Technical Guidance Note
TG13 - Street Lighting

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1. **Policy / Approach**

1.1. Hampshire County Council's (HCC) stock of apparatus is maintained on a PFI contract running from 2010 to 2035. The PFI’s Operating Sub-Contractor is SSE Enterprise Lighting Services (SSE).

1.2. Hampshire County Council has no discretion for relaxation of the Accrual Required Standards of the PFI Output Specification.

1.3. This Technical Guidance Note 13 summarises the Development Standard and ensures compliance with the Accrual Required Standards.

1.4. Commuted Sums will apply to any non-standard apparatus. Specification details of all such apparatus must be agreed in consultation with Hampshire County Council’s Street Lighting Section prior to installation.

1.5. For further guidance on policy & practice on street lighting in Hampshire see the [Street Lighting Maintenance Management Plan (SLMMP)](mailto:).
2. **Definitions and Abbreviations**

<table>
<thead>
<tr>
<th><strong>Accrued</strong></th>
<th>When applied to any item of Apparatus, Apparatus which has become the responsibility of the Hampshire County Council under the terms of its PFI Street Lighting Maintenance Contract.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Apparatus</strong></td>
<td>Street lighting and off-highway lighting installations and materials which, for the avoidance of doubt and without limitations includes:- lighting points, lighting columns, posts, straight posts (only to the extent used as an additional support for an illuminated traffic sign) together with their respective attachments, luminaires, lanterns, shields, control gear, control devices, switches, relays, meters, illuminated traffic signs, subway lighting, illuminated traffic bollards, Belisha beacons, variable message signs, illuminated pedestrian refuge beacons, school crossing patrol warning lights, flood lighting of monuments and buildings, surface car park lighting systems, wall mounted connection boxes, conduits, surface mounted wiring/cabling, feeder pillars, Authority owned Private Cable Networks and all associated components.</td>
</tr>
<tr>
<td><strong>Authority Attachment(s)</strong></td>
<td>Any Authority owned street or traffic signs or sign plate or notices or other equipment and items authorised by the Authority to be attached to Apparatus including (and in the case of illuminated items only) to other structures.</td>
</tr>
<tr>
<td><strong>De-Accrued</strong></td>
<td>When applied to any item of Apparatus, Apparatus which is no longer the responsibility of the Hampshire County Council under the terms of its PFI Street Lighting Maintenance Contract.</td>
</tr>
<tr>
<td><strong>DNO</strong></td>
<td>(a) a distribution network operator and/or (b) an independent distribution network operator within the meaning of Part 1 of the Electricity Act 1989 as amended by the Utilities Act 2000.</td>
</tr>
<tr>
<td><strong>Excusing Cause</strong></td>
<td>Any event whereby equipment can be temporarily suspended from Hampshire County Council's PFI Street Lighting Maintenance Contract.</td>
</tr>
</tbody>
</table>
3. Technical Requirements – Planning & Design

3.1. Planning of Developments

3.1.1 Developers and their Consultants need to consider street lighting at the earliest opportunity and should consider:

a) **Sustainability.** Public realm lighting must minimise CO₂ emissions and future maintenance costs. Efficient lighting is not incompatible with a pleasing street scene. Incorporating advice early in the planning of any development will enable the achieving of correct lighting levels whilst minimising the proliferation of structures.

b) **Design Codes.** Development Design Codes should incorporate a site-specific lighting design brief issued by the Highway Authority. All design briefs will be based on the advice contained in this TG13 document. HCC’s Street Lighting Section is responsible for specifying lighting classes for every street, and should be consulted early in the process so that detailed advice can be incorporated in the design.

c) **Street Layout.** If footpaths & cycle paths are routed separately from the road then they may require separate systems of lighting, with attendant increased energy & CO₂ emissions; such layouts may also diminish ‘natural/passive’ surveillance which is discouraged by Manual for Streets (MfS).

d) **Highway Trees.** Integration of street lighting, tree planting & landscaping; these aspects should be developed harmoniously by Developers, their Design Consultants, Local Planning Authorities and the Highway Authority. The height & spread of some trees may conflict with efficient lighting solutions. Combined arboriculture and lighting advice should be obtained at an early stage from the Highway Authority before tree positions are agreed [see Section 3.18].

e) **Ecology & Lighting.** Advice on the mitigation of lighting and its ecological impacts is included herein and should be incorporated in development planning briefs [see Section 3.19].

f) **Non-standard apparatus.** Any departure from standard materials will require specific approval by the HCC’s Street Lighting Section as part of the design approval process. Non-standard apparatus will always incur commuted sum charges and some may not be permitted within the Highway [see Section 3.20].

3.2. BS5489 & BS EN13201

3.2.1 Lighting designs should be based on the advice given in the current BS 5489-1 *Code of Practice for the Design of Road Lighting (Part 1: Lighting of Roads and Public Amenity Areas)* and the associated current BS EN 13201 Standards.

3.2.2 HCC’s Street Lighting Section will specify target lighting classes for each site – to obtain a site-specific design brief (see Section 4.2).
3.3. **Institution of Lighting Professionals (ILP) Guidance**

3.3.1 Designs are to take guidance from the Institution of Lighting Professionals’ (ILP) technical reports, professional lighting guides and guidance notes.

3.4. **Environmental Zones and Light Intrusion**

3.4.1 Developments should be categorized by Environmental Zones in accordance with ILP *Guidance Note for the Reduction of Obtrusive Light*.

3.4.2 Light intrusion (e.g. into windows) is to be avoided and any apparent issues are to be monitored by the Developer in accordance with ILP *Guidance Note for the Reduction of Obtrusive Light*. Lighting designers should produce vertical illuminance calculations where appropriate.

3.5. **Construction, Design & Management Regulations (CDM)**

3.5.1 Lighting design must be carried out by appropriately qualified competent persons in accordance with current CDM regulations. See ILP guidance on competencies.

3.5.2 A clear note must be appended to the street lighting layout drawings detailing which of the Highway Electrical Design Procedures was used by the designer – see the *HEA Guidance Note “CDM 2015 Regulations / Applicability to Highway Lighting Design”*.

3.5.3 If a site involves changes to the existing highway network a solely desktop indicative lighting design is not acceptable. If the lighting designer uses Design Method Statement 2 then the Principal Designer will need to produce a Hazard Elimination & Management List (HEML) for inclusion with the detailed design submission. Design to Method Statement 2 is not acceptable for S278 or changes to the existing highway.

3.6. **Hazard Elimination & Management List (HEML)**

3.6.1 As defined within current CDM regulations, all risks at construction, maintenance, decommissioning & replacement must be assessed as an integral part of the design process. Guidance on risk assessment and the use of risk matrices is provided by the Health & Safety Executive. Hazards may include, but not be limited to, highway features and users, underground services, overhead power & telecoms, fuel pipelines, mobile phone masts, waterways, aerodromes, rail infrastructure, etc. An HEML that considers all relevant factors must be submitted with all detailed lighting designs.
detailed lighting designs.

3.7. **HSG47**

3.7.1 To ensure that designs are viable the Developer should ensure that underground service locations are identified to the Designer and that designs are based on up-to-date information. Designers are to “design-out” risks where practicable and to ensure that any significant residual hazards are documented and noted on layout drawings - ref HSG47 Avoiding Danger from Underground Services.

3.8. **G39/1**

3.8.1 Designers are to ensure compliance with relevant clearances & processes as detailed in G39/1 Model Code of Practice Covering Electrical Safety in Planning, Installation, Commissioning & Maintenance of Public Lighting and Other Street Furniture.

