

Hartfield Place

Site Lighting Report

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Prepared for



creating communities

Document Control

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1. Introduction

The following report contains the design plan and accompanying calculations for the proposed site lighting scheme for the proposed amendment application. This application is amending the parent permission SHD *ABP 313289-22 for Apartments, Creche, Cafe and Associated Works at a site at 'Hartfield Place', Swords Road, Whitehall, Co. Dublin.*

The purpose of this report is to demonstrate that the proposed site lighting 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.

<u>Note – The proposed development will not be "taken in charge" by the local authority,</u> <u>however, the design has been completed to "taken in charge" standard Category P4 as per</u> <u>I.S. EN 13021.</u>



2. Executive Summary

The following report contains the design layout and accompanying calculations of the site lighting scheme for the proposed amendment application for the Hartfield Place development. The external lighting for this permitted development has been designed to achieve the performance requirements as set out in the following standards.

- BS 5489-1:2013 Code of Practice for the Design of Road Lighting
- BS EN 13201-2:2020 Road Lighting Part 2: Performance Requirements
- 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
- CIBSE Lighting Guide 6: The Exterior Environment
- NSAI National Rules for Electrical Installations I.S 10101: 2020
- 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).

The design criteria set out for this permitted development is based on the lighting requirements of the BS EN 13201-2:2020, BS 5489-1:2013 and BS 8300:2018, as specified in the table below.

Hartfield Place Site Lighting Report



Area	Lighting Levels (Lux)	Uniformity (Uo)		
Pedestrian Access Routes in the open Environment. Level and gently sloped.	5	0.2		
Entrances/exits of buildings.	100	0.4		
Stairways and ramps in the open Environment	30	0.2		
Stairways and ramps adjacent to the entrances / exits of buildings	100	0.4		
Car Parks (light traffic)	5	-		
Car Park (Medium traffic)	10	-		
Entrance Road (Main Traffic Routes)	10	0.2		

Figure 3.1 Minimum Lighting Requirements

Class	Targeted Lighting Levels (minimum average Lux)	Minimum Lighting Levels (Lux)		
P1 Lighting Class	15	3		
P2 Lighting Class	10	2		
P3 Lighting Class	7.5	1.5		
P4 Lighting Class	5	1		





3. Design Analysis and Calculation Results

The proposed development's site lighting 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 adequate illumination is provided to ensure that key requirements such as roads, streets, access/egress, and the safe use of paths are met or exceeded which was included in the permitted parent permission SHD ABP 313289-22

The site lighting is designed to comply with the recommendations from the Environmental Impact Assessment Report (EIAR) which was included in the planning submission. We understand there is very low bat activity within the area. According to the Bat Lighting requirements, which identify that small numbers of bats may use even very minor cracks or crevices for temporary roosting, the design has been assessed to establish minimal environmental and ecological impact through glare, sky glow, and obtrusive light (light spill), and will adhere to the following characteristics.

- The minimum level of appropriate/required lighting level will be provided within the developed/residential areas.
- Light standards will be fitted with low intensity, horizontal cut-off LED light fittings employing a narrow directional light or cowled light. This will avoid the effect of light spill arising.
- The lighting includes dimming by 30% post curfew hours & capable of dimming to 75% between midnight and 6am.
- Light standards and associated lighting will be directed away from areas of open space.
- No floodlighting will be used in the development.
- The avoidance of direct lighting of proposed areas of habitat creation/landscape planting, or on trees planted.
- Unnecessary light spill controlled through a combination of directional lighting and hooded/ shielded luminaires or strategic planting to provide screening vegetation.
- The colour rendering of the selected light fitting will be 3000k* making the LED fittings a warmer light, helping to further minimize the impact on the local wildlife.
- Where lighting is necessary, it shall be of limited height and targeted downwards to prevent overspill.

It is proposed to illuminate the sites roads with Type 'X3' 14W LED luminaires with baffles mounted on 6-metre columns with a 400mm outreach. The pole mounted luminaires have asymmetrical light distribution to provide uniform lighting throughout the development.



It is proposed to illuminate the Walkways and footpaths on the Ground Floor using Type 'X4' decorative column LEDs, mounted on 4-meter-high raise & lower columns. The decision to specify the raise & lower columns within the site is for maintenance purposes. The luminaires 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. The pole mounted luminaires have an asymmetric and wide light distribution to give the walkway an even light distribution.



3.1 Internal Roads

The lighting performance along the internal roads has been assessed with fitting Type 'X3' LED luminaire mounted on 6-metre-high lighting columns.



