

# St. Vincent's Hospital Fairview Redevelopment,

St Vincent's Hospital,
Richmond Road & Convent Avenue
Fairview,
Dublin 3,



### **Site Lighting Report**

IN2 Project. No. D2116 23<sup>rd</sup> March 2023 Rev05



#### **Revision History**

Date	Revision	Description
16/09/2022	00	Planning stage issue
18/10/2022	01	Planning Stage Issue
26/11/2022	02	Planning Stage Issue
10/02/2023	03	Planning Stage Issue
09/03/2023	04	Planning Stage Issue
23/03/2023	05	Planning Stage Issue

IN2 Engineering Design Partnership operates a formal Integrated Management System, with certification to ISO: 9001 Quality Management System, ISO: 14001 Environmental Management System and OSHAS: 18001 Health and Safety Management System.

This document has been created by IN2 Engineering Design Partnership on behalf of the Client, taking account of the agreed scope of works. Unless otherwise agreed, this document and associated Intellectual Property Rights remain the property of IN2 Engineering Design Partnership.

This document should be used by the recipient and the permitted discloses for the purpose for which it has been submitted and for no other. This document may not be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise disclosed in whole or in part to any third party without our express prior written consent from IN2 Engineering Design Partnership. This document is confidential in nature. All rights reserved.

When issued or transmitted electronically via email, cloud, file hosting service or similar, IN2 Design Partnership does not accept any responsibility for any unauthorised changes made to this document by others.

#### Site Lighting Report St Vincent's Hospital Fairview Redevelopment



In preparing this document, IN2 Design Partnership has exercised all reasonable skill and competence, accounting for the agreed contract objectives and scope of works. IN2 Design Partnership does not accept any liability in negligence for any matters arising outside of the agreed contract objectives and scope of works.

Registered Office:. Unit E, Mount Pleasant Business Park, Upper Mount Pleasant Avenue, Dublin 6



#### **CONTENTS**

- 1.0 INTRODUCTION
- 2.0 EXECUTIVE SUMMARY
- 3.0 DEVELOPMENT OVERVIEW
- 4.0 PROPOSED INSTALLATION
- 5.0 DESIGN ANALYSIS AND CALCULATION RESULTS
- 6.0 APPENDIX A LUMINAIRE SCHEDULE
- 7.0 APPENDIX B LIGHTING DRAWINGS



#### 1.0 INTRODUCTION

IN2 Engineering Design Partnership have been commissioned to provide the External Site Lighting report to support the application for a ten-year planning permission for the redevelopment of St. Vincent's Hospital, Richmond Road and Convent Avenue, Fairview, Dublin 3.

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.

Where the site boundary line is indicated within this report it indicates the approximate outline of the land within the ownership of the applicant and is not the overall application site boundary.



#### 2.0 EXECUTIVE SUMMARY

The following report contains the design layout and accompanying calculations for the proposed site lighting scheme for the proposed new development.

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
- NSAI IS 10101:2020 National Rules for Electrical Installations
- 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 national Parks and wildlife service (NPWS) bat mitigation guidelines for Ireland (2006)

The design criteria set out for this development is based on the lighting requirements of the BS EN 13201-2:2015, BS 5489-1:2013 and BS 8300:2018, as specified in the table below.

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 2.1 – Minimum Lighting Requirements



#### 3.0 DEVELOPMENT OVERVIEW

The subject site is located at St. Vincent's Hospital, Richmond Road and Convent Avenue, Fairview, Dublin 3. In summary, the proposed development comprises of the following.



