Comhairle Cathrach Chorcaí **Cork City Council**

Public Lighting Department

ITS Section

Local Area Development & Operations Directorate

City Hall, Cork

Exterior Lighting Design Requirements, Guidance & Specification Manual for Lighting Equipment Supply, Installation & Maintenance

Revision	Effective Date	Replaces
11	November 2025	Rev.10
10	July 2021	Rev.9

We are Cork.

Contents - Headings

1 Introduction

Cork City Council is seeking to foster coordination and consistency in design for the installation and maintenance of high quality street lighting throughout the urban and sub-urban area in Cork City. This document outlines the minimum standard for lighting schemes in Cork City to provide high quality, energy efficient, future proofed road lighting for public lighting in Cork City.

Lighting is a highly valued and visible service with the potential to make a significant contribution to the wider corporate objectives prepared by Cork City Council. The Manual has accordingly been developed to follow closely the principles of Best Value, to facilitate the conduct of Best Value reviews involving public lighting, and to provide a stimulus to the pursuit of continuous improvement.

Well maintained road lighting can change our communities, making the night-time environment a safer place to be, encouraging regeneration and investment, leading to an improved local economy and at the same time contributing to a more inclusive society. However, these benefits are only achievable if the right decisions are made. This Code comprises a framework of guidance and standards, the application of which will make a significant contribution to the decision making process.

All queries pertaining to the design and maintenance of exterior lighting installations in Cork City should be directed at Cork City Council, Public Lighting Department as detailed on the cover sheet of these guidelines.

Cork City Council is certified under ISO 50001 and has an underlying commitment to reduce energy consumption. In this context, public lighting is seen as a significant energy user (SEU) for the organisation. Public lighting, nationally as a sector has an opportunity to reduce energy to meet Ireland's 2030 target to reduce CO_2 equivalent emissions by 30% and improve energy efficiency by 50%.

1.1 Cork City Public Lighting Framework

1.1.1 Vision

Cork City Council's vision for the public lighting network will be to deliver a quality public lighting service which endeavours to maintain all its assets in accordance with best industry practices to ensure a reliable and safe, fit for purpose public lighting network with available resources.

1.1.2 The Mission of Cork City Council

Cork City is a city with ambition, working with our neighbourhoods and communities to assist the sustainable economic development of the City and ensure that Cork continues to be a successful and attractive place to live and work.

Our mission includes the following aims:

1. To ensure a high-quality maintenance service through quality design, collaborations

and partnerships, investing in an electrically safe and sustainable network for our citizens.

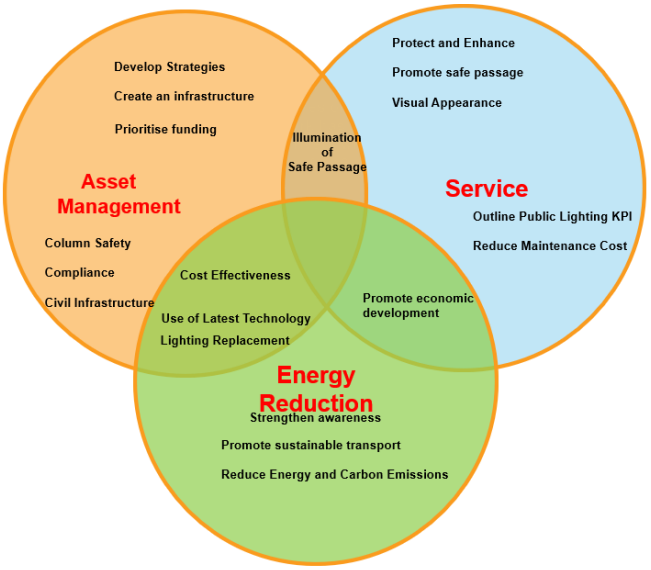
2. To engrain the principles of asset management in the network, ensuring value for money, customer centric solutions, a targeted approach to upgrading life expired assets in the network, sustainability and a reduction of energy consumption.
3. To enhance the living, working and cultural environment of the city by upgrading life-expired assets, providing a safe and inviting atmosphere that reinforces Ireland's second city identity for present and future generations.

1.1.3 The Principles

The guiding principles of Cork City Council's Public Lighting Department are as follows; -

Asset Management

- A systematic process, custom developed for the needs of Cork City to develop, operate, maintain, upgrade, and dispose of assets in the most cost-effective manner including all costs, risks and performance attributes.



Service

- High-quality maintenance service through quality design, collaborations and partnerships, investing in an electrically safe and sustainable network.

Energy Reduction

- Lower the urban lighting energy and carbon consumption in the city with well-designed public lighting, the procurement of low energy equipment and systems using the latest technologies.

1.2 Public Lighting Philosophy

The provision of street lighting and other items of illuminated street furniture should support the key aims of the Cork City Council's Corporate Plan.

Cork City Council is seeking to ensure that lighting equipment is selected from the higher quality grade, as against the standard range, of equipment available from various exterior lighting or street lighting manufacturers to enhance the streetscape, ensure longevity and provide an energy efficient lighting scheme.

The lighting design for all new schemes and modifications to existing developments must cater for the need to upgrade lighting on existing junctions, entrances and access roads in addition to any lighting being provided for the development.

Where suitable, low brightness energy efficient lighting schemes should be considered with a view to enhancing the nighttime scene and improved security with attractive modern street furniture. Cork City Council's Public Lighting Department shall be consulted at the design stage in this regard.

The aim of this document is to provide a structured and consistent approach to the provision of street lighting

It is a core value of Council to ensure that the City develops in a manner which does not compromise the quality of the life or economic prospects of future generations.

To achieve a structured and coherent approach to the provision of lighting on the public highway, the correct levels and associated parameters for the lighting for each specific class of road, street, footpath, cycle track etc. must be determined. Such determination should take account of: -

- The use of the road, for vehicular, cycle and pedestrian traffic,
- Local amenities such as leisure centres, schools, churches, village halls, shops, public houses, doctors' surgeries etc. which may affect the night-time use of the road
- The location of the road, rural, urban etc.
- The environmental aspects

Each category of road, street, footpath, cycle track etc. will have its own specific requirements, which will affect the level of lighting to be provided. The current Irish and European Standards for Road Lighting IS EN 13201 and also BS 5489 is utilised for the design of schemes in Cork City.

1.3 Benefits of Street Lighting

The appropriate lighting of our road network can positively contribute to a reduction in both the number of and the severity of road traffic accidents.

The application of adequate lighting and using the appropriate light source provides an increase in personal safety, particularly for vulnerable road users.

With recent technological advances in street lighting more energy efficient solutions are now available in order to reduce revenue costs and minimise impact on the environment.

Optimal Lighting design and replacement of existing street lighting will enhance the night time environment, which helps promote the night time economy and will also aid energy saving, thus allowing Cork City Council to meet its CO_2 and energy reduction targets by 2030.

2 The Street Lighting Service

2.1 Public Lighting Service level

Cork City Council is responsible for the maintenance and management of the public lighting network in Cork City and have set clear objectives in the department's delivery plan, of which two refer to management and maintenance of the Street lighting network. These are:

- Safety, well maintained and resilient
- Energy efficiency and quality of delivery

To achieve these objectives our maintenance strategy is summarized as follows:

- To provide a clear statement of street lighting policies which deliver the statutory obligations of the Authority
- To be responsive to the needs of users and the community
- To contribute to effective street lighting asset management and maintain the asset value, by providing a uniform and consistent approach to maintenance need and resource allocation
- To support and add value to local transport objectives
- To support and add value to wide corporate policy objectives
- To regularly review policies and procedures and monitor the effectiveness of the maintenance strategy.

Cork City Council's maintenance provision undertakes to provide the following response times:

Fault Priority	Attendance and Rectification
Emergency Fault	Without delay
Urgent Fault	2 Working Days
Standard Repairs (typically classed as residential areas)	5 working Days
Dual carriage Repairs (typically classed as traffic routes)	30 Working Days

Table 1 Fault Response Time Table

The Public Lighting Department are committed to the implementation of the principles of ISO 50001 energy management standard.

2.2 How to Report a Faulty Public Lighting Lantern

Every streetlight is checked for faults during a fortnightly nighttime patrol. Standard faults are repaired within 5 working days while non-standard repairs may take longer.

Should you wish to report a faulty public light you have the following options:

- Submit fault online quickly on www.deadsureapp.com and selecting Cork City 2021 or alternatively by clicking THIS LINK and choose the relevant faulty lantern.
- Alternatively call +353 (0)21 2066 400, Mon – Fri 8am to 8pm. Sat 8am to 6pm
- In an emergency outside the above house call the City Council Out of Hours Number +353 (0)21 496 6512
- Email Fault Details to ITS@corkcity.ie (Details such as street name, pole number, Eircode location)

Information needed to report and log a fault is as follows:

Types of Asset IDs

ESB Network Pole or
CCC Public Lighting Column

When reporting a fault there are a number of options available to describe the current fault

- Lamp Out.
- Daytime Burning of the lamp.
- Lamp is flickering.
- Shade loose or hanging from the light fitting.
- Door missing from the public lighting column.

If none of the above apply, then select **other** and give a brief description of the fault which has occurred.

3 Safety and Health

The developer shall comply with all the duties laid down in the Safety, Health and Welfare at Work (General Applications) Regulations 2007 and the Safety, Health and Welfare at Work (Construction) Regulations 2013 and the ESB National code of Practice and the ESB code of practice for avoiding danger from overhead lines and the ESB

Any person who conducts specific works on the public lighting network in proximity to ESB networks shall be authorised to do so by the **ESB ONLY** as per the ESB Requirements for Work on public lighting on ESBs Network (latest Edition)

Any person who undertakes specific works on public lighting network within proximity to ESB networks must be a qualified Electrician, Completed the required ESB training (NTPLC-01) and have been audited by the Local Authority's Authorisation Officer.

Following a successful Live Works Audit by the Local Authority, a public lighting safety approval certificate shall be issued to the contractor employee confirming that they are competent to undertake such works.

Account shall be taken of any traffic management measures that may be required during the installation of public lighting schemes including compliance with Chapter 8 of the Traffic Signals Manual published by the Department of Transport. This includes the requirement that a traffic management plan be designed by a holder of a current valid Traffic Management Designer CSCS card and implemented on site by a current valid CSCS Signing, Lighting and Guarding on roads license holder.

4 Client and Designer Duties

Developers and/or their agents shall ensure they comply with their statutory duties defined in the Safety, Health and Welfare at Work (Construction) Regulations 2013, particularly those duties detailed in Part 2, section 7 (2) and (5).

Designers submitting lighting designs shall ensure they comply with their statutory duties defined in the Safety, Health and Welfare at Work (Construction) Regulations 2013, particularly those duties detailed in Part 2, section 15.

The Safety, Health and Welfare at Work (Construction) Regulations 2013 clearly states that the client (developer) must appoint a 'competent designer' to undertake all design work. This statutory duty applies to lighting and associated electrical infrastructure design. The appointed competent designer must comply with their statutory duties, which are clearly defined in S.I. 291.

Designers must prepare, record and store written documentation clearly showing how design decisions are arrived at. Under S.I. 291 the designer must share (if requested) such records with others that have an interest in the project. Cork City Council clearly has an interest in all designs undertaking for installation in its locale and may request such records from designers.

Cork City Council reserves the right to have lighting designers demonstrate their competence to undertake lighting and associated electrical infrastructure designs.

Developers and their agents should be aware that 'designs' offered on an 'advisory basis or on a *pro bono* basis still have to comply with the statutory duties defined in the Safety, Health and Welfare at Work (Construction) Regulations 2013.

5 Lighting Engineering Consultants

The Public Lighting Department require Engineering Consultants to be competent in undertaking lighting design and electrical infrastructure design for the chosen lighting design in accordance with the IS/EN/BS code of practice, national rules for electrical installation “NSAI regulations” and Cork City Council requirements. The below is a non-exhaustive list of lighting schemes to fall under this requirement:

- Street lighting.
- Urban amenity area lighting.
- Parks and Greenway lighting.
- Shop front lighting.
- Sports lighting.
- Floodlighting schemes.
- Building Façade Lighting
- Monument Lighting.

The developer can contact the Cork City Council’s Public Lighting Department of for information regarding standards or equipment to be used in their proposed designs at ITS@corkcity.ie

Consultants shall consider the life cycle costs from design, maintenance and removal for a project and be cognisant of the circular economy approach.

6 Public Lighting Design & Electrical Standards

Standard Reference	Standard Name
EN 13201-1 to 5	Design of road lighting
BS 5489-1 to 10	Design of road lighting
DOC-030303-AEN:2009	ESB National Code of Practice for Customer Interface 4th Edition
ESB Code of Practice for avoiding danger from overhead electricity lines 2nd Edition - 2009	
DOC-140109-AVM:2006	ESB Networks Electrical Safety Rules
DOC-050516-CFR:2020	ESB Requirements for Work on Public lighting on ESB's Networks
DOC-181119-FFW:2020	ESB Minimum Standards for Public lighting Work Activities - 2020
IS 10101:2020	National Rules for Electrical Installations
DN-LHT-03038	TII-Design of Road Lighting for National Roads
DN-LHT-03078	TII-Design of Road Lighting for All-Purpose Trunk Roads
BS EN IEC 60598	Luminaires. General requirements
Guidance Note-01	The ILP-Guidance Note 1 for the reduction of obtrusive light
Guidance Note-08	The ILP-Guidance Note 8 Bats and artificial lighting
Guidance Note-09	The ILP-Guidance Note 9 Domestic exterior lighting: getting it right
Guidance Note-11	The ILP-Guidance Note 11 Determination of maintenance factors
Public Lighting Guide-02	The applications of conflict areas on the highway
Public Lighting Guide-03	Lighting for subsidiary roads
Public Lighting Guide-04	Guidance on undertaking environmental lighting impact assessment
Public Lighting Guide-05	The ILP-The brightness of illuminated advertisements
Public Lighting Guide-06	Guidance on the installation and maintenance of seasonal decorations and lighting column attachments
Public Lighting Guide-07	The ILP-High mast for lighting and CCTV
Public Lighting Guide-08	The ILP-Guidance on lighting of adaptive lighting within the public realm
Public Lighting Guide-23	The ILP-Lighting for cycling infrastructure
IS EN 40-1 to 7	Lighting columns

BS EN ISO 1461:2009	Hot dip galvanized coatings on fabricated iron and steel articles. Specifications and test methods
BS EN 1991-1-4:2005 +A1:2010	Eurocode 1. Actions on structures. General actions. Wind actions

Table 2 Public Lighting Design & Electrical Standards

Note:

- Where contradictions or ambiguities arise between the standards, the standard listed higher in the order of precedence shall govern.
- The latest versions of the above standards shall apply in all cases.

7 General Technical Specification, Luminaries and LEDs

7.1 General Requirements

Cork City Council aims to keep the number of diverse luminaire models within reasonable limits in its inventory. This is to allow economies of scale to be achieved in the maintenance (replacement, spares etc.) of its exterior lighting assets. Cork City Council has put together a non-exhaustive list of Suppliers and Luminaires that have been previously installed on the Public Lighting Network in Appendix 5. Cork City Council already has significant numbers of the specified good quality luminaires in its inventory. Use of other luminaires (including others supplied by listed suppliers), whilst not prohibited, requires the explicit approval of Cork City Council's Public Lighting Department engineer. Lighting designers, consultants and developers will be required to fill out Appendix 5.1 at the rear of the document outlining the technical details of the proposed alternate luminaires. This will be required to be submitted with the lighting design for review and approval by Cork City Council's Public Lighting Department.

All exterior lighting scheme shall incorporate LED sources approved by Cork City Council.

Cork City Council **only accepts** LED light sources for replacements or new installs in exterior lighting schemes.

7.2 Equipment Environmental Working Conditions

All equipment specified must be suitable for outdoor use for their full lifetime cycle. Equipment will be installed outdoors in Ireland in locations less than 1,000 meters above sea level. Equipment will be exposed to the following as a minimum:

The following air temperatures apply:

- Maximum ambient temperature 30°C
- Maximum daily average ambient temperature 40°C
- Annual average ambient temperature 20°C
- Minimum ambient temperature -15°C

Equipment will be exposed to:

- Salt Laden Atmosphere
- Windblown salt deposits occur throughout the year
- Wind Driven Rain Rainfall average 1000mm per annum
- Rainfall Frequency Once every two days on average
- Atmospheric Pollution Heavy
- Solar Radiation 420 – 870 W/m2
- UV Light Exposure Daily

- High Humidity up to 95%
- Maximum wind (gust) velocity 50m/s

7.3 LED Public Lighting Luminaires

7.3.1 LED Luminaire Specifications

All luminaires shall comply with the relevant standards of suite of IEC 60598 standards.

CE Certification - CE marking shall be awarded by an EU based certifying body. They shall be manufactured in accordance with the European Directive on Waste Electrical and Electronic Equipment.

The luminaire shall be of the **Constant Light Output** (CLO) type.

The LED luminaire shall be purpose built for LED light sources and not a retrofit product. LED Luminaires originally designed for non-LED sources **will not** be accepted.

The complete LED luminaire shall be rated IP65 and IK08 as a minimum standard. These ratings shall be for the completed luminaire. In areas of higher crime the IK rating shall be required to be higher, Cork City Council to confirm revised IK rating.

The LED luminaire body shall be manufactured from die-cast aluminium, **preferably LM6 alloy**. The LED luminaires shall be finished in a painted finish, unless otherwise advised by Cork City Council. Thermoplastic or Thermoset Powder coating over the luminaire is acceptable. Luminaires housing should be **GREY** in colour, typically 9007.

The LED luminaires are required for operation on an Electricity Supply Board (ESB) Networks supply which is declared at 230 Volts, ±10% i.e. from 207 Volts to 253 Volts, at 50 Hertz. The power factor shall be a minimum of 0.92.

All LED luminaires shall be fitted with **surge protection** as per EN 61643-11:2012 +A11:2018 and be rated 10kA/10kV. The surge protection shall be the first component encountered in the circuit to ensure protection for all components within the luminaire.

The minimum performance requirements of the lantern shall be L90 B10 at 100,000hrs across the full range of outputs.

The light output ratio of the LED luminaire shall be greater than 90% with an Upward Light Output Ratio of no more than 0% at the 90 degrees horizontal.

LED Luminaires should have a maximum windage of 0.07m²

LED lanterns shall incorporate a 7-pin NEMA socket and approved photocell or approved miniature photocell.

Any LED luminaire shall utilise 5 core cable as standard from the lantern to the fuse unit in the column.

All grub screws, hinges, toggle catches, captive screws and nuts shall be made of non-corrosive metal material.

LED lanterns should have the ability to tilt -5 to +10 degrees but generally be mounted a 0 degree on a column.

The spigot entry shall be die-cast aluminium alloy suitable for accepting the following spigot sizes:

Side entry	–	32mm x 76mm long to 42mm x 100mm long
Post-top entry	–	60mm x 115mm long to 76mm x 115mm long

The use of reducers for the spigot entry size (i.e. to change the size from 42mm down to 32mm, from 60mm down to 42mm or from 76mm down to 60mm) or to alter the available angles of tilt are permitted.

It is preferable that a single spigot entry adaptor is provided with each luminaire that is capable of being used for mounting the luminaire in both side-entry and post-top entry configurations.

The LED luminaire details, such as product order code, wattage, optic setting, additional requirements etc., shall be identified by means of a labelling system affixed inside of the luminaire body.

Note: Active cooling systems utilising fans are not permitted.

If not utilising an LED lantern from the list of typical supplier in Appendix 5, details on the thermal management design of the LED luminaire and how the luminaire transfers heat away from the LEDs shall be provided to Cork City Council.

7.3.2 LED Modules

The LED modules shall be manufactured by Nichea, Cree, Philips Lumileds, Osram or an approved equivalent agreed with Cork City Council.

As standard, the LED modules shall be as per 8.6.5 Colour Temperature section with a Colour Rendering Index (CRI) of at least 70 (Ra ≥ 70).

The minimum lighting luminous efficacy of the complete luminaire at the proposed driver current shall be as a minimum 120lm/W (Lumens/Watt). Note: the luminous efficacy of the LED chip only will not be accepted. It must be given for the complete luminaire.

Cork City Council requires the highest possible luminous efficacy for each luminaire.

7.3.3 LED Driver

The LED Driver must provide a well-controlled DC source over a range of currents, such as Philips LED Driver, Osram LED Driver or approved equivalent.

The LED Driver shall be of the Constant Light Output (CLO) type and have a power factor of 0.95 as a minimum.

The standard CLO value shall be 90% of the initial lumen output. Additional CLO values may be requested by or considered by Cork City Council at initial design or review stage.

The LED Driver shall be programmable and allow for dimming of the luminaire. It shall also

have D4i protocols to allow for future remote monitoring of the installation through a CMS system.

The LED Driver shall be enabled for use with a TALQ Open Protocol Central Management System (CMS),

The LED Driver shall be pre-programmed to the dimming profiles as indicated in section 8.6.6 Dimming Profile

The driver current shall be no higher than a maximum of 1000mA.

Preference will be given to luminaires that offer a long, reliable service life and low power consumption. This is more likely to be achieved by **NOT** driving the luminaires close to their rated maximum currents.

7.3.4 Testing & Certification

All testing of the luminaire, LED modules and LED Driver must have been undertaken by an independently accredited test laboratory, preferably located within the European Union.

The Certificate of Compliance of CE testing and marking of the complete luminaire (including LED modules and LED Driver) shall be provided to Cork City Council if requested. A Declaration of Performance for the luminaire, in addition to CE marking, shall also be provided.

The following reports must be submitted to Cork City Council if requested:

- IES LM-79-08 test report for the luminaire.
- IES TM-21-11 report for the luminaire with LM-80 chip data and in situ temperature measurement test data and should clearly indicate the lumen maintenance after the test time expressed as a percentage of the initial lumen output, and the calculated and reported L80 values (in hours).
- IES LM-80-08 test report for the LED chip to validate the data entered into the TM-21 report.
- All Thermal Tests undertaken on the luminaire and LED modules, including LED junction temperature testing and In-Situ Temperature Measurement Test (ISTMT) Report to validate ISTMT data entered into the TM-21 report.

7.4 Controls

It is a requirement to incorporate a factory set dimming regime on the electronic control gear. The standard regime is ESBN UMR Dimming Profile U14, dim to 75% of output (dim by 25%) from 12am – 6am. Cork City Council's Public Lighting Department, can advise further at design stage. Dimming Profile U14 was the old 2A dimming profile.