3.9. **General Approach to Lighting Design**

3.9.1 New designs need to be prepared in sympathy with the local environment.

a) **Site-specific design brief** – designs should be based on a site-specific design brief issued by HCC’s Street Lighting Section - contact hsl@hants.gov.uk.

b) **New sites** (e.g. S38) - these designs may be derived from solely desktop activity.

c) **Existing roads** (e.g. S278) – where a site involves changes to the existing highway network a solely desktop indicative lighting design is not acceptable.

d) **Tying-in with existing highway lighting** - the lighting design calculations should demonstrate compliance and consistency in the transition area from the old lighting to the new lighting.

e) **Efficacy of design** – designers need to show that the optics chosen have the optimal distribution pattern and flux for the predominant road geometry, to light the target area with efficacy in mind, and to minimise unwanted spill light.

f) **‘Legacy’ lighting** - if proposals abut existing road lighting, designers may need to include the contribution of existing ‘legacy’ lights in their design calculations. Where subsidiary ‘P’ lighting classes are specified then S:P factors will need to be properly applied. If the CCT of existing light sources differ from the new LED luminaires then existing lanterns whose contribution is included in your calculations may need to be replaced by new LED luminaires (see ILP Guidance Note 6/17 Retrofitting LED Luminaires on Existing Lighting Columns).

g) **Viability of design** – designers should make every effort to ensure that designs are viable for construction. For example, with works on existing roads the availability of DNO LV mains supply cables for
proposed columns should be ascertained along with the identification of hazards and obstructions (utilities, services, trees, etc.). The digging of trial holes in advance of the works, to help inform the design and ensure buildability, may be appropriate.

h) **Street clutter** – proliferation of street clutter is undesirable. Where possible sign plates may be located on appropriately positioned lighting columns. However, the designer **MUST** check that columns are designed to accommodate the loading from the additional weight & windage of any Authority Attachments **AND** that residual capacity for additional 0.3m² signage remains. For sign fixing methods see Section 3.26

**3.10. Column Height Constraints**

3.10.1 Column heights should be considerate of the scale of the street scene whilst allowing energy-efficient design. Column height and luminaire tilt angles are constrained by the road type and environmental context – this table is a guide; HCC’s Street Lighting Section will advise on each site-specific design brief.

<table>
<thead>
<tr>
<th>Road type</th>
<th>Maximum height by environmental zone (1)</th>
<th>Maximum luminaire tilt (2)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Strategic route</strong> “A” class, dual carriageways</td>
<td>10m (zones E1/E2)</td>
<td>0° (zones E1/E2)</td>
</tr>
<tr>
<td></td>
<td>12m (zones E3/E4)</td>
<td>5° (zones E3/E4)</td>
</tr>
<tr>
<td><strong>Main distributor</strong> other “A” class</td>
<td>10m (zones E1/E2)</td>
<td>0° (zones E1/E2)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5° (zones E3/E4)</td>
</tr>
<tr>
<td><strong>Secondary distributor</strong> “B” &amp; “C” class</td>
<td>8m (zones E1/E2)</td>
<td>0° (zones E1/E2)</td>
</tr>
<tr>
<td></td>
<td>10m (zones E3/E4)</td>
<td>5° (zones E3/E4)</td>
</tr>
<tr>
<td><strong>Road linking main roads</strong> &amp; secondary roads</td>
<td>6m (zones E1/E2)</td>
<td>0° (zones E1/E2)</td>
</tr>
<tr>
<td></td>
<td>8m (zones E3/E4)</td>
<td>5° (zones E3/E4)</td>
</tr>
<tr>
<td><strong>Subsidiary roads</strong> high traffic flow</td>
<td>6m (zones E1/E2)</td>
<td>0° (zones E1/E2)</td>
</tr>
<tr>
<td></td>
<td>8m (zones E3/E4)</td>
<td>5° (zones E3/E4)</td>
</tr>
<tr>
<td><strong>Subsidiary roads</strong> normal or low traffic flow</td>
<td>6m</td>
<td>0° (zones E1/E2)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5° (zones E3/E4)</td>
</tr>
<tr>
<td>Road type</td>
<td>Maximum height by environmental zone (1)</td>
<td>Maximum luminaire tilt (2)</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>------------------------------------------</td>
<td>---------------------------</td>
</tr>
<tr>
<td>Footpaths, Cycle paths</td>
<td>6m</td>
<td>0° (zones E1/E2)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5° (zones E3/E4)</td>
</tr>
<tr>
<td>City/Town Centre (zone E4)</td>
<td>10m</td>
<td>5°</td>
</tr>
<tr>
<td>Village Centre</td>
<td>8m (zone E3)</td>
<td>5° (zone E3)</td>
</tr>
<tr>
<td></td>
<td>6m (zone E1/E2)</td>
<td>0° (zone E1/E2)</td>
</tr>
</tbody>
</table>

1. The Environmental Zones are defined in ILP 'Guidance note for the reduction of obtrusive light'
2. Tilt angles are only a guide and optimal tilt to avoid upward light may vary between lanterns – see manufacturers’ luminaire polar curves/Cartesian diagrams

### Table 1: Column Height & Luminaire Tilt Constraints

#### 3.11. Lighting Layout Drawing

3.11.1 See the Street Lighting Section on the Technical Guidance web page [https://www.hants.gov.uk/transport/developers/technical-guidance](https://www.hants.gov.uk/transport/developers/technical-guidance) for an example lighting drawing showing typical information to be included.

3.11.2 Design drawings are to be supplied at scale 1:500 & maximum size A1 – and are to include:

a) Statement of the design procedure used (see Section 3.5 above)
b) Summary of target lighting class(es).
c) Boundary showing adoptable area & any easements required.
d) Tree planting layout.
e) Vehicular crossovers & driveways.
f) Significant residual hazards.
g) Clearance from columns to hazards to be highlighted where useful
h) Environmental constraints relevant to lighting.
i) Positions of highway electrical apparatus with lantern aiming.
j) Key/legend – including materials specification with quantities. For each LED lantern these attributes need to be identified: luminaire body, CCT, optic, flux output, system wattage. Non-standard columns will require accompanying detail drawings.
k) Existing & new unit ID numbers.
l) A schedule of illuminated apparatus, summarising clearance from kerbs, supply cable service type.
m) Where ‘private’ (non-DNO/IDNO) cable systems are to be used all cable & duct routes are to be shown, along with schematic circuit diagrams (supporting calculations will also be required).

n) Private lighting installed on housing developments in areas adjacent to highway lighting is to be indicated along with note of the responsible maintenance management companies

3.11.3 As-built drawings should include a summary schedule of revisions.

3.12. Maintenance Factors (new equipment)

3.12.1 Overall maintenance factors are derived from BS5489 methodology. For an HCC PFI-approved IP65 luminaire, such as Philips Luma, the overall maintenance factor is derived thus:

a) 48 month cleaning cycle = 0.94 (no allowance for <6m in E3/4 zones)

b) LED lumen maintenance at 25 years = 0.90

c) “lamp” survival factor (from failure fraction) = 0.99

d) Overall maintenance factor = 0.85

3.13. Maintenance Factors (‘legacy’ luminaires)

3.13.1 If the contribution from existing ‘legacy’ luminaires is to be included within design calculations the following maintenance factors apply (existing optic settings used at specific sites will need to be obtained from HCC):

a) WRTL Libra 24w, 36w & 55w PLL = 0.85

b) WRTL Arc 45w & 60w CPO = 0.82; 90w CPO = 0.79

c) Philips SGS253/254 100w & 150w SONT = 0.88

3.14. Lighting Design Calculations

3.14.1 These should be from Lighting Reality with file names that clearly describe the location and should include:

a) ‘User notes/title page notes’ – these should describe the target lighting class, include a commentary on the design constraints; explain any deviations from design standards (if necessary a separate ‘designer narrative’ document may be produced)

b) ‘Roadway’ calculations – are required to demonstrate compliance, determine optimal spacing & to optimal optic choice for the site’s predominant road geometries; the original RTMR files are required.

c) ‘Outdoor’ calculations – are also required for illuminance of irregular areas; multiple calculation grids should be provided, with grids confined to relevant discrete areas to minimise any distorting effects on average illuminance values. Luminaires should generally be aimed perpendicular to the adjacent kerb or road centre line. To demonstrate the correlation of design calculations & column positions the lighting
layout drawing with relevant topographic information is to be used as the base drawing within Lighting Reality [e.g. when the lighting calculations have been completed the subsequent layout drawing should be re-imported into the RTMA file].

d) PDF & ‘read-only’ files (if supplied additionally as a record) should exclude greyscale, points and unnecessary isolux contour lines. Masks should not be hidden and the results should be displayed.

3.15. Design dimming / Variable Light Output

3.15.1 Design work should achieve the target lighting classes (as specified in the site-specific design brief) without recourse to arbitrary dimming of any luminaire flux values on the lighting design calculations. Any requirements for non-standard or reduced driver current to achieve optimal flux values should be discussed with HCC’s Street Lighting Section.

3.16. Conflict Areas, crossings, traffic calming, cycleways

3.16.1 HCC’s Street Lighting Section’s approach to the guidance in ILP document PLG02 – Application of Conflict Areas is that context is paramount, with each site to be assessed on a case-by-case basis. A conflict area may be limited to the actual conflict and its immediate surroundings:

a) **Roundabouts or complex junctions** - the design may be deconstructed into multiple calculation grids, with each conflict area limited to include the area of conflict ahead of the driver and the adjacent area where a conflicting body might approach from.

b) **Zebra crossings** – supplementary lighting should generally be provided to give positive contrast of pedestrians on the crossing as delineated in ILP document TR12 Lighting of pedestrian crossings. See also HCC standard detail drawing HCC10/L/155.

c) **Signalised crossings** are generally not considered to be in need of additional lighting if the existing road lighting is of an appropriate standard. Where crossings are situated within larger conflict areas designers should create an additional calculation grid in order to ensure that average illuminance levels at the crossing ‘carpet’ are not lower than the approaches.

d) **Uncontrolled/Informal crossings** – for example new refuge islands – designers should create an additional calculation grid in order to ensure that average illuminance levels at the crossing ‘carpet’ are not lower than the approaches; it may be desirable to light these with some element of positive contrast through the standard road lighting, with columns placed equidistant from and in advance of the island (as viewed by the driver).

e) **Traffic calming** – guidance on the lighting of traffic calming features is outlined in ILP document TR25 Lighting for traffic calming features. (see also TG11 - Traffic Calming)
f) **Cycleways & shared surface paths** – guidance on the lighting of shared surface cycleways is outlined in ILP document TR23 *Lighting of cycle tracks*. Designers should assess cycleways as routes and should aim for good uniformity (≥0.25); establishing adjacent visibility zones may not always be practicable. (see also TG10 - Footways, Cycleways, Shared Surfaces)

### 3.17. Column Positioning & Clearances

3.17.1 Apparatus positioning should be in accordance with good industry practice to avoid restricting pedestrian movement whilst ensuring the lighting unit can be safely maintained.

a) **Apparatus is to be sited within the highway** – easements will be required where equipment is sited in private land (easement size suggested as minimum 1.0m radius of the column and connected to the highway).

b) **Clearance from carriageway** – are to be not less than the **minimum** defined in Table 2. Greater clearances may be desirable. All clearances are to be itemised on detailed design layout drawings.

<table>
<thead>
<tr>
<th>Speed Limit (mph)</th>
<th>Minimum horizontal clearance</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>0.8m</td>
</tr>
<tr>
<td>30</td>
<td>0.8m</td>
</tr>
<tr>
<td>40</td>
<td>1.0m</td>
</tr>
<tr>
<td>50</td>
<td>1.0m</td>
</tr>
<tr>
<td>60</td>
<td>1.5m</td>
</tr>
<tr>
<td>70</td>
<td>1.5m</td>
</tr>
</tbody>
</table>

1 - Table derived from BS5489-1:2013, 4.3.3.3 – Table 2 (please note that this TG13 table refers to “speed limit” not “design speed”)

2 - Clearance is subject to other factors, e.g. passive safety risk assessment

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c) **Footways** – columns should generally be sited at the rear of the footway.

d) **Verges** – where verges are provided between carriageway and footway then columns may be sited in the verge, provided that minimum horizontal clearances are maintained (as Table 2)

e) **Clearance from crossovers/driveways** – minimum lateral clearance of 0.8m to the path of any vehicle crossover should be maintained.

f) **Kerbs <100mm** - where footways are delineated by kerbs with 25mm upstand then columns should not be planted in such footways unless they are adjacent to permanent solid features behind (eg adjacent wall).
g) **Shared surfaces** - residential roads with shared surface arrangements will require careful consideration of column positions; there is currently no framework whereby HCC can adopt columns that are not protected by conventional kerb upstand and clearance from carriageway.

h) **Clearance from buildings** – such clearance as necessary to avoid disturbance to foundations or structures.

i) **Hazards** – columns are to be positioned to avoid conflict with hazards and to allow safe maintenance; working widths for barriers and road restraint systems should be noted.

j) **Door alignment** – column doors should be ‘downstream’ from adjacent traffic flow (such that opening a door requires a person to face the oncoming traffic)

k) **Boundaries** - ideally columns are to be sited on property boundaries.

l) **Trees** – clearance to trees must be maintained (see Section 3.18).

m) **Sightlines** – sightlines from vehicular access/gateways should not be blocked or obscured.

n) **Footpaths** – raise & lower columns are to be used where access via MEWP cannot be guaranteed and to be positioned so that apparatus can be safely maintained in the future.

o) **Cyclepaths** – columns should be set back a minimum 0.3m clear of cyclepaths such that they do not obstruct overhanging handlebars.

p) **Wall-mounted lanterns** may be considered. Minimum vertical clearances above highway must be maintained. On new developments wall-mounted apparatus requires a Deed of Dedication, not a Wayleave Agreement.

3.18. **Highway Trees & Lighting**

3.18.1 At an early stage of development planning there should be detailed integration of tree planting layouts and lighting designs; the potential for foliage ‘blocking’ light distribution should be considered when deciding what species to plant.

a) **Energy efficacy** of lighting requires that optimal design spacings are achieved and the development of planting plans should be coordinated with lighting design.

b) **Horizontal clearance** - maximum growth of a tree canopy should be >5m from any lantern.

c) **Vertical clearance** - in some cases (e.g. with mature trees) it may be possible to locate columns beneath the tree canopy provided that ≥1.6m clearance is kept above the lantern.

d) **Base compartments** and their access doors should not be encroached upon by undergrowth restricting maintenance access.
3.18.2 See standard detail drawing HCC10/L/170 for details of required clearances. All standard detail drawings are available at https://www.hants.gov.uk/transport/developers/standard-details

3.18.3 For further guidance regarding trees, see TG15 – Trees, Landscape and Ecology.

3.19. Ecology & Lighting

3.19.1 Lighting design of any previously unlit area must consider ecological impacts. Lighting proposals should avoid or minimise the potential for impacts on existing or created habitats.

3.19.2 The ILP have resources that assist in ensuring best-practice and HCC’s Street Lighting Section can advise. Lighting designers shall summarise their decisions in relation to significant environmental constraints and in response to Environmental Impact Assessments.

3.19.3 Lighting designers should choose apparatus that has the optimal light distribution pattern for the road geometry, thus to illuminate only the target area and minimising unwanted spill light in accordance with the ILP Guidance Note for the Reduction of Obtrusive Light.

3.19.4 Detailed design drawings should show environmental constraints relevant to lighting (e.g. hedgerows frequented by bats); where constraints apply the detailed design drawings should show appropriate isolux contour lines (suggested 1.0 lux & 0.2 lux) to demonstrate the extent of spill light.

3.19.5 It may be possible to mitigate lighting impacts, in consultation with HCC’s Street Lighting Section, through other measures such as:

a) Lantern tilt may be adjusted (the optimal tilt to minimise spill light depends on the optical control characteristics of particular lanterns);

b) Louvres may be specified;

c) Light sources may be altered to different colour temperature and spectral distribution;

d) Reducing the mounting height of lanterns sited near environmentally sensitive areas;

e) Reducing target light levels in sensitive areas; where a development abuts open country (i.e. where two environmental zones meet) a boundary zone (c.15m) within the development may be considered to belong to the darker environmental zone and therefore within that strip the specification of target light levels, lantern tilt, light source and lighting times may differ from the rest of the site;

f) Excluding lighting from areas separated from the road network, from areas at site periphery or from private communal areas;

g) Positioning lights sensitively – eg by avoiding positions at intersecting hedges, bat flight paths etc
3.20. Non-Standard Apparatus & Commuted Sums

3.20.1 In conservation areas non-standard apparatus may be deemed to be appropriate by local planning authorities. Departure from standard materials will require the specific technical approval by the HCC’s Street Lighting Section. Non-standard apparatus may incur commuted sum charges. It should be noted that non-standard “heritage” lighting may be less energy-efficient and may have inferior optics & light control than standard equipment.