Figure 3.1 – Development Site (Indicative Only)

A ten year planning permission is sought for the proposed development comprising of the following (see public notices for the detailed description):

- Provision of a new part two and part three storey hospital building, providing mental health services, accommodating 73 no. beds, associated facilities, a single storey facilities management building, plant rooms and service areas, associated car and cycle parking, access roads, and open space, all on a proposed hospital site of c. 2.67 ha.
- Refurbishment and repurposing of existing buildings on site including Brooklawn (RPS Ref.: 8789), Richmond House, including chapel and outbuildings (RPS Ref.: 8788), the Laundry building and Rose Cottage for ancillary uses associated with the new hospital. The existing gate lodge building will remain in residential use and used by visiting members of staff to the new hospital.
- Change of use, refurbishment, alterations and extensions, to the existing hospital building (part protected structure under RPS Ref.: 2032), to provide residential



amenity areas, a gym, a café, co-working space, a library, a childcare facility, and a community hall (referred to as Block K).

- The proposal includes the demolition of existing structures on site with a GFA of 5,872 sq.m, including the (1) westernmost range of the hospital building, which includes St. Teresa's and the Freeman Wing, (2) extensions to the south and north of the main hospital building, including the conservatory extension, toilet block extension, an external corridor, toilet core, lift core, and stair core (which are all part of / within the curtilage of RPS Ref.: 2032), (3) hospital buildings and outbuildings located to the north of the existing main hospital building, (4) St. Joseph's Adolescent School located in the southeast of the site, (5) Crannog Day Hospital located in the southwest of the site, and (6) extensions to the Old Laundry Building and Rose Cottage.
- Provision of 9 no. residential buildings (Blocks A, B, C, D-E, F, G, H, J, and L) providing a total of 811 no. residential units, including 494 no. standard designed apartments (in Blocks A, B, C, G, H, J, and L) and 317 no. Build to Rent apartments (in Blocks D-E and F). Residential amenities and facilities are proposed in Block C, D-E, J and K. A retail unit is proposed in Block A and a café in Block F. Block J is proposed as an extension of the existing hospital buildings (protected structure RPS Ref.: 2032- referred to as Block K).
- The building heights of the proposed residential blocks range from part 2 to part 13 storeys. A proposed basement / lower ground level, containing car and cycle parking and plant areas, is located below and accessed via Blocks C, D-E and F.
- Access to the new hospital and associated grounds is provided from Richmond Road and Convent Avenue, with separate internal access points. A separate vehicular access to the residential development is provided from Richmond Road. The development includes a proposed pedestrian / cycle connection to Griffith Court, requiring alterations to the service yard of the Fairview Community Unit, pedestrian / cycle connections to the Fairview Community Unit campus to the north (providing an onward connection to Griffith Court), a pedestrian / cycle connection to Grace Park Wood, and makes provision internally within the site for a potential future connection to Lomond Avenue / Inverness Road.
- The proposal includes public open space, including allotments, children's play areas, a central park, a linear park and an entrance plaza, with a set down area at Richmond Road, and communal open space at surface level. The proposal includes communal roof terraces on Block C and Blocks D-E and private balconies / terraces for the apartments.
- The proposal also includes provision of internal access roads, car and cycle parking, pedestrian and cycle infrastructure, associated set down areas, alterations to existing landscape features, landscaping, boundary treatments, lighting, telecommunications infrastructure at roof level of Block B, green roofs, lift overruns and plant at roof level, site services, including a watermain connection / upgrade via Griffith Court, Philipsburgh Avenue and Griffith Avenue, site clearance, and all associated site works.



#### 4.0 PROPOSED INSTALLATION

The St Vincent's Hospital Fairview site is not going to be taken in charge by Dublin City Council so it shall be provided with a private lighting scheme which shall be operated and maintained by the landlord and thus shall not be powered (unmetered) by the ESB or designed to DCC public standards. If in the future the site is to be taken in charge the landlord will have to upgrade the lighting to DCC public lighting standards.

The proposed site lighting for the new 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 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 walkways and footpaths across the development using 'Type X5' 4-metre pole mounted luminaire and 'Type X3' 6 metre pole mounted luminaire. The pole mounted luminaires have an asymmetric and wide light distribution to give the walkway an even light distribution.

Lighting shall be also provided to the vehicle entrance roads across the development using 'Type 'X3' 6-metre mounted luminaire.