Figure 3.1.1 Isolines reference key

M3 light class levels are achieved with the existing light fittings and therefore, there is no requirement for remedial upgrade works of the lanterns.



Figure 3.1.5 Swords Road Junction

Results	Lighting Levels (Lux)			
Eav	19.87			
Emin	6.14			
Emax	39.28			



Emin / Emax	0.16
Emin / Eav	0.31





Figure 3.1.2 Site Entrance Isolines



Figure 3.1.3 Block F&G Isolines

Results	Lighting Levels (Lux)
Eav	7.29



Emin	1.27			
Emax	12.46			
Emin / Emax	0.10			
Emin / Eav	0.17			

Figure 3.1.4 Entrance & Western Road Results



Figure 3.1.2 Southern Road

Results	Lighting Levels (Lux)			
Eav	7.35			
Emin	1.70			
Emax	13.09			
Emin / Emax	0.13			
Emin / Eav	0.23			

Figure 3.1.1 Southern Road Analysis results



3.2 Internal Walkways

The lighting performance to walkways has been assessed with fitting Type 'X4' 4-meter (H) lighting columns as per the luminaire schedule.



Figure 3.2.1 Site Internal Walkways



Results	Lighting Levels (Lux)			
Eav	7.48			
Emin	1.08			
Emax	29.98			
Emin / Emax	0.04			
Emin / Eav	0.14			

Figure 3.2.2 Walkway Analysis Results

3.3 Plaza

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Figure 3.3.1 Plaza

Results	Lighting Levels (Lux)	
Eav	7.23	
Emin	1.04	
Emax	27.81	
Emin / Emax	0.04	
Emin / Eav	0.14	

Figure 3.3.2 Plaza Analysis Results



4. Luminaire Schedule

Luminaire Reference	X3 – 6m column	Manufacturer	Thorn - Isaro		
Body Description	IP66 rated, Die-Cast	Recessed/Surfac e or Wall Mounted	Post Top Mounted on 6m Columns – 0.4m Outreach		
Diffuser Type	N/A	Lamps	14W LED		
Reflector	N/A	Lumen Output	1821 Lumens		
Control Gear	230V, 50-60Hz	Colour of Lamps	3000K		
Area of Application	Site	Lamp Life	100,000 Hrs		
Dimensions (mm)	508mm (L) x 180mm (W) x 157mm (D)	IEC Photometric Code	N/A		
Initial Colour Variation	N/A	IESNA LM 80-80 tested	Yes		
A discrete and flexible road and street lantern with durable high performance.					
Lumen Depreciation	N/A	Power Factor	0.97		
Colour rendering Index	> 90	LED luminaire tested	To be in accordance with IESNA LM-79-08		
Manufacturing Standard	EN 60 598-1:2015, E 60598-2-2:2012, IEC/T 62778:2014	N R LED module tested	To be in accordance with IEC 61347-2-13 & IEC 62384.		
Warranty Length	Minimum 5-year on-site 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.				
Contractor to ensure catalogue numbers are the latest and are correct prior to ordering.					



Luminaire Reference	X4 – 4m Column	Manufacturer	Thorn Avenue F2 LED		
Body Description	IP66 rated Raise & Lower Column	Recessed/Surface or Wall Mounted	Post Top Lantern		
Diffuser Type	N/A	Lamps	21W LED, 360° Beam angle		
Reflector	N/A	Lumen Output	2332 Lumens		
Control Gear	230V, 50-60Hz	Colour of Lamps	3000K		
Area of Application	Walkways	Lamp Life	50,000 Hrs		
Dimensions (mm)	Ø 700mm x 500mm(H)	IEC Photometric Code	N/A		
Initial Colour Variation	N/A	IESNA LM 80-80 tested	Yes		
Post-Top Lantern with 360° light emission radial beam.					
Lumen Depreciation	N/A	Power Factor	-		
Colour rendering Index	> 70	LED luminaire tested	To be in accordance with IESNA LM-79- 08		
Manufacturing Standard	EN 60 598-1:2015, E 60598-2-2:2012, IEC/T 62778:2014	N R LED module tested	To be in accordance with IEC 61347-2-13 & IEC 62384.		
Warranty Length	Minimum 5-year on-site 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.				
Contractor to ensure catalogue numbers are the latest and are correct prior to ordering					



5. Appendix A – Lighting Drawing

Refer to IN2 Drawing:

1. D2419-IN2-SW-00-DR-E-0101



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