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14.0 PUBLIC UTILITIES

14.1 PURPOSE

This chapter is intended to provide supplementary information to expand on some of the elements specified in the Services, Works and Infrastructure Code and the Operational Works Code of the *Brisbane City Plan*. Therefore **the user must read this chapter in conjunction with the *Brisbane City Plan* to ensure that the development proposal complies in its entirety with the relevant codes, provisions and planning scheme policies**.

Selective extracts from the Operational Works Code are given below:

- Performance criteria P2 partially states "The design and provision of public utilities including sewerage, water, electricity, gas, street lighting and communication services must facilitate accessibility and ease of maintenance, must optimise life cycle costs, must use best current and alternative technology and must incorporate provisions to minimise adverse environmental impact in the short and long term."
- Acceptable Solution A2.1 partially states "The location, design and proposed construction of electricity, gas, communication services and street lighting are in accordance with Council's Subdivision and Development Guidelines and the requirements of the relevant service providers."

14.2 GENERAL REQUIREMENTS

Unless stated otherwise, the Developer is responsible for the design of public utility services including liaison with the relevant public utility authorities, supply and installation of all service conduits, including the provision of all services and/or conduits along the full length of any rear allotment access or access easement. The Developer must also meet the cost of any alterations to the public utility mains, existing mains, services or installations required in connection with the development. This includes the relocation of any fire hydrant and/or valves from within the limits of the development's vehicular crossings, if applicable.

If road widening is required along the frontage of the development, the Developer must relocate the services onto the correct alignment within the verge. In some instances, the services may need to be lowered to provide sufficient cover when the footpath is regraded to the design profile.

14.3 LOCATION OF SERVICES

The service corridors and alignments must conform to the relevant Standard Drawings Nos. UMS 121, UMS 122, UMS 123 or UMS 124. Also refer Section 8.4 of Part B of this document.

14.4 STREET LIGHTING

14.4.1 Approval Process

The Developer must appoint a suitably qualified Principal Consultant to liaise with Council for the approval of street lighting. The Principal Consultant must be a Registered Professional Engineer in Queensland (RPEQ) and hold a professional indemnity insurance to the value of not less than $1 000 000. The application (refer

Appendix A) and payable fees must be lodged directly to the City Lighting Unit, Local Asset Services.

Where the **proposed street lighting deviates from Council standards, the Developer is responsible for any additional life cycle costs** that may be incurred by Council.

14.4.2 Standards

Unless specified otherwise in this chapter or as directed by Council, the provision and detailed design of street lighting installations must conform to the following standards.

- *Australian Standard AS 1158 Road Lighting*.
- *Guide to Traffic Engineering Practice - Part 12 Roadway Lighting* (AustRoads publication).
- Energex Policies and Standards.

14.4.3 Lighting Category

The standard of lighting categories that are applicable to Brisbane City is set out in Table B14.4.3.1. The lighting categories referred to in *AS 1158* are broadly described as follows:

- Category V (previously Category A) lighting. Lighting which is applicable to roads on which the visual requirements of motorists are dominant, eg traffic routes.
- Category B lighting. Lighting which is applicable to roads on which the visual requirements of pedestrians are dominant, eg local roads.
- Category C lighting. Lighting which is applicable to outdoor public areas, other than roads, where the visual requirements of pedestrians are dominant, eg outdoor shopping precincts.

TABLE B14.4.3.1 LIGHTING CATEGORIES

Road Hierarchy (Brisbane City Plan) Description	Pavement Type	Min. Reserve Width (m) Note 1	AS 1158 Lighting Category
Local Access (Cul-de-Sac)	A	14	B2
Local Access	B	14	B2
Neighbourhood Access	C	16-19.5	B1
District Access	D	19.5-24	V5 (previously A3)
Suburban Route	D	33-38	V5 (previously A3)
Industrial Access	E	22.5	B2
Arterial Route	F	40-45	V3 (previously A2)
Lane or Pathway	N/A	N/A	B2
Cycle Paths	N/A	N/A	B2
Pedestrian Tunnels (Note 2)	N/A	N/A	C1

NOTES:
1. These dimensions are applicable to newly dedicated roads only.
2. Pedestrian tunnels longer than 30 m may need lighting during daylight hours as well as at night.

14.4.4 Alignment

To achieve a balanced streetscape, it is preferred that lights are installed alternately on the opposite sides of the street (staggered arrangement). Installation of lights on one side of the street only (single sided arrangement) is unacceptable.