Refer to utilities report for existing DCC Public Lighting.



#### 5.0 DESIGN ANALYSIS AND CALCULATION RESULTS

#### **5.1 Vehicle Entrance Roads**

The lighting performance at the vehicle entrance roads has been assessed with fitting Type 'X3' 6-metre (H) lighting columns as per luminaire schedule, Appendix A.

#### 5.1.1 Entrance Road

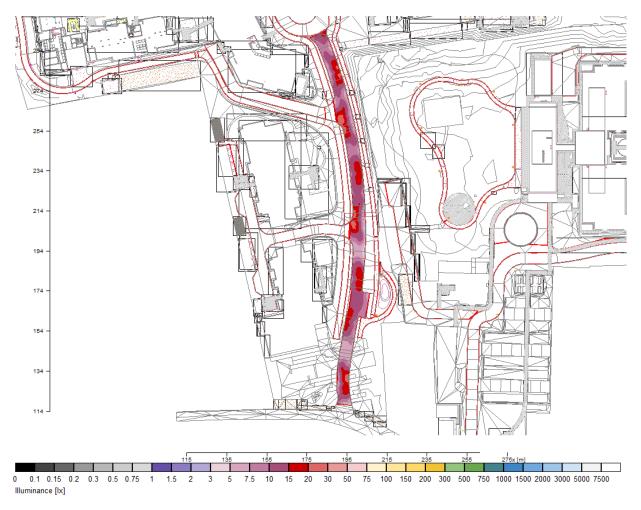


Figure 5.1.1 – Illumination Levels at Entrance Road

Evaluation	Target	Re	esult
E <sub>AVERAGE</sub> (maintained)	10 lux	11.2 lux	PASS
U <sub>o</sub> (Uniformity)	0.20	0.21	PASS

Figure 5.1.1 – Analysis Results



#### 5.1.2 Road Around Site



Figure 5.1.3 – Illumination Levels on Road

Evaluation	Target	Res	sult
E <sub>AVERAGE</sub> (maintained)	10 lux	11.6 lux	PASS
U <sub>o</sub> (Uniformity)	0.20	0.20	PASS

Figure 5.1.4 – Analysis Results



#### 5.2 External Walkways and Paths

#### 5.2.1 Main Road Footpath

The lighting performance at the Main walkways and paths around the development has been assessed with fitting Type 'X3' 6-metre (H) lighting columns as per luminaire schedule, Appendix A.



Figure 5.2.1 – Illumination Levels to Main Road Footpath

Evaluation	Target	Res	sult
E <sub>AVERAGE</sub> (maintained)	5 lux	7.7 lux	PASS
U <sub>o</sub> (Uniformity)	0.20	0.28	PASS

Figure 5.2.2 - Analysis Results



#### **5.2.2** Footpath Around Site

The lighting performance at the Main walkways and paths around the development has been assessed with 'Type X3' 6 metre (H) lighting columns as per luminaire schedule, Appendix A.



Figure 5.2.3 – Illumination Levels to Footpath Around Site

Evaluation	Target	Res	sult
E <sub>AVERAGE</sub> (maintained)	5 lux	8.2 lux	PASS
U <sub>o</sub> (Uniformity)	0.20	0.2	PASS

Figure 5.2.4 – Analysis Results



#### 5.2.4 Amenity Walkway Centre of Site

The lighting performance for the amenity walkways and paths around the development has been assessed with 'Type X5' 4-metre (H) columns as per luminaire schedule, Appendix A.

