10 Street Lighting and Illuminated Street Furniture

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General

10.1 In almost all cases the Gloucestershire County Council (GCC) will require the Developer to provide a system of street lighting for streets, footpaths and cycle tracks that are to be adopted as public highway. The street lighting proposals shall include a drawing that indicates the positions of lighting units, types and specification of columns, types and specification of lanterns, types of electricity supply, specification and location of any private cable networks required including electrical equipment.

10.2 All requests from Developers for street lighting design approvals, and inspections must be submitted in writing to the appropriate Highways Development Management Development Co-ordinator (HDM). The Street Lighting Team will not act on any requests that are submitted direct from Developers.

10.3 If a Parish Council has expressed a preference for not having Street Lighting within a new development, the developer must obtain and provide written evidence from the Parish Council confirming that preference. It is GCC's policy that a comprehensive design is still submitted for approval. (As per Technical Approval items 10.4 to 10.8 below)

Scheme Design

10.4 Where the Developer submits an electrical/street lighting proposal, this submission will be assessed and technically approved by GCC as part of the highway works technical approval process.

10.5 Due to the fast technical advances of LED technology, approved drawings shall expire 2 years from date of approval. This date will be indicated on the GCC's approved drawing.

Technical Approval

10.6 The Developer is to submit a copy of their street lighting / electrical design proposals in accordance with the Highways Agreement Submission Check List (see **Appendix C**). The drawing(s) must indicate the positions of all proposed lighting units, illuminated signs, illuminated bollards, private cable networks (if they are applicable), electrical feeder pillars and detail whether the electrical supplies will be provided by a Distribution Network Operator (DNO) or Independent Distribution Network Operator (IDNO). It must also have a key and specification showing the different types of equipment proposed. Where there is a necessity to have private cable networks the drawing must incorporate a schematic diagram for each circuit that indicates the electrical equipment (including fuse ratings), isolation points and cable types and sizes. See **Appendix J Drawing No. J/01** for an example.

10.7 The technical submission shall also include a set of design calculations showing proposed illumination levels. Where private cable networks are necessary a set of electrical design calculations in accordance with the current BS7671 Regulations (IEE) shall be submitted.

10.8 All submissions for approval shall be in PDF format, and sent to highwaylegalagreements@gloucestershire.gov.uk. Copies of the AutoCAD drawing (.dwg) and Lighting Reality file (.RTMA) shall also be submitted for the benefit of GCC records. Once accepted, the approved drawings and calculations will be stamped "Approved" and a copy of both documents will be returned to the Developer for their records.

10.9 The fee structure in **Appendix D** covers the costs of GCC to assess two submissions for technical approval; the initial submission and one subsequent re-submission. Where the Developer submits an amended electrical and/or street lighting design for a third time, an additional fee, to that of the original fee, will be charged for that submission (and each subsequent submission). Refer to **Appendix D** for additional submission fees. An hourly charge out rate will be applied (with a minimum of three hours charged). A quotation will be provided, which will need to be agreed in writing and paid by the Developer, prior to additional approval work being carried out.

10.10 Failure to seek approval for the electrical and/or street lighting design will prevent any part of the proposed highway works obtaining technical approval and could result in significant delays or the development not being adopted by GCC.

Standards of Service

10.11 Where a Developer has made a technical submission or requested a street lighting/electrical equipment inspection the following service standards will apply from the date the street lighting section receive notification from HDM:-

Response to a technical submission	**20 Working Days**

The fee structure in **Appendix D** covers the costs of GCC to undertake two technical submission. Any additional technical review will not commence until additional payment has been received in accordance with **Appendix D**. Failure to pay these fees will result in significant delays to carrying out the technical review.

Substantial Completion Inspection (each request)	**20 Working Days**
Completion Inspection (each request)	**20 Working Days**
Final Inspection (Prior to Adoption) (each request)	**20 Working Days**

The fee structure in **Appendix D** covers the costs of GCC to undertake two inspections per stage (Substantial Completion, Completion and Final). Any additional inspection will not commence until additional payment has been received in accordance with **Appendix D**. Failure to pay these fees will result in significant delays to the issuing of Certificates.

Siting of Equipment

10.12 All street lighting and associated cable networks and ancillary equipment shall only be installed within the area of development that it is proposed to dedicate as public highway. Equipment should be positioned so as not to cause any obstruction to highway users, for example, pedestrians, disabled and parked vehicles.

10.13 All street lighting columns are to be installed at the back of footpath, unless otherwise approved.

Equipment Types

10.14 It is important that the equipment used on any street lighting installation shall be certified with a CE Mark**,** and is of a type that is aesthetically most suited to the area, whist remaining optically and energy efficient and easily maintainable.

10.15 Where a Developer requests the use of ‘Heritage’ or ‘Contemporary’ style equipment in an area that is not designated as a ‘Conservation Area’, GCC will require a commuted sum to assist with future replacement and maintenance costs. The location of Conservation Area’s must be requested from the Local Planning Authority.

10.16 The Developer can obtain advice on the process and cost implications for ‘Commuted Sums’ from the ‘Association of Directors for Environment, Economy, Planning and Transport’ (ADEPT). ADEPT have published a guidance document on the subject, entitled ‘Commuted Sums for Maintaining Infrastructure Assets.’ (that is available through their website www.adeptnet.org.uk). A detailed breakdown of the calculated commuted sum shall be submitted by the Developer to HDM for approval by the street lighting section.

10.17 GCC has formed a ‘Carbon Trading Strategy.’ As part of this strategy GCC is committed to making a reduction in their carbon emissions. To facilitate this policy GCC has implemented a number of initiatives including the installation of LED light sources and dimming regimes.

10.18 Developers shall provide a LED light source for all new street lighting installations and any other illuminated street furniture it intends for GCC to adopt.

10.19 A Central Management System (CMS) is to be provided to all LED street lights and illuminated sign lights within Gloucestershire. Such systems will allow GCC to centrally manage, its street lighting asset. Such a system will enable GCC to receive fault reports remotely, manage lighting levels and monitor energy consumption. GCC currently has an infrastructure for its own CMS provision based on the Telensa system. This is the preferred system for use.

10.20 Developers shall provide a CMS base station for all new lighting installations unless stated or agreed by the street lighting section. GCC’s preferred CMS system is Telensa.

Design Requirements

10.21 All street lighting design proposals must comply with the current edition of BS5489-1 and the lighting classes detailed in **Appendix J Drawing No. J/02**. All design calculations on subsidiary roads utilising "SP Ratio's, only the manufacturers published SP ratio will be accepted. Furthermore proposals must take into consideration the recommendations and best working practices detailed in the various Technical Reports/Guidance published by the Institution of Lighting Professionals.

10.22 Where there are trees or other obstructions, GCC is likely to require the gaps between proposed street lighting columns to be reduced. Similarly the need to illuminate traffic calming measures is also likely to require gaps to be reduced and create the need for additional lighting units. Failure to show such significant features on the electrical /street lighting submission for technical approval may result in the need for expensive relocation of lighting units once they have been erected (at the expense of the Developer) prior to the issuing of a Substantial Completion Certificate.

10.23 Where a development is located 110m or less beyond the limits of an existing street lighting system, it may be necessary in the interests of highway safety, for the intervening section to be lit at the Developer's expense. Early consultation through HDM is essential.

10.24 Where a proposed development involves the construction of a new junction which merges with the existing public highway. A new street lighting design shall be undertaken for that entire junction/location to ensure the lighting levels comply with the current edition of BS5489-1. The need for these works will be identified in GCC's response to the initial submission for technical approval. The categories of lighting in **Appendix J Drawing No. J/02** will apply.

10.25 No existing street lighting equipment will be permitted for re-location or re-use without consent from GCC, through HDM.

10.26 Lighting areas of bat habitation are to be designed in conjunction with ILP Guidance Note 08/18 'Bats and artificial lighting in the UK'.

Construction of Street Lighting Works

10.27 The installation of new street lighting equipment must take into account the need to light phases within a development that are occupied or require access by residents. There should not be gaps in the lighting installations between phases of developments. GCC requires all streets on a new development, between a dwelling and the existing public highway, to have an approved and working street lighting scheme in place before that dwelling is first occupied.

10.28 The Developer shall be responsible for the implementation of all work required in the removal, replacement or re-siting of all existing electrical equipment made necessary by the development.

10.29 No existing street lighting shall be switched off, relocated, dismantled or removed without prior written approval by GCC through HDM. This approval shall normally only be granted if the Developer can provide evidence that arrangements have been made for either immediate installation and energising of new equipment or the immediate provision and energising of temporary lighting.

10.30 Prior to any permanent disconnections of the existing, or to the permanent installation of the new street lighting equipment. The Developer shall issue the relevant DNO Connection/disconnection sheets for approval by GCC Street lighting section.

10.31 Where temporary lighting is installed it must be approved by GCC and provide illumination to the standard that will be achieved by the permanent street lighting layout.

10.32 Temporary lighting shall not include the use of catenary cables crossing the carriageway and shall be positioned, such that it does not cause glare, distraction or discomfort to any highway users.

Liaison with Residents

10.33 The Developer shall show all proposed positions of lighting units and other illuminated equipment (signs, bollards etc) on all layout plans (including sales and legal/conveyancing literature.) This is in order that prospective residents are aware that there may be equipment placed adjacent to, or outside any given plot or property. GCC will not involve itself in any dispute between the Developer and prospective resident. GCC may however agree to an alternative position for a lighting unit, or other item of electrical equipment. This is only feasible where the Developer is prepared to bear the full cost of such requests. The Developer will be charged for approval and inspection fees in accordance with **Appendix D.**

Dimming

10.34 In order to meet our carbon footprint reduction requirements GCC has a policy to dim all street lights as follows:

a). Traffic Routes CMS System shall be installed that dims as follows:-

Dusk to 10pm – No Dimming
10pm to 5:30am – Dim to 50% of total light output.
5:30am to Dawn – No Dimming

b). In residential areas, CMS system shall be installed that dims as follows:-

Dusk to 12am – No Dimming
12am to 5:30am – Dim to 30% of total light output.
5:30am to Dawn – No Dimming

GCC are to be notified when all new street lighting units are installed and operational so that the assets can be added to the dimming programme.

LED Lantern Equipment for Street Lights and Illuminated Signs

10.35 All lanterns for street lighting shall be LED and approved by GCC and shall conform to BS4533, have an aluminium canopy, a minimum overall IP rating of IP66 and a CE Mark. They will accommodate post top (76mm) mounting or side entry (34 or 42mm).

10.36 The LED colour temperature for all new lanterns shall be 3000k.

10.37 GCC's current preference for lanterns in residential areas is the Urbis Schreder Ampera Mini/Midi range. GCC's current preference for lanterns on traffic routes is the Urbis Schreder Ampera Midi or the CU Phosco P861 range.

10.38 Where LED light sources are specified, they shall meet with the specification published by the ILP and the Electrical Association. This document is titled 'A Guide to the Specification of LED Lighting Products 2012'. As part of this specification, GCC will require that the LED meets the requirements of L80 of this document. The specification submitted must also include the B10 figure for the specific lantern being used (L80 – B10 is a measure of when 10% of the individual LED's in a product have dropped to 70% of initial lumens).

10.39 Lanterns shall be fitted with a Constant Light Output (CLO) and Dali enabled programmable dimming ballast. The control gear shall be mounted on a tray which shall be easily removable by a plug and socket arrangement for maintenance or replacement purposes. GCC's preference is the Philips Xitanium.

10.40 The standard street lighting lanterns shall come complete with 7 Pin NEMA Socket and a 5 Pin Telensa GPS Enabled CMS 20mm diameter telecell (product code T2E1N-G-3).

10.41 Any Decorative LED lanterns shall come complete with a Telensa Enabled CMS 20mm 2 Part with Twig antenna telecell.

10.42 Lanterns for illuminated signs shall comply with the requirements of the latest Traffic Signs Regulations and General Directions (TSRGD) and BS EN 12899 and shall be fixed to the supporting posts by means of a post top spigot. The lantern shall be complete with a Telensa node (Product Code T2E1T-G-1) mounted on the gear tray.

10.43 Lanterns for illuminated signs shall be of an LED type and comply with the requirements of the current **Traffic Sign Regulations and General Directions'.** The table below can be used as a guidance only…

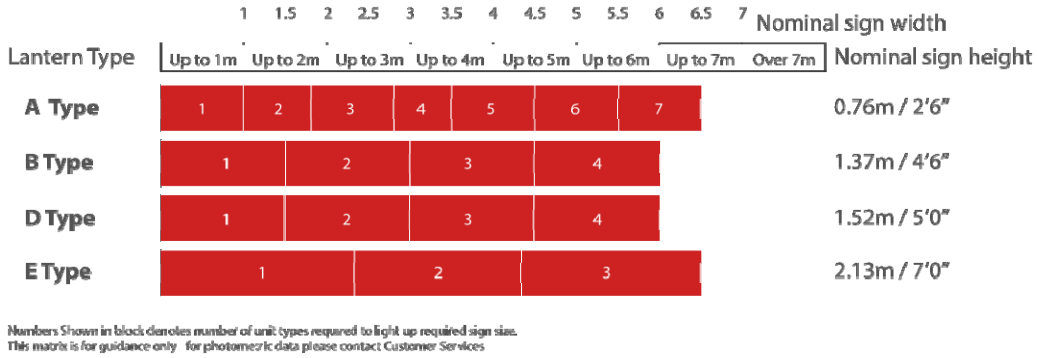


Table 10.1

Illuminated Traffic Bollards

10.44 Where required on central traffic islands, splitter islands, and build-outs etc. the Developer shall provide illuminated traffic bollards in accordance with the current **'Traffic Sign Regulations and General Directions' (TSRGD).**

10.45 All new illuminated Bollards units shall comply BS EN 12899-2:2007 and shall be base lit.

10.46 All new illuminated bollards to be installed, shall consist of the following or similar approved product: (See **Appendix J Drawing No. J/03**).

i) Bollard Base - Simmonsigns Global Plus base unit

ii) Bollard LED Gear Tray - Glasdon LED gear tray complete with an infra red PECU connected by a single lead with an industry standard plug and socket disconnect arrangement.

iii) Bollard Shell - Simmonsigns Simbol Flexi Bollard Shell with the designated traffic sign face or blank sign face as detailed in the signs schedule.

10.47 The Developer shall use orange cable ducts and XLPE SWA PVC Armoured cables to service illuminated Bollards and shall be wired to current British Standard BS7671 Regulations (IEE) and have separately fused circuits.

10.48 All bollard shells shall be attached to the base using stainless steel nuts and bolts.

Non-illuminated Traffic Bollards

10.49 Also in accordance with the current TSRDG, in certain circumstances and with the approval of GCC it may be acceptable for the Developer to specify 'Reflective' non-illuminated bollards instead of Illuminated bollards.

If the Developer decides to choose this option, they shall provide HDM with Risk Assessments for each individual Asset with the Technical Approval Submission for approval before any non-illuminated bollards are installed. Failure to comply with the above will mean illuminated bollards will be installed.

10.50 Where approval has been granted by GCC for a non illuminated reflective bollard to be specified, GCC currently prefer the 'SignPost Solutions SPS 3Sixty' type complete with side and rear reflective panels and installed with a 'NAL RS50x50 Retention Socket and adapter plate (**See Appendix J Drawing No. J/04**).

10.51 With exception of the above, conventional illuminated bollards are to be specified and the Developer shall use a base lit illuminated type bollard with the Glasdon LED gear tray complete with an infra-red PECU mounted on a removable gear tray, as stated above.

Zebra Crossing Equipment

10.52 All Zebra crossings shall have local lighting to provide "Positive Contrast" to make any pedestrians waiting to use or who are actually using the crossing more visible during the hours of darkness. The lighting levels on Zebra Crossing shall be in accordance with current ILP Document Technical Report 12 (TR12). See **Appendix J Drawing No. J/05** for detail drawing arrangements.

10.53 The Zebra Crossing lanterns used to illuminate crossing and waiting area, would preferable be the Urbis Schreder Ampera Zebra Crossing lanterns. For Residential areas the lantern shall be 5144 24 LED 500mA (LHS), and for Traffic routes the lantern shall be the 5144 32LED 700mA (LHS).

The lanterns shall be dimmed if necessary to closely match the horizontal and vertical lighting levels required to comply with the ILP "TR12" document.

10.54 Lanterns shall be fitted with a Constant Light Output(CLO) and Dali enabled programmable dimming ballast. The control gear shall be mounted on a tray which shall be easily removable by a plug and socket arrangement for maintenance or replacement purposes. GCC's preference is the Philips Xitanium.

10.55 Lanterns shall come complete with 7 Pin NEMA Socket and a 5 Pin Telensa GPS Enabled CMS 20mm diameter telecell.

10.56 The Zebra crossing beacons shall be Simmonsigns Modustar or Midustar, complete with 350mm full shroud and synchronised to flash in unison. See **Appendix J Drawing No. J/06** for detail arrangements**.**

Guardian Angels

10.57 Where required on central traffic islands, splitter islands, and build-outs etc. the Developer shall provide Guardian Angel units in accordance with the current 'Traffic Sign Regulations and General Directions'(TSRGD).

