

PUBLIC



STREET LIGHTING SPECIFICATION

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AN ELEMENT OF THE HIGHWAY INFRASTRUCTURE
ASSET MANAGEMENT SYSTEM

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ADOPTION CONDITIONS

Development Control shall be the first point of contact regarding any future development site, who will be able to provide guidance on the Highways Development Control process. Further guidance on the '[Highways Development Control](#)' process is available on the Authority's website.

The developer will be responsible, unconditionally, for the condition, operation and any risk or liability of all the highway electrical equipment, on all approved Section Agreement works until the date of formal adoption of the development.

Adoption of the lighting and electrical equipment may be delayed or withheld if the following conditions are not met:

Energy Payments

The developer will be required to setup an arrangement for energy payments with their electricity supplier through the Distribution Network Operator (DNO) or Independent Distribution Network Operator (IDNO), until the date of formal adoption of the development. Notification of the DNO/IDNO whose network has been used must be provided to enable the Authority to update its asset inventory and make energy payments.

Developers implementing works as part of an approved Section 278 Agreement may receive an exemption from energy payments with prior agreement from the Street Lighting Engineer or their representative.

Derbyshire County Council (Authority) does not provide its 'MPAN' number(s) to developers. Where alteration to existing highway electrical equipment is required the developer must contact the DNO/IDNO directly or via an Independent Connection Provider (ICP) to arrange and schedule the electrical connection works. The approved street lighting & electrical design pack / drawings shall be submitted to the DNO/IDNO, who may then contact the Authority to verify that the work being requested is authorised and approved by the Authority.

Design

A lighting design provided by the Authority or a consultant lighting design approved by the Authority must be obtained prior to any street lighting work commencing on site. The lighting design brief is to produce a Street Lighting and Electrical design for the Section Agreement e.g. S38/S278, in accordance with our specification. This shall generally cover the Section Agreement limits but may also require assessment or works beyond this e.g. assessment of a new development access. If any alteration to any part of the lighting design is required, for whatever reason approval must be obtained for the amendment.

Due to rapid increases in LED lantern technology if the street lighting installation for this site is not presented for adoption within two years of the design approval, a review of the equipment and the design will be required.

'[TA01](#)' provides further design guidance.

Construction

All installation work / equipment shall comply with [Sector 8](#) of the [National Highways Sector Schemes \(NHSS\)](#) and with the current edition of the Authority's standard technical Specifications and Highway Electrical Standard Details (HESD) provided in '[TA08](#)'.

The Street Lighting and Electrical Sub Contractor for the installation of all highway electrical equipment shall be registered and full members of both Sector 8 (NHSS) through [Highway Electrical Association \(HEA\)](#) registration scheme [Highway Electrical Registration Scheme \(HERS\)](#) and The Department for Communities and Local Government (DCLG) competent person's scheme for highway electrical installations, such as NICEIC. All personnel shall carry a relevant competency card for inspection on request by the Street Lighting Engineer or their representative. Compliant contractors can be found at '[HERS Registered Organisations](#)' through the HEA website.

The electrical element of the installation shall comply with the IET Regulations BS7671 and every other element of the installation shall comply with the relevant Regulations and British Standards.

Electrical inspection and test certificates in compliance with BS7671 shall be supplied for all the approved electrical works to the Authority before adoption. Contact details are provided in [‘TA05’](#).

The developer shall notify the Authority before alterations to existing equipment are scheduled to allow timely update of the asset inventory. Contact details are provided in [‘TA05’](#).

[‘TA02’](#) provides further construction guidance.

TECHNICAL APPENDICES

TA01 - Lighting Design

The lighting design shall be carried out in accordance with British Standards BS5489-1, BS EN 13201, Institution of Lighting Professionals (ILP) guidance documents and other relevant national standards. Lighting class shall be determined in conjunction with these and the Authority's 'Network Hierarchy' flow chart '[TA06](#)'.

Any Highway will need to be categorised into a network hierarchy group as part of designer's assessment in accordance with the Authority's network hierarchy plan. Existing Highway network hierarchy can be obtained through the '[Mapping Portal](#)' available on the Authority's website.

Further guidance can be obtained from the '[Network Hierarchy Plan](#)' available on the Authority's website.

The design may require integration into the existing street lighting infrastructure, either lighting or electrically. This information may be made available upon request, but accuracy of any information provided cannot be guaranteed, therefore should be verified on site. Any data provided by the Authority will be produced in good faith and cannot accept any liability for any inaccuracies. Requests should be made to the Street Lighting Engineer or their representative. Contact details are provided in '[TA05](#)'.

The design assessment may require local crime data, traffic flow (AADT) and collision data for the scheme location in order to complete the design. Traffic flow data and collision data should be provided by the Developer/Client/Principal Designer.

Unless notified otherwise the Authority will produce the street lighting & electrical design as part of the Section Agreement process. In order to progress the following will be required:

- Confirmation of the Client, Principal Designer & Principal Contractor
- Development layout in electronic AutoCAD format, *indicating the latest approved adoptable area including carriageway, footway, service margin, plot & driveway layouts and any topographical or ordnance survey information; in addition, electronic drawings shall be provided in real-time coordinates*
- Structure(s) detailed drawings, *including retaining walls, bridge decks, parapets, culverts and safety fences*
- Environmental or planning requirements or considerations, *e.g. Ecological Mitigation Report*
- Residual hazards including existing, diversions or proposed apparatus services plans
- Locations of electrical substations, gas governors, pumping stations or other infrastructure easements / access proximity requirements
- DNO/IDNO electrical infrastructure layout and the adopting organisation regulated by OFGEM
- Electrical supplies, *including illuminated signage (signs/bollards) and bus shelter requirements*
- Landscaping plan, *indicating soft landscaping areas, trees and any proposed Highway tree pits*
- Overall development layout plan, *including all phases indicating intended use of future S38 or private areas*

Designs carried out by third party highway lighting design consultants, in addition to the above:

- Designers assessment
- Passive safe assessment
- Lighting design calculations, *actual electronic files shall be provided for record purposes upon completion*
- Electrical design calculations, *where appropriate*
- Manufacturers specifications, *where appropriate*

Approval Process

All required documentation shall be submitted through Development Control as part of the section agreement approval process. Upon reaching a satisfactory stage within the process, Development Control will instruct the Street Lighting Engineer or their representative to either carryout the design on behalf of the Developer or provide comment on a third-party design, which the Developer has already submitted as part of the approval process.

Once designs or design submissions have received approval from the Street Lighting Engineer or their representative, they shall be incorporated into a PDF format design pack, containing all relevant information e.g. specifications, highway electrical standard details, drawings etc. The design pack will be issued to Development Control for approval within the section agreement; Development Control will then release it on satisfactory completion of this stage.

All design drawings will require unique numbers allocating to drawings and unique asset numbers allocating to electrical street furniture, which will be provided by the Street Lighting Engineer or their representative. All unique numbers will require including on drawings and resubmitting to allow incorporation with the approved design pack.

Designer Competency

Competency for those undertaking the design of lighting installations shall be as defined in BS5489-1 and electrical installations defined as a Skilled Person and Instructed Person in BS7671.

