

KILDARE COUNTY COUNCIL
TAKING IN CHARGE POLICY & SPECIFICATIONS

Appendix 9

Public Lighting Taking in Charge Specification

Q2 2023

The following shall be submitted with the Taking in Charge request:

- As built lighting layout drawings (in .dwg format).
- Appropriate Standard Construction Details (SCD's).
- As built electrical drawings (schedules and layouts).
- Exterior lighting design.
- Details of columns, brackets and lanterns. All lanterns shall be numbered.
- A signed copy of the electrical test certificate for the exterior lighting installation. (A copy of the signed original will suffice).
- An energy supply bill showing the account up to date.
- A Public Light Audit at the Developers Cost.
- Certification from Developer's Engineer that the layout and levels of lighting conforms to the CEN Code of Practice.
- Certification that the public lighting has been designed and executed in accordance with Kildare County Council Public Light Specification.
- Certification and evidence shall be provided which demonstrates that all relevant planning conditions have been complied with.



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Street Lighting Technical Specification October 2023

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1. Introduction

1.1. Kildare County Council Lighting Policy

Kildare County Council's general principles and requirements for street lighting is set out in the Kildare County Council Public Lighting Policy Document and can be obtained on Kildare County Council website. (<https://www.kildarecountycouncil.ie/>)

2. Approval Process

2.1. Design Preparation

Prior to submitting a design, it is expected that the designer uses a survey or attends the site, to ensure that the existing lighting/electrical arrangement and its removal or re-use is considered and represented accurately. Where existing feeder pillars or columns are to be used as a supply point then the actual site source impedance shall be used when submitting electrical calculations. Permission must be sought from Kildare County Council prior to investigating the existing site electrical equipment.

2.2. Design Submission Costs

Checking of the first design submission shall be free of charge; however, the checking of each subsequent re-submission shall incur a nominal charge.

2.3. Design Submission Checklist

Designs shall be submitted on drawings to a scale of 1:500 or greater and will include the following:

- Column positions clearly numbered.
- Lantern orientation depicted by drawing symbol direction.
- Cable and duct routes
- Supply point(s)
- Hazards (overhead lines, HV cable etc.)
- Schematic diagram of electrical circuits including protective devices.
- North point.
- Legend
- Relevant drawing notes.
- Design calculations

BS 5489-1:2020 lighting level calculations shall be carried out

using Lighting Reality Roadway format and for 'P' class designs shall clearly show the minimum and optimum spacing for the road widths. The method of calculating maintenance factors shall be shown within the drawing notes and based upon manufacturer data and Kildare County Council cleaning regimes.

2.4. Contact Information

For further information relating to this specification please contact:

Public Lighting Engineer,
Roads, Transportation and Public Safety,
Kildare County Council,
Áras Chill Dara, Devoy Park, Naas,
Co. Kildare.

3. Standards and Legislation

3.1. Table of Relevant Standards

All works and associated materials shall include, but not be limited to, the following legislation and regulations:

- Safety Health and Welfare at Work Act (General Application Regulations) 2007. Part 3 Electricity.
- NSAI IS 10101:2020. National Rules for Electrical Installations 5th. Edition incl. Part 714.
- ET 211:2003. Code of Practice for Public Lighting Installations in Residential Areas.
- Dept. of Transport Tourism, & Sport Traffic Signs Manual 2019
- TII Design of Road Lighting for the National Road Network DN-LHT-03038 2022
- TII Publication Requirements for the Reinstatement of Openings in National Roads CC-PAV-04007
- EN13201 Series
- Department of Transport, Tourism & Sport Guidelines for Managing Openings in Public Roads – Guidelines for the Opening, Backfilling and Reinstatement of Openings in Public Roads.

3.2.

3.2.1. Operative Training

All operations connected with the works shall comply with the latest edition of S.I. No. 291 of 2013. Safety, Health, and Welfare at Work (Construction) Regulations 2013. Operatives shall be competent to carry out the tasks assigned to them whilst working on the public highway and may, at any time, be asked to produce evidence of competency by an Kildare County Council representative.

4. Design

4.1. General

Street lighting within the Kildare County may be replaced and upgraded in order to ensure the right light in the right place at the right time.

It is important that proposed light levels are balanced against the need to maintain adequate light to facilitate safe urban night-time movements of vehicles and pedestrians and reduce the risk of road accidents. The developer may suggest appropriate lighting levels taking account of the following:

- Nature of Development
- Location of lamp columns
- Presence of late night or licensed premises
- Traffic flow

Lighting designers shall be aware of their duty to provide appropriate, sustainable, energy efficient lighting solutions in line with the relevant international and national standards, statutory instruments, codes of practise and the codes of conduct of the professional bodies of which they are members.

It is the intention of Kildare County Council that all lighting installed within the region be appropriate to the local environment, the task for which illuminance is provided, be energy efficient and sustainable. The lighting infrastructure shall not impact negatively on the local landscape, residents, visitors, or the flora and fauna.

As part of the Climate Action Plan 2023, Kildare County Council is committed to a 51% reduction in GHG emissions from 2021 to 2030, and to achieving net-zero emissions no later than 2050.

The developer shall provide the lighting designer with any environmental impact assessment, wildlife survey and any other information relevant to allow the lighting designer to provide

appropriate measures to mitigate against damage or nuisance caused by light trespass in an appropriate manner.

4.2. Lighting classes

4.2.1. Traffic Routes

Traffic routes should be designed using an M luminance or C illuminance class derived from BS5489-1:2020, BS EN 13201 Series, TII DN-LHT-03038:2022 and/or CIE115:2010 taking into account all of the characteristics of the route to be lit.

Traffic route lighting and lighting of residential estates should be powered by separate supplies.

Lighting classes should be selected according to PD CEN/TR 13201-1:2014.

Road Class	Description
M	For drivers of motorized vehicles on traffic routes medium to high driving speeds
C	For use in conflict areas on traffic routes where the traffic composition is mainly motorised. Conflict areas occur wherever vehicle streams intersect each other or run into areas frequented by pedestrians, cyclists, or other road users. Areas showing a change in road geometry, such as a reduced number of lanes or a reduced lane or carriageway width, are also regarded as conflict areas
P	For pedestrian traffic and cyclists for use on footways and cycleways, and drivers of motorised vehicles at low speed on residential roads, shoulder or parking lanes, and other road areas lying separately or along a carriageway of a traffic route or a residential road, etc.

4.2.2. Residential Areas

Residential areas should be designed using a P illuminance class derived from BS 5489-1:2020, BS EN 13201 and/or CIE 115:2010 with a Glare Rating of G2 minimum and Warm White LED lanterns.

There are six different P Classes defined in BS 5489-1:2020. The most common are P2, P3 & P4.