10.58 The preferred Frosted White beacon shall be the Simmonsigns Centrenol LED unit. Standard size required for 76mm Shaft.

10.59 It shall be mounted on 5 or 6m mid hinged columns, installed in a NAL Retention Socket. The poles are to painted as stated in the current TSRGD. See **Appendix J Drawing No. J/07.**

Solar Equipment

10.60 The use of any Solar Powered Equipment shall only be used following approval from GCC's Street Lighting Manager and will only be considered where the cost of a DNO/IDNO Service is prohibitive.

Internal Wiring/ Conductor Requirements for Street lights/Illuminated Signs

10.61 All cables between the DNO/IDNO isolation point and the double pole isolator shall be installed in accordance with the current BS7671 Regulations. Cables shall be a minimum of 6mm single core copper, PVC/PVC double insulated grey sheathed 660/1000V, rating to BS6004 (Cable Type 6491X). Exceptions to this shall be for the earth continuity conductor that shall be PVC insulated only (Cable Type 6181Y). See **Appendix J Drawing No. J/08** for general detail arrangements.

10.62 Cables from the Isolator to lantern shall be 3 core circular flex H05VV-F temperature range -15deg C to +70degC

10.63 Minimum conductor sizes provided shall be as follows:-

Earth Continuity Conductor – 2.5mm Sq.

Main Earth Conductor – 6.0mm Sq. (or larger if specified by DNO).

All other conductors within assembly – 1.5 mm (up to 6m) and 2.5 mm Sq (for 6m and above).

10.64 Insulation for conductors shall be colour coded as follows:-

Live – Brown

Neutral – Blue

Earth – Yellow and Green

10.65 The Developer is not permitted to joint any of these conductors/cables and a surplus of 1.0m of cable must be taped in an 'S' formation in the base compartment.

Control Gear

10.66 For all LED lanterns a Constant Light Output (CLO) and Dali compatible ballast/driver that enables programmable dimming shall be required unless otherwise agreed by GCC. The control gear shall be mounted on a tray which shall be easily removable by a plug and socket arrangement for maintenance or replacement purposes. GCC preference is the Philips Xitanium.

Switching On / Off

10.67 Street lighting lanterns shall be complete with a 7-pin NEMA Socket and a 5 Pin Telensa GPS CMS node (product code T2E1N-G-3).

10.68 Sign Lanterns unless otherwise agreed, shall come complete with a '2 part grey dimming Telensa GPS telecell (if available)' (Product Code T2E1T-G-1) complete with '868Mhz & 915Mhz easy fit flat antenna' (Order code ANT-S-EF-M).

10.69 Illuminated Bollards shall have a Glasdon LED gear trays complete with an infra-red PECU connected by a single lead with an industry standard plug and socket disconnect arrangement.

Street Lighting Columns and Illuminated Sign Posts

10.70 All street lighting columns will consist of a column, hydroscopic back board and where applicable an integrated 'Reducer Post Top Spigot.' All columns shall be post top and brackets will not be permitted.

10.71 All street lighting columns and sign poles shall be constructed to meet GCC's structural design criteria listed below.

10.72 All street lighting columns and Illuminated sign posts are to be hot dipped galvanised to BS EN ISO 1461.

Post Top Column Height (m)	Shaft Dia. (mm)	Base Steel Thickness (mm)	Shaft Steel Thickness (mm)	Max Lantern Weight (kg)	Max. Lantern Windage	Max. Sign Area (m^2)	Offset (mm)	Max. Mounting height of sign (m)	Grade of Steel Base (N/mm^2)	Grade of Steel Shaft (N/mm^2)
3.5 (Sign)	76	3	2.5	10	0.15	0.5	300	2.5	275	275
5	76	3	2.5	10	0.15	0.5	300	2.5	275	275
5m (R&L)	76	3	2.5	10	0.15	0.5	300	Not Permitted	275	275
6	76	3	2.5	10	0.15	0.5	300	2.5	275	275
8	90	3.6	3.2	15	0.175	1.0	300	2.5	355	355
10	114	5	3.6	18	0.225	1.0	300	2.5	355	275
12	114	5	3.6	18	0.225	1.0	300	2.5	275	275

Table 10.2

10.73 All items supplied must be manufactured to the quality standard ISO 9001. Also in each column/signpost, there shall be a unique identification label which can be referenced to the data sheet provided for each unit. This label shall be clearly visible after any equipment is installed in the Base Compartment. The data sheets shall be issued at the "Technical Review" stage**.** See **Appendix J Drawing No. J/09** for sample document.

10.74 A Guaranteed Design Life Expectancy of 50 years' Certificate shall be required for each street lighting column and illuminated sign post, prior to issue of a Final Certificate. All equipment shall carry a unique identification label that is clearly visible once the column or sign post has been installed. This will indicate as follows:-

- The name of the column/post manufacturer,
- The year of production.
- The column /post data sheet reference number.

10.75 This Certificate must be provided to Highways Development Management prior to the Final Certificate being issued.

10.76 Column/post base compartments are to have a line of weld applied externally before galvanising to indicate the planting depth. This weld shall be located in line with the column door.

10.77 Where a Developer wishes to attach a traffic sign onto a Street Lighting Column, they should be in accordance with the table above.

10.78 Where there are 2no. back to back signs on a column, the second sign may be ignored for the purposes of determining the total signage area. Where signs exceed 1.0m², they will be refused approval unless a reinforced column is provided accompanied with design calculations that indicate that the proposed column is suitable for the proposed signage area.

10.79 All column and sign post doors shall be fitted with a stainless steel 8mm Allen bolt with an Anti-Vandal Centre Pin. Any variations must be agreed with GCC.

Raise and Lower Street Lighting Columns

10.80 Raise and Lower columns shall be provided by the Developer in all locations where maintenance vehicular access is limited, for example, footpaths, cycle paths, canal tow paths or where the presence of an appropriate maintenance vehicle (MEWP) may impede the free flow of traffic. Guardian Angels may fall into this latter category. GCC's preferred column manufacturer is 'Mallatite'. The model to be specified incorporates a separate wrap around door (flush wrap around and hinge doors are not accepted), so that electrical equipment housed within the column can be accessed for maintenance purposes, without the requirement to lower the column.

10.81 All such columns shall be installed in accordance with **Appendix J Drawing No. J/10** and any additional instructions or requirements that may be published by the manufacturer.

Passively Safe Street Lighting Columns and Sign Posts

10.82 On highway of 40mph or above, It may be necessary for the Developer to consider installing 'Passive Safe' street lighting columns or sign posts. A copy of the Risk Assessment and the column/post specification (NE/LE/HE type) must be submitted for Technical Approval to HDM.

10.83 All such columns or sign posts shall comply with latest BS EN 12767 and shall be approved by GCC as part of the technical approval process.

10.84 Where such columns or sign posts are appropriate the Developer shall incorporate as part of their design solution a suitable 'Automatic Electrical Disconnection System. GCC will not approve any system that incorporates Ground Level Chambers.

10.85 All 'Passive Safety' columns /posts shall be manufactured from an energy absorbent material and when installed shall allow slower vehicular impact deceleration and reduced risk of injury.

10.86 Foundations for all passive safe units shall strictly adhere to the manufacturer's installation statement and form part of the Technical Submission.

Installation of Electrical Equipment

10.87 The Developer shall install all electrical equipment in the locations shown on the approved drawings. Where there are engineering difficulties or customer requests that designed location is not desirable, then the Developer must seek the agreement of GCC on an alternative location.

All costs associated with these alterations shall be payable by the Developer. Should the Developer propose an alternative location, this shall be formally submitted to Highways Development Management. An estimate of the additional Council costs to assess, approve and inspect such alterations will be issued to the Developer by Highways Development Management in advance of any costs being incurred by GCC. Written agreement will be required from the Developer that they will pay all associated costs for this request, before approval is given and any construction work is undertaken.

10.88 All street lighting columns shall be planted to depths detailed in **Appendix J Drawing No**. **J/11.** or as required by the manufacturer.

10.89 All illuminated sign posts shall be planted to depths detailed in **Appendix J Drawing No. J/12.** or as required by the manufacturer.

10.90 All street lighting columns and illuminated sign foundation excavations shall have Type 1 or Type 2 foundations or a NAL Retention Socket as detailed in **Appendix J Drawing No. J/10**. or as required by the manufacturer.

10.91 All Passively Safe equipment is to be installed as stated by the manufacturer.

10.92 Where street lighting columns / illuminated sign posts are located in a grass verge or unmade ground they shall have a concrete collar as detailed in **Appendix J Drawing No. J/10.**

Street Lighting and Illuminated Sign Post – Paint System

10.93 After galvanising all lighting columns and illuminated sign posts are to have the paint protection system applied internally and externally at the place of manufacture. GCC's column protection preference is Dacrylate 2 Pack applied in factory, as per table below.

Paint System to be Applied over: **GALVANISE TO BS EN ISO 1461**

	1st Coat	**2nd Coat**	**3rd Coat**	**4th Coat**
Details	Internal & External to 250mm Above Ground	Internal to 250mm Above Ground & External Overall	Internal & External to 250mm Above Ground.	External Upper Section to Ground Level & Overlapping 3rd. Coat down to C/Slot
Paint Spec	**T WASH** 150-23	**PRIMER** 90-268 (Item 115) Dacrylate Epidac 2Pk Epoxy High Build Aluminium	**ROOT TREATMENT** 79-489 Dacrylate Epidac 2 Pk Epoxy Black Glass Reinforcement	**EXTERNAL FINISH** 200 – Line Dacrylate Dac – Sil 200 POLYSILOXANE FINISH Colour depends on location (Refer to 10.96)

Table 10.3

10.94 Where a Developer is required to re-paint existing street lighting columns and/or Illuminated signs poles then the following procedure shall apply:-

a). Before any new paint systems are applied all columns/posts shall have their surfaces prepared and treated in accordance with BS EN 12944;

b). Prior to re- painting all surfaces, including the inner door surface and door abutment of the base compartment shall be prepared by wire brushed using a mechanical/power wire brushing tool and a hard steel scraper. The wire brushing must remove:-

i) Obvious surface contamination – dirt, grease etc

ii) All loose rust

iii) Mechanically bonded rust

iv) Laminated rust corrosion

10.95 Where a column/post is to be re-painted and following the surface preparation procedure described above, the Developer shall apply a paint system as detailed in this document.

10.96 Unless otherwise agreed at the time of technical approval, or written permission has been granted by the Street Lighting Team the following paint colours will be applied:-

a). Street Lighting Columns **(All areas with the exception of Cheltenham and Gloucester)** – BS4800 12B29 (Dark Green);

b). Street Lighting Columns **(Gloucester)** – BS4800 12B21 (Light Green)**;**

c). Street Lighting Columns **(Cheltenham)** – Column Shaft BS4800 12.B21 (Light Green), Column Base BS4800 12.B29 (Dark Green);

d). Illuminated Sign Posts **(All areas)** – BS381C 693 (Aircraft Grey)

Reference Numbers for Street Lighting Columns, Illuminated Signs and Bollards

10.97 All street lighting columns, illuminated signs and bollards shall be given a unique reference number by GCC as part of the process.

As part of the Completion inspection request, the developer will provide the road names on the street lighting as built drawing. It is the responsibility of the Developer to number the street furniture in accordance with this numbering scheme.

10.98 Where this information has not been provided at the time of technical approval process, the Developer shall submit a request for a numbering schedule to GCC through Highways Development Management prior to a Completion Certificate being issued. The developer shall provide a final Road Name layout complete with as built street lighting drawing.

10.99 Street Lighting columns shall have an adhesive reference number applied, using a black 50mm height number/s on a yellow colour square background. A suitable product type is ‘Nikalite’ that is manufactured by Graficom Ltd (Tel: 01707 391621). Equivalent products can be specified by the Developer and will be subject to approval by GCC as part of the technical approval process.

10.100 Illuminated sign posts shall have an adhesive reference number applied, using a series of individual yellow 30mm height numbers on a black square back ground. This shall be applied on the sign plate in a vertical plane and will start at the top of the sign plate. Where several illuminated signs are mounted on one post only one identification number shall be used. A suitable product type is ‘Nikalite’ that is manufactured by Graficom Ltd (Tel: 01707 391621). Equivalent products can be specified by the Developer and will be subject to approval by GCC as part of the technical approval process.

10.101 Illuminated bollard shells shall have an adhesive reference number applied, using a series of individual black 30mm height numbers on a white square background. This will be mounted on a galvanised numbering plate (See **Appendix J Drawing No. J/13**).

10.102 Street lighting column reference numbers shall be mounted on the column shaft, at 1.5 metres from ground level.

10.103 Illuminated Sign reference numbers shall be mounted on the post shaft, at 1.5 metres from ground level.

10.104 Illuminated bollard reference numbers will be mounted on the back and close to the top of the bollard shell. The exception to this shall be where the bollard has multiple aspects, when the reference number shall be immediately below the yellow panel on any face.

Cut Outs and Isolators

10.105 All street lighting columns and Illuminated signs shall incorporate fused double pole isolation and comply with the current BS7671 Regulations and be suitable for BS88 fuses. This isolation shall take the form of a switch (securable on/off) with an integral separate BS88 fuse carrier for the lantern and any outgoing circuits. It is to have a lockable cover. GCC's preference is Lucy Trojan Mini THM0014962 complete with minimum 6mm sq. brown and blue tails, plus 6mm sq. earth lead.

10.106 All conventional illuminated bollards shall incorporate fused double pole isolation and comply with current BS7671 Regulations and be suitable for BS88 fuses. This is to be provided using a miniature cut out incorporating a lockable/removable blade type fuse carrier.

10.107 All fused double pole isolators and/or cut outs shall be suitable for terminating the specified cables via gland terminations and shrouds, with base connection boxes if required.

10.108 All fused double pole isolators and/or cut outs shall be suitable for use with a PME electrical system.

10.109 On Local Authority Network (LAN) cables, a fused double pole combined cut out/isolator shall be installed and shall be suitable for terminating the specified cables via gland terminations and shrouds, within a base connection boxes if required.

Fuse Ratings

10.110 All street lighting equipment shall be in accordance with the table below:

Lamp Wattage	Fuse Rating (Amps)
Up to 70W (inclusive)	6
Over 70W (inclusive)	10

Table 10.4

10.111 Where the wattage exceeds 400 Watts, the Developer shall contact GCC through the Development Management Team for advice.

Electricity Supplies

10.112 All street lighting columns, illuminated signs and electrical pillars that are located in a footway and/or grass verge adjacent to the carriageway and/or footpath/cycleway shall have a Distribution Network Operator (DNO) or IDNO live electricity supply. **See Appendix J Drawing No. J/13** for general arrangement details. There are three different DNO's that operate within Gloucestershire (See **Appendix J Drawing No. J/14**).

10.113 The Developer is permitted to employ a private organisation to provide an independent distribution network. These are known as 'Independent Distribution Network Operators' (IDNO)and they will provide networks that will predominately be network extensions to the existing distribution networks. IDNO's shall be appropriately licensed and regulated by 'Ofgem' in the same manner that DNO's are.

10.114 GCC has a Street Lighting Service Level Agreement (SLA) document that all IDNO's who wish to install their network within GCC must sign and agree to the Terms and Conditions. A copy of the document can be found in Appendix **J/15.**

10.115 Where the Developer nominates the use of an IDNO, that IDNO will be required to sign the GCC street lighting SLA, which includes Standards of Service for the implementation of new services and future faults that may occur on the network. The SLA is based on and comparable with the main Distribution Network Operators (DNO) SLA that operates within the County and have historically been used for the majority of new connections.

The Developer will be responsible for notifying Development Management of the IDNO to be used as part of that Street Lighting Technical Approval Submission, if the IDNO has not signed the SLA, Technical Approval will be withheld.

10.116 All DNO/IDNO's are subjected to National Guaranteed standards of services for non-metered electricity supplies. These are detailed in document current 'DPCR5 Guaranteed Standards of Performance review' produced by their regulating body 'Ofgem' and is available on their website ofgem.co.uk.

10.117 It is the Developer's responsibility to undertake all liaison and negotiation with the relevant DNO/IDNO.

10.118 Where an item of electrical equipment is located within a build-out, splitter island, pedestrian refuge or central reservation, the Developer shall provide an electrical service that is sub fused in accordance with the current BS 7671 Regulations (IEE), from an adjacent item of electrical equipment that is located in a footpath/verge that shall have a DNO/IDNO service. These services are known as Local Authority Network (LAN) and will be under the ownership of GCC on successful completion of the 'Adoption' process. The Developer shall provide details of all such electrical services in their electrical/street lighting design, which is submitted to Highways Development Management as part of the technical approval process.

Network Cables and Service Ducting Requirements

10.119 Where an item of electrical equipment has a DNO/IDNO electrical service, the DNO/IDNO will be responsible for determining the specification (as part of their design) for all network cables, including their position and size.