3.20.2 Power supplies should be provided via mains DNO or IDNO networks; with few exceptions private cable networks are considered to be non-standard and will incur commuted sum charges (see Section 3.21)

3.21. Power Supply

3.21.1 The Developer is to procure unmetered low voltage electricity supplies for all apparatus (single-phase 230v earthed mains power supply) DNO - by preference the supply should be from the local/host DNO. Scottish & Southern Energy is the Distribution Network Operator within Hampshire. Developers are advised to allow sufficient time for liaison with the DNO in advance of works (email: connections@sse.com ).

b) IDNO – some developments are served by an electricity supply cable network that is owned by an IDNO (Independent DNO). In this case HCC must be advised of the identity of the IDNO.

c) Private cable networks – may be specified where mains supply cables cannot be provided – e.g. for apparatus such as illuminated signs sited on traffic islands (see Section 3.31) or for passively safe apparatus (see Section 3.30). Supporting calculations should be provided. Private cable networks proposed in other circumstances will be likely to incur commuted sum charges (see Section 3.20).

3.21.2 In order to commission lighting units developers will first need to sign an Unmetered Connection Agreement (UmCA) with the host DNO (SSE) & sign-up with an electricity supplier – for more information see https://www.ssen.co.uk/ConnectionsYouHaveaChoice/ and also https://www.ssen.co.uk/UnmeteredConnectionsFlowchart/.

3.22. Electrical Test Data

3.22.1 The Developer shall carry out electrical testing of apparatus in accordance with the requirements of the current edition of BS 7671 (the IEE Wiring Regulations) which identifies the electrical testing required, suitable Test Certificate format for recording results & standard methods of testing.

3.22.2 Notwithstanding the requirements of BS 7671, the test certificate for each lighting unit must be no more than 12 months old at the time of the initial pre-accrual inspection request.
3.22.3 All test results are to be recorded and presented to the Highway Authority before accrual.
   a) BS 7671 tests for apparatus shall include:
      - Continuity of protective conductors including main and supplementary equipotential bonding.
      - Insulation resistance at a test voltage of 500V to be not less than 1.0 MΩ.
      - Insulation resistance at a test voltage of 500V to be not less than 6.0 MΩ.
      - Insulation of the site-built assemblies.
      - Polarity, including the continuity of circuit conductors.
      - Earth fault loop impedance at every fuse junction unit.
      - Operation of residual current devices where necessary.
   b) BS 7671 tests for private cable networks shall additionally include:
      - Cable Sheath Insulation Test.
      - Earth electrode Resistance.

3.22.4 Electrical test certificates should be referenced against a named As-Built drawing and the column/sign numbers should correlate.

3.23. Passive Safety Risk Assessment

3.23.1 For guidance on passive safety classifications and electrical safety standards Lighting Designers should use ILP TR30 ‘Guidance on the Implementation of Passively Safe Lighting Columns and Signposts’. Apparatus is to be selected in accordance ‘Step 19’ of the ‘Passive Safety Flowchart’ in TR30 and in accordance with the requirements of BS EN 12767:2007 - Table NA1. (See also Section 3.30 of this TG13).

3.23.2 For risk assessment Lighting Designers should not always use the “Passive Safety Flowchart” from ILP TR30 (nb: TR30 is not intended to provide the definitive answer to every scenario on local authority roads).

3.23.3 For risk assessment of the need for protection of roadside features (and whether passively safe lighting equipment might be appropriate) HCC uses the UK Roads Liaison Group (UKRLG) document “Provision of Road Restraint Systems on Local Authority Roads” – this uses speed limit and traffic flow criteria to determine which risk assessment method to use.
<table>
<thead>
<tr>
<th>Traffic Flow (AADT)</th>
<th>Speed Limit (MPH)</th>
<th>Guidance to use</th>
<th>Risk assessment method</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;5000</td>
<td>≥50</td>
<td>TD19</td>
<td>RRRAP / TR30 flowchart</td>
</tr>
<tr>
<td>&gt;5000</td>
<td>&lt;50</td>
<td>UKRLG</td>
<td>Relevant UKRLG method (A,B,C as appropriate)</td>
</tr>
<tr>
<td>&lt;5000</td>
<td>≥50</td>
<td>UKRLG</td>
<td></td>
</tr>
<tr>
<td>&lt;5000</td>
<td>&lt;50</td>
<td>UKRLG</td>
<td></td>
</tr>
</tbody>
</table>

**Table 3: Applicable methods for determining when a RRS is required**

*(table derived from UKRLG)*

See also: TG14 “Road Restraint Systems and Passive Street Furniture” for further guidance.

3.23.4 For *Highway improvement schemes, S38 & S278 schemes* – eg where lighting is one of many design disciplines involved - the Principal Designer will undertake appropriate risk assessment for the whole scheme. The Lighting Designer’s role is to develop designs iteratively with the guidance of the Principal Designer who will co-ordinate all design disciplines.

3.23.5 For *street lighting-only* schemes on existing roads – eg where the Lighting Designer is the Principal Designer – risk assessment should be as follows:

- a. Where criteria indicate that TD19 applies - Lighting Designers may use the *TR30 flowchart*
- b. Where criteria show the URRLG framework applies - use ‘Method A – Accident Assessment’ from the UKRLG document. If the KSI return is above the value described in **Table 3.1** of the UKRLG document then the designer may consider changes to the existing configuration so that columns/signs are not placed in areas with a high risk of strike.
- c. Other evidence for run-off accidents may also be considered – including site survey and examination of maintenance records for data of historic RTC damage to assets.
- d. the Lighting Designer’s risk assessment should list the appraisal factors considered and assumptions made and should include a narrative of decisions taken.

see [Link to HCC Safety Engineering for accident data request webform](#).

3.23.6 In summary, the design approach should be:

- a. apparatus is not to be placed in areas with a high risk of strike;
- b. apparatus at high risk of strike that cannot be protected by a road restraint system (RRS) - or where it is advantageous - may be
specified as passively safe type (provided this does not create an additional hazard).

3.24. **Switching & Mayflower Remote Monitoring System**

3.24.1 New lighting will need to be fitted with nodes to enable their correct switching remotely. HCC specification requirements:

a) Before accrual, all lanterns are to be commissioned with Mayflower CMS nodes which allow individual street lights to be monitored and switched and for light output to be dynamically controlled.

b) Individual Mayflower CMS nodes fit into a patented 6-pin socket (S6000) built into each road lighting lantern. For some specialist lanterns (e.g. subway lighting units) internal nodes are fitted inside the lantern. For illuminated sign lights internal nodes are fitted inside the lantern.

c) Each individual lighting scheme incorporates at least one Sub-Master unit to link with the back-office central control system. The Sub-Master Unit (which also fits into the 6-pin S6000 socket) should be fitted to a lantern which is in close proximity to the population of nodes that it controls. Once energised the Sub-Master will control any energised individual node on nearby lanterns.

d) If required Mayflower can advise on the optimum location for the Sub-Master unit.

e) The 6-pin S6000 socket can accommodate a standard NEMA-type photo-cell, which could be fitted temporarily, allowing installation of the Nodes & Sub-Master at a later date (pre-Accrual); any conventional photo-cells fitted temporarily should be set to switch on at 35 lux & to switch off at 18 lux.

f) Each Sub-Master and Node is identified by a unique sixteen digit barcode number. Mayflower provides barcode stickers with the apparatus: one sticker is to be mounted in the base of each column (suggested that the top of the supply cut-out should be wiped clean and the sticker affixed) and one sticker on a plan/column installation sheet which the Developer must present to Hampshire County Council prior to Accrual.