All photocells should have a **35/18lux ratio switching** utilizing a green colour base to visually identify the switching regime.

Decorative or period style lanterns can incorporate a Westire 8482 miniature photocell or

similar approved. This will be approved by Cork City Council. A green lock nut will be utilized in the case of a miniature photocell.

All other photocells shall be mounted utilizing a 7 pin Nema socket with cork washers utilizing Westire Ireland 8480 photocell or approved similar with a green colour base section.

7.5 Central Management System

All luminaires should be capable of communicating with a **Central Management System (CMS)** via single management open platform software interface that commands, controls, monitors and configures networks of smart public lighting, as well as other devices connected to the public lighting network, through any protocol, via wireless based technology. The following must be noted:

- Compliant with TALQ standard and interoperable with TALQ compliant field devices
- Secure two-way communication with GPS location
- Capable of real-time control (on/off, dimming - levels), scheduled programmed control (time based profiles) and also event based scheduled control.
- Dynamic (adaptive) sensor based lighting control.
- Nominal sunrise and sunset times (astronomical clock) and ambient light (photocell)
- Parameters: lamp status (on/off), lamp power, lamp voltage, mains supply voltage, lamp cumulative run hours, consumption (from installation), faulty lamp, weak lamp, ballast status (voltage/current/temperature/run-time), high lamp voltage, brown outs, power cycle, high run hours
- Built in Energy Meter measuring (per lighting point, cumulative): KWh, IRMS, VRMS, PF, instantaneous power, average power.
- Automatic alarming (warnings, errors) and notification (failure) system (via SMS/e-mail alerts)
- Built-in redundancy (comms network failure) with lantern reverting to autonomous control
- Compatible and interoperable (synchronized asset information) with public lighting inventory asset management database tools (such as DeadSure)
- Capable (comms) of delivering public lighting firmware upgrades.

8 Public Lighting Design Criteria

8.1 Competency for Designers & Quality Assurance

The design of public lighting is a specialist activity and shall be undertaken by competent and experienced person(s) who can demonstrate an appropriate understanding of road lighting design principles.

8.2 Design Standards

Lighting designers shall refer to this document and the following Regulations, Standards and Guidance Documents as a basis for their design calculations along with any other relevant standard deemed necessary to submit a compliant public lighting designed scheme:

- NSAI National Rules for Electrical Installations IS 10101: 2020 5th Edition.
- IS EN 13201-2:2015 Road Lighting
- BS 5489-1:2020 Code of Practice for the Design of Road Lighting.
- ESB National Code of Practice for Customer Interface
- Housing Schemes: Guidebook for ESB Networks Standards for Electrical Services
- S.I No. 291 of 2013: Safety, Health and Welfare at Work (Construction) Regulations 2013.
- Guidance Note 1, The reduction of obtrusive light from the Institute of Lighting Professionals (The ILP).
- Guidance Note 2, The application of conflict areas on the highway (The ILP).

8.3 Public Lighting Pre Planning Guidance

A public lighting (PL) scheme must be submitted with all planning applications where applicable. If not submitted, it will be requested as additional information. Any scheme to be submitted must be agreed in writing in advance with the Council's Public Lighting Department. This should be submitted to ITS@corkcity.ie

The Cork City Council's public lighting pre-planning guidance document can be downloaded from the Cork City Council's public lighting webpage. Below is a link to this webpage.

Public Lighting Pre-Planning Guidance Document Webpage Link

8.4 Design File

A Lighting Design File shall be prepared at concept stage and this shall be developed during the preliminary and detailed design phases.

The Lighting Design File shall include a design methodology that sets out in clear detail, the decisions taken during the design life cycle. This is particularly important when design

organisations change as the phases of the design change and helps in ensuring a 'lean process' that will minimise revisiting aspects of the design that have already been considered and eliminated.

As part of the design package from the lighting designer/developer the following information shall be submitted for review by a Cork City Council public lighting engineer. If **ALL** information is not submitted, Cork City Council reserves the right to reject the design until the correct information has been submitted. The following information shall be formatted as listed below:

1. Lighting Reality® report showing the lighting modelling calculations (PDF format). The cover page shall show:
    - The name of the project .
    - The name of the lighting designer.
    - The lighting classifications the project is designed to.
    - Dimming profile used for the design.
    - Circuit wattage of each of the lantern types selected.
    - Milli-Amp current of the driver of each of the lantern types selected.
2. AutoCAD drawing in soft format showing the following information:
    - The site boundary
        - All private areas to be identified.
    - ESB mini pillar locations.
    - Customer service pillar locations (metered and unmetered), individually numbered for identification.
    - Public Lighting access chambers, dimensions included (Length x Width).
    - Public Lighting ducts, quantity, size and depth.
    - Individually numbered public lighting columns
        - Public Lighting columns to be numbered in a logical order.
        - Public Lighting column identification to include.
            - Lantern Type
            - Column Type
            - Column Height
            - Bracket Information (if required)
    - All landscaping details, ensuring trees are minimum distances from public lighting columns.
3. Luminaire Schedule with lantern and lighting column details for the proposed design

including the

- Lantern & Column Manufacturers
- Number of LEDs within the lantern
- Circuit wattage and driver current
- Lighting column type & height

4. Voltage drop calculations for each circuit.
    - Single line circuit diagram for each customer service pillar from ESB source point and the associated sub-circuits to final lantern connection.
5. Consultant/developer shall submit written details outlining the original equipment manufacturers (OEM) warranty and the procedure for transferring warranty to Cork City Council once a project is taken in charge by Cork City Council.

8.5 Lighting Reality

Cork City Council will accept public lighting designs only when produced on the approved software. Lighting Reality is currently the preferred and approved public lighting design package of Cork City Council. Lighting reports will be rejected if they are not submitted in this form.

Lighting Reality® report showing the lighting modelling calculations (PDF format). The cover page shall show:

- The project details.
- The identity of the lighting Designer.
- The lighting classifications the project is designed to.
- The combined maintenance factor for the luminaires and how it was derived.
- Dimming profile used for the Design.
- Circuit wattage and milli-amp driver current of each of the luminaire types selected.

8.6 Lighting Design

8.6.1 General

Cork City Council wishes to promote the installation of energy efficient exterior lighting schemes. Measures required to achieve this include the use of lanterns with efficient optics which would minimize light pollution, optimization of scheme layout, implementing factory set dimming (or CMS) , CLO and trimming, complying with best practice and taking account of the ‘Campaign for Dark Skies’ issues where appropriate.

Therefore, all lighting schemes shall incorporate the requirements of “Guidance notes for the Reduction of Light Pollution” issued by the Institution of Lighting Professionals and available as a download from its website www.theilp.org.uk.

The main desire for a public lighting design is to achieve a uniform light spread over the proposed area that is to be lit. It is also required that minimum lux levels and uniformity (as

defined by the lighting class) are achieved throughout the design.

Over-lighting in excess of the required lighting standard **must be avoided** so as not to cause glare and distress to the persons and wildlife inhabiting or passing through the lit area. This will be evident when examining the lighting model and its associated lighting report where high intensity lighting lux levels are prolific.

The rated input power and the total circuit wattage (in watts) of the complete luminaire (including LEDs and LED Driver) shall be stated on any design submitted to Cork City Council's Public Lighting Department. The total circuit wattage shall be the constant light output (CLO) total circuit wattage of the complete luminaire.

Steps should be illuminated from the bottom up to highlight the step edges, e.g. the lighting column should be erected at the bottom of the steps where possible and practicable. In some cases, it may also be necessary to erect columns along the length of the steps.

8.6.2 Selection of Lighting Classes

Lighting class for each individual project should be selected by the use of Annex A of CEN/TR 13201-1:2014, taking into account speed limit, traffic volume, road use intensity, traffic composition, parked vehicles, ambient luminosity etc.

The below table is a typical list of public lighting design classes required on typical routes within Cork City. This is applicable to all new or refurbish schemes. The below list is not an exhaustive one of the types of routes and their associated light class, it is intended as a simple guide. Please contact the Cork City Council's Public Lighting Department for guidance on any specific locations.

Description	Example	Preferred PL Design Class
City Centre	Cork City Centre	C2
Town/Village Centre	Riverstown	C3
Main Traffic Route ≥50km/h	Lower Glanmire Road, Tivoli	P1 / M3 / C3
Main Road ≤50km/h	Summerhill North	P2 / M4 / C4
Residential Spine Road	Mount Oval Spine Road	P3
Normal Residential Road, Branch Road & Cul-de-Sac	Kinvara Avenue	P4
Isolated footpaths/greenways	Blackrock / Passage West Greenway	P4 / P5

Table 3 List of Typical Public Lighting Design Classes for Cork City Roads

8.6.3 Maintenance Factor

Cork City Council only accepts new lantern with CLO built into the fitting installed on their public lighting network. This will affect the maintenance factor used when selecting a light fitting for a lighting design.

The maintenance factor shall be based on a cleaning cycle of every 6 years (72 Months), the environmental zone which the lantern is to be installed into, the height at which the lantern is to be install at, the lamp lumen maintenance factor (LLMF) & the lamp survival factor (LSF).

The following maintenance factors in the table below have been determined the appropriate values for each lighting design in Cork City.

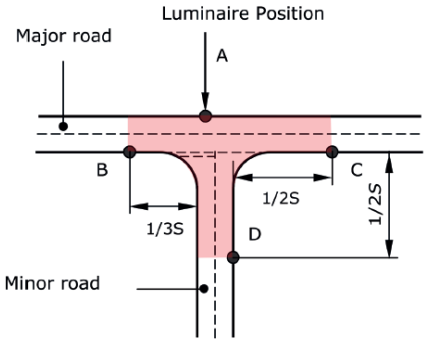
Environmental zone	Mounting Height	Maintenance Factor
E1/E2	≤ 6 m	0.92
E1/E2	> 6 m	0.92
E3/E4	≤ 6 m	0.84
E3/E4	> 6 m	0.92

Table 4 Maintenance Factor Table

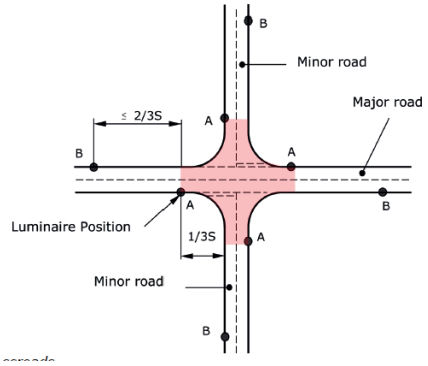
8.6.5 Conflict Zones

Conflict areas are typically junctions, intersections, roundabouts and pedestrian crossings, where significant streams of motorized traffic intersect with each other or with other road users such as pedestrians and cyclists. At conflict areas, the visual task is generally more difficult than on straight roads, and a higher luminance or illuminance class may be selected at the conflict area.

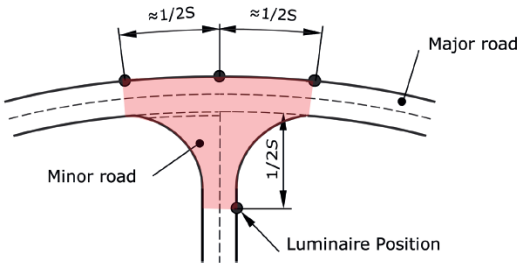
Guidance on the lighting of conflict areas is given in ILP PLG02, this document gives the typical locations where lighting columns should be located at junctions, roundabout and pedestrian crossings. The below table show the most common junction layouts in Cork City, refer to ILP PLG02 document for all other junction that are not illustrated in the table below.



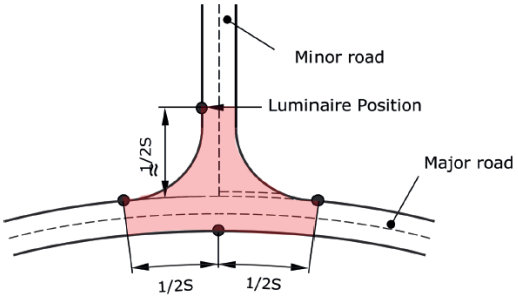
Tee Junction Intersection



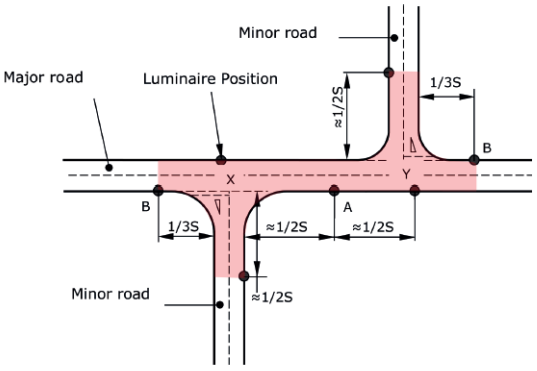
4 Way Crossroads



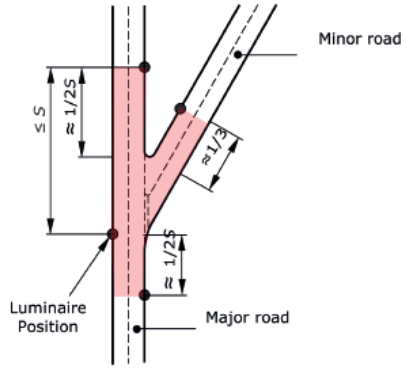
Tee Junction on a Bend (Inside)



Tee Junction on a Bend (Outside)



Staggered Junction



Y Junction

Table 5 PLG02 Typical Junctions for Public Lighting Column Layouts

S = the typical spacing between the public lighting columns on a straight main road for a columns of the same height that are to be installed.

8.6.6 Colour Temperature

The table below outlines the typical colour temperature required for public lighting luminaires on particular roads and amenity areas. This may be open to review on specific project designs.

Description	Colour Temperature
National Road network ≥80km/h, (in line with TII, this shall be restricted to a maximum of <3,300K)	<3,300K
Regional and local Roads	3000K
City / Town / Village Centres	3000K
Residential Estates	3000K
Carparks	3000K
Buildings & Structures of Interest or Historical Value (to be reviewed on a case by case project)	3000K / 4000K
Parks, Greenway and Bat conservation area (environment impact assessment to be considered in all cases)	2200K / 2700K
lights at zebra or uncontrolled crossings	4000K

Table 6 - Lantern Colour Temperatures

Cork City Council requires that all LED modules must have a Colour Rendering Index (CRI) of at least 70 (**Ra ≥ 70**).

Colour temperature for isolated footpaths/greenways will be reviewed on a case by case basis. Colour temperature may vary with location, use of area and possible impact on flora and fauna.

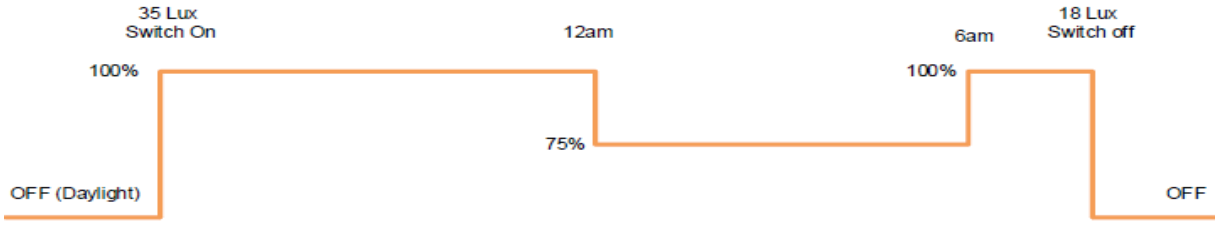
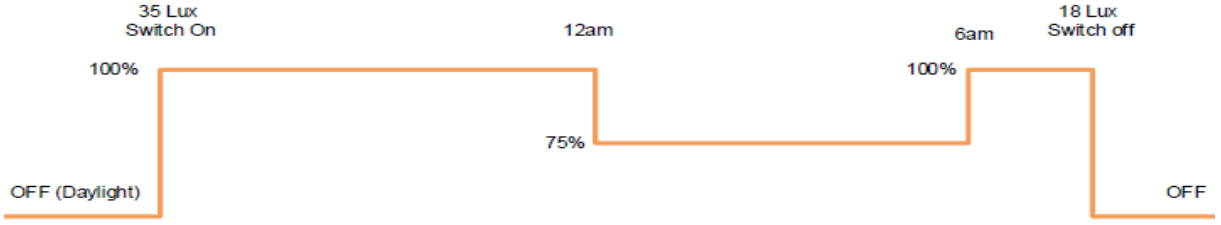
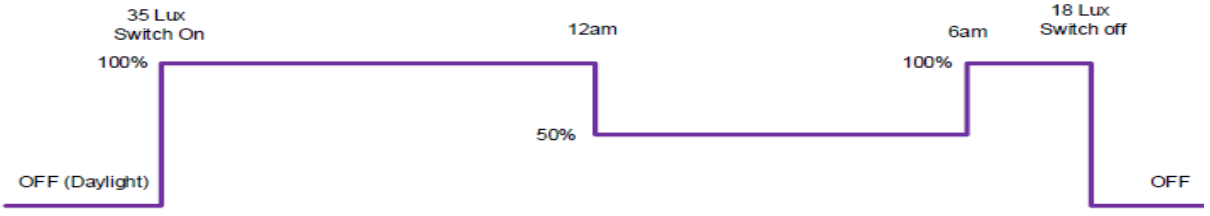
Any change from the values in table 7 will need to be agreed in writing with Cork City Council's Public Lighting Department.

8.6.7 Dimming and Trimming Profiles

The lighting standards have evolved and support the application of variable lighting levels during the hours of darkness. This can be achieved through pre-set dimming equipment or a CMS. The application of dimming will help address key aims of improving energy efficiency and minimizing light pollution.

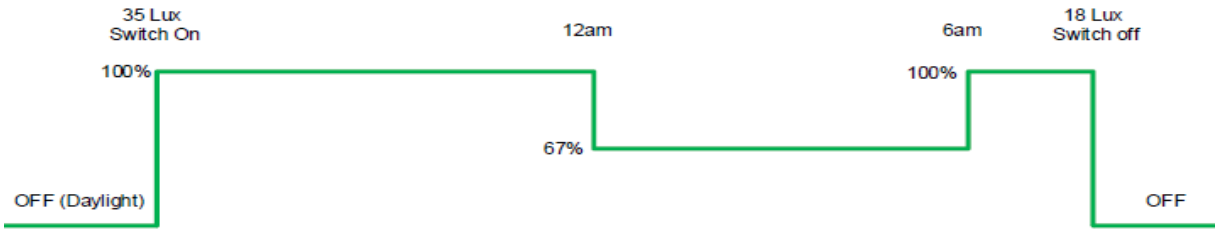
A limited range of dimming profiles has been agreed with ESB Networks, CCMA and SEAI, incorporating trimming to 35/18 which is the currently used standard. This means LED lighting shall have a 35Lux switch on and 18Lux switch off switching regime.

It is Cork City Council's policy to incorporate factory set dimming luminaires to the dimming profiles between 24.00hrs. and 06.00hrs. The table below outlines the most commonly used dimming profile by Cork City Council and describe the typical areas in which they are installed.

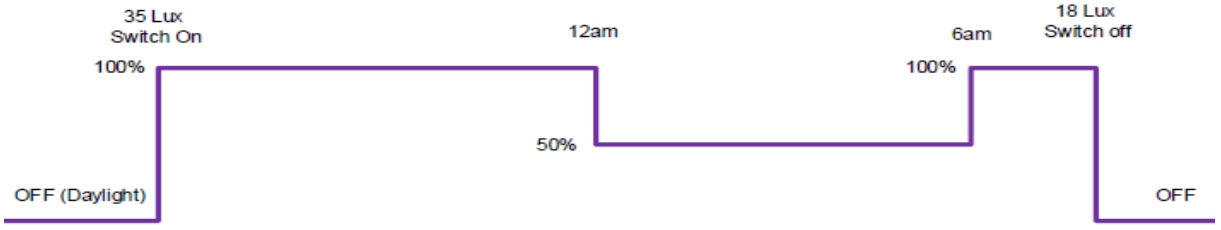
Lighting Class Description	Dimming Profile
National Road network ≥80km/h In line with TII dimming shall have at least 1 step down in the lighting class that is to be applied during the period of darkness	 Dimming Profile U14
M and P Lighting Classes Such as city and town centres, local and rural roads and residential estates roads etc.	 Dimming Profile U14
Car Parks Profile U16/U19 - sufficient lighting levels for staff up to 9pm or 12 midnight - sufficient illumination thereafter to deter criminal activity late at night.	 Dimming Profile U16
	 Dimming Profile U19

Park Areas and bat conservation areas

Profile U15/16 - Theses shall be reviewed on a scheme by scheme basis taking into consideration best practices, personal safety and any environmental impact assessments.



Dimming Profile U15



Dimming Profile U16

Greenways

Dynamic dimming by CMS and PIR detectors is required to **ALL** new greenway developments within Cork City. Cork City Council currently have a CMS provider and any newly designed greenway scheme will need to be compatable with this system, Cork City Council will advise a lighting designer of the system once request through ITS@corkcity.ie.

Table 7 - Lantern Dimming Profiles

It should be noted that unmetered connections are **not permitted** for new electrical supplies on the National Road as per TII guidelines.

8.6.8 Tree Canopy and Locations

All public lighting designs shall include the proposed landscape design in their submission which shall indicate the proposed tree locations on the layout drawing.

All trees shall be located a minimum of 7.5 meters away from a proposed public lighting columns and customer service pillars. If the canopy of the proposed tree shall be greater than the minimum 7.5 meter clearance distance, then the tree shall be sited a minimum distance equalling the radius from the centre of the tree to the edge of the tree canopy plus 2.5 meters.

Cork City Council **WILL NOT** Take in Charge public lighting installations if trees are located within the specified dimensions outlined above. The developer, at their own cost will have to relocate any trees encroaching on public lighting columns before Cork City Council will take in charge requested lighting.

8.6.9 Light Pollution and Glare

Light pollution such as sky glow, glare and light trespass shall be minimised wherever possible.

The ILP Guidance Notes for the Reduction of Obtrusive Light (GN01) provides further detail on the different causes of light pollution and provides examples of a good practice approaches relating to the positioning of light sources, the methods and accessories to limit obtrusive light and stated values of lighting levels.

The control of lighting to minimise light pollution and the permitted lighting values are dependent upon environmental zones that are set out in GN01.