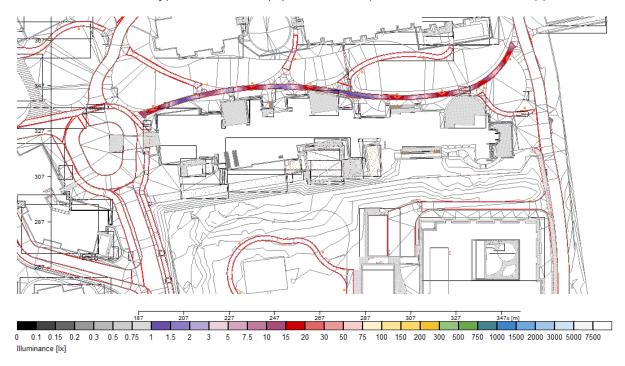


Figure 5.2.5 – Illumination Levels to Amenity Walkway

Evaluation	Target	Res	sult
E <sub>AVERAGE</sub> (maintained)	5 lux	8 lux	PASS

Figure 5.2.6 – Analysis Results



#### 5.2.5 Pathway Around Site

The lighting performance at the paths around the development has been assessed with 'Type X3' 6 metre (H) lighting columns as per luminaire schedule, Appendix A.

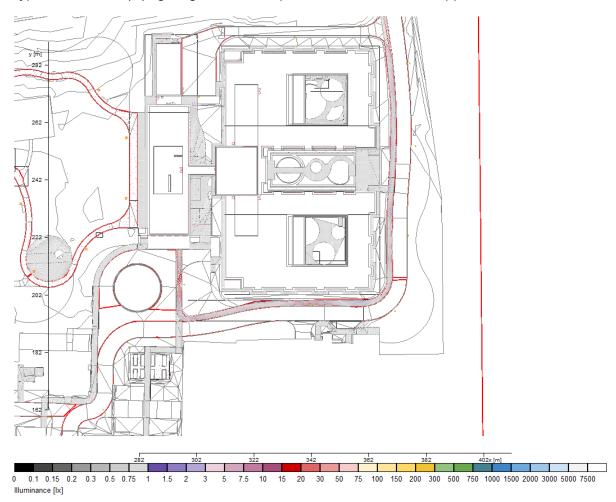


Figure 5.2.7 – Illumination Levels to Courtyard

Evaluation	Target	Res	sult
E <sub>AVERAGE</sub> (maintained)	5 lux	5.8 lux	PASS
U <sub>o</sub> (Uniformity)	0.2	0.23	PASS

Figure 5.2.8 - Analysis Results



#### 5.2.6 Bat Calculation 5M

A calculation was carried out across the whole site to determine the lux levels at 5 metres in order to identify the impacts that the proposed lighting scheme may have on existing habitats within the site.

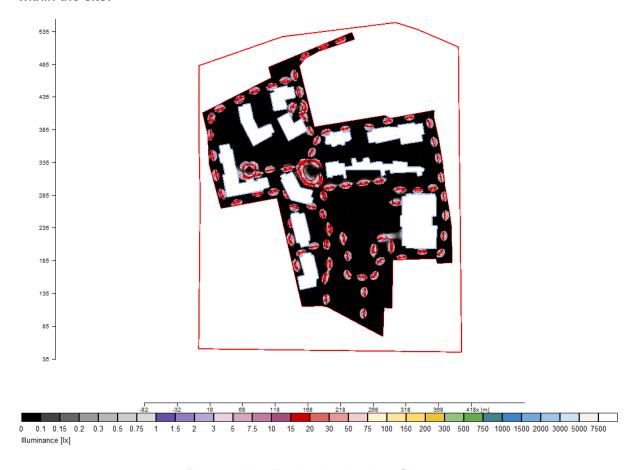


Figure 5.2.9 – Illumination Levels to Site at 5m

Evaluation	Result	
E <sub>AVERAGE</sub> (maintained)	1 lux	PASS

Figure 5.2.10 - Analysis Results



#### **Bat Calculation 3M**

A calculation was carried out across the whole site to determine the lux levels at 3 metres in order to identify the impacts that the proposed lighting scheme may have on existing habitats within the site.

