



PUBLIC LIGHTING

DESIGN CALCULATIONS REPORT

CLOVERHILL COURT SOCIAL HOUSING

Rev: P01

Date: October 2022

LINKED PRACTICES

VARMING CONSULTING ENGINEERS LTD. ARE LINKED TO
STEENSEN VARMING INTERNATIONAL
OFFICES IN LONDON,
DENMARK, HONG KONG, SYDNEY.

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Project Details:

Project: Cloverhill Court Social Housing, Cork

Client: Cork City Council,
City Hall, Anglesa St.,
Cork, Co. Cork

Architect: O'Mahony Pike Architects,
1, S. Mall
Cork, Co. Cork

M&E Consultant: Varming Consulting Engineers
3, Eastgate Rd, Castleview,
Little Island,
Co. Cork

CLOVER HILL SOCIAL HOUSING

1. Introduction:

This report will outline the design intent for the proposed public lighting scheme for Clover Hill Court Social Housing, Cork, Co. Cork

This report outlines the lighting design as developed by Varming Consulting Engineers to provide adequate illuminance to meet all regulations and requirements as follows:

- To provide adequate illumination to contribute toward the safe use of the access roads and pathways for vehicular and pedestrians.
- Minimise lighting pollution on surrounding areas and neighbors
- Reduce glare on pedestrians and other users of the access areas
- Use of highly efficient artificial lighting to reduce energy consumption

The complete installation will be required to meet the following regulatory standards and policies:

- S.I. No. 291 of 2013: Safety, Health and Welfare at work (Construction Reg. 2013)
- ETCI National Rules for electrical Installation ET101-2008
- BS 5489-1:2013 Code of Practice for the design of road lighting
- IS EN 13201-1 & 2 -2015
- IS EN 13201-5-2015 S2 & ME4A
- CIBSE Lighting Guide 7
- Housing Scheme: Guidebook ESB Networks Standards for Electrical Services
- Guidance Note 08/18: Bats and artificial lighting in the UK (Bat Conservation Trust, 2018)
- Bats & Lighting Guidance notes for: Planners, engineers, architects and developers (12/2010)
- Cork County Council Public Lighting Technical Specification.
- Cork City Council Exterior Lighting Design Requirements Revision 10

2. Development Description

The proposed development will consist of removal of existing floor slab of former commercial building, relocation of existing substation, construction of 2 no. apartment buildings (1 no. 3-4 storey building and 1 no. 4-5 storey building), linked at ground floor, containing 84 no. apartments in total (28 no. 1-bed apartments and 56 no. 2-bed apartments), each with private balcony/wintergarden/terrace, as well as ground floor bin & bicycle stores and plant (including 1 no. relocated substation and 1 no. additional substation), 6 no. 2-storey 3-bed terraced houses, each with private garden, and all associated site development works, services provision, road infrastructure, landscaping/public realm works, 49 no. car parking spaces (43 no. on-street car parking spaces and 6 no. on-curtilage car parking spaces) and 188 no. bicycle parking spaces (94 no. bicycle parking spaces in apartment buildings, 52 no. bicycle parking spaces in freestanding external shelters and 42 no. bicycle parking spaces in open external racks).

3. Design Concept

The public lighting design concept for the proposed development is to provide adequate illuminance for vehicular and pedestrian access merging from the main road. The lighting levels shall be compliant with all the relevant standards and guidelines while complementing the Architecture of the development.

The design of the public lighting includes low energy LED lighting throughout. Energy efficient light fittings are a key element in reducing the developments energy consumption.

High quality optics selected around the ecologically sensitivity areas of the development have also been a key part of the concept design.

4. Detailed Design

The design proposes to use 20 No. Luminaires mounted on 8m columns within the site and 4 No. mounted on 8m columns on Bessboro Rd all equipped with a wide street optical distribution beam.

Proposed luminaire design layout as per drawing 19858-VCE-ZZ-ZZ-DR-PL-001

Public lighting will be turned on/off by a photocell mounted on luminaires.