To minimise unwanted glare and light spill in the immediate surrounds of the road network within Cork City, the luminous intensity of lighting sources at critical angles have been restricted (Glare (G) ratings) and these are set out against each type of environmental zone in the following table:

Zone	Surrounding	Lighting Environment	Example	Lumen Intensity Classes
E0	Protected	Dark	UNESCO Starlight Reserves, IDA Dark Sky Parks	G6
E1	Natural	Intrinsically Dark	National Parks, Areas of Outstanding Natural Beauty	G5 or Higher
E2	Rural	Low District Brightness	Villages or relatively dark outer suburban locations	G4 or Higher
E3	Suburban	Medium District Brightness	Small town centres or suburban locations	G3 or Higher
E4	Urban	High District Brightness	Town/city centres with high levels of night time activity	G3 or Higher

Table 8 The ILP GN:01 Environmental Zones Table

All light sources in Zones E0, E1 and E2 shall use flat glass luminaires. All luminaires shall in general be positioned at 0º inclination to either minimise upward light or ensure that no direct light above the horizontal will be emitted (G3 to G6 glare classes)

8.6.10 Protection of Flora and Fauna

Cork City Council values the diverse wildlife which exists throughout the urban, rural area. Much of this delicate eco structure is protected by national and international laws and as such, cannot be interfered with.

While research into the effects of light, and types of light is still ongoing, it is agreed that the strip of light evident in street lighting is in effect, a barrier to many species, regardless of the colour temperature of the light source. This includes, but is not limited to nesting areas, bat roosts, bat hunting areas, bat commuting routes, rivers, spawning grounds, and other such locals.

It is the developer's duty to ensure that any lighting installation will not interfere in any way with protected, or endangered species or their habitats.

Light designers should also pay particular attention to the bats and artificial lighting at night document produced the ILP (Guidance Note 08/23). This document aims to create awareness of the impacts of lighting on bats and their migration habits.

The developer shall liaise with Cork City Council public lighting engineer to develop a suitable lighting design as outlined by planning conditions and or any environmental reports.

8.6.11 Environmental Impact Assessment and other Planning Requirements

Where a scheme is subject to planning requirements such as an Environmental Impact Assessment under EU Directive 2014/52/EU then a Lighting Impact Assessment may be required.

Lighting Impact Assessments shall only be undertaken by competent lighting professionals. The Institute of Lighting Professional's Professional Lighting Guide 4 (PLG-04) outlines a good practice approach for undertaking and assessing the impact of road lighting on surrounding land and impact on humans, flora and fauna.

8.6.12 Light Measurement

When verifying the lighting levels on the streets, the process for measuring lighting performance in EN 13201 is complex and time consuming. The ILP Technical Report 28 Measurement of Road Lighting Performance on site is a simplified methodology for assessing the street lighting performance on the streets. This report has been widely accepted as a robust approach. The ILP report adopts a proven yet simplified process that records some 15 points on the road and verifies the design has been installed correctly or otherwise.

Designers should take every opportunity to review their designs once installed and TR28 enables an easy method to record the site measurements.

8.6.13 Circular Economy

Circular Lighting means that lighting products are designed in a fully sustainable way. At end of the life of a product, the luminaire can be upgraded and reused, or all materials and parts can be returned for repurposing or recycling. By minimizing materials waste and reducing environmental impact, it helps create an ecosystem that extends the life of lighting products and provides a better future for the next generation.

Lighting designer and consultants shall use this approach when formulating lighting designs for external and public lighting schemes for Cork City Council. Cork City may reject proposed light fittings if they do not meet this requirement.

8.6.14 WEEE Directive

Based on Extended Producer Responsibility (EPR) principles, the EU Directive on waste

electrical and electronic equipment (WEEE) makes producers responsible for the organisation and/or financing of the collection, treatment, recycling and recovery of their products at end of life. The purpose of the directive is to contribute to sustainable production and consumption by, as a first priority, the prevention of WEEE and, in addition, by the re-use, recycling and other forms of recovery of such wastes so as to reduce the disposal of waste and to contribute to the efficient use of resources and the retrieval of valuable secondary raw materials.

This EEE waste contains a complex mixture of materials, some of which are hazardous. These can cause major environmental and health problems if the discarded devices are not managed properly. In addition, modern electronics contain rare and expensive resources, which can be recycled and re-used if the waste is effectively managed.

Improving the collection, treatment and recycling of electrical and electronic equipment (EEE) at the end of their life can

- improve sustainable production and consumption.
- increase resource efficiency.
- contribute to the circular economy.

8.6.15 Warranties

The developer is liable for replacement of any equipment which fails in normal service or otherwise needs corrective action if detected by the Council or their agents during a period of one year from the date of connection completion by ESB Networks.

Contractors shall organise as part of the taking in charge process to transfer the OEM warranties of the Public Lighting equipment into the name of Cork City Council.

9 Electrical Supplies & Isolation

9.1 Electrical Supply

All equipment supplied to Cork City Council is required for operation on an Electricity Supply Board (ESB supply which is declared at 230 Volts, +/-10% i.e. from 207 Volts to 253 Volts, at 50 Hertz.

The electrical supply required for a public lighting installation shall be either:

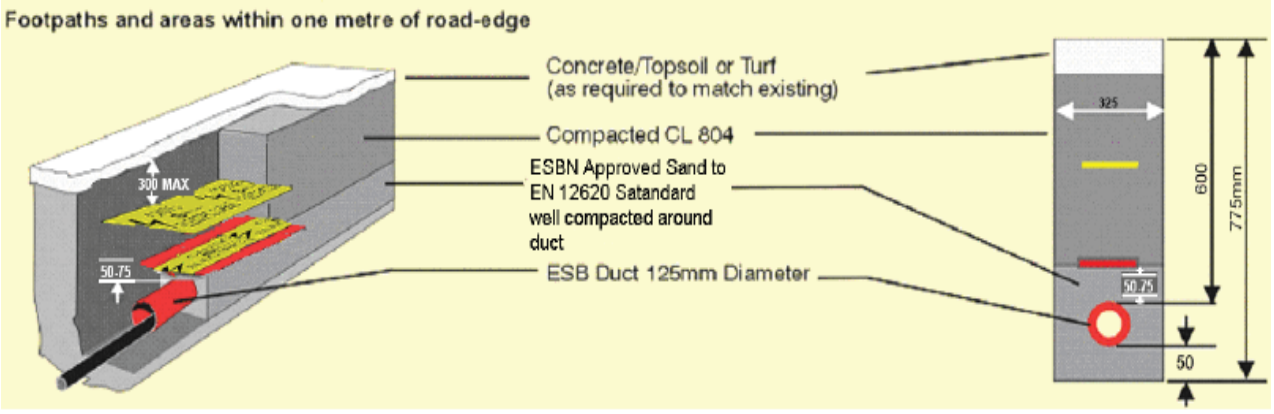
- Unmetered Electrical Supply (Up to 2kVA)
- Metered Electrical Supply

The most used electrical supply for public lighting installations is an unmetered electrical supply. This electrical supply shall accommodate one load profile such as dusk to dawn (D2D) or 24hr etc. Unmetered electrical supplies can only have an electrical load of up to 2kVA as specified in ESB Networks National Code of Practice Document.

Where a proposed connected load of over 2kVA or where multiple load profile types required to be connect to the electrical supply, then a metered electrical supply will be required.

The designer shall discussed and agreed with Cork City Council's Public Lighting Department the type of electrical supply required for each installation prior to any applications being made to the ESB Networks.

The connection from an ESB mini pillar to a customer service pillar shall be provided through a continuous length of ESB Approved **RED** solid wall polyethylene 50mm ducting. This ducting shall be buried at a minimum depth of 600mm from the top of the duct to the top of the ground level. The details on customer service pillar's may be found in Guidebook for ESB Networks Standard for Electrical Services (Rev_5).



The developer shall bear the cost of **ALL** new electrical power supply connections and shall pay for **ALL** outstanding energy bills up to the date the scheme is taken in charge by Cork City Council (This is generally the first Monday of the calendar month).

For the avoidance of doubt, new electricity supply connections are to be applied for in the name of the developer and not Cork City Council's Public Lighting Department. ESB

Networks will not make a new connection in the name of Cork City Council without the approval of Cork City Council's Public Lighting Department.

Please refer to 9.7 ESB Power Connection Procedure section.

Typical electrical schematic for public lighting installation is provided in Appendix 1 at the rear of the document.

9.2 Electrical Cable Design

Electrical cable design calculations shall be undertaken by a suitably competent Electrical Engineer on a suitable software such as Amtech or similar. It shall be the responsibility of the Lighting Designer to carry out cable calculations to determine the size of the cable taking into account the cable length, volt drop, distribution method etc. The cable calculations shall be submitted with all proposed designs. The electrical services design for all public lighting schemes shall comply with the relevant sections of National Standards Authority of Ireland document IS:10101:2020.

The designer shall design all public lighting circuit lengths in compliance with the discrimination requirements and voltage drops as stated in the electrical standards IS 10101:2020. The fault loop impedance values and disconnection times shall be in accordance with the requirements of Tables 41.1, 41.2 and 41.3 of IS 10101:2020.

Note: In some cases, Cork City Council may refer the electrical services designer to other Irish, UK or European Electrical Design Standards, e.g. BS 7671:18th Edition (UK wiring Regulations and / or associated guidance notes) etc.

Where ESB high voltage cables (11 KV / 22 KV) cables run in parallel with exterior lighting cables in ducts a minimum segregation of **300mm** shall be maintained. Where ESB high voltage cables and exterior lighting cables cross, they shall do so at right angles. The requirement of crossing at right angles also applies to gas mains.

Where upgrades to exterior lights on overhead ESB network poles is being undertaken, electrical isolation interface boxes shall be fitted on the supply connection to each luminaire. These shall offer a minimum of IP65 protection. These isolator boxes shall be approved for use by ESB Networks and shall meet the requirements set out in the National Code of Practice for Customer Interface as published by ESB Networks. Cork City Council can advise the developer with further information if required.

Public Lighting electrical cables shall be sized for a future 25% additional load (and at least 25% additional length to a circuit) to allow for future extension. The spare capacity requirements shall be advised by Cork City Council at the design review phase.

The designer shall design the neutral conductor size as per the relevant standards in particular, in relation to use of 3 phase cabling in the use of discharge lighting which create significant third harmonic currents.

The designer should divide circuits such that:

- It avoids hazards and minimizes inconvenience in the event of fault or

overcurrent.

- It facilitates safe inspection, testing and maintenance.
- It takes account of danger that may arise from the failure of the circuit.
- It reduces the possibility of unwanted tripping of RCBO/RCDs due to excessive protective conductor currents produced by equipment in normal operation.
- It mitigates the effects of electromagnetic interferences.
- It prevents the unintentional energisation of a circuit that is intended to be isolated.

9.3 Cable Specifications

9.3.1 General

All LV electrical cabling shall be run with in the public lighting ducting system. No cable shall be run directly laid into the ground.

Cable joints are not permitted in any new development. Cables shall be looped from column to column on each circuit. If a fault develops on service cables before commissioning/taking in charge of the development, the section of cable involved shall be replaced and not jointed. The ends of all cable cores shall be either lugged or ferruled prior to final connection.

Where existing lighting cables are affected by a new development prior agreement must be obtained from Council's Public Lighting Department on any modifications. In rare situations where cable joints are allowed, only resin based cable joint kits such as 3M or Scotch-Cast are to be used. Heat shrinked joints are not permitted.

9.3.2 Public Lighting Circuit Cabling

NYCY cable to DIN VDE 0276-603 (0.6/1kV) shall be used throughout all new Public Lighting installations.

For standard residential installations single-phase circuits will normally be used and cables will normally be 2 x 6mm^2 NYCY type with sheathed earth core.

On major distributor roads, conductor size may be larger and 4/5 core cables may be specified to utilise a three-phase supply. This must be agreed in writing with Cork City Council's Public Lighting Department prior to installation.

All LV electrical cable serving the public lighting network shall have a minimum of 2 internal cores (L & N). The Copper Wires and Tape between the outer sheath and internal insulation shall be combined to form the Earth core. The earth core shall be sleeved in yellow and green earth sleeving to ensure no exposed earth copper wire. The cores within the LV cable be sized with a cross sectional area of no less than 6mm^2.

Steel Wired Armour (SWA) cable is **not accepted** due to maintenance restriction throughout the life of the installation. Where a SWA cable is used a separate protective

conductor must be included in the cable and the armour must be bonded using appropriate commercial bonding kits. The use of SWA cable must be agreed with the Cork City Council's Public Lighting Department prior to installation.

9.3.3 Column Internal Cabling

Lanterns on new development schemes shall come from the lighting manufacturer/supplier with a 3-core/5-core pre-wired cable loom, this cable loom shall be to the required length of the column on which the lantern is to be mounted.

The pre wired cable loom shall be a PVC/PVC stranded copper cable with internal copper cores of not less than 2.5mm^2

9.4 Circuit Isolation and Circuit Protection

9.4.1 General Requirements

An IP65 rated public lighting distribution board shall be housed within the customer service pillar. Cabling shall enter the distribution board from below via waterproof compression glands.

The distribution board shall contain as a minimum the below list of equipment. Please note quantities may change due to the number of public lighting circuits fed from the distribution board.

- Main Switch Fuse Disconnector
- Surge Protector Device(s)
- Type B Miniature Circuit Breakers
- Minimum 2No. Single Spare Ways for Unmetered Distribution Boards
- Minimum 4No. Single Spare Ways for Metered Distribution Boards

Distribution boards shall be provided with an external earth and neutral busbars, these shall be colour coded. They shall same number of bus bar terminals as there are outgoing circuits plus at least one spare way.

Customer service pillars shall generally have a main customer fuse rating of:

- 10A for Unmetered Electrical Connection
- 35A for Metered Electrical Connection, this may rise to 63A depending on the proposed connected load.

Surge protection devices must be installed in all distribution boards of new public lighting installations. The distribution boards shall be fitted with surge protection in accordance with EN 61643-11:2012 & A11: 2018 and be rated 10kA/10kV.

Circuit protection devices (MCB'S) shall be Type B devices shall have a minimum rupture capacity of 16kA.

The distribution boards shall have sufficient spare capacity to accommodate additional

circuits (generally min of 25% spare ways).

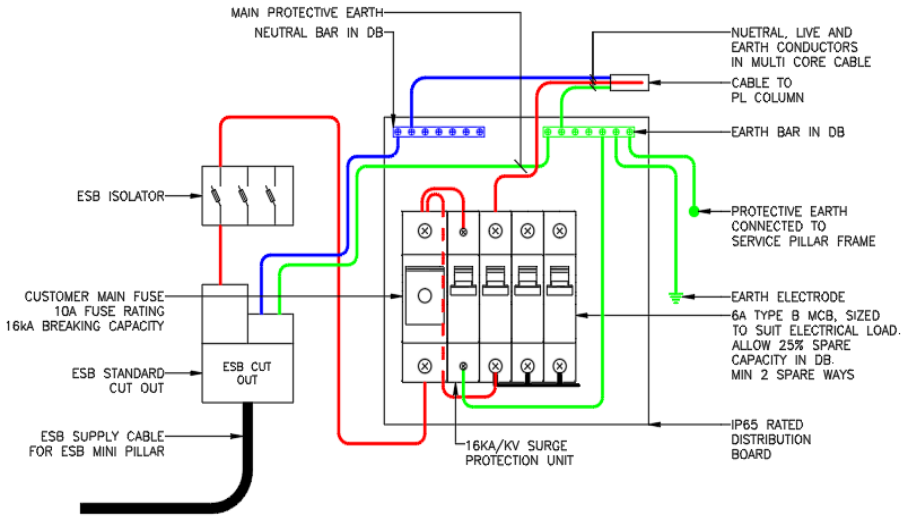
All components fitted within a customer service pillar shall be din rail mounted within a distribution board.

Cork City Council requires all circuit details and labelling shall be provided by the means of a ***Laminated Chart*** fixed to the inside of each customer service pillar. This laminated chart shall also display the MPRN for the feeder pillar.

An as-built circuit drawing shall be provided as part of the safety file for take in charge procedure. Cork City Council will not take in charge an installation where a circuit drawing of the installation has not been provided.

9.4.2 Unmetered Pillar Wiring Diagram

Below (left) is typical wiring diagram of a distribution board within an unmetered pillar for a public lighting electrical connection. Below (right) gives a visual representation of the ESB Networks and Local Authority equipment location within an unmetered pillar.

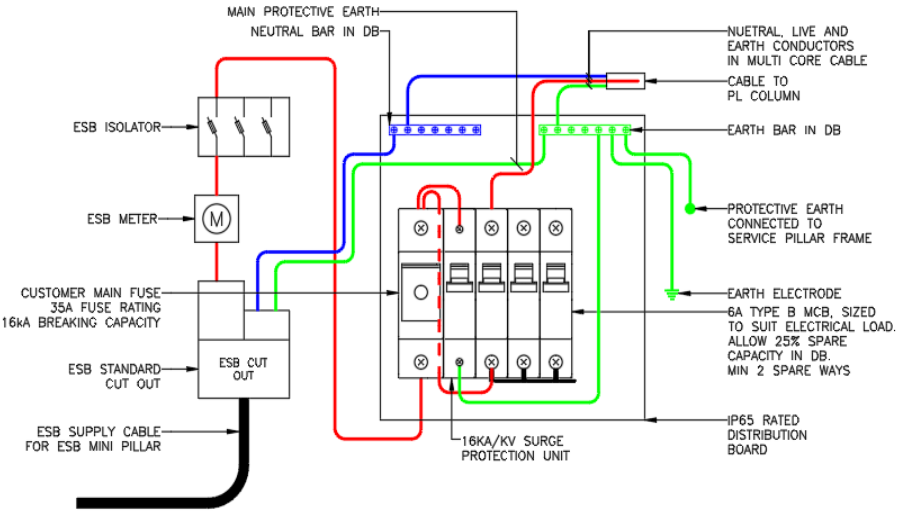


Sample Unmetered Customer Service Pillar Wiring Diagram

Location of DB in Unmetered Pillar

9.4.3 Metered Pillar Wiring Diagram

Below (left) is typical wiring diagram of a distribution board within a metered pillar for a public lighting electrical connection. Below (right) gives a visual representation of the ESB Networks and Local Authority equipment location within a metered pillar.



Sample Metered Customer Service Pillar Wiring Diagram

Location of DB in Metered Pillar

9.4.4 Public Lighting Column Cut Out

Public Lighting columns and other equipment installed on the street within Cork City require a means of local isolation.

The use of circuit breakers (MCB's) in public lighting columns is **not permitted** by Cork City Council's Public Lighting Department.

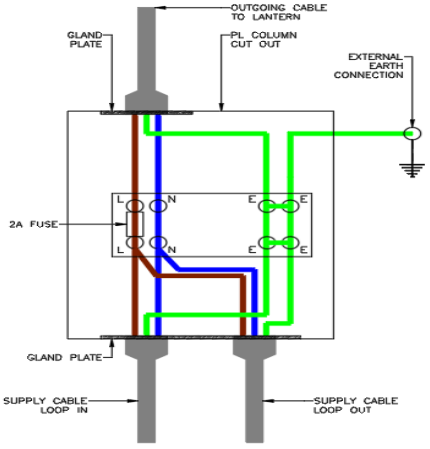
Fused isolators such as Lucy Zodian Titan2 (NT06) double pole, single phase fused cut outs, shall be used in all new exterior public lighting columns. Any isolation point within public lighting columns shall be designed to meet the criteria below as a minimum:

- Designed and tested in accordance with BS 7654
- **2A fuse rating**
- IP22 rating
- Double pole isolation and Single fuse
- Electroplated brass terminals with serrated bores
- Maximum cable size of 16mm^2 stranded copper conductors
- Cable entry via PVC grommets as standard

- Outgoing cables exit below horizontal to form drip loop
- Sealing wire facility

Below is an image of a typical Lucy Cut Out Fuse and Typical Wiring Detail for a public lighting column with an electrical supply cable looped in and looped out to the next public lighting column.

Public Lighting Column Cut Out



Public Lighting Column Cut Out Wiring Diagram

9.4.5 Photocell Specification

9.4.5.1 General Information

All photocells shall be 7-pin NEMA type socket to ANSI 136.10

All photocells shall have a switching regime of 35/18lux and have a minimum of 10-years warranty.

Westire 8480 Green Base Photocell

9.4.5.2 Standard Lantern

Switching of public lighting shall be via a photo-electronic switch integrated into the LED luminaire, this must be the Westire 8480 photocell (Green Base), and each luminaire shall be individually controlled by this photocell. The photocells used must comply with the latest version of IS 428:1991.

9.4.5.3 Decorative Lantern

Switching of decorative public lighting lanterns shall be by the use of miniature photo-electronic switches integrated into the LED luminaire, this must be the Westire Acro Mini, and each luminaire shall be individually controlled by this photocell. The photocells used must comply with the latest version of IS 428:1991.

Westire Acro Mini Photocell

9.4.5.4 Lanterns Mounted on ESB LV Networks

All upgraded ESB LV Network mounted luminaries shall be controlled via an individual photocell (8480 or Acro Mini) and shall not make use of the ESB LV Network Overhead

Switchwire as was the practice in the past. The switchwire connection/cable shall be removed when and where required for Cork City Council by ESB Networks operatives on Cork City Council's behalf.

9.5 Earthing

9.5.1 General Information

All earthing and bonding shall comply with the requirements of the National Rules for Electrical Installations IS:10101 (2020) and with any additional requirements. Circuit protective and equipotential conductors shall be installed and shall be green/yellow PVC or XLPE insulated.

Where bolted connections are required, these conductors shall be terminated in accordance with manufacturers' instructions, in correctly sized purpose made lugs. Such connections shall be made with non-ferrous nuts, bolts and washers.

The circuit protective conductor shall be of equal cross-sectional area to the associated circuit conductor except where it is contained within a composite cable when its cross-sectional area may be reduced as permitted in the National Rules for Electrical Installations.

All extraneous conductive parts, as described in the National Rules for Electrical Installations shall, where required in these rules, be bonded to the main earth terminal in accordance with these Rules. A separate circuit protective conductor of not less than 6mm² cross-sectional area shall connect all metal enclosures of all electrical components to the main earth terminal.

A circuit protective conductor shall connect the earth terminal on each lantern to the main earth terminal associated with the service cut-out unit.

Earth electrodes shall be as per IS 10101 Sect. 542.2.3

All customer service pillars must have an independent earth utilising either one of 9.5.2, 9.5.3 or 9.5.4.