The lead in the lighting design process shall be at least AMILP EngTech / MILP IEng (or equivalent) and experienced in the design and implementation of street lighting systems and associated infrastructure with an evidence record of competency measured against the Institution of Lighting Professionals (ILP) '[Competency for Lighting Professionals](#)' framework document, to be made available to the Authority, on request.

The designer shall complete and submit with every street lighting & electrical design submission and iteration the 'Skill & Care Certificate', refer to '[TA07](#)'.

Sustainability

Designs should be carried out to reduce or completely eliminate negative environmental impacts by utilising the latest materials and technologies, to minimise, the number of assets, energy consumption and waste throughout the lifetime of the installation.

Energy performance indicators shall be calculated in accordance with BS EN 13201-5 and included within lighting calculations and on drawings.

Road profile tables in BS EN 13201-5: Annex A.3 Typical values of energy performance indicators, shall be utilised to set the maximum Power Density (PD) and Annual Energy Consumption Indicator (AECI) values, which shall not be exceeded.

Care should be taken to ensure correct wattages for the type of lantern i.e. full power or CLO and burning hours i.e. dimming or non-dimming regimes are utilised within calculations. Further guidance on burning hours can be found in the equipment section under '[Switching](#)'.

In order to ease future maintenance operations, roads shall be designed utilising the minimum number of lantern optics and wattages. The use of a flood type road lantern optic shall be permitted to light turning heads, to eliminate the need for additional columns, but must be installed with the tilt angle (0°).

Environmental Impact

In order to minimise the impact of artificial lighting on the wider environment including the potential adverse effect on local wildlife and/or within areas designated as 'dark sky' environments, which have been specifically highlighted under the local planning conditions, we would expect street lighting to be designed with the minimum tilt angle (0°) and using luminaires with a colour temperature of 3000K which meet luminous intensity class 'G4' or greater as referenced in BS EN 13201-2.

In addition, the lantern optic shall have zero output at, and above I_{max90} (including I_{max95}), in order to achieve full cut-off to reduce sky glow. A flood type road lantern optic which does not meet this criterion may be permitted to light turning heads for instance, if this eliminates the need for additional columns, further guidance and approval should be sought from the Street Lighting Engineer or their representative.

Columns should generally be positioned on the side of Highway adjacent hedge rows or foraging routes for instance, so that light is directed into the development and so that any backwards spill light could be controlled using louvres or shields.

The use of lantern louvres or shields to additionally control spill light into habitats such as roosts, foraging & commuting routes, water courses etc. may be permitted with prior agreement from the Street Lighting Engineer or their representative. Internal louvres or shields which are an integrate part of the luminaire would be preferable over external types. When the use of this type of control has been authorised the modified photometric data, obtainable from the relevant manufacturer, shall be utilised within the design.

All the above criterion shall be incorporated within the lighting design and evidenced through calculation i.e. road and area calculations.

Further guidance can be sort from ILP 'Guidance Notes for the Reduction of Obtrusive Light (GN01)' and ILP 'Bats and Artificial Lighting in the UK (GN08)'.

The Peak District National Park have identified the following areas as 'dark sky sites' from which unpolluted views of the night sky are available.

- Surprise View off the A6187 near Hathersage
- Parsley Hay off the A515 near Hartington
- Minninglow off the A515 at Pikehall

Although it is unlikely that development could take place at these specific sites, the requirements for lighting should be carefully assessed and designed in accordance with good practice to prevent light spill and sky glow on all new sites.

Further guidance on lighting within the national park can be obtained from the Peak District National Park, ['Transport Design Guide'](#).

The ['Corporate Environment Policy'](#) is available on the Authority's website.

Uniformity

In accordance with BS5489, it is recommended that the actual overall uniformity of illuminance (U_o) be as high as reasonably practicable.

Roads and conflict areas lit to M and C lighting classes shall comply with BS5489 and BS EN 13201 minimum requirements, i.e. 0.40. Roads lit to P lighting classes shall not fall below 0.13. However, in accordance with the above note, it should always be the Designer's goal to exceed minimum uniformity requirements i.e. 0.2 or greater.

Where the road geometry conforms to a long straight section and the road hierarchy has determined the use of a P class for normal and above usage, a luminance calculation shall be carried out to the comparable lighting class, to ensure longitudinal uniformity (U_l) is not compromised.

Variable Lighting

Lanterns shall be pre-programmed to ELEXON/UMSO step-less incremental Switch Regime 'F02' unless stated otherwise on approved drawings. Further guidance can be found in the equipment section under ['Control Gear'](#).

This dimming regime is to be used in most locations unless a reduced level of lighting wouldn't be appropriate, for example in areas with an above average record of crime or safety concerns.

Whilst it may be possible to use dimming in most locations, it would not be used in the following areas unless well evidenced risk management identified that a level of lighting appropriate to a reduced highway usage could be introduced:

- in town centres
- locations with a significant night-time traffic accident record

- areas with an above average record of crime
- areas provided with CCTV, local authority or police surveillance equipment
- areas with sheltered housing and other residences accommodating vulnerable people
- areas with a 24hr operational emergency services site, including hospitals and nursing homes
- formal pedestrian crossings, subways, enclosed footpaths and alleyways and where there are potential hazards on the highway (roundabouts, central carriageway islands, chicanes, speed-humps etc.)

When varying the lighting, each lighting level should meet the requirements of a distinct lighting class from BS EN 13201-2, uniformity should be not significantly affected and adjacent areas should not be more than two equivalent lighting classes apart with the higher road hierarchy being in the higher class so that conflict areas are not compromised; and evidenced through calculation i.e. road and area calculations.

Maintenance Factor

Luminaire maintenance factors shall be derived in conjunction with BS5489-1 and assume the following:

The luminous flux factor (f_{LF}) value of '0.9' shall be utilised for a full power driver and Constant Light Output (CLO) driver, were the luminous flux depreciation has not been accounted for in luminaire photometric data.

Or, the luminous flux factor (f_{LF}) value of '1' shall be utilised for a Constant Light Output (CLO) driver, were the luminous flux depreciation has already been accounted for in luminaire photometric data.

The survival factor (f_s) value of '1' shall be utilised, which assumes a spot replacement strategy.

The luminaire maintenance factor (f_{LM}) value of '0.92' shall be utilised, which assumes a 6-year cleaning frequency within all environmental zones, as Derbyshire is predominantly rural.

Driver Type	Maintenance Factor (f_m)
Full Power	0.83
Constant Light Output (CLO), without depreciation	0.83
Constant Light Output (CLO), with depreciation	0.92

Glare

To reduce the effects of disability and discomfort glare, the lantern optic shall comply with luminous intensity class 'G3' as a minimum and threshold increment (TI) lighting class requirements, in accordance with BS EN 13201-2.

This criterion shall be incorporated within the lighting design and evidenced through calculation i.e. road calculations.

Spill Light

Third party lighting installations, on or adjacent the highway, shall be designed and maintained in accordance with ILP 'Guidance Notes for the Reduction of Obtrusive Light (GN01)', in addition illuminated advertisements shall be in accordance with ILP 'The Brightness of Illuminated Advertisements (PLG05)'.

To fully assess the lighting installations impact on the surrounding environment it would be recommended a night-time safety audit is carried out during the commissioning process, by a competent independent lighting engineer at the developer's expense. This could form part of the stage 3 safety audit where the development has an associated Section 278 agreement.