Lighting Dialux Calculations:

Public Lighting – Bessboro Road:

- The Average Horizontal Illuminance is 10 Lux ($E_m \geq 10$ Lux) P2 to be compliant.
Average achieved: 15
The Minimum Horizontal Illuminance is 2 Lux ($E_{min} \geq 2$ Lux) P2 to be compliant.
Minimum Illuminance achieved: 3.20
The Minimum Uniformity is 0.2 Lux ($U_0 \geq 0.2$) P2 to be compliant.
Uniformity achieved: 0.21

Residential Lighting – Internal Road:

- The Average Horizontal Illuminance is 7.5 Lux ($E_m \geq 7.5$ Lux) P3 to be compliant.
Average achieved: 9.6lx
The Minimum Horizontal Illuminance is 1.5 Lux ($E_{min} \geq 1.5$ Lux) P3 to be compliant.
Minimum Illuminance achieved: 2.04
The Minimum Uniformity is 0.2 Lux ($U_0 \geq 0.2$) P2 to be compliant.
Uniformity achieved: 0.21

Residential Lighting – Pedestrian areas:

- The Average Horizontal Illuminance is 5 Lux ($E_m \geq 5$ Lux) P4 to be compliant.
Average achieved: 6.31lx
The Minimum Horizontal Illuminance is 1 Lux ($E_{min} \geq 1$ Lux) P4 to be compliant.
Minimum Illuminance achieved: 1.47lx
The Minimum Uniformity is 0.2 Lux ($U_0 \geq 0.2$) P4 to be compliant.
Uniformity achieved: 0.23

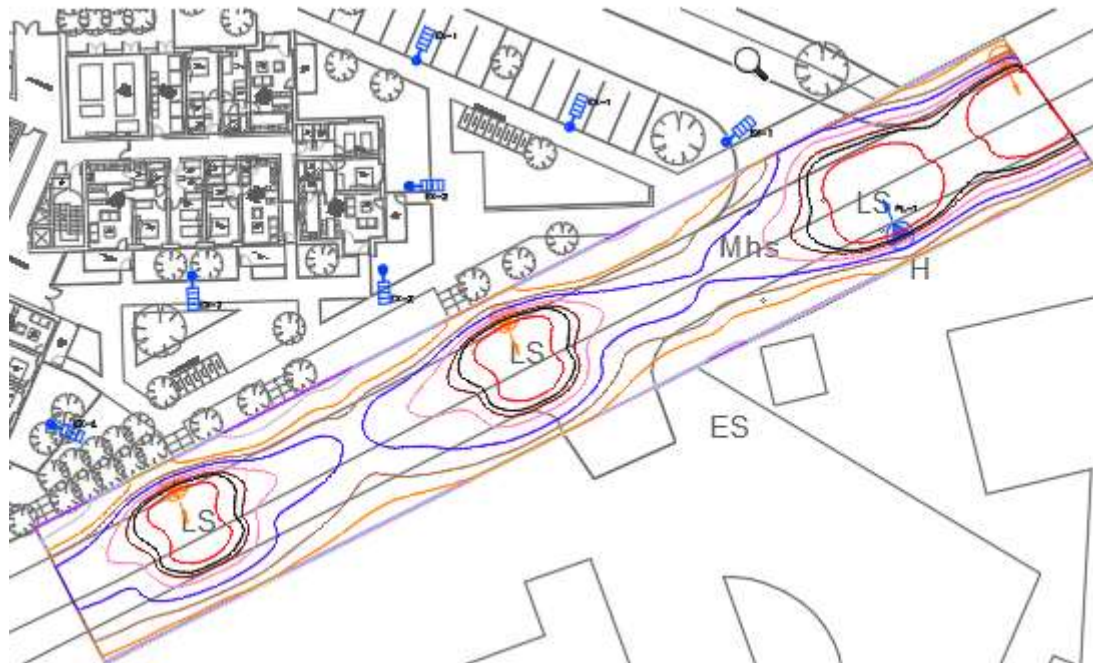
Luminaires:

Type EX-1	Type EX-2	Type PL-1
SCHREDER 429092 AXIA 3.1 5266 Integrated lenses 16 OSLO SQUARE GIANT@480mA WW 730 230V 01-37-041 429092	SCHREDER 429092 AXIA 3.1 5266 Integrated lenses 8 OSLO SQUARE GIANT@600mA WW 730 230V 01- 37-041 429092	SCHREDER 430082 AXIA 3.2 5266 Integrated lenses 32 OSLO SQUARE GIANT@700mA WW 730 230V 01-50- 748
Lumen Output: 3214lm	Lumen Output: 2180lm	Lumen Output: 9857lm
Mounting height: 8m	Mounting height: 8m	Mounting height: 8m
Trimming: 35/18	Trimming: 35/18	Trimming: 35/18
Dimming: U15/2B	Dimming: U15/2B	Dimming: U14
No. in Project: 15	No. in Project: 5	No. in Project: 4
Residential Lighting	Residential Lighting	Public Lighting
		


5. Grid Results

5.1. Lux Isolines

- Bessboro Road:



ISOLINES:

	1.0 lx
	2.0 lx
	3.0 lx
	5.0 lx
	8.0 lx
	10.0 lx
	12.0 lx
	15.0 lx
	18.0 lx
	20.0 lx
	25.0 lx

- Internal Road:



- Pedestrian Area:

