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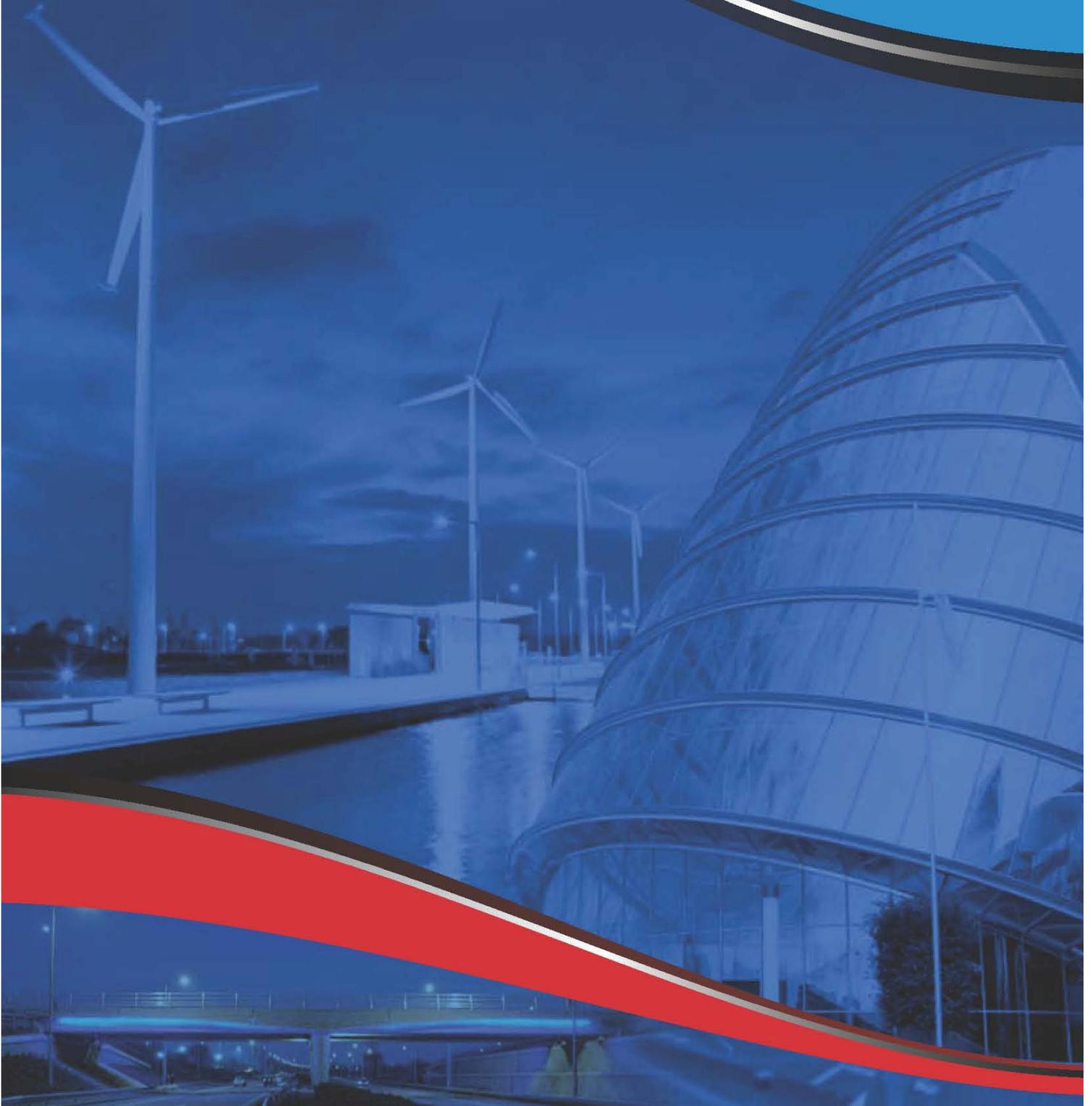
O'CONNOR | SUTTON | CRONIN

Multidisciplinary
Consulting Engineers

Site Lighting Report

Sandyford Central

Project No. R478
11TH November 2019



Site Lighting Report



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DOCUMENT CONTROL & HISTORY

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11TH November 2019

SITE LIGHTING REPORT

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EXECUTIVE SUMMARY

We have been appointed as the Consultants to design the lighting scheme for Sandyford Central, Carmanhall Road, Sandyford Business District, Sandyford, Dublin 18.