10.120 All IDNO's must clearly label their Cut Out, so an IDNO supply is instantly recognised.

10.121 Where an item of electrical equipment has a DNO/IDNO electrical service, the DNO/IDNO must provide a specification (as part of their design) for all necessary service ducting. It is the Developers responsibility to obtain a copy of the ducting drawing.

10.122 Due to construction timescales, it may be appropriate for the Developer to install any DNO/IDNO service ducts (black) that are required. In these circumstances it shall be the responsibility of the Developer to obtain the relevant DNO's approval for the completed works prior to the base course being laid.

10.123 Where an item of electrical equipment requires a Local Authority Network (LAN), the cable shall be of a (PVC/XLPE/SWA/PVC) 3 core type, having a minimum size of 6sq mm. All cable sizes and positions shall be determined by the Developer (accompanied by design calculations) and submitted to Highways Development Management for approval, as part of the technical approval process.

10.124 Where the Developer provides a cabling network for electrical equipment that shall be owned by GCC (LAN), underground **cable joints shall not** be permitted.

10.125 Where an item of electrical equipment requires a LAN, then prior to issue of the Part 1 Certificate, the Developer shall provide Highways Development Management with details of the installation date and an electrical test certificate, in respect of each item of equipment.

10.126 Where an item of electrical equipment requires a LAN, the service shall be protected within an orange coloured continuous service duct. Installation requirements are detailed in **Appendix J Drawing No. J/17.** All service duct details including size and location shall be submitted to Highways Development Management, as part of the technical approval process.

10.127 All service duct systems shall include for manufacturer couplings/joints, draw ropes/cords fastened at each end to the base compartment of the electrical equipment. All service duct ends shall be sealed to prevent loose material or water entering the service duct.

10.128 All service ducts provided for LAN and shall have a marker tape to specify their ownership. This shall be yellow PVC tape with black lettering stating 'Electricity Cable' and shall be installed with the wording uppermost at approximately 250mm above the service duct. See **Appendix J Drawing J/18.**

10.129 All service ducts provided by the Developer, for LAN, shall have a 75mm sand surround and bed comprising lightly compacted material passing clear sharp sand BS sieve. See **Appendix J Drawing J/18.**

10.130 All service ducts for DNO/IDNO/Highway Authority use shall extend through the cable entry slot provided within the street lighting column or wide base illuminated sign post and shall extend to a height of 150mm above ground level **(See Appendix J Drawing No. J/17).**

10.131 Although the DNO/IDNO and/or GCC shall be responsible for determining/approving the specification and installation details for their respective service duct networks. All ducting shall at least be compliant with the current National Joint Utilities Group (NJUG) document, unless otherwise specified the following type and minimum cover of service ducts shall be provided:-

Excavation In	**Depth of cover (mm)**	**Type and size of duct**
Verge/unmade Ground	450	50mm internal diameter (Twin walled flexible Duct)
Footway under Vehicle crossings	450	50mm internal diameter (Twin walled flexible Duct)
Carriageway (longitudinal)	750	100mm internal diameter (Flexible Duct)
Carriageway (90 degree crossings)	900	100mm internal diameter (Rigid Duct)

Table 10.5

10.132 Highways Development Management reserve the right to inspect all service duct networks that are installed for their equipment and that will be within GCC's ownership following successful completion of the 'Adoption 'process. Therefore on completion of any service duct network and before they are covered, the Developer shall provide Highways Development Management with the opportunity to inspect all such installations. The Developer will provide notification that the installation is complete and will allow a minimum of two working days notice, so that Highways Development Management Team may undertake an inspection if required.

Inspection of Electrical Equipment (Substantial Completion Inspection)

10.133 Prior to the issue of the Substantial Completion Certificate, the Developer will submit a formal written request to Highways Development Management for an inspection of all the electrical and lighting equipment. This inspection will ensure that:-

a). all lighting units, illuminated signs, illuminated bollards and electrical feeder pillars have been installed in the correct positions according to the approved drawing;

b). all lighting units, illuminated signs, illuminated bollards and electrical feeder pillars have been installed to the correct specification including equipment planting depth;

c). the correct type of ducting and electrical services have been installed; and

d). the street lighting, signs and bollards are fully operational as intended.

A minimum notice period of 20 working days will be required, to enable Highways Development Management to arrange these inspections.

10.134 Should the inspection take place more than 6 years after the electrical equipment was installed, the Developer shall have the installation re tested as required by the current IEE regs and issue HDM with valid Electrical Test Certificates.

10.135 Should it be necessary to undertake more than two inspections before the issuing of the Substantial Completion Certificate, due to their being remedial works required, there will be an additional inspection fee payable by the Developer in accordance with **Appendix D**.

Certificate	Inspections Included in **Appendix D fees**
Substantial Completion	Day / Night Inspection (2no. each)

Table 10.6

Inspection of Electrical Equipment (Completion Inspection)

10.136 Prior to the issue of the Completion Certificate, the Developer will submit a formal written request to Highways Development Management for a further inspection of all the electrical and lighting equipment. This inspection will ensure that all lighting units, illuminated signs and illuminated bollards are in good working order and suitable to go on to maintenance.

A minimum notice period of 20 working days will be required, to enable Highways Development Management to arrange these inspections.

10.137 Should it be necessary to undertake more than two inspections before the issuing of the Completion Certificate, due to their being remedial works required, then their will be an additional inspection fee payable by the Developer in accordance with **Appendix D**.

Certificate	Inspections Included in **Appendix D fees**
Completion	Day / Night Inspection (2no. each)

Table 10.7

Adoption of Equipment & Final Certificate

10.138 Every item of electrical equipment and underground cable, upon request a Final Certificate shall be tested to verify that the requirements of current BS 7671 (IEE Wiring Regulations) have been met. The test results shall be submitted to Highways Development Management at the time of requesting a Final Certificate, for the works. Should the inspection take place more than 6 years after the electrical equipment was installed, the Developer shall have the installation re tested as required by the current IEE regulations and issue HDM with valid Electrical Test Certificates.
Upon completion of the installation and prior to adoption, 'as built' drawings shall be forwarded to Highways Development Management showing the roads to be adopted with their official "Road Names", the positions and specification of all electrical equipment, such as isolation points, fuse sizes, cable routes, sizes and positions of service cables and the lighting class associated with each road. See **Appendix J Drawing No. J/18** for an example electrical certificate.

10.139 Prior to issue of the Final Certificate, the Developer will ensure that all street lighting units, illuminated signs and illuminated bollards are to be 'Cleaned.' Written evidence is to be provided by the Developer to Highways Development Management prior to issue of the Final Certificate.

10.140 The following certificates will be required prior to the issue of a Final Certificate:

- A 50 year column/sign pole Design Life Expectancy Certificate, which will show that the column has more than 50% of its residual life remaining. If the column has less than 50%, then it will have to be replaced at the Developers expense.
- An Electrical Test Certificate that is valid for at least 2 years after adoption
- Lanterns to have a minimum of 9 years residual life remaining after adoption. If the residual life is less then the unit will have to be replaced at the Developers expense.
- Sign Lanterns to have a minimum of 3 years residual life remaining after adoption. If the residual life is less, then the unit will have to be replaced at the Developers expense.

10.141 All maintenance and energy costs will be the responsibility of the Developer until the Final Certificate has been issued.

10.142 Following issue of the 'Final Certificate', GCC will assume ownership of all electrical street furniture within the public highway boundary and therefore all future maintenance and energy costs.

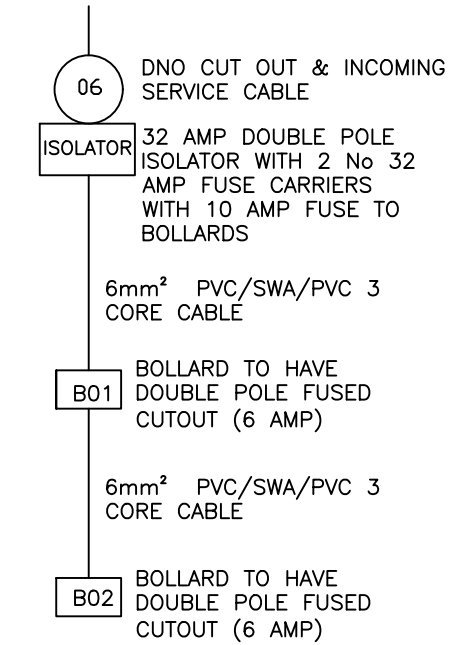
Equipment Warranty

10.143 Any electrical equipment that has a warranty period remaining, at the time of adoption is the Developers responsibility to have that remaining warranty transferred to GCC.

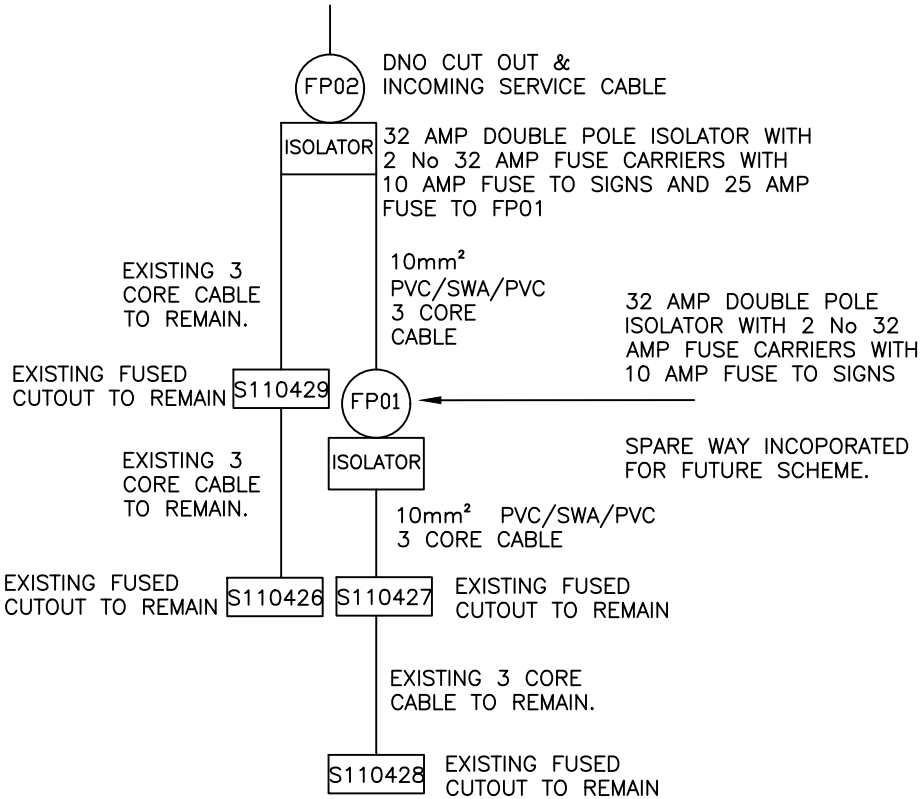
10.144 The Developer shall provide GCC with written confirmation, including a manufacturer's certificate, for all equipment that is subject to an extended warranty, which details the original warranty period and the amount of warranty remaining, at the time of requesting the 'Final' inspection.

EXAMPLES OF SCHEMATIC DIAGRAMS
FOR ELECTRICAL WORKS

SCHEMATIC DIAGRAM 1



SCHEMATIC DIAGRAM 2



Notes:

Gloucestershire COUNTY COUNCIL

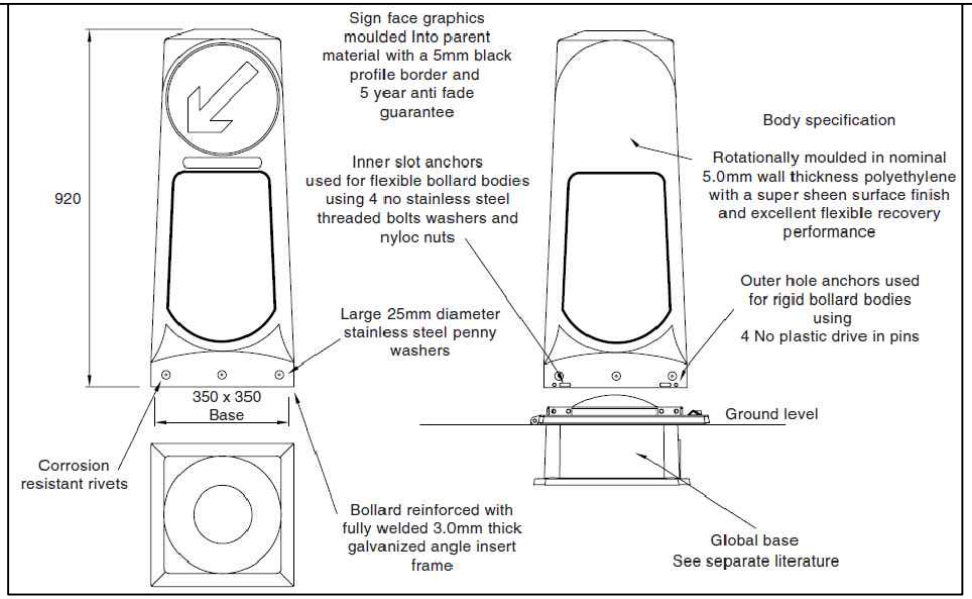
Drawing:
STANDARD DETAIL
SCHEMATIC DIAGRAM

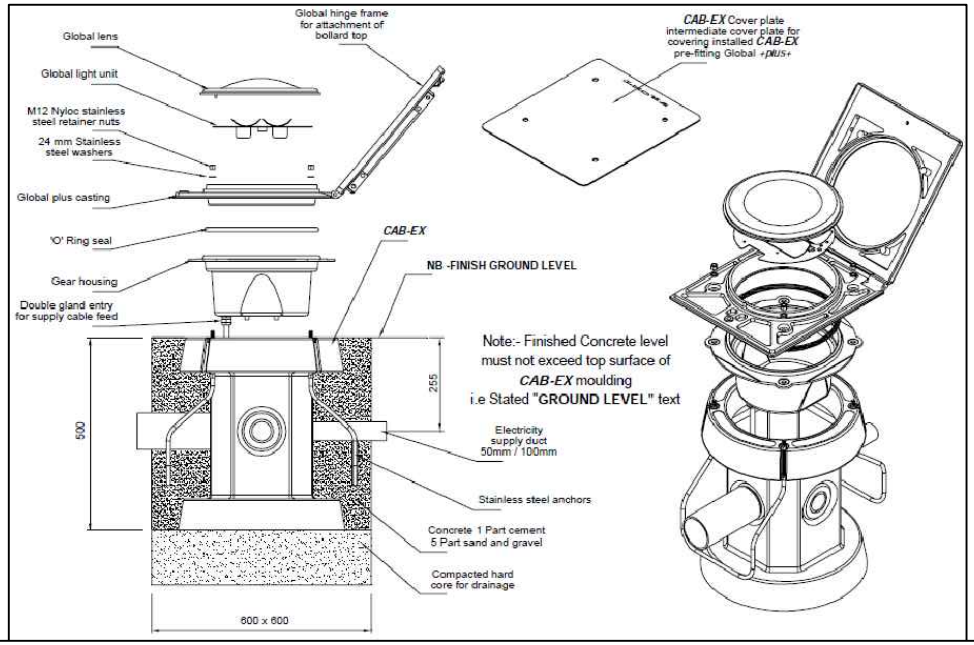
Drg. No.
J/01

Street Lighting Design Criteria - Required Lighting Classes (J/02)

Road Category	Lighting Class		Required Maintenance Factor	Required Colour Temperature
Traffic Route Single Carriageway (less than or equal to 40mph)	ADT > 40,000	M3	0.86	3,000k
	ADT 7,000 - 40,000	M4		
	ADT < 7,000	M5		
Traffic Route Single Carriageway (greater than 40mph)	ADT > 40,000	M2	0.86	3,000k
	ADT 7,000 - 40,000	M3		
	ADT < 7,000	M4		
Traffic Route Dual Carriageway (Less than or equal to 40mph)	ADT > 40,000	M3	0.86	3,000k
	ADT 7,000 - 40,000	M4		
	ADT < 7,000	M5		
Traffic Route Dual Carriageway (greater than 40mph)	ADT > 40,000	M2	0.86	3,000k
	ADT 7,000 - 40,000	M3		
	ADT < 7,000	M4		
Subsidiary Roads Busy	P4		0.75	3,000k
Subsidiary Roads Quiet	P5		0.75	3,000k
Outdoor Car Park for local shops & residential areas	E		0.75	3,000k
	5	0.25		
Outdoor Car Park for department stores, office buildings & sports complexes	E	U°	0.75	3,000K
	10	0.25		
Outdoor Car Park for schools, churches, major shopping centres & sports complexes	E	U°	0.75	3,000K
	20	0.25		
Conflict Areas where traffic route class is:	M2	C1	0.75	3,000K
	M3	C2	0.75	3,000K
	M4	C3	0.75	3,000K
	M5	C4	0.75	3,000K
Cycle Tracks	Busy	P4	0.75	3,000K
	Normal	P5		
Footpaths	Busy	P4	0.75	3,000K
	Normal	P5		
Town Centres Pedestrian Only	P1		0.75	3,000K
Town Centres Mixed Vehicle & Pedestrian (separate footway)	C2		0.75	3,000K
Town Centres Mixed Vehicle & Pedestrian (shared space)	C1		0.75	3,000K

Note: Manufacturer's S/P Ratio must be matched, and referenced within Design Calculations.