Passive Safety

The Authority is committed to safe and well-maintained roads and recognises the potential hazard that lighting columns may pose, to both motorised and non-motorised road users, and will consider the installation of passively safe lighting columns and illuminated signposts in accordance with BS EN 12767.

The requirement for passive safe equipment is different for each individual site and type of road. Each new and replacement lighting installation will be subject to a risk-based assessment to determine the need for passive safe equipment.

- Passive safe equipment shall be considered on all roads with an AADT of greater than 5,000 and a speed limit of 50mph or more.
- Passive safe equipment will not be considered on roads with a speed limit of 30mph or less.
- All other roads, actual road speed data will be considered and applied in accordance with the ILP 'Passive Safety (TR 30)'.

The designer is, however, recommended to consider any site they feel may be vulnerable and to seek guidance in accordance with BS EN 12767.

If a system of passive safe equipment exists or is intended, then all other street furniture shall be passive safe.

Further guidance can be obtained from the '[Highway Network Management Plan](#)' available on the Authority's website.

Accessibility

Where street furniture is not accessible within normal operations the use of hinged or demountable equipment shall be employed.

Note: 'not accessible', could be for equipment located on remote footpaths or for health & safety e.g. under overhead power lines etc.

Streetlights or illuminated signposts shall be positioned in conjunction with the proposed landscaping plans so that neither the operational capability nor maintenance access, will not be adversely affected by any trees or shrubs, throughout the lifetime of the installation in accordance with HESD 'Foliage Clearances'.

Clearances

Columns shall be positioned in accordance with HESD 'Positions of Columns, Brackets and Doors' generally at the back of footways or verges. Columns with setback shall be in accordance with BS5489-1, recommended minimum clearances from edge of carriageway to face of lighting column and shall be detailed on drawings.

Signs shall be positioned in accordance with the 'Traffic Signs Manual' and shall not exceed minimum clearance of 450mm from edge of carriageway to edge of sign face. Sign plates shall be mounted to provide minimum headroom of 2.1M above footways and 2.3M above cycle tracks or shared cycleways/footways, in accordance with approved drawings and the Traffic & Safety Engineer requirements.

Where street furniture is required to be positioned in areas where a raised kerb footway has not been provided, additional protection shall be provided e.g. buildout, bollards etc. which shall be included on drawings submitted as part of the Section Agreement approval process, to be agreed with Development Control and the Street Lighting Engineer or their representative.

Earth Electrodes

Earth electrodes shall be provided as required in accordance with BS7430 and the DNO/IDNO standard technique guidance requirements.

Due to the nature of earth electrodes the Designer may be required to provide assistance during the construction phase.

Further guidance on earth electrodes can be found in the equipment section under '[Earth Electrodes](#)'.

Town Centres

In accordance with the Authority's 'Network Hierarchy' flow chart Town centres can be categorised into two areas. The main shopping area normally either a shared space for pedestrians, where vehicles are controlled or main road with separate footways. This area or road is sometimes identified using textured surfaces or paving and would be categorised as Primary Shopping, commanding the highest footfall.

All shopping areas connected to the primary shopping normally roads with separate footways with or without textured surfaces or paving, commanding lower footfall, would be categorised as Secondary Shopping.

Primary and secondary shopping areas would command the highest environmental zone category for the town centre, in accordance with the environmental zone table, detailed on the 'Network Hierarchy' flow chart. For example, Chesterfield town centre would be categorised as 'E4', with the remaining suburban areas categorised as 'E3' or Matlock town centre would be categorised as 'E3', with the remaining suburban areas categorised as 'E2'.

Signage

Signage details including signposts, bollards and sign plates shall be found in scheme approved schedules or drawings, in accordance with the Traffic & Safety Engineer requirements.

Signage on islands e.g. refuge islands, shall be supplied via a separated extra-low voltage (SELV) system, owned and maintained by the Authority.

Signage adjacent the carriageway may be fed via a DNO/IDNO low voltage network, unless supplied by an Authority owned and maintained system these shall be SELV.

Attachments

Attachments to columns shall be permitted in order to reduce street furniture/clutter. The column must be specifically designed to carry the additional weight and windage of the attachment, which shall be provided to manufacturers in order to provide detailed design drawings for the specialist column structure. This may also include for drilling a hole within the column, with a minimum diameter as practicable, at a specific height to allow cable access for electrification of equipment.

Large attachments to and drilling of passive safe type columns shall not be permitted.

Sign plates with a small surface area may be permitted on columns but where proposed on passive equipment this must be specifically designed to take the additional weight and windage of the sign plate. Written assurance that the passive safe performance will not be affected shall be provided by the manufacturer.

Columns proposed with larger sign attachments must be specifically designed to take the additional weight and windage.

Attachments such as hanging baskets, festive decorations, CCTV equipment to existing columns shall be in accordance with 'Guidance Notes for the Erection of Permanent or Temporary Attachments onto Highway Lighting Columns' policy.

The policy, application process and further guidance on the '[Attachments to street lights](#)' is available on the Authority's website.

Equipment

'[TA03](#)' provides guidance on the selection of equipment.

TA02 - Construction

Temporary Street Lighting

The Contractor shall either provide Temporary Street Lighting or maintain the existing lighting whether in the old or new position throughout all the works including diversions of traffic and to a standard not less than existing unless otherwise approved by the Street Lighting Engineer or their representative.

Equipment

'[TA03](#)' provides guidance on the selection of equipment.

Siting

Columns shall be erected generally at the rear of footways, grass verges, service strips, or maintenance margins, within existing highway or the proposed adoptable public highway, in accordance with BS5489-1, recommended minimum clearances from edge of carriageway to face of lighting column, HESD 'Positions of Columns, Brackets and Doors' and approved drawings, as appropriate i.e. where setbacks have been specially designed.

Symbols on drawings are generally not to scale, therefore if required, further clarification should be sort from the Designer, Street Lighting Engineer or their representative, on column positions.

It is the Developer's responsibility to ensure adequate space has been allowed for the installation of columns especially in narrow footways or service/maintenance strips. Column relocation requests due to poor planning/implementation onsite may be refused.

No trees or shrubs shall be planted in a position which will adversely affect either the operational capability or maintenance access of any streetlight or illuminated signpost, throughout the lifetime of the installation in accordance with HESD 'Foliage Clearances'

Numbering

All columns and any illuminated signposts are to be numbered as indicated on the approved scheme drawings.

Numbers to be 50mm (H) x 40mm (W), 1800mm above ground level, either painted in fine white gloss applied directly to the column surface; or other method such as a one piece self-adhesive vinyl label, UV stabilised with a non-degradable life span of 7 years; with a white background and black numerals, as approved by the Street Lighting Engineer or their representative.

Servicing

Unless shown otherwise on the approved scheme drawing(s) or agreed by the Street Lighting Engineer or their representative prior to commencement of the scheme, services to lighting columns & other powered assets must be provided by the DNO or IDNO / ICP which are regulated by 'OFGEM', as listed below; further information on '[Distribution Networks](#)' and '[Connections and Competition](#)' can be found on the 'OFGEM' website.