The report considers the lighting design as developed by O'Connor Sutton Cronin (OCSC). The report has been developed with the following principal considerations:

- a) Lighting design criteria as set out in the CIBSE Lighting guide with regard to obtrusive light.
- b) Lux levels in the landscape around the site properties.
- c) Provide a visually interesting environment
- d) Enhance Security
- e) Minimize light pollution and visual glare to residential neighbours, pedestrians and neighbouring areas.
- f) Provide adequate illumination to contribute towards the safe use of all walkways and footpaths by pedestrians within the residential development.

The complete external lighting installation will be designed in accordance with the regulations for electrical services as ETCI National Rules for Electrical Installations ET101:2008 as well as BS5489-1:2013 Code of practice for the design of road lighting, IS EN 13201:2003 & Dun Laoghaire-Rathdown Installations in Residential and Industrial Areas.

The predicted performance of the external lighting installations has been assessed in detail using Lighting Simulation software. The Lighting Simulation software used was Lighting Reality.

1. INTRODUCTION

Sandyford GP Limited (acting in its capacity as general partner for the Sandyford Central Partnership) intend to apply to An Bord Pleanála for permission for a strategic housing development at a 1.54 ha site at the former Aldi Site, Carmanhall Road, Sandyford Business District, Dublin 18.

The development, which will have a Gross Floor Area of 49,342 sq m will principally consist of: the demolition of the existing structures on site and the provision of a Build-to-Rent residential development comprising 564 No. apartments (46 No. studio apartments, 205 No. one bed apartments, 295 No. two bed apartments and 18 No. three bed apartments) in 6 No. blocks as follows: Block A (144 No. apartments) is part 10 to part 11 No. storeys over basement; Block B (68 No. apartments) is 8 No. storeys over basement; Block C (33 No. apartments) is 5 No. storeys over lower ground; Block D (103 No. apartments) is part 16 to part 17 No. storeys over lower ground; Block E (48 No. apartments) is 10 No. storeys over semi-basement; and Block F (168 No. apartments) is 14 No. storeys over semi basement.

The development provides resident amenity spaces (1,095 sq m) in Blocks A, C and D including concierge, gymnasium, lounges, games room and a panoramic function room at Roof Level of Block D; a creche (354 sq m); café (141 sq m); a pedestrian thoroughfare from Carmanhall Road to Blackthorn Drive also connecting into the boulevard at Rockbrook to the west; principal vehicular access off Carmanhall Road with servicing and bicycle access also provided off Blackthorn Drive; 285 No. car parking spaces (254 No. at basement level and 31 No. at ground level); 21 No. motorcycle spaces; set-down areas; bicycle parking; bin storage; boundary treatments; hard and soft landscaping; lighting; plant; ESB substations and switchrooms; sedum roofs; and all other associated site works above and below ground.