3.24.2 For further details please contact: Mayflower Complete Lighting Control, Solent Park, Walton Road, Portsmouth, Hampshire PO6 1UJ. Email: enquiries@mayflowercontrol.com - tel: 0345 076 7664

3.25. **Standard Detail Drawings**

3.25.1 Details of all current HCC standard detail drawings can be found at: https://www.hants.gov.uk/transport/developers/standard-details
3.26. **Materials – Lighting Columns**

3.26.1 HCC specification for lighting columns is as follows (n.b. for passively safe column requirements see Section 3.30):

a) See HCC standard detail drawings HCC10/L/015, 045 etc.

b) Columns are to be manufactured in accordance with BS EN 40 & PD6547, and with a design life of 50 years.

c) Columns shall be tubular steel hot-dip galvanised with planted root (see also 3.26.1.c).

d) Columns will be “post-top” style; outreach brackets may only be specified in agreement with HCC’s Street Lighting Section.

e) Column corrosion protection: root protection internal/external to be two-pack extended cure MIO; finish to be two-pack polysiloxane, (colour as specified).

f) Column painting to be factory-finish. Finish colour to be “Lovat” green - BS4800 12 B 21 - unless otherwise specified. In some areas the use of “black” BS4800 00 E 53 columns may be specified by HCC. Columns and lanterns must colour-match.

g) Standard columns shall be designed to be capable of accepting the loads indicated in this table (if greater loads are required then “heavy-duty” column design will need to be confirmed with detail drawing & manufacturer’s design certificate at the design stage):

<table>
<thead>
<tr>
<th>Column height/type</th>
<th>Lantern weight</th>
<th>Lantern windage</th>
<th>Sign area</th>
<th>Sign weight</th>
<th>Sign eccentricity</th>
<th>Sign drag coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>5/6m post-top</td>
<td>10kg</td>
<td>0.13m²</td>
<td>0.6m²</td>
<td>5.0kg</td>
<td>0.4m</td>
<td>1.8</td>
</tr>
<tr>
<td>8m post-top</td>
<td>11.5kg</td>
<td>0.145m²</td>
<td>0.6m²</td>
<td>5.0kg</td>
<td>0.4m</td>
<td>1.8</td>
</tr>
<tr>
<td>10m post-top</td>
<td>21kg</td>
<td>0.22m²</td>
<td>1.0m²</td>
<td>5.0kg</td>
<td>0.4m</td>
<td>1.8</td>
</tr>
<tr>
<td>12m post-top</td>
<td>21kg</td>
<td>0.27m²</td>
<td>1.0m²</td>
<td>5.0kg</td>
<td>0.4m</td>
<td>1.8</td>
</tr>
<tr>
<td>5/6m post-top “raise &amp; lower”</td>
<td>9.5kg</td>
<td>0.055m²</td>
<td>0.3m²</td>
<td>5.0kg</td>
<td>0.3m</td>
<td>1.8</td>
</tr>
</tbody>
</table>

**Table 4: Wind Loading**

h) Door lock to be M8 bolt with anti-vandal hexagonal head with integral centre-pin.

i) Column base-boards at least equivalent to the door size and made of treated hardwood of sufficient size to accommodate all control
equipment and service cut-outs; boards shall be positively secured to the column by two flush fitting screws.

j) Earthing terminal to be 8mm diameter brass terminal with brass washers & nuts.

k) Columns to be supplied with manufacturer-applied ground-level / planting depth marker tape affixed to the root/base, and marker tape to be remain attached after installation.

l) Any sign attachments agreed are to be centred up to 2.5m above ground level, maximum eccentricity as shown in Table 3. No attachments shall be fitted to mid-hinged columns.

m) Attachments to columns, where agreed, shall be fixed with circumferential clamps of stainless steel AISI Grade 201 with neoprene strips placed under the clamps to prevent damage to the column or its protective coating.

n) Where access via MEWP is not guaranteed columns should be mid-hinged.

o) Where planted root columns are not viable a flange base with designed foundation may need to be specified.

p) The column foundation details shown on drawings HCC10/L/025 & 026 assume poor soil conditions; column manufacturers detail drawings should be cross-checked to ensure all requirements are met (PD6547).

q) Column data sheets and manufacturer’s standard detail drawing to be provided before accrual.

3.27. Materials – Illuminated Signs

3.27.1 Signing requirements as per the current edition of TSRGD and BS EN 12899-1.

3.27.2 See also TG12 – Signs and Bollards

3.27.3 HCC specification for illuminated road signs is as follows:
   a) Hot-dip galvanised steel wide base post (in Conservation Areas the finish should match the lighting columns).
   b) Door lock to be M8 bolt with anti-vandal hexagonal head with integral centre-pin.
   c) Base-boards at least equivalent to the door size and made of treated hardwood of sufficient size to accommodate all control equipment and service cut-outs; boards shall be positively secured to the column by two flush fitting screws.
d) Earthing terminal to be 8mm diameter brass terminal with brass washers & nuts.

e) Illuminated sign plates to class RA2 BS EN 12899.

f) Sign light units to be Simmonsigns integrated LED LUA/LUB with die-cast aluminium body (or similar approved)

g) Sign lighting units to be polyester powder-coated to finish Aircraft Grey (unless otherwise specified).

h) Sign light output determined by size of sign plate, as follows: 600mm Ø sign plates 3x1w integrated LUA; 750mm Ø sign plates 6x1w integrated LUA; >750mm sign plates LUB 10x1w LED.

i) Sign lighting units to be fitted with internal Mayflower node.

j) Sign lighting units require an electronic non-dimmable ballast.

3.28. Materials - Road Lighting Luminaires

3.28.1 All new developments will use LED luminaires. These will generally be of neutral white colour temperature (4,000°k) though there may be applications where warm-white (3,000°k) is preferred. This table is a guide to the optimal configuration of lantern body, flux & total LEDs for optimal lifetime energy efficiency which is the principal factor in specification.
**Table 5: Road Lighting Luminaires**

**Notes:**

1. Lantern body & canopy to be powder-coated, paint colour to match columns.

2. Standard colour is mineral/Lovat green [BS 4800 12 B 21] unless otherwise specified. In some areas the use of “black” [BS 4800 00 E 53] may be specified.

3. Ballast to be electronic & fully dimmable via DALI protocol.

4. Switching – all lanterns to be fitted with Mayflower 6-pin S6000 socket & external node (except Subway & Underpass lighting units and some specialist lanterns which are to be fitted with Mayflower internal node).

5. LEDs on roadway lighting are generally to be 4,000K neutral white LEDs – unless a different CCT is specified by HCC’s Street Lighting Section, or is required for compliance with ecological good practice – see Section 3.19).

6. Where asymmetric luminaires are specified (e.g. at a Zebra crossing) these are to be of CCT a single step cooler than the adjacent roadway lighting (see HCC10/L/155).
3.29. **Materials - Internal Wiring of Columns & Signs**

3.29.1 See standard detail drawing HCC10/L/080.

3.29.2 DNO supply cables to be terminated in single-phase double pole isolator manufactured from semi-crystalline thermal plastic with improved heat resistance with HRC fuses to BS EN 60269 (e.g. Lucy Titan 2). Terminal shields will be fitted to prevent accidental contact with live conductors.

3.29.3 Internal wiring to lantern to be multi-core PVC flexible (H05VV-F or H07RN-F) – for columns up to 10m height cores to be 1.5mm² – for columns over 10m height cores to be 2.5mm².

3.29.4 Earthing conductor to be 10mm² PVC insulated coloured green/yellow; connections to be by bolted crimped terminations.

3.29.5 Internal cabling to be neatly clipped to the base board; all fixing screws to be stainless steel.

3.29.6 Base boards to be securely fixed to column base.

3.30. **Materials - Passively Safe Equipment**

3.30.1 For the risk assessment process to determine the need for passive safety see Section 3.23 above.

3.30.2 Apparatus is to be selected in accordance with the requirements of BS EN 12767:2007 (Table NA1) and as outlined in the ILP’s TR30 ‘Guidance on the Implementation of Passively Safe Lighting Columns and Signposts’.

3.30.3 Columns are to be installed in retention sockets (such as NAL) with foundations in accordance with manufacturer’s instructions.

3.30.4 Electrical disconnection system to be NAL SIS system. SIS impact sensor to be installed in each item of passively safe apparatus. SIS monitoring unit to be fitted in an above-ground location (lamp column, wide-base sign post or feeder pillar) located outside the clearance zone.

3.30.5 Mains DNO/IDNO supply may not be provided with passively safe equipment. For private cable systems, see Section 3.31.

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**Passively safe equipment must be supplied by a private cable system.**

3.31. **Private Cable, Ducting, Feeder Pillars**

3.31.1 See HCC standard detail drawings HCC10/L065, 070, 075, 090.

3.31.2 Pillars, ducts and cables are to be used exclusively for street lighting and illuminated signs.
3.31.3 Private cables to be laid in 100mm diameter orange PVC ducts (DNO cables only in black duct).

3.31.4 Ducting systems to include necessary chambers/draw pits.

3.31.5 Cable ducts below footways to be >450mm below finished level; ducts below carriageways to be >600mm below finished level.

3.31.6 150mm-wide yellow heavy gauge PVC tape marked “street lighting” to be placed over private cables/ducts.