The location of light poles should avoid the likely vehicle conflict points, minimise the risk of damage to both poles and vehicles and injury to vehicle occupants, minimise glare complaints, and minimise conflicting driveway locations. The following factors should be considered when determining the street lighting alignment:

1. Locating poles on opposite boundaries of 'battle axe' allotments is undesirable, due to a higher potential for vehicle collision.
2. Use frangible type poles at vulnerable locations eg in small islands or roundabouts.
3. Locate street light poles in line with abutting property boundaries or on truncation points at intersections. In cul-de-sac locations, the alignment is measured along a radius line relative to and taken from the property frontage and then projected to the centre point of the cul-de-sac.
4. Locating poles in cul-de-sac adjacent to narrow property frontages is undesirable due to possible conflict with adjoining driveways.
5. Lighting poles must be located generally in accordance with the relevant Standard Drawings Nos. UMS 121, UMS 122, UMS 123 or UMS 124.
6. Where the verge (footpath) width exceeds 4.75 m, the centre of the street lighting pole must be located 0.8 m behind the nominal face of the kerb or 0.98 m behind the kerb invert. Note the distance between the nominal face and invert for a Type D kerb and channel or Type D kerb is 180 mm.
7. In subdivisions designed to AMCORD specifications where the 'common trench' arrangements are applicable, lighting poles are permitted to be 0.7 m behind the nominal kerb face.
8. The preferred configuration of lighting at a roundabout is for the light poles to be located on the approach side of each intersection street without poles in the central median island. Lighting poles must be located as far as practicable, away from the intersection. Council would only consider the installation of central island lights if the poles are of the cantilever (pivot arm) type and if the aforementioned preferred lighting arrangement cannot be achieved.
9. For bikeways, the lighting column must be located 1.2 m from the edge of the bikeway pavement (also refer Section 9.6 of Part B of this document).
10. The proposed or existing light must be at least 7 m clear from any street trees.

14.4.5 Subdivisions/Developments

The specific requirements of new developments, in particular subdivisions, are as follows:

1. The lighting design must be cost effective in regard to minimising the annual operating costs and where possible, the installation capital costs. The Developer is responsible for all capital costs associated with the design and installation of the street lighting scheme. Where it may be advantageous for the Developer to install lighting work outside the specified limits at the time of development, Council may contribute towards some of the capital costs, but these must be specifically agreed between the Council and the Developer. Council will only bear operating costs under Rate 2 of Energex's *Public Lighting Tariff*.
2. Underground electricity services must be provided.
3. In accordance with the current equipment available from Energex, Mercury Vapour luminaires are generally used on residential streets and High Pressure Sodium luminaires along traffic routes. Unless specified otherwise, the luminaire support pole must be the Buried in Ground (BIG) steel poles. Some of the typical pole/outreach/luminaire combinations that are acceptable to Council are tabulated below.

Luminaire	Pole Height Above Ground	Horizontal Outreach Distance	Mounting Height
M50	4.5 m	1.5 m	6.5 m
M50 Nostalgia	4.5 m (Estate)	Curved	5.3 m
M80	4.5 m	1.5 m	6.5 m
M80 Nostalgia	4.5 m (Estate)	Curved	5.3 m
S70	5.5 m	1.5 m	7.5 m
S100	7.0 m	1.5 m	9.0 m
S150	7.0 m	1.5 m	9.0 m
S150	8.5 m	1.5 m	10.5 m
S250	8.5 m	3.0 m	10.5 m

4. Where the new development adjoins an existing street, the new poles/lights must match the existing types to the maximum practicable extent. This is not applicable when the existing street contains GI poles.
5. Where the development requires partial road construction (typically when the development adjoins an undeveloped site), the lighting must be designed for the full width. However the lights on the development side only, assuming a staggered arrangement, would need to be installed.
6. Where major traffic routes (ie Category V, formerly Category A) road are not likely to carry high volumes of traffic until the future stages are developed and occupied, either one of the following options is acceptable.
   - Install half the ultimate lighting with the provision of conduits for the remainder lighting in the future.
   - Install smaller pole/lower wattage luminaires in the final position for upgrading at a later date. The use of base plate mounted columns in this case may be advantageous.