Service cut-out fuse for 25-amp supplies shall be BS88 rated at 10 amps unless otherwise stated. Separately fused double pole isolation shall be provided in accordance with HESD 'DNO/IDNO Isolation Arrangements'.

The colour and specification of electricity supply service ducts must be clarified with the operator/provider prior to the commencement of excavation works, unless otherwise stated on approved drawings.

Distribution Network Operators (DNO)

- **Western Power Distribution**
Midlands, New Supplies Team, Toll End Road, Tipton DY4 0HH Tel: 0800 096 3080 Email: wpdnewsuppliesmids@westernpower.co.uk
- **Electricity North West**
Energy Solutions, Frederick Road, Salford M6 6QH Tel: 0800 048 1820 Email: connectionapplications@enwl.co.uk
- **Northern Powergrid**
Network Connections, Alix House, Falcon Court, Stockton-on-Tees TS18 3TU Tel: 0845 0702703 Email: getconnected@northernpowergrid.com

Independent Distribution Network Operators (IDNO)

A full list of '[Independent Distribution Network Operators](#)' licensed by OFGEM can be found on their website.

Earth Electrodes

Earth electrodes shall be provided as required in accordance with BS7430 and the DNO/IDNO standard technique guidance requirements.

Due to the nature of earth electrodes more emphasis shall be required during the construction phase, however designer assistance shall be enlisted as required.

Electrical inspection and test certificates in compliance with BS7671 shall be supplied for all earth electrodes to the Street Lighting Engineer or their representative for approval, before completion of the construction phase. Contact details are provided in '[TA05](#)'.

Further guidance on earth electrodes can be found in the equipment section under '[Earth Electrodes](#)'.

Roadworks

Further guidance on '[Roadworks](#)' can be found on the Authority's website:

Including;

- Map of current and planned roadworks
- Roadworks responsibility
- Apply for a road closure or temporary traffic management
- Apply for temporary traffic signals
- Highway permit scheme

TA03 - Equipment

General

Unless excluded from the Construction Products Regulations and Declarations of Conformity, all products shall be CE marked.

It will be necessary to provide details of materials throughout the different stages of a scheme e.g. passive safe equipment before purchase, lanterns on adoption inspection etc. Contact details are provided in [‘TA05’](#).

Column

The column manufacturer shall be quality assured registered against ISO 9000 series and with [‘Scheme 6’](#) of the [‘National Highways Sector Schemes \(NHSS\)’](#).

The column shall be of nominal height 5, 6, 8, 10 or 12 metre with post top spigot (76mm) in accordance with BS EN 40 and manufactured from steel in accordance with BS EN 40-5, as per approved drawings.

Hinged columns (base or mid) may require mechanical lifting devices or tools compliant with the Lifting Operations and Lifting Equipment Regulations (LOLER) and as such shall be as approved by the Street Lighting Engineer or their representative. The lifting devices or tools shall be supplied free of charge with certification documentation, if different from that of the Authority's.

Signposts

Signposts & brackets shall be manufactured in accordance with BS EN 12899-1 and with [‘Scheme 9A’](#) of the [‘National Highways Sector Schemes \(NHSS\)’](#) and manufactured from steel in accordance with BS EN 40-5, as per approved drawings.

Passive Safe

Where specified on approved drawings columns and signposts shall be in accordance with BS EN 12767 and manufactured from steel (as above) or aluminium in accordance with BS EN 40-6, depending on the class of conformity.

Typically, these shall comply to either;

High energy absorbing: 100:HE:NR:NR:NS:MD:0

Non-energy absorbing: 100:NE:NR:NR:SE:MD:0

Passive safe disconnection systems shall comply with the Electricity at Works Regulations and IET Wiring Regulations: BS7671 Requirements for Electrical Installations.

All lighting columns and illuminated signs operating from a 230V supply protected by the system shall have an impact sensor in the base compartment. In the event of an impact, the circuit shall disconnect within 0.4 seconds. Impact sensors shall not be sensitive to the point where passing vehicles cause false activations.

Systems protecting multiple assets, the monitor board for the system shall be capable of being mounted to a DIN rail system in a feeder pillar.

Systems protecting individual assets shall be installed within an IP67 enclosure suitable for installation in a non-passive safe column, mini-pillar or chamber. Chamber systems are generally not acceptable unless specified on approved drawings, which have prior approval by the Street Lighting Engineer or their representative.

Disconnection systems which rely on plug and socket style mechanisms are not acceptable as electrical disconnection cannot be guaranteed.

Any disconnection system shall be capable of communication with CMS systems.

Full details of passive safe products & systems to be utilised shall be submitted including technical drawings, certificate of conformity etc. to the Street Lighting Engineer or their representative. Contact details are provided in [‘TA05’](#).

Feeder Pillars

Feeder pillars shall be either stainless steel or galvanised mild steel construction, in accordance with HESD ‘Feeder Pillar base and Chamber Connection’, HESD ‘Feeder Pillars’ and HESD ‘Pillar Internals’.

A Surge Protection Device (SPD) shall be included as part of the feeder pillar installation rated at 5kA & 10kV, din rail mounted within the internal enclosures. For SPD requirements refer to [‘Surge Protection Devices’](#) in this section.

For Passive Safe Disconnection System’s requirements refer to [‘Passive Safe’](#) in this section.

Protection System

Minor structures shall have a complete protection and finish system either by application of Performance Polymer Alloy Coating or Performance Paint System.

Anyone coating/system shall be obtained from the same manufacturer and shop applied to the manufacturers guidance and recommendations.

[‘TA04’](#) provides guidance on the equipment protection systems.

Final colour finishes:

Columns / Feeder Pillars / Reducers	-	Derbyshire Green (RAL6006)
Signposts / Wall Brackets	-	Aircraft Grey (BS381C 693)
Refuge Beacons bands	-	Aircraft Grey (BS381C 693) with White (RAL 9016)
Belisha Beacons	-	Black (RAL 9005) with White (RAL 9016) bands

Final colours finishes may differ in specific areas for instance, conservation areas but should always be detailed on approved drawings, if in doubt confirmation should be obtained from the Street Lighting Engineer or their representative.

Luminaires

Luminaires shall be manufactured within a quality and environmental management systems typically this will be ISO 9001 and ISO 14001, complying with all relevant British and European standards, be CE Marked for the entire luminaire, must be guaranteed for a minimum of 6,000 hours and warrantied overall for a minimum of 8 years, have an approved ELEXON/UMSO code and shall be compatible for post top/side entry attachment to all street lighting columns and bracket arrangements within Derbyshire.

The luminaire shall be integral gear having a minimum impact resistance of IK08, IP66 sealed construction with a minimum life expectancy of 20 years for the luminaire housing, wired for NEMA Socket or mini-cell, which shall be accessible for maintenance via a hinged canopy and maintenance safety catch.

Orders placed with the luminaire manufacturer shall state compliance with Derbyshire County Councils agreed specification framework and labelled in alpha (a) numeric (n) format “nnnana”, where “nnn” = wattage. “an” = design category and “a” = dimming element, (e.g. 14P5N)

Light Source

The light source shall be LED module technology with a minimum life expectancy of 100,000 hours, ingress protection of IP66, 'Cool White' colour temperature of 4000K with a colour rendering index (CRI) of 70 or greater, white lighting source designed to maintain good uniformity.