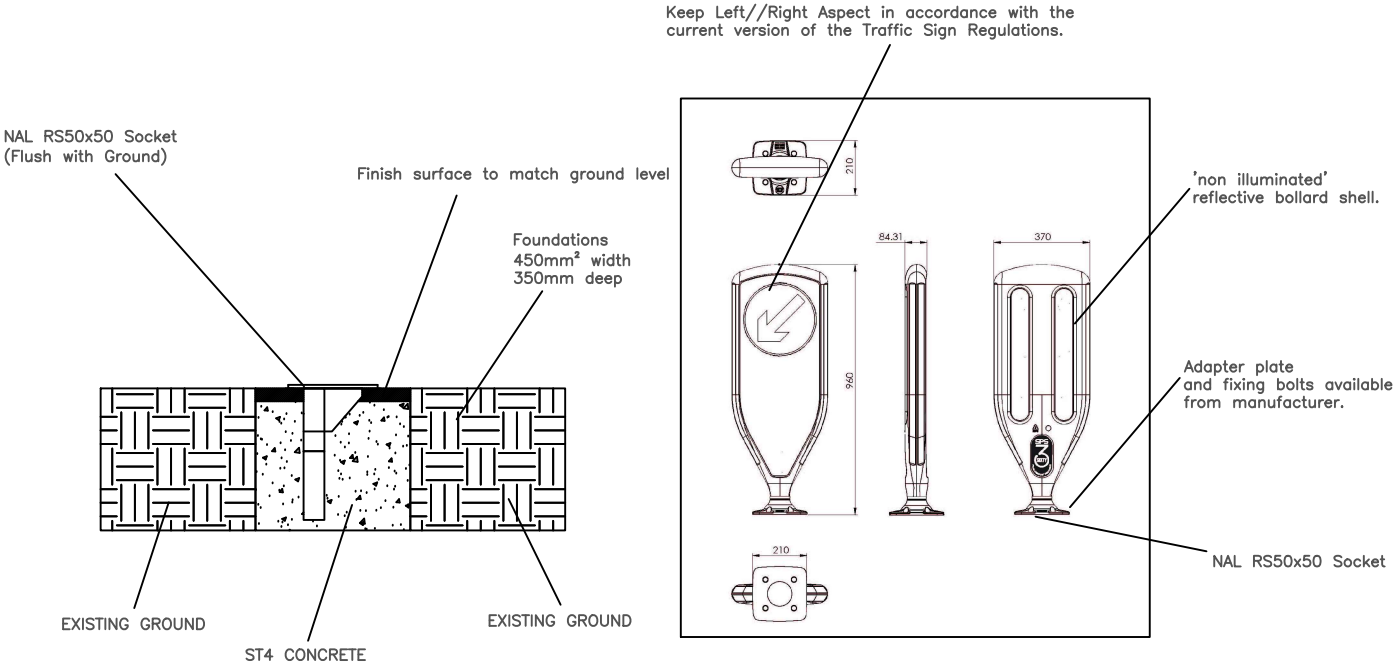
Notes:

1.

Drawing:

STANDARD DETAIL
CONVENTIONAL ILLUMINATED
TRAFFIC BOLLARD DETAIL

Drg. No. J/03



Notes:

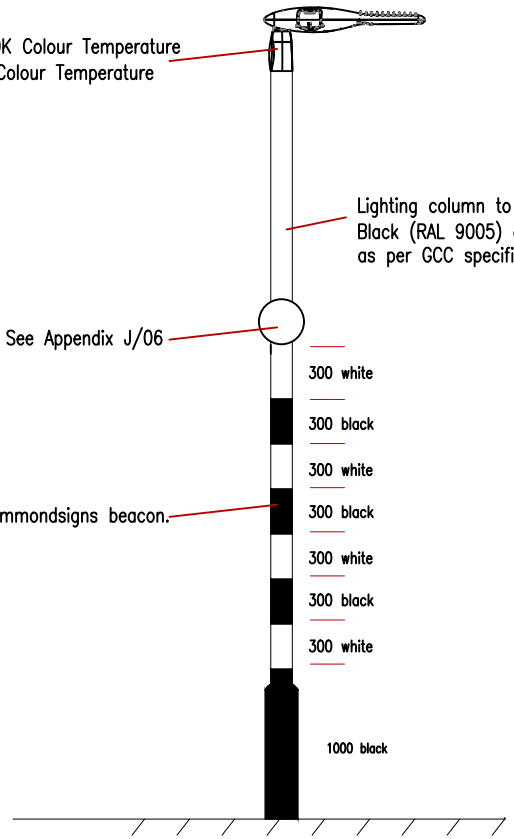
Gloucestershire COUNTY COUNCIL

Drawing:

STANDARD DETAIL
3SIXTY BOLLARD

Drg. No. J/04

Preferred lantern to be Urbis Ampera Zebra.
For residential areas the lantern shall be 5144 24LED 500mA (LHS) 5700K Colour Temperature
For traffic routes the lantern shall be 5144 32LED 700mA (LHS) 5700K Colour Temperature



Notes:

1.

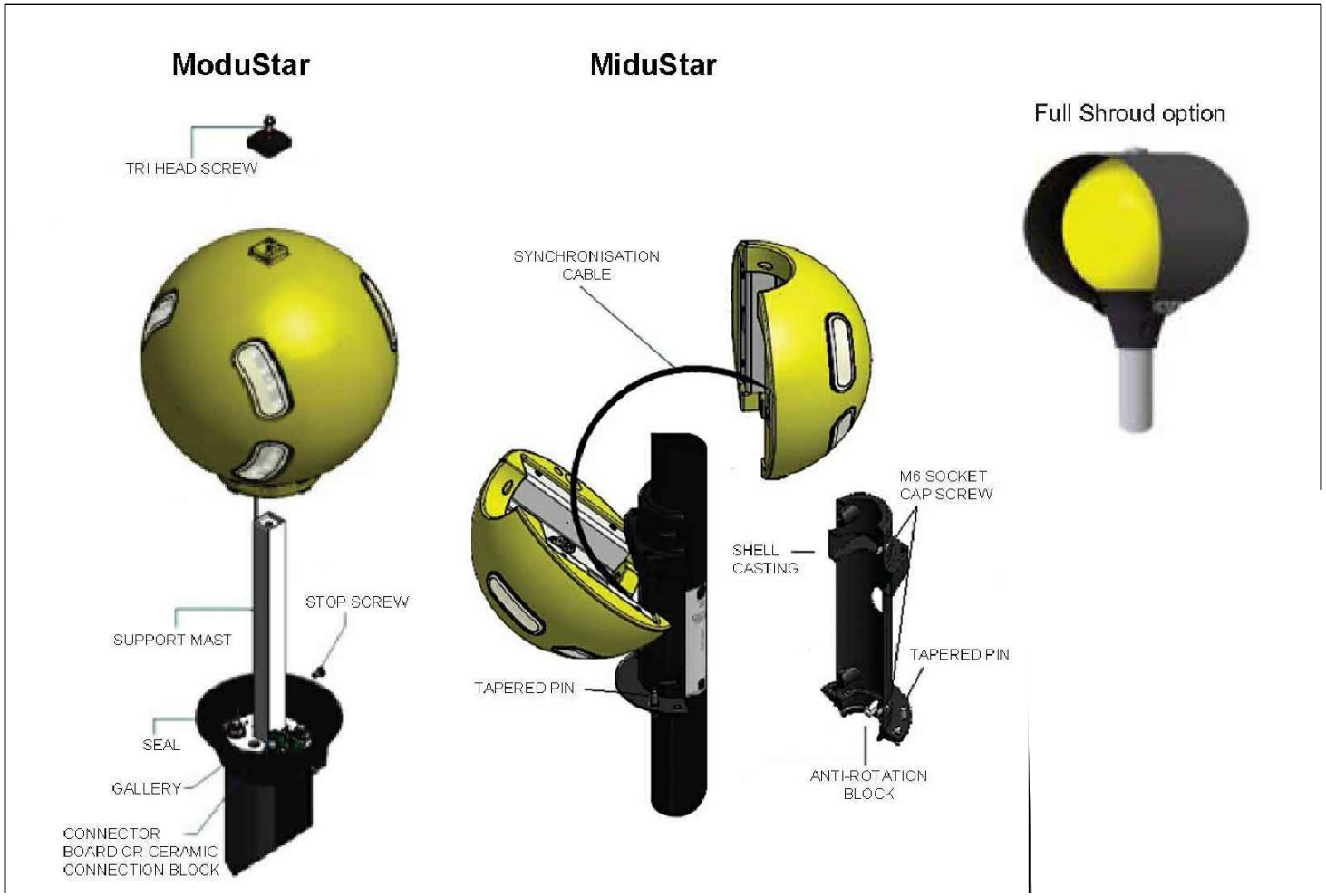
Gloucestershire COUNTY COUNCIL

Drawing:

ZEBRA CROSSING DETAIL

Drg. No.

J/05



Notes:

1.

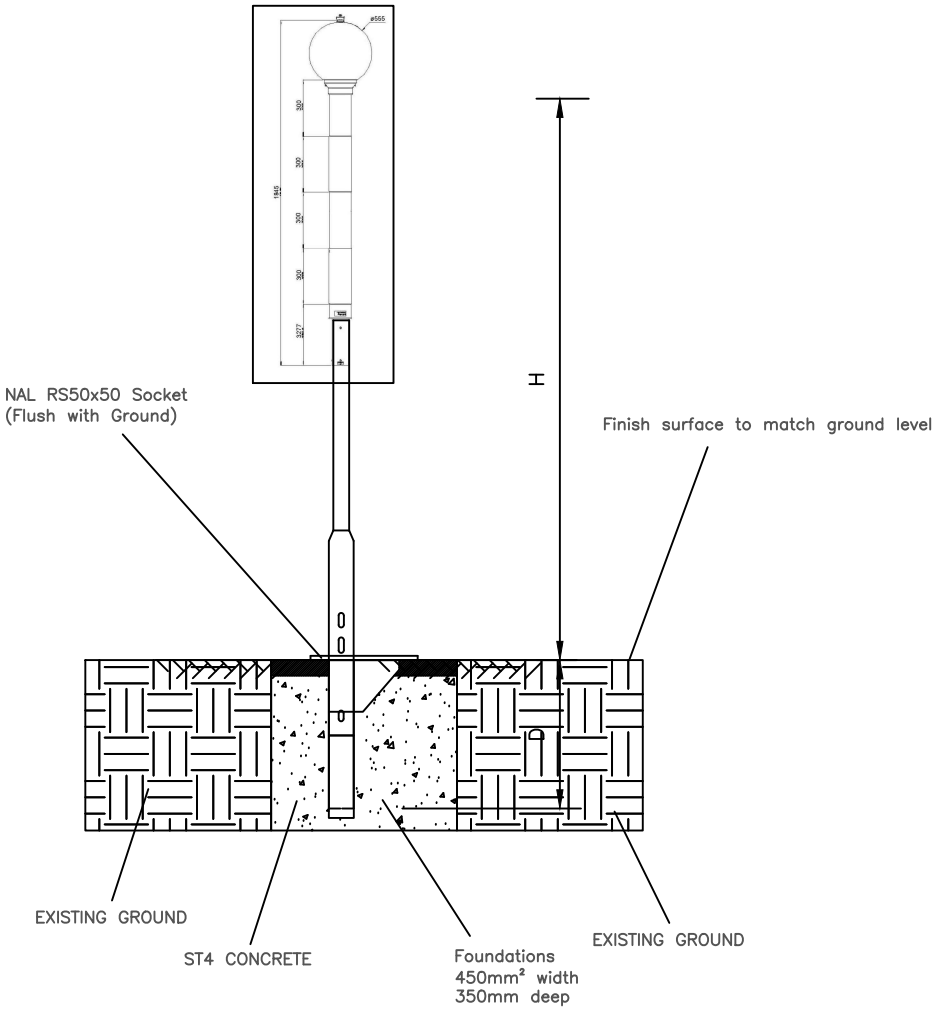
Gloucestershire COUNTY COUNCIL

Drawing:

STANDARD DETAIL MODUSTAR/MIDUSTAR FOR BELISHA BEACONS

Drg. No.

J/06



Notes:

Gloucestershire COUNTY COUNCIL

Drawing:

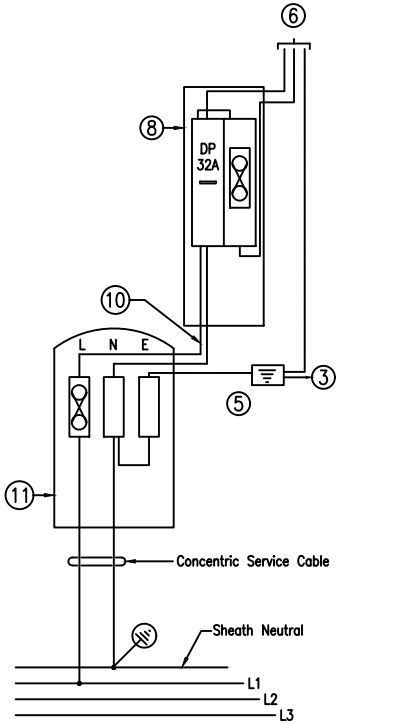
STANDARD DETAIL
GUARDIAN ANGEL

Drg. No.

J/07

TABLE 1

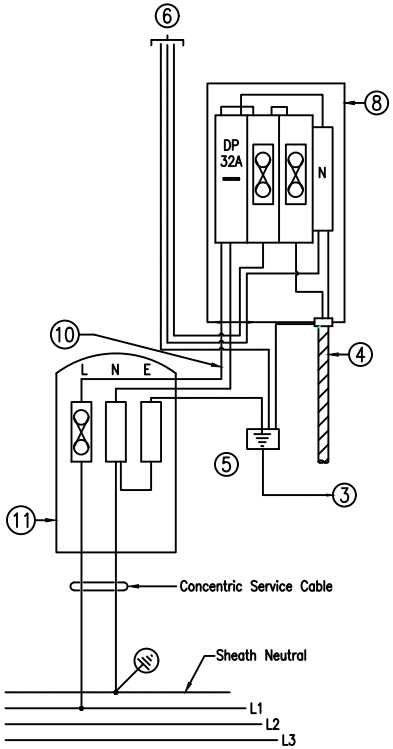
CROSS SECTIONAL AREA OF TAILS CONNECTED TO CUT – OUT SQ mm COPPER EQUIVALENT	MINIMUM CROSS SECTIONAL AREA COPPER EQUIVALENT OF MAIN EQUIPOTENTIAL BONDING CONNECTIONS IN SQ. mm
LESS THAN 35	10
OVER 35 BUT NOT MORE THAN 50	16



ELECTRICAL DISTRIBUTION COMPANY'S UNDERGROUND CONSAC DISTRIBUTOR

TERMINATION TYPE T1

T1 : IS AN INTERFACEWITH THE ELECTRICAL DISTRIBUTION COMPANY



ELECTRICAL DISTRIBUTION COMPANY'S UNDERGROUND CONSAC DISTRIBUTOR

TERMINATION TYPE T2

T2 : IS AN INTERFACE WITH THE ELECTRICAL DISTRIBUTION COMPANY AND ONE LOCAL AUTHORITY LOOP OUT

Notes:

1. The Specification for Highway Works (current version, or as indicated in the contract) applies, together with any Gloucestershire County Council additional or substitute clauses.
2. ALL DIMENSIONS ARE IN MILLIMETRES.
3. Local Authority road lighting unit, lit traffic sign unit or feeder pillar earth stud.
4. Local Authority cable(s) (PVC/XLPE/PVC) with CET cable gland, SNE distribution.
5. All main bonding shall be in accordance with Table 1. Bonding terminals attached to the earth marshalling terminal ⏚ by means of a crimped lug. All supplementary bonding shall be 6 sq.mm.
6. Control gear / lantern wiring conductors shall be 1.5 sq.mm for columns up to 6 metres nominal height and 2.5 sq.mm for columns 8 metres and above.
7. The circuit protective device(s) shall be BS EN 60269 HBC cartridge fuses rated as follows:–
   For lantern wattages up to 70 watt – 6 amp
   over 70 watt up to 250 watt – 10 amp
8. Enclosed double pole switched isolator and integral BS EN 60269 HBC cartridge fuse(s) with a lock off facility.
9. Interconnecting phase and neutral conductors to the electrical distribution company's interface shall be 6 sq.mm PVC insulated and sheathed.
10. Electrical distribution company's fused cut–out.