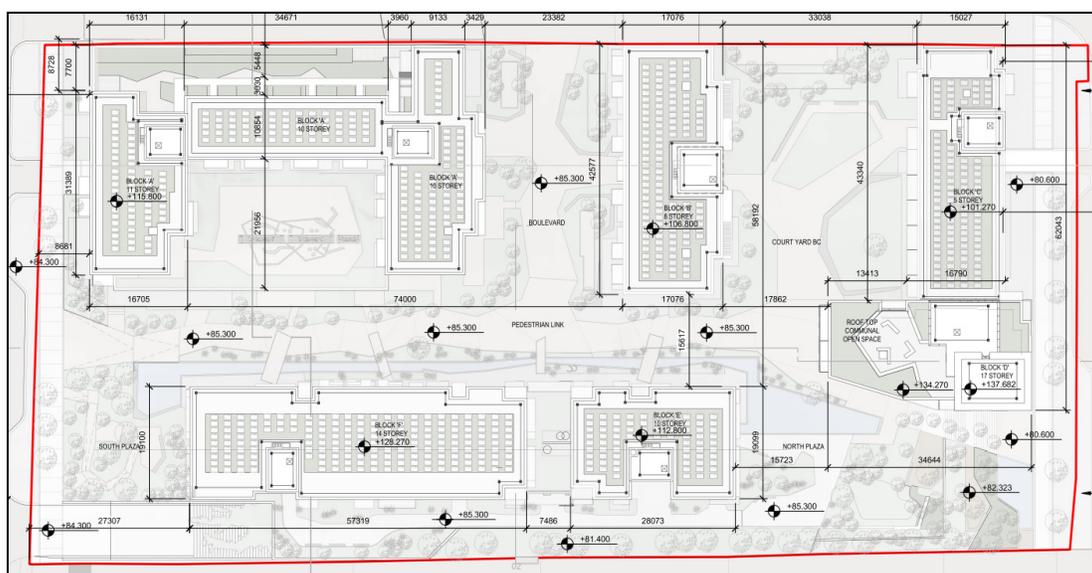


Figure 1.1 –Proposed Site Plan

(Source: HJL Drawing No. SFC-HJL-ST-00-DR-A-1000)

2. LIGHTING DESIGN CRITERIA

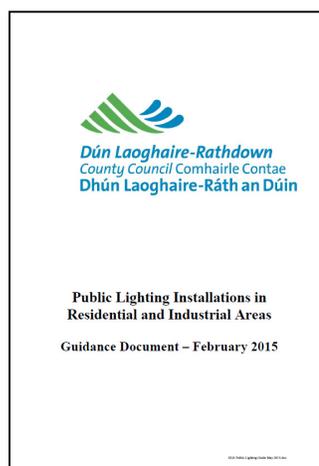
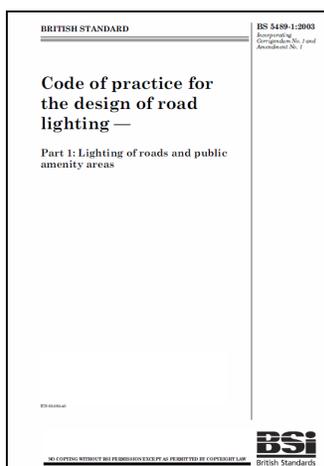
The landscape lighting installation is designed in accordance with CIBSE Lighting Design Guide.

Special consideration was given regarding Obtrusive light and to overspill (intrusive light and light into windows) as set out in table 3 of the CIBSE lighting guide.

Recommended limits – Table 3

Environmental Zone	Skyglow ULR inst (Max %)	Light trespass (into windows) Max LUX	Source intensity / (kcd) max
E1 Dark Landscapes	0	2	2.5
E2 Rural, Village, Dark Urban Locations	2.5	5	7.5
E3 Urban locations, small town centres	5	10	10
E4 Town and city centres	15	25	25

The design criteria applied to the proposed external lighting installations shall be in accordance with BS 5489-1:2013 and Dun Laoghaire-Rathdown County Council: Public Lighting Installations in Residential and Industrial Areas: Guidance Document – Feb 2015.



¹ British Standards Institution 5489-1:2013

² Public Lighting Installations in Residential and Industrial Areas: Guidance Document - Feb 2015.

3. GUIDELINES TO STREET LIGHTING DESIGN

The points below were used as guidelines in the design of the external lighting. The different lighting classifications used for the proposed development can be seen below.

3.1 Proposed Development

1. Light spillage from doorways and windows should be kept to a minimum
2. Dun Laoghaire-Rathdown County Council public lighting guidance document states that, pedestrian/ cycle areas where there is no parked vehicles are to be designed to conform to required lux levels of P4 lighting classes: 5 lux.
3. Lighting Classification P4 is intended for users of motorized vehicles on traffic routes where traffic speeds are from low to medium, pedestrian footpath / cycle ways.
4. To comply with P4 lighting classification the following parameters must be adhered to;
 - a) Average Horizontal Illuminance (\bar{E}) must be an average of 5 lux.
 - b) Minimum Horizontal Illuminance (E_{min}) must be a minimum of 1 lux.
 - c) It is recommended that the actual overall uniformity of illuminance (U_o) be as high as reasonably practicable

4. PROPOSED INSTALLATIONS

The proposed development's pedestrian/cycle access routes will require illumination and shall for the purpose of this report comprise of lighting installations to Sandyford Central Development and 'Taken in Charge' areas as identified on the drawing 'R478-OCSC-XX-XX-DR-E-0001-S8-P02' which illustrates the design intent.