9.5.2 Solid Copper Lattice Mat (Preferred Option)

600mm x 600mm x 3mm Solid copper lattice mats are often used for potential grading and are a preferred option on installations where touch and step potential could cause problems. Cork City Council recommends this earth mat for installation in Urban environments with the provision of an adjacent chamber where the bond to the lattice can be inspected.

9.5.3 25mm Earth Strap

The length of selection is dependent on the resistivity of the ground and should be installed in a trench which is situated at 180 degrees from the DSO earth.

9.5.4 Earth bar

A driven earth bar **must only** be undertaken with a full knowledge of the Utilities in the area including a full risk assessment. Earth electrodes shall be of the Copper plate type with an area of 1/2m² and set vertically at a minimum depth of 600mm from the ground surface to the top of the plate to ensure that the soil in close proximity is sufficiently damp as per IEE Guidance Note 8. Earthing & Bonding.

9.6 Customer Service Pillars Specification

9.6.1 General Information

ESB Network's mini pillar and Cork City Council's customer service pillars shall be installed a minimum of two metres apart. The public lighting customer service pillar shall be sited so that is freely accessible to the public and in not permitted be erected on ground likely to remain private or inaccessible to the Cork City Council's public lighting maintenance contractor.

Earthing for the ESB mini pillar should be in accordance with the ESB National Code of Practice for Customer Interface (Latest Edition).

The LV duct from the ESB mini pillar shall enter the public lighting customer service pillar on the left-hand side which is allocated to the ESB cut-out, meter and isolator switch. The entry for cables shall be via the root.

The customer service pillar shall be mounted as per manufacturers specification on a 150mm thick foundation of mix ST2 concrete. After completion of the cabling the feeder pillar base shall be filled to 25mm below the door with rounded coarse aggregate conforming to BS 882 graded aggregate 14mm to 5mm.

The customer service pillar shall be fed via an ESB Networks approved 50mm MDPE duct, from the ESB's mini pillar vault to the public lighting customer service pillar. This duct shall be RED in colour and shall be a continuous service duct with no breaks along its length. The duct must be accessible along its length

The electrical duct shall be buried at a minimum depth of 600mm with ESB Networks approved yellow warning tape 300mm below finished ground level along the full length of and over the electrical duct.

The LV duct from the ESB mini pillar shall enter the public lighting customer service pillar on the left-hand side.

9.6.2 Pillar Specification

Customer service pillar shall

- be IP44 (minimum)
- be hot dip galvanised in accordance with BS EN 1461
- have vent holes to properly vent the customer service pillar

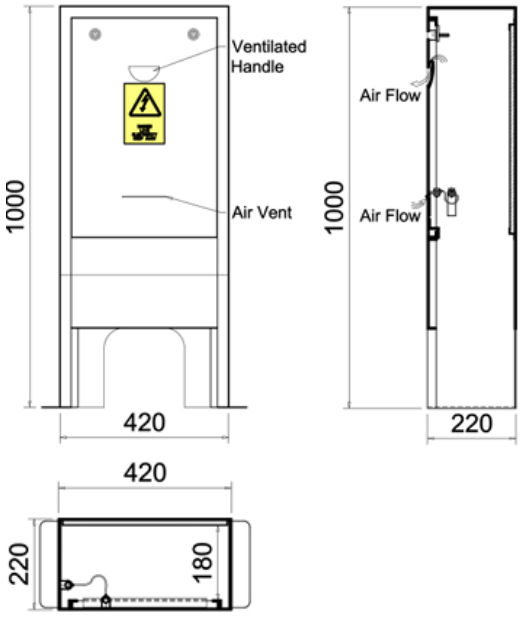
- shall be constructed of 3mm thick mild steel (including door and bottom plate)
- Detachable door on unmetered pillar or vertical opening doors on metered pillars
- Fitted with Triangular-Head lock
- Earth Stud fitted as standard with earth strap & bolt, nuts & washers on both body & door
- Include a full size ***12mm flame retardant*** grade plywood treated with water repellent
- Have a durable warning sign indicating "Danger 400 Volts" or "Danger 230 Volts" as required, in 5cm high letters, this shall be fixed to the front of the pillar.
- The extension plate, including the planted root portion of the below ground and 50mm of the above ground shall be protected by a ***bitumous coating***.

9.6.3 Unmetered Pillar Dimensions

Unmetered supplies apply to schemes where the electrical demand is less than 2kVA and there is only 1nr load profile being connection to the unmetered pillar.

Unmetered Customer Service Pillar Details

	Unmetered Supply
Minimum Dimensions	Height - 1000mm Width - 420mm Depth - 220mm
Root depth	320mm
Minimum opening size	Height - 515mm Width - 330mm
Space requirements	ESB Networks: 125mm wide **LHS** Customer: 200mm wide **RHS**



ESB Equipment includes:

ESB Networks Single Phase Cut Out
ESB Networks Single Phase Isolator

9.6.4 Metered Pillar Dimensions

The LV duct from the ESB mini pillar shall enter the customer service pillar on the left-hand side. Contractors to allow for 50mm x 50mm trunking to run ESB incoming cable to the top section of the pillar which is allocated to the ESB Cut-Out and Isolator Switch and Electrical Meter.

The top section of the Metered Pillar shall be for the use of ESB equipment while the bottom section shall be for the use of Cork City Council equipment. The entries between the lower and upper section shall be no more that 50mm in diameter and fitted with plastic breakout grommets.

Metered Customer Service Pillar Details

	Metered Supply	
Minimum Dimensions	Height - 1600mm Width - 600mm Depth - 225mm	
Root depth	330mm	
Minimum opening size	ESB	Height - 600mm Width - 465mm
	CCC	Height - 490mm Width - 465mm
Space requirements	ESB Networks: Top section Customer: Bottom section	

Equipment includes:

ESB Networks Single Phase or Three Phase Cut Out
ESB Networks Single Phase or Three Phase Isolator

9.7 ESB Electrical Connection Procedure

A new power connection application form (NC4) must be submitted to ESB Networks via their online application portal, when processed ESB will release both a job number and a MPRN number. A new power application shall be made in the name of the developer and ***NOT*** in the name of Cork City Council unless specifically requested by a member of Cork City Council's Public Lighting Department in writing.

Developers and consultants must start the address of the customer service pillar with the nearest Eircode address available, typical address layout shown below.

1. **Applicants full name and full site address where the connection points are to be provided.**
(If a company /partnership/local authority give **full company or trading name**). Please note if applying on behalf of a client (in the case of consultants) a letter of authorisation is required

Title: Mr ☐ Mrs ☐ Ms ☐ Company / Other _____

T12 ACN8, BIRCH GROVE,

TOGHER, CORK CITY

The following items are required to allow ESB Networks to undertake a connection to an on street electrical power supply:

MPRN

The MPRN relates to the point of supply and will be issues to the applicant along with the connection agreement. This must be recorded for all future transactions in relation to the supply.

Connection Agreement

All customers are required to enter into a connection agreement with the Distribution Network Operator (DNO). This agreement sets out the terms and conditions under which a supply is taken from the DNO's network. A major part of the connection agreement will deal with the validation of the load connected to the network. It is essential that the inventory represent the customer's connected load

Ducting Certificate

A ducting cert must be submitted to ESBN in reference to the Job number to certify the duct clearance between the ESB point of supply and the customer service pillar.

Safe Electric Completion Certificate

The electrical contractor shall provide a completion certificate for the exterior lighting scheme and shall be responsible for progressing the application for supply, to completion and switch on of the scheme. The customer copy of the electrical test certificate shall be retained and submitted to Cork City Council's Public Lighting Department with the completed **Taking in Charge** form as detailed in Appendix 9.

Energy Supplier Nomination

The customer must enter into a supply contract with their chosen supplier of electrical energy prior to connection.

Since 2000 the market for unmetered electricity supplies has been gradually de- regulated to allow electricity to be purchased from any licensed electricity supplier.

10 Public Lighting Columns and Brackets

10.1 Columns Standards

Standard Reference	Standard Name
IS EN 40-1:1992	Lighting columns - Part 1: Definitions and terms
IS EN 40-2:2004	Lighting columns - Part 2: General requirements and dimensions
IS EN 40-3-1:2000	Lighting columns - Part 3-1: Design and verification - Specification for characteristic loads
IS EN 40-3-2:2013	Lighting columns - Part 3-2: Design and verification - Verification by testing
IS EN 40-3-3:2013	Lighting columns - Part 3-3: Design and verification - Verification by calculation
IS EN 40-4:2005	Lighting columns - Part 4: Requirements for reinforced and prestressed concrete lighting columns
IS EN 40-5:2002	Lighting columns - Part 5: Requirements for steel lighting columns
IS EN 40-6:2002	Lighting columns - Part 6: Requirements for aluminium lighting columns
IS EN 40-7:2002	Lighting columns - Part 7: Requirements for fibre reinforced polymer composite lighting columns
PD6547:2004 +A1:2009	Guidance on the use of BS EN 40-3-1 and BS EN 40-3-3
BS EN ISO 1461:2009	Hot dip galvanized coatings on fabricated iron and steel articles. Specifications and test methods
BS EN 1991-1-4:2005 +A1:2010	Eurocode 1. Actions on structures. General actions. Wind actions
CD 354:2019	DMRB Vol.2 Highway Structures Design (Substructures and Special Structures), Materials. Section 2 Special Structures Part 1 BD 94/07 Design of Minor Structures (Formerly BD 26/99 & 26/04)
NRA BD 26/04	NRA Addendum to BD 26/04
BS EN 287-1	Qualification test of welders. Fusion welding. Steels
BS EN 288-9	Specification and approval of welding procedures for metallic Specification and approval of welding procedures for metallic

	materials. Welding procedure test for pipeline welding on land and offshore site butt welding of transmission pipelines. Welding procedure test for pipeline welding on land and offshore site butt welding of transmission pipelines.
BS EN 1011-1	Welding. Recommendations for welding of metallic materials. General guidance for arc welding
BS EN 1011-2	Welding. Recommendations for welding of metallic materials. Arc welding of ferritic steels
BS 7371-6:1998 +A1:2011	Coatings on metal fasteners. Specification for hot dipped galvanized coatings.
BS EN 10025-2:2004	Hot Rolled Products of Structural Steels – Part 2.
BS EN 10210-2:2006	Hot finished structural hollow sections of non-alloy and fine grain steels
BS 3643 - 2007	ISO Metric Screw Threads
BS 4190:2014	ISO Metric Black Hexagon Bolts, Screws and Nuts.
BS ISO 10474:2013	Steel and steel products -- Inspection documents

Table 9 Public Lighting Column Standards

* **Note:** Where contradictions or ambiguities arise between the standards, the standard listed higher in the order of precedence shall govern.

10.2 General Requirements

All columns install within the same scheme, whether over one or more phases, shall be of the same type and design unless otherwise instructed by Cork City Council.

Design calculations for columns and brackets are subject to review by Cork City Council. These shall be submitted with proposed exterior lighting scheme designs when requested by Cork City Council's public lighting engineer.

Exterior Lighting columns and ducts to be taken in charge for maintenance by Cork City Council shall **NOT** be erected on grounds that are likely to remain private or inaccessible, e.g. private gardens, green areas, behind private walls, ESB / Bord Gáis Substation enclosures etc. All public lighting columns must be situated on accessible public access ways e.g. footpaths.

Public lights should not be erected beneath or adjacent to HV & LV overhead powerlines without explicit approvals from ESB Networks. For guidance on permissible distances in which a public lighting column can be located to the ESB overhead MV & LV lines please refer to ESB Code of Practice for "*Avoiding Hazards from Overhead Electricity Lines*".

10.3 Column Adornments

No items shall be permitted to be **attached or hung** from public lighting columns under Cork City Council's control. See below is a list of items:

- Banner Arms
- Hanging Baskets (for flowers or other similar items)
- Flags (of any origin)
- Posters or advertisement signage
- CCTV cameras
- Traffic/Pedestrian Counters
- Christmas decorations/lighting

The above is not a comprehensive list but is given to indicative type of items not allowed to be attached or hung from public lighting columns within Cork City.

Requests can be made to Cork City Council to attach / hang items from public lighting infrastructure, this will be reviewed on a case by case basis in conjunction with the manufacturer's details. General rule of thumb is a sign having a max area of 0.3 m^2 at a height of 2.5-metres to centre with a 0.3-metre offset. The shape coefficient of the sign must be 1.8.

Cork City Council may require banner arms to be installed on exterior lighting columns at main city centre locations. The dimensions of these banners shall be specified by a Cork City Council engineer and both the column and foundation shall be designed to suit the requirements. The proposed shall be sent to Cork City Council for approval.

The lighting column manufacturer shall be registered with and certified by either NSAI or , British Standards Institute of Quality Assurance Services for the design, manufacture, supply and verification of road lighting columns and brackets under their quality assessment schedule to ISO 9001.

The quality assurance certification shall relate to the specific lighting column material being proposed. Cork City Council reserves the right to request proof of certification from the proposed column manufacturer.

10.4 Standard Column Types

Approved Column Types	Approved Heights
8 Sided Galvanised Column	5m, 6m, 8m, 10m and 12m
8 Sided Galvanised Column (mid hinged)	5m, 6m and 8m
16 Sided Galvanised Column, Painted to RAL 9007	5m, 6m and 9m

Table 10 Approve Public Lighting Column Types and Heights

Stepped tubular columns are not acceptable to Cork City Council. (This condition applies to all Exterior Lighting Schemes designed since the issue of Revision 1 of this document in January 2009).

10.5 Column Heights

The below table gives a typical public lighting column size with an associated location for design guidance. This may change as determined in a case by case instance.

Public Lighting Column Height	Public Lighting Column Location
6 meter columns	Lighting columns generally to be located within housing estates
8 and 10 meter columns	Lighting columns generally to be located on Local and Regional Roads
10 meter columns	Lighting columns generally to be located on National Roads
12 meter columns	Lighting columns generally to be located on Motorways/dual carriageways

Table 11 Public Lighting Column Height and Typical Locations

10.6 Column Specifications

10.6.1 General Overview

Tapered octagonal public lighting columns shall be used as the standard type of column for public lighting in Cork City.

Tapered 16 Sided Galvanised Column, Painted to RAL 9007 (Grey aluminium) shall be used where requested on public lighting scheme that require a more decorative public lighting column, the use of these public lighting columns shall be agreed with Cork City Council's Public Lighting Department prior to installation.

All columns and brackets must be designed to comply with all sections of I.S EN 40 'Specification for Lighting Columns'. Manufacturers must confirm that their columns have a fatigue design life of a minimum of 25 years in accordance with IS EN 40-3-3.

Columns shall be manufactured from heavy duty steel of grade S355J2H BS EN 10219. The thickness of the steel shall be at least 3mm and fabricated using longitudinal welding only, columns shall be hot dip galvanised to BS EN 1461 both inside and out.

An earthing connection shall be provided in the base compartment. The fastening screw for this connection shall be stainless steel with an M8 coarse thread.

10.6.2 Structural Loadings

The columns must be designed to take an outreach bracket and a luminaire, even when the luminaires will be post-top mounted. There are details of bracket dimensions and luminaire weights and windage are given for each column and pole type under their specific

specification below.

The columns must be designed to support a standard sign as specified in DN-STR-03018 'Design of Support Structures for Roadside Furniture', published by Transport Infrastructure Ireland. The sign must have an area of 0.3 m^2 at a height of 2.5-metres to centre with a 0.3-metre offset. The shape coefficient of the sign must be 1.8.

The columns must be designed for a Rationalised Wind Factor (RWF) of 587 N/m2 and the exposure category must be Category II. (Note: Calculations using the 60-minute storm, or the 3-second gust wind speed will not be acceptable.)

In IS EN 40, In IS EN 40-3-1, the terrain categories CE (Z) that must be used are as follows:

- Category III for columns below 8 meters in height.
- Category II for columns 8 meters and above in height.

In IS EN 40: In IS EN 40-3-3:

- Class B partial load factor must be used.
- In Table 3, Class 3 deflection must be used.

The column manufacturer must verify by calculation, the structural design of the columns, in accordance with IS EN 40-3-3.

A column is deemed acceptable if the results of the calculations give a margin of 0.8, i.e. a safety factor of 1.25.

10.6.3 Column Door Specification

Columns must have fitted compartment doors, at a height of 1.5 metres from ground level to the centre of the door opening.

The column doors must be consistent in dimensions, to ensure interchangeability.

The door opening must have a welded-in frame with all-around weather strip. A flat steel door secured by 2nr. 8 mm stainless steel triangular head recessed bolts must be fitted. The locking triangular head bolts must have a narrow neck under the head to take a retaining washer. The bolt threads must be lightly greased to prevent seizing or binding.

The thickness of the steel door must be at least 3mm. The dimensions of the door opening must be 625mm x 120mm (height x width), and the dimensions of the doors must be 608mm x 103mm.

The weather strip must be galvanised steel, 20mm wide of at least 3mm thickness and constructed all around the inside of the door opening. It must protrude at least 6mm into the door opening to prevent the door falling into the column.

Galvanised steel strips at least 6mm thick must be welded near the inside top and inside bottom of the door opening and these must be tapped for M8 bolts that must be used to secure the door of the column in position.

An earthing connection must be provided in the column base compartment. The fastening screw for this connection must be steel with an M8 coarse thread.

A product ID label must be fixed inside each column. The label must identify the manufacturer, the product part code, the year of manufacture and the standard to which the column has been manufactured. A steel identification mark traceable to a material test cert must also be provided.

10.6.4 Base Board

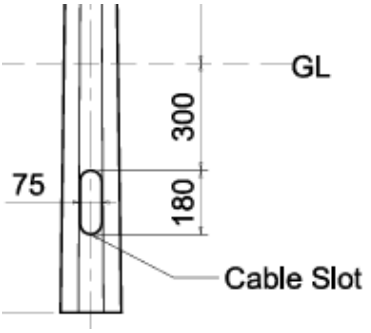
A baseboard must be fitted in each column. The baseboard must be approximately 20 mm thick.

Three coats of intumescent varnish must be applied to the baseboard to prevent fire propagation. The varnish must be as manufactured by Hamron type WD-05 or approved equivalent. The rate of coverage must be 2.5 m2/litre to provide Class 0 protection.

The baseboard dimensions must be 685 x 100 mm. The clearance between the baseboard and the inside face of door, when secured, must be not less than 130 mm.

10.6.5 Cable Entry

One number cable entry slot with smooth edges and semi-circular ends must be provided in the column root. The size of each cable entry slot must be a minimum of (H)-150mm x (W)-75mm and the corners of the cable entry slot must be rounded to a minimum radius of 25 mm. the cable entry slot must be in line with the door opening.



The top of the cable entry slot must be 300mm below ground level.

10.6.6 Root Treatment

The column planting-depth must be treated with a bituminous preservative on both inside and outside surfaces. The bitumen must extend to 250mm above ground level. In order to prepare the surface for the bitumen, any dirt or contamination must be removed and the surface degreased. Any zinc salts must be removed and the surface abraded. One coat of metal etch primer must then be applied followed by two coats of Sigma Emaline 58 (or approved equivalent), each coat being 75µm thick.

Ground level must be marked on all columns by the manufacturer

10.7 Specialist Columns

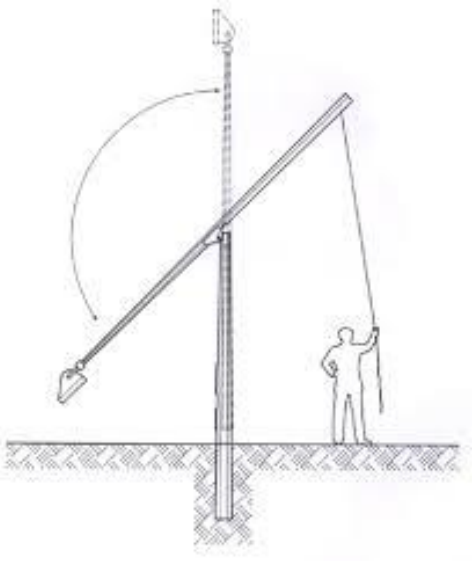
10.7.1 Mid-Hinged Columns

Columns that are to be installed in locations inaccessible to a maintenance truck, e.g. on steps / embankments / narrow laneways etc. shall be of a hinged design to allow for maintenance. This shall allow the upper portion of the public lighting column to be lowered by hand to make the lantern accessible to the maintenance operative.

Hinged columns should be used in areas where road width is less than 3.5m and are

inaccessible to maintenance vehicles.

Where columns are to be installed into parks and green spaces and hinged columns are deemed inappropriate, vehicular access must be provided for maintenance actions. The minimum paved width required for the maintenance truck fitted with a hoist is 3.5m. The paved width shall be laid out in such a manner that the maintenance vehicle does not have to reverse to egress the area.



The paved path must have sufficient structural strength to support the weight of the truck and the pressure of the truck stabilisers without incurring damage.

The hinged column must be orientated so that the upper section of the public lighting column does not clash with any other street furniture and nearby buildings when lowered to the ground.

All hinged columns must be delivered with a standard anti-vandal locking screw as standard.

Root mounted mid hinged columns is the preferred type of hinged column. Flange mounted hinge columns can be installed with agreement with Cork City Council.

10.7.2 Anti-Vandal Columns

Designers shall take into consideration the location at which an exterior lighting column are to be installed. The level of vandalism likely should be considered, more robust columns are required in areas of high instances of vandalism. Cork City Council's Public Lighting Department shall be consulted on this point prior to selection of anti-vandal columns.

The access door for the anti-vandal pole is to be installed 300mm below the full height of the column. The access door for anti-vandal columns must be 400mm by 100mm in dimension.

They shall be protected against corrosion by hot-dip galvanising to BS EN 1461.

10.7.3 Passively Safe Columns

All passively safe lighting columns shall comply with BS EN 12767 with the appropriate energy absorption category and performance class selected based on speed limit and surrounding location. It is the designer responsibility to choose the correct column in line with the statutory requirements.

Design calculation in determining the preferred passively safe column shall be submitted to cork city council for review and approval at detail design stage.

The electrical supply to passively safe columns shall automatically electrically disconnect within 0.4 seconds to ensure that any vehicles that strike the columns do not become live

upon impact.

Passively safe plug and socket connection shall be used on all passively safe columns. This quick disconnect function will prevent public lighting poles and associated cables from becoming live conductors at crash sites.

