

South Dublin County Council Public Lighting Specification

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1 General Requirements

1.1 Introduction

The Public Lighting Services of South Dublin County Council situated at County Hall, The Square, Tallaght, Dublin, is the official lighting authority for housing estates, industrial and commercial developments, and trafficked routes in South Dublin County. It is responsible for the management and maintenance of approximately 34,000 units providing approximately 1,000km of roadway lighting. The Public Lighting Network accounts for 51% of South Dublin County Council's energy consumption.

The Public Lighting Section aims to

- Improve the visual amenity and security of the night-time Built Environment.
- Protect the Natural Environment and its Biodiversity in SDCC by the judicious and responsible use of artificial light at night.
- Reduce energy use in line with government policies. To date, approximately 24,000 lanterns have been upgraded to energy efficient LEDs under SDCC's Energy Efficient Upgrade Programme.
- Provide a high-quality, cost-effective maintenance service ensuring an electrically safe and sustainable network.

1.2 Scope

The aim of this document is to provide a structured and consistent approach to the provision of Street Lighting in South Dublin County Council. This document establishes the standards for design, materials, and workmanship to achieve a high-quality installation suitable to be taken in charge.

All lighting schemes in housing, industrial or commercial developments carried out by developers or their contractors in those areas shall comply with the requirements of, and be approved by, this office, irrespective of whether the lighting is to be taken in charge.

This guide sets down specified standards and technical specifications which shall be complied with by developers undertaking public or private developments to assist them in providing adequate public lighting and electrically safe systems. This document sets out the general requirements and commissioning procedures for all such developments.

Developers and their lighting design specialists are required to engage with the Public Lighting Section to ensure the delivery of high quality, energy efficient lighting which meets the relevant standards and requirements of this the South Dublin County Council Public Lighting Section.

This guide will also set out the procedures for

- Design approval and planning condition compliance,
- Procedures for new electrical connections,
- Taking in Charge & Bond Release Inspections and Reporting.

1.3 Standards

Public Lighting shall be designed in accordance with the requirements of the Irish Standard for road lighting, I.S. EN 13201-2:2015 or current revision while observing NSAI National Rules for Electrical Installations and ESB Networks Distribution System interface requirements.

In addition, designers should observe the general guidance offered in BS 5489-1 Code of Practice for the Design of Road Lighting, current edition. Particularly regarding locating columns, and the calculation of maintenance factors.

Additional reference documents to be consulted are listed below. This is a non-exhaustive list.

- ESBN Standard; ESB Requirements for Work on Public Lighting on ESB Network, current edition.
- ESBN Standard; Minimum Standards for Public Lighting Works Activities, current edition.
- Guideline for Managing Openings in Public Roads, current edition (known as “The Purple Book”).
- ESB National Code of Practice for Customer Interface, current edition.
- ESBN Code of Practice for avoiding danger from Overhead Electrical lines, current edition.
- ILP Guidance Note 1 for the reduction of obtrusive light, current edition.
- ILP Guidance Note 8 Bats and Artificial Lighting, current edition. IS EN 40-Lighting Columns, current edition.
- DN-LHT-03038; Design of Road Lighting for National Roads, Current Edition.
- DN-LHT-03078; Design of Road Lighting for All Purpose Trunk Roads, current edition.
- National Cycle Manual, Current Edition.
- S.I No. 291: Safety, Health, and Welfare at Work (Construction) Regulations.
- SI 608 2022 – Building Regulations (Part M Amendment) 2022

Approval of design submissions by the Public Lighting Engineer shall not supersede the requirements of this document except where exceptional circumstances occur, that require specific deviation from this document.

These deviations shall be clearly identified and agreed in writing with South Dublin County Council’s Public Lighting Engineer in advance of any work commencing on site and as such, must be adhered to for any PL installation to be taken in charge by South Dublin County Council.

2 Health and Safety

- 2.1** No works shall take place on any public lighting asset without prior notification and written approval from South Dublin County Council Public Lighting Section.
- 2.2** A site-specific risk assessment and all relevant safety documentation where works are to take place on existing public lighting assets shall be provided to South Dublin County Council at least two weeks before installation commences.
- 2.3** All persons employed on the installation of PL must have received appropriate Health and Safety training in accordance with the Safety, Health & Welfare at Work Act 2005 & The Safety Health and Welfare at Work (Construction) Regulations 2013 and training in roadside working in accordance in particular with Part 13 of the Safety, Health & Welfare at Work (Construction) Regulations 2006 as amended and the ESB Networks Code of Practice for avoiding Danger from Overhead Electricity Lines.
- 2.4** Any person who carries out specific works on PL in proximity to ESB Networks must be authorised to do so by ESB Networks. Full details of the authorisation process can be found in the publication “ESB Requirements for Work on Public Lighting on ESB Networks,” Current Edition.
- 2.5** Any person who carries out specific works on PL in proximity to ESB networks is to hold a PL Safety Approval Certificate issued by the Local Authority confirming that he is competent to carry out such works.
- 2.6** All PL Safety Approvals must be authorised by a Responsible Manager in the Local Authority for which the person being authorised is working at the time of approval.
- 2.7** 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 by a holder of a current valid Traffic Management Designer CSCS card and implemented on site by a current valid FÁS CSCS Signing, Lighting and Guarding on roads license holder.

3 Client and Designer Duties

- 3.1** 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 or current revision, particularly those duties detailed in Part 2, Section 7 (2) and (5).
- 3.2** 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.
- 3.3** The Safety, Health, and Welfare at Work (Construction) Regulations 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.

- 3.4** Designers must prepare, record and store written documentation clearly showing how design decisions are arrived at. Under S.I. 291 this information must be shared (if requested) with others that have an interest in the project. SDCC clearly has an interest in all designs carried out for installation in its locale and may request such records from designers.
- 3.5** SDCC reserve the right to require lighting designers to demonstrate their competence to undertake lighting and associated electrical infrastructure designs.
- 3.6** Developers and their agents should be aware that 'designs' offered on an 'advisory basis or on a *pro bono* basis shall comply with the statutory duties defined in the Safety, Health, and Welfare at Work (Construction) Regulations 2013 or current revision.

4 Works to Partial Circuits

- 4.1** Where Public Lighting assets such as columns or supply cabinets are to be relocated to facilitate constructions works, these works will be undertaken by the Councils Maintenance Contractor and charged to the Developer.
- 4.2** The Developer or their agent shall contact the SDCC Lighting Engineer in a timely manner to discuss the proposed alterations to the existing Public Lighting assets.
- 4.3** The Developer or their agent shall apply for a road opening license via the MapRoad Licensing Application, clearly stating that it is for the alteration of existing Public Lighting assets.
- 4.4** Once the Road Opening License is referred to the SDCC Lighting Engineer, the costs of the alterations or re-location works shall be assigned to the Road Opening Licence. Once paid, the Public Lighting Contractor shall be instructed to undertake the works.
- 4.5** It is important to note that some Public Lighting Assets will require attendance by the ESNB for connection or disconnection. This will be subject to the ESNB's available resources.
- 4.6** It is not generally acceptable to extend the circuits of an existing Public Lighting supply for new developments.
- 4.7** Exceptions may be considered in exceptional circumstances, subject only to specific conditions and with the express written agreement of the Lighting Engineer.
- 4.8** All works to partial circuits will be subject to the full testing and certifying

requirements of the NSAI I.S.10101 (current edition).