LED modules with a 'Warm White' colour temperature of 3000K shall be utilised for new residential developments, heritage applications and for environmental mitigation with the approval of the Street Lighting Engineer or their representative.

Zebra crossings with dedicated luminaires having a specific optic, normally know as left-hand distribution shall have a colour temperature of 5700K, to provide a visual distinction of the crossing within the system of normal road lighting.

The module must be capable of limiting output in a specific direction, compliant with photo-biological risk group 0 or 1, provide a minimum glare class of 'G3' as referenced in BS EN 13201-2 Annex A, be capable of being shielded which can be retrofitted on site with simple tools and must be easily upgradable to utilise the latest LED technology.

Control Gear

The control gear compartment shall have a minimum IP65 with a NEMA Socket installed and be easily accessible via tool-less operation or using simple tools.

The luminaire shall have a programmable constant current driver either Constant Light Output (CLO) or Full Power (non-CLO) 'DALI' enabled (e.g. Philips) with a minimum life expectancy of 8 years, surge protection at 5kA & 10kV and ELEXON/UMSO code, pre-programmed to ELEXON/UMSO step-less incremental Switch Regime 'F02' unless stated otherwise on approved drawings.

For surge protection device requirements refer to '[Surge Protection Devices](#)' in this section.

Switching

One part fully electronic solid-state photocell with filtered photodiode; power consumption to be <100mW and shall be specifically approved by the local electricity company as ELEXON/UMSO code '94 0000 0001 100' and shall have a 12yr warranty. Switch on/off level to be 20 LUX 1:1 as ELEXON/UMSO Switch Regime '806' dusk to dawn and Zebra crossing luminaires shall switch on/off level to be 35 LUX 1:1 as ELEXON/UMSO Switch Regime '807' dusk to dawn, unless stated otherwise on approved drawings.

Photocells shall be mounted to the lantern via a 7-pin 'NEMA' socket sealed to maintain lantern integrity. Alternate controls will be considered but must be approved by the Street Lighting Engineer or their representative. Any alternate submission must include an approved ELEXON/UMSO code for the device.

Regime	Switch	Period					Burning Hours	Location
806	Electronic (20 lux on 20 lux off)	Electronic PEC 20/20 (Dusk to Dawn)					4089	East Midlands
807	Electronic (35 lux on 35 lux off)	Electronic PEC 35/35 (Dusk to Dawn)					4117	East Midlands
F02	Variable Power Switch Regime - 20/20 (GMT)	PECUS	21:30	00:00	05:00	06:00	2971	East Midlands
	Dimming % Energy	100	75	50	75	100		

Sign Lanterns

Sign lanterns and gear trays shall be low wattage, LED with an approved UMSO code, either continuously lit or photocell controlled, as per approved drawings, in accordance with the Traffic & Safety Engineer requirements.

Bollards

Bollard gear trays shall be low wattage, LED with an approved UMSO code, continuously lit, as per approved drawings, in accordance with the Traffic & Safety Engineer requirements.

Wiring

All wiring shall be compliant to the Electricity at Works Regulations and IET Wiring Regulations: BS7671 Requirements for Electrical Installations. All exposed wiring shall be insulated & sheathed, and connectors shall not be used in any wiring circuit.

All wiring within the base compartment shall be insulated and sheathed with the sheathing taken into the cut-out housing, except for the green/yellow tri-rated sheathed protective conductor. This cable shall be long enough to allow the door to rest on the ground when removed. Insulated ring terminals shall be used to terminate this cable to the earth points.

Internal wiring from DNO/IDNO cut out to secondary isolator shall be 618Y Single or stranded copper cables 600/1000 volt grade to BS6004 PVC insulated and sheathed with harmonised colours.

Wiring to luminaires shall be flex cable in accordance with BS6004 of 300/500V grade with phase, neutral and earth copper conductors not less than 1.5mm² cross-sectional area up to 10m mounting height (2.5mm² at 12m and above mounting height) with harmonised colours.

Cables

All cables shall be compliant to the Electricity at Works Regulations, IET Wiring Regulations: BS7671 Requirements for Electrical Installations and BASEC approved.

All underground cables shall be protected within a fully ducted system in accordance with HESD 'Chambers and Underground Service Ducts', HESD 'Feeder Pillar Base and Chamber Connection' and approved drawings. Refer to ['Service Ducts & Chambers'](#) in this section.

Low Voltage (LV) underground electrical cable shall be minimum 6mm² Armoured 3-Core XLPE/PVC/SWA/PVC complying with BS5467 and have stranded copper phase, neutral and protective conductors in single phase harmonised colours brown, blue, green/yellow and of equal cross-sectional area.

Circuits supplying passive safe lighting columns shall have a separate trip circuit configured as per the approved drawing for the specific scheme. All trip circuit cables shall have orange outer sheathing and be minimum 1.5mm² Armoured 2-Core XLPE/PVC/SWA/PVC with stranded copper phase and neutral conductors in single phase harmonised colours brown, blue complying with BS6346.

Separated Extra Low Voltage (SELV) underground electrical cable supplying a 24V system shall be 2-Core copper harsh environments H07RN-F to BS50525-2-21.

Cables for use on surface of buildings, bridges and walls shall be PVC insulated and sheathed 3-Core copper cable type 'Hi-Tuff' or similar approved to BS5467 and supported to surfaces using approved supports and enter control boxes from the bottom using suitable glands. When placed in reach they shall be protected by cable capping or galvanised steel conduit.

Terminations

Armoured cables shall be individually terminated and secured using appropriately sized brass compression type gland to BS6121 and single brass gland plate in accordance with HESD 'Armoured Cable Terminations'.

Cable Earth Termination (CET) Glands / cable terminations using jubilee clamps or similar are not acceptable for terminating Steel Wire Armoured (SWA) cables into ANY item of highway electrical street furniture.

The cable inner cable sheath shall be taken into the cut-out housing through appropriately sized grommets maintaining IP2X protection and cores terminated directly into the cut-out terminals in accordance with HESD 'Termination Layouts'.

Identification labels shall be attached to the cable as close to the termination as practicable, using self-locking plastic cable ties in accordance with HESD 'Cable Identification and Electrical Labels' and approved drawings.

Joints

Underground cable joints shall only be used with prior agreement obtained from the Street Lighting Engineer or their representative.

Cable joints shall be cold pour resign type and made up in accordance with the cable and joint manufacturer's instructions, carried out when all materials to be used in the joint are free from moisture. Joint bays shall be kept free from water and a fully enclosing joint-tent shall be erected over the joint bay if jointing is carried out in, or immediately after, wet weather.

The contractor shall ensure that correct phasing is maintained with cables joined colour to colour. In the event of cables of old and harmonised colours being joined they shall be coupled in accordance with IET Wiring Regulations: BS7671 Requirements for Electrical Installations.

Armour cables shall be bonded at all joints without any increase in resistance as compared with that of an un-jointed cable run.

The detailed location of cable joints shall be recorded, included on 'as built' drawings and notification sent to the Street Lighting Engineer or their representative. Contact details are provided in ['TA05'](#).

Surge Protection Devices

Surge Protection Devices (SPD) shall be included as part of a feeder pillar installation or an integral part of the luminaire control gear.