3.31.7 Cable ducts to be installed with draw cords.

3.31.8 Private cables to be XLPE\SWA\PVC.

3.31.9 All cut outs shall have HRC fuse in pull-out carrier and provision for Live, Neutral & Earth cable connections including a PME link.

3.31.10 All outgoing circuits are to be labelled by an encapsulated schematic drawing detailing the outgoing cable route & the population of lighting units on each circuit.

3.31.11 Feeder pillars to be installed with a minimum of 1.0m² hard-standing provided at ground-level in front of the pillar door.

3.31.12 For electrical testing see Section 3.22.

4.1. Preliminary Enquiry
4.1.1 Developer to provide drawings showing site location, highway adoptable areas, development phasing, other relevant information including: site-specific planning constraints/conditions; LPA design codes; environmental impact assessments (EIA); presence of amenities such as shops, schools, sports or medical facilities; existing or predicted traffic flow and speed limits, night-time accident data, presence of traffic calming features; confirmation of road surface materials (including reflectance characteristics), etc.

4.2. Site-specific Design Brief
4.2.1 On receipt of relevant information (4.1.1) HCC Street Lighting Section hsl@hants.gov.uk will issue a written site-specific design brief indicating a target lighting class and information relevant to achieving the Accrual Required Standard.
4.2.2 Developers and their designers are encouraged to liaise with HCC Street Lighting Section to ensure designs are progressed in accordance with the site specific design brief and this design guidance.

4.3. Lighting Design
4.3.1 Developer is to arrange for the design to be undertaken using the guidance contained in this document & the site-specific design brief.
4.3.2 The Institution of Lighting Professionals website lists accredited lighting designers.
4.3.3 HCC’s Engineering Consultancy can provide a lighting design service if required see http://www.hants.gov.uk/sharedexpertise.htm.
4.3.4 HCC’s Street Lighting PFI contractor SSE Enterprise Lighting Services can provide a lighting design service if required Lighting.design@ssecontracting.com.

4.4. Detailed Design Submission
4.4.1 The following information to be supplied to HCC with a document register; documents to be clearly named to identify their contents:
   a) Location plan – to show phases of development (can be included on layout drawing).
   b) Layout drawing – PDF format required, at scale 1:500 maximum size A1 (see Section 3.11).
   c) Hazard elimination & management list (see Section 3.6).
d) **Lighting design calculations** – full RTMA & RTMR files from Lighting Reality to be supplied complete with design commentary. (See Section 3.14).

e) **Site clearance drawing** – to show any apparatus (including ID numbers) affected by the works (can be incorporated into the main layout drawing).

f) **Network owner** – statement confirming identity of LV supply network owner, whether DNO or IDNO.

g) **Private cable calculations** if applicable, output from *Amtech* software, or similar.

h) **Illuminated sign details** (if applicable) - details may be shown on the street lighting layout (to include a schedule of sign faces & dimensions, specification of sign light).

i) **Special column requirements** (if applicable)

j) **Initial Inventory Information** – See the Street Lighting section of the Technical Guidance web page [https://www.hants.gov.uk/transport/developers/technical-guidance](https://www.hants.gov.uk/transport/developers/technical-guidance)

k) **Written confirmation** that the submission complies with the *Accrual Required Standards* e.g. that the materials meet the Development Standard current at the agreement date. (see Section 4.22)

### 4.5. Ongoing Liaison

4.5.1 The Developer will need to incorporate HCC’s comments from design appraisal into revisions, as required, resubmitting proposals for further scrutiny as necessary. If the proposed highway features are altered then lighting column positions may need to be reconsidered by the designer.

### 4.6. Certificate of Technical Approval

4.6.1 When the design documents meet the required standards a Certificate of Technical Approval will be issued by the HCC’s Street Lighting Section.

### 4.7. Changes to the Design

4.7.1 Any subsequent changes to the agreed design need to be agreed with HCC’s Street Lighting Section. The Developer must supply revised design calculations and drawings.

### 4.8. Customer Liaison

4.8.1 The Developer shall ensure prospective purchasers are informed that a plan of the street lighting scheme is displayed in the sales office so that purchasers, and existing residents, can be made aware of the impact of lighting units on adjacent properties.
4.9. **HEA Contractors**

4.9.1 Following HCC’s certificated approval of the lighting design the Developer is to: Identify to HCC which accredited (HEA, NICEIC) contractor has been appointed for the street lighting and illuminated sign installation and maintenance works.

4.10. **Existing Apparatus Within the Works – de-accrual & excusing clause**

4.10.1 Any existing apparatus due to be removed or altered will need to be **de-accrued** from the PFI contract. The Developer must inform HCC’s Street Lighting Section no less than 20 business days before the works programmed date by emailing hsl@hants.gov.uk.

4.10.2 Any existing apparatus that is temporarily made inaccessible for maintenance (e.g. barriered-off) will need to be **suspended** from the PFI contract. The Developer must inform HCC’s Street Lighting Section no less than 20 business days before barriers are put in place so that an **Excusing Clause** can be issued to the PFI Service Provider.

4.10.3 The Developer is responsible for maintenance of all apparatus (de-accrued or suspended) within their works until it is formally inspected and handed over to HCC. Maintenance should be in accordance with industry good-practice (see Section 4.17 below) with full records to be kept of any works.

4.11. **Temporary Lighting/Signing**

4.11.1 Where alterations to the existing highway are proposed the sequencing of works should ensure that the highway remains appropriately illuminated, ie that existing lights shall be maintained correctly and that any new lights shall be commissioned before the disconnection & removal of existing lights.

4.11.2 In the event that new road alignments are opened to traffic before the commissioning of the new approved lighting then temporary lighting shall be installed.

4.11.3 Temporary lighting shall illuminate the road to the appropriate design class and should not cause adverse impacts to nearby residents or road users.

4.11.4 Temporary signs may be fitted to existing lamp columns if the columns have the structural capacity – contact tpa@sse.com for permission (for fixing specification see Section 3.26).
4.12. **Column Verification**

4.12.1 To ensure compliance with materials specification the Developer should present HCC with column data sheets and ID batch numbers of the columns installed.

4.13. **Labelling of Apparatus**

4.13.1 All apparatus should be numbered as agreed with HCC’s Street Lighting Section - sequentially by named road. If works affect existing roads then sequential re-numbering of existing apparatus may be required. Numbering is to be by self-adhesive labels - oriented 90° to carriageway - running vertically down the post - numeral size to be 50mm - black numerals on white background for street lights fixed at 2.5m height - white numerals on black background for illuminated signs immediately under the sign plate. [After accrual numbers are re-applied by the PFI service provider]. See standard detail HCC10/L/160.

4.13.2 Where appropriate (e.g. within the “vicinity zone” of overhead power cables) an “overhead warning” label should be applied to column shaft. See standard detail drawing HCC10/L/165

4.13.3 Where a lighting column or illuminated sign holds the isolation point for an outgoing private sub-circuit then the column will be clearly marked externally to identify this, and also internally to identify the apparatus supplied via the private sub-circuit.

4.14. **Cable Schematics**

4.14.1 Isolation points for any private networks (e.g. - feeder pillars, or columns & signs with additional outgoing sub-circuits) must have enclosed in the base compartment an encapsulated schematic drawing detailing the outgoing cable route & the lighting units on each circuit.

4.15. **Electrical Testing**

4.15.1 As per the latest edition of BS7671, to include all items of highway apparatus i.e. road lighting, illuminated signs, feeder pillars, private supply cable networks. (See Section 3.22)

4.16. **Mayflower Switching**

4.16.1 Lanterns for accrual shall be controlled by the “Mayflower” remote monitoring system – the Developer shall liaise with Mayflower. (See Section 3.24).
4.17. Maintenance before Accrual

4.17.1 The Developer’s duty of care includes maintenance of lights within the works in accordance with good industry practice and shall include:

a) Periodic maintenance (cleaning, visual inspection, electrical test).

b) Reactive repairs - prompt identification and repair of operational faults, emergency repairs as necessary, and maintaining records of these activities.

<table>
<thead>
<tr>
<th>General operational repairs</th>
<th>5 working days to repair</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regulatory signs</td>
<td>2 working days to repair</td>
</tr>
<tr>
<td>Door off apparatus</td>
<td>2 hours to make safe</td>
</tr>
<tr>
<td>RTA/RTC to apparatus</td>
<td>2 hours to make safe</td>
</tr>
</tbody>
</table>

Table 6: Maintenance Repair Times

c) Lamp change - lamps are to be replaced within 6 months of the proposed accrual date (not LEDs).