- 4.9** South Dublin County Council Public Lighting Electrical Inspector may request that he witness the Pre & post connection testing on any site at their own discretion.
- 4.10** Where works are to be undertaken on existing circuits, whether partial or whole, note must be taken of the requirements of I.S.10101 Paragraph 6.4.4 Certification for initial verification; “Upon completion of the verification of a new installation or *additions or alterations to an existing installation*, an electrical installation verification certificate shall be provided. Such documentation shall include details of the extent of the installation covered by the certification, together with a record of the inspection and the results of testing. The testing shall cover the entire circuit.
- 4.11** Any defects or omissions revealed during the verification of the installation shall be corrected before the person carrying out the verification declares that the installation complies with the current edition of the I.S. 10101.
- 4.12** Where existing hardware (columns, supply cabinets etc.) are to be relocated/reused or in any way retained, the contractor must certify that all retained hardware is structurally sound and without damage to the protective coatings.
- 4.13** All due care must be taken to protect existing hardware. Any damage to existing equipment (both electrical and structural) must be reported and it is the Contractor’s responsibility to supply and replace any damaged equipment in the course of their works.
- 4.14** Prior to the disconnection of any existing public lighting installations, a full Risk Assessment shall be undertaken regarding the impact of the interruption of the street lighting provision on all users, pedestrian, cyclist and vehicular. If deemed necessary, temporary lighting shall be provided.
- 4.15** Where the interruption of the street lighting provision is to be avoided by the phased scheduling of works, written agreement must be sought from South Dublin County Council for permission to temporarily re-energise sections of the circuits on a phased basis.
- 4.16** If granted, the permission referenced above in no way absolves the Contractor from his previously stated responsibilities regarding the inspection and testing of the renewed circuits in the presence of SDCC’s electrical inspector.
- 4.17** All electrical installation work is to be carried out by a contractor registered with Safe Electric.
- 4.18** All waste is to be disposed of in accordance with the WEEE Directive. Before lanterns are disposed of, they are to be offered to South Dublin County Council and delivered

to their stores if requested.

5 Design Approval Procedure

- 5.1** All lighting performance, lighting infrastructure and electrical designs must be approved in writing by SDCC PL department prior to commencement of site works. This may occur during Planning approval or as a Planning Compliance submission.
- 5.2** The design approval system is a simple pass or fail process and is designed to encourage sustainable, energy efficient lighting solutions, utilising appropriate modern equipment and technology.
- 5.3** SDCC Public Lighting Section encourage the Design team to consult directly with the Lighting Engineer alongside the Planning process, during Pre-Planning or Design Development stages to ensure that formal design compliances are aligned with the requirements of this document and have the best chance of approval.
- 5.4** SDCC provides a check list for designers to complete and submit with their design for approval. The list should be completed along with the required supporting documents. Incomplete submissions will not be approved.
- 5.5** All exterior lighting and associated electrical infrastructure must be submitted in the following format:
 - 5.5.1** Lighting performance modelling calculations by Lighting Reality® in soft copy format. The cover shall show:
 - 5.5.1.1** The identity of the lighting designer.
 - 5.5.1.2** The project name.
 - 5.5.1.3** The Lighting Design Class.
 - 5.5.1.4** The combined maintenance factor for the luminaire.
 - 5.5.1.5** The energy consumption calculations at full and dimmed levels.
 - 5.5.2** Lighting Reality® report in PDF format with the luminaire input details, grid input details and clearly identified masked areas included therein.
 - 5.5.3** CAD Site Location Drawing.
 - 5.5.4** CAD drawings in soft format showing the following information:
 - 5.5.4.1** The site boundary.
 - 5.5.4.2** All landscaping details.
 - 5.5.4.3** All services.
 - 5.5.4.4** All private and public areas to be hatched and identified.
 - 5.5.4.5** Individually numbered columns with icons of a size to allow

accurate assessment of the column positions.

5.5.4.6 PL ducts.

5.5.4.7 PL cable access chambers.

5.5.4.8 Individually numbered micro pillar locations.

5.5.4.9 Sizes of proposed micro pillar sizes

5.5.4.10 ESB cabinet locations.

5.5.4.11 Individually numbered single line circuit diagrams to include the rating of protective devices and any associated electrical calculations.

5.5.4.12 All duct, column foundation or any other detail shall only show SDCC approved versions. Non approved versions shall not be included in any drawing submitted to contractors.

5.5.4.13 All existing Public Lighting Assets, clearly identified for retention or removal.

5.5.5 Technical specifications and material submissions for the proposed equipment.

5.5.6 Written details outlining the OEM warranty and the procedure for transferring warranty to SDCC after the project is taken in charge.

5.5.7 Voltage drop calculations for each circuit.

5.5.8 Lantern details including number of LEDs and drive current must be provided.

5.5.9 Energy calculations including the designed dimming regime.

5.6 The addition of PDF type files to the requested lighting reality soft copy versions is acceptable. However, the absence of soft data files shall prevent SDCC from fulfilling their statutory duties detailed in S.I. 291 and are therefore not acceptable.

5.7 Any subsequent changes to the originally approved lighting design must be included in the Taking in Charge submission along with supporting calculations

6 Lighting Design Considerations

6.1 Lighting designers shall refer to SDCC PL specifications and ensure their design complies with SDCC requirements for taking in charge.

6.2 Lighting designs shall comply with SDCC PL specifications regardless of the intention for the lighting infrastructure to be taken in charge by SDCC or to be privately maintained.

6.3 Lighting designers shall liaise with SDCC PL Section at an early stage of the design process.

6.4 Lighting designers shall as a minimum, refer to the current edition of the Regulations, Standards, and Guidance Documents as listed in Section 1.3.

- 6.5** Lighting designers shall approach the design process in a holistic manner, taking account of lighting levels in the general area and at the access points to the project/development. Maintenance access and longevity of installation shall be central to the design.
- 6.6** Lighting Designers shall incorporate energy efficiency as a core tenet of their design. All proposed lanterns shall be of LED type. Lantern selection shall include energy consumption as a priority criterion.
- 6.7** The Lighting Designer shall ensure that a single lantern optic is used for each road topography, optimised to allow for reasonable energy efficiency, practical column spacing and flexibility of use. Multiple optics should only be used with the express approval of the SDCC Lighting Engineer. This is to simplify and optimise the ongoing maintenance burden of the estate once taken in charge.
- 6.8** Photocells for LEDs shall be set to the 35/18 Lux switching regime.
- 6.9** Whilst it is the Public Lighting Section's preference that residential roads are lit to a P4 class with ESNB U14 dimming profile, the Lighting Designer shall determine the appropriate lighting class and dimming profile for each development/project on its own merits and following the requirements of the appropriate standard for the selection of lighting classes. The ESNB U14 Dimming Profile reduces the lantern Illumination to 75% output post-midnight and raises it to 100% output at 6am. Lanterns shall be Pre-programmed with this profile.
- 6.10** Where applicable the requirements of the Building Regulations Technical Guidance Document M, current edition shall be considered. However, public footpaths in the charge of the council, adjacent to traffic carriageways or through public open spaces are not considered disabled access routes.
- 6.11** Lighting Designers shall consider the existing lighting along the boundaries of the proposed development or project. Existing Lighting should be clearly identified on all drawings and any conflicts between existing lighting assets and the development should be clearly marked.
- 6.12** Where existing lighting may be affected by the development, a procedure for maintaining the lighting levels on trafficked roads during construction shall be proposed. This may be achieved via strategic scheduling of construction phases or by the utilisation of temporary lighting. The procedure shall be approved by the Public Lighting Engineer during the design approval process.
- 6.13** Lighting Designers shall ensure that all lighting designs are fully co-ordinated with proposed landscape planting designs. Columns should be located to ensure that the lighting performance will not be affected by the eventual mature canopy. In general, a tree exclusion zone of 5m is required around all columns.
- 6.14** Lighting Designers shall consider the green infrastructure requirements of the County

Development Plan when developing a lighting design. Certain areas may be designated “Green or Bio-diversity corridors” and effort should be made to minimise obtrusive light into these areas.