Typical requirements are set out in Table A5 of BS 5489-1: 2020, an extract from which is given in Table 5.2.1 below:

Table 5.2.1 – Typical Housing Estate Lighting Classes

Road Type	Lighting Class	Maintained Average Illuminance, lx LED	Maintained minimum illuminance, lx LED	Uniformity Emin/Eav
Roads where <ul style="list-style-type: none"> - Night-time public use likely to be high - Or the crime risk likely to be high - Or the traffic usage is likely to be high 	P2	10.0	2.0	0.2
Roads where <ul style="list-style-type: none"> - Public use is likely to be moderate - Or the crime risk is average to low - Or normal traffic usage is of a level equivalent to that of a housing estate access road. 	P3	7.5	1.5	0.2
Roads where <ul style="list-style-type: none"> - Public use is likely to be moderate - Or the crime risk is average to low - Or quiet traffic usage is of a level equivalent to that of a residential road mainly associated with the adjacent properties. 	P4	5.0	1.0	0.2

Lighting in housing estates in Kildare County is generally to be designed to a minimum of P4 standard but P3 standard should be considered for the access spine road on larger estates.

Lighting is not to be dimming at P4 Class as it is KCC policy not to drop below 1 lux minimum lighting level.

Kildare County Council require warm white light be used within Housing Estates.

Within a residential development, the requirement generally is to light the road, verge and footpath to at least the minimum level, as far as the adjacent boundary line of the properties. The lighting of recreational walkways through green areas and recreational/play areas is not a requirement but they may be lit if the applicant feels it is necessary or desirable, to the standards outlined in these guidelines. However, if the walkway also serves as a pedestrian/cycle access to/from the development, then they should be lit to the appropriate standard.

4.2.1. Car Parks

Car parks are to be lit in accordance with BS 5489-1:2020.

Group switching of car park lighting shall be facilitated via an astro-timer and a suitably rated contactor located within a feeder pillar or trip-lamp. Switching regimes are to be approved by Kildare County Council.

4.2.2. Pedestrian Crossings

Pedestrian crossings shall be lit in accordance with BS 5489-1:2020 and ILP Technical Report 12.

4.2.3. Traffic Calming

Traffic calming areas shall be lit in accordance with BS 5489-1:2020 and ILP Technical Report 25.

4.2.4. Cycleways

Cycleways shall be lit in accordance with BS 5489-1:2020 and BS EN 13201-2. Lighting columns positioned on cycleways shall be set back a minimum of 0.5m to avoid contact with handlebars. Where the cycleway cannot be accessed by an elevated platform, raising and lowering columns shall be installed.

4.2.5. Footpaths and Inaccessible Areas

Footpaths and inaccessible areas are defined as anywhere where a lighting cannot be maintained using a mobile access platform. In these instances, a Kildare County Council approved raising and lowering lighting column shall be installed. Raising and lowering columns shall be orientated so that the lantern head can be lowered safely without obstruction and, when in its collapsed position, shall not cause an obstruction to road users and pedestrians.

4.2.6. Short Tunnels /Underpasses

Short Tunnels shall be lit in accordance with ILP Lighting Guide 09:2020 and BS 5489-1:2020.

4.2.7. Floodlighting

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. Kildare County Council has the following requirements in the implementation of such schemes:

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. This will have obvious benefits to the scheme owners.

Use shall ideally be used of 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 Kildare County 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 will aim to minimize or eliminate glare from the proposed lighting scheme.

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.

Account shall be taken pertaining maintainability of the scheme following commissioning including site access etc.

The flood lighting scheme shall incorporate the facility to cater for training as well as competition events, viz. 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.

Schemes shall be designed to BS EN 12193: 2007 Light & Lighting – Sports Lighting.

Floodlights shall be in accordance with BS EN 60598-2-5.

Schemes shall be shown to incorporate the recommendations of:

- ILP GN01:2020

Guidance Notes for the Reduction of Obtrusive Light

- ILP GN04:2021

Guidance on Undertaking Environmental Lighting Impact Assessments

4.2.8. Photovoltaic Lanterns (Solar Powered)

These type of lights are under development and possibly not yet at a sufficient stage for widespread use but could possibly be considered in one-off rural locations as an economic alternative to traditional lighting

systems, or where dusk to midnight lighting is acceptable.

Kildare County Council policy is not to allow such lighting as an alternative to lighting fed from an electricity supply except in exceptional circumstances where the prior approval of the Public Lighting Engineer has been achieved. Perhaps at small scale remote areas, remote car parks and potentially on the more rural elements of greenways etc.

The next big energy saving methodology, post LED retrofitting, may be hybrid lights, which would always have a constant light output, but which would derive up to 70% of their energy requirement from solar and 30% from 230V supply. However, there is discussion required with UMR in first instance to see how unmetered hybrid lights would be paid for from an energy perspective. On a metered supply, the savings would be automatic.

4.3. Designing for Maintenance Strategy

Proposed street lighting designs shall consider the future ownership and maintenance impact that the designed installation will have on the County Council and its operatives. Lighting designs shall deliver a safe, financially viable and good quality solution that aligns to the values set out in the Kildare County Council Public Lighting Policy document.

4.4. Electrical Calculations

All electrical design relating to the private cable network and its protection shall be carried out by the Contractor. All electrical calculations shall be carried out using an up-to-date and accredited electrical design software package such as KeyLIGHTS conforming to IS 10101:2020. 5th edition.

Electrical calculations shall be presented both in paper and digital format to the Kildare County Council for approval prior to works commencement. All electrical calculations shall be in accordance with characteristics of the equipment supplied within each feeder pillar. All Electrical Equipment shall be installed so that the levels of radio interference given in BS EN 55014-1 or equivalent are not exceeded.

5. Lighting Columns, Foundations and Brackets

5.1. General

Lighting columns shall be designed in accordance with BS EN 40 Series. All lighting columns shall have a cable entry slot width 'X' as follows:

- Nominal column height 8m or greater = 75mm
- Nominal column height of less than 8m = 50mm

The Contractor shall provide permanently fixed warning notices to all lighting columns in the vicinity of overhead electricity lines. Designers must be capable of identifying Conflicts with ESB overhead lines and Design Submissions must indicate ESB approved proposals for the resolution of such Conflicts where existing.

The earthing of lighting columns shall be in accordance with IS 10101: 2020.

5.2. Passive lighting columns

Passively safe lighting and traffic signs shall be considered in accordance with ILP Technical Report 30 and BS EN 12767: 2007. The passive column rating and method of disconnection shall be subject to approval by Kildare County Council.

5.3. Column material and coatings

All steel components other than galvanised or stainless-steel elements shall, at the discretion of the public lighting engineer, be provided with a corrosion protection paint system suitable for a C3 Environment in accordance with ISO 12944-5:2018.

5.3.1. Painting

The paint system where sought by Kildare County Council shall be applied to 100% of the lighting column or feeder pillar.

The Contractor shall take measures to contain people, plant, materials, dust and debris. Compliance with this does not confer immunity from relevant legal requirements. The contractor shall make good any damage to the paint system arising during fabrication transportation and erection.

The paint system shall comprise of the following:

1st Coat	On the internal root section, to 250mm above ground level and on the overall external surfaces, one coat of Mordant Solution, T wash.
2nd Coat	On the internal root section, to 250mm above ground level, one coat of modified vinyl micaceous iron oxide with high solids to give a high build coating colour grey to provide a minimum dry film thickness of 60 microns.
3rd Coat	On the external surface overall, one coat of two pack high build epoxy zinc phosphate primer, light grey to provide a minimum dry film thickness of 75 microns.
4th Coat	On the external root section to 250mm above ground level, one coat of modified vinyl micaceous iron oxide with high solids to give a high build coating, coloured grey to provide a minimum dry film thickness of 75 microns.
5th Coat	On the external surface overall, one coat of modified vinyl with high solids to give a sheen finish to the dried film colour grey from BS 4800 shade 18B25 to provide a minimum dry film thickness of 60 microns.
<p>A line on the circumference of the base section shall denote ground level.</p> <p>The minimum dry film thickness shall be:</p> <p>Root - 60µm (internal) 210µm (external to 250mm)</p> <p>External - 135µm (from 250mm)</p> <p>Paint RAL colour to be agreed with Kildare County Council.</p>	

5.3.2. Root Protection

Internal and external surfaces of the roots of all Lighting Columns and Illuminated Traffic Signposts will be protected at the factory to a height of 250 mm above ground level by the application of a two-pack epoxy glass flake protective coating, Amercoat 4560 GF, or equivalent, on top of the galvanising.

5.3.3. Handling of Columns

Lighting columns with a factory coated finish shall be transported with protective wrappings and lifted into position on site using an appropriate vehicle fitted with straps and not chains.

5.4. Column Foundations

The lighting column foundation types shall be either planted or flange plated.

The Contractor shall design all foundations in line with manufacturer's recommendations for planted and flange plated lighting columns.

The design calculations and supporting information shall be submitted to Kildare County Council not less than seven days before the installation of any lighting columns.

The contractor shall be responsible for determining soil types. If this is not possible then the soil type shall be assumed as poor. Where a lighting column is planted in a grassed area, a concrete plinth of no less than 400x400mm shall be installed to avoid damage to the column protection when the grass is cut.

5.5. Column Erection

Lighting columns shall be erected with appropriate traffic management and the column shall be tethered to prevent falling during installation.

5.5.1. Erection within vicinity of overhead lines

Where lighting columns are to be installed within the vicinity of low voltage overhead lines, the lines shall be shrouded by the ESB Networks prior to installation. All works planned within the vicinity of low voltage lines should be done so in consultation with the ESN.

5.5.2. Traffic Management

All traffic management shall be deployed in accordance with Regulation 97 – S.I. 291 of 2013 of the Construction Regulations and 2019 Temporary Traffic Measures & Signs for Roadworks.

5.6. Column Identification

Prior to adoption an external identification weatherproof adhesive label is to be provided at a mounting height of 2.5 metres and shall display a unique column reference number.

The label shall be 50mm in height and coloured white with black numbering. In addition to the above an Indelible label is to be secured onto the wooden back board inside the column indicating unique column reference number and column installation date.

5.7. Column Siting and Orientation

The Developer shall ensure that the lighting performance of Street Lights and the optical performance or visibility of Illuminated Traffic Signs and Illuminated Traffic Bollards is not adversely affected by trees and other vegetation. If the obstruction is due to Highway trees and vegetation, the Developer shall take necessary action to remove the obstruction by pruning back branches up to a maximum of 25mm diameter flush to a main branch or limb. Where heavier pruning is required the Developer, following consultation and agreement with the Kildare County Council, shall employ a qualified arborist to prune back the tree or vegetation.

A staggered lighting configuration should be considered where trees are present which will allow for adequate contribution between lanterns without the obstruction of tree canopies.

Consideration should be given when positioning a lighting column within the vicinity of a structure which may facilitate unwanted access to that structure e.g., a garden or yard boundary wall. Where columns are located close to scalable structures, anti-climb paint shall be applied from 2metres above ground level to a height which prevents access to that structure.

The siting of lighting columns in front of residential property windows shall, where possible be avoided. Columns shall be positioned so as not to cause obstruction on the highway and to driveways. Columns doors shall be orientated so that Kildare County Council operatives can perform maintenance whilst facing oncoming traffic.

5.8. Projection Brackets

Projection brackets shall not be used unless circumstances such as trees or other obstructions warrant their use. All luminaires should be post-mounted unless an ornate bracket is required for aesthetic reasons.

5.9. Attachments

No third-party attachments are permitted on street lighting columns within Kildare County Council.

5.9.1. Traffic Signs

Traffic signs are not permitted on street lighting columns within Kildare County Council.

5.9.2. Third Party Attachments

Flower baskets may be erected as long as the column to which they are mounted is specifically designed to accommodate them and prior approval must be sought from the public lighting engineer.

5.9.3. Lantern Conversions

Prior to any lantern conversion the existing lighting column and bracket shall be tested to ensure that it can safely accommodate the new lantern without compromising the column/bracket's structural design limitations. If there is any doubt as to the ability of the existing column to safely accommodate the new lantern, then a new and compliant replacement lighting column shall be installed. Ref. ILP GN 6/17

- *Retrofitting LED luminaires on existing lighting columns.*

6. Luminaires

6.1. Light Sources

LED light sources are now the preferred solution for Kildare, however, luminaires utilising lamps and electronic control gear may be used in certain circumstances. They shall only be permitted with the approval of Kildare County Council.

6.2. LED Luminaire Specification

All new luminaires shall be fitted with an LED light source having a minimum colour temperature of 3000 Kelvin and shall have a minimum manufacturer warranty of 10 years.

All luminaires shall be constructed from LM6 marine grade aluminium or equivalent with a polyester powder coating, grey, silver or black, over a ROHS compliant chrome passivation substrate; the polyester powder coat paint finish shall withstand the standard crosscut tests as defined in BS EN ISO 2409 and BS3900.

The complete luminaire shall be 98% recyclable at the end of life.

Bowls/protectors shall be vandal resistant and stabilised to minimise loss of transparency due to weathering and exposure to ultraviolet light.

Luminaires shall have an integral flexible mounting system and be capable of being mounted 42mm to 60mm diameter side entry and 60mm to 76mm diameter post mounted without the need for separate spigots or adaptors.

Fully assembled luminaires shall weigh 18kg max. with a maximum windage of 0.15sq. m. and the impact rating shall be IK 08 minimum in accordance with BS EN 62262:2002.