Gloucestershire COUNTY COUNCIL

Drawing:

STANDARD DETAIL
ELECTRICAL SUPPLY CABLE
TERMINATION TYPES T1 & T2

Drg. No. J/08

Road Lighting Columns and Brackets
APPENDIX 13/2 PART 1

SPECIFICATION	EN40
REVISION No	3
DATE	**/**/****
DRAWING No.	B9213

CLIENT *
PROJECT **Development**
CONTRACT No.
DETAILS **6M Post Top Column**
COLUMN REF/TYPE **Tubular Steel**

PART A General

Column nominal height 6.0 m

Column material Steel

No of door openings 1

Door opening size :

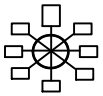
Door	1	2
height	500	0 mm
width	100	0 mm

Cross-section of base height width depth compartment

(mm)	(mm)	(mm)
500	100	119

Acceptable positions of bracket arms relative to door position

Door opening



ANY

Column Sections	Dia x thickness (mm)	fy (N/mm2)
base	139.7 x 3	275
shaft	76.1 x 2.5	275

Corrosion protection (steel columns only) - basic system type (NG 1901) HOT DIP GALVANISE BS 1461

Additional sacrificial steel thickness above that needed in the design, from the bottom of the column to at least 250mm above the anticipated ground level. 0.0 mm

Details of signs and attachments allowed for in the design
Area (m2), Offset (eccentritity) (mm), Height (mm)

Item	Area	Offset	Height
Sign	0.500	300	2500

PART B Foundation data

Planted base Planted depth 1000 mm

Standard Soil Type Factor G		
630	390	230
NONE 0.162		0.275 m

Diameter of concrete surround (if any)

Flanged base

Bolt hole crs. (mm)	Hole diameter (mm)	Design load/bolt (kN)
N/A	N/A	N/A

Relevant forces and moments at ground level

	TRANSMITTED LOADS (all unfactored) (EN 40)		
	BM (kNm)	Shear (kN)	Axial (kN)
Planted Root :	4.06	1.42	0.57
Flanged :	4.06	1.42	0.57

Line of max. moment relating to door opening

NOTE: For flange plates with slotted holes a diagram shall be included with this data sheet

APPENDIX 13/2 PART 2

EN40 DESIGN PARAMETERS		
Mean Return Period	50	
Topography factor	1.00	
Terrain Category	III	
Altitude above sea level	178	m
Basic Wind Speed (BS EN 1991-1-4)	22.5	m/s
Rationalised Wind Region	N/A	
Partial Load Factor	Class B	
Partial Material Factor	1.05	
Deflection Class	3	

PART C Acceptable Lanterns

Post Top Column

LANTERN: MAXIMUM CHARACTERISTICS

Lantern Connection		Max Wt	Max Wind
Diameter (mm)	Length (mm)	(kg)	Area m2
76.1	100	10	0.1

Single Arm Bracket Column

Lantern Deflection (mm)	
Vertical (mm)	Horizontal (mm)
N/A	N/A

Bracket projection (m)	Drawing No	Ref No	Material		Lantern Connection		Fixing	Max Wt (kg)	Max Wind Area m2
			Grade	fy (N/mm2)	Diameter	Length Angle			
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Double arm brackets

Lantern Deflection (mm)	
Vertical (mm)	Horizontal (mm)
N/A	N/A

Bracket projection (m)	Drawing No	Ref No	Material		Lantern Connection		Fixing	Max Wt (kg)	Max Wind Area m2
			Grade	fy (N/mm2)	Diameter	Length Angle			
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

It is certified that the information given in the data sheet has been obtained in accordance with the requirements of : EN40

Signed on Behalf of the Contractor .... Date**/**/****

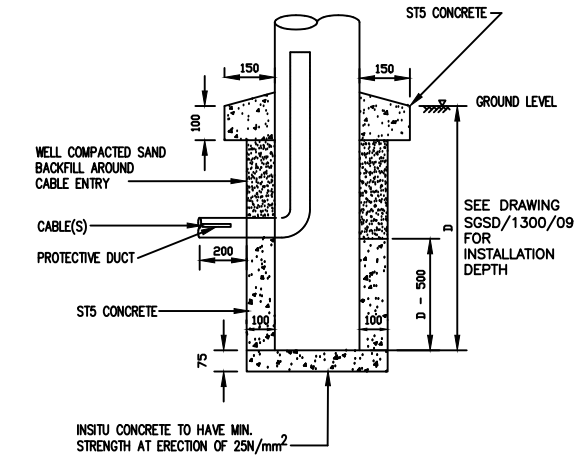
Notes:

Gloucestershire COUNTY COUNCIL

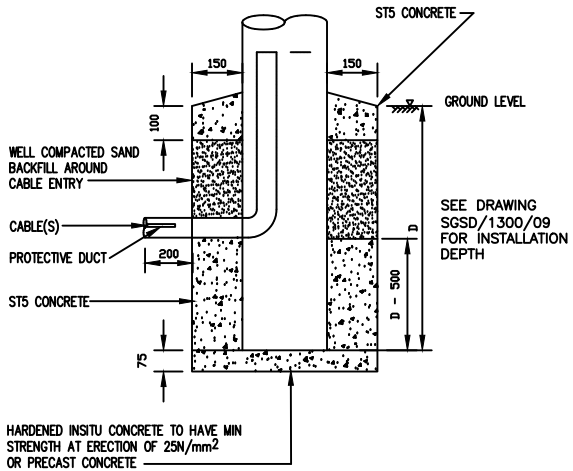
Drawing:

COLUMN DATA SHEET (EXAMPLE)

Drg. No. J/09

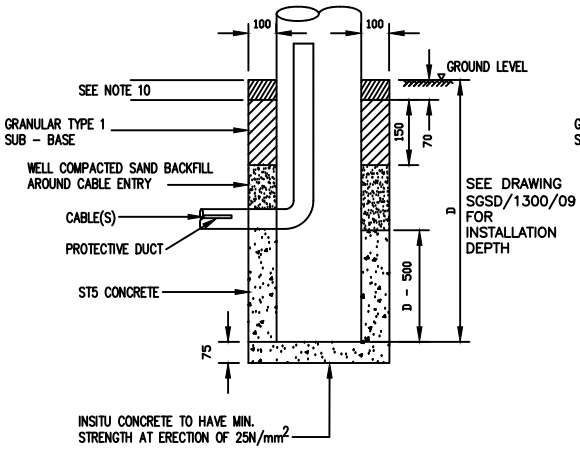


FOUNDATION TYPE 1

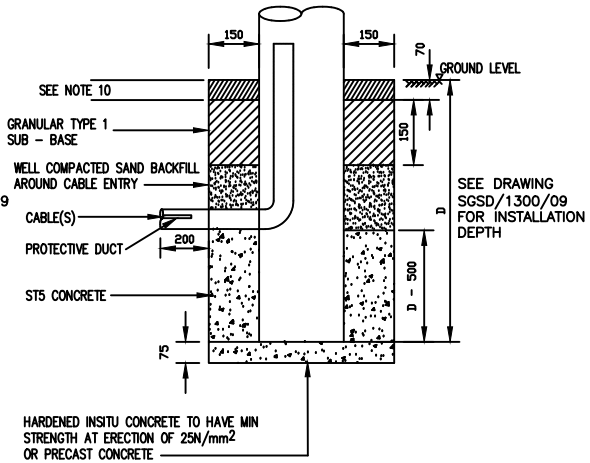


FOUNDATION TYPE 2

COLUMN ROOT INSTALLED IN EITHER A VERGE OR A CONCRETE FOOTPATH



FOUNDATION TYPE 1



FOUNDATION TYPE 2

Notes:

1. The Specification for Highway Works (current version, or as indicated in the contract) applies, together with any Gloucestershire County Council additional or substitute clauses.
2. ALL DIMENSIONS ARE IN MILLIMETRES.
3. Columns shall be installed in accordance with Clause 1305 and shall present a uniform alignment when erected, installation tolerance shall be ±50mm.
4. Columns shall be erected vertically. Lanterns shall be fitted separetely.
5. The cable entry slot shall be plugged prior to backfilling tp prevent the ingress of sand into the column.
6. DUCTING
   The duct shall be coloured:
   (i) BLACK for electrical distribution company use.
   (ii) ORANGE for Local Authority cable(s).
7. MATERIAL SPECIFICATION CLAUSES:
   (i) Sand to BS1199 and BS1200
   (ii) Concrete to be ST5 to Clause 2602 with a maximum water to cement ratio of 0.60. The prescribed mix to be to BS8500–1.
   (iii) Type 1 unbound mixture sub–base to Clause 803.
8. The ground level foundation concrete collar shall be installed after installation of the electrical supply cable(s) and completion of the ground backfill works.
9. Area above foundation shall be reinstated to match surrounding materials.
10. Column to be installed as recommended by the manufacturer.

Gloucestershire COUNTY COUNCIL

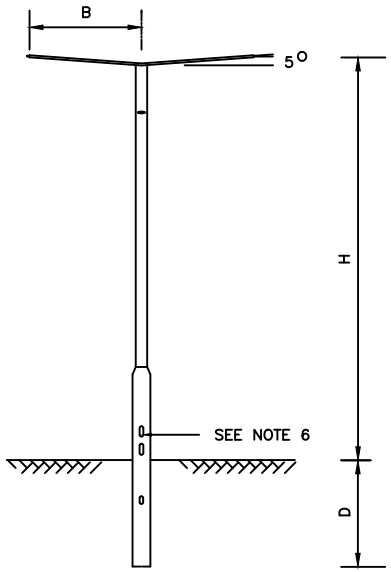
Drawing:

STANDARD DETAIL
STEEL ROOT COLUMN//SIGN
FOUNDATION TYPE 1 & TYPE 2

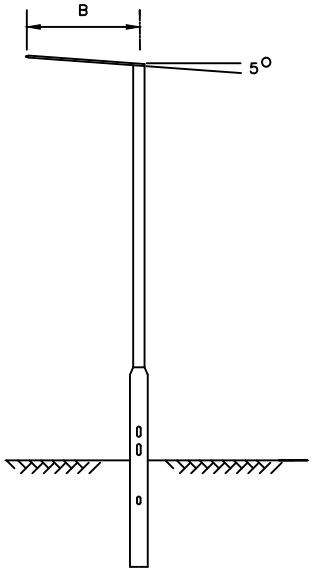
Drg. No.

J/10

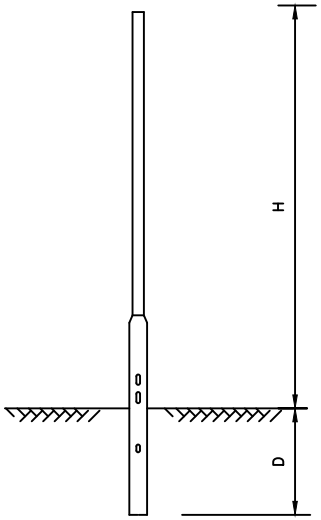
ELEVATION ON DOUBLE BRACKET



ELEVATION ON SINGLE BRACKET



ELEVATION WITHOUT BRACKET
(LANTERN POST TOP FIT)



INSTALLATION DIMENSIONS			
COLUMN HEIGHT (H) METRES	DEPTH (D) METRES	ALTERNATIVES FOR (B) METRES	
		BRACKET ARM	POST TOP
5	0.8	N/A	0.0
6	1.0	N/A	0.0
8	1.2	N/A	0.0
10	1.5	N/A	0.0
12	1.7	N/A	0.0
15	2.0	N/A	0.0
18	2.0	N/A	0.0

Notes:

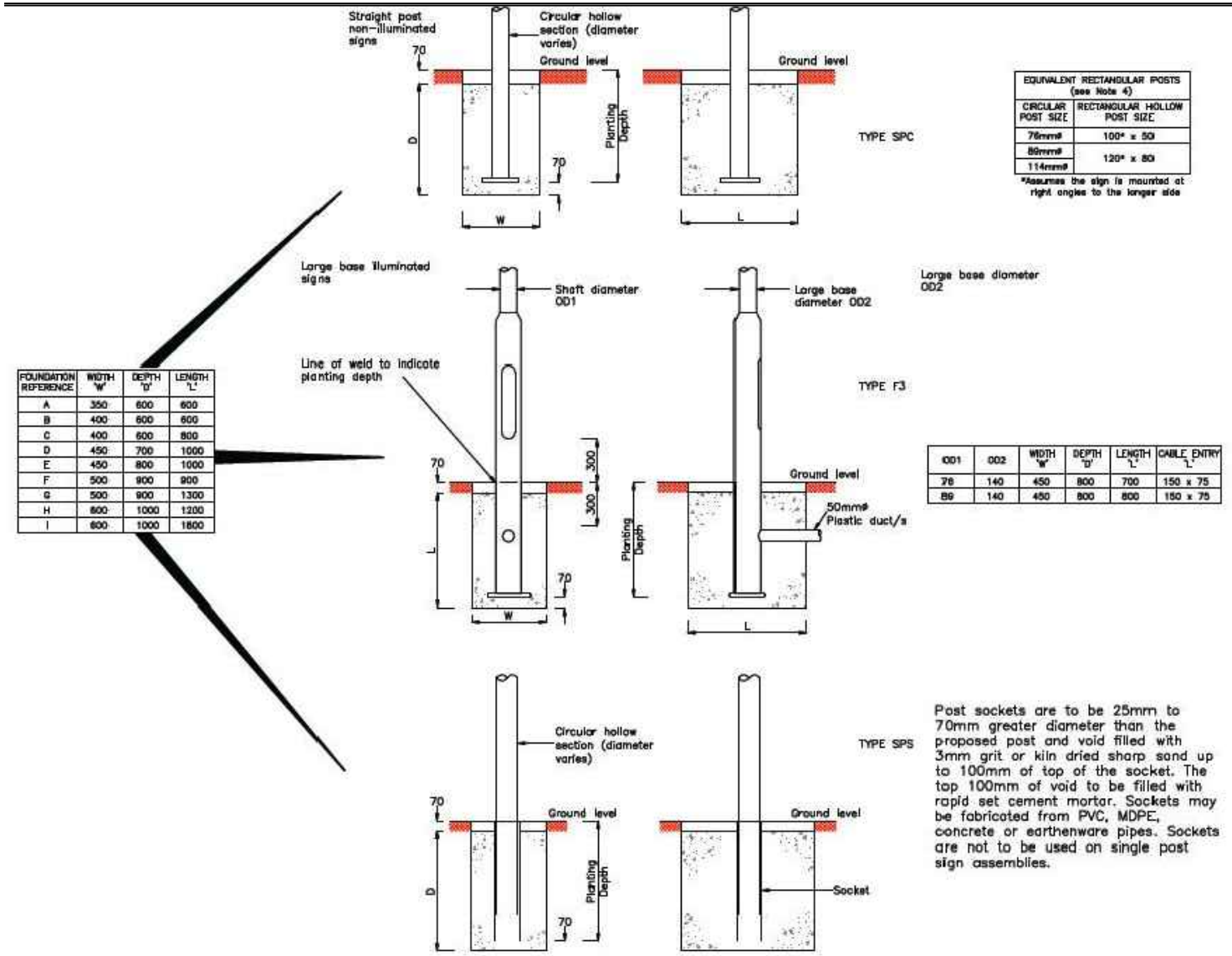
1. The Specification for Highway Works (current version, or as indicated in the contract) applies, together with any Gloucestershire County Council additional or substitute clauses.
2. ALL DIMENSIONS ARE IN MILLIMETRES.
3. All columns shall be galvanised steel, factory painted and shall comply with Clause 1301 and the specific requirements of Appendix 13/1, 13/2 and 19/2.
4. Columns shall be installed in accordance with Clause 1305 and shall present a uniform alignment when erected, installation tolerance shall be ±50mm.
5. Columns shall be erected vertically. Lanterns shall be fitted separetely.
6. For columns with twin projection bracket arms the column shafts shall be fitted with twin access doors.

Gloucestershire COUNTY COUNCIL

Drawing:

STANDARD DETAIL
STREET LIGHTING COLUMN
PLANTING DETAILS

Drg. No. J/11



EQUIVALENT RECTANGULAR POSTS (see Note 4)	
CIRCULAR POST SIZE	RECTANGULAR HOLLOW POST SIZE
76mmø	100* x 50
89mmø	120* x 80
114mmø	

*Assumes the sign is mounted at right angles to the longer side

FOUNDATION REFERENCE	WIDTH 'W'	DEPTH 'D'	LENGTH 'L'
A	350	600	600
B	400	600	600
C	400	600	800
D	450	700	1000
E	450	800	1000
F	500	900	900
G	500	900	1300
H	600	1000	1200
I	600	1000	1800

OD1	OD2	WIDTH 'W'	DEPTH 'D'	LENGTH 'L'	CABLE ENTRY 'L'
76	140	450	800	700	150 x 75
89	140	450	800	800	150 x 75

Post sockets are to be 25mm to 70mm greater diameter than the proposed post and void filled with 3mm grit or kiln dried sharp sand up to 100mm of top of the socket. The top 100mm of void to be filled with rapid set cement mortar. Sockets may be fabricated from PVC, MDPE, concrete or earthenware pipes. Sockets are not to be used on single post sign assemblies.