- 6.15** Where lighting in designated Bio-diversity Sensitive areas is unavoidable, luminaires with a peak wavelength of 550nm or higher should be specified.
- 6.16** Where night-time illumination in environmentally sensitive areas is unavoidable, consideration should be given to mitigation measures as outlined in ILP Guidance Note 8 and the use of dynamic, PIR controlled lighting installations. The Public Lighting Engineer may require a particular system to ensure a consistent approach throughout the County.
- 6.17** Standard LED Street lighting shall be 4000K colour temperature. Where bio-diversity issues are identified, specific routes may be considered for 3000K colour temperature with express approval from the Public Lighting Engineer only.
- 6.18** Lighting designers shall pay attention to the General Principles of Prevention, both for construction and for future maintenance.
- 6.19** Careful consideration shall be given to future maintenance requirements. Particularly to safe and practical access for maintenance crews to the lighting equipment, including safe ingress and egress to the equipment location. Where high level access via a Hoist or MEWP is not possible, hinged columns should be considered.
- 6.20** Where urban realm, amenity or decorative lighting is considered, all lanterns within the “accessible zone” of 4m above Finished Ground Level (FGL) must be Extra Low Voltage (ELV).
- 6.21** Low level bollards or columns of less than 6m height are not acceptable in any areas intended to be Taken-in-charge by the council due to increased maintenance burden to the Council.
- 6.22** Where urban realm, amenity or decorative lighting installations require separate drivers and control equipment, early consideration of the driver IP65 enclosure and its location is necessary. Early co-ordination with the Public Realm designers is advised. It may be possible to recess the driver enclosure within the public realm furniture. Safely accessible and maintainable enclosures are required. Approval by the Public Lighting Engineer is required for all proposals.
- 6.23** Where urban realm/amenity lighting is proposed, early consideration of colour changing options for place or occasion marking should be considered. All such proposals should be raised during design meetings or correspondence with the Public Lighting engineer for approval. The Public Lighting Section may require a particular system to ensure a consistent approach throughout the County.
- 6.24** The design should represent the planned construction phases and shall be self-

contained within each construction phase.

- 6.25** No component of the lighting infrastructure eligible to be taken in charge by the council shall pass through, or under private property.
- 6.26** Consideration shall be given to the protection of columns from vehicle strikes. Column set back guidance offered in 4.3.3.3 of *BS5489-1:2013* or current edition shall be observed.
- 6.27** When shared surfaces are used, a suitable method of column protection shall be offered that does not conflict with the ethos of shared surface design principles.
- 6.28** Consideration shall be given to the identification of potential Conflict Areas and to the design of public lighting within these areas. While not every junction will constitute a Conflict Area, the designer shall undertake an appropriate assessment to determine whether conflict area lighting requirements apply. Conflict Area lighting will be subject to similar scrutiny as all other public lighting schemes
- 6.29** SDCC requires that Conflict Area lighting calculations be undertaken using a contiguous grid covering the entirety of the defined conflict area. The Conflict Area shall include the full width of all carriageways, in both directions, together with all associated footpaths and cycle lanes. The conflict area shall extend along all access and egress routes for at a minimum of two columns or the distance travelled by a vehicle at the posted speed limit in five seconds, whichever is greater.
- 6.30** The Institution of Lighting Professionals (ILP) Professional Lighting Guide for '*The Application of Conflict Areas on the Highway*' (PLG 02) may be used as a reference document and a source of guidance. However, it shall not be regarded as the governing standard for the design of lighting within Conflict Areas, and the requirements of this Public Lighting Specification shall take precedence.

7 Electrical Design

7.1 General

- 7.1.1** The electrical services design for the scheme shall be undertaken to comply with the relevant sections of NSAI I.S. 10101 (current edition).
- 7.1.2** The detailed cable design shall be undertaken to match the calculated electrical load which would typically allow between 4 and 8 fittings to be supplied per phase. The provision of earth loop/fault level calculations and circuit disconnection (fuse rupture times) shall also be completed at the design stage. Public lighting schemes requiring cable lengths more than 200 meters require careful design to meet the earth loop impedance requirements of I.S. 10101.
- 7.1.3** NYCY is the required cable type for Public Lighting installations. SWA cable will

not be accepted. Minimum acceptable cable size shall be 6sq.

- 7.1.4** Disconnection/fuse rupture times shall be in comply with those set out in I.S. 10101 (National Rules for Electrical Installations) rather than those specified in BS 7671 for Public Lighting and Street Furniture.
- 7.1.5** Due care should be given during circuit design to the impact for driver inrush current in relation to the in-column fuse ratings based on the ESBN-limited customer maximum protection size as per the ESBN Code of Practice.
- 7.1.6** Note: In some cases, South Dublin County Council may refer the electrical services designer to other Irish, UK or European Electrical Design Standards, e.g. BS 7671 (UK wiring Regulations and / or associated guidance notes) etc.
- 7.1.7** The contractor shall be responsible for measuring all cable lengths before ordering, and that installation meets the requirements of NSAI rules. In particular, that the maximum volt drop is not exceeded, that the equipment installed is of sufficient rating for the prospective fault current, that the disconnection time is satisfactory, that the cables are of satisfactory current carrying capacity for the load under running and starting conditions and that the protective devices discriminate fully.
- 7.1.8** The use of Miniature Circuit Breakers (MCB's) shall NOT be accepted in standard columns or pillars. MCB's may be required in certain direct fed columns or in some amenity lighting installations. This must be approved in writing by the Lighting Engineer during the design approval process.
- 7.1.9** The availability of electricity supplies shall be confirmed by the Distribution System Operator (DSO) ESB Networks prior to design of the public lighting scheme.
- 7.1.10** Where upgrades to public lights on overhead network poles are undertaken electrical isolation boxes (IP 65) (as produced by Killarney Plastics Limited or equivalent approved by ESBN) shall be fitted on the supply connection to each luminaire. 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. South Dublin County Council can advise the developer with further information if required.
- 7.1.11** Main road public lighting schemes shall have power supply infrastructure installed with a minimum of 25% spare capacity (Maximum Installed Capacity at Customer Service Pillar, Cables to be sized for 25% additional load and at least 25% additional length) to allow for future extension. The spare capacity requirements shall be advised by South Dublin County Council at the design review phase.

7.2 Unmetered Cabinets

- 7.2.1** The main supply point switch fuse shall be a BS 88 HRC fuse rated appropriately

to the number of downstream circuits and as per the requirements of the Customer Maximum Protection size as specified in the ESBN Code of Practice.

7.2.2 The fuses and circuit breakers shall have a minimum rupture capacity of 80kA.

7.2.3 All outgoing circuits shall be individually fused by means of a HRC cut out type fuse.

7.2.4 Fuse sizes and discrimination values shall be stated on the submitted electrical design for approval of SDCC public lighting engineer.

7.2.5 Double-Pole Fuse carrier equipment shall be rated at 20A with terminals suitable to accept 6sq to 25sq cables.

7.2.6 Space shall be allocated for the ESB supplied cut-out and isolator as per the ESBN National Code of Practice for Customer Interface.

7.3 Metered Cabinets

7.3.1 The metered cabinet shall be supplied with a modular triple pole breaking fuse switch (blade fuse type DIN 00) arrangements mounted on busbars rated to IEC 60947.

7.3.2 The busbars shall be rated to 400A and have continuously extruded aluminium sections, insulated with a layer of polyamide with accidental contact protection to IP2x.

7.3.3 The fuses shall be BS88 HRC type with a minimum rupture capacity of 80kA.

7.3.4 Fuse sizes and discrimination values shall be stated on the submitted electrical design for approval of SDCC public lighting engineer.

7.3.5 Space shall be allocated for the ESB supplied cut-out and isolator and metering arrangements as per the current edition of the ESBN National Code of Practice for Customer Interface.