Cable connector to be manufactured to BS EN 60309 and EN 12767.

Additional guidance on the implementation of passively safe columns can be found in ILP TR 30.

Chambers are required at each lighting column based on the electrical disconnection method used where passively safe columns are deployed.

Scheme designers shall consult with Cork City Council and agree areas which required passively safe columns to be installed. It is the designer's responsibility to choose the correct passively safe column in line with BS EN 12767.

10.8 Brackets

10.8.1 Public Lighting Column and Typical Bracket Size

Public Lighting Column Height	Bracket Outreach
6 Metre Public Lighting Column	Pole Top Mounted Bracket Preferred Max allowed outreach bracket 1.0m
8 Metre Public Lighting Column	Pole Top Mounted Bracket Preferred Max allowed outreach bracket 1.5m
10 Metre Public Lighting Column	Max allowed outreach bracket 2.0m
12 Metre Public Lighting Column	Max allowed outreach bracket 2.0m

Table 12 Public Lighting Column and Typical Bracket Size

10.8.3 Network Mounted Brackets

Cork City Council only accept 2nr types of brackets mounted on ESB Networks pole. These bracket types are listed in the table below.

Above the ESB LV Conductor
1m x 0.5m Bracket

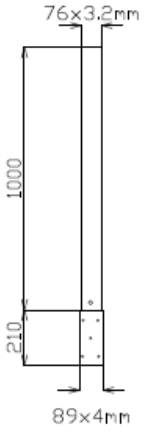
Under the ESB LV Conductor
0.3m Outreach Bracket

10.8.4 Non Network Column Mounted Brackets

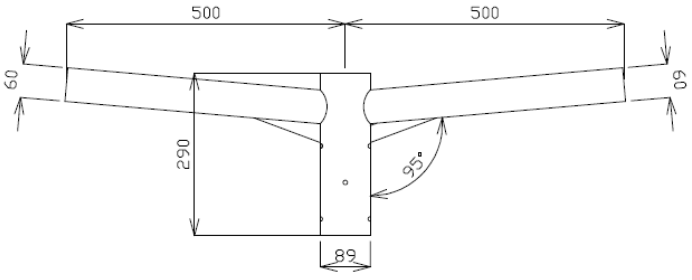
The use of outreach brackets on new installations is not encouraged by Cork City Council's Public Lighting Department. Luminaires are generally desired to be post top mounted without the use of an outreach bracket, except where Cork City Council's Public Lighting Department permit the use of an outreach bracket.

Where 16 sided painted columns are being used in a new scheme, then the 1.25m Cork City Council decorative bracket is to be used as standard, Cork City Council may elect to not use this bracket from time to time and the designer shall consult the Cork City Council's Public Lighting Department for confirmation.

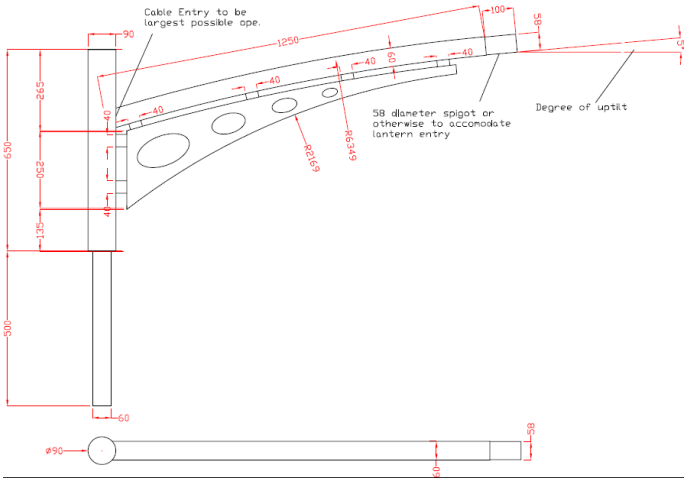
Non Network Mounted Bracket
1.0m Straight Up Bracket



Non Network Mounted Bracket
0.5m Twin Arm Bracket



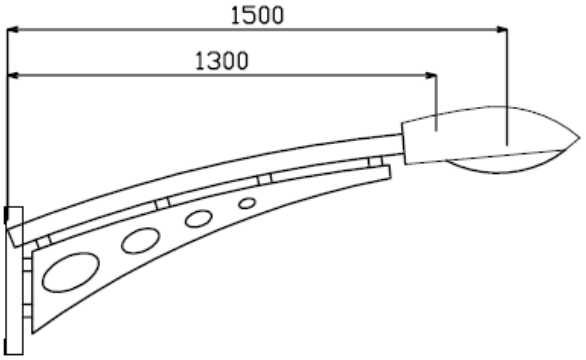
Cork City Council Decorative Bracket
(To be mounted on 16 side public lighting column)
1.25m Outreach Length



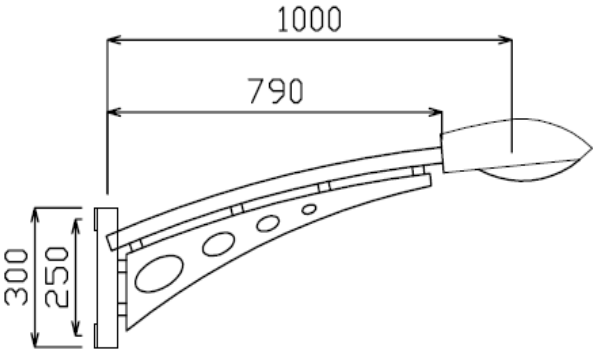
10.8.5 Wall Mounted Brackets

Below are the 3nr options for wall mounted lanterns within cork city. Any other wall mounted bracket outside of these shall need to be approved by Cork City Council's Public Lighting Department.

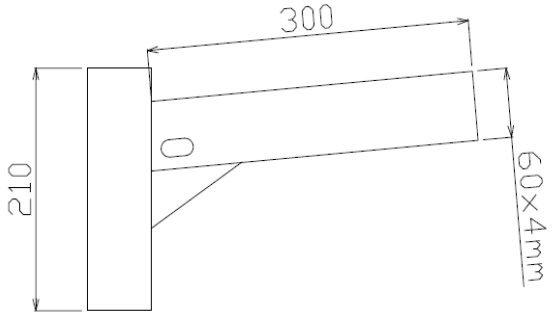
CCC Decorative Wall Mounted Bracket.
1.3m Outreach length



CCC Decorative Wall Mounted Bracket.
0.79m Outreach length



Standard Wall Mounted Bracket
0.3m Outreach length



11 ESB Overhead Network Public Lighting

11.1 General Information

Currently all LV overhead network distribution poles are owned by ESB Networks until such time as they are formally handed over to Cork City Council and bear a Cork City Council Deadsure Asset number and logo.

Cork City Council may require the installation/upgrade of public lights on ESB Network poles which are fed by the ESB LV overhead distribution system. This work will be undertaken by the Cork City Council's public lighting maintenance contractor in line with the ESB guidelines "ESB Requirements for Work on Public Lighting on ESBs Network".

11.1.1 Bonding of ESBN Steel Columns

On identification of un-bonded ESB network steel poles, the contractor shall notify the ESB Networks Customer Service Supervisor. Any proposed works shall stop immediately on the ESB Network pole(s) until ESB Network Technicians attend site to carry out the required works on the ESB Networks pole. Once confirmation of the bonding of the poles has been received from the ESB Networks, then the contractor can carry out their purposed works.

11.1.2 Interface Box

An electrical interface box (shown in image to the right) shall be fitted to ESB Network poles where any new LED lantern is fed direct from the ESB Networks LV overhead network. The interface box shall provide a point of isolation between the ESB Networks LV overhead network and Cork City Council's public lighting lantern. The box shall be IP65 rated as standard.

Network Interface Box

The interface boxes have been approved for use by ESB Networks and shall meet the requirements set out in the National Code of Practice for Customer Interface as published by ESB Networks. Cork City Council can advise the developer with further information if required.

Dimensions (Minimum working envelope):	Height	320mm
	Width	220mm
	Depth	120mm

Equipment shown:

- ESB Networks Single Phase Cut Out
- Customer Single Phase Isolator
- (10kV/kA Single Phase Surge Protection also required by Cork City Council)
- 6A Type B MCB Circuit Breaker

Interface box shall be complete with 10kA/10kV surge protection device with remote LED

lamp indicator at the bottom of the interface unit. This shall allow visual notification from the ground if the surge protection devices have been activated.

11.2 Brackets on ESB Network Poles

Only the below public lighting brackets shall be mounted on ESB Network Pole as per ESB specifications.

Under Conductor Layout

- 0.3m Outreach Bracket

Over Conductor Layout

- ESB Wood/Steel pole adaptor with
    - 1m x 0.5m Outreach Bracket

Above the ESB LV Conductor
1m x 0.5m Bracket

Under the ESB LV Conductor
0.3m Outreach Bracket

Brackets for use with ESB owned columns shall be as per ESB Requirements. However, any new public lighting scheme shall not use ESB columns for the mounting of new public lighting lanterns. New dedicated public lighting columns shall be installed for the mounting of public lighting lanterns.

Outreach Bracket designs are to be approved prior to installation by Cork City Council's Public Lighting Department.

Bracket arms shall be of the sleeve fitting type, with the bracket fitting snugly over the wood/steel pole adaptor.

Bracket arms shall be fitted with a device to prevent rotation of the brackets in service. Eight unobtrusive socket screws shall secure each bracket arm to the column.

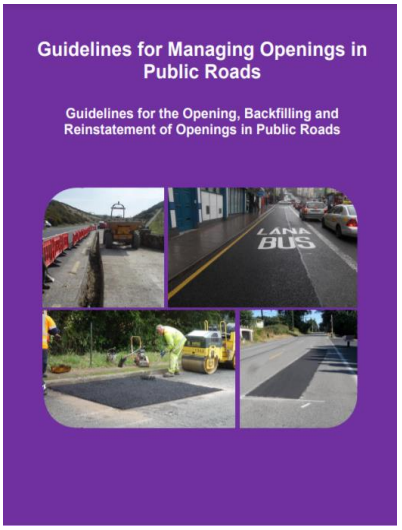
12 Civil Works

12.1 General Information

All public lighting ducting shall be located outside the boundary line of private properties. Public lighting ducting must not at any time pass through utility chambers such as ESB, Open Eir, Virgin Media etc. The only public lighting duct that is permitted to enter an ESB chamber is the linking duct from the chamber in front of and ESB mini pillar to the Local Authority customer service pillar.

The ESB mini pillar and Local Authority customer service pillar shall be separated by a minimum of 2 metres as per ESB specification. The Local Authority customer service pillar can only be less than the ESB require 2 metres by agreement with the ESB Local Area Manager.

12.2 Trenching and Reinstatement Requirements



Where trenching or reinstatement works are required in the roadway (road, footway or grass verge) due to new public lighting works, then all reinstatement must be undertaken in line with “Guidelines for the Opening, Backfilling and Reinstatement of Trenches in Public Roads” issued by the Department of The Environment and Local Government known as “the Purple Book”

All reinstatement must be undertaken in line with Cork City Council’s Road Opening Licence Conditions. Road opening licence shall be processed by the Roads Section within Cork City Council. All conditions of the road opening license shall be agreed with the Roads Section within Cork City Council prior to any civils work on site.

The developer shall be liable for any road opening license fees and charges associated with the road opening licenses.

12.3 Ducting Specification

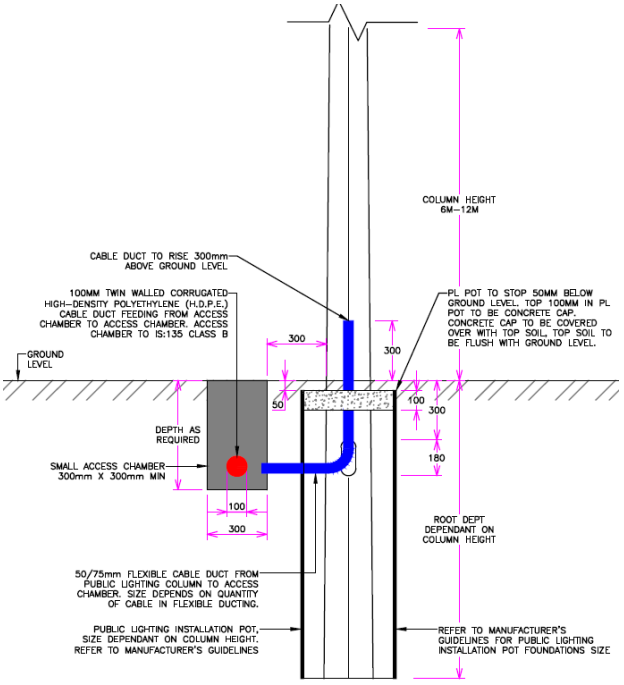
Exterior Lighting ducting shall be 100mm diameter twin walled corrugated high-density polyethylene (H.D.P.E.) to IS:135 Class B unless otherwise advised by Cork City Council’s Public Lighting Department. The ducts shall be ***RED*** in colour.

Contractors to allow for 2No. 50/75mm ***RED*** flexible ducting to be run from the local access chamber into the public lighting column to facilitate a loop in and loop out of the electrical cable.

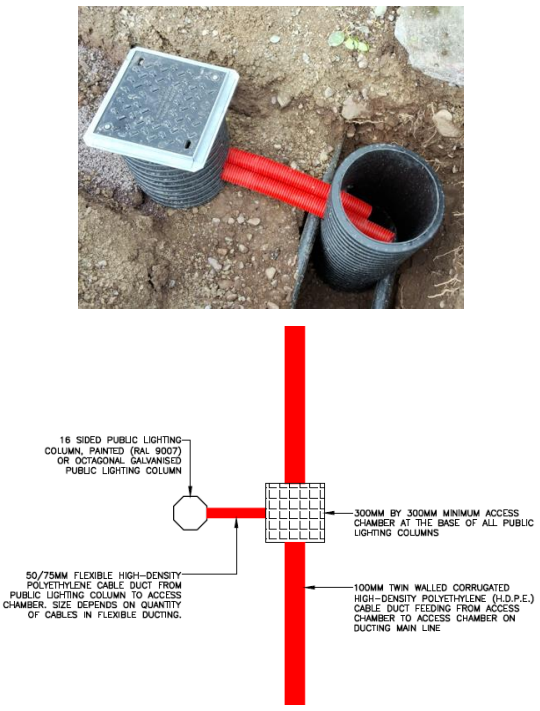
At road crossings, 2No. 100mm diameter twin walled corrugated high-density polyethylene ducts shall be installed to future proof any other potential road crossing requirements.

An additional 100mm polyethylene twin walled corrugated orange duct serving the ITS

network shall be installed in tandem with the exterior lighting ducting when directed by Cork City Council. This shall be advised at the design phase.



Typical Public Lighting Column Detail



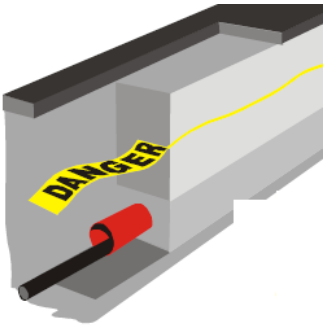
Public Lighting Ducting Overview Plan

Please Note: UK standards specify orange ducts for Exterior Lighting cables. This is not compliant with the Irish Regulations IS:10101 requirements that red ducts must be used for exterior lighting cables

The ducting must have the words “Public Lighting” stamped at 1m intervals. The letters must be 9mm in height.

12.4 Ducting Installation

Ducts shall be buried to the correct depths as specified in the Purple Book. Refer to the standard drawings SD1 to SD14 for the correct depts. The colour of the public lighting and any other ducting must be as described in NSAI document *“Summary of Colour code for buried plastic piping”*



Minimum cable bending radii shall be observed as outlined by manufacturer guidelines.

All ducts shall be marked with electrical marking tape at 300mm below finished ground level as per IS 10101.

The public lighting ducting shall be laid in fully coupled unbroken lengths, which are accessed at the cable drawing-in stage by cutting at each lighting column access chamber or other termination point.

The public lighting ducting shall contain a 10mm diameter knot-free continuous draw-rope securely anchored at both ends. The duct must be kept clean and its ends sealed with a plastic cap or plastic wrapping following installation to prevent ingress of grit or stones which can damage cables. Ducting shall be properly coupled and all joints glued.

12.5 Electric Vehicle Ducting

Electric vehicle ducting in Ireland must comply with Irish Standards, ESB Networks' guidance, and site-specific requirements. A typical public on-street installation uses Ø125mm red ducts for main EV cable runs and Ø50mm ducts for individual charger tails, buried to the depths specified on ESB design drawings with sand bedding and warning tape above the ducts.

All work must conform to NSAI I.S. 10101:2020, covering conduit separation, earthing systems, and certification by a SAFE-registered contractor. ESB Networks public-domain guides require installers to coordinate final ductwork, joint chambers, and mini-pillar siting with utility engineers. Chargepoint penetration ducts should be flushed, capped, and marked, sized to allow future cable upgrades.

EV ducting and public lighting ducting must be physically separated to prevent electromagnetic interference, reduce thermal impact, and maintain compliance with safety standards. As per ESB Networks and NSAI I.S. 10101:2020 recommendations, a minimum horizontal separation of 300mm between EV supply ducts and public lighting ducts when installed in the same trench, with vertical separation of at least 75mm if crossing is unavoidable. Both duct systems should have independent marker tapes and sand bedding, and crossovers must be agreed upon with the local authority or ESB engineer. This separation ensures safe maintenance access, avoids shared fault risks, and supports future scalability for EV infrastructure without compromising lighting circuits.

Please refer to Cork City Council's electric vehicle charging strategy (June 2024) for further details.

Public lighting ducting and Electric Vehicle ducting shall be completely sperate and shall not be inter connected.

12.6 Access Chambers

12.6.1 General Information

Suitable access chambers shall be used at all intersections, transverse road crossing locations, at every 50m of straight run of ducting and at every change of direction greater than 30º. Access chambers must be provided at all access points for road crossings.

Access chambers shall also be considered at locations where there is significant deviation along the route that would make cable pulling difficult and be prone to cable damage during installation.

All public lighting columns shall have a local access chamber at the foot of the column to allow for ease of rewiring in the future if required. A minimum of a small inspection chamber shall be located at the foot of the public lighting column, this may be required to be larger depending on the number on ducts and cables emanating from the inspection chamber.

Where chambers and public lighting pillars are located on grass areas, then a small concrete plinth is required to in case the public lighting column and access chamber. Please refer to images below.

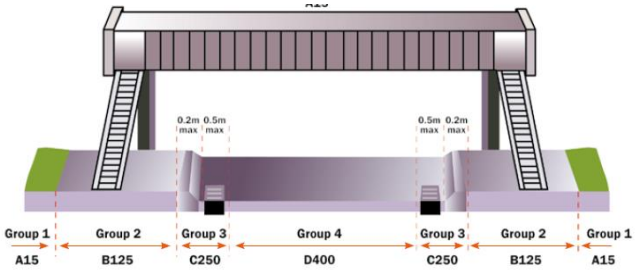
Access Chamber in Grass

Access Chamber in Footpath

PL Pillar in Grass

12.6.2 Access Chamber Specifications

Access chambers installed in group 1 or group 2 areas as indicated in the image to the right, shall be rated to a loading class of B125 (12.5 tonnes). These access chambers shall be located in grass areas, footways, pedestrian and comparable Areas.



Access chambers installed in group 4 areas (road carriageway) as indicated in the image above shall be rated to a loading class of D400 (40 tonnes). These access chambers shall be located in carriageways of roads, and parking area, for all types of vehicles.

The 3 main sizes of access chamber approved for use by Cork City Council are listed in the table below.

Access Chamber Size	Access Chamber Dimension
Small Access Chambers	300mm x 300mm
Medium Access Chambers	450mm x 450mm
Large Access Chambers	600mm x 600mm

Table 13 Approved Access Chamber Sizes

The access chamber shall be similar or approved to the East Jordan DATUM non-structural chamber (image to the right). The access chamber shall be manufactured in one piece or

sectional pieces but still confirm to the required strengths necessary.

It shall have

- High strength and rigidity,
- Tapered interlocking skirt for stacking integrity
- Precision duct entry cut-outs
- Designed to ensure NJUG recommended depths of cover
- Cover and frame height and tilt adjustment
- Corrosion resistant

12.6.3 Access Chamber Covers

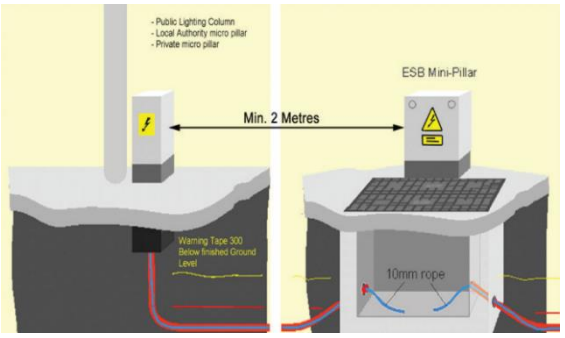
All access chamber covers shall be Composite Manhole Cover certified to EN 124-5:2015 with galvanized steel frame as per East Jordan or similar approved.

The access chamber covers shall be marked with either “Public Lighting” or “Street Lighting” on the cover. The access cover shall be held in place with a M8 threaded stainless steel screw. Tapping of the galvanised steel frames is not permitted.

The opening of the access chamber shall not reduce the clear opening of the access chamber pit.

12.7 Customer Service Pillar & ESB Mini Pillar

ESB Networks mini pillars and customer service pillars shall be installed a minimum of 2m apart.



If this is not physically possible, only with the explicit permission of ESB Networks, these two pillars may be installed closer than the stated 2m but will be required to be equipotently bonded in accordance with IS 10101.

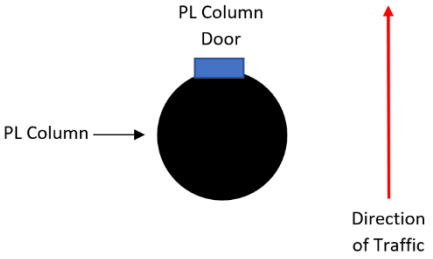
In all cases it is forbidden to utilise the same chamber to service both an ESB Networks (DSO) mini pillars and customer service pillars (Micro-Pillar). If this is found to be the case ESB Networks will refuse to connect the customer service pillar and Cork City Council will not be in a position to take the scheme in charge.

