

County Heritage Centre

Old Blessington Road,

Dublin 24



Site Lighting Report

IN2 Project No. D2301

3rd August 2023

REV01

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1.0 INTRODUCTION

IN2 Engineering Design Partnership have been retained by South Dublin County Council to complete a Planning Stage Site Lighting Study for the proposed County Heritage Centre development at Old Blessington Road, Tallaght, Dublin 24. The proposed development incorporates the history of Tallaght within an exhibition space in the heart of the community. The purpose of this report is to demonstrate that the proposed site lighting design will both enhance the development and maintain safe levels of illumination to circulation areas while minimising light overspill on the neighbouring properties and mitigating the residual impacts that the proposed lighting scheme may have on existing habitats within the site.

2.0 EXECUTIVE SUMMARY

The following report contains the design layout and accompanying calculations for the proposed site lighting scheme for the proposed County Heritage Centre development at Old Blessington Road, Dublin 24.

The external lighting for this development has been designed to achieve the performance requirements as set out in the following standards:

- BS 8300:2018 Design of an accessible and inclusive built environment
- Institution of Lighting Professionals - Guidance Notes for the Reduction of Obtrusive Light GN01:2011
- BS EN 13201-2:2015 - Road Lighting Part 2: Performance Requirements
- BS 5489-1:2013 Code of Practice for the Design of Road Lighting
- Chartered Institution of Building Services Engineers - Lighting Guide 6: The Exterior Environment
- ETCI National Rules for Electrical Installations ET 101
- Bats and Lighting - Guidance Notes for Planners, Engineers, Architects and Developers (Bat Conservation Ireland, 2010);
- Bats and Lighting in the UK - Bats and the Built Environment Series (Institute of Lighting Professionals, September 2018).

Engagement with SDCC public lighting will take place post-part 8 to assess existing lighting provision & any new design proposal.

Area	Lighting Levels (Lux)	Uniformity (U_o)
Walkways/Footpaths	5	0.2
Access Routes	5	0.2
Pedestrian Access routes adjacent to the entrances / exits of buildings. Level and gently sloped.	100	0.4
Light Spill (Obtrusive Light)	10 (Maximum)	N/A
Entrance Road (Main Traffic Routes)	10	0.2

Figure 2.1 - Minimum Lighting Requirements

3.0 DEVELOPMENT OVERVIEW

The proposed Heritage Centre development is to be situated beside the Civic Theatre at Old Blessington Road, Dublin 24. The site context as illustrated below in Figure 3.1.



Figure 3.1 - Development Site (Indicative Only)

The proposed development will consist of the construction of a new landmark building on public lands, providing an exhibition space for South Dublin County.

4.0 PROPOSED INSTALLATION

The proposed site lighting for the new County Heritage Centre development has been designed to ensure that the lighting criteria set out in each of the relevant standards listed previously are met or exceeded and that sufficient illumination is provided to ensure that key requirements such as access/egress, enhanced site security and the safe use of paths, amenity spaces, pedestrian crossings is provided. The design has been assessed to establish minimal environmental impact through glare, sky glow and obtrusive light (light spill).

It is proposed to illuminate the entrance road using a 6m galvanised steel lighting column with 'Type X3' post-top mounted LED luminaires as per the luminaire schedule in Appendix A of this report. The luminaires shall be complete with narrow beam optics to ensure minimal light spill to adjacent buildings and no upward light spill. Each luminaire shall have individual photocell switching to reduce the energy consumption of the proposed lighting scheme.

Lighting shall be provided on the landscaped space surrounding the development with 'Type X4' decorative column LEDs, 4 meters in height. The luminaires on the 4-meter columns shall have a mechanical impact rating of IK10 to provide added protection against vandalism and shall be Extra-Low Voltage LED luminaires to ensure protection against electric shock in the event that damage may occur.

5.0 DESIGN ANALYSIS AND CALCULATION RESULTS

Entrance road

The lighting performance of the entrance road has been assessed with fitting Type 'X3' 6000mm (H) lighting columns as per luminaire schedule, Appendix A.



Figure 5.1.1 - Illumination Levels at the Entrance Road

Evaluation		Target	Result	
E_{AVERAGE} (maintained)		10 lux	25.2 lux	PASS
U_o (Uniformity)		0.20	0.32	PASS

Figure 5.1.2 - Analysis Results

Pedestrian Access 1

The lighting performance of the Pedestrian access to the building has been assessed with fitting Type 'X3' 6000mm (H) lighting columns as per luminaire schedule, Appendix A.