7.4 Lighting Column

7.4.1 Close protection of street lighting lanterns to be provided by a 20A rated cut-out loaded with a 2A fuse, or as required to fully discriminate the requirements of the ESBN National Code of Practice for Customer Interface, current edition, with incorporating a cam lever double pole disconnection rated to IEC 60947.

7.4.2 The cut-out shall comply with a minimum degree of protection of IP21 internally and IP42 externally and be moulded in a material which conforms to BS 7654, e.g. the MCO40DN by Lucy Oxford. Any alternative is to be submitted to the SDCC PL engineer for approval.

7.4.3 All terminals shall be formed from solid brass and be electroplated for

temperature rise stability.

- 7.4.4** Terminals shall have a serrated bore to ensure good contact with all types of conductors.
- 7.4.5** Connector (Link) blocks shall be used for the termination of all conductors of underground cables in columns. The Connector blocks shall conform to BS 7657:2010 and rated 100Amp for use on live and neutral connections. Each block shall incorporate five serrated cable bores (terminals) each capable of accepting cable sizes up to 35sq. The metal terminal block shall remain captured within its moulding when the cover is removed.
- 7.4.6** Connector blocks shall be solidly mounted on the column baseboards. Conductors shall not share the same terminal where spare ways are available in a connector block.
- 7.4.7** Switching control of public lighting systems shall be achieved by means of photocell control. Each individual lantern shall be switched "ON" from dusk to dawn.
- 7.4.8** An individual Photo-Electric Control Unit (PECU) which shall include a "fail safe" circuit that switches the lantern on in the event of photocell failure, shall control each lantern.
- 7.4.9** The PECU shall be a 35Lux rating with 2:1 Ratio.
- 7.4.10** NEMA socket shall be wired to the lantern control circuit and shall include connection of communications cable to driver.

8 Materials Specification

8.1 LED Lantern Specification

- 8.1.1** All LED lanterns to be taken into the Council's charge will be selected or approved by the Engineer in accordance with Council policy and in keeping with best and evolving practice.
- 8.1.2** Lanterns shall carry a CE Mark. The certificate of compliance shall be provided in any situation required by EU or Irish statute, or when requested.
- 8.1.3** Certificates of Compliance and official declarations must list the standards and directives for which compliance is certified or declared. (22) Directive 2014/35/EU, or later.
- 8.1.4** EU based economic operators shall be aware of their legal liability to ensure that products imported from non-EU sources meet all requirements stipulated in the various appropriate legislation and directives.
- 8.1.5** LED module performance shall be tested in accordance with EN

62717:2017+A2:2019, or later versions.

- 8.1.6** The bin class of LEDs shall be within a 5-step MacAdam ellipse.
- 8.1.7** The LM80 test report for the chip set used within the Lantern shall be provided upon request.
- 8.1.8** Lantern performance shall be tested in accordance with EN 62722-2-1:2016, or later versions.
- 8.1.9** An in-situ Thermal Test Report, along with a TM 21 calculation report for the Lantern shall be provided upon request. Thermal imaging is not acceptable as a method of thermal testing.
- 8.1.10** An LM79 report shall be provided for the Lantern upon request. The report shall be specifically for the photometric distribution and lumen package being utilised. If the LM79 report does not include CCT and spectral distribution results, then a separate report obtained by testing by an integrating sphere shall also be provided.
- 8.1.11** The photometric data file in a format compatible for reading by the designer's lighting design software, and in a text file, shall be provided upon request.
- 8.1.12** The ambient temperature of the photometry used shall be stated on the lighting design software's output reports. Photometry temperature shall not be less than 15°C.
- 8.1.13** The Lantern shall be ready to comply with Directive 2009/125/EC and shall comply from the 1st of September 2021.
- 8.1.14** The Lantern shall be registered on SEAI's Triple E register.
- 8.1.15** Colour Rendering Index of the source shall be at least 70.
- 8.1.16** Upward light ratio for the Lantern shall be 0.
- 8.1.17** Lumen Depreciation Factor shall not exceed 0.9 at 100,000 hours, at 25 °C.
- 8.1.18** Chip mortality shall not exceed 0.1 after 100,000 hours. Documentary evidence shall be provided to prove claimed mortality rate.
- 8.1.19** Drivers shall comply with IEC 61347-2-13:2014 + A1:2017.
- 8.1.20** Driver failure rate shall not exceed 10% after 100,000 hours at 25°C. Documentary evidence shall be provided to prove claimed failure rates.
- 8.1.21** Drivers shall be DALI enabled and capable of communication with a CMS system.
- 8.1.22** Drivers shall utilise CLO, excepting where the LDF is greater than 0.97 at

100,000 hours where it is optional.

- 8.1.23** Drivers shall have over temperature protection.
- 8.1.24** Lanterns shall be manufactured in accordance with the European Directive on Waste Electrical and Electronic Equipment (WEEE).
- 8.1.25** Lanterns' structural components shall be constructed from die cast aluminium. They shall be robust in nature, designed only for LED sources. All Lantern components shall be of the same RAL colour code and have the same visual appearance when viewed in natural light. They shall be powder coated in light grey. Alternative colours such as Black, Graphite etc. are only acceptable with express written permission and must match the column colour.
- 8.1.26** All fixations, screws, bolts, hinges, clips, toggle catches etc. shall be made from a noncorrosive, metal material. Screws and bolts shall be protected against seizure for the life of the Lantern.
- 8.1.27** Lanterns shall have a minimum impact resistance rating, including the optic assembly, of IK 08.
- 8.1.28** Lanterns shall be suitable for operation in Irish climatic conditions in an ambient temperature range of -15°C to 35°C.
- 8.1.29** Lanterns shall have no structural, or load bearing, components made from polymers or plastics.
- 8.1.30** Lanterns shall be capable of post top, or side entry mounting. Mounting inclination shall be capable of adjustment with a range of at least ten degrees above, and ten degrees below the horizontal when side entry mounted and be capable of adjustment with a range of at least ten degrees above, and five degrees below the horizontal when post top mounted. The Lantern shall be capable of both post top and side entry mounting by simple adjustment of the mounting assembly. Spigot size will range from 46mm to 76mm. Where smaller diameter brackets are in use, a sleeve, or collet shall be used to increase the spigot diameter. Longer mounting bolts in the Lantern will not be acceptable.
- 8.1.31** Lanterns shall comply with EN 60598-1:2015+A1/2018.
- 8.1.32** Lanterns shall be designed to dissipate heat in a passive manner.
- 8.1.33** Lanterns shall be fitted with surge protection in accordance with EN 61643-11:2012 and A11:2018, rated 10kA/10kV. The surge protection device shall be the first component encountered in the Lantern circuitry.
- 8.1.34** All Lantern wiring shall be heat resistant and comply with I.S. EN 60598 or equivalent.
- 8.1.35** Lanterns shall be fitted with a 7-pin NEMA socket. The socket shall be prewired

so that switching, and communications channels are connected to the driver. Switching shall be 35/18LUX.

8.1.36 In instances when a miniature PECU is required, the Lantern manufacturer shall select the component and include it in the Lantern warranty. Switching shall be 35/18LUX.

8.1.37 Lanterns shall be capable of dimming. Dimming profiles shall be appropriate to the ESNB UMR U14 profile for residential roads, which allows dimming to the next lowest class of light post-midnight, returning to full output at 6.00am.

8.1.38 The Lantern body and optical compartment shall be sealed to IP 66. The sealing shall be operational for the design life of the Lantern.

8.1.39 The Lantern shall provide thermal protection for all the components to ensure that all operate within their design parameters throughout the life of the Lantern.

8.1.40 Electrical and communication terminals shall be indelibly marked to indicate all wiring connections. Shrouded screws shall be used when proprietary fixing methods are not used by the OEM.

8.1.41 The entire Lantern shall operate at $230V \pm 10\%$ at 50 Hertz. Power factor correction shall not be less than 0.9 at full output and shall not be less than 0.8 when dimmed to 50%.