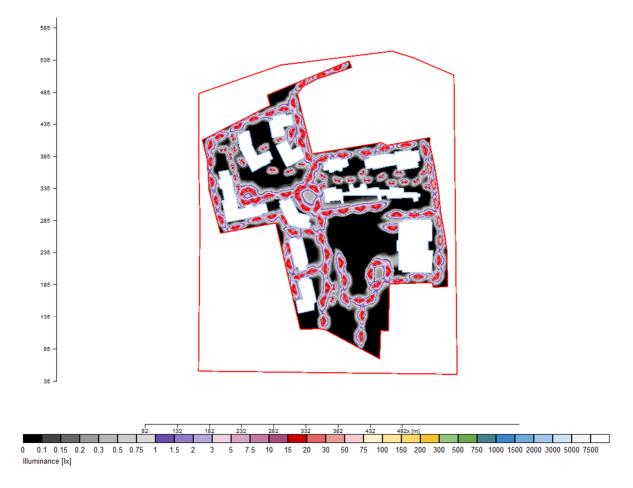


Figure 5.2.11 – Illumination Levels to Site at 3m

Evaluation	Result	
E <sub>AVERAGE</sub> (maintained)	5 lux	PASS

Figure 5.2.12 - Analysis Results



#### 5.2.7 Calculation inside Neighbouring sites outside boundary

A calculation was carried out to include a measuring area of 1M outside the site boundary in order to determine the light spill to neighbouring properties and land.

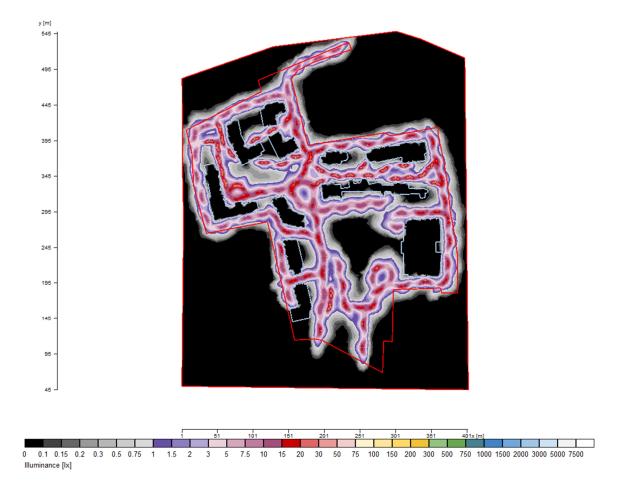


Figure 5.2.13 – Illumination Levels to Site 1m Outside Boundary

Evaluation	Result	
E <sub>AVERAGE</sub> (maintained)	2 lux Avg	PASS

Figure 5.2.14 - Analysis Results

An average of 1.9 lux of light spill was calculated within 1M outside of the site boundary. This average identifies the low impact that the light spill from the St. Vincents site will have on the neighbouring properties and lands.