Cork City Council’s customer service pillar shall have an access chamber location at the front of it. 2nr 100mm public lighting twin wall duct shall be run from the access chamber into the foot of the customer service pillar to allow for cable entry into the pillar. A minimum 300mm x 300mm access chamber shall be installed however, the proposed access chamber may need to be larger depending on the quantity of cable leaving the customer service pillar.

12.8 Column Installation

12.8.1 General Information

The public lighting column shall be correctly aligned in the vertical position with the door opening facing away from oncoming traffic as shown in the image to the right.



Columns must be erected securely and vertically in the exact positions indicated in the design drawings.

During Taking in Charge surveys, columns found to be in positions other than their design locations, and unless previously agreed with Cork City Council or its representative must be relocated to their design positions.

Columns are to be installed in line with the recommended minimum clearances from the edge of carriageway to the face of the lighting columns in *Table 1 of BS 5489:2020*.

If any public lighting columns are to be sited adjacent to overhead ESB Network cable, the developer shall seek approval from the ESB design offices as to the exclusion zone with regards to the intended column height. Cork City Council reserves the right to request proof of this approval prior to TIC.

Columns shall be erected in line with the recommendations of EN 40-1 regarding planting depths of columns. The contractor shall confirm with the column manufacturer/supplier the recommended depth for the root of the columns he proposes to use.

12.8.2 Column Installed in sleeve

Sleeved option is the preferred option of Cork City Council, agreement shall be sought from Cork City Council to use a direct in ground or flanged columns type installation.

Where sleeves are used, a corrugated PVC pipe of approximately 300mm or 450mm diameter shall be installed in a foundation excavation. It shall then be surrounded by a concrete mix prior to the erection of any public lighting columns. The root depth and extent of concrete surround is dictated by the column height and ground conditions.

Where the rooting depths to EN40-1 are unachievable due to existing services or ground conditions, the developer shall notify Cork City Council and an alternative option shall be agreed by both parties such as flange mounted columns. The developer shall seek written approval from Cork City Council agreeing to the design change.

Where flanges are approved for use, they must comply with EN 40-1. A fully calculated structural base for the mounting of the flange must be submitted to the Cork City Council's public lighting engineer for sign off.

The sleeved opening hole shall be pumped free of water prior to any filling with concrete. Columns shall be erected exactly vertical in a safe and workmanlike fashion using a suitable crane for hoist.

The incoming and outgoing public lighting electrical cables shall be protected by 50mm

flexible RED ducting or Hydrodare piping or equivalent, extending 300mm into the column.

The cables shall be kept level with the bottom of the entry slot to avoid cable damage due to column settlement.

12.8.3 Column Installed Direct in Ground

The method of installation shall only be used by written agreement with Cork City Council's public lighting engineer, as this is not the preferred installation method.

However should this method be approved, the public lighting columns shall be erected by planting their root portions in excavation of suitable size. The excavated hole shall be pumped free of water prior to any filling with concrete. Columns shall be erected exactly vertical in a safe and workmanlike fashion using a suitable crane for hoist.

Columns shall be secured by uniformly filling the hole with concrete around the base of the column up to the bottom of the cable entry slot. The concrete used shall be in accordance with the Department of the Environment Specification for Roadworks, Clause 1502, and Concrete for Ancillary Purposes (Class E).

The incoming and outgoing public lighting electrical cables shall be protected by 50mm flexible RED ducting or Hydrodare piping or equivalent, extending 300mm into the column.

The cables shall be kept level with the bottom of the entry slot to avoid cable damage due to column settlement.

13 Street Lighting – Equipment Manufacturers & Suppliers

Public lighting schemes implemented by Cork City Council have included equipment that has been manufactured by various suppliers. Developers can contact Cork City Council's Public Lighting Department for information on previously used manufacturers when about to undertake their own designs.

Developers can also refer to the Appendix 5 at the rear of the document.

14 Electrical Contractors

Electrical contractors supplying and installing a completely new public lighting scheme to comply with NSAI National Rules of Electrical Installation shall be responsible for co-ordinating the application to ESB Networks for a new power connection and energy supplier for the supply of electrical power. The developer shall bear the cost of the new connection fee and will pay the energy bill until such time as the scheme is taken in charge by Cork City Council.

Cork City Council's public lighting maintenance contractor is the only authorised electrical contractor allowed to work on Public lighting equipment mounted on the ESB Network's LV overhead network. Where works for new public lighting public lighting schemes involve working on public lighting mounted on the ESB Network's overhead network, the developer shall contact the Cork City Council's Public Lighting Department on ITS@corkcity.ie who will give them the contact information of their maintenance contractor.

Refer to Appendices at the rear of the document Taking in Charge forms etc.

15 Temporary Lighting & Power Supplies

15.1 Temporary Lighting

Where a Development includes for the replacement of an exterior lighting scheme, Cork City Council will insist that a temporary exterior lighting scheme shall be installed whilst construction works are being undertaken. Instances where this may be required include but are not limited to:

- Where building mounted public light fittings are removed to facilitate a development.
- Where extensive excavations are likely on “brown field sites” or where demolition of existing buildings will be taking place. (In this case Cork City Council and / or ESB Networks may deem that the risk of a live underground cable being excavated and damaged is high and arrange that the cable is isolated). In this case the developer shall be responsible for the provision of temporary exterior lighting until such time as the new scheme is installed and commissioned.

Existing exterior public lighting lanterns may only be removed with the **written permission** of Cork City Council. Should public lighting lanterns be removed without Cork City Council’s knowledge then the party who removed the lighting shall be liable for any and all public liability claims against him / the Council where exterior lighting is cited as a contributing factor.

Developers shall submit a temporary lighting design to Cork City Council’s Public Lighting Department for review and comment prior to removing any exterior lighting. The developer shall commission into service and maintain operational, the agreed temporary lighting until such time as they replace the removed light(s) with a new public lighting scheme. Failure to do this will likely result in the developer being **liable** in the event of any Public Liability claim against him / the Council where exterior lighting is cited as a contributing factor.

Temporary lighting installations must take account of section 704 of the National Rules for Electrical Installations pertaining to construction sites. Due care also needs to be taken of the positioning and angles of temporary lights so as to minimize glare and prevent dazzling drivers and pedestrians.

Cork City Council or their representatives may request the repositioning of temporary lighting to mitigate the effect of glare or poor overall lighting levels/uniformity.

15.2 Temporary Power Supplies

Cork City Council’s Public Lighting Department do not provide temporary power supplies.

Illegal connections to Cork City Council’s power infra-structure will be deemed a **criminal damage** and Cork City Council will undertake appropriate proceedings against the relevant parties.

Event organizers must appoint an Event Manager and are fully responsible for the provision for a protected and appropriate power supply in accordance with the relevant standards. (including BS 7909:2011 Code of practice for temporary electrical systems for

entertainment and related purposes).

Portable Generators are permitted with agreement with Cork City Council. The dbA noise level under full load and nominal load must be advised to Cork City Council during the licensing process.

The zone in which the temporary power supply provision is to be provided must be advised to ESB Networks.

The provision of a temporary power supply must provide earthing in accordance with BS 7430:2011+A1:2015 Code of practice for protective earthing of electrical installations. It is not permissible to utilize street furniture i.e. street lighting for the provision of an earth.

Lightning protection when provided must comply to BS EN/IEC 62305-1 to 4 Protection against Lightning.

16 Lighting Design Guidance for Specialised Schemes

16.1 Floodlighting Schemes

16.1.1 General

Where floodlighting schemes of playing fields, pitches or courts etc. are being proposed by sports clubs, schools etc. it should be noted that these are subject to the **planning process**.

The energy efficiency of the proposed scheme must be central to the design process. The use of energy efficient floodlighting lamps and control gear is required.

16.1.2 Standards

Floodlighting schemes shall be designed to the below list as a minimum, this is not an exhaustive list of applicable standards. The design shall choose the most relevant standards to their scheme:

- BS EN 12193:2018 Light & Lighting (Sports Lighting)
- CIBSE Lighting Guide 06 Sports Lighting

Floodlight luminaires shall be in accordance with:

- BS EN 60598-2-5:2015 Luminaires. Particular Requirements (Floodlights).

Floodlighting schemes shall incorporate recommendations of the ILP such as:

- Guidance Notes for the Reduction of Obtrusive Light GN01:2020

16.1.3 Design

The lighting design should be designed by a competent lighting designer, this may include the use of the lighting suppliers in-house design service.

The choice of light source will depend on the type of colour rendering required.

The scheme designer shall demonstrate to Cork City Council by way of a design submission that minimizes light pollution, eliminates as far as is possible light spill into neighbouring property and takes account of the "Campaign for Dark Skies".

The scheme designer shall take account of the location of the proposed scheme and the relevant environmental zone to which the scheme is situated within.

The scheme designer will aim to minimize or eliminate glare and light spill from the proposed lighting scheme.

The scheme designer shall take account the maintainability of the scheme following commissioning, this will including site access, working at heights, combined generator and grid connections etc. The designed scheme shall have a robust design risk assessment undertaken in relation to the future maintenance of the floodlighting scheme.

All flood lighting schemes shall incorporate the facility to cater for training lighting level rather than against competition / events lighting levels. The scheme shall allow for a reduced level of lighting to be achieved when full illumination levels are not required. This is in the interest of reducing energy consumption as well as sky glow.

Once a scheme has been installed the developer shall carry out lighting level measurement around the parameter of the floodlighting scheme to determine the lighting spill outside the intended area. If levels are higher than the permitted values then the contractor shall make modification to the luminaire positions to ensure the permitted values are reached.

The scheme designer shall take account of the location of the proposed scheme in relation to the requirement for an aircraft warning light on the top of the light support structure (e.g. in the case of high structures). In this regard the Irish Aviation Authority may need to be consulted.

16.2 Night Time Lighting of Buildings & Structures

16.2.1 General

Proposals to light buildings of particular merit are of interest to Cork City Council in an effort to promote an enhancement to the night-time scene in Cork City. These Guidelines have been drawn up as part of a strategy to ensure that lighting schemes are designed & implemented in line with sustainable development policies.

It is envisaged that the design proposals would meet Best Practice criteria to provide a “Low Brightness” approach to lighting thus ensuring that an energy efficient scheme can put in place from the outset.

LED lighting and fibre-optic sources can be used to highlight architectural features with much lower energy levels being required to deliver the desired impact.

Night time lighting of buildings should be limited to a **dusk to midnight** unless located in a city/town centre location, which is more likely to be occupied well after midnight.

Building/monument lighting schemes should in general be designed to switch-on at dusk with photo-cell control and be switched off at mid-night using either a timeclock or part night photocell (dusk to midnight).

The daytime appearance of luminaires, electrical cables and associated equipment is an important consideration, designers shall try to conceal fittings behind shrubs, trees or building features so they don’t become an eyesore in the day time.

The Public Lighting Department is available to discuss proposed building façade/statue or monument lighting schemes in the city with a view to ensuring that a “Low Brightness” approach is adopted. Lighting design for new and replacement schemes should take

account of these guidelines to ensure that attractive energy efficient schemes are implemented.

16.2.2 Standards

The lighting design shall be in accordance with the following standards as a minimum. Please note this is not an exhaustive list of applicable standards. The designer shall choose the most relevant standards to their scheme:

- IS/EN 13201-2:2003 Road lighting performance requirements
- BS 5489-1:2020 Code of practice for the design of road lighting and public amenity areas
- ILP guidance note 01:2020 Guidance note for the reduction of obtrusive light

16.2.3 Design Principles

The building lighting design should meet the requirements of the urban night lighting standards and be synchronized with Cork City Council's principles of public and amenity space lighting.

The brightness and lighting power density values shall comply with the require light level standards. Choose energy-efficient light sources and high-efficiency luminaires, and avoid unrestricted use of light sources and luminaires, resulting in wasted energy.

Designers should choose suitable light sources and lighting methods to make effective use of the colour rendering index of the light source, the light distribution curve, and the varied lighting control methods to achieve the best artistic and visual effects.

Reasonably determine the installation position, beam angle and shading measures of the luminaires to avoid light pollution and glare. Buildings and structure should be lit from top downwards to reduce nighttime sky glow.

Choose coloured light carefully. The light colour selected by the night lighting design should not be visually confused with the traffic lights, shipping and other identification lights while ensuring coordination with the illuminated object and the characteristics of the area.

Lighting facilities should take corresponding safety precautions according to environmental conditions and installation methods.

16.2.4 Design Information

The design should be undertaken by a professional lighting designer, being a service that is often made available by Engineering and Architectural Consultants, in liaison with lighting equipment manufacturers.

A visualization software suite shall for submission of the lighting design be utilized to demonstrate the lighting schemes on building facades and structures.

The designer shall provide rendered images of the proposed building façade, statue etc. that is being lit. In certain case Cork City Council may ask to review the lighting design

model file and request this from the lighting designer.

Choose an LED colour temperature sympathetic to the building material being lit. Cork City Council to agree the colour temperature at design stage.

Selective highlighting of a building or its features should be considered as against floodlighting. Floodlighting projects too much light onto a building destroying an appreciation of its architecture. The designer shall avoid mounting fittings parallel to the building.

The designer shall avoid using a small number of high wattage, wide-angle luminaires which will flatten the façade and wash out its features.

Ensure that beams do not spill over the roof or around the side walls as this will create light pollution or glare nuisance to neighbours.

Where possible, spotlights or floodlights should be fitted with louvers and cowls to control the beam and avoid sideways light spill. Buildings and structures should be lit from the top downwards to reduce nighttime sky glow.

Consider the effect of glare to the people inside the building looking out through windows. Down lighting or spotlights located at close-offset positions to the wall or building will usually avoid such glare. Cork City Council **will not accept recessed in ground fitting** due to the water ingress and excessive maintenance required with the associated fitting.

For schemes being proposed for church buildings, the feasibility of providing back-lighting of the ***stained-glass windows*** should be considered if the particular feature is visible to the public.

Amenity lighting may also have to be considered at the design stage to compensate for glare and ensure safe access to the building after dark when the floodlighting is in operation.

It is accepted that lighting schemes may need to be modified to take account of changes recommended at the final installation stage as a result of on-site trials. These details will need to be confirmed at that stage with the client, contractor and Cork City Council.

16.3 Lighting of Short Tunnels

16.3.1 General

When a section of roadway is spanned, be it by another roadway, rail network, a building or other such cover, it effectively forms a short tunnel.

The process of doing this potentially introduces risks to the highway users such as:

For motorists

- are they able to see other users, gauge their intent and understand their task to navigate through the tunnel

For pedestrians and cyclists

- are they able to see the other users and gauge their intent, be aware of any trip hazards
- do they feel safe from a perception of crime and disorder when entering and exiting the tunnel

The desired outcome of lighting design for short tunnel is that all users will feel safe when approaching, entering, using and leaving a short tunnel and they can all identify their own specific visual tasks and as a result the potential for accidents or crime is mitigated.

16.3.2 Standards

The lighting design shall be in accordance with the following standards as a minimum. Please note this is not an exhaustive list of applicable standards. The designer shall choose the most relevant standards to their scheme:

- The ILP Professional Lighting Guidance 09 – Ensuring Visibility in Short Tunnels (PLG09)
- BS 5489-2:2016 Code of practice for the design of road lighting. (Lighting of tunnels)
- BS 5489-1:2020 Design of road lighting. Lighting of roads and public amenity areas. Code of practice
- CIE 88:204 Guide for the lighting of road tunnels and underpasses

16.3.3 Design Principles

It is considered that the tunnels / underpasses that are for the sole use of pedestrians and cyclists, as detailed within BS5489-1:2020 adequately cover the requirements for the users. The same generally applies to tunnels that are solely for motorised vehicle use, the requirements are adequately covered by the application of BS5489-2:2016. For tunnels with mixed users, then ILP Professional Lighting Guidance 09 Ensuring Visibility in Short Tunnels shall be referred to.

To determine the correct lighting for a location, the lighting design must consider the needs of all potential users, including pedestrians, cyclists, and vehicles. This involves assessing the types of users, their expected behavior, and the specific characteristics of the area

When determining the lighting design requirements, the lighting designer shall consider the following as a minimum:

- Length of the tunnel
- Tunnel profile
- Height of the tunnel
- Through-view quotient / view through percentage
- The depth of the black frame
- Traffic composition and speed through the tunnel

The lighting designer shall refer to the procedures in PLG09 to determine if daytime artificial lighting is required within short tunnels.

16.4 Lighting on Bridges

16.4.1 General

Proposals to bridges of particular merit are of interest to Cork City Council in an effort to promote an enhancement to the night-time scene in Cork. These Guidelines have been drawn up as part of a strategy to ensure that lighting schemes are designed & implemented in line with sustainable development policies.

The lighting designer should ascertain whether the bridge is a monument or protected structure before a design is undertaken. The lighting designer shall contact Cork City Council for the status of the bridge prior to the beginning of their design.

Where bridges carry the road system without significant change of gradient or direction, it is likely that the lighting system on the bridge approaches can be continued across the bridge.

However, bridges lacking in significant surrounding landscape features or background, or those arched to create central crests, can create conditions of glare with reduced luminous foreground or confusing forward scene, each of which reduce the forward view of the motorist. Motorists approaching the bridge can experience glare from lights on and beyond the crest and have a reduced length of visible lit road before them. Beyond the crest, their forward view can be confused by the presence of road, vehicle and building lights occurring in the near and/or distant fields of view. The lighting designer need to understand the type of bridge that is being lit and apply the best approach to designing the lighting on the bridge.

The lighting design and selection of components should be such as minimizing the night-time impact of the road lighting on the community.

16.4.2 Standards

The lighting design shall be in accordance with the following standards as a minimum. Please note this is not an exhaustive list of applicable standards. The designer shall choose the most relevant standards to their scheme:

- IS 10101:2020 National Rules of Electrical Installations
- BS 5489-1:2020 Code of practice for the lighting of roads and public amenity places
- BS EN 13201:2015 Road Lighting – Performance Requirements

16.4.3 Design Principles

The lighting designer should take into account the location of the proposed scheme and the relevant environmental zone to which the scheme is situated within. The lighting designer should aim to minimize or eliminate glare and light spill from the proposed lighting scheme.

The designer shall demonstrate to Cork City Council by way of a design submission that minimizes light pollution, eliminates as far as is possible light spill into neighboring property and takes account of the “Campaign for Dark Skies”.

A structural engineer should be consulted to ascertain the possible locations of lighting equipment on bridge structures and the limitations on weight and windage.

On large steel structures, vibration can be an issue, and the bridge's technical approval authority should be consulted on the presence of vibration hotspots.

The strength and natural frequency of the assembly of lighting column, bracket and luminaire, when checked using the method of calculation given in BS EN 40 and PD 6547, this should be such as to minimize the possibility of detrimental oscillations occurring.

Lighting columns should, where possible, be mounted over piers and abutments, to render their height more aesthetically acceptable. With long spans it is sometimes necessary to have additional lighting columns between piers, but all luminaires should be at the same mounting height.

All customer service pillars and circuit protective devices shall be located adjacent to and not on the bridge structure. In the event of a fault, the electrical supplies can be isolated before a person needs to access the bridge.

Lighting schemes on bridges should in general be designed to switch on at dusk with photocell control and also switch off at dawn with photocell control in line with general public lighting luminaires. However bridge lighting for aesthetic effects shall in addition to this be programmable for specific periods in relation to colour, brightness, switch on and switch off.

Where lighting is being added to a bridge structure to enhance the esthetic look of the bridge, Cork City Council require the lighting to be the RGB White colour changing type. The RGB white colour changing lighting shall have the facility to be linked to a Cork City Council central management system (CMS). The CMS will be an open protocol system and the RGB white lighting shall be compatible with an open protocol system. Cork City Council shall advise of the CMS system at design stage.

Any lighting fixed to or incorporated into the bridge structure should be a **low voltage type** to ensure the safety of the general public. The lighting system shall be earthed in compliance with IS 10101 when applied to large metal structures.

The need for lightning protection should be evaluated in accordance with BS EN 62305 (all parts) and IS 10101.

Maintenance of the lighting assets shall be adequately planned for during the design phase of any project. The lighting designer and Cork City Council shall agree to the public lighting column locations, access chamber locations etc. to ensure the safety of the person(s) required to carry out any maintenance work at a later date.

Where traffic management costs for accessing columns are likely to be significantly higher than for a standard road, long-life luminaires should be used.

16.5 Lighting of Footbridges, Steps & Ramps

16.5.1 General

Footbridges shall be illuminated if located in areas where public lighting is provided. A risk assessment should be undertaken to assist with the decision-making process of whether and when to light.

Lighting shall be designed at the outline design stage of any structure to help to determine the location of the chosen luminaires relative to their performance. This will better inform us where the electrical intake cabinets, wiring conduits and mounting facilities can be incorporated into the construction.

16.5.2 Standards

The lighting design shall be in accordance with the following standards as a minimum. Please note this is not an exhaustive list of applicable standards. The designer shall choose the most relevant standards to their scheme:

- IS 10101:2020 National Rules of Electrical Installations
- BS 5489-1:2020 Code of practice for the lighting of roads and public amenity places
- BS EN 13201:2015 Road Lighting – Performance Requirements
- TII DN-LHT-03038 Design of Roald Lighting for the National Road Network

16.5.3 Design Principles

The lighting designer should take into account the location of the proposed scheme and the relevant environmental zone to which the scheme is situated within. The designer will aim to minimize or eliminate glare and light spill from the proposed lighting scheme.

The lighting designer shall demonstrate to Cork City Council by way of a design submission that minimizes light pollution, eliminates as far as is possible light spill onto adjacent areas and takes account of the “Campaign for Dark Skies”.

Recommendations for the lighting levels of footbridges, stairways and ramps has been outlined with lighting standards document BS 5489-1, please refer to table 3 within the document. There should be good visual contrast between the step and the riser on steps.

Consideration should be given to illuminating footbridges by means of the road lighting where possible and additional lighting only provided for the footbridge to ensure recommended lighting levels are achieved.

Lighting of a footbridge can be either by columns or inbuilt in the railings / hand rails. The mounting of lighting columns on footbridge structures does need careful consideration in terms of maintenance access and any safety implications when mounted on structures above the road network or waterways.

On footbridges, the lighting units should be installed in such a manner as to complement the structure but ensure future ease of maintenance. The lighting should be **low voltage type** when incorporated within the footbridge railing / handrails for the safety of the general

public. The lighting system shall be earthed in compliance with IS 10101 when applied to large metal structures.