8.1.42 Weight, projected side area, and any other information required to calculate loadings on columns shall be provided.

8.1.43 A comprehensive, written warranty shall be provided to cover the entire Lantern and control components provided at manufacture shall be provided. The warranty shall stipulate how South Dublin County Council access the claims procedure should the need arise. Warranty shall be for ten years from date of installation.

8.1.44 The Lantern shall have all photometric data, distribution setting, number of LEDs, drive current, and colour temperature indelibly marked on the lantern. The same information shall also be provided on the exterior of the packaging.

8.2 Cable Specification

8.2.1 NYCY cable to DIN VDE 0276603 (0.61kV) must be used throughout the

installation, suitably sized. Steel Wired Armour (SWA) cable is not accepted.

8.2.2 The minimum acceptable cable size is 6mm².

8.2.3 No jointing of cables will be accepted in any circumstances.

8.2.4 All cable is to be installed in ducting as specified below.

8.3 Ducting Specification

8.3.1 Ducts must be single walled, colour red, high-density polyethylene (H.D.P.E.).

8.3.2 The duct shall be 107mm outer diameter with a wall thickness of 5mm.

8.3.3 The duct must have the words “Public Lighting”, or “Street Lighting” stamped at 1m intervals. The letters must be 9mm in height.

8.3.4 Ducting shall be laid in fully coupled unbroken lengths, which are accessed at the cable drawing-in stage by cutting at each lighting column or other termination point. Draw wires must be provided at all termination points. Refer to SDCC PL’s STANDARD DETAILS drawing, Appendix D.

8.3.5 Ducting shall be laid to the appropriate depth as per the NSAI I.S. 10101 requirements.

8.3.6 Draw wires must be provided at all termination points.

8.3.7 At road crossings two lengths of ducting shall be provided. Ducting setback in relation to road edge will vary depending on the set back of rooted lighting columns. In general, the ducting shall be up to 500mm in front of the column positions, with a minimum of 140mm between centre of the duct and the face of the column.

8.3.8 Ducting shall be properly coupled.

8.3.9 All ducts shall be marked with electrical marking tape at 300mm below finished ground level.

8.4 Inspection Chamber Specification

8.4.1 Access chambers must be provided at all access points for road crossings. Access chambers shall only be installed in Group 2 areas suitable for loading class B125 i.e. Footways, pedestrian areas, and comparable areas.

8.4.2 Access chamber covers shall be, to EN124, loading class B125, suitably resistant to intrusion, of a minimum 600mm x 450mm nominal dimension.

8.4.3 The lock shall be formed such that the replacement of both a damaged bolt

and a damaged nut is provided for.

- 8.4.4** The access chamber cover shall be identified as “PUBLIC LIGHTING” and state the European Standard and appropriate classification.
- 8.4.5** Chamber covers and frames shall be approved by a suitably licenced third party such as NSAI, Lloyd’s register or British Standards Institute of Quality Assurance Services).
- 8.4.6** At road crossings, access chambers should, by location, indicate the position of buried cables.
- 8.4.7** The chamber shall be to EN 124 Group 4, with a vertical load testing to D400.
- 8.4.8** The chamber shall be manufactured from virgin polypropylene for high density polyethylene (H.D.P.E.) and be from a minimum of 70% recycled materials.
- 8.4.9** The chamber shall be of a structural twin wall construction with a nominal overall wall thickness of not less than 50mm.
- 8.4.10** The chamber sections shall be a minimum of 150mm high and positively interlock together with horizontal joints.
- 8.4.11** The Chamber shall have the facility of an in-built integral cable retention system.
- 8.4.12** Or High Strength engineering bricks or in situ concrete shall be used to make up the manhole walls directly under the frame. Standard concrete blocks or bricks shall not be accepted.
- 8.4.13** Mortar shall have 1:3 cement sand dry volume ratios. The sand shall comply with BS EN 13139, BS 1200:2013.
- 8.4.14** The engineering bricks shall comply with BS EN 772.

8.5 Column Specification

8.5.1 General

- 8.5.1.1** All columns shall be of the same type within any one scheme.
- 8.5.1.2** The minimum acceptable height of a public lighting column is 6m.
- 8.5.1.3** Bollards are not acceptable for public lighting intended to be taken in charge by the Council.
- 8.5.1.4** Tubular or octagonal steel columns complying with B.S. 4360 Grade 43C shall be used.
- 8.5.1.5** They shall be protected against corrosion by hot-dip galvanising to

BS EN 1461.

- 8.5.1.6** They shall comply with B.S 5649.
- 8.5.1.7** Public Lighting columns shall be designed to the BS-EN20 family of standards.
- 8.5.1.8** The columns specified in line with BS EN 40 must state a minimum 25-year Design Life, a minimum Terrain Category of TC3 and reference the relevant 10-minute mean wind velocity.
- 8.5.1.9** The lighting column manufacturer shall be registered with and certified by either NSAI, British Standards Institute of Quality Assurance Services or Lloyds Register Quality Assurance Register for the design, manufacture, supply and verification of road lighting columns and brackets under their quality assessment schedule to ISO 9001.
- 8.5.1.10** The quality assurance certification shall relate to the specific lighting column material being proposed. SDCC reserves the right to request proof of certification from the proposed column manufacturer.
- 8.5.1.11** There inner tube of the column shall not be included in Type 5 calculations, unless press stressed. Note that welding in profile does not constitute press stressed.
- 8.5.1.12** Column specification and associated windage calculations must include for 1.5m square sign and assume a 1.5m bracket length, even where the current design does not call for a sign or bracket.
- 8.5.1.13** All octagonal columns must be fabricated with longitudinal welding only.
- 8.5.1.14** All tubular columns must incorporate an anti-rotational device. For tubular columns, a 15mm diameter galvanised threaded bar with two fixing nuts, extending 150mm beyond each edge of the column, shall be fitted 150mm above the base of the column.
- 8.5.1.15** A vertical cable entry slot with smooth edges, rounded at top and bottom and measuring 150mm x 75mm shall be provided in the column root. The entry slot shall be in line with the column door opening.
- 8.5.1.16** The top of the entry slot shall be at 300mm below ground level.
- 8.5.1.17** A bituminous coating to a level 250mm above finished ground level shall protect the planted portion and above of both the inside and outside of each column. To prepare the surfaces for the bitumen, any dirt or contamination shall be removed, and the surface

degreased to remove any zinc salts. One coat of metal etch primer shall then be applied followed by two coats of Mebon Ruskilla Bitumen HB (MB00) Black or equivalent each coat being a minimum of 75microns thick.

8.5.2 Column Door Specification

- 8.5.2.1** The door opening shall have a welded-in frame with an all-round weather strip. A flat steel door (specification available on request) of minimum thickness 3mm secured by one (preferred) or two triangular head bolts shall be fitted.
- 8.5.2.2** The locking triangular head bolts shall have a narrow neck under the head to take a retaining washer. The bolt threads shall be lightly greased to prevent seizing or binding. Bolts must be secured to an 8mm nut welded in place.
- 8.5.2.3** Nuts held by compression or clipped in place shall not be accepted.
- 8.5.2.4** All doors shall be of standard size and be fully interchangeable. They shall not require any site adjustment or modification to fit each column properly.
- 8.5.2.5** A baseboard, with a minimum working area equal to the door opening, shall be fitted in each column, and shall be treated with three coats of intumescent varnish to prevent fire propagation.
- 8.5.2.6** The varnish shall be as manufactured by Hamron (type WD – 05) or approved equivalent and the rate of coverage shall be 2.5 sq. m per litre to provide Class A protection.
- 8.5.2.7** The clearance between baseboard and inside face of door when secured shall not be less than 100mm. The baseboard must be capable of being removed and replaced. Backboard fixings shall be recessed below the surface of the board so as not to impede the fixing of electrical equipment to the backboard. An earth terminal shall be provided in a readily accessible position at the bottom of the opening.
- 8.5.2.8** Plasma cut doors shall be accepted subsequent only to prior submission to and approval by SDCC Public Lighting Engineer.