#### 5.3 Site Lighting 3D Render

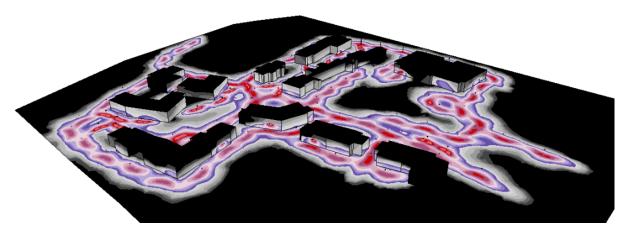


Figure 5.3.1 – 3D Model indicating Site Illumination Levels

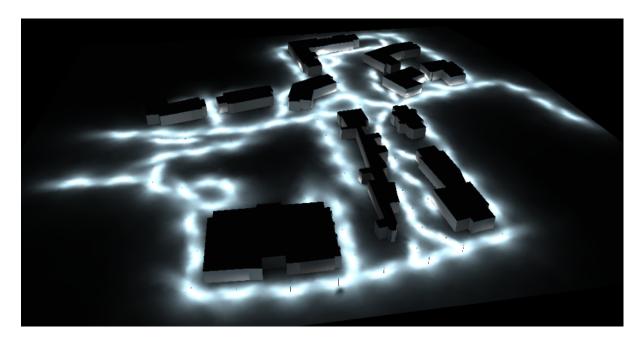


Figure 5.3.2 – 3D Lighting Render



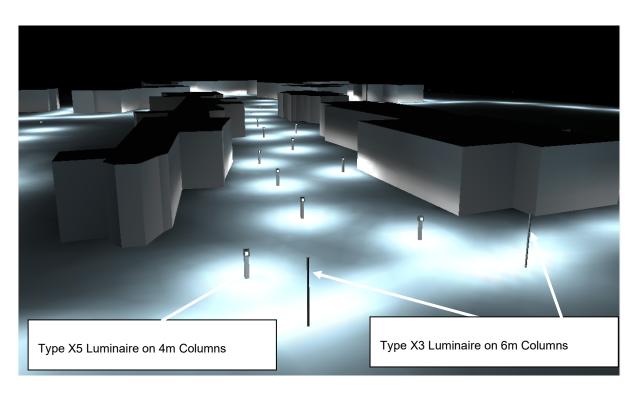


Figure 5.3.3 – 3D Model indicating Illumination Levels



#### 5.4 Roads Lighting reality calculation

#### Horizontal Illuminance (lux)





#### 6.0 APPENDIX A – LUMINAIRE SCHEDULE



# St. Vincents Hospital Fairview Redevelopment, St. Vincents Hospital, Richmond Road & Convent Avenue,

Fairview, Dublin 3



#### **Luminaire Schedule**

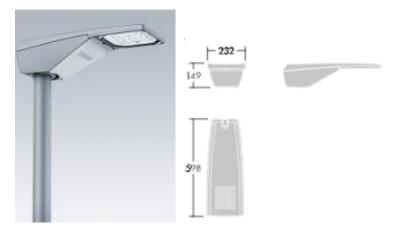
IN2 Project. No. D2116 23<sup>rd</sup> March 2023 Rev05

## St. Vincents Hospital Fairview Redevelopment Luminaire Schedule



Luminaire Reference	хз	Manufacturer	Thorn R2L2/ Equal & Approved
Body Description	Die-Cast aluminium, powder coated anthracite, IP66, IK10	Recessed/Surface or Wall Mounted	6 Metre Column Mounted
Diffuser Type	Tempered Glass	Lamps	28W LED Lamp
Reflector	Wide Road Optic	Lumen Output	3445 Lumens
Control Gear	100-240V, 50-60Hz	Colour of Lamps	3000K
Area of Application	Road & Pathways	Lamp Life	100,000hours
Dimensions (mm)	232mm (W) x 5982mm (L) x 140mm (H)	IEC Photometric Code	840/339
Initial Colour Variation	-	IESNA LM 80-80 tested	Yes
A highly versatile LED lantern with a Wide Road, asymmetric distribution. Electronic, dimmable control gear driving 24 LEDs at 350mA.			

Lumen Depreciation	L90 B10	Power Factor	> 0.9
Colour rendering Index	>80	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	Five-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.		



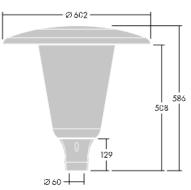
Contractor to ensure catalogue numbers are the latest and are correct prior to ordering.

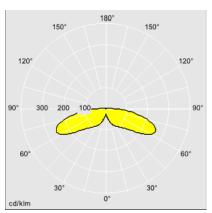
# St. Vincents Hospital Fairview Redevelopment Luminaire Schedule