The Developer is responsible for ensuring all temporary, suspended, de-accrued and new un-adopted lighting units are maintained in accordance with good industry practice until such time as the units are accrued.

d) Electrical testing – to the requirements of BS7671 all apparatus are to be tested every 8 years. Notwithstanding the requirements of BS 7671 the Developer will be asked to re-test if a test certificate is entering its' last year of validity, the test certificate for each lighting unit must be no more than 12 months old at the time of the initial pre-accrual inspection request. (See Section 3.22)

4.18. Records Required Before Pre-Accrual/Adoption Inspection

4.18.1 The following information is to be supplied with a document register to HCC prior to inspection. Documents to be clearly named to identify their contents:

a) As-built layout drawing – revised to include agreed changes (See Section 3.11).
b) **HEML - Hazard Elimination & Management list** in accordance with the requirements of CDM (see Section 3.5)

c) **Illuminated sign schedule** - as appropriate.

d) **Electrical test results** – tests to be compliant with BS7671 (See Section 3.22)

e) **Column data sheet or column batch number** – including manufacturer, protective system, detail of any Authority attachments.

f) **Evidence of maintenance** - including date of last lamp change (not LEDs)

g) **Mayflower node schedule** – the reference numbers of the Mayflower nodes and sub-master are to be detailed on a schedule of illuminated apparatus, listed by road & maintenance ID no – or this may be included on the layout drawing (See Section 3.24.1)

h) **Pre-accrual inventory information** – See Street Lighting section of the Technical Guidance web page [https://www.hants.gov.uk/transport/developers/technical-guidance](https://www.hants.gov.uk/transport/developers/technical-guidance)

i) **Confirmation** that the handover complies with the Accrual Required Standards (e.g. that the materials meet the Development Standard current at the agreement date & are in a satisfactory defect-free condition. (See Section 4.22)

### 4.19. Pre-Accrual Inspection

4.19.1 HCC will arrange a thorough initial inspection of apparatus to be offered for accrual. Repeat inspections will be charged separately. Requests for inspection should be accompanied by the electrical test certificates and as-built drawings (PDF format).

4.19.2 The following table summarises the inspection criteria, referenced against HCC standard detail drawings, the Developer’s As-Built drawing and other information provided by the Developer.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description of Inspection</th>
<th>Tolerances</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Planting depth</td>
<td>Remove door and measure from the bottom of aperture to finished ground level</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Manufacturers specification +/- 50mm</td>
</tr>
<tr>
<td>2</td>
<td>Reinstatement</td>
<td>Check quality final reinstatement</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Visual</td>
</tr>
<tr>
<td>4</td>
<td>Column alignment</td>
<td>Is the pole upright and plumb?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Spirit level bubble touching line</td>
</tr>
<tr>
<td>5</td>
<td>Bracket alignment</td>
<td>Is the bracket Installed as designed?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Visual</td>
</tr>
<tr>
<td>6</td>
<td>Bracket outreach</td>
<td>Is the bracket outreach as designed?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>None</td>
</tr>
<tr>
<td>Item</td>
<td>Description of Inspection</td>
<td>Tolerances</td>
</tr>
<tr>
<td>------</td>
<td>---------------------------</td>
<td>------------</td>
</tr>
<tr>
<td>7</td>
<td>Column protective system</td>
<td>Is colour / finish correct and undamaged?</td>
</tr>
<tr>
<td>8</td>
<td>Numbering</td>
<td>Is unit numbered correctly and in correct place with Logo?</td>
</tr>
<tr>
<td>9</td>
<td>Location of unit</td>
<td>Check for compliance with design</td>
</tr>
<tr>
<td>10</td>
<td>Lighting column door</td>
<td>Check for correct orientation</td>
</tr>
<tr>
<td>11</td>
<td>Locking device</td>
<td>Check that the lock operates correctly, the door fits securely, and the door lock is greased.</td>
</tr>
<tr>
<td>12</td>
<td>Column root protection</td>
<td>Check that correct root protection is evident</td>
</tr>
<tr>
<td>13</td>
<td>Lighting column height</td>
<td>Check that the height complies with the Output Specification</td>
</tr>
<tr>
<td>14</td>
<td>Lighting columns</td>
<td>Check that where vehicular access is restricted or where maintenance cannot be carried out by a purpose-built vehicle a raising and lowering column has been used.</td>
</tr>
<tr>
<td>15</td>
<td>Position of unit</td>
<td>Check that the units have been Installed in Authority owned land or that wayleaves/easements have been obtained.</td>
</tr>
<tr>
<td>17</td>
<td>Statutory (Authority) attachments</td>
<td>Check that statutory signs are where they need to be.</td>
</tr>
<tr>
<td>18</td>
<td>Sign light attached to lighting column</td>
<td>Check that hole in column has been adequately sealed to prevent ingress of water.</td>
</tr>
<tr>
<td>19</td>
<td>Sign light wiring</td>
<td>Check correct cables, sleeving, wiring is neat, insulation at terminals and terminals are tight.</td>
</tr>
<tr>
<td>20</td>
<td>Lighting column type</td>
<td>Suitability for any proposed banners, hanging baskets, festive illuminations etc.</td>
</tr>
<tr>
<td>24</td>
<td>Redundant apparatus removed</td>
<td>Check redundant units have been removed and that permanent reinstatement has been carried out.</td>
</tr>
<tr>
<td>25</td>
<td>Illuminated Traffic Signs</td>
<td>Check the sign face type, post location, orientation and door position.</td>
</tr>
<tr>
<td>26</td>
<td>Illuminated Traffic Bollards</td>
<td>Check the shell type, base to the correct depth and base opens in the correct direction.</td>
</tr>
<tr>
<td>27</td>
<td>Electrical test certificate</td>
<td>Check that a test certificate is provided and complete</td>
</tr>
<tr>
<td>29</td>
<td>Luminaire alignment</td>
<td>Is luminaire straight or twisted?</td>
</tr>
<tr>
<td>30</td>
<td>Luminaire bowl clean</td>
<td>Is the Luminaire bowl clean and free from blemishes</td>
</tr>
<tr>
<td>Item</td>
<td>Description of Inspection</td>
<td>Tolerances</td>
</tr>
<tr>
<td>------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>------------</td>
</tr>
<tr>
<td>31</td>
<td>Luminaire optic setting</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>Is the optic setting as per design?</td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>Correct lamp, Luminaire and Control Gear</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>Check that the correct lamp, gear and Luminaire are as per the design</td>
<td></td>
</tr>
<tr>
<td>33</td>
<td>Switching device</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>Is the correct switching device fitted and set?</td>
<td></td>
</tr>
<tr>
<td>34</td>
<td>Internal wiring</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>Check the correct cable has been used, wiring is neat, insulation at terminals is maintained and that all terminations and earth bonds are tight. Check that all electrical apparatus is securely attached to the backboard.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Check that the backboard is securely fixed.</td>
<td></td>
</tr>
<tr>
<td>35</td>
<td>Double pole isolation</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>Where relevant check if double pole isolation has been installed.</td>
<td></td>
</tr>
<tr>
<td>36</td>
<td>Protection device</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>Check that the protection device is correctly Installed and rated.</td>
<td></td>
</tr>
<tr>
<td>37</td>
<td>Private supply cables</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>Check that private supply cables are correctly sized, glanded and identified as to what they feed.</td>
<td></td>
</tr>
<tr>
<td>38</td>
<td>Feeder Pillars / locations</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>Check for condensation, distribution board, rating of protection devices, wiring is neat, all terminations, glanding, insulation, cables sizes, cables are identified, earthing and schematic cable diagram.</td>
<td></td>
</tr>
<tr>
<td>43</td>
<td>Lighting design – trees &amp; vegetation</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>Check that the effect of trees and vegetation has been adequately accommodated in the design and positioning of columns.</td>
<td></td>
</tr>
<tr>
<td>47</td>
<td>General – Lamp operation</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>Check that the lamp strikes.</td>
<td></td>
</tr>
<tr>
<td>48</td>
<td>General - Condition</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>Check for any signs of damage to any item of Apparatus.</td>
<td></td>
</tr>
<tr>
<td>52</td>
<td>General - Reporting</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>Issue Certificates of Compliance and Non-compliance and identify Snagging Items in accordance with the output specification.</td>
<td></td>
</tr>
</tbody>
</table>

**Table 7: Pre-Accrual Inspection Check List**

### 4.20. Energy

**4.20.1** Following Accrual/Adoption the Developer to inform their energy supplier that the development is now within the scope of the HCC energy contract.