8.5.3 Raise and Lowering Mid-Hinged Columns

- 8.5.3.1** Raise and Lowering Columns shall comply with the requirements of paragraph 8.5.1 and 8.5.2 above.
- 8.5.3.2** Columns located in areas inaccessible to standard maintenance

equipment must be mid-hinged columns..

- 8.5.3.3** Base-hinged Raise and Lowering Columns are not acceptable.
- 8.5.3.4** All mid-hinged columns must be delivered with a standard anti-vandal locking screw as standard.
- 8.5.3.5** The mid-hinged column must be designed to EN40, with a minimum 25-year Design Life, a minimum Terrain Category of TC3, reference the relevant 10-minute mean wind velocity.
- 8.5.3.6** They shall be protected against corrosion by hot-dip galvanising to BS EN 1461.
- 8.5.3.7** 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 or tarmacked path must be of sufficient structural strength to support the weight of the truck and the point pressure of the truck stabilisers without incurring damage.

8.5.4 Anti-Vandal Columns

- 8.5.4.1** Anti-Vandal Columns shall comply with the requirements of paragraph 8.5.1 and 8.5.2 above.
- 8.5.4.2** Anti-Vandal Columns shall be installed in areas with ongoing high incidence of vandalism or targeted interference with columns, in consultation with and written approval from the Lighting Engineer only.
- 8.5.4.3** Anti-vandal columns are to be installed only in areas where a 30kph speed limit is in place.
- 8.5.4.4** The access door for the anti-vandal pole is to be installed 300mm below the full height of the column.
- 8.5.4.5** The access door for anti-vandal columns must be 400mm by 100mm in dimension.
- 8.5.4.6** They shall be protected against corrosion by hot-dip galvanising to BS EN 1461.

8.5.5 Flange Mounted Columns

- 8.5.5.1** Flange Mounted Columns shall comply with the requirements of paragraph 8.5.1 and 8.5.2 above.
- 8.5.5.2** Where it is not possible to install a rooted column to the required

depth by either Method A or Method B above, flanged columns or retention sockets may be used, but only with the prior written approval of Public Lighting Services.

- 8.5.5.3** A foundation detail will need to be designed by a competent structural engineer and the contractor shall submit details of a suitably experienced Chartered Engineer who will undertake such design work. The commissioning and construction of the foundation designs will be the responsibility of the Contractor.
- 8.5.5.4** The foundation detail shall be designed to take account of the column bracket and lantern loading. Where columns are also designed to take banners, this shall also be considered in the foundation design.
- 8.5.5.5** For flanged columns, a full set of design calculations for the structural base for the mounting of the flange, shall be undertaken by the Contractor and must be submitted to Public Lighting Services for their records.
- 8.5.5.6** A flange type arrangement shall be mounted on concrete foundations, fed through underground ducted cables.
- 8.5.5.7** Holding down J-bolts shall be incorporated into an in-situ concrete base and a flange type column is subsequently erected and secured by nuts. The size of the base varies with size of column.
- 8.5.5.8** In the case of flange plate columns, flexible stub duct through foundation block shall be sufficiently long to project 100 mm above top of block. The coupling shall be such that the cabling can be easily withdrawn at some future stage.
- 8.5.5.9** Where the flange is to be installed lower than F.G.L. to allow for paving to be installed to the column shaft, the flange mounting must be inspected and approved prior to the installation of the paving setts.

8.5.6 Passively Safe Columns

- 8.5.6.1** Passively Safe Columns shall comply with the requirements of paragraph 8.5.1 and 8.5.2 above
- 8.5.6.2** 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.
- 8.5.6.3** 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.

- 8.5.6.4** Passively safe plug and socket connection shall be used on all passively safe columns. This quick disconnect function will prevent PL poles and associated cables from becoming live conductors at crash sites.
- 8.5.6.5** Cable connector to be manufactured to BS EN 60309 and EN 12767
- 8.5.6.6** Chambers are required at each lighting column based on the electrical disconnection method used where passively safe columns are deployed.
- 8.5.6.7** Additional guidance on the implementation of passively safe columns can be found in ILP TR 30.
- 8.5.6.8** Areas requiring the installation of Passively Safe columns shall be agreed with SDCC during design development.

8.5.7 Bespoke and Decorative Columns

- 8.5.7.1** Bespoke and Decorative Columns shall comply with the requirements of paragraph 8.5.1 and 8.5.2 above.
- 8.5.7.2** Derogations from the specifications, dimensions and finishes described in paragraphs 8.5.1 and 8.5.2 will only be permitted following consultation and written approval by the Lighting Engineer.
- 8.5.7.3** Bespoke, or decorative columns shall be accepted subsequent only to prior submission to and approval by SDCC Public Lighting Engineer.
- 8.5.7.4** Details of the proposed bespoke or decorative columns shall be submitted in writing to the Lighting engineer for approval and shall include dimensions of the cable access opening and column door, details of associated brackets, column colour and finish.
- 8.5.7.5** A vertical cable entry slot with smooth edges, rounded at top and bottom and measuring 150mm x 75mm shall be provided in the column root. The entry slot shall be in line with the column door opening.
- 8.5.7.6** The top of the entry slot shall be at 300mm below ground level.
- 8.5.7.7** Column specification and associated windage calculations must include for 1.5m square sign and assume a 1.5m bracket length, even

where the current design does not call for a sign or bracket.

8.5.8 Brackets

- 8.5.8.1** The use of outreach brackets up to 1m on new installations is acceptable by SDCC's Public Lighting Section.
- 8.5.8.2** Outreach bracket designs are to be approved prior to installation, particularly where decorative brackets are being used.
- 8.5.8.3** Brackets shall be of the same finish and colour as the associated column.
- 8.5.8.4** Where outreach brackets are required for lighting performance reasons, both the columns and brackets assemblies shall conform to the deflection requirements of Class 2 as defined in IS EN 40-3-3.
- 8.5.8.5** The removable bracket arms for the columns shall be of steel construction and protected against corrosion by hot-dip galvanising to EN 40.
- 8.5.8.6** Bracket arms and column shaft shall be of the sleeve fitting type, with the bracket fitting snugly over the column.
- 8.5.8.7** For tubular columns, the bracket shall be secured by eight hexagonal headed stainless-steel screws, minimum diameter 8mm. Brackets used for columns greater than 8m must have 8mm nuts welded to the outer face of the bracket wall to enable secure fixing. No screws are required for octagonal bracket sleeves on octagonal columns.
- 8.5.8.8** Brackets for use with ESB owned columns shall be as per ESB Requirements.

8.6 Customer Supply Pillars

8.6.1 Unmetered Pillars

- 8.6.1.1** Customer supply pillars shall be installed in land that is open to the public and shall not be erected on ground likely to remain private / inaccessible, e.g. private gardens, ESB / Bord Gáis Substation enclosures etc.
- 8.6.1.2** ESB Mini-Pillars and Customer Service Pillars shall be installed a minimum of two metres apart.
- 8.6.1.3** If this is not physically possible and only with the explicit permission of ESB Networks and South Dublin County Council Public Lighting Section these may be installed closer together and equi-potentially

bonded in accordance with I.S. 10101.