Luminaire Reference	X5	Manufacturer	Thorn Aerie / Equal & Approved	
Body Description	Die-Cast aluminium, powder coated anthracite, IP66, IK10	Recessed/Surface or Wall Mounted	4 Metre Column Mounted	
Diffuser Type	Die Cast Aluminium	Lamps	19W LED Lamp	
Reflector	Wide Street Comfort Optic	Lumen Output	2687 Lumens	
Control Gear	230 V, 50 Hz. Individual Photocell Control	Colour of Lamps	3000K	
Area of Application	Amenity Walkways	Lamp Life	100,000hours	
Dimensions (mm)	Ø602mm (W) x 586mm (H)	IEC Photometric Code	840/339	
Initial Colour Variation	-	IESNA LM 80-80 tested	Yes	
A highly versatile LED lantern with a Wide Road, asymmetric distribution. Electronic, dimmable control gear driving 18 LEDs at 350mA.				
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	Five-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			







Contractor to ensure catalogue numbers are the latest and are correct prior to ordering.

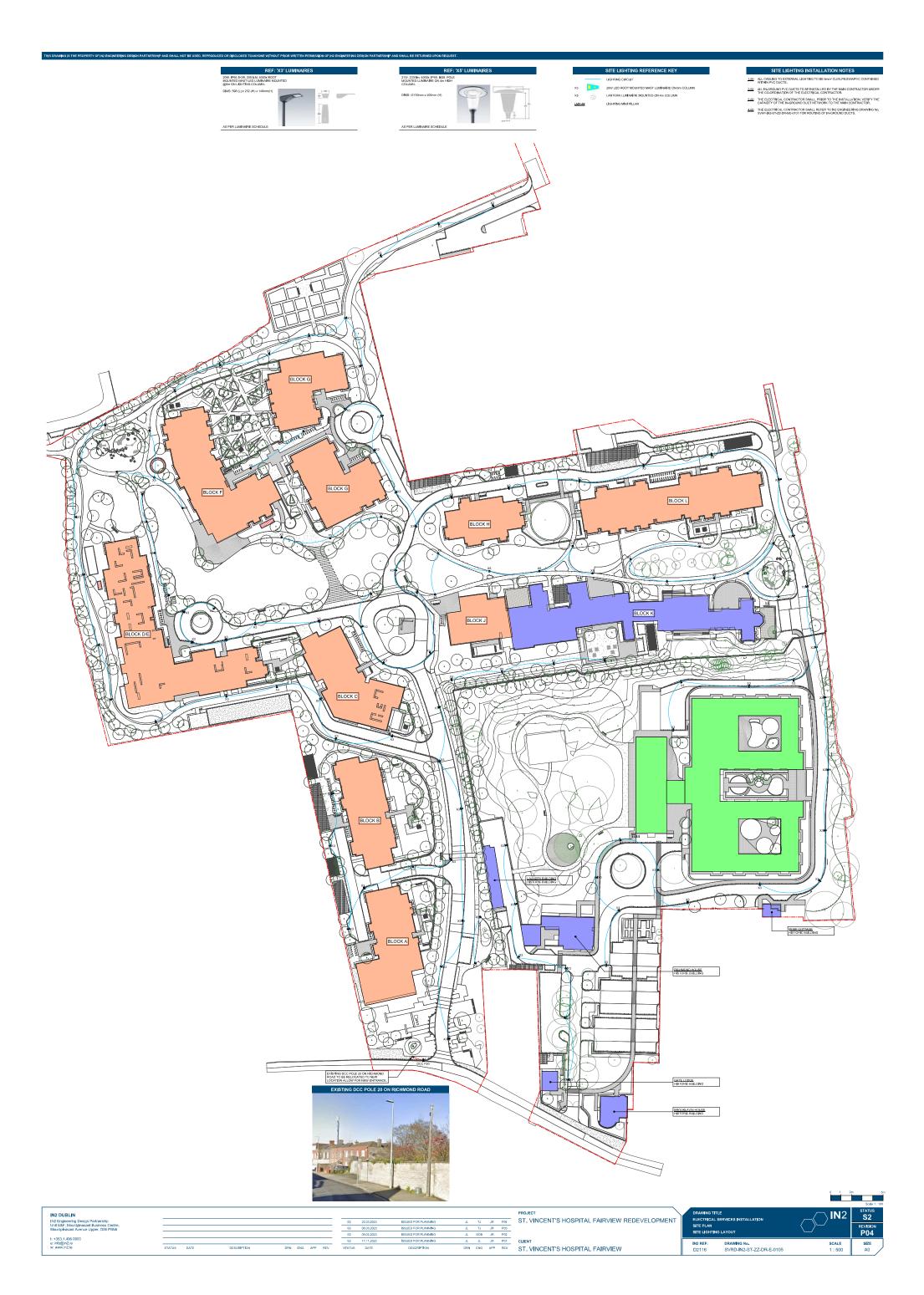


#### 7.0 APPENDIX B - LIGHTING DRAWINGS

SVRD-IN2-ST-ZZ-DR-E-0105

SVRD-IN2-ZZ-00-DR-E-0113

SVRD-IN2-ZZ-00-DR-E-0115





REF; "X3" LUMINAIRES

REF; "X3" LUMINAIRES

REF; "X4" LUMINAIRES

REF; "X4" LUMINAIRES

REF; "X4" LUMINAIRES

200, HPS; HDS; 2958.M. 4006 REOT

AND MAST (ED LUMINAIRE MOUNTED

ON LECTION COLUMN.

DNS (E) 1, 222, (V) 3, 148mm/ly

ER; LIMINAIRE SCHEDULE

AS PER LUMINAIRE SCHEDULE

REF: 'X5' LUMINAIRES