Luminaires shall bear the ENEC mark & comply with BS EN 60598-1, BS EN 60598-2-3, BS EN 62722-2-1:2016, and the luminaire optical system and the control gear compartment have a minimum protection rating of IP66 to BS EN 60529.

Luminaires shall provide a light output ratio in excess of 90% with an upward light output ratio of no more than 0.5%.

The I max. above 95 shall be Zero.

Luminaires shall have integral control gear.

Luminaires shall have an option to fit or retrofit proprietary front and/or rear shields, which shall reduce unwanted spill. The colour of the shields shall match the luminaire.

All luminaires shall have a facility to retrofit upgraded LED modules and, when post top mounted, must be capable of being set at adjustable inclinations.

The luminaire shall be fully compatible for dimming, allowing for

diagnostic and dimming functions.

Photometric data must be based on test results from a verified testing lab using absolute photometry in accordance with methods and conditions detailed in LM-79-08 or equivalent.

Current valid certification must be provided.

Luminaires shall be designed to prevent jamming injuries during installation and be free from sharp edges.

Luminaires shall be designed to prevent the supply cable being damaged during installation.

Drivers shall comply with EN61000-3-2:2000, EN61347-2-13:2006, EN61000-3-3:2001, BS EN 61347-1 BS EN 61347-2-1, BS.

EN 61347-2-8, BS EN 61347-2-9 and BS EN 60923 or equivalent and subsequent amendments and as appropriate and be tap selected to specified operating voltage.

All LED drivers and dimming modules shall be contained within the lantern housing and shall have a voltage range of 180-250 volts and conform to BS EN 61347-2-9:2001, BS EN 60921:2004 and BS EN 60923:1996, BS EN 62717:2017, and subsequent amendments.

The LED driver, operating at constant current, shall be separate to the LED modules (not on same circuit board). The driver shall have a minimum operating efficiency of 90%.

Luminaires shall be independently tested and ENEC certified in accordance with EN 60598-1:2015, BS EN 62722-2-1:2016 & EN 60598-2-3:2003+A1 2011 by an independent approval body recognised by the European Community; current valid certification must be provided.

Drivers shall be electronic with the capability of being altered to multiple output levels in electronic, stepless 1% increments via a PDA, Central Management System, or similar device without having to change the driver.

Drivers shall be compatible with all other components including the LED and Photocell.

Drivers shall have stable power consumption over full operating voltage range.

Drivers shall indicate all wiring connections and operating voltages via indelible markings.

The LED driver shall be protected against overheating by an over-temperature sensing system have a surge protection of 6KV.

Lumen Maintenance lifetime testing shall be in accordance with LM 80 or equivalent and extrapolated methodologies as per TM- 21; current valid certification must be provided.

Maintained Luminous Flux at 25% rated life shall be greater than 90%, i.e., Lumen Maintenance Code 9.

The methodology of BS PD ISO/CIETS 22012:2019 shall be used for the calculation of Maintenance Factors for LED Luminaires.

LED flux and luminaire data shall be presented for an ambient temperature of 15 degrees Celsius.

LED light source data shall be measured at an ambient temperature of 25 degrees Celsius.

Colour temperature (CCT) of the LEDs shall be 4000K (Kelvin) for Traffic Routes and 3000K for Residential Schemes.

Colour Temperature tolerances beyond a 5 step Mac Adam ellipse are not acceptable.

Rated Colour Rendering Index shall be code 7 (CRI range 67-76) or greater.

Each LED shall be mounted beneath an individual lens providing photometric footprint based on an overlay methodology be mounted within a self-contained module (LED module) that can be removed, replaced using simple tools and lenses shall be manufactured from optical grade Polycarbonate or PMMA acrylic thermoplastic.

6.3. LED Luminaire General Requirements

All equipment including LED, Luminaires, Drivers, and PECU's shall be approved for use under Unmetered Supplies Arrangements and shall have all necessary SEAI /TII Burning /Dimming Profiles.

All luminaires shall comply in all respects with the latest edition of the Irish, British Standards and European Norms, be suitable for

residential road lighting as defined in BS EN 5489-1:2020, BS EN13201-2:2015, BS EN13201-3:2015, BS EN 13032-4:2015 & BS EN 13201-5:2015

All Electrical Equipment shall be installed to that levels of radio interference given in BS EN 55014-1 or equivalent are not exceeded.

The system power factor shall be greater than 0.90 at full power and when dimmed.

Drivers shall be pre-set to dim in accordance with Kildare County Council's energy saving policies.

The Contractor will be responsible for making all necessary arrangements for the collection and disposal of all luminaires replaced during the contract period in accordance with WEEE directive; any WEEE charges shall be included in the Luminaire price.

All luminaires shall be supplied fully assembled in all respects with LED, dimmable driver, 7-pin NEMA socket and a photo electric control unit at 35/18 lux ON/OFF.

The luminaire life in hours shall be 100,000 hours minimum. All luminaires shall be delivered pre-wired with:

6 metres of 1.5 sq. m m. Cu 5 core arctic flex for columns up to 6m mounting height.

10 metres of 2.5 sq.mm. Cu 5 core arctic flex for columns greater than 6m mounting height.

Standards: BS 7919 Table 44, VDE 281.

Conductor: Class 5 flexible plain copper conductors to BS EN 60228:2005 (previously BS6360) 5 x 1.5 mm² or 5x 2.5mm².

Insulation: Arctic grade PVC (Polyvinyl Chloride). Sheath: Arctic grade PVC (Polyvinyl Chloride).

Sheath Colour: Blue. Voltage

Rating: 300/500V.

Temperature Rating: -40°C to +70°C.

6.4. Orientation and Glare Control

Lanterns shall be orientated as per the lighting design and shields shall be provided to the back of lanterns where they are positioned

in close proximity to bedroom windows.

Lanterns on Traffic Routes shall be G4 rated. Lanterns in Residential Schemes shall be G2 rated.

6.5. Control Methods and Switching

6.5.1. Photo Electric Cells

All Photo Electric Cell Units (PECUs) shall:

- Conform to BS 5972 and be manufactured under the QA System and Procedures of BS5750, ISO9002 or EN29002.
- Be suitable for mounting between 5 and 12 metres and be of a type suitable for fitting to the lantern via a 7-pin NEMA socket.
- Be guaranteed for a minimum life of 10 years from the date of manufacture and this date shall be clearly marked on the unit.
- Provide Class 2 protection against electric shock and have a minimum protection rating of IP67 to BS EN 60529.
- Operate on 220 to 270 volts 50Hz AC and shall be capable of switching a load of 500 watt with a pre-set switch on/off level of 35/18 lux and a negative switching differential of 1:1.
- Incorporate a time delay circuit to ensure lamps are not switched on by transient changes of illuminance; the delay shall be between 15 and 30 seconds.
- Be designed to fail in the ON position, such that in the event of a fault in the cell, the controlled lights will switch on.
- Be switched by relay assisted triac or a synchronous switch method and be fully solid state with switching activated by a filtered silicon photo diode to match the CIE photopic response.
- Have zero drift over its guaranteed life, have a power consumption not exceeding 0.5 watts under load conditions and be capable of operating within a temperature range of -20°C to +80°C, comply with European EMC Emission Directives and conform to BS2011 in respect to vibration.
- Shall be mounted upon a factory installed 7-pin NEMA socket.