- 8.6.1.4** Earthing for the ESB Mini Pillar should be in accordance with the ESB National Code of Practice for Customer Interface, Current Edition.
- 8.6.1.5** All electrical supplies to Public Lighting installations must be publicly accessible.
- 8.6.1.6** The Mini Pillars shall be of sheet steel construction manufactured in 3mm thick steel including door and bottom plate.
- 8.6.1.7** For installations with up to two lighting circuits, the Customer unmetered supply pillar shall have minimum dimensions of 160 x 260 x 600mm (DxWxH). The root depth shall be minimum 320 mm. The pillar shall be fitted with a single flat plate door of 220mm wide x 510mm high, with one triangular head captive head locking bolts which are lightly greased.
- 8.6.1.8** For installations with three or more lighting circuits, the Customer unmetered supply pillar shall have minimum dimensions of 220 x 375 x 670mm (DxWxH). The root depth shall be minimum 360 mm. The pillar shall be fitted with a single flat plate door of 330mm wide x 520mm high, with two triangular head captive head locking bolts which are lightly greased.
- 8.6.1.9** Extension plates, measuring approx. 320mm deep shall be fitted at the bottom to enable firm cementing into the ground.
- 8.6.1.10** The plate shall have M8 nuts welded to the inside face to secure the triangular head screw.
- 8.6.1.11** The Mini Pillar shall be protected against corrosion by hot-dip galvanising in accordance with BS EN 1461 and shall be properly vented.
- 8.6.1.12** The extension plate, including the planted portion below ground and 50mm of the above ground shall be protected by a bitumous coating.
- 8.6.1.13** A block board base plate approximately 20mm thick and treated with intumescent varnish shall be mounted in each pillar.
- 8.6.1.14** All supply pillars shall have a high voltage symbol attached to the front panel.

8.6.2 Metered supply cabinets

- 8.6.2.1** Installations above 2kVA must be supplied via a metered supply.
- 8.6.2.2** Enclosures shall be made of hot-dip galvanized sheet steel to the

requirements of ISO 1461, IEC 60439-1. The degree of protection shall be IP34D in accordance with the requirements of IEC 60439-5.

- 8.6.2.3** The metered section shall be fitted with a pre-drilled steel mounting plate to take the supply boards meter, cut-out, and isolator.
- 8.6.2.4** As standard the enclosure shall come with a TN-S busbar system in the lower section.
- 8.6.2.5** The entries between the lower and upper section shall be no more than 50mm in diameter and fitted with plastic breakout grommets.
- 8.6.2.6** Each section shall be fitted with two 8mm standard triangular door locks.
- 8.6.2.7** All enclosures must conform to the ESB National Code of Practice for Customer Interface.
- 8.6.2.8** Enclosures must be installed with due care for the accessibility of the enclosure for future maintenance.
- 8.6.2.9** A concrete plinth must be installed in accordance with manufacturer's guidelines.
- 8.6.2.10** Permanent access must be provided in the form of lay-bys, footpaths, or access roads.

9 Civil Works

9.1 Column Installation

- 9.1.1** All columns shall be installed and oriented, where possible, so that the access door faces away from oncoming traffic.
- 9.1.2** Columns must be erected securely and vertically in the exact positions indicated in the design drawings. Columns found to be in positions other than design locations unless previously agreed with SDCC must be relocated to the design positions.
- 9.1.3** Where columns are to be situated in the vicinity of overhead high-tension cables, approval must be sought from the ESB design offices as to the exclusion zone with regards to the intended column height. Proof of this approval will be sought by SDCC PL prior to TIC.
- 9.1.4** 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 2 of BS5489; current edition.
- 9.1.5** Where lighting columns are to be installed in the vicinity of safety barriers, they

shall be located behind the safety barrier. Care shall be taken that unhindered maintenance access to the cable access door is provided.

- 9.1.6** Columns shall be erected in line with the recommendations of EN40-1 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.
- 9.1.7** Columns shall be erected by planting their root portions in excavation of suitable size and secured. 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 skilful fashion using a suitable crane for hoist.
- 9.1.8** All columns shall be set such that the centre of the column door is 1.5m above the finished ground level.
- 9.1.9** 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).
- 9.1.10** The final 1m of incoming and outgoing cables shall be protected by 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.
- 9.1.11** Where sleeves are used, they must have an outside diameter of 400mm minimum for 6m columns. This size may increase with increasing column base widths.
- 9.1.12** Sleeves shall be installed such that the top of the sleeve finishes below the cable entry slot.
- 9.1.13** Sleeves must be of a ridged construction.
- 9.1.14** Where sleeves are to be used to facilitate the completion of footpath construction prior to column installation a 1m sq. section of footpath must be left with temporary reinstatement to ensure the duct and cable are installed without damage.
- 9.1.15** Where the rooting depths to EN40-1 are unachievable due to existing services or ground conditions, flange mounted columns may be used only with the prior written approval of the SDCC Public Lighting engineer.
- 9.1.16** 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

for SDCC's records.

9.2 Trenching and Reinstatement Requirements

- 9.2.1** All reinstatement must be carried out in line with the most recent edition "Guidelines for managing Openings in Public Roads" issued by the Department of Transport.
- 9.2.2** All reinstatement must be carried out in line with MRL Road Opening Licence Conditions.
- 9.2.3** All reinstatement must be carried out in line with the instructions issued by the Engineer/Inspector in writing.
- 9.2.4** All footpath reinstatement is also to be carried out in line with any instructions issued by the Road Maintenance Engineer/Inspector in writing.
- 9.2.5** All footpath reinstatement is also to be carried out in line with the MRL Road Opening Licence Conditions.
- 9.2.6** Section(s) are to be fully broken out between expansion joints and replaced with the same depth of concrete or min 100mm, where vehicular access min 150mm depth.
- 9.2.7** NOTE: In the event of a discrepancy between conditions, the most stringent will apply.

10 Taking in Charge

- 10.1** On completion of installation of the Public Lighting installation the contractor shall submit a signed declaration, appended to this document, stating that all construction and installation of the Public Lighting assets comply to both the approved drawings and design, and to the requirements of the South Dublin County Council specifications. This declaration shall form the basis of future taking-in-charge requests.
- 10.2** All public lighting lanterns to be offered to the council shall be covered by a written ten-year warranty that shall be transferable to the council on taking in charge.
- 10.3** The Contractor shall provide copies of all electrical completion certs for each supply point within the development.
- 10.4** The developer or the designer/contractor should follow the check list available from SDCC when compiling information essential for the Council's inspectors to complete their task and submit it with the following prior to requesting a Taking in Charge inspection:
 - 10.4.1** Copy of written approval of original design submission and written approval

of any changes.

10.4.2 'As constructed' geo referenced CAD drawing in soft format showing the following information:

10.4.2.1 Street Names.

10.4.2.2 House numbers.

10.4.2.3 Individually numbered column locations. The icon scale should be such that set back can be accurately assessed.

10.4.2.4 Ducting locations.

10.4.2.5 Cable access chambers.

10.4.2.6 Individually numbered micro pillar locations complete with MPRNs and associated test records.

10.4.2.7 ESB cabinet locations.

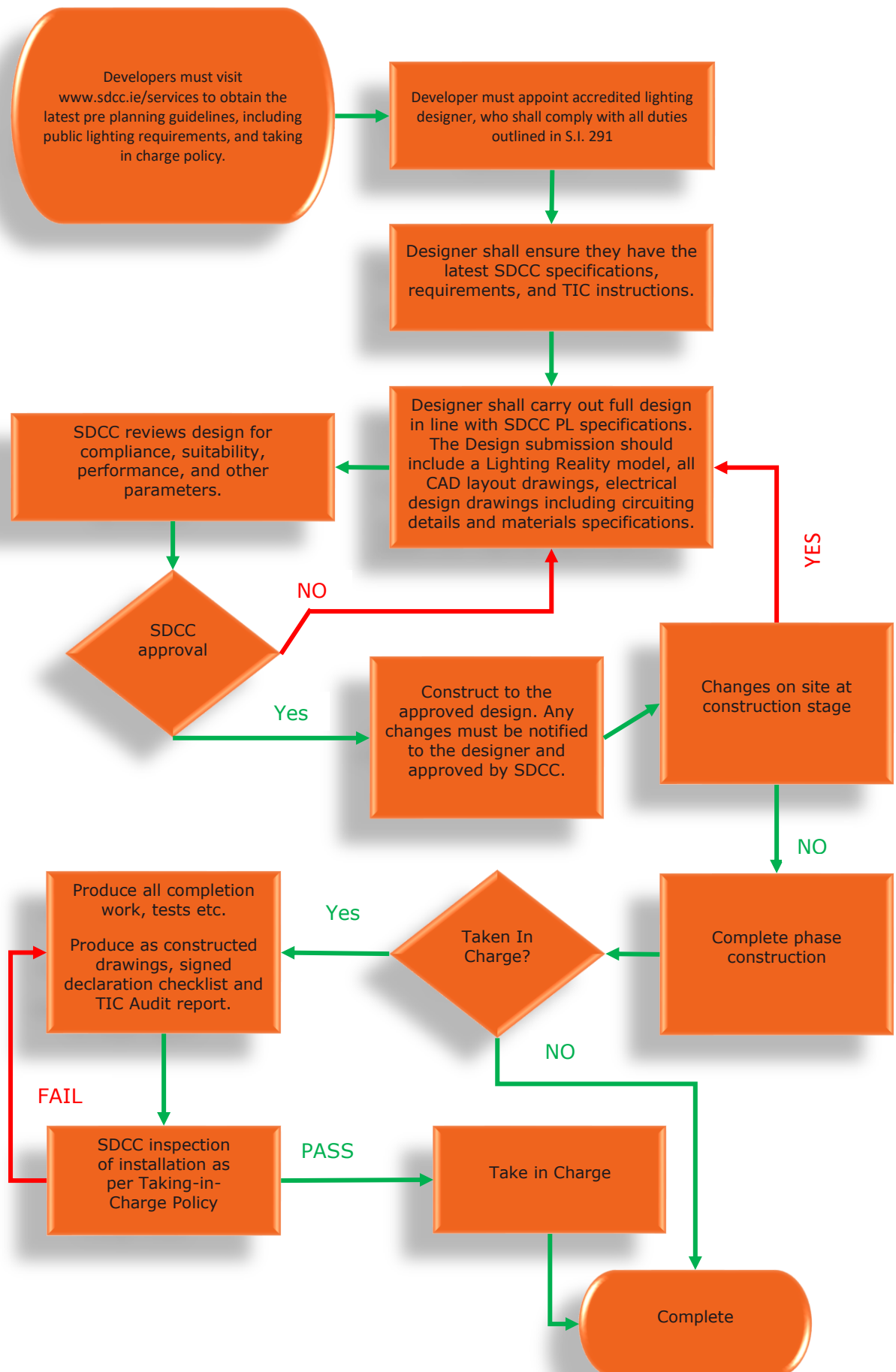
10.4.2.8 Individually numbered single line circuit diagrams and electrical calculations

10.4.2.9 Privately maintained areas not to be taken in charge shall be hatched and identified.

10.5 Failure to provide this information in this format will result in delays in the Taking-in-Charge inspection process and may delay the release of retention or bond funds.

Appendix A

South Dublin County Council Public Lighting Flow Process Chart



Appendix B

Design Checklist

Design Process Check List

To ensure that your public lighting design application meets all requirements, please complete the following check list, and attach all required documentation. Approval will not be granted if documents are missing or incomplete.

No lighting infrastructure installation may commence until written approval has been issued by the SDCC Lighting Engineer.

Project name/location: _____
Developer: _____
Developer contact details: _____
Planning register number: _____
Lighting designer: _____
Designer contact details: _____

Approval for your lighting design cannot be processed or approved without the following documentation. Please confirm it has been completed and attached with your application:

1. Lighting Reality® calculation in soft format ☐
2. Lighting Reality® Report in PDF format ☐
3. Layout drawing in CAD & PDF format to include the following:
 - a. The site boundary ☐
 - b. Existing PL services and assets ☐
 - c. Private areas hatched and identified ☐
 - d. Landscaping design. ☐
 - e. Individually numbered column locations ☐
 - f. Ducting run locations ☐
 - g. Cable access chambers ☐
 - h. Individually numbered micro pillar locations ☐
 - i. ESB cabinet locations ☐
4. Electrical Design Drawing to include circuiting details and calculations ☐
5. Materials and Luminaire Schedule ☐
6. Agreed Taking-in-Charge Drawing ☐

Contractor:

Sign _____
Print _____
Date _____

Appendix C

TIC Inspection Audit and Declaration Checklist

TIC Inspection Declaration

All Taking-In-Charge Inspections of the lighting installation cannot be processed or approved without the following documentation. Please complete and sign the declaration and Audit Report below. Both documents must be included in the Taking-in-Charge Submission to Building Control:

Project name/location: _____

Planning register number: _____

Developer: _____

Developer contact details: _____

Lighting contractor: _____

Contractor contact details: _____

I hereby declare that the above referenced Public Lighting Installation is fully compliant with the requirements of the South Dublin County Council Public Lighting Specification and Taking-In-Charge Policies. I confirm that

1. All Columns are a minimum of 6m height and comply with the dimensions and standards set out in the SDCC Public Lighting Specification.
2. All columns are either accessible for high-level maintenance from a vehicle mounted hoist OR are mid hinged columns that comply with the requirements of the Public Lighting Specification.
3. All Ducting is 100mm straight-bore twin walled HDPE, is installed in lands to be offered to the Council for TIC and complies with the ducting specification section of the SDCC Public Lighting Specification.
4. All Public Lighting Supply Pillars in residential estates are unmetered, located in lands to be offered to the Council for taking-in-charge and comply with the requirements of the SDCC Public Lighting Specification.
5. All Public Lighting Supply Pillars with loads greater than 2kVA are metered, located in lands to be offered to the Council for taking-in-charge and comply with the requirements of the SDCC Public Lighting Specification.
6. All cable installed is NYCY, is a minimum of 6mm² and complies with the requirements of the Public Lighting Specification.
7. All fuses and cut-outs comply with the requirements of the Public Lighting Specification.
8. All lanterns are LED technology, the lumen output is as per the approved design compliance drawings and comply with the requirements of the Public Lighting Specification.
9. I have attached a copy of the signed Electrical Completion Certificates and associated test results for each supply point within the development.

Electrical Contractor:

Position _____

Company _____

Sign _____

Print _____

Date _____

Assigned Certifier:

Position _____

Company _____

Sign _____

Print _____

Date _____

Public Lighting Audit Report

Inspector Information			
Estate Name & Address			
Inspection Requested By:			
Inspected By		Date of Inspection	

Public Lighting Information				
Light Details: Light No's	Qty	Type (e.g. Son/Sox)	Wattage	Column Height and Type
Estate roads				
Parks along Footpaths				
Link Road / Rd Frontage				
Total No. of Micropillars				
Height of Column			Type of Columns (round / octagonal)	
Column Door type: (Single or double stud fixing)			Bracket Type	
Condition of Photocell:			Condition of Fuse Units:	
Condition of Lanterns:			All Lights Operational:	
Distances between Columns:			Columns Accessible with Hoist?	
PL circuit fuse type & rating (in micropillar):			PL Cable Size:	
Bonding / Earthing of Columns:			Bonding / Earthing of Micropillars:	
Trees blocking the Light / Too Close to the PL – To Be Removed				
Unlit Areas of the Estate? Erect more PL?				
Are PL Numbered? If Not, Number the PLs				

Include ALL TMRNs and GMPRN' for the Connections	
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Site Inspection Comments		
Signed by Inspector		
Signed by Inspector's Supervisor / Manager		

Appendix D

Standard Details Drawing Sheet