Lighting schemes on footbridges should in general be designed to switch on at dusk with photocell control and also switch off at dawn with photocell control in line with general public lighting luminaires. However bridge lighting for aesthetic effects shall in addition to this be programmable for specific periods in relation to colour, brightness, switch on and switch off times.

Where lighting is being added to a footbridge structure to enhance the esthetic of the footbridge, Cork City Council require the lighting to RGB white colour changing type. The RGB white colour changing lighting shall have the facility to be linked to the Cork City Council central management system (CMS). The CMS will be an open protocol system and the RGB white lighting shall be compatible with an open protocol system. Cork City Council shall advise of the CMS system at design stage.

The need for lightning protection should be evaluated in accordance with BS EN 62305 (all parts) and IS 10101.

Maintenance of the lighting assets shall be adequately planned for during the design phase of any project. The lighting designer and Cork City Council shall agree to all locations of the public lighting column, access chamber locations etc. to ensure the safety of the person(s) required to undertake any maintenance work at a later date.

16.5.4 Lighting of Footbridges over Roads

Where a footbridge crosses a lit road, A calculation should be undertaken in accordance with BS EN 13201-3, on a grid overlaid on the footbridge walking surface, this is to verify that the lighting on the footbridge is sufficient. Additional lighting should be installed where necessary to supplement the existing road lighting.

Where a footbridge crosses an unlit road, any lighting on the footbridge should be designed to minimize its visible intrusion and glare on the road running beneath it.

In all cases, the lighting equipment should be kept as inconspicuous as possible in daytime, and both its design and its siting in relation to the footbridge structure should be suitable. In new footbridges, lighting equipment should be incorporated as an integral part of the design and not added as.

16.6 Lighting of Cycle Tracks

Guidance on the lighting of cycle tracks is provided in the ILP Technical Report No. 23.

16.7 Lighting of Pedestrian Crossings

Guidance on the lighting of pedestrian crossings is provided in the ILP Technical Report No. 12.

17 Planning Applications - Review of Exterior Lighting Schemes

Street lighting designs must be submitted to Cork City Council's Public Lighting Department for approval in line with Planning Conditions prior to commencement of construction on site. The pre-planning design can be submitted at ITS@corkcity.ie

The lighting design details submitted for approval shall comprise of the items outlined in the Design File in section 8 of this document.

Lighting designers shall review Cork City Council's Public Lighting Pre-Planning Guidance Document on the Local Authority's public lighting webpage.

Cork City Council will on receipt of the submitted material will review and advise the developer/lighting designer if the proposed exterior lighting design and layout meets the requirements of this guidance document and the standards specified within it.

If the design and layouts does not meet these standards, Cork City Council will advise what areas of the design need to be improved / amended or changed so the scheme is acceptable to proceed to construction stage.

Cork City Council's Public Lighting Department endeavours to complete its review of exterior lighting scheme designs within four weeks of receipt of all required information.

Note: Cork City Council uses Lighting Reality Software for exterior lighting scheme design undertaken in house.

In this regard, Exterior Lighting designs in **RTMA file format** shall be submitted to the Council at the design review stage and if applicable again at the take in charge stage.

18 Taking in Charge

18.1 General

The taking in charge of a public lighting scheme is a separate procedure whereby the developer shall satisfy Cork City Council and the DSO (ESB Networks) that the scheme conforms to the NSAI National Rules for Electrical Installations (IS 10101) and ESB standards. The developer shall also satisfy Cork City Council that the layout and lighting levels conforms to the EN:13201 (all parts) and the Cork City Council's Public lighting Design Guidelines Document.

The Take in Charge form is available in Appendix 9 at the rear of this document.

A developer wishing to have a public lighting scheme taken in charge for both energy and maintenance shall complete the taking in charge form (Rev_C) and submit it to Cork City Council's Planning Department.

All sections of this form need to be completed, the taking in charge form will be returned to the developer to complete any missing fields. The taking in charge process will not begin until all fields of this document are filled in and the information bulleted below has been submitted to Cork City Council.

- Public Lighting Design Calculations Report (in lighting reality)
- As Built Drawing (indicating pillar / column / chamber locations, ducting routes, and cable circuit routes)
- Electrical Completion Cert (signed by qualified electrician)
- Electrical Test Record Sheets (for each pillar, completed and signed by qualified electrician)
- A copy of the latest energy bill for the exterior lighting (in the last two months) showing that payment has been completed up to date of application for taking in charge.
- Equipment Datasheets (lanterns, columns, photocells, pillars, ducting, chambers and cable)
- Copy of agreement outlining the transfer of collateral warranty to Cork City Council for both Lanterns and Photocells
- Wayleave - marked up drawing outlining wayleave route or area.
- Nonstandard structural details and calc as required (drawings, calculations, and datasheets of any non-standard items within the installation.

The Cork City Council's Public Lighting Department endeavours to undertake an inspection of an exterior lighting scheme following receipt of a correctly completed request for Take in Charge of exterior lighting schemes within eight weeks.

On completion of the inspection which will typically be undertaken by either City Council

staff or public lighting maintenance contractor staff (or another electrically competent agent of Cork City Council), a snagging list shall be compiled of outstanding issues. These will be issued to the relevant parties in the form of a snagging report for rectification.

When the developer confirms that the snagging list has been completed and is signed by the developer, a follow up inspection will be undertaken by Cork City Council. In the event that the snagging list has not been completed to the satisfaction of the Cork City Council's Public Lighting Department, the developer shall be informed. Should further intrusive inspections be required, Cork City Council reserves the right to charge the inspection cost to the developer, to be paid prior to commencement of the inspection. This shall be charged at the discretion of the Cork City Council's Public Lighting Department at a rate of not less than **€250 Excl VAT per inspection**. Inspections requiring significant time and resources may be charged at a higher rate at the discretion of Cork City Council.

When satisfied the public lighting installation is up to the required Cork City Council standard, the Public Lighting Department will sign off the installation for taking in charge. However, the Public Lighting Department will not be takin over the maintenance of or paying the energy for the public lighting installation until such time as the estate has been approved for taking in charge by the council via a motion at an appropriate council meeting.

Cork City Council's Public Lighting Department will not take in charge the public lighting within an estate if the roads within the estate are not being taken in charge.

18.2 Visual inspection of electrical equipment

The nature and location of public lighting installations is such that visual inspection of the electrical equipment and wiring is of paramount importance. The general visual conditions of the electrical installation should be noted on the inspection report. However, if any particular item causes concern, it is recommended that the problem be detailed on an appropriate supporting schedule.

During the visual inspection, any dangers should be identified that may arise during the testing procedure. The operative should take any necessary action and implement safety precautions to avoid danger. Where a problem is considered highly dangerous, the item of equipment should be repaired immediately or taken out of service by removing the main fuse from the supply termination until the fault has been rectified. Under no circumstances should an electrically dangerous item of equipment be left in operation.

Fuses or other circuit protection devices should be checked for correct type and value and if necessary, be replaced.

Operatives should be trained and competent to carry out visual inspections and recognise any potential dangers

18.3 Format of Drawings

To manage the LV power supply effectively a GIS system or standalone AutoCAD drawing file system shall be submitted to record electric equipment on layout drawings. This shall be saved in a 2021 or older version.

18.4 Underground Cables

All power supplies shall be recorded in accordance with IS EN 50110-1:2004 and the SHAWW (General Application) Regulations 2007

Power supply records should record the following information:

- Source of supply (supply point).
- Route of cables.
- Position of cables (including offset and depth).
- Type and size of cables.
- Position of cable joints.
- Three-phase or single-phase.
- Location, type and rating of protective devices.
- **ALL** Feeder pillars shall be fitted with cable circuit schedules. These shall be laminated and fixed to the back of the customer service pillar

18.5 Electrical Inspection and Testing

Testing should only be undertaken out by a competent person with sufficient training and experience to interpret the test results and identify any inherent problem within the installation. All test equipment should be suitable for the test intended, correctly calibrated and regularly certified.

To demonstrate that an installation meets the necessary safety standards, electrical inspection and testing comparable to any other fixed equipment installation should be undertaken. Electrical inspection and testing should be undertaken at intervals of up to six years in accordance with the requirements of NSAI IS 10101:2020.

The co-ordination of electrical inspection and testing with other cyclic maintenance activities should be considered to help reduce disruption to the public. However, this may not be the most cost effective means of carrying out this operation and separate personnel may be needed for this purpose.

18.6 Electrical testing records

The results of periodic electrical inspection and testing must be recorded on an inspection certificate. These records must be submitted as part of the taking in charge package to cork city council.

Records of maintenance, including electrical test results, should be kept throughout the life of the installation, enabling the condition of the equipment and the effectiveness of maintenance policies to be monitored. A computerised asset management system will allow electrical test certificates to be linked to the specific individual item of equipment, thus meeting the demands of the regulations and providing an efficient maintenance system.

18.7 Access/Modifications to the Power supply network

All access to Cork City Council's power supplies is forbidden without express written approval. To undertake any work on any power supply, the following is required:

- Written Permission
- Full description of the nature of the work
- Full design to be forwarded for any works to be undertaken
- A Registered Contract Electrician must originate the request
- A method statement and risk assessment must be submitted
- Full insurance requirements
- Proof of contact with ESBN where applicable

All modifications to Cork City Council's power supplies are forbidden without express written approval. Once the above steps are submitted and approval has been received, any additional circuit added to the point of supply requires a sub system certification in accordance with Safe Electric completion certificate No.3 (Completion Certificate for Existing Installations) and the National Rules for electrical installations 5th Edition IS 10101:2020.

All installations which are requested to be Taken in Charge 12 months following installation require the submission of a periodic inspection certificate to Cork City Council in accordance with Part 6 of the National Rules for electrical installations IS 10101:2020 as per Appendix 8.

18.8 Column Identification

All public lighting assets such as customer service pillar, public lighting columns, interface boxes switching control points shall have a unique identification number. The column identification number shall be located at the front of public lighting asset facing the road, so easily readable by the general public. The column identification number shall be mounted at a height of no less than 2.5m above final ground level.

The image to the right is an example of the current stickers used by cork city council.

The installation of the column identification number shall be undertaken by Cork City Council's public lighting maintenance contractor and not by the developer.

CCC Unique Identification Number

19 Warranties

Cork City Council requires a collateral warranty for all equipment from manufacturers prior to taking in charge of a scheme for maintenance and energy supply. Developer/contractor shall submit written details outlining that the Original Equipment Manufacturer's warranty has been transferred to Cork City Council. The following warranty details will be required:

Columns and Brackets

The steel poles shall be designed to provide a minimum 25 year lifetime when operated in the environment conditions as described in this document. The poles, including all components and accessories, shall be fully guaranteed against all defects arising from faults in design, manufacture and workmanship for a period of 12 months from commissioning and up to a maximum period of 36 months from delivery. This period shall be extended to 5 years to cover all defects attributable to inadequate corrosion protection. All defects notified within the above warranty periods shall be rectified entirely at the Installers expense.

Photocells

A minimum warranty of 10 years is required on all installed photocells

CMS Systems

A minimum warranty of 10 years is required on all installed CMS systems

LEDs including drivers

All LED equipment provide a full warranty period offered on the complete luminaire (including LED modules, LED Driver and photocells) of a minimum of 10 years.

20 Further Information

Cork City Council reserves the authority to ensure that exterior lighting schemes are installed to the required Code of Practice before the scheme can be taken in charge with the purpose of providing for energy and maintenance costs.

Further requests for information should be directed to Cork City Council's Public Lighting Department. We can give further guidance on exterior lighting scheme design layouts etc. and answer questions pertaining to the two exterior lighting standards covered in this guidance manual, BS 5489-1:2020 and EN 13201:2003.

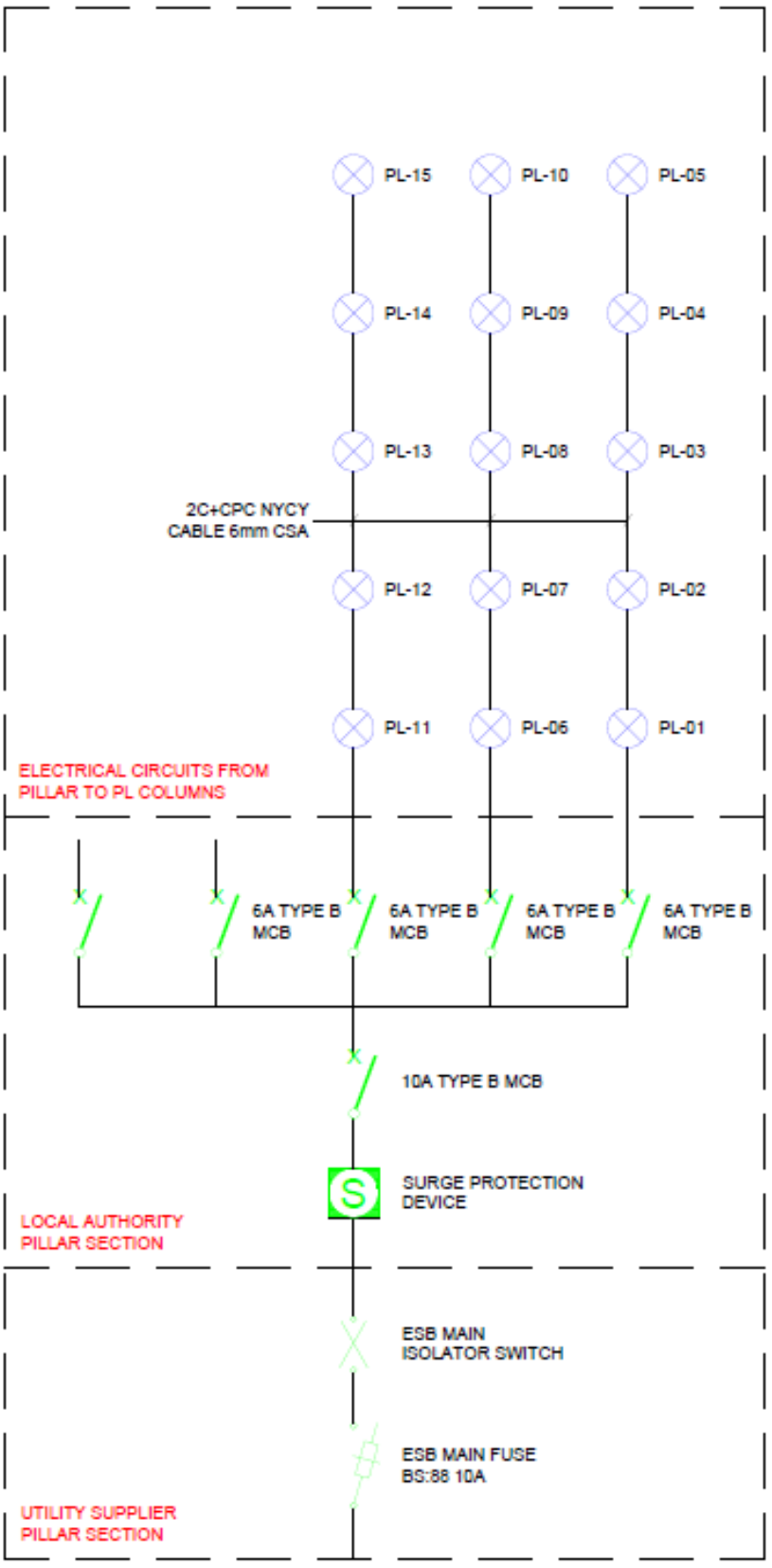
Cork City Council's Public Lighting Department wish to work with developers to help deliver high quality, energy efficient, exterior lighting installations which meet the relevant standards and which improve the general ambiance of the city and help to reduce energy consumption.

The Public Lighting Department is also available to advise on any other electrical installations that may require Cork City Council's input and are contactable as follows:

Public Lighting Department
ITS Section
Local Area Development & Operations Directorate
City Hall,
Anglesea Street,
Cork,
T12 T997
Email: ITS@corkcity.ie

Appendices

Appendix 1 – Typical Electrical Schematic



Appendix 2 – Standard Lighting Column

Lighting schemes previously implemented by Cork City Council have included columns and brackets manufactured by various suppliers including the following:

Lampost Construction Components Ltd

Greenore,
Dundalk,
Co. Louth.
Phone: +353 (0)42 937 3554
Email: lampost@iol.ie
Web: www.lampost.ie

Piltown Engineering

Quarrylands,
Fiddown,
Co. Kilkenny.
Phone: +353 (0)51 643 131
Email: sales@piltownengineering.ie
Web: www.piltownengineering.ie

Street & Park Equipment Co Ltd (Supplier of Valmont Columns)

P.O. Box 2134
Swords
Co. Dublin
Phone: +353 (0)1 8400 633
Email: info@streetandpark.com
Web: www.streetandpark.com

IPL Group

Aluminium Columns & Passively Safe Columns

Slane Road,
Drogheda,
Co. Louth,

Phone +353 (0)41 983 2591
Email: info@ipl.ie
Web: www.iplgroup.com

Appendix 3 - Decorative Lighting Columns

Decorative Street Lighting, Columns & Equipment Manufacturers and Suppliers

Decorative Lighting schemes previously implemented by Cork City Council have included equipment manufactured by various suppliers including the following:

Bradgate Lighting & Furnishings Ltd. (Supplier of Neri Lighting)

Bradley's Cottage,
Claremount,
Clarecastle,
Co Clare.

Contact: Brian Bradley
Phone: +353 (0)85 872 9490
Email: brian@bradgateltd.com
Web www.neri.biz

Street & Park Equipment Co Ltd (Supplier of DW Windsor & Valmont Columns)

P.O. Box 2134
Swords
Co. Dublin

Phone: +353 (0)1 8400 633
Email: info@streetandpark.com
Web: www.streetandpark.com

Appendix 4 - Approved Exterior Lighting Contractors

Electric Skyline are approved by ESB Networks and Cork City Council to conduct works on ESB Network mounted public lighting inventory upgrades.

Electric Skyline Limited.

Unit 10 Sarsfield Court Industrial Estate,
Glanmire
Cork
T45 K544

Phone: +353 (0)94 9360 954
Email: info@electricskyline.ie
Web: www.electricskyline.ie

The ESB Area office in Wilton deals with new applications and services requests. End the event of an electrical emergency please contact the ESB emergencies on the number given below.

ESB Networks

Sarsfield Road,
Wilton,
Cork City,

Phone: Emergencies 1850 372 999
Enquiries: 1850 372 757
Email: esbnetworks@esb.ie
Service locations: centralsiterequests@esb.ie
Webpage www.esbnetworks.ie

Appendix 5 – Sample List of Approved Suppliers & Associated Fittings

New exterior lighting schemes previously implemented by Cork City Council have included the following fittings, manufacturers and equipment supplied to Cork City Council. This is to be used as a reference to the standard of fitting Cork City Council will accept in any new installation.

Manufacturer	Lantern family	Supplier
Urbis Schredar	Axia 2, Axia 3	Urbis Schredar Ltd
Philips	Luma, Lumistreet	Philips Ireland Ltd.
Cree Lighting	XSP, Uno Energy	Cree Lighting
ASD Lighting	Highway Diamond	ASD Lighting
Thorn	CiviTEQ, R2L2, Isaro Pro	ZG Lighting Ltd.
CU Phosco	P852, P862, P863	CU Lighting Ltd.

Table 14 List of Typically Used Manufacturers

LED lanterns from other manufactures **will be considered** by Cork City Council if they meet certain requirements.

Lighting Designers, Consultants & Developers shall complete the LED lantern approval form (Appendix 4.1) and submit it to the Public Lighting Department for their approval of use before any detailed design is undertaken.

Appendix 5.1 – LED Lantern Approval Form

Selection Questions	Minimum Standard for Luminaire to Meet	Luminaire Type No._____
Luminaire Manufacturer, Make & Model:	Refer to Appendix 4 or Equal and Approved	
LED Module Manufacturer, Make & Model		
LED Driver Manufacturer, Make & Model		
Luminaire Warranty	Min 10 years	
Luminaire housing type	Aluminium LM6	
Luminaire Colour Temperature	Refer to 4.4.2	
Luminaire Design Life	Min 25 years	
Rated Life of the LED Driver	Min 10 years	
Are luminaires CE Marked (Yes / No)	Yes	
Luminaire Weight (kg)	Max 10kg	
Rated Lumen Output of the Luminaire	-	
Rated Voltage	230V ± 10%	
Luminaire Power Factor	Min 0.95	
Maximum Driver Current (mA)	1000mA	
Proposed Upper Limit Driver Working Current as % of max (mA)	75%	
Are luminaires fitted with surge protection to 10kA/10kV (Yes / No)	to EN 61643-11:2012+A11:2018	
Ambient Temperature Range (Ta) luminaire is designed to operate in	Min -15°C - +30°C	
Upward Light Output Ratio (ULOR)	Max 0%	
Disability Glare Class (G Class)	At least G3	
Constant Light Output (CLO) Total Circuit Watts of complete luminaire (LEDs & Driver), CLO at minimum 90% of initial lumen output for 100.000hr, i.e. L80 B10	L90 B10	
Maximum Windage of luminaire	≤6M 0.15m^2	
	≤8M 0.17m^2	
	≤10M 0.22m^2	
Colour Rendering Index (CRI)	Ra ≥ 70	

LED Colour Stability (Bin Class)	Max 5-Step Ellipse		
Luminaire efficacy (lm/W) of the complete luminaire at 100% of initial lumen output	Min 120lm/W		
What material is the Cover for the LED Modules made from?	Glass		
CMS Enabled (Yes/No) (Central Management System)	Yes		
Photocell Manufacturer, Make & Model	Westire 8480 or Equal and Approved by CCC		
Details of Electronic Photocell used Please state which of the following is proposed:	7-pin NEMA socket with electronic photocell		☐
	Mini-Photocell with same functionality as 7-pin NEMA Socket		☐
	Other, please specify		
IP Rating of complete luminaire	Min IP65		
Impact Resistant Rating of the luminaire (body & optic)	Min IK08		
Spigot Size for post top entry and side entry	Post Top - 60-76mm Side Entry - 32-42mm		

Appendix 5.2 - Public Lighting Column Approval Form

Selection Questions	Minimum Standard for Luminaire to Meet	Column Type No._____
Public Lighting Column Type	Decretive, Tubular, tapered tubular or tapered hexagonal/ octagonal/hexadecagon	
Public Lighting Column height	5m - 12m	
Compliant to BS EN 40 family oof standards (Yes / No)	Yes	
Bracket Type	Post top Other, please specify	
Public Lighting Column Design Life	Min 25 years	
CE Certified (Yes / No)	Yes	
Access Chamber adjacent to Public Lighting column (Yes / No)	Yes, Refer to Section 7	
Finish to outside of column	Galvanised, Powder coated, Aluminum, RAL 9007 colour etc.	
Warranty	10 Years	
Root and Flanged		
Hinged or not		

Appendix 6 – Electrical Pre-Qualification Panel

Cork City Council, Public Lighting Department Electrical Pre-Qualification Panel

- Please contact Cork City Council's Public Lighting Department, for an up to date panel list.