21W, 2336th, 4000, P05, P05, P04.E

MONTED LUMINAIRE ON 6th HIDH

COLUMN,

DIMS: (3 709thm x 500thm (t))

AS PER LUMINAIRE SCHEDULE

SITE LIGHTING INSTALLATION NOTES

ALL CABLING TO EXTERNAL LIGHTING TO BE 8mm² CUXLPE/SWA/PVC CONTAINE

MITTIN PYCHOLOS.

MALL IN-GROUND PYC DUCTS TO BE INSTALLED BY THE MAIN CONTRACTOR UNDER
THE CO-ORDINATION OF THE ELECTRICAL CONTRACTOR

THE ELECTRICAL CONTRACTOR SHALL, PRIOR TO THE INSTALLATION, VERIFY THE 
CAPACITY OF THE IN-GROUND DUCT NETWORK TO THE MAIN CONTRACTOR.

THE ELECTRICAL CONTRACTOR SHALL REFER TO INZ ENGINEERING DRAWING No.

#### SITE LIGHTING REFERENCE KEY

LIGHTING CIRCUIT

X3 P 28W LED ROOT MOUNTED MAST LUMINAIRE ON 5m COLUM



IN2 DUBLIN
IN2 Engineering Design Partnership
Unit E&F, Mountpleasant Business Centre,
Mountpleasant Avenue Upper, D08 PSN8
t: +353 (0)1 496 0900
e: info@in2.ie

STATUS DATE DESCRIPTION DRN ENG APP REV

 S2
 23,00,2020
 ISSUED FOR PLANNING
 JL
 JL
 JR
 PO1.3

 S2
 14,02,2020
 FOR INFORMATION
 JL
 JL
 JL
 JR
 P01.2

 S2
 22,11,2022
 ISSUED FOR PLANNING
 JL
 JL
 JL
 JR
 P01.2

 S1ATUS
 DATE
 DESCRIPTION
 DRN
 ENG
 APP
 REV

ST. VINCENT'S HOSPITAL FAIRVIEW REDEVELOPMENT

CLIENT
ST. VINCENT'S HOSPITAL FAIRVIEW

DRAWING TITLE
ELECTRICAL SERVICES INSTALLATION
SITE PLAN
5m POLE HEIGHT, SITE LIGHTING ISOLINES LAYOUT

IN2 REF: DRAWING No.
D2116 SVRD-IN2-ST-ZZ-DR-E-0115

IN2 STATUS S2
REVISION PO1.3
SCALE 1:500 A0