7. The lighting design for the development must integrate aesthetically with the adjoining /developments/estates/stages. Also the design must incorporate as far as practicable, the future planning of the area.
8. An aeroscreen luminaire on an integral 0.5 m outreach must be used on a pedestrian laneway. The light will generally be located midway along the laneway at abutting property boundaries. If the laneway exceeds 60 m then more than one light may be required. Base Plate Mounted (BPM) columns must be used in this instance for maintenance purposes.
9. Underground electricity supply pillars must be provided at 150 m intervals along park frontages for future supply to internal park lighting and other electrical park equipment.
10. The use of Aeroscreen luminaires other than in laneways is generally not permitted, except in the vicinity of airports.
11. Pedestrian underpasses require special consideration. The Principal Consultant must contact the Council Lighting Officer for site specific requirements before the commencement of design.
12. For subdivisions in Rural/Environmental Protection Areas, the lighting design and all associated conduit installation must be on the basis of an average of 1 light per every 5 allotments.
13. Notwithstanding all the above items 1-12, Council may vary the required street lighting category for any street or road in consideration of special circumstances or require additional lighting in the following situations:
    - Intersections.
    - Roundabouts.
    - Sharp bends.
    - Traffic control devices.
    - Pedestrian crossings.
    - Cul-de-sacs.
    - Bridges (minimum Category V5 at abutments and minimum Category B1 on deck).
    - Night time accident locations.
    - Frequently used night time bus stops.
    - Areas that may generate pedestrian traffic or vehicle night traffic.

14.4.6 Decorative Lighting

Decorative lighting must not be used on Category V traffic routes. Council will not accept any decorative light or supporting pole for the lighting of public roads and laneways unless it is a standard stock item of Energex. At this stage the preferred residential decorative luminaire and pole is the M50 Nostalgia on a 4.5 m green coloured wide base estate column. If the development is an extension of an existing estate already installed with Nostalgia units, then the Developer must continue to use matching Nostalgia units.

14.5 ELECTRICITY

14.5.1 General

In the context of these guidelines, 'underground electricity' means the installation of conduits and supply of services such as electrical reticulation (up to and including 11 kV), pilot cables, street lighting, traffic signals and public lighting to transport facilities, parks, bikeways and telephone booths, etc.

The key objectives of these guidelines are:

- To ensure that there is no, or very minimal, extension of overhead electricity supply networks within Brisbane City.
- To ensure that there is better integration of existing overhead supply areas with new underground supply subdivisions or developments.

14.5.2 Approval Process

All the design and construction work on the electricity supplier's (Energex) assets must be carried out by the electricity supplier or an approved electricity supplier's consultant/contractor. The verification of the underground electricity services will be done in conjunction with the approval of the street lighting layout plans by the City Lighting Unit (also refer Section 14.4.1). The Developer or Principal Consultant must produce documentary evidence by the electricity supplier stating whether the design complies with, or varies from these guidelines.

Prior to signing and sealing of the survey plan, a copy of a letter of agreement from the electricity supplier to provide the necessary services in accordance with approved electricity reticulation plans, must be submitted to Council.

14.5.3 Subdivisions/Developments

The specific requirements of new developments, in particular subdivisions, are as follows:

New Dedicated Roads

1. For newly dedicated roads, full underground electricity reticulation including consumer service pillars must be provided within the road reserve to all allotments including adjacent parkland.

Existing Dedicated Roads (Including Road Widening)

2. Where the overhead electricity reticulation exists along the frontage of the development and all the proposed allotments are to take access off the existing dedicated road:
   - The low voltage (240 V) and 11 kV must be converted to underground and all allotments supplied underground from consumer service pillars.
   - Redundant overhead lines and power poles must be removed with the exception of small frontages (ie the development frontage lies wholly within 2 consecutive electricity poles spaced less than 100 m apart) where the existing overhead lines may remain in parallel.

3. Where the overhead electricity reticulation exists along the frontage of the development, but the proposed allotments are to take access and have electricity supply from an internal road system:
   - The low voltage (240 V) component of the existing overhead system along the external frontage of the development must be converted to underground and all allotments supplied underground from consumer service pillars.
   - Redundant overhead lines and power poles must be removed with the exception of small frontages (ie the development frontage lies wholly within 2 consecutive electricity poles spaced less than 100 m apart) where the existing overhead lines may remain in parallel.
   - Conduits must be installed for either the future undergrounding of the existing 11 kV component or new proposed future 11 kV.
4. Where necessary the Developer must supply conduits across the road, such as existing properties on the opposite side of the road outside the development boundary, for the extent of any new road construction.
5. If the supply for the new development is to be taken from existing overhead mains, then the supply must be taken underground from the nearest existing overhead pole at or outside the development boundary. It is unacceptable to install new overhead conductors across the road or extend spans of overhead lines down a footpath to new underground termination poles.

Existing Houses/Buildings

6. Where an existing dwelling/building is to remain within the limits of a development, then any existing overhead electricity (and telecommunication) service to the building must be converted to underground.

High Voltage Feeders (33 kV and Higher)

7. All existing conductors of 33 kV or higher may remain overhead. However if the Developer wishes to remove high voltage feeder lines, the necessary approvals must be obtained direct from Energex/Powerlink.
8. New or relocated ≥ 33 kV systems may be overhead at the discretion of Energex/ Powerlink.