The SPD shall be rated at 5kA & 10kV and din rail mountable when utilised in feeder pillar internal enclosures.

The SPD shall be equipped with an operation status indicator and CMS link that will indicate the service state of the equipment supplied.

If there is a measured low safety risk, then consideration should be given to a 'fail open' SPD device so that the equipment fed is rendered "out of use" to indicate that the device has been triggered and has now become inoperable.

Accessories

Low-voltage single-phase street lighting cut-out assemblies shall be manufactured to BS7654.

Low-voltage switchgear and control gear including switches, disconnectors, switch-disconnectors and fuse-combination units shall be manufactured to BS EN 60947-3.

Fuse isolator units/cut-outs shall be designed specifically for use in street lighting columns, consist of substantial moulded plastic drip-proof enclosure and have terminals for live, neutral and earth conductors protected to IP 2X, sufficient to accommodate 25 mm² cables. Cut-outs fitted to double arm columns shall contain two fuses in accordance with HESD 'Termination Layouts'.

230V/24V transformers shall be manufactured to BS EN 61558 have an integral safety isolating feature with thermal and short circuit protection. Output will disconnect on fault detection and reconnect when fault is cleared.

BS88-2 fuse link is required for each single luminaire or sub-circuit operating from a 230V supply.

MCB's shall be manufactured to BS EN 60898-1 and have 'Type B' overcurrent trip characteristic and DIN rail mountable for use in distribution boards.

RCCB's shall be manufactured to BS EN 61008-1 and have 30mA residual current trip characteristic and DIN rail mountable for use in distribution boards.

RCBO's shall be manufactured to BS EN 61009-1 and have 'Type B' overcurrent and 30mA residual current trip characteristic and DIN rail mountable for use in distribution boards.

Enclosures for low-voltage switchgear and control gear assemblies shall be in accordance with BS EN 62208.

Degrees of protection provided by enclosures (IP Code) shall be in accordance with BS EN 60529.

Service Ducts & Chambers

Street lighting ducts shall be smooth bore manufactured from Medium to High Density Polyethylene meet the requirements of BS EN 61386-24 normal duty and shall be sufficiently rigid to experience no deformation during backfill and compaction but be capable of bending to the radius required.

Ducts shall be supplied in 6 metre lengths complete with couplings attached and have a minimum internal diameter of 50mm, 3.5mm thickness installed 450mm depth to invert, in verge or footway and 100mm, 5mm thickness installed 750mm depth to invert, in carriageway. All road crossings shall have two 100mm ducts unless otherwise stated on approved drawings.

Ducts shall be installed to avoid lighting column roots and foundation material. Ducts shall be run continuously and access at each service point shall be made by means of flexible smooth bore duct from the main duct to the lighting point.

The ducts shall be coloured orange throughout their length and shall be indelibly marked, by indentation, with the legend "Street Lighting" in 9mm high white characters at intervals of 1 metre. When laid the wording shall be visible from above. A warning marker tape shall be used to identify the presence of ducts.

Prior to the rigid duct system being put into use a service duct alignment test shall be carried out by drawing a mandrel throughout it, in accordance with HESD 'Chambers and Underground Service Ducts'.

Service duct chambers shall be either in-situ concrete or brick construction with minimum dimensions 450mm x 450mm and depth of invert not exceeding 1 metre, with serviceable soakaway in accordance with HESD 'Chambers and Underground Service Ducts' and approved drawings.

They shall only be installed in footways or verges and have interlocking composite covers and galvanised steel frames where all sides are supported, complying with Group 2 Class B125 in accordance with BS EN 124.

Chambers associated with ducts shall be in accordance with HESD 'Chambers and Underground Service Ducts' and where directly associated with a feeder pillar shall be in accordance with HESD 'Feeder Pillar Base and Chamber Connection'.

The system of ducting and service duct chambers shall be for the sole use of highway electrical equipment and must not be used by any other utilities.

Retention Socket

The socket head shall be constructed of cast steel to ISO 3755 230-450 or Ductile Iron to BS2789 500-7, galvanised on all internal and external surfaces to BS EN ISO 1461.

The socket shall be capable of withstanding impact forces from vehicle impact to steel posts with wall thickness up to 6mm. All assembly screws shall be M12 A2 stainless steel. It shall contain two M16 A2 stainless steel lateral fixing setscrews inside a locking chamber. This locking chamber shall be covered with a locking lid, EN124-B125 load rated fitted with RS worm lock.

The socket shall have a 'duckfoot bend' or 'T bend' base which will accept a 100mm duct. In exceptional circumstances a "shallow foundation base" may be necessary, however this will be specified on approved drawing as part of the Design phase.

The socket shall contain a steel protective pressure plate. All operating components shall be serviceable on site.

All retention sockets shall be supplied with a cover plate to enable the socket to be flush to ground level when street furniture is removed or not installed.

Earth Electrodes

Earth electrodes shall be provided as required in accordance with BS7430 and the DNO/IDNO standard technique guidance requirements.

If soil resistivity readings cannot be obtained or provided by the DNO/IDNO at the location of the installation, in order to calculate the size of electrode required. Then rather than carrying out specific ground resistivity testing which may result in unproportionate cost, one electrode be installed, and the resistance tested, and then additional electrodes added until a suitable earth reading can be acquired.

The use of rods, mats and horizontal electrodes are acceptable, however where the electrode installation requirement carries unacceptable risks due to the congested nature of the ground, in an urban environment for instance, the use of the other electrode types may be more appropriate.

Earth electrode resistance at the supply origin or end of circuit shall be in accordance with BS7430 and shall not exceed 20 ohms.

Jointing of earth electrodes shall be prohibited, as this introduces a weak point in the system.

The detailed location of earth electrodes shall be recorded, included on 'as built' drawings and notification sent to the Street Lighting Engineer or their representative. Contact details are provided in '[TA05](#)'.

Wall Brackets

All wall or pole brackets must have prior approval and legal wayleave agreements in place organised as part of the Design phase.

Pole and Wall mounting brackets shall be manufactured from mild steel and galvanised to BS EN ISO 1461.

Wall brackets shall have a post top spigot (76mm) and pole brackets arm shall have 5-degree uplift, a minimum projection of 150mm and both be suitable for the attachment of the specified luminaire.

The bracket should be attached to the pole or wall by a minimum of four stainless steel anchors via a rag bolt anchor system or chemical or resin, based anchor system. The Contractor should ensure that the chosen system is suitable for the required application and should follow manufacturer's installation advice.

Where luminaires are to be installed on existing buildings a mini-feeder pillar may be required to accommodate isolation equipment so the DNO/IDNO can provide a service point at ground level. For cabling requirements from the mini-feeder pillar refer to '[Cables](#)' in this section.

Illuminated Bus Shelters

Illuminated bus shelters shall be supplied and installed in accordance with the Authority's bus shelter specification and highway electrical standard details, with full verification and approval from the Local Bus Team.

Further guidance can be obtained from the '[Technical and Design Guidance for Bus Stops & Shelters](#)' available on the Authority's website.

TA04 - Protection Systems

Steel structures shall be completely protected with Hot Dip galvanisation to BS EN ISO 1461, finishing preparation treatment applied e.g. 'T' Wash and factory finished as per specified protection systems below.

Aluminium and stainless-steel structures shall be factory finished as per specified protection systems below.