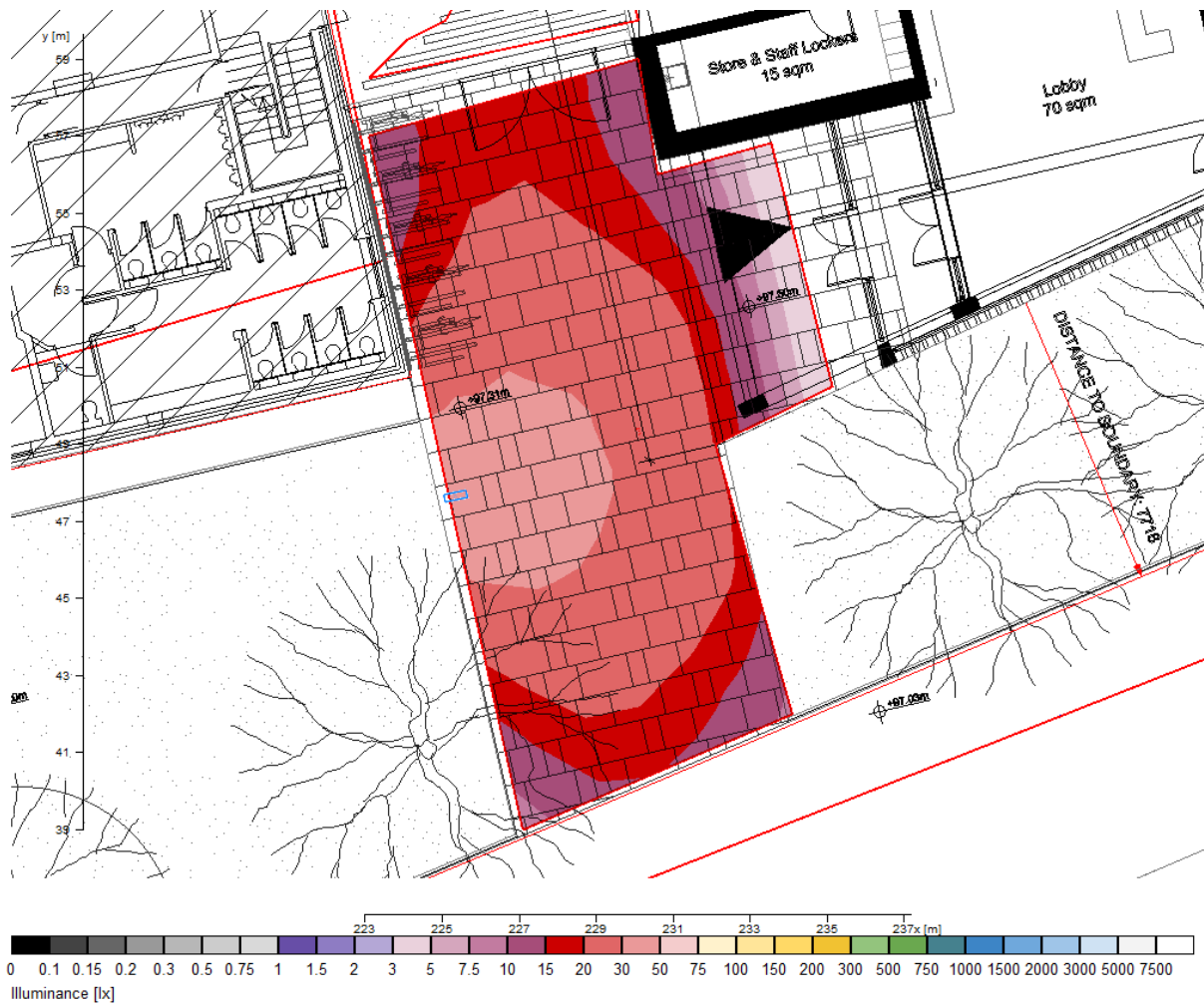


Figure 5.1.3- Illumination Levels Pedestrian Access

Evaluation	Target	Result	
E_{AVERAGE} (maintained)	5 lux	20 lux	PASS
U_0 (Uniformity)	0.20	0.20	PASS

Figure 5.1.4 - Analysis Results

Rendered images of calculations

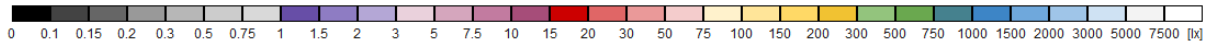
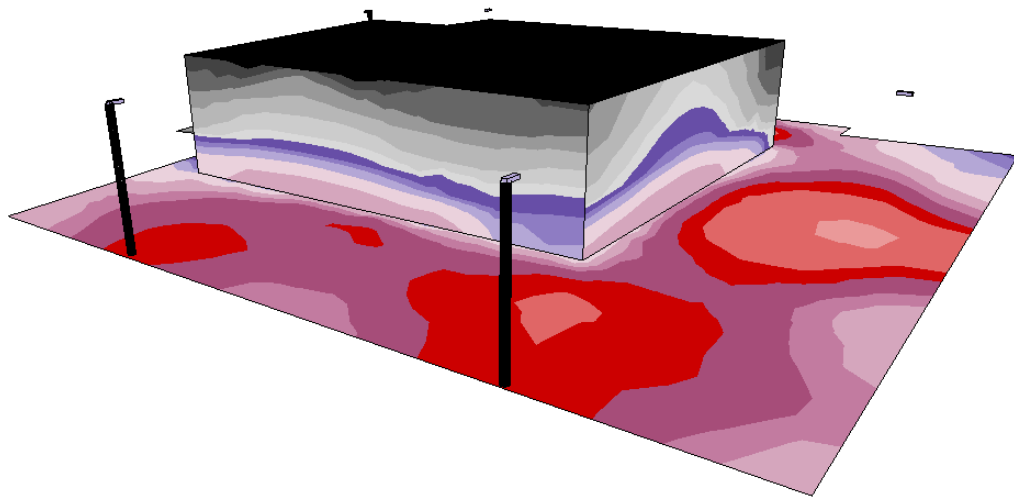