Notes:

1. All dimensions ans in millimetres unless otherwise stated.
2. Foundation to be constructed in ST5 concrete.
3. The top 70mm of the excavation to be reinstated in materials corresponding to the ground surrounding the foundation or as specified bythe Engineer.
4. Rectangular posts should be considered on single post signs in urban areas where there may be an issue with vandalism (sign rotation).
5. Rectangular posts may also be beneficial for the erection of signs in footways/cycleways to pedestrians and cyclists.

Foundation Types:–

SPC= Straight post in concrete.
F3 = Base compartment post in concrete.
SPS= Straight post in socket.

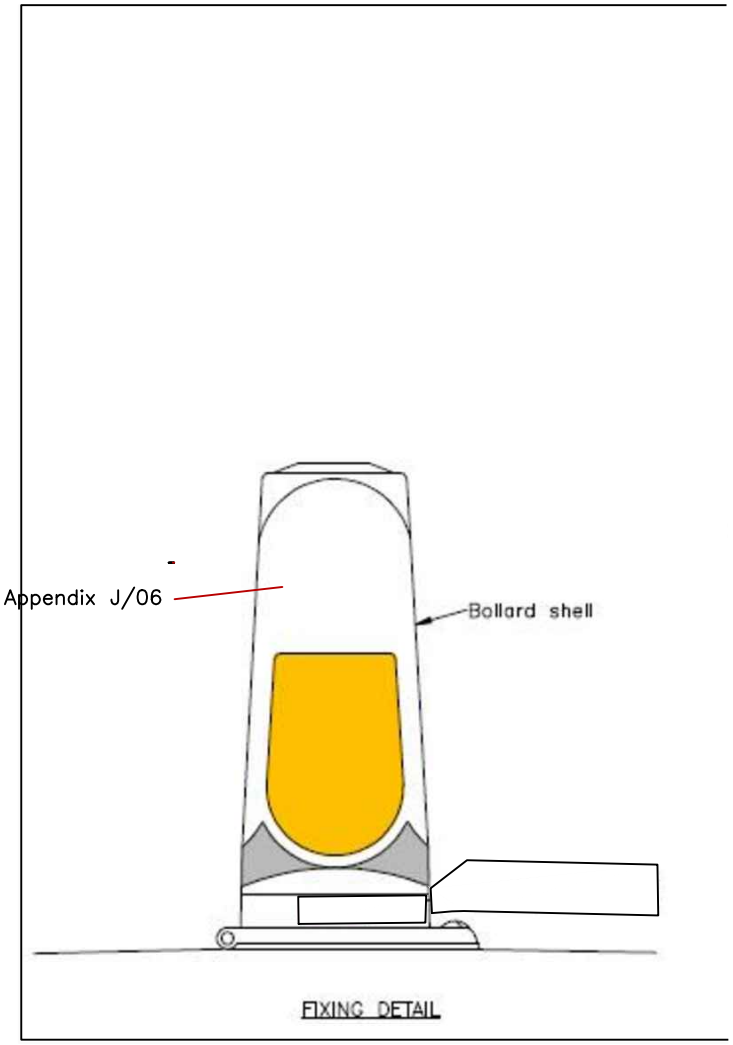
Gloucestershire COUNTY COUNCIL

Drawing:

STANDARD DETAIL

CONCRETE FOUNDATION FOR STRAIGHT & LARGE BASE SIGN POSTS

Drg. No. J/12



Notes:

1. Reflective numbers to be 30mm high adhesive black numbers on white background.
2. Manufacturer of suitable adhesive numbering is: Graficom Ltd, Unit 3, East Burrowfield, Welwyn Garden City, Herts.

Gloucestershire COUNTY COUNCIL

Drawing:

STANDARD DETAIL
NUMBERING SYSTEM FOR
ILLUMINATED BOLLARDS

Drg. No. J/13

Appendix J/14: DNO's operating in Gloucestershire

Legend

- Wetern Power Distribution - West Midlands - westernpower.co.uk
- Western Power Distribution - South Wales - westernpower.co.uk
- SSE - Oxford - sse.com
- SSE - Swindon - sse.com

WESTERN POWER DISTRIBUTION
Serving the Midlands, South West and Wales

SSE

APPENDIX J/15

SERVICE LEVEL AGREEMENT BETWEEN THE ELECTRICITY NETWORKS COMPANY AND GLOUCESTERSHIRE COUNTY COUNCIL FOR UNMETERED CONNECTIONS TO STREET LIGHTING AND STREET FURNITURE

Date: 17th October 2019 Version 1

Unmetered Connections Service Level Agreement

1. INTRODUCTION

This Service Level Agreement (SLA) outlines the target level of service to which The Electricity Networks Company and Gloucestershire County Council aim to work with regard to unmetered connections (UMC). The services recognised by The Electricity Networks Company as being part of the UMC function are connection work and fault repairs associated with street lighting and street furniture, as included in the Unmetered Services Agreement between the customer and The Electricity Networks Company and as per the Schedule of Rates. There must exist an Unmetered Services Agreement between the customer and The Electricity Networks Company before the services included in this SLA can be offered.

This SLA is based upon a framework document developed in joint consultation between DNOs and representatives of Local Authority Lighting Customers and incorporates the criteria of the Electricity Connections Standards Of Performance Regulations 2010.

The Electricity Networks Company is committed to delivering the best possible service levels to its customers and recognises the importance of public lighting and street furniture to its customers and the community. In order to deliver the best possible service The Electricity Networks Company recognises it must work with its customers to ensure a safe, effective and efficient service; therefore, this is a two-way SLA outlining not only the service levels The Electricity Networks Company aims to offer its customers, but the service levels Gloucestershire County Council aim to provide to The Electricity Networks Company.

2. HEALTH AND SAFETY

At The Electricity Networks Company, we recognise our responsibilities to all who may be affected by our activities and we are committed to achieving high standards of health and safety. We regard the application of legal requirements as the minimum level of achievement. We believe the effective management of health and safety is essential to our operation and as important as all other management functions and therefore we will ensure that adequate resources are allocated to this task. We consider the identification of relevant hazards, assessment of foreseeable risks and the effective implementation of appropriate control measures as fundamental to achieving continual improvement of our safety performance.

3. STATUS OF THIS SERVICE LEVEL AGREEMENT

This document is intended to be an articulation of The Electricity Networks Company Standard Distribution Licence Condition SLC15A and the Electricity Connections Standards Of Performance Regulations 2010. It outlines the target service levels which The Electricity Networks Company and Lighting Authorities aim to achieve and required by Ofgem. This document will be reviewed on a periodic basis.

4. METER ADMINISTRATION AND ENERGY TRADING

If, following signature of this document by both parties, Gloucestershire County Council trades all of its street furniture connections on a half hourly basis with its nominated electricity supplier other than those street furniture connections that are connected directly to the ENC Distribution System, ENC will endeavour to pay to Dorset Council the lesser of the amounts calculated in accordance with paragraph (a) and (b) below; provided that Gloucestershire County Council provides satisfactory backing documentation to support these amounts:

a) An amount which is equal to the positive difference (if any) between:

i) the pence per kWh electricity supply tariff that is levied by the electricity supplier against Gloucestershire County Council for the supply of electricity to unmetered street lighting connections traded on a non half hourly basis and connected directly to the ENC Distribution System multiplied by the total Equivalent Annual Consumption for such street lighting connections, and

ii) the pence per kWh electricity supply tariff that is levied by the electricity supplier against Gloucestershire County Council for the supply of electricity to unmetered street lighting connections traded on a half hourly basis multiplied by the total Equivalent Annual Consumption for the unmetered street lighting connections traded on a non half hourly basis and connected directly to the ENC Distribution System.

b) any reasonable additional administrative costs levied (or that would be levied) against Gloucestershire County Council by its meter administrator for the purposes of processing, on a half-hourly basis, all unmetered street lighting connections that are connected directly to the ENC Distribution System.

LEVELS OF SERVICE

Levels of Service	(5)	1. Category Cat1E – 90% attendance in 2 hours (failure penalty £50 per site) 2. Category Cat1U – 90% complete in <=1 calendar day * (failure penalty £10 per day or part day) 3. Category Cat1U – 90% complete in <=1 calendar day* (failure penalty £10 per day or part day) 4. Category Cat10 – 90% complete in <=10 calendar days* (failure penalty £10 per day or part day) 5. Category Cat3 – 90% complete in <=3 calendar days* (failure penalty £10 per day or part day) 6. Category Cat1U – 90% complete in 20 working days (failure penalty £10 per day or part day)

* These service levels are in excess of those specified in the Electricity (Connections Standards of Performance) Regulations 2010 and will be met by ENC using its reasonable endeavours. However, the Penalty Payments will only be payable by ENC when ENC fails to meet the Service Levels in the Electricity (Connections Standards of Performance) Regulations 2010.

On behalf of **The Electricity Networks Company**

Signed: _____ Date: _____

Name: _____

Position: _____

On behalf of **Gloucestershire County Council**

Signed: _____ Date: _____

Name: _____

Position: _____

5. DEFINITIONS

Term	Definition
ALARP	As low as reasonably practicable.
Area of public order concern	An area with a high risk of crime to which a significant contributory factor may be the lack of street lighting.
Asset	This may include, but is not limited to, a single item of street lighting or street furniture e.g. • A single lamp column • A traffic light column • A bollard • An advertising hoarding • A CCTV camera • An illuminated sign • A belisha beacon • A variable messaging sign Where a single lamp column has multiple lamps mounted on it, this is a single asset.
Authorised Person	As defined in the The Electricity Networks Company Distribution Safety Rules.
Clock	Measurement of elapsed time against a service standard. The time reported for each individual instance of a process will be: [Clock Stop Date] — [Clock Start Date] — (Clock Resume Date — Clock Pause Date) When measuring elapsed time against the 'Emergency Response' SLA category, the elapsed time will be measured in hours and minutes and will operate 24 hours a day, 7 days a week. For all other service categories, the elapsed time will be measured in Working days.
Clock Abort	An event that happens while the clock is running that ceases measurement against the standard and excludes that particular job or request from SLA reporting.
Clock Pause	Any point in the delivery of a service that the clock has temporarily stopped because The Electricity Networks Company cannot make further progress because it is waiting for an external event. This will include: • Waiting for a decision from the customer which materially affects the commencement of the work • Waiting for an opening notice or other consent. A clock pause will always be associated with a triggering operational event and in all cases The Electricity Networks Company will record the reason for the clock pause and inform the customer that the clock has paused and what the reason is.
Clock Restart	An operational event that occurs while the clock is running that restarts the clock from zero.
Clock Resume	The point at which a clock pause condition is resolved and The Electricity Networks Company is able to make progress against a specific request. This will always be associated with a specific operational event.
Clock Start	The point in a process at which the clock starts. Each clock start is triggered by a specific event — the 'clock start event'. For each clock start event, there are a number of preconditions including but not limited to the supply of minimum information.
Clock Stop	The point in a process when the clock stops. This will be triggered by

	a specific event.
Customer	Local Authority/Highway Authority or nominated representative by those parties and any other party with a UMC agreement (excluding developers).
DfT Number	Department for Transport number, unique to the Local Authority.
Electrical work completed	For High Priority, Multiple Unit and Single Unit Faults, electrical work is considered to be complete when the following criteria have been met: • A live supply is present at the supply terminals of the cut-out that is within statutory voltage limits (230 volts +10/-6 %) • The cut-out is electrically and mechanically safe, with no exposed live parts For connections and transfers, electrical work is considered completed when the 'cut-out is energised' (including temporary repairs). For disconnections, electrical work is considered complete when The Electricity Networks Company has removed all of its assets.
Emergency Response	The Electricity Networks Company defines an emergency as a scenario where there is immediate danger to the public from the electricity network or where the connection to the electricity network is preventing The Electricity Networks Company from making the asset or the site safe.
High priority fault repair	Work that is urgent but would not require attendance outside normal working hours to restore electricity supplies to street lighting or street furniture.
Job	A job is defined as a task e.g. the connection, disconnection or transfer of any single asset.
LA	Local Authority/Highway Authority or nominated representative
Minimum information	For any process or service carried out by The Electricity Networks Company (or its contractors) the minimum information is the information which is required to be supplied by the customer before The Electricity Networks Company can commence work. As such, the clock will not start on any service standard until the minimum information has been received. The minimum information required by The Electricity Networks Company for each service standard is specified in Appendix 1.
Multiple unit fault repair	Fault on service e.g. no current, low voltage, faulty cut-out (i.e. electrically distressed), loss of neutral and high earth impedance affecting more than one asset.
New works	New works are classified as UMC works for any new lighting and signage work that require the provision of connection/disconnections, service transfers, new services and disconnections.
Order	(Applicable to new works only and chargeable repairs) An order is an instruction by the customer to The Electricity Networks Company for works to be programmed. An order is only placed once a quote has been accepted or the customer has self-quoted from the Schedule of Rates. For an order to be placed the customer must supply The Electricity Networks Company with the necessary minimum information as specified in Appendix 1.
Scheme	A single UMC connections project comprising one or more jobs in the same geographic Location (e.g. street) or in a contiguous area.
SLA	Service Level Agreement.
Single unit fault repair	Fault on service e.g. no current, low voltage, faulty cut-out (i.e. electrically distressed), loss of neutral and high earth impedance affecting one asset.
Standard	The Standard Rates Schedule as defined in Appendix 4 of this

Schedule of Rates	Agreement.
SWA	Steel wired armoured cable.
System Emergency	A system emergency is declared when an event or events occur on The Electricity Networks Company's distribution system that have a significant impact on the continuity of electricity supplies or the safe management of the network. The Electricity Networks Company then suspends normal business operations and redeploys staff to respond to, and recover from, the event and return the system to normal. Under System Emergency circumstances any activities that are non-critical to the continuity of supplies or safe management of the networks may be suspended.
Task	A task is defined as a complete jointing activity e.g. the connection or disconnection of a single asset.
Tie Up	A Tie Up is the term used to describe an activity where works must be coordinated between the LA and The Electricity Networks Company, when an asset needs to be removed and replaced on the same day. An example would be where a column needs to be disconnected by The Electricity Networks Company and then removed by the LA, and a new column is put in place and reconnected by The Electricity Networks Company. This usually occurs when it is not feasible to change the position of an asset.
UMC	Unmetered connection.
UMS	Unmetered supplies.
Unmetered Supply Agreement	The agreement titled "Agreement for Unmetered Connection to The Electricity Networks Company Distribution System". A signed agreement must be in place between the customer and The Electricity Networks Company before the services described in this SLA can be offered.
Unit	Applicable to SLA Standard 5.3 & 5.4 — Fault Repairs. A unit is any single asset with an unmetered connection.
Working day	08:00-16:30, Monday to Friday (excluding public holidays) as defined by Ofgem.

6. The Electricity Networks Company SERVICE CATEGORY SUMMARY

Levels for Emergency Response and Fault Repairs to Unmetered Connections

Category	Ofgem Definition	Refined Definition	Service Level	Clock start event	Clock stop event	Penalty Payment for Service Level failure	Payment Date
6.1 Emergency Attendance **(CC ref Cat1E)**	Work necessary to remove immediate danger to the public or property arising from the electricity distribution network,	Emergency attendance is required in situations where there is immediate danger to the public caused by the electricity network or the collapse of an asset.	• 90% attendance in 2 hours	The notification of an emergency fault with the required minimum information by the LA or emergency service to the specified The Electricity Networks Company contact.	The Electricity Networks Company attends site.	£50	the working day after the day on which the emergency attendance should have taken place
6.2 High Priority Fault Repair involving traffic lights. **(CC ref Cat1U)**	Work that is urgent but would not require attendance out of normal working hours to restore electricity supplies to street furniture e.g. at the site of an accident black spot, major road junction, pedestrian crossing facility, an area of public order concerns, a reoccurring fault or traffic signals.	Work that is urgent but would not require attendance out of normal working hours to restore electricity supplies to street lighting or street furniture,	• 90% of jobs complete in 2 calendar days or less • 90% of jobs complete in 1calendar days or less *	The receipt of notification (including minimum information) by The Electricity Networks Company from the LA.	Notification to designated LA contact that electrical work is complete.	£10 for each working day or part day after the end of the prescribed period up to and including the day on which the fault rectification works are completed	the working day on which the fault rectification works are completed
6.3	Work that is	Work that is	• 90% of	The receipt	Notification	£10 for	the working

High Priority Fault Repair not involving traffic lights. **(CC ref Cat1U)**	urgent but would not require attendance out of normal working hours to restore electricity supplies to street furniture e.g. at the site of an accident black spot, major road junction, pedestrian crossing facility, an area of public order concerns, a reoccurring fault or traffic signals.	urgent but would not require attendance out of normal working hours to restore electricity supplies to street lighting or street furniture,	jobs complete in 10 Working days or less • 90% of jobs complete in 1 Working days or less *	of notification (including minimum information) by The Electricity Networks Company from the LA.	to designated LA contact that electrical work is complete.	each working day or part day after the end of the prescribed period up to and including the day on which the fault rectification works are completed	day on which the fault rectification works are completed
6.4 Single Unit Fault Repair **(CC ref Cat10)**	Fault on service e.g. no current, low voltage, faulty cut-out (i.e. electrically distressed), loss of neutral and high earth impedance affecting one unit,	Fault on service e.g. no current, low voltage, faulty cut-out (i.e. electrically distressed), loss of neutral and high earth impedance affecting one unit.	• 90% of jobs complete in 25 Working days or less • 90% of jobs complete in 10 Working days or less *	The receipt of notification by The Electricity Networks Company from the LA (including minimum information).	Notification to designated LA contact that electrical work is complete.	£10 for each working day or part day after the end of the prescribed period up to and including the day on which the fault rectification works are completed	the working day on which the fault rectification works are completed
6.5 Multiple Unit Fault Repair **(CC ref Cat3)**	Fault on service e.g. no current, low voltage, faulty cut-out (i.e. electrically distressed), loss of neutral and high earth impedance	Where there is a fault on service e.g. no current, low voltage, faulty cut-out (i.e. electrically distressed), loss of neutral and	• 90% of jobs complete in 20 Working days or less • 90% of jobs complete in 3	The receipt of notification by The Electricity Networks Company from the LA (including minimum information).	Notification to designated LA contact that electrical work is complete.	£10 for each working day or part day after the end of the prescribed period up to and including the day on which the	the working day on which the fault rectification works are completed

	affecting more than one unit.	high earth impedance affecting more than one unit.	Working days or less *			fault rectification works are completed	

Service levels for Connections Quotations

Category	Ofgem Definition	Refined Definition	Service Level	Clock start event	Clock stop event	Penalty Payment for Service Level failure	Payment Date
6.6 Standard Quotations	A quotation for the provision of electrical services to an unmetered installation within the scope of the Standard Public Lighting Schedule,	Any quotation requiring prices featured on the Standard Schedule of Rates — new supplies only.	90% of jobs complete in 20 Working days	The date of agreement between The Electricity Networks Company and the LA of the planned time period for creating the standard quotation.	Transmission of the standard quotation to the LA.	£10 for each working day or part day after the end of the prescribed period up to and including the day the day the quotation is dispatched	The working day on which the quotation is dispatched

* These service levels are in excess of those specified in the Electricity (Connections Standards of Performance) Regulations 2010 and will be met by ENC using its reasonable endeavours. However, the Penalty Payments will only be payable by ENC when ENC fails to meet the Service Levels in the Electricity (Connections Standards of Performance) Regulations 2010.