Any one system shall be obtained from the same manufacturer and shop applied to the manufacturers guidance and recommendations.

Protection System 1:

Application of Performance Polymer Alloy Coating 'PPA 571 ES' to internal/external surface of the column and door face including rear, colour shall be Derbyshire Green (RAL6006).

The metalwork must be either grit blasted or chemically pre-treated with a phosphate system e.g. 'T' Wash prior to coating and free from sharp corners or edges. Where a phosphate system has been used any previously applied resin based pre-treatment systems must be removed.

The coating must be continuous and free from exposed edges or pinholes. The coating thickness must be a minimum of 250 microns.

Protection System 2:

Application of Performance Paint System, one coat of 2 Pack Extended Cure Epoxy Micaceous Iron Oxide (Grey 90-270) to internal/external surface of the root to 250mm above ground level*, external overall and back of door, one coat of 2 Pack Glass Reinforced Epoxy (Black 79-489) to external surface of the root to 250mm above ground level* and a final coat of Polysiloxane finish to external surface of column upper section over lapping Glass Reinforced Epoxy and door face including rear, colour shall be Derbyshire Green (RAL6006).

Aluminium structures shall be suitably prepared for paint and have an overall aluminium epoxy primer coat applied followed by the Performance Paint System application.

*Ground level shall be taken as a minimum of 300mm below the door opening.

Performance Paint System (Steel)**EPA COMPLIANT PAINT SPECIFICATION SHEET**

LIGHTING COLUMNS & BRACKETS				REQUIRED DURABILITY OF SYSTEM NO MAINTENANCE up to: 10 years MINOR MAINTENANCE from: 10 years MAJOR MAINTENANCE after: 20 years
PAINT SYSTEM TO BE APPLIED OVER GALVANISED STEEL				
DETAILS	First Coat	Second Coat	Third Coat	
	External: Overall	External: Overall	External: To 250mm above ground	External: Overall
	Internal: Root to 250mm above ground + rear of door	Internal: Root to 250mm above ground + rear of door	Internal: Root to 250mm above ground	Internal: Rear of door
Registered Description (If Applicable)	"T" Wash	2 Pack Extended Cure Epoxy MIO	2 Pack Glass reinforced	2 Pack Polysiloxane finish
Item No. (If Applicable)	155	121	N/A	185
Colour	N/A	Approx 00A09	Black	Derbyshire Green (RAL6006)
Where applied	Shop	Shop	Shop	Shop
How Applied	Brush Wash Coat	Airless Spray	Airless Spray	Airless Spray
Min Required D.F.T.	N/A	100 microns	200 microns	75 microns
Required W.F.T	N/A	145 microns	225 microns	80 microns
SHOP/SITE APPLICATION: Shop: 2 EC MIO, 2 Glass reinforced, 2 Pack Polysiloxane Site: N/A				
RECOMMENDED TOTAL: D.F.T: Internal root 300 microns External (to 250mm above ground level) 375 microns External (from 250mm above ground level) 175 microns				

Performance Paint System (Aluminium)**EPA COMPLIANT PAINT SPECIFICATION SHEET**

LIGHTING COLUMNS & BRACKETS				REQUIRED DURABILITY OF SYSTEM
PAINT SYSTEM TO BE APPLIED OVER ALUMINIUM				NO MAINTENANCE up to: 10 years MINOR MAINTENANCE from: 10 years MAJOR MAINTENANCE after: 20 years
DETAILS	First Coat	Second Coat	Third Coat	Fourth Coat
	External: Overall	External: From 250mm above ground	External: To 250mm above ground	External: Overall
	Internal: Root to 250mm above ground + rear of door		Internal: Root to 250mm above ground + rear of door	Internal: Rear of door
Registered Description (If Applicable)	2 Pack aluminium Epoxy	2 Pack Extended Cure Epoxy MIO	2 Pack Glass reinforced	2 Pack Polysiloxane finish
Item No. (If Applicable)	115	121	N/A	185
Colour	Aluminium	Approx 00A09	Black	Derbyshire Green (RAL6006)
Where applied	Shop	Shop	Shop	Shop
How Applied	Airless Spray	Airless Spray	Airless Spray	Airless Spray
Min Required D.F.T.	100 microns	100 microns	100 microns	75 microns
Required W.F.T	140 microns	145 microns	115 microns	80 microns
SHOP/SITE APPLICATION: Shop: 2 HB Aluminium Epoxy, 2 EC MIO, 2 Glass reinforced, 2 Pack Polysiloxane Site: N/A				
RECOMMENDED TOTAL: D.F.T: Internal root 200 microns External (to 250mm above ground level) 275 microns External (from 250mm above ground level) 275 microns				

Performance Paint System (Stainless Steel)**EPA COMPLIANT PAINT SPECIFICATION SHEET**

LIGHTING COLUMNS & BRACKETS				REQUIRED DURABILITY OF SYSTEM
PAINT SYSTEM TO BE APPLIED OVER – Stainless Steel which has been thoroughly abraded and painted within 4 hours				NO MAINTENANCE up to: 10 years MINOR MAINTENANCE from: 10 years MAJOR MAINTENANCE after: 20 years
DETAILS	First Coat	Second Coat	Third Coat	Fourth Coat
	External: Overall	External: From 250mm above ground	External: To 250mm above ground	External: Overall
	Internal: Root to 250mm above ground + rear of door		Internal: Root to 250mm above ground + rear of door	Internal: Rear of door
Registered Description (If Applicable)	2 Pack ZP Epoxy	2 Pack Extended Cure Epoxy MIO	2 Pack Glass reinforced	2 Pack Polysiloxane finish
Item No. (If Applicable)	111	121	N/A	185
Colour	Red Oxide	Approx 00A09	Black	Derbyshire Green (RAL6006)
Where applied	Shop	Shop	Shop	Shop
How Applied	Airless Spray	Airless Spray	Airless Spray	Airless Spray
Min Required D.F.T.	75 microns	100 microns	200 microns	75 microns
Required W.F.T	110 microns	145 microns	115 microns	80 microns
SHOP/SITE APPLICATION: Shop: 2 HS Red Oxide, 2 EC MIO, 2 Glass reinforced, 2 Pack Polysiloxane Site: N/A				
RECOMMENDED TOTAL: D.F.T: Internal root 275 microns External (to 250mm above ground level) 275 microns External (from 250mm above ground level) 250 microns				

TA05 - Contact Details, General Enquiries & Management Plan

Contact Details

The address to send any documents required under this specification or any queries relating to the content of this specification should be referred to:

ETC.StreetLighting@derbyshire.gov.uk

Street Lighting Engineer,

Economy, Transport and Environment,

County Hall, Matlock, Derbyshire, DE4 3AG

Telephone: 01629 533190

Or via the Authority's general enquiries e-mail referencing the subject e.g. 'street lighting':

contactcentre@derbyshire.gov.uk

Further guidance can be found on the Authority's website:

www.derbyshire.gov.uk

General Street Lighting Enquiries

Further guidance on general '[Street Lighting](#)' enquiries can be found on the Authority's website:

Including;

- New street lighting
- Reporting a street lighting fault
- Moving a street light
- Attachments to street lights
- LED street lighting
- Part night street lighting

Management Plan

Further policy guidance on the future management of street lighting can be obtained from the '[Highway Infrastructure Asset Management Plan for Street Lighting](#)' available on the Authority's website.