The lighting design proposed is to use high efficiency LED luminaires. A lighting design for the proposed development incorporates a 6 metre high lamppost with over hang out reach to provide directional light output direct to the taken in charge areas at Carmanhall Road and Blackthorn Drive. For the Pedestrian areas throughout the site, 6 metre high lamp posts provide directional light output.

4.1 Proposed Development – Access Routes

It is proposed that 6 metre high light fittings provide illumination to the residential pedestrian pathways and cycle routes.

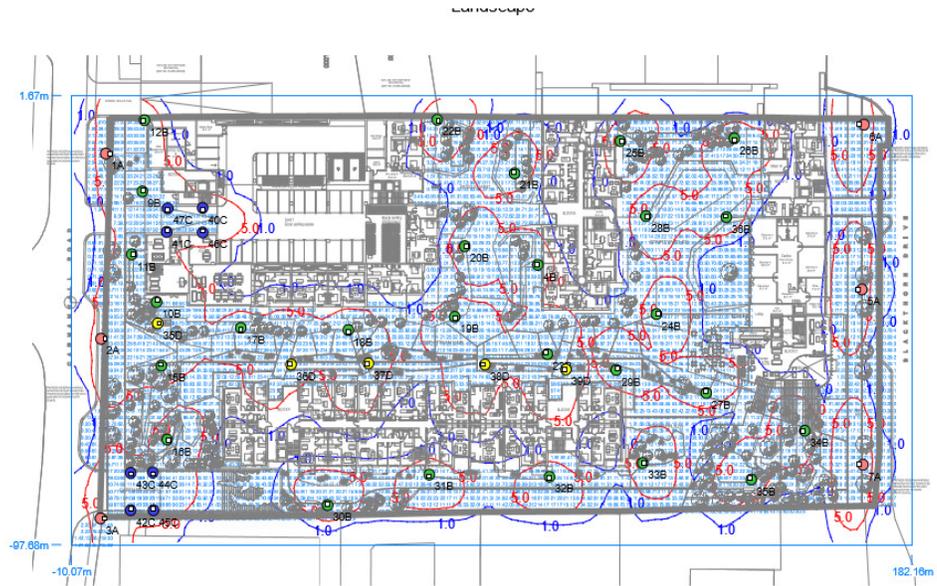


Figure 4.1.1 – Sandyford Public Lighting
(Lighting Reality)

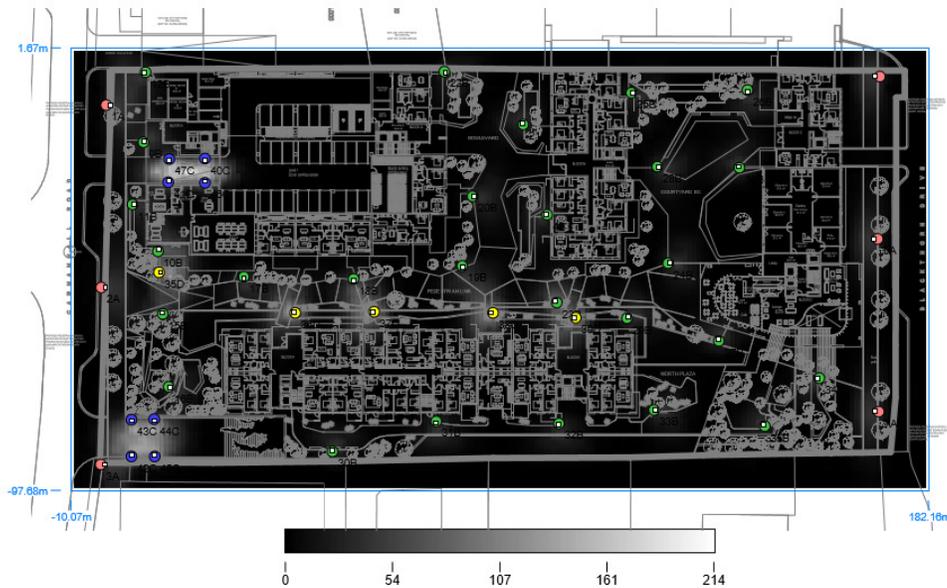


Figure 4.1.2 – Sandyford Public Lighting
(Lighting Reality)