Service Levels for Completion of Connections Work

Category	Ofgem Definition	Definition	The Electricity Networks Company Service Level	Clock Start Event	Clock Stop Event	Penalty Payment for Service Level failure	Payment Date
6.7 New works orders with 1-100 jointing operations per order,	May include the following: new capital lighting schemes, road improvement schemes, provision of connection/disconnections, service transfer, new service and disconnections.	New works orders comprising 1-100 tasks.	• 90% of jobs complete within timescales to be agreed with customer	The receipt of an order by The Electricity Networks Company from the LA for the new works,	Notification to designated LA contact that electrical work is complete.	£10 for each working day or part day after the agreed date up to and including the day on which the works are completed	The working day on which the works are completed

For the avoidance of doubt, the 90% compliance referred to in the Service Levels for items 6.1 through to 6.7 in the above tables is in accordance with the obligation imposed on ENC by its Distribution Licence Condition 15A. This licence condition requires ENC to comply with the standard of performance service levels set out in the Electricity (Connections Standard of Performance) Regulations 2010 in at least 90% of all incidents covered by the Regulations. Penalty payments will be made in respect of each failure as determined by the Regulations.

Reinstatement

Reinstatement will be completed as soon as practicable working within the confines of the Traffic Management Act.

7. OPERATIONAL EVENTS

It is recognised by both The Electricity Networks Company and the Local Authority Customer that operational events will occur that may affect service levels beyond the control of The Electricity Networks Company, or the local authority or both parties. Should these events occur, the behaviour outlined below has been agreed by The Electricity Networks Company and the customer.

Operational Events Generic to all Categories.

Clock Restart:
Should any of the following operational events occur, the clock will cease running and will restart from zero when the required conditions are met.

- System Emergency
  - In the event of a system emergency impacting the UMC resource, all works planned during this emergency may need to be reprogrammed, ensuring the subsequent programmed works are not compromised. The clock will restart on the next Working day for all works that were programmed during a system emergency and could not be delivered as per the programme.
  - Emergency attendance events are the only exclusion to this.

- Access Issues:

In the event that The Electricity Networks Company cannot access the work site safely to complete works for a fault or connection service the clock will restart. The Electricity Networks Company will attempt to contact the designated LA contact from the site if these events occur and will agree a course of action to manage the issue. Examples of these events include:

  - Road closures
  - Other parties completing works at the site e.g. other utilities
  - Another service in the ground causing obstructions
  - Obstructions such as skips or scaffolding restricting access to the works area
  - Discovery of tree roots and action taken as per the current issue of the National
  - Joint Utilities Group Guidelines for the Planning, Installation and Maintenance of Utility Services in Proximity to Trees.

- Health, safety or environmental issues which were unknown at the time of planning the works and which cannot be averted in order to safely undertake the works.

Clock Abort:
Jobs will be aborted under the following circumstances:

- The job does not exist.
- The Electricity Networks Company attends a location to fix a fault and no fault can be found.
- The work involves a proven private network.

The Electricity Networks Company will contact the LA to inform them of the situation before leaving site.

Clock Pause and Resume:
Clock pause and clock resume events occur when situations outside the normal procedures for repairing faults or making new connections arise. Examples include:

- A requirement for a cable shutdown, requiring five Working days' notice.
- If it is necessary for The Electricity Networks Company to obtain easement(s) or wayleave(s) before proceeding.
- Waiting for a decision from the customer which materially affects the commencement of the work.
- Waiting for an opening notice or other consent.

Missing information:
In the event that the customer submits a request for New Works without any of the specified minimum information, The Electricity Networks Company shall inform the customer within two Working days of receipt of the request or notification and will inform the customer of the specific information that is missing. The clock will not start until all of the required minimum information has been received by The Electricity Networks Company.

Operational Events Specific to Categories.

Should the following specific operational events occur, they will be dealt with in the manner described below.

Emergency Response:

1. Where The Electricity Networks Company attends site in response to an emergency call and finds that there is no emergency (no danger),this call shall be aborted, excluded from SLA reporting and reported to both the customer and Ofgem as a mis-classification. The LA should be contacted from the site at the time this occurs. If this is out of office hours, the LA's 24 hour help line should be informed.

2. Where The Electricity Networks Company attends site to make an emergency disconnection, any subsequent reconnection of the same asset will be considered to be covered by SLA standard 6.6 & 6.7, New Works (1-00 jobs).

High Priority Fault Repair:

1. Where there is no material change in the circumstances surrounding a fault report, a fault cannot be re-categorised or raised again as a high priority fault from a single or multiple unit fault. Specifically, a fault report cannot be re-

categorised or raised again if the only reason for its change in category is the elapsed time taken to repair it.

2. Where there is a material change in the circumstances surrounding an existing fault report, the original report can be cancelled and the fault can be raised again as a higher priority. If the fault is raised again as a higher priority, the clock will start from zero at the time it is raised.

Multiple and Single Unit Fault Repair

1. If The Electricity Networks Company is notified of a multiple or single fault which does not meet the criteria in either of those categories, The Electricity Networks Company will reclassify the fault and notify the customer within five Working days.

New Works

1. The Electricity Networks Company will not accept orders with phased start dates; orders will need to be resubmitted broken down into work packages where installation certificates can be provided at the same time.

2. If orders are received and only part or none of the scheme is ready for the electrical works, the clock will not start.

3. If the volume of tasks ordered exceeds 115% of the monthly volume rate of jobs received, the SLA targets are no longer applicable to those orders and these events will be captured and reported outside the Ofgem submission, but included in regular management reporting and delivered in the same way as works included in the Ofgem submission.

4. In the event that tasks are ordered within a category and then are found to be in excess of that category, e.g. a transfer becomes a disconnection and a reconnection, taking the original order of 50 to 51 due to the additional task, the whole order may need to be reclassified and an agreement should be made between the customer and the UMC Manager. This will have no effect on the behaviour of the clock but may influence whichever SLA target category it falls into.

5. The Electricity Networks Company would prefer Tie Ups to be submitted on separate orders but, where this is not reasonable, they may be included as part of a larger order with a committed ready date. If The Electricity Networks Company finds that the LA Customer is not able to honour the committed date for the Tie Up, an abortive charge will be applicable unless the customer has provided 15 Working days' written notice to their UMC Coordinator that the works cannot take place on this date.

6. If after The Electricity Networks Company electrically complete a job and the customer later finds that there is a fault or it appears to be defective, it will need to be reported as a fault in order for repair to take place.

Quotations

1. In any circumstances where the provision of street lighting or street furniture is quoted for as part of a wider project (e.g. a main requires diverting), the project as a whole, including the street lighting and street furniture elements, will be managed by The Electricity Networks Company Connections Team and excluded from the UMC SLA.

Non-Standard Quotations

1. Thirty (30) Working days will be set as a default to provide quotations unless otherwise agreed between The Electricity Networks Company and the customer.

2. Should The Electricity Networks Company find, when preparing the quotation, that it will take longer than agreed with the LA due to new information becoming available, The Electricity Networks Company will contact the LA to agree the new time period. The clock will pause while this second agreement is being negotiated.

8 REMEDIAL AND MAINTENANCE WORKS

Ref	Description	Recorded via which category?	Chargeable?	Subject to SLA?
1	Missing Fuse Carriers: Standard cut-outs for example Lucy Oxford 25 amp normally less than 20 years old. Fuses and Fuse carriers are readily available from the cut-out suppliers.	N/A works to be carried out by Customer	N/A	N
2	Damaged Cut-outs: Any Cut-out damaged or broken, not including missing fuse/fuse carriers. Work: “Service Termination Repair”	Single or Multiple Fault	Y	Y
3	Exposed Conductors If conductors are exposed as a result of damage to the cut out. Including VIR Cables	Single or Multiple Fault or Emergency Attendance depending on severity	Y	Y
4	Burnt Out Contacts — Customer side Work: “Service Termination Repair”	Single Fault	Y	Y
5a	Burnt out contacts — DNO side: Where not caused by The Electricity Networks Company initial connections Work: “Service Termination Repair”	Single or Multiple Fault	Y	Y
5b	Burnt out contacts — DNO side: Where the damage is cause by a failing of The Electricity	Single or Multiple Fault	N	Y

Ref	Description	Recorded via which category?	Chargeable?	Subject to SLA?
	Networks Company's asset the work needs to be treated as a fault			
6	Vandalised Equipment: Where damage is caused to the LA's and The Electricity Networks Company's asset caused by vandalism. Work: "Service Termination Repair"	Single or Multiple Fault	Y	Y
7	High Earth Impedance level: (ELI's)measurements (Ze) Where The Electricity Networks Company have provided an earth and at the supply point the Earth Loop Impedance measure Ze is >10 Ohms Subject to BS7671 under the current IEE wiring regulations	Single or Multiple Fault	N	Y
8	No Supply to DNO Cut-Out: Where there is no supply at the The Electricity Networks Company cut- out the work will be treated as a single fault with the exception of where the no supply is a direct result of items 1, 2, 3,4, 5a, 6, 7, 11	Single or Multiple Fault	N	Y
9	Damaged DNO Cabling: 3rd party damage to The Electricity Networks Company cable Work: "Service Termination Repair" additional charges maybe incurred depending on the severity of the damage.	Single or Multiple Fault	Y 3rd party not	Y
10	Low Volts: Where there is a recorded Low Voltage at the The Electricity Networks Company supply point.	Single or Multiple Fault	N	Y
11	Structural Failure (Including RTA's): Where the LA asset is suffering from structural failure depending on the extent of damage to it will be treated as connections work and will be priced as per the standard schedule of rates depending on what work needs to be	Emergency Attendance (only if a danger to the public cannot be avoided without disconnection)	Y	Y

Ref	Description	Recorded via which category?	Chargeable?	Subject to SLA?
	undertaken. If there is danger to the public as a result of the damage and the structure cannot be made safe without the disconnection of the asset it will be treated as an emergency attendance.			
12	General Wear and Tear: Where any The Electricity Networks Company Equipment has deteriorated through normal wear and tear, not including loss and damage.	Single or Multiple Fault	N	Y

9. SERVICE INFORMATION AND REPORTS

Ofgem Performance Data

It is understood that Ofgem require performance data for street lighting only, therefore unless otherwise requested by Ofgem, street furniture will not be included in the Ofgem quarterly submission. When reporting SLA performance to Ofgem, only jobs where the clock has stopped within that quarter will be reported. Other management status reporting will include jobs not yet completed. Where no work has been completed during the time period of the report a 'nil return' report will be provided.

As it is necessary for The Electricity Networks Company and the customer to agree the quarterly performance data prior to submission to Ofgem both parties are required to make themselves available to review the data prior to the quarterly submission. If agreement cannot be reached concerning the data, The Electricity Networks Company will submit the data to Ofgem, but state where agreement could not be reached.

Status and Performance Reports

Reports can be expected as outlined below:

Faults and Emergency Attendance

Daily	Weekly	Monthly	Quarterly	Annually
• Emergency response site attendance and status report • High priority electrical work completed and scheduled dates report • Single and multiple fault electrical work completion report • Any clock events such as pause resume, restart and abort or reclassifications	• Weekly summary of daily reports • Outstanding faults report including target dates • Reinstatement completed • Reinstatement outstanding	• Monthly performance summary	• Quarterly performance summary Ofgem submission for LA	• Annual performance summary

New Works/Connections

Daily	**Weekly**	**Monthly**	**Quarterly**	**Annually**
• Electrical work completed • Any clock events such as pause, resume, restart and abort or reclassifications	• Electrical work completed • Electrical work outstanding, including scheduled dates • Reinstatement completed • Reinstatement outstanding	• Monthly performance summary	• Quarterly performance summary • Ofgem submission for LA	• Annual • performance • summary

Please see Appendices 2 and 3 for examples of how percentages are calculated.

10. WORKING TOGETHER

The Electricity Networks Company believe that in order for the delivery of UMC works to be carried out as effectively as possible it is imperative that we work together, by providing as much relevant information to one another as we can.

This SLA is a joint undertaking and therefore the main The Electricity Networks Company roles and interactions, meeting schedules and escalation processes are outlined below.
From our customer's perspective, we would ask that you provide The Electricity Networks Company with the following:

- Clear and up-to-date contact details
- Details of your internal escalation process
- Emergency 24 hour helpline number
- A maintained central email box for reports
- Details of contractors/agents working on your behalf

- For new works, if The Electricity Networks Company is to provide/serve notice on your behalf, please ensure The Electricity Networks Company is set up on an Eton 4 compatible system e.g. Mayrise and that The Electricity Networks Company is supplied with your DfT Number.
- Evidence of your UMS agreement.

In addition, we would ask that you ensure that you regularly communicate with The Electricity Networks Company and provide forecasts of expected works when required. Suitable attendance at meetings with The Electricity Networks Company will also enable smooth operations.

The Electricity Networks Company Contacts and Interactions

Title	Interaction
Faults Network Operations Centre 24 Hours 0800 0326990 Office Hours 08:00 – 17:00 Mon- Fri	Notification of fault; provision of fault reference number; programme if applicable; status updates from screen; invoice updates; management of clock pause, stop and start events and completion.
Faults Engineer Tel 0800 0326990	On-site activity, site liaison if required. Escalation from Faults Customer Services
National Operations Manager (NOM) Tel 02920-314208	Escalate from Faults Engineer
Connections Manager Tel 02920-314235	Escalate from NOM, liaison at UMC forums.
Customer Relationship Manager (CRM) Tel 07717-636224	Assistance with any CM or faults enquiries/work and any information about The Electricity Networks Company.
Key Account Manager (KAM) Tel 07825-805693	Assistance with any UMC or faults enquiries/work and any information about The Electricity Networks Company. Escalation point from CRM if required.

Meetings

Meetings will be held with individual Local Authority customers as deemed necessary and attended by the appropriate parties from both the customer and The Electricity Networks Company to review and agree the Ofgem performance figures and to discuss any operational issues and work forecasts. It will also be attended as deemed necessary by other appropriate parties from both the customer and The Electricity Networks Company.

User Group meetings may be held with a number of LAs who fall within the same geographical footprint.

Escalation Process

<u>Faults</u>

Faults Network Operations Centre - Faults Engineer -– Network Operations Manager or KAM – Head of Customer Connections

<u>New Works</u>

Customer Services Centre - CRM - KAM - –Connections Manager

Development of the SLA

In line with Ofgem's recommendation for a national SLA, this document is meant to provide a single SLA across The Electricity Networks Company's Network. It is recognised this SLA may need to be developed in the future and therefore The Electricity Networks Company reserve the right to withdraw and or reissue the SLA in light of changes in circumstances. As this is a joint SLA The Electricity Networks Company networks will periodically review the SLA and will at times invite comments from customers as to how the SLA can be improved. The Electricity Networks Company will attempt to operate in line with national guidelines and will take into account any future requests from Ofgem.