TA06 - Network Hierarchy Flow Chart

Network Hierarchy Group			Highway Class	Traffic Flow	Environmental Zone	Speed Class	Lighting Class		
NH7	Sections Assigned a Value of 4b and part of Cul-De-Sac		Subsidiary Road	Normal / Quiet	E3	≤40mph			P4
					E2	≤40mph			P5
NH6	Sections Assigned a Value of 4b and not a Cul-De-Sac				E1	≤40mph			P6
NH5	Sections Assigned a Value of 4a		Subsidiary Road	Busy	E3	>40mph	M4	C4	P2
NH4	Sections Assigned a Value of 2a, 3a or 3b					≤40mph	M5	C5	P3
					E2	>40mph	M5	C5	P3
					E1	≤40mph			P4
						>40mph			P4
						≤40mph			P5
NH3	AADT ≥3000 and <8000		Traffic Route	Very Low (<7000)	E3	>40mph	M3	C3	P1
						≤40mph	M4	C4	P2
					E2	>40mph	M4	C4	P2
						≤40mph	M5	C5	P3
					E1	>40mph	M5	C5	P3
						≤40mph			P4
NH2	AADT ≥6000 and <12000		Traffic Route	Low To Moderate (≥7000 ≤40k)	E3	>40mph	M2	C2	
						≤40mph	M3	C3	P1
					E2	>40mph	M3	C3	P1
NH1	AADT ≥ 9000				E1	≤40mph	M4	C4	P2
						>40mph	M4	C4	P2
						≤40mph	M5	C5	P3
Any	Mixed Vehicle and Pedestrian on Same Surface	Primary Shopping	Town Centre	Normal Traffic Flow	E4	≤40mph	M1	C1	
					E3	≤40mph	M2	C2	
Any	Mixed Vehicle and Pedestrian with Separate Footways	Primary or Secondary Shopping	Town Centre	Normal Traffic Flow	E4	≤40mph	M2	C2	
					E3	≤40mph	M3	C3	P1

Lighting Class	Column Height	Tender Lot / Option			Optic	Max Wattage	Lumens (Range)	CCT
P5	5m	Lot 1	Option 1	Residential roads, cul-de-sacs and footpath links	Road	15	900 - 2100	3000K
			Option 3		360°			
			Option 4		Flood			
	6m	Lot 2	Option 1		Road	15	1300 - 2600	
			Option 4		Flood			
P4	5m	Lot 1	Option 2		Link roads and distributor roads	Road	20	
	6m	Lot 2	Option 2	Flood		25	2300 - 3000	
			Option 5					
P3	8m	Lot 3	Option 3	Single carriageway main distributor roads	Road	38	3600 - 4600	4000K
			Option 1			50	4900 - 6000	
Option 2			65			6800 - 8800		
M4	10m	Lot 4	Option 1	95		8900 - 9600		
	8m	Lot 3	Option 3	85		9500 - 11900		
Option 2			120	11800 - 12900				
Lot 5		Option 1	80	8800 - 9800				
		Option 3	90	10900 - 12100				
M3	10m	Lot 5	Option 2	90		7900 - 10600		
	12m		Option 2	105		13700 - 15600		
M2	10m		Option 4					
	12m							
P1	6m	Lot 6	Option 1	6m columns with integral belisha beacon	LH	68	6000 - 7000	5700K

Access Road	Carriageway Width	Footpath Width	Highway Width	Column Height
Residential	4.8	2	8.8	5 / 6
Residential	5.5	2	9.5	6
Minor Industrial	6	2	10	6
Major Residential / Minor Industrial	6.75	2	10.75	8
Major Industrial	7.3	2	11.3	10

Environmental Zone			Area
E4	Urban - High district brightness	Town/city centres with high levels of night-time activity	Town Centre (Chesterfield, Glossop, Ilkeston, Long Eaton)
E3	Suburban - Medium district brightness	Well inhabited rural and urban settlements, small town centres of suburban locations	All Other Town Centres or Suburban Areas (Chesterfield, Glossop, Ilkeston, Long Eaton, Derby City Border)
E2	Rural - Low district brightness (SQM ~15 to 20)	Sparsely inhabited rural areas, village or relatively dark outer suburban locations	All Other Areas
E1	Natural - Dark (SQM 20 to 20.5)	Relatively uninhabited rural areas, National Parks, Areas of Outstanding Natural Beauty, IDA buffer zones etc.	Peak District National Park / World Heritage Site (Bakewell Town Centre - Primary & Secondary Shopping - C3)
E0	Protected - Dark (SQM 20.5+)	Astronomical Observable dark skies, UNESCO starlight reserves, IDA dark sky places	Peak District National Park 'dark sky sites'

TA07 - Skill & Care Certificate

We certify that reasonable professional skill and care have been used in the preparation of the public

lighting and electrical design of the scheme noted below.

Scheme title:.....

Location:.....

With a view to:

1. The design has been undertaken by competent designers as defined in BS5489-1, electrical installations defined as a Skilled Person in BS7671 and are measured against the Institution of Lighting Professionals (ILP) 'Competency for Lighting Professionals' framework document.
2. That reasonable professional skill and care were used to ensure that the street lighting & electrical design has been carried out in accordance with the Authority's requirements as detailed within:

Derbyshire County Council's 'Street Lighting Specification'
Derbyshire County Council's 'Highway Network Management Plan'
Derbyshire County Council's Highways Development Control process
BS5489-1, BS EN 13201 and appropriate Institution of Lighting Professionals guidance

3. It has been accurately translated into Contract Drawings, which have also been checked. The unique numbers of these drawings are:

.....
.....
.....

Name of Consultant ¹/ Contractor¹

Name: Signed:.....

(Design Team Leader¹, Partner¹ / Associates ¹/ Director ¹)

Engineering Qualification²

(Design Team Leader)

Notes 1 - Delete as appropriate

2 – AMILP EngTech / MILP IEng (or equivalent) and evidence record of competency

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TA08 - Highway Electrical Standard Details (HESD)

No.	Name
HESD01	Chambers and Underground Service Ducts
HESD02	Feeder Pillar Base and Chamber Connection
HESD03	Tubular Signpost
HESD04	Base Lit Traffic Bollard
HESD05	Base Hinged Tubular Steel Signpost with Retention Socket
HESD06	Refuge Island
HESD07	Pedestrian (Zebra) Crossing Beacon
HESD08	School Safety Zone Sign with Flashing Amber Warning Lights
HESD09	Tubular Columns
HESD10	Planting Details and Dimensions
HESD11	Positions of Columns, Brackets and Doors
HESD12	Warning Notices
HESD13	Foliage Clearances
HESD14	DNO / IDNO Isolation Arrangements
HESD15	Termination Layouts
HESD16	Armoured Cable Terminations
HESD17	SELV Supply and Termination Layouts
HESD18	Cable Identification and Electrical Labels
HESD19	Feeder Pillars
HESD20	Pillar Internals
HESD21	Electrical Enclosure for Attachments
HESD22	Column Reducers
HESD23	Earth Electrodes
HESD24	Passive Safe Mini System

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