### 4.21. Document Submissions

**4.21.1** At each stage of the process Developers are to provide the appropriate information along with a document register (electronic documents should be clearly named to reveal their content), checklist as follows:
### a) Before HCC issue an outline design brief

<table>
<thead>
<tr>
<th>Item</th>
<th>Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>site location plan</td>
<td>✓</td>
</tr>
<tr>
<td>draft layout drawings showing the highway adoptable areas, detail of adjoining schemes, site phasing plan</td>
<td>✓</td>
</tr>
<tr>
<td>other relevant information – e.g.: ecology reports, design codes, planning conditions, predicted daily traffic flow, etc</td>
<td>✓</td>
</tr>
</tbody>
</table>

### b) Detailed design submission

<table>
<thead>
<tr>
<th>Item</th>
<th>Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location plan</td>
<td>✓</td>
</tr>
<tr>
<td>Lighting layout drawing &amp; specification (see 3.11)</td>
<td>✓</td>
</tr>
<tr>
<td>Hazard Elimination &amp; Management List (see 3.6)</td>
<td>✓</td>
</tr>
<tr>
<td>Lighting design calculations with designer narrative/commentary (see 3.14)</td>
<td>✓</td>
</tr>
<tr>
<td>Site clearance drawing (if applicable; may be in layout drawing)</td>
<td>✓</td>
</tr>
<tr>
<td>Confirmation of LV supply network owner - host DNO / IDNO (see 3.20)</td>
<td>✓</td>
</tr>
<tr>
<td>Private cable calculations (if applicable – see 3.21, 3.31)</td>
<td>✓</td>
</tr>
<tr>
<td>Illuminated sign details (if applicable – see 3.27)</td>
<td>✓</td>
</tr>
<tr>
<td>Special (“heavy-duty”) column requirements (if applicable – see 3.26)</td>
<td>✓</td>
</tr>
<tr>
<td>Relevant contract documents, schedules &amp; appendices</td>
<td>✓</td>
</tr>
<tr>
<td>Initial inventory information (see 4.21)</td>
<td>✓</td>
</tr>
<tr>
<td>Written confirmation that the design submission complies with the Accrual Required Standards (see 4.22.1)</td>
<td>✓</td>
</tr>
</tbody>
</table>

### c) Pre-construction

<table>
<thead>
<tr>
<th>Item</th>
<th>Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Confirmation of the identity of the HEA-approved subcontractor(s) engaged by the Developer to carry out street lighting / illuminated sign installation works (see 4.9)</td>
<td>✓</td>
</tr>
<tr>
<td>Confirmation of commencement date of street lighting installation works (see 4.10)</td>
<td>✓</td>
</tr>
</tbody>
</table>

### d) Pre-accrual inspection

<table>
<thead>
<tr>
<th>Item</th>
<th>Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>“As-built” version of the lighting layout drawing (see 3.11)</td>
<td>✓</td>
</tr>
<tr>
<td>Hazard Elimination &amp; Management List (see 3.6)</td>
<td>✓</td>
</tr>
<tr>
<td>Illuminated sign details (if applicable – see 3.27)</td>
<td>✓</td>
</tr>
<tr>
<td>Electrical test results (see 3.22)</td>
<td>✓</td>
</tr>
<tr>
<td>Column data sheets/batch numbers (see 3.26)</td>
<td>✓</td>
</tr>
<tr>
<td>Evidence / records of maintenance (see 4.17)</td>
<td>✓</td>
</tr>
<tr>
<td>Mayflower node schedule (see 3.24)</td>
<td>✓</td>
</tr>
<tr>
<td>Pre-accrual inventory information – See the Street Lighting section of the Technical Guidance web page: <a href="https://www.hants.gov.uk/transport/developers/technical-guidance">https://www.hants.gov.uk/transport/developers/technical-guidance</a></td>
<td>✓</td>
</tr>
<tr>
<td>Written confirmation that the installation complies with the Accrual Required Standards (see 4.22.2)</td>
<td>✓</td>
</tr>
</tbody>
</table>
4.22. **Confirmation of Accrual Required Standards**

4.22.1 Below is an example of a suitable form of words for inclusion within a letter of confirmation from the Developer that the design submission complies with the PFI Accrual Required Standards (required when the PFI contractor has not been used as designer for the street lighting or illuminated sign works):

_We write in relation to illuminated apparatus proposed for the above project. This letter confirms that the apparatus meets the requirements of the Street Lighting PFI in that:_

a) **All apparatus has been designed in accordance with the Hampshire County Council standard development specification current when the agreement was signed.**

b) **All apparatus shall be new at the time of installation and supported by relevant manufacturer’s guarantees. Such guarantees will be transferred to Tay Valley Lighting (Hampshire) Limited at the point of Accrual. All apparatus has been sited so as to minimise, in so far as is reasonable and practical, nuisance, danger and obstruction to all residents, businesses and users of the highway.**

c) **All columns and sign posts shall be manufactured in accordance with BS EN 40 and have residual capacity for additional sign attachments of 0.3m² in area.**

d) **All illuminated apparatus shall be installed and tested in compliance with BS7671 with certificates which are no more than 12 months old at the time of the pre-Accrual inspection request.**

e) **Lamps shall be no more than 6 months old at the time of Accrual (where not LEDs).**

f) **All installations shall be installed in such a way that trees or any other foliage on the site does not interfere with the level of lighting.**

_These statements are based on the information contained within the specific documents listed below and this information only. Any other drawings and documentation will not be considered as approved and will only be considered as supporting information._

<table>
<thead>
<tr>
<th>Author</th>
<th>Document ref</th>
<th>Document title</th>
<th>Revision</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4.22.2 Below is an example of a suitable form of words for inclusion within a letter of confirmation from the Developer that the installation complies with the PFI Accrual Required Standards (required when the PFI contractor has not been used as contractor for the street lighting or illuminated sign works):
We write in relation to illuminated apparatus installed in the above project. This letter confirms that the apparatus meets the requirements of the Street Lighting PFI in that:

**g)** All apparatus has been installed in accordance with the documents listed below (including all notes & comments).

**h)** All apparatus has been installed in accordance with the Hampshire County Council standard development specification current when the agreement was signed.

**i)** All apparatus was new at the time of installation and supported by relevant manufacturer’s guarantees. Such guarantees will be transferred to Tay Valley Lighting (Hampshire) Limited at the point of Accrual. All apparatus has been sited so as to minimise, in so far as is reasonable and practical, nuisance, danger and obstruction to all residents, businesses and users of the highway.

**j)** All columns and sign posts installed have been manufactured in accordance with BS EN 40 and have residual capacity for additional sign attachments of 0.3m$^2$ in area.

**k)** All illuminated apparatus has been installed and tested in compliance with BS7671 with certificates which are no more than 12 months old at the time of the pre-Accrual inspection request.

**l)** Lamps are no more than 6 months old at the time of Accrual (where not LEDs).

**m)** All installations have been installed in such a way that trees or any other foliage on the site does not interfere with the level of lighting.

These statements are based on the information contained within the specific documents listed below and this information only. Any other drawings and documentation will not be considered as approved and will only be considered as supporting information.

<table>
<thead>
<tr>
<th>Author</th>
<th>Document ref</th>
<th>Document title</th>
<th>Revision</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
5. **Further Support**

5.1 Should you have a specific query or feedback about any of the content of this Technical Guidance Note, please send an email to technical.guidance@hants.gov.uk with the start of the email title as “TG13 – “.

5.2 Should you have a query about applying this to your particular project, please contact:
   - the Design Audit Engineer dealing with your S278 or S38 application (if you are a Developer or Developer’s Consultant)
   - the Technical Guidance Note Specialist(s) (if you are a working within Hampshire County Council)

5.3 Associated Technical Guidance Notes:
   - TG12 – Signs and Bollards
   - TG14 – Road Restraint Systems & Passive Street Furniture