6.5.2. Trimming

LED lights generally use 35/18 photocells (turn-on when lux level drops to 35 and turn-off when Lux levels rise to 18).

6.5.3. Part-Night Switch Off

In certain circumstances the lighting may be switched off for part of the night e.g., car parks or adopted access roads, however, the

approval of Kildare County Council shall be sought in each instance.

6.5.4. Central Management System

Kildare County Council may, at a future date, introduce a central management system (CMS) to monitor its lighting asset. All lighting should be equipped with interoperable open-source components which will allow for communication with a CMS.

6.6. Dimming

All lanterns shall be capable of dimming and trimming.

6.7. Shielding of Obtrusive Light

The contractor shall, where necessary, procure and install adequate shielding to the lantern to reduce or eliminate obtrusive light. The shielding shall under no circumstances affect the performance of the luminaire in terms of its prime function of lighting the adopted highway.

7. Electrical Installation

7.1. General

All electrical equipment shall be installed in accordance with the National Rules for Electrical Installations IS 10101:2020.

7.2. Cabling

Underground cables shall be laid in duct except where they leave the duct to enter the cable slot of the apparatus and shall be P V C or XLPE cable to DIN VDE 0276603 (0.61kV)

suitably sized, with stranded copper conductors.

Cable shall have BASEC approval under a product certification scheme and be produced by a manufacturer who has been awarded a Certificate of Assessed Quality Management, to BS 5750, by BASEC.

Steel Wired Armour (SWA) cable is not accepted.

All cores shall be of equal cross-sectional area of 6 sq. mm. minimum and be of such a size that the requirements of IS 10101:2020 are met and allow for a disconnection time not exceeding 0.4 seconds.

Cables shall be sized by the contractor allowing a further 20% spare capacity for future additional loading.

Jointing of cable is not permitted and only continuous lengths of cable between apparatus will be accepted.

Cables shall not be laid at a temperature below 0 degrees centigrade.

The cable shall be laid in such a way as to not cause damage either when drawing the cable through duct or by creating an internal bend radius that exceeds manufacturer's recommendations.

Any cabling attached to buildings or structures must be done so in such a manner as to minimise its aesthetic impact whilst complying with the relevant standards.

Cables shall be supported on the building surface using approved saddles, the spacing of which shall conform to the recommendations of IS 10101: 2020.

Cables shall be drawn through ducts and terminated into apparatus on the same day to reduce the risk of cable theft. Where cables cannot be terminated on the same day they shall be protected, coiled and buried until termination takes place.

7.3. Cut-Outs, RCDs and Terminations

All ESNB and private network cut-outs shall be clear and provide double-pole isolation via a switch complying with BS5419. All cut-outs shall have a minimum rating of 32 amps and fuse removal shall not be possible unless the isolation switch is in the 'OFF' position.

The cut-outs shall provide a minimum degree of protection to IP22 and have a high mechanical and dielectric strength. Incoming phase terminals shall be shrouded when all connections have been made and cables shall be terminated so as not to allow accidental detachment.

Sub-circuits shall be protected by a separate second fuse link. Cut-outs shall be securely attached to the column backboard utilising a non-corrodible fixing.

Columns not directly supplied from ESNB supplies shall be supplied on a sub-circuit from the serviced column by means of the public lighting underground cable and looped from column to column. All looped connections shall be made in the bottom terminals of the fused isolator cut-out.

RCDs shall be 2 pole of 40 Amps rating and sensitive to 30 milliAmps. They shall have been type tested to BS EN 61008-1:1995 and shall be suitable for mounting in an individual enclosure to give a degree of protection to IP23.

7.4. Wiring

Internal wiring between the terminal block in the lantern and the components in the base of the column shall be PVC insulated and sheathed cable of 300/500 volt grade, have a copper conductor size of not less than 1.5 sq. mm.

All cores shall be correctly colour coded and cables for continuous earth bonding shall be green/yellow PVC insulated single core copper cable of minimum cross section 6 sq. mm 600-volt grade conforming to BS 6004.

7.5. Cut-Out labelling

All underground cables (except ESN cables) shall be identified as to their origin and destination by labels affixed to the cut-out.

7.6. Trenching

Trenches shall be constructed to in accordance with TII Requirements for the Reinstatement of Openings in National Roads CC-PAV-04007 and shall be free from large debris that could damage or crimp ducting.

7.7. Ducting and Cable Identification

The Contractor shall determine a safe and economical route for all ducting with proposals to be submitted to Kildare County Council for approval.

Duct routes should be logical and perpendicular where necessary with consideration given to the possibility of future access for maintenance or upgrade.

All ducting shall be manufactured from high density polyethylene and coloured red with 9mm high lettering "STREET LIGHTING" at intervals of not more than 1.0m along its length.

Ducts shall be made from thermoplastic pipe complying with IS EN 50086-2-4 Type 450N. Duct shall be as specified in IS10101:2020

Sect. 522.6.8.3, smooth bore and free from burr which could damage cable sheaths. Duct shall be sufficiently rigid to experience no deformation during backfill and compaction but be capable of bending. The duct shall be colour stabilised against weathering and shall have resistance to soil acids. Duct to be 100mm internal diameter across carriageways, footpaths and verges.

An extra two empty ducts complete with heavy duty nylon draw cord shall be provided where ducts cross a road.

The contractor shall allow a suitable length of 50 mm diameter ducting from the main duct to each lighting column to facilitate the looping in and looping out of supply cables. Reference: Appendix D & TII Drawing RSD/1400/1.

All ducts shall be laid at a depth of:

Verge and footways – 450mm minimum cover.

Carriageway – 750mm minimum cover.

A bright coloured warning marker tape containing two stainless steel wires and displaying, at 1.0m intervals, "Caution – Street Lighting Cable Below" shall be laid at a depth of 150mm below finished surface.

7.8. Reinstatements

Permanent ground reinstatements shall be in accordance with Department of Transport, Tourism and Sport Guidelines for Managing Openings in Public Roads. Temporary reinstatements shall only be permitted for the duration of the works and shall be sufficiently compacted to ensure a flush finish and no trip hazard.

7.9. Lantern Circuit Protection

Fuses are to be used within lighting column cut-outs and are to be HRC to BS 88 Part 2 and shall not be re-wirable.