Appendix 7 – Available Dimming Profiles

The UMR (unmetered registry) has an approved list of dimming profiles / burn profiles to be used on public lighting networks across the Republic of Ireland. These are outlined in the table below.

When consultants and developer are applying for a new connection, it is important to include the actual dimming profile selected for the chosen luminaire and not just to state D2D on the application form. This will ensure the correct burning hours are applied to the lantern. Currently Cork City Council's preferred dimming profile for public lighting lanterns is U14 however, consultants and developers will need to confirm this with Cork City Council's Public Lighting Department before placing an order for lanterns.

U10 Public Lighting Profile 10 – 24Hr

U11 Public Lighting Profile 11 – Dusk / Dawn

U12 Public Lighting Profile 12 – Dusk / Midnight

U13 Public Lighting Profile 13 – Dusk / Dawn with Extra Trimming

U14 Public Lighting Profile 14 – Dusk / Dawn, dimmed to 75% between midnight and 06.00

U15 Public Lighting Profile 15 – Dusk / Dawn, dimmed to 67% between midnight and 06.00

U16 Public Lighting Profile 16 – Dusk / Dawn, dimmed to 50% between midnight and 06.00

U17 Public Lighting Profile 17 - Dusk / Dawn, dimmed to 75% from 21:00 through to 07:00 next day

U18 Public Lighting Profile 18 - Dusk / Dawn, dimmed to 67% from 21:00 through to 07:00 next day

U19 Public Lighting Profile 19 - Dusk / Dawn, dimmed to 50% from 21:00 through to 07:00 next day

Appendix 8 - Completion Certificate Sample

Link to Safe Electric Completion Certificates

National Rules for Electrical Installations
Completion Certificate for an Installation with a Maximum Import Capacity < 50kVA

SAFE ELECTRIC

†MPRN No. | | | | | | | | | | | | AR

CUSTOMER NAME (Block Capitals):.....

ADDRESS OF INSTALLATION (Block Capitals): .....

.....

PREMISES DESCRIPTION (E.G. SHOP, DOMESTIC, AGRICULTURAL, ETC.) .....

..... Date of Installation .....

✓ Tick boxes as appropriate:

THIS CERTIFICATE IS IN RESPECT OF: CONSTRUCTION & TEST OF INSTALLATION ☐
OR TEST ONLY OF THE EXISTING INSTALLATION ☐

TYPE OF INSTALLATION: New ☐ Reconnection ☐ Alteration ☐† Temporary supply ☐ Other ☐†

NUMBER OF: Lighting Points ☐ Socket Outlets ☐ Fixed Appliance Outlets ☐

TEST RESULTS

POLARITY AND EARTHING OF ALL OUTLETS VERIFIED (A TICK INDICATES YES) ☐

MAIN EQUIPOTENTIAL BONDING VERIFIED FOR:

	YES	NA ‡
GAS		
WATER		
OTHER (specify see details)		

Record the value obtained in either 1 or 2		
	1 - MAXIMUM RESISTANCE OF PHASE AND PROTECTIVE CONDUCTOR (Rp + Re)	Ω
	2 - MAXIMUM RESISTANCE OF PROTECTIVE CONDUCTOR Re	Ω

INSULATION RESISTANCE ☐ MΩ (min)

DETAILS OF TESTS ETC., ARE GIVEN IN TEST RECORD SHEET NO.

† See Chapter 63 "National Rules (ET101)"

‡ NA means Not Applicable

Associate Sub System Certificate Numbers Yes* ☐ No ☐

*See comment box for details

ALL NEW WORK MUST BE CERTIFIED IN RESPECT OF CONSTRUCTION & TESTING

COMMENT OR DETAILS:

.....

.....

.....

.....

REGISTERED CONTRACTOR (Block Capitals)

Name: .....

Address: .....

.....

Tel: ..... Safe Electric Reg No. | | | | | | |

SAMPLE

CERTIFICATION

I certify that the electrical installation at the above address has been constructed, and/or pre-connection tests have been carried out, in accordance with the National Rules for Electrical Installations (current issue at date of contract) and has been found to be satisfactory. Test Record Sheets are held by me.

PRE-CONNECTION Pre-connection tests completed and found to be satisfactory

Signed:..... For Electrical Installation: Constructor ☐ Tester ☐

Qualification:..... Certifier's No. ..... Date: .....

MAX FAULT LOOP IMPEDANCE ☐ Ω → RATING & TYPE OF THE ASSOCIATED PROTECTIVE DEVICE ☐

OPERATION OF ALL RCDS VERIFIED ☐

N.B. THESE TESTS MUST BE COMPLETED IMMEDIATELY AFTER SUPPLY IS MADE AVAILABLE

Insert the I∆n value of the RCD (mA) ☐ mA

RCD Circuit Description

Max Trip Time of RCD 1 x I∆n ____ ms ____

Max Trip Time of RCD 1 x I∆n ____ ms ____

POST-CONNECTION Post-connection tests completed and found to be satisfactory

Signed:..... For Electrical Installation: Constructor ☐ Tester ☐

Qualification: ..... Certifier's No. ..... Date: .....

NOTE: This certificate is issued and signed by the person responsible for the constructing and testing, or testing only of the installation or a person duly authorised. This certificate should be used only for installations with a maximum import capacity <50kVA. A different certificate is required for other installations.

This Document is a certificate for the purpose of the Energy (Miscellaneous Provision) Act 2006.

The CER or Safe Electric are not responsible for the electrical installation or for the accuracy of the information given on this certificate. Electrical installations should be inspected periodically.

Sheet .... of ....

TEST RECORD SHEET

Test Record Sheet No	Seal No
MPRN No	
Cert No	

CUSTOMER NAME: .....

INSTALLATION ADDRESS: .....

DISTRIBUTION BOARD REF: .....

CATEGORY: ..... TYPE OF INSTALLATION: New ☐ Rewire ☐ Existing ☐ Addition ☐ Temp Supply ☐ Other (Specify) .....

(Domestic, Commercial, Industrial etc.)

Comments:.....

MAX Rp+Re (if applicable) ..... OHMS MAX RES.PROT.COND (Re) ..... OHMS

MAIN BONDING VERIFIED FOR: GAS - YES ☐ N/A ☐
WATER - YES ☐ N/A ☐
SUPPLEMENTRY BONDING VERIFIED - YES ☐ N/A ☐
ELECTRODE EARTHING CONDUCTOR - YES ☐ N/A ☐
OTHER - YES ☐ DETAILS

TEST INSTRUMENTS USED	Serial No	Calibration Expiry Date
Insulation Resistance/Continuity		
Earth Loop Impedance		
RCD		
Multifunction		

† - MCB / RCBO / Fuse etc.
†† - Type B-C-D etc.

* Resistance of phase conductor (Rp)
** Resistance of earth conductor (Re)

CIRCUIT DETAILS

Circuit Number	Circuit Designation	Cable Type	Cable Sq mm	No. of Points	Overcurrent Protection Device †	Overcurrent Protection Type ††	Overcurrent Protection Amps
x	Supply Cable			1			

PRE CONNECTION

Max Circuit Continuity (Ohms) All Circuits (At least one column to be completed) Rp* + Re**	Max Circuit Continuity (Ohms) All Circuits (At least one column to be completed) Re**	Max Circuit Continuity (Ohms) Ring Circuit End to End L-L	Ring Circuit End to End N-N	Ring Circuit End to End E-E	MIN.INSULATION RES (MEG OHMS) Phase & Neutral to Earth (MΩ)	Phase to Neutral (MΩ)	3 Phase Phase to Phase (MΩ)	Erroneous Test Carried out (✓)	Polarity Correct (✓)
		N/A	N/A	N/A					

POST CONNECTION

L-E Max Fault Loop Imp. (Ohms)	Max RCD Operating times (ms) 1/2 x IΔn (✓)	Max RCD Operating times (ms) 1 x IΔn	Max RCD Operating times (ms) 5 x IΔn	RCD Test Button Verified (✓)

Other Comments

Pre Connection Tested By: ..... SIGNATURE ..... QC No..... Reg No..... DATE .....

Post Connection Tested By: ..... SIGNATURE ..... QC No..... Reg No..... DATE .....

Appendix 9 – Taking in Charge Form

Comhairle Cathrach Chorcaí
Cork City Council

PUBLIC LIGHTING TAKING IN CHARGE FORM

TIC Application will not be processed by Cork City Council Public Lighting Department until all information requested below has been completed and all drawing are included within the TIC pack submitted.

Date of Application:	
Development Details:	
Name of Development	
Address of Development	
Planning / ABP Reference Number	
Developer Details:	
Name	
Address	
Telephone Number	
Email Address	
Main Contractor Details:	
Company Name	
Contact for Development	
Company Address	
Telephone Number	
Email Address	
Type of Exterior Lighitng Installation:	NEW ◯ ALTERATION ◯
Date of Installation of Exterior Lighitng Installation:	

Quantity of Exterior Lighting Equipment to be Taken In Charge		
Customer Service Pillars		
PL Columns (new PL only columns)		
PL Lanterns	Column Mounted	
	ESB Network Mounted	
	Wall Mounted	
	Catenary Wire Mounted	

Energy Supply Details:		
Current Energy Supplier		
Electrical Connection Types	Metered ◯	Quantity
	Unmetered ◯	Quantity
Meter Details (if applicable)	Phases (1ph or 3ph)	
	Max Import Capacity	
	DUoS	

CMS System	Manufacturer	System Name
Contact Details	Telephone Nr.	Email Address
Smart Node Details	Nr.1	Nr.2
	Nr.3	Nr.4

Comhairle Cathrach Chorcaí
Cork City Council

PUBLIC LIGHTING TAKING IN CHARGE FORM

Lantern Details				
Type A	Manufacturer		Model	
	Optic Type		Dimming Profile	
	Wattage		mA Current	
	Photocell Socket	Nema 3 Pin ◯	Nema 7 Pin ◯	
		Zhaga ◯	Mini Cell ◯	
Type B	Manufacturer		Model	
	Optic Type		Dimming Profile	
	Wattage		mA Current	
	Photocell Socket	Nema 3 Pin ◯	Nema 7 Pin ◯	
		Zhaga ◯	Mini Cell ◯	
Type C	Manufacturer		Model	
	Optic Type		Dimming Profile	
	Wattage		mA Current	
	Photocell Socket	Nema 3 Pin ◯	Nema 7 Pin ◯	
		Zhaga ◯	Mini Cell ◯	
Type D	Manufacturer		Model	
	Optic Type		Dimming Profile	
	Wattage		mA Current	
	Photocell Socket	Nema 3 Pin ◯	Nema 7 Pin ◯	
		Zhaga ◯	Mini Cell ◯	
Type E	Manufacturer		Model	
	Optic Type		Dimming Profile	
	Wattage		mA Current	
	Photocell Socket	Nema 3 Pin ◯	Nema 7 Pin ◯	
		Zhaga ◯	Mini Cell ◯	
Warranty Details (Nr of Years)				

Photocell Details			
Manufacturer		Model	
Switching Regime		Warranty Details (Nr of Years)	

Lighting Column Details								
LC-A	Manufacturer				Material			
	Cross Section				Height			
	Hinged (Y / N)	Y ◯	N ◯		Rooted / Flanged	R ◯	F ◯	
	Bracket (Y/N)	Y ◯	N ◯		Bracket Dimensions			
LC-B	Manufacturer				Material			
	Cross Section				Height			
	Hinged (Y / N)	Y ◯	N ◯		Rooted / Flanged	R ◯	F ◯	
	Bracket (Y/N)	Y ◯	N ◯		Bracket Dimensions			
LC-C	Manufacturer				Material			
	Cross Section				Height			
	Hinged (Y / N)	Y ◯	N ◯		Rooted / Flanged	R ◯	F ◯	
	Bracket (Y/N)	Y ◯	N ◯		Bracket Dimensions			
PL Column Fuse Unit Type & Rating								

PL COLUMNS TO BE INSTALLED AT THE DEPTH AS PER DESIGN AND IN COMPLIANCE WITH MANUFACTURES DETAILS, COLUMNS FOUND NOT INCOMPLIANCE WILL NOT BE TAKEN IN CHARGE

Comhairle Cathrach Chorcaí
Cork City Council

PUBLIC LIGHTING TAKING IN CHARGE FORM

Customer Service Pillars			
Manufacturer		Model	
Dimensions			
CSP Nr.1	Meter Point	(T)MPRN	
	Reference Number	GMPRN (If Present)	
New ◯	Main Protective Device Type & Rating		
Existing ◯	Sub Circuit Protective Device Type & Rating		
	Outgoing Cable	Type (NYCY, SWA etc)	Size (CSA mm sq.)
	Min Insulation Resistance		
	Max Resistance of Protective Conductor		
	Max Fault Loop Impedance		
CSP Nr.2	Meter Point	(T)MPRN	
	Reference Number	GMPRN (If Present)	
New ◯	Main Protective Device Type & Rating		
Existing ◯	Sub Circuit Protective Device Type & Rating		
	Outgoing Cable	Type (NYCY, SWA etc)	Size (CSA mm sq.)
	Min Insulation Resistance		
	Max Resistance of Protective Conductor		
	Max Fault Loop Impedance		
CSP Nr.3	Meter Point	(T)MPRN	
	Reference Number	GMPRN (If Present)	
New ◯	Main Protective Device Type & Rating		
Existing ◯	Sub Circuit Protective Device Type & Rating		
	Outgoing Cable	Type (NYCY, SWA etc)	Size (CSA mm sq.)
	Min Insulation Resistance		
	Max Resistance of Protective Conductor		
	Max Fault Loop Impedance		
CSP Nr.4	Meter Point	(T)MPRN	
	Reference Number	GMPRN (If Present)	
New ◯	Main Protective Device Type & Rating		
Existing ◯	Sub Circuit Protective Device Type & Rating		
	Outgoing Cable	Type (NYCY, SWA etc)	Size (CSA mm sq.)
	Min Insulation Resistance		
	Max Resistance of Protective Conductor		
	Max Fault Loop Impedance		
CSP Nr.5	Meter Point	(T)MPRN	
	Reference Number	GMPRN (If Present)	
New ◯	Main Protective Device Type & Rating		
Existing ◯	Sub Circuit Protective Device Type & Rating		
	Outgoing Cable	Type (NYCY, SWA etc)	Size (CSA mm sq.)
	Min Insulation Resistance		
	Max Resistance of Protective Conductor		
	Max Fault Loop Impedance		

Comhairle Cathrach Chorcaí
Cork City Council

PUBLIC LIGHTING TAKING IN CHARGE FORM

Please ensure that all Planning issues have been addressed prior to submitting this form

The following items listed below **MUST** be submitted in order to commence the process of Taking In Charge process by Cork City Council. Application will be returned to sender until all items have been submitted.

List of Items to be Submitted for Taken In Charge Process

1. Public Lighitng Design Calculations Report (in lighting reality)
2. As Built Drawing, indicating pillar / column / chamber locations, ducting routes and cable circuit routes.
3. Electrical Completion Cert (signed by qualified electrician)
4. Electrical Test Record Sheets (for each pillar, completed and signed by qualified electrician)
5. A copy of the latest energy bill for the Exterior Lighting (in the last two months) showing that payment has been completed up to date of application for taking in charge
6. Equipment Datasheets (Lanterns, Columns, Photocells, Pillars, Ducting, Chambers, Cable)
7. Copy of agreement outlining the transfer of Collateral Warranty to Cork City Council for both Lanterns and Photocells
8. Wayleave - Marked up drawing outlining wayleave route or area.
9. Non standard structural details and calc as required - Drawings, Calculations and datasheets of any non standard items within the installation.

TIC FORM SUBMITTED BY:

Name (BLOCK CAPITALS:

Signed:

Company:

Role:

Telephone Number:

Email Address:

I declare that the submitted Taking in Charge application is a fair accurate reflection of the installation.

Signed:

A paper and electronic copy of a Taking In Charge application submission package shall be sent to the below email and postal addresses before the package can be processed.

Email Address planning@corkcity.ie

Postal Address Estates Section,
Community, Culture and Placemaking,
Cork City Council,
City Hall, Cork,
T12 T997

Appendix 10 – Colour Code for Buried Plastic Pipe

NSAI Standards

1 Swift Square, Northwood,
Santry, Dublin 9 D09 A0E4, Ireland
Email: info@nsai.ie
www.nsai.ie / www.standards.ie

Summary of colour code for buried plastic piping

(see Irish Standard 370:2016 – Colour code for buried plastic piping).

WARNING: This code applies to new installations. All users should be aware that a high proportion of existing underground services are in ducts and pipes which do not conform to the colour requirements set out in I.S. 370:2016.

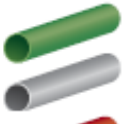
Public lighting
(and control cables operating at 125 volts and above)

Red

Storm and Road drain
(Smooth external wall duct, corrugated)

Black

Telecom/Fibre optic
(smooth external wall duct)



Green
OR
Grey

OR
Any colour except red, yellow or orange

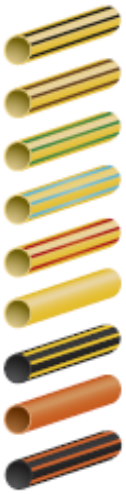
Telecom/Fibre optic
(corrugated duct only – maximum pipe outside diameter 175 mm)

Any colour except red, yellow or orange

Street furniture
(signal below 125 volt)

Orange

Gas



Yellow with black stipes
OR
Yellow with brown stripes
OR
Yellow with green stripes
OR
Yellow with blue stripes
OR
Yellow with red stripes
OR
Yellow
OR
Black with yellow stripes
OR
Orange
OR
Black with orange stripes

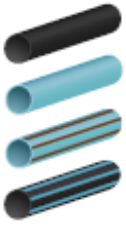
Electricity

Red

Sewer

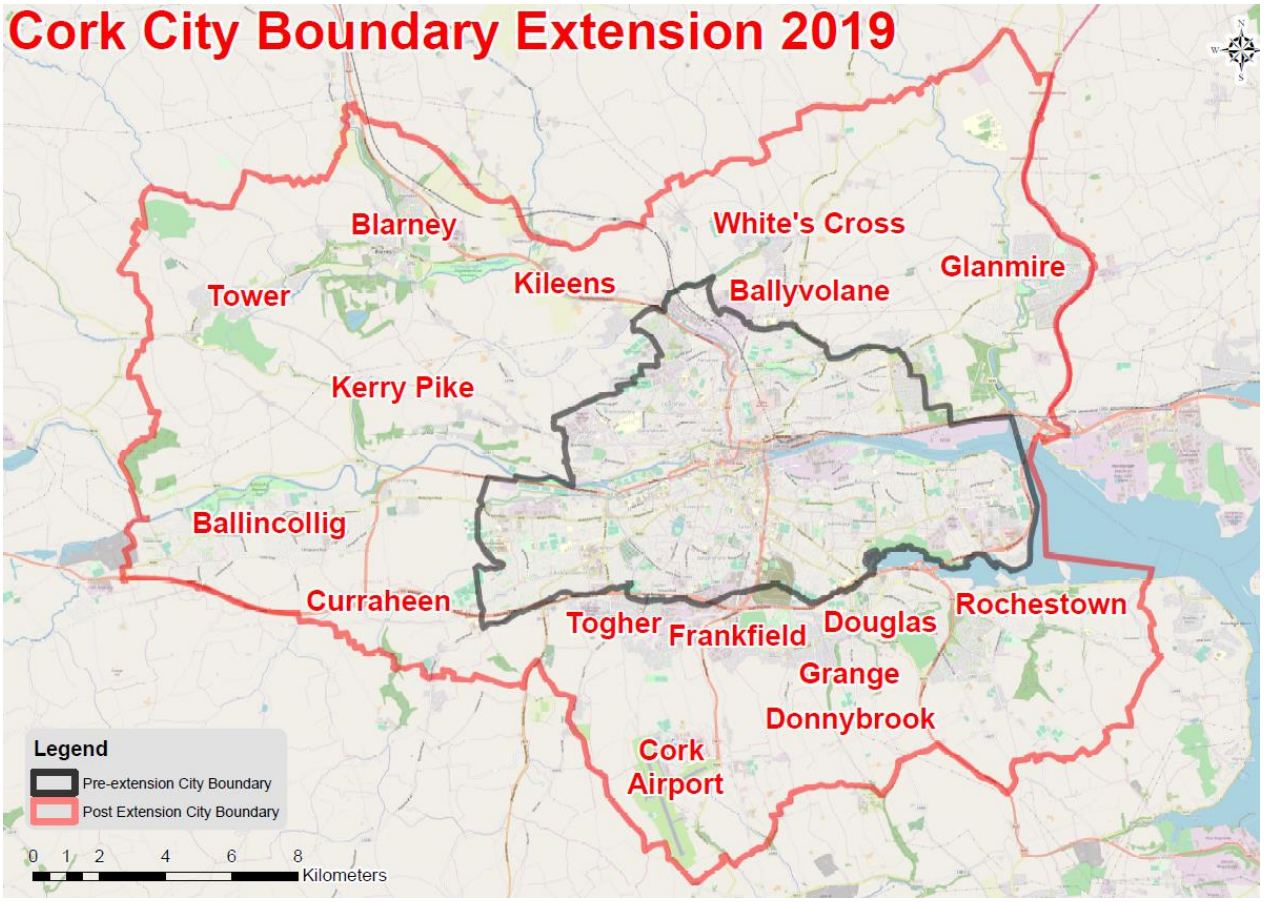
Black
OR
Brown
OR
Black with brown stripes

Potable water



Black
OR
Blue
OR
Blue with brown stripes
OR
Black with blue stripes
OR
Black or blue with coloured stripes (excluding yellow and orange)

Appendix 11 – Cork City Boundary Map



The latest maps for Cork City and the extended boundry can be obtained from the link below. The above map outlines the new areas that are now within Cork City Council's public lighting network

https://www.corkcity.ie/en/council-services/public-info/boundary-extension/maps-of-the-new-city/