or at the rear of the footpath. Refer to drawings WLC897-1300-001 for further details.

2.2 The British Standard recommends a 0.8m setback as a minimum. With the above proposals, it is considered that safety barriers will not be a requirement for any lighting column within the proposed design.

3. Maintenance Activities

3.1 Electrical Test and Inspection

3.1.1 Upon installation, all lighting columns shall have an electrical installation certificate as per the latest BS7671 Requirements for Electrical Installations - IET Wiring Regulations. This certificate is to be passed to the authority upon adoption.

3.1.2 Each lighting column shall require a periodic condition report every 6 years dated from the initial test certificate.

3.2 Lamp Changes

3.2.1 The proposed lanterns utilize an LED light source, lamp changes will not be required. It is however recommended that the LED lens be cleaned every 6 years and driver replacements should be considered.

3.3 Structural Test and Inspections

3.3.1 It is recommended that all lighting columns are visually inspected for damage every three years for the first six years and then every 2 years.

3.3.2 Columns to be structurally tested and inspected following with industry best practice ILP Guidance Note 22/19 Asset-Management Toolkit: Minor Structures.

4. Health and Safety

4.1 All works are to be carried out considering current Health and Safety regulations, legislation and Construction Design Management 2015 regulations. The below list is not exhaustive:

- Highways Act, 1980
- The Management of Health and Safety at Work Regulations, 1999 and 2003
- Electricity at Work Regulations, 1989
- CDM Regulations 2015
- BS7671 Wiring Regulations
- New Roads and Street Works Act (NRSWA), 1991
- BS5489 (British Standards for Lighting)
- G39/1 Working in Vicinity of DNO Equipment

4.2 Under CDM a project is notifiable if the construction work is to exceed 30 working days and has more than 20 workers working simultaneously at any point or exceeds 500 person-days. If any of these are applicable an F10 form must be submitted. This form can be found by visiting the HSE website.

4.3 CDM regulations will still apply if the project does not meet the above requirements. If any of this is in doubt the company should seek professional advice.

4.4 It is recommended that all street lighting works are carried out by a HERS Registered contractor.

4.5 All electrical works must comply with the latest BS7671 Requirements for Electrical Installations - IET Wiring Regulations.

5. Design Considerations

5.1 Existing Lighting

5.1.1 The site is a new development – no lighting is present.

5.2 Maintenance Factors

5.2.1 Proposed luminaire maintenance factors have been derived from an E2 environmental zone with a 72-month cleaning cycle. Luminaire lumen maintenance factor at 100,000 hours is 0.9 mounted at a height of less than 5m producing an MF of 0.83.

5.3 Overhead Cables

5.3.1 None present.

5.4 Lighting Levels

5.4.1 The proposals have been designed to meet the requirements of the lighting class P5 as per BS5489-1:2020.

5.5 Ecology Concerns

5.5.1 Extract from ead ecology EIA dated December 2020:

The post-construction lighting scheme would be designed to minimise light-spill to retain 'dark corridors' not exceeding 1 lux along the western and southern development boundaries, and throughout the public open space in the south of the site, to retain suitable movement corridors for bats, including greater horseshoe bats. The Greater Horseshoe Bat Mitigation Parameter Plan has been produced to show the location of the proposed 'Dark corridors', along with proposed 1lux and 0.5lux contours.

5.5.2 Site boundary light levels have been kept to a minimum, 3000K warm white specified as per WC requirements. Lighting is only provided where required and the site has been lit to adoptable standards.

6. Environmental Considerations

6.1 Proposed Lighting

6.1.1 The proposed design ensures existing receptors do not have any light spill onto their properties.

6.1.2 The potential lighting impact has been significantly reduced using a competent design practice and careful considerations towards heights of columns and equipment specification.

6.2 Obtrusive Light Limitations for Exterior Lighting

6.2.1 The below table has been reproduced from the ILP GN01/20 and provides maximum limits on vertical illuminance values on properties.

Table 1 (Table 3 GN01/20): Maximum values of vertical illuminance on properties.

Light technical parameter	Application conditions	Environmental zone				
		E0	E1	E2	E3	E4
Illuminance on the vertical plane (E_v)	Pre-curfew	n/a	2 lx	5 lx	10 lx	25 lx
	Post-curfew	n/a	<0.1 lx	1 lx	2 lx	5 lx

6.2.2 The proposed site is considered under Environmental Zone E2.

6.2.3 The below table has been reproduced from the ILP GN01/20 and provides maximum limits on upward light values.

Table 2 (Table 6 GN01/20) 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

6.3 Proposed Luminaire

Table 3: Luminaire Specification				
Luminaire	**Proposed Locations**	**Characteristics**		**Image**
Urbis Axia 3.1	Highway lighting	**Upward Light:**	0%	
		Glare Rating:	G3	
		Colour temperature:	3000K (Warm White)	
		Efficacy:	Up to 140lm/cW	

6.4 Ecology

6.4.1 See 5.5.

7. Environmental Residual Effects

7.1 The proposed lighting will have a residual effect on the environment, and these will occur at different phases during the project. The residual effects have been assessed below and consider the permanent and temporary effects.

7.2 Operational - Landscape and Visual (permanent impact)

7.2.1 There is a permanent impact on the visual scene. With the use of a design practice, the impact can be minimized through good design – reducing the number of columns required. With the use of modern lanterns light is well controlled.

7.2.2 Recommendation: Design prepared by competent designer following BS 5489 and ILP Guidance on the Reduction of Obtrusive Light.

7.3 Operational - Community (permanent impact)

7.3.1 A well-designed lighting installation will have a positive impact on the local community, providing:

- A reduction in the fear of crime
- Encourage the use of more sustainable modes of transport, such as walking, cycling.

7.3.2 Recommendation: None

7.4 Construction and Demolition - Noise (temporary impact)

7.4.1 Noise during construction

7.4.2 Recommendation: Employment of competent contractor with the use of appropriate tools to minimize noise.

7.5 Construction and Demolition - Dust (temporary impact)

7.5.1 Dust during construction

7.5.2 Recommendation: Employment of competent contractor with the use of appropriate tools to minimize dust.

7.6 Construction and Demolition – Ground Contamination (temporary impact)

7.6.1 None anticipated

7.6.2 Recommendation: None

7.7 Construction and Demolition – Storage of Materials (temporary impact)

7.7.1 Storage of materials is anticipated

7.7.2 Recommendation: Hazardous materials to be handled, stored, and transported following COSHH regulations and manufacturer guidelines.

7.8 Construction and Demolition – Waste

7.8.1 Waste is anticipated

7.8.2 Recommendation: Lamps and lanterns to be disposed of following WEEE regulations. Columns to be recycled where possible.