Fuse ratings shall be 6 amps for light sources up to and including 100 watts and 10 amps for light sources greater than 100 watts.

7.10. Earthing

All power supply pillars must have an independent earth utilising.

- Solid Copper Lattice Mat - 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.

- 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.
- 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 Cu. plate type with an area of 1/2 m² 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

Earth electrodes and inspection chambers (concrete type) shall be provided by the Contractor at each proposed feeder pillar location and at the end of each circuit (of 3 or more units).

Earth rods shall be manufactured from copper clad steel (copper shall be bonded to the steel core) and be no less than 16mm in diameter. Cable clamps shall have an aluminium bronze body and a phosphor bronze screw.

Earth rods shall be located in an earth rod core and surrounding housing.

All earth rods and installations shall conform to and shall be tested by the approved method as stated in IS10101:2020.

The structure earth electrode resistance is to be below 20 ohms. Where ground conditions are adverse additional or large diameter rods are to be used. Additional Earth electrodes will be required on long cable runs in order to comply with Earth Electrode resistance requirements above.

7.11. ESBN Connections

The Developer shall effectively manage, for its own works, the Connection, disconnection, or transfer of the Apparatus to the electricity distribution network operated by the ESBN including all necessary service diversions and reinstatements. An appropriately rated ESBN low voltage metered supply shall be provided within feeder pillars where the connected load exceeds 2 kVA and for all Schemes on National Routes.

Residential Schemes shall be supplied through unmetered Lighting Service Pillars.

ESBN shall be advised that the routing of their service cables through areas with finished surfaces that are expensive or onerous to reinstate

shall be avoided unless there is no practical alternative route. Traffic Route lighting and lighting of residential estates should be powered by separate supplies.

7.12. Feeder Pillars

It is to be assumed that all feeder pillars are to be supplied and installed new and sized according to the electrical requirements of each location. Existing feeder pillars should be retained and utilised if they are of an appropriate size, have a suitable ESN or sub-main source supply and are free from heavy corrosion or damage particularly around the base.

Where the size of an existing ESN feeder pillar is not suitable it may, in certain circumstances, be used to electrically supply an adjacent proposed new sub-main feeder pillar (subject to approval).

The Contractor shall determine a safe and economical location for all feeder pillars with proposals to be submitted to Kildare County Council for approval.

The locations of ESN supplies and the envisaged routes of private network cable should also be considered when selecting a feeder pillar location.

The contractor shall liaise with the ESN to agree viable feeder pillar locations.

Feeder pillars must be located away from trees or shrubs and orientated so that maintenance can be carried out safely and should be set back as far as practical from the highway to reduce the risk of collision.

Feeder pillars shall be mounted on a 250mm thick foundation of concrete ST2 mix complying with BS 8500: 2015. They shall be rooted or provided with fixing bolts to enable the unit to be securely located. After completion of the cabling, any void under the feeder pillar base shall be filled to 25mm below the door with rounded aggregate, maximum size 14mm, and sealed overall with a cold pour compound of an approved type to prevent the ingress of moisture from below. A spare 100mm diameter cable duct shall be provided through the concrete surround from the base of the feeder pillar.

For feeder pillars sited in grassed areas, a 600mm width of hard surfacing shall be laid with the surface flush with the ground across the width of the feeder pillar in front of the door. The other sides of the feeder pillar shall be similarly surrounded with hard surfacing 200mm in width. All hard surfaced areas shall slope away from the feeder pillar.

Measures shall be taken to prevent the entry and infestation of vermin by means of a physical barrier.

Feeder pillars shall be constructed from not less than 5mm thick galvanised steel. They shall be sealed to minimum IP65 on the doors and IP45 on the vent louvers. They shall include a full-size backboard of varnished marine plywood at least 15mm thick or other approved non-hygroscopic material. Alternatively, a purpose-designed equipment mounting system may be used. The entry for cables shall be via the root. Doors shall be fitted with "Tri-head" locks, all locks being identical in pattern. The locking mechanism shall be lubricated with grease immediately following installation. 15 sets of keys shall be provided to the Kildare County Council Public Lighting

Engineer prior to the adoption of the installation.

A sturdy documentation pocket shall be provided on the inside of the feeder pillar door.

Ventilation shall be provided to prevent the build-up of condensation and, in certain cases, the feeder pillar shall be protected by vermin-proof screens.

Protection against corrosion shall be by hot-dip galvanising to BS EN ISO 1461 with paint finish, the minimum coating thickness to be approved by the Kildare County Council Public Lighting Engineer – colour to be confirmed by Landscape Architect.

All doors are to be provided with an earthing strap connected to the main earthing terminal.

There is no requirement for internal lighting within each feeder pillar.

Thermostat controlled internal heating shall be provided only to feeder pillars that contain electronic control e.g., Street Lighting Server, DALI and DMX control equipment.

A weatherproof 13 amp three-pin socket shall be provided and securely mounted to the backboard.

Outgoing circuit protection shall be by means of Fuses (BS 88-2) within an appropriately rated distribution board. The Contractor shall make allowance for initial current inrush associated with LED drivers/control gear.

All distribution boards shall have the capacity to accommodate 20% or 2 spare outgoing circuit ways, whichever is greater.

A laminated and accurate schematic circuit diagram shall be provided and inserted into the documentation pocket of the feeder pillar door.

All feeder pillars shall be fitted with a durable warning sign, fitted externally and in a prominent position, indicating “DANGER 415 VOLTS” or “DANGER 230 VOLTS” as appropriate and a ‘lightning flash’ in black on yellow.

7.13. Chambers/Draw Pits

Decorative Inspection Chamber: All access chamber covers on the footpath to cater for a change of direction shall be ductile iron as per Cavanagh Celtic or similar approved with frame opening 600mm x 600mm to EN 124 B125 with M16 stainless steel locking bolt or similar approved. Lock shall make provision for nut and bolt if damaged. Tapping of the frame is not permitted. If similar approved, it shall be certified by an accredited Third party.

Large Inspection Chamber: All access chamber covers on the footpath to cater for a change of direction shall be ductile iron with galvanized steel frame as per EJ JB5 or similar approved with frame opening 615mm x 615 mm to EN 124 B125 marked “Public Lighting” or “Traffic” with M16 stainless steel locking bolt, or similar approved. Lock shall make provision for replacement of bolt and nut if damaged. Tapping of frames is not permitted. Cover & frame shall be certified by an accredited Third party.

Medium Inspection Chamber: Access chamber covers on the footpath for straight through services shall be ductile iron with galvanized steel frame as per EJ JB2 or similar approved with frame opening 720mm x 260 mm to EN 124 B125 marked “Public Lighting” or “Traffic” with M16 stainless steel locking bolt or similar approved.