Figure 5.1.5 - 3D Model indicating Site Illumination Levels

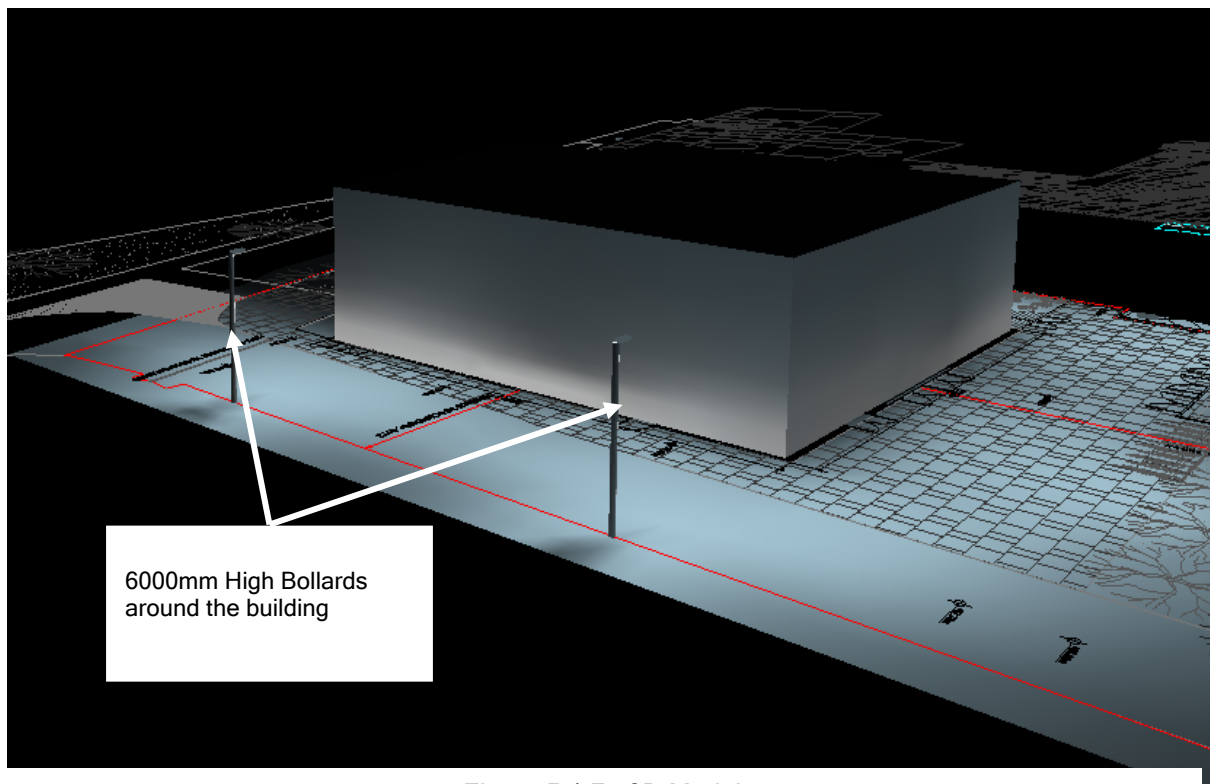



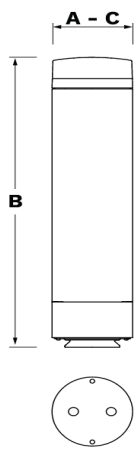
Figure 5.1.7 - 3D Model

6.0 APPENDIX A - LUMINAIRE SCHEDULE

County Heritage Centre

Old Blessington Road,
Dublin 24



Luminaire Reference	X4	Manufacturer	
Body Description	Die-Cast LM-6 aluminium, IP66, IK08	Recessed/Surface or Wall Mounted	Pole Mounted on 4M columns.
Diffuser Type	Polycarbonate	Lamps	18W LED Lamp
Reflector	Type III Medium Optical Setting	Lumen Output	2672 Lumens
Control Gear	220 -240V, 50/60 Hz.	Colour of Lamps	3000K
Area of Application	Pedestrian Routes	Lamp Life	100,000hours
Dimensions (mm)	194mm x 815mm x 194mm	IEC Photometric Code	840/339
Wavelength	Peak > 550nm	IESNA LM 80-80 tested	Yes
360deg Decorative post-top lantern with symmetric distribution. Equipped with 50% power reduction circuit, effective 3 hours before and 5 hours after a calculated midnight. It can be deactivated at installation with an easily accessible internal switch.			
Lumen Depreciation	L90 B10	Power Factor	> 0.9
Colour rendering Index	<70	LED luminaire tested	To be in accordance with IESNA LM-79-08.
Manufacturing Standard	EN 60 598-1:2015, EN 60598-2-2:2012, IEC/TR 62778:2014	LED module tested	To be in accordance with IEC 61347-2-13 & IEC 62384.
Warranty Length	Ten-year manufacturer's warranty to include failure of all luminaire components, inclusive of driver, electronics & LED modules. Contractor to include for all fixtures and fixings necessary for correct mounting and operation.		
			
<p>Needs to be approved by South Dublin County council public lighting. Photocell to be included</p> <p>Contractor to ensure catalogue numbers are the latest and are correct prior to ordering.</p>			

Luminaire Reference	X3	Manufacturer	
Body Description	Die-Cast LM-6 aluminium, IP66, IK10	Recessed/Surface or Wall Mounted	Pole Mounted on 6M poles
Diffuser Type	Polycarbonate	Lamps	49.5W LED Lamp
Reflector	Type III Medium Optical Setting	Lumen Output	8154 Lumens
Control Gear	220 -240V, 50/60 Hz.	Colour of Lamps	3000K
Area of Application	Entrance Routes	Lamp Life	100,000hours
Dimensions (mm)	740mm x 118mm x 427mm	IEC Photometric Code	840/339
Wavelength	Peak > 550nm	IESNA LM 80-80 tested	Yes
Decorative post-top lantern with symmetric distribution. Equipped with 50% power reduction circuit, effective 3 hours before and 5 hours after a calculated midnight. It can be deactivated at installation with an easily accessible internal switch.			
Lumen Depreciation	L90 B10	Power Factor	> 0.9
Colour rendering Index	>70	LED luminaire tested	To be in accordance with IESNA LM-79-08.
Manufacturing Standard	EN 60 598-1:2015, EN 60598-2-2:2012, IEC/TR 62778:2014	LED module tested	To be in accordance with IEC 61347-2-13 & IEC 62384.
Warranty Length	Ten-year manufacturer's warranty to include failure of all luminaire components, inclusive of driver, electronics & LED modules. Contractor to include for all fixtures and fixings necessary for correct mounting and operation.		
<div style="display: flex; justify-content: space-around;">   </div> <p style="text-align: center;">6M pole to be included Constant Light Output feature to be included Needs to be approved by South Dublin County council public lighting. Photocell to be included 7 pin Nema socket to be included Contractor to ensure catalogue numbers are the latest and are correct prior to ordering.</p>			