The SLA will form a regular agenda point at the quarterly User Group meeting and any developments or improvements to the SLA should be raised at this meeting. Changes to the SLA will be managed through formal change control.

Third Party Damage

Where an LA is aware of third party damage to an The Electricity Networks Company asset, the LA should provide, wherever possible, sufficient information for The Electricity Networks Company to investigate the claim in order to recover costs from the third party. Also, where The Electricity Networks Company attends an emergency response or fault and suspects third party damage, particularly intentional damage to an asset by a developer to expedite the disconnection of an asset, The Electricity Networks Company should inform the customer.

11. APPENDICES

Appendix 1 — Minimum Information

Minimum Information to be supplied for Emergency Response

1. Location
2. Local Authority
3. Address (with map if possible)
4. Equipment
5. Description of hazard
6. Contact details of person to provide updates to
7. Details of any staff on site and their contact details

Minimum Information to be supplied for Fault Notifications

1. Customer identification reference
2. Local Authority
3. Date issued by customer
4. Customer contact name and details
5. Fault category
    a. Emergency Response
    b. High priority fault repair
        i. Political
        ii. Dangerous junction/crossing
        iii. Public order concerns
    c. Multiple units — fault repair
    d. Single unit fault repair
    e. Remedial and Maintenance Work
6. Accurate location of equipment, including:
    a. Address
    b. Postcode if possible
    c. Grid reference (Eastings and Northings)
    d. Position description
    e. Asset number
    f. Map of area at 1/500 scale with equipment highlighted
7. Description of work involved including number of consuming points
8. Type of work
    a. DNO cost
        i. No current
        ii. Low voltage
        iii. Faulty cut-out
        iv. Loss of neutral
        v. High earth loop impedance*
        vi. Repeat 5th core fuse replacement
    b. Customer cost (P0 number to be included)
        i. Third party cable damage
        ii. Make safe including vandalism and damage
9. Further information†
    a. Access information
    b. Asset history

NB: Upon receipt of notification by The Electricity Networks Company, the customer will be issued with The Electricity Networks Company' identification number.

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* *Where The Electricity Networks Company Limited has provided an earth and at the supply point the Earth Loop Impedance measures >10 Ohms. Subject to BS7671 under the current IEE wiring regulations.*

† *LA to provide consents for their land if necessary or to provide details of ownership if known*

Minimum Information to be provided for Connections Works

Job number (customer unique ref number)

1. LA details
2. Date issued by customer
3. Sole customer contact name and details relevant to this order
4. New works category
    a. 1-10 Jobs
    b. 11-50 jobs
6. A plan showing the extent of the works and any civil works required from customer and a Public Lighting Schedule detailing the estimated cost based on the standard schedule of prices.
7. Accurate Location of works, including:
    a. Address
    b. Postcode if possible
    c. Position description
    d. Asset numbers if applicable
    e. Map of area at 1/500 scale with equipment highlighted if applicable
    f. Grid reference (Eastings and Northings)
8. Description of work involved including number tasks
9. Estimated total cost
10. Quotation required Y/N?
11. Asset ready date and installation certificate if applicable indicating asset is ready.
12. If a quotation is not required, or if a quote is being accepted, a purchase order number must be supplied
13. Approved variation amount
14. Opening notice information
    a. If The Electricity Networks Company to request
        i. Customer Dft number
        ii. Classification of asset (Works for road purposes YIN?)
        iii. Grid reference
    b. If requested by customer
        i. Opening notice reference
        ii. Opening notice dates
15. Further information*
    a. Access information
    b. Asset history
16. Confirmation of whether a permit charge is payable
    a. Value of permit charge if applicable
17. Total wattage requirement of each asset
18. Details of agreed wayleaves and easements where the LA is to provide†

NB: On acceptance of order by The Electricity Networks Company the customer will be issued with The Electricity Networks Company' identification number.

Appendix 2 - Calculation of Time Taken

Our interpretation of the elapsed time calculations against each service standard shall be as follows:

1. For measuring elapsed time against the ‘emergency response’ category, time will be measured in hours and minutes and will operate 24 hours a day, 7 days per week.

2. For all service standards except ‘emergency response’:

a. The elapsed time will be measured in Working days where a Working day is defined as “between the hours of 08:00 and 16:30 Monday to Friday excluding public holidays”

b. Working days shall be the lowest granularity of measurement. The time of a particular event within the Working day shall be irrelevant

c. Where a clock event happens outside of working hours, that event will be considered to have happened on the following Working day. That includes all clock start, stop, pause, resume, restart, and abort events.

Appendix 3 - Calculation of Percentages

The percentages of works completed for both faults (except for emergency response) and new works are calculated using the clock stop event of 'all electrical works complete'. This means that the entire order for new works must be completed for the clock to stop.

In the case of multiple faults or new works orders in excess of one job, if only a part of the overall job is completed by the SLA target it cannot be counted regardless of percentage progress of that order. Only completed orders or complete multiple fault repairs are included in the calculation.

This is also applicable to high priority fault repairs as they may consist of both single and multiple fault repairs, as illustrated in the example below.

Measure: High Priority Fault Repair for faults involving traffic lights

Ofgem target: 90% in 2 calendar days or less

Example calculation: In a 12 week period The Electricity Networks Company is requested to repair 10 high priority faults involving traffic lights: three are single faults and the remaining seven are multiple faults varying in size from two to 12 faults per notification. The Electricity Networks Company performs as follows:

High Priority Fault	**Type**	**Week Days to repair**	**2 days or less**	**>2 days**	**Comments**
1	Single	0	✓		
2	Single	0	✓		
3	Single	15	✓		
4	Multiple	0	✓		
5	Multiple	9		✓	3 of 6 faults repaired within 1 day
6	Multiple	9	✓		
7	Multiple	9	✓		
8	Multiple	18		✓	8 of 10 faults repaired within 2 days
9	Multiple	9	✓		
10	Multiple	11	✓		
	TOTAL	-	8	2	

Performance Summary		
Measure	**Actual Performance**	**Ofgem Target**
% of responses in 2 days or less	80%	90%
% of responses in more than 2 days	20%	10%

In the particular example ENC would effectively report its actual performance as set out in the table above. For the avoidance of doubt, The Electricity Networks Company is required to report its actual performance against the License Condition 15A to Ofgem.

In the case of emergency responses, the calculation is as follows:

Measure: Emergency Response

Ofgem target: 90% in less than 2 hours

Example calculation: In a 12 week period The Electricity Networks Company is requested to attend 20 emergencies.

The Electricity Networks Company performs as follows:

Under 2 hours = 18
4 hours = 1
7 hours 1

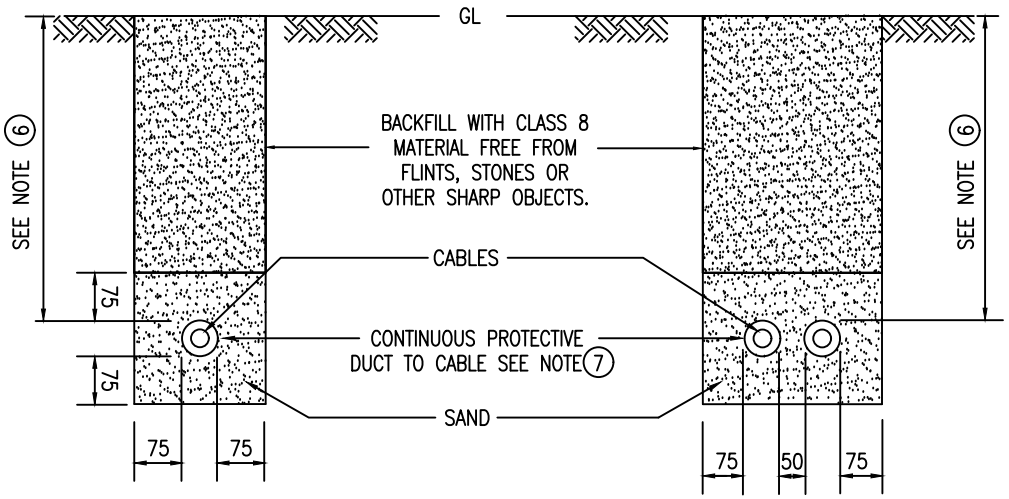
The Electricity Networks Company would report to Ofgem:

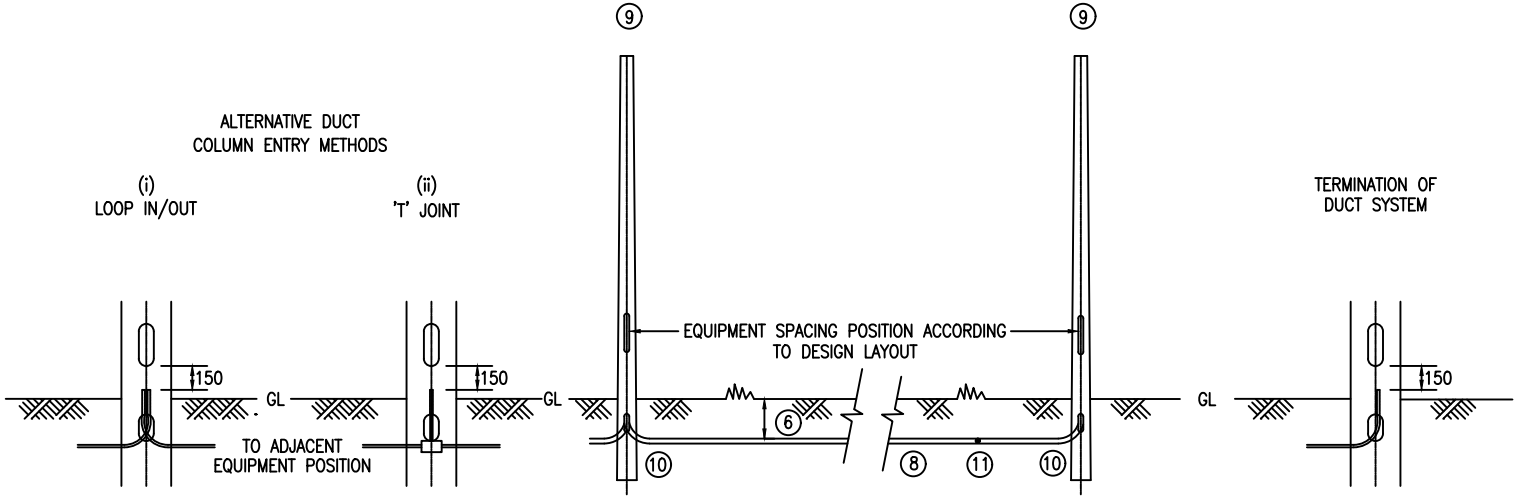
90% Less than 2 hours
10% Greater than 2 hours

Appendix 4 — Unmetered Connections Charging Schedule

ENC connection service charges will be no higher than the exact equivalent charges for identical connections related services levied by the upstream Distribution Network Operator (DNO) (currently Western Power Distribution), provided however that Gloucestershire County Council provides ENC with satisfactory evidence of the connection charges that the DNO proposes to levy for any particular connections related service.

Furthermore, Gloucestershire County Council is not obliged to procure connection services from ENC but may do so from any National Electricity Registration (NERs) accredited contractor provided that such contractor is authorised by ENC to access the ENC network.





NOTES

11. The manufacturer's appropriate duct fitting shall be used for coupling or jointing of sections, branch / T-junctions or reducers.
12. Where a cable in duct circuit separates into two or more directions then, the main circuit shall have a purpose made matching system hinged cover T-junction inserted. A reducer to a smaller diameter branch may be incorporated if compliance with note No.6 is maintained.
13. Protective sand material shall comply with Clause 1421.
14. The position of duct junctions shall be recorded and marked upon the 'As Built' drawings.

Notes:

1. The Specification for Highway Works (current version, or as indicated in the contract) applies, together with any Gloucestershire County Council additional or substitute clauses.
2. ALL DIMENSIONS ARE IN MILLIMETRES.
3. Underground and ducted cables shall comply with Clause 1421.
4. Testing for cable installation shall comply with Clause 1424.
5. The Contractor shall be responsible for adequate claerances from the equipment of other public utilities.
6. Cable in duct within verge or footpath shall have a minimum cover of 450mm. In carriageway the minimum cover shall be 750mm.
7. Duct Sizes and Installation of PVC Insulated Armoured Cables
   For a 50mm internal diameter duct, the largest single two core cable to be installed is: 1No. 25mm² CSA conductors, together with 1No. 6mm² cable. Cables of greater size or quantity will require additional and/or larger duct or duct combinations.
8. The continuous protective duct shall be manufactured from prime grade ultra-violet resistant polypropolene / high density polyethylene material that complies with BS EN 50086-2.4.
9. A street lighting column, feeder pillar or illuminated road traffic sign / bollard equipment position.
10. All underground electrical cables shall be totally enclosed withina duct system. The duct shall rise into the column foundation to a position not less than 150mm. below the bottom of the door opening.

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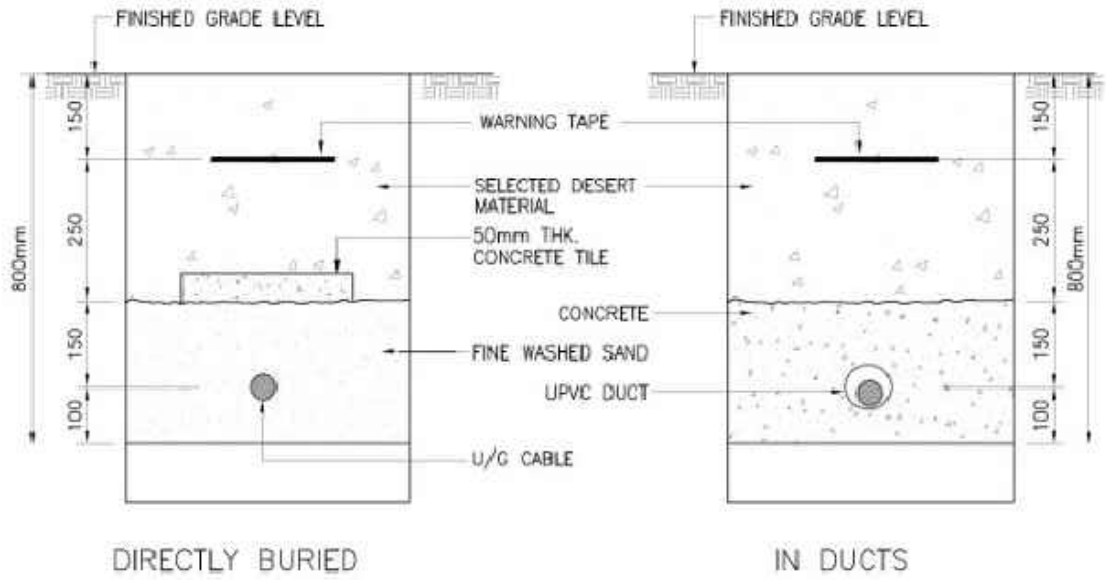
Drawing:

STANDARD DETAIL
SAND SURROUND FOR DUCTING
INSTALLATION & BACKFILL DETAIL

Drg. No. J/16



NOTE: WHEN DIRECTLY BURIED CABLES ARE CROSSED WITH OTHER SERVICES THEN THEY SHOULD BE INSTALLED IN DUCT AND KEPT AT MINIMUM DISTANCE OF 300 mm FROM THE OTHER SERVICE. EXACT DETAILS FOR EACH CASE TO BE APPROVED BY SUPERVISING ENGINEER AT SITE.

INSTALLATION OF UNDERGROUND CABLES

Notes:

Gloucestershire COUNTY COUNCIL

Drawing:

INSTALLATION OF UNDERGROUND CABLES

Drg. No.

J/17

Gloucester Highways Partnership

SEC Job No. 451830

Page 1 Of 1

Unit Test Sheet

Test Instruments **Cal Dates**

Road Name REGENT STREET

Earth Loop Impedence:

Area CHELTENHAM

Insulation Res:

Unit No	Lantern type & Wattage	Visual Inspection	Voltage	Polarity Check	Continuity		Insulation Test			Earth Loop Imped		Circuit Protection Fuse		
					R1 Phase	R2 CPC	Ph - E	N - E	Ph - N	Z E	Z S	Type	BS No	Rating A
117982 A	DELTA	OK	246	OK	0.03	0.03	200	200	200	1.00	1.06	HRC	88	6
117982 B	DELTA	OK	246	OK	0.03	0.03	200	200	200	1.00	1.06	HRC	88	6
117981 A	DELTA	OK	241	OK	0.03	0.03	200	200	200	0.50	0.56	HRC	88	6
117981 B	DELTA	OK	241	OK	0.03	0.03	200	200	200	0.56	0.56	HRC	88	6

SIGN NAME : M Jordan DATE: 16.03.12.

PRINT NAME : M JORDAN

Notes:

Gloucestershire COUNTY COUNCIL

Drawing:

ELECTRICAL CERTIFICATE (EXAMPLE)

Drg. No. J/18