Lock shall make provision for replacement of bolt and nut if damaged. Tapping of frames is not permitted. Cover and frame shall be certified by an accredited Third party.

Small Inspection Chamber: Access chamber covers on the footpath for straight through services shall be ductile iron with galvanized steel frame as per EJ JB1 or similar approved with frame opening 385mm x 260 mm to EN 124 B125 marked "Public Lighting" or "Traffic" with M16 stainless steel locking bolt or similar approved. Lock shall make provision for the replacement of bolt and nut if damaged. Tapping of frames is not permitted. Cover and frame shall be certified by an accredited Third party.

All Inspection Chambers on carriageways shall have the same dimensions as those listed small, medium and large above. In all cases the chamber shall be to EN 124 Group 4.

In verge or soft ground, the chamber frame is to be secured to the chamber with self-tapping screws and surrounded with a flush 200mm width by 100mm depth concrete plinth having a 10mm fall tamped non-slip finish. Chambers frames that are set within paving shall be neat and flush with that paving so as to not create a lip or void around each edge.

Inspection chambers/draw pits shall only be installed at either side of road crossing points and where the length of circuit run offers a risk of damage to the cable being drawn through ducting.

8. Asset Inventory

8.1. Data Sets

Accurate as-fitted drawings and material specifications shall be provided by the contractor to Kildare County Council upon commissioning of the lighting installation. Information is to be provided in hard copy and digital format and shall comply with TII Standardised Public Lighting Inventory Template User Manual AM-LHT-06058 December 2017.

9. Adoption of Installation

9.1. General

The developer shall ensure that prior to, and during construction of the works the following points will have been agreed:

- The lighting design has been approved.
- Materials have been approved.
- Column foundation details approved.
- Column positions agreed and marked on site by a representative of Kildare County Council Street lighting section.

- Duct and cable installation checked by the highway's inspector or a representative of Kildare County Council Street lighting section before backfilling of tracks.
- The developer shall not carry out works to existing equipment until permission has been granted by Kildare County Council.
- The developer shall ensure all necessary traffic management measures are in place and in accordance with Chapter 8 of the Traffic Signs Manual.
- Before any lighting is commissioned the Developer will carry out the necessary electrical tests, witnessed by a street lighting section representative, in accordance with IS10101:2020 Requirements for Electrical Installations.

Where a new development or installation creates a new access point(s) linking an already adopted highway, the newly created junction will be designed and upgraded by the developer/contractor as a lighting conflict area as defined in BS 5489-1:2020 and PLG02. This may require the modification of the existing adopted highway lighting and/or additional lighting required to raise the lighting levels accordingly. Lighting proposals for the newly created junction(s) shall be submitted to Kildare County Council for approval as part of the overall Section 38 lighting submission for the new development.

Where proposed electrical works affect the energising of existing lighting on an adopted highway, the developer/contractor shall take steps to ensure that temporary lighting is provided for the duration of the works in accordance with the relevant British Standards.

9.2. Adoption Checklist

- Developer name and contact details.
- Consultant/architect name and contact details.
- Builder name and contact details if different from above.
- Electrical contractor name and contact details.
- AutoCAD (dwg) & PDF formats for street lighting layout complete with unique drawing number, including any revisions.
- Lighting calculations (Produced within Lighting Reality)
- Cable calculations for private network (Produced within accredited software to the latest IS10101:2020 regulations)
- Proposed luminaire, light source, optic setting and reference including manufacturer details.
- Details of electrical equipment used and manufacturer details.
- Proposed low voltage distribution network.

- Electrical test Results
- Cable schematics for private network
- ESN/IESN/ICP details
- Scheme detailed inventory

9.3. Inspection

Inspections of the installation shall be carried out by the Kildare County Council Street lighting department in conjunction with representation from the contractor and/or developer.

9.3.1. Initial Inspection

An initial inspection of the installation is free of charge, however, in the event that further inspections are required by Kildare County Council, a fee will be chargeable. Kildare County Council require a minimum notice period of 10 working days when arranging a street lighting inspection. Earlier inspections may be possible at the discretion of Kildare County Council Public Lighting Department.

9.3.2. Remedial Works

Remedial works shall be carried out within 14 days of the identifying inspection.

9.3.3. Charges for Subsequent Inspections

A nominal charge shall be applied by Kildare County Council for each subsequent inspection to the initial visit.

9.3.4. *Final Inspection

If the initial inspection does not highlight and defects and is fully to the satisfaction of Kildare County Council then this will be deemed the final inspection and the scheme will be approved for adoption by Kildare County Council. The responsibility for the payment of street lighting electricity usage shall transfer from the developer/contractor to Kildare County Council from the date of approval. The responsibility for maintenance of the lighting installation will remain with the developer/contractor for 12 calendar months from the approval date.

9.4. Warranties

The contractor warranty shall be 12 calendar months from the date

of Kildare County Council approval.

9.4.1. Material Warranties

Warranties for equipment/materials shall rest with the manufacturer, however, should a defect occur within 12 months from the date of Kildare County Council approval, the contractor shall be responsible for the returning of equipment/materials to the manufacturer including but not limited to retrieval and reinstatement on site. Temporary equipment/materials shall be provided by the contractor until the defective equipment/materials have been replaced.

9.4.2. Contractor Installation Warranty Period

12 calendar months from the date of installation approval by Kildare County Council.

9.4.3. Payment of Energy Usage

Responsibility for payment of energy consumption will, in accordance with the Council's Section 38 Agreement, remain with the developer until formal adoption is completed.

9.5. Design and Materials Approval

All design and materials shall be approved by Kildare County Council prior to installation by the developer/contractor.