Transformers (PMT and PT)

9. Generally all new transformers required for a development must be the pad mounted transformer (PMT) type even if their location is remote from the development, except under the following circumstances.
   - Erection of new pole transformers (PT) on an existing pole will only be permitted as an interim measure where the surrounding areas are likely to be developed in future. In this instance, Energex will seek contribution from the Developer towards the replacement of the PT (with a PMT) when the surrounding areas are developed at a later stage.
   - For a small development in a fully developed area, the use of a PT and extension of 11 kV may be considered upon request. This option is mainly restricted to industrial developments.
   - Where Council has agreed to the erection of a temporary PT, drawings must show the proposed future PMT location and the associated spare conduits for future use.

Spare Conduits

10. Council reserves the right to specify spare conduits for future use on half/full width road crossings for the extension of service to/from adjacent existing and future developments.

11. It is the responsibility of the electricity supplier to ensure that the quantity of conduits installed within the development will also cater for any future mains upgrade. (Note: Where "battle axe" blocks with a narrow access easement are proposed, it is important that future electricity and telecommunication conduits are installed for the full length of the access easement before any concrete driveways are installed.)

Costs

12. The Developer is responsible for all the design (including that pertaining to item 4 above) and construction costs including any relocation of Energex assets, if required as part of the development.

13. In respect of item 4, Council may elect to engage its own contractor to undertake construction of or otherwise contribute towards the construction costs of:
    - Extending the half road crossings.
    - All cabling from the connection point out of the new development.
    - Undergrounding the house/building service mains.
    - Installation of any associated street lighting.

14.6 GAS

If underground gas is to be supplied to the new development, these service conduits must be shown on the engineering plans.

14.7 TELECOMMUNICATIONS

Underground telecommunication services must be provided separate to the electricity service, to all allotments. Where overhead telecommunication lines exists along the development frontage, the same conditions as per overhead electricity will apply (also refer Section 14.5.3).

Prior to signing and sealing of the survey plan, a copy of a letter of agreement from the telecommunication carrier to supply the necessary services must be submitted to Council.

14.8 WATER SUPPLY AND SEWERAGE

Prior to signing and sealing of the survey plan, the As Constructed plans including an asset register approved by a Registered Professional Engineer in Queensland (RPEQ), certifying that works have been completed in accordance with the approved design and approved modifications, must be submitted to Council.

APPENDIX A STREET LIGHTING APPLICATION FORM

Brisbane City Council
City Lighting Unit
Local Asset Services
503 St Pauls Terrace
FORTITUTE VALLEY QLD 4006

APPLICATION FOR APPROVAL OF STREET LIGHTING

(2 PAGES)

DEVELOPMENT DETAILS

Development/Subdivision Name .....
Stage (if applicable) .....
Development Approval Reference .....
Address .....
UBD Reference (eg 161 H16) .....
No. of Allotments (if applicable) .....

PRINCIPAL CONSULTANT

Company Name .....
Contact Name .....
RPEQ No. .....
Address for Correspondence .....
Telephone/Facsimile .....

SUBMISSION

Street Lighting Drawing Nos. .....
.....
Checking Fees (contact City Lighting for current fee schedule) .....

	CHECKLIST	Y or N or N/A
1	Show name of development, street names (if known), suburb, allotment boundaries and numbers, pathways, parks, development boundary, etc.	☐
2	Show Drawing Number including the appropriate amendment or revision.	☐
3	A locality plan is provided for remote development site; or where the design drawing does not contain at least two existing streets shown on the current UBD, or adjoins a previous development.	☐

	CHECKLIST	Y or N or N/A
4	For the first stage of a multi-stage development, an overall concept plan showing the various stages and extent of the road network is provided. As the development progresses and if changes are made to the overall layout, then an amended copy must be subsequently submitted to Council.	☐
5	Show electricity poles/conduits/cables/pillars/transformers etc (existing or proposed) as required by Energex.	☐
6	Show street lights (existing or proposed) using Energex standard symbols.	☐
7	Complete standard Energex street light schedule, including suburb name in location field.	☐
8	Show all kerb and channel, roundabouts, traffic islands, median strips, local area traffic management devices, etc to be constructed as part of the development, internal or external.	☐
9	Submit with the application, a copy of Council's development approval conditions relating to underground electricity and street lighting.	☐
10	Submit with the application, calculations or computer model simulation results of lighting levels.	☐

CERTIFICATION

We/I hereby certify that the Street Lighting Drawings and accompanying data described in this application complies/does not comply with Australian Standard AS 1158 and Brisbane City Council's specific requirements.

For any non-conformance standards, please specify details of design variations.

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Signature of Consulting Engineer .....

Date .....