4.2 Pedestrian Lighting Selected Luminaire

It is proposed to provide 6m high column-type light fittings footpath/cycle routes in order to achieve average illumination levels. This height of column was selected to comply with both private and public specifications. The proposed column light fitting is modern decorative LED luminaire 45W LED lamp module and 63W in some areas with direct light spread. The luminaire will be installed with a DALI ballast for future use. Fully compliant with EN 60598: CE.

We also have included wall mounted luminaires shown in figure to illuminate the ramps in accordance to Part M.



Figure 4.2.1
Luminaire fitting

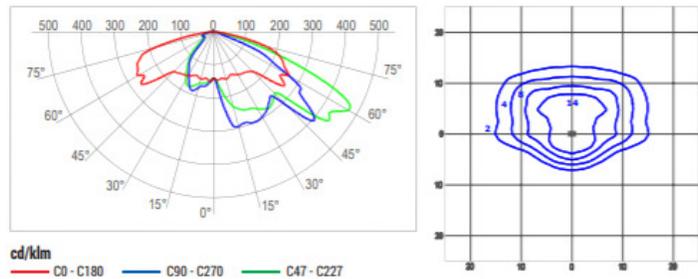


Figure 4.2.2
Luminaire Photometric curve



Figure 4.2.3
Luminaire Fitting

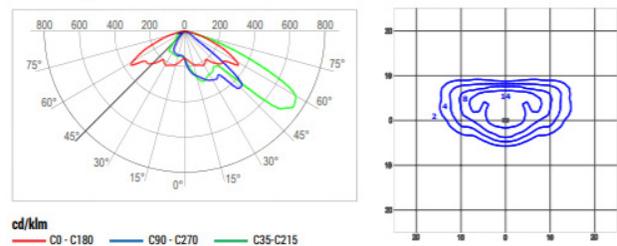


Figure 4.2.4
Luminaire Photometric Curve

4.3 'Taken in Charge' Lighting Selected Luminaire

It is proposed to provide 6m high column-type light fittings to the area that will be taken in charge in order to achieve average Illumination levels.

The proposed column light fitting is modern decorative LED luminaire 58W LED lamp module with direct light spread. The luminaire will be installed with a DALI ballast for future use. Fully compliant with EN 60598: CE. This Luminaire will be in compliance with DLRCC Specifications, Drawing R478-OCSC-XX-XX-DR-E-0001-S8-P03 shows existing public lighting locations situated close to the Sandyford development.



Figure 4.3.1
Luminaire Fitting

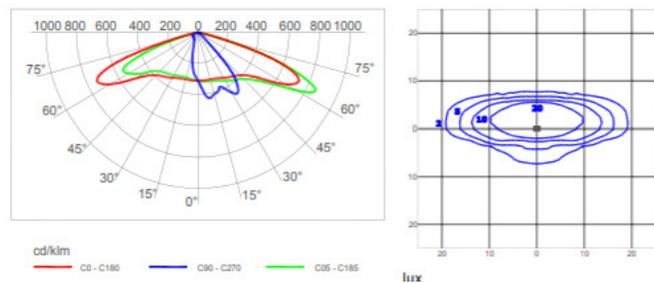


Figure 4.3.2
Luminaire Photometric Curve

6. CONCLUSION

As shown in Figure 5.1.1 the illumination throughout the development meets the lighting design requirements; with an average of 5 lux.

All luminaires are in compliance with the specifications of DLRCC. In the design we excluded bollards as advised by DLRCC.

APPENDIX A

Reference

R478-OCSC-XX-XX-DR-E-0001-S8-P03

Drawing Title

Proposed Site Lighting Layout



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