9.6. Overall Approval and Handover

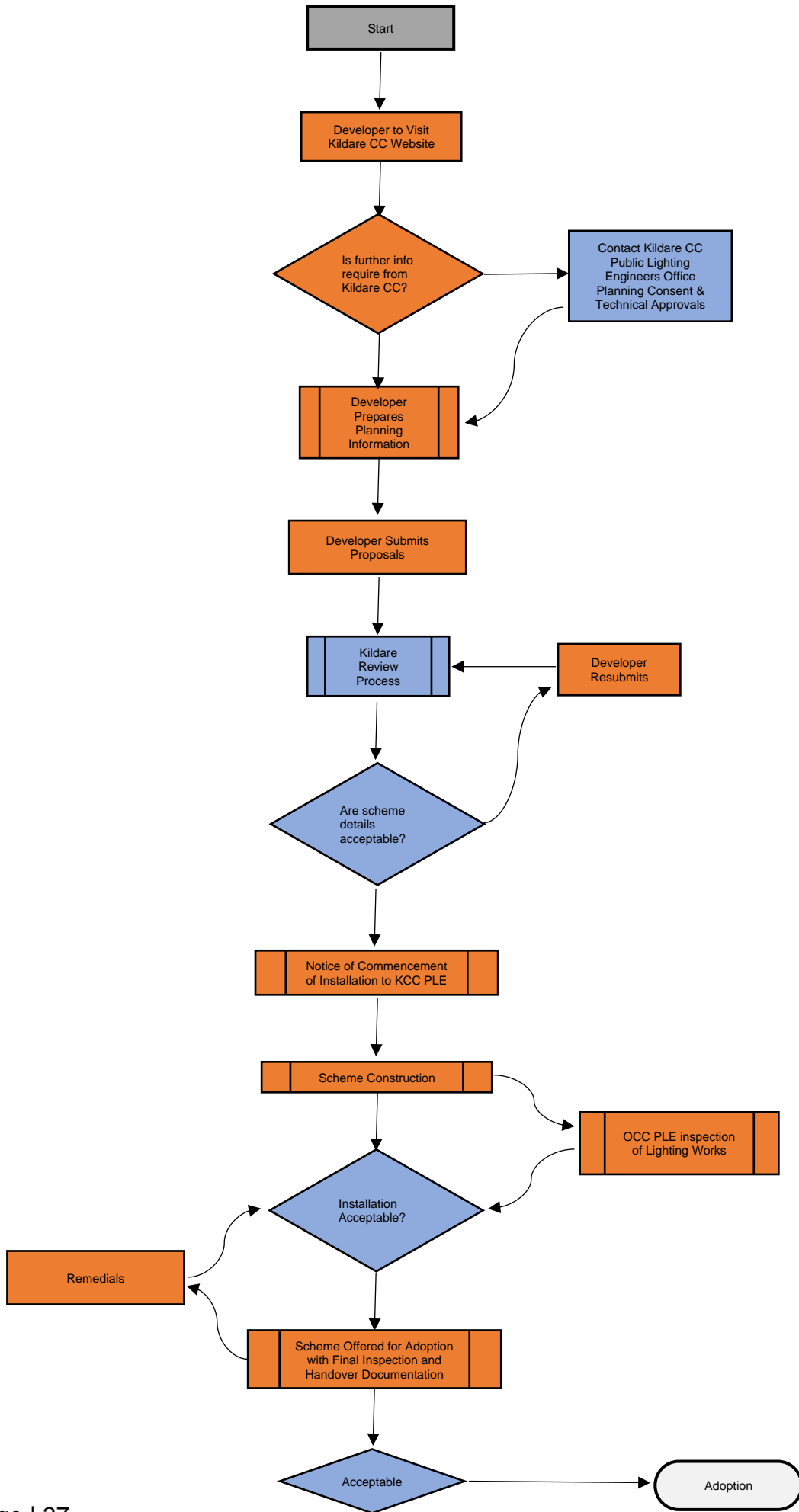
Upon successful inspection and handing over of as-built information the development will be adopted for energy consumption. Kildare County Council will gain full responsibility for the installation 12 months from the date of installation approval.

10. Waste Disposal

The contractor shall comply with the requirements of the Electronic Equipment (WEEE) directive when disposing of materials.

Appendix A: Kildare County Council Planning and Technical Approval Procedure

The procedures and processes for developers and designers to satisfy the planning application and technical approvals requirements for street lighting are set out in Kildare County Councils Public Lighting Policy and Planning Guidance document and can be obtained on Kildare County Council website. A summary of the process is depicted in the flow chart below:



Appendix B: Taking in Charge

The taking in charge of a lighting scheme is the procedure whereby the Developer shall satisfy Kildare County Council and the DSO (ESB Networks) that the scheme conforms to the NSAI National Rules for Electrical Installations, and the Developer shall also satisfy Kildare County Council that the layout and levels of lighting conforms to the BS EN 5489-1:2020 Code of Practice.

The taking in charge of Public Lighting in Estates is usually completed in conjunction with the full TIC of an estate or a completed phase. This procedure is administered by the Planning and Development Directorate of Kildare County Council.

The taking in charge request form for the public lighting element is available on the Kildare County Council website (www.kildarecoco.ie/publiclighting).

A Developer wishing to have an exterior lighting scheme taken in charge for energy and maintenance shall complete this form and submit it to Kildare County Council, Planning and Development Directorate, along with the following;

- As built Lighting layout drawings (in .dwg format including plot of lux contours);
- Appropriate Standard Construction Details (SCD's);
- As Built Electrical drawings (schedules and layouts);
- Exterior Lighting design;
- Details of columns, brackets, and lanterns.
- A signed copy of the electrical test certificate for the exterior lighting installation (A copy of the signed original will suffice);
- An energy supply bill showing the account up to date.

On receipt of the completed forms Kildare County Council, Roads (Public Lighting) Division, will engage its Public Lighting Maintenance Contractor to undertake an inspection of an exterior lighting scheme, following which a Report will issue to Kildare County Council by the Maintenance Contractor.

A typical TIC Report form is contained in Appendix C.

When the Developer confirms that the snagging list as communicated to the applicant has

been completed a further inspection(s) will be undertaken and the process will be repeated until a satisfactory conclusion has been achieved.

When Kildare County Council confirms that the exterior lighting scheme is in a suitable condition to be taken in charge, it shall inform the Developer by means of a formal letter, indicating the date on which Kildare County Council will assume responsibility for the scheme.

Kildare County Council will assume responsibility for the payment of the Energy bill from the date on which the lighting scheme is taken in charge.

It will not be responsible for any arrears on the bill in advance of that date.

Kildare County Council requires that the Exterior Lighting Scheme be maintained operational and in the same condition as it was when the snagging list was completed up until the date that the estate is formally taken in charge.

Kildare County Council will also require that each column and customer service pillar installed shall have a label attached with a numbering scheme agreed with the Developer at the taking in charge stage.

This is to allow for maintenance coordination, column / luminaire identification and recording of the individual column in Kildare County Council's Exterior Lighting Asset Management Database.

Appendix C:

PUBLIC LIGHTING PRE-TIC INSPECTION CHECKLIST	
General Information-Cover Sheet	
Estate Name	
Address	
Developer Name	
Planning Ref	
Inspection Requested by	
MPRN or TMPRN /GMPRN	
Inspected by	
Date of Inspection	
Number of Public Lights in Estate	
Number of Pillars in Estate	
Are columns accessible with hoist	
Is distance between columns acceptable	
Are columns numbered	
PL Cable Size/Type (NYCY)	
Flex Size/ Cores/Type	
Night Survey carried out	
All lights operational	
Supply Type	Metered Unmetered
Overall Summary of Work to be done prior to TIC by KCC (Costing to be provided on a separate sheet)	
Sign Off and Approval	
Signed anted by Inspecting Electrician	
Print name of Inspecting Electrician	
Checked, Signed by Manager	
Print Name of Manager	

Appendix E: TII Drawing RCD1400/1. Lighting Column Connection

