Technical Standard - TS116

Attachment of Third-Party Equipment on the SA Power Networks Infrastructure

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SA Power Networks

Empowering South Australia

Revision Notice:

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SA Power Networks' Disclaimer:

1. The purpose of this document is to establish the requirements for attaching third party's equipment on the SA Power Networks infrastructure with which the customer/customer's agent shall comply to ensure the safe and effective operation of the distribution network is maintained.
2. SA Power Networks makes no representation of any nature that the fact the customer/customer's agent complies with this document means that the third party's equipment on the SA Power Networks infrastructure will be suitable for a particular customer/customer's agent needs and electricity requirements.
3. Each customer/customer's agent shall obtain its own advice from licensed electricians and or other suitably qualified professionals and is solely responsible for ensuring that the third party's equipment on the SA Power Networks infrastructure is suitable for the customer/customer's agent needs.
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5. The information within this document is subject to change from time to time.

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1. Introduction

This document is intended for use by the SA Power Networks staff, council engineers, designers, building work contractors, licensed electrical contractors and registered electrical workers who are directly engaged in activities associated with the attachment of third-party electrical equipment on the SA Power Networks Stobie poles or public lighting columns.

The requirements of this document apply to the customer/customer's agent in relation to electrical installations connected to or intended to be connected to the SA Power Networks distribution network.

Alterations of, or additions to, an existing electrical installation shall be deemed to be a new electrical installation and also covered by the requirements of this document.

Approval in writing shall be obtained from the SA Power Networks Asset Services Manager prior to attaching any third-party electrical equipment to the SA Power Networks Stobie poles or lighting columns and should be subject to the requirements of a Facilities Access Agreement and site licence.

This document specifies the minimum requirements for the attachment of any third-party assets on the SA Power Networks poles or columns.

Specifically, this document cover devices, such as:

(1) Mobile phone small cells
(2) Antennas
(3) CCTV cameras
(4) Flood lighting
(5) Traffic lights and control boxes
(6) Metered equipment (for Negotiated Connection Services only) installed on Stobie poles

Note that some of the above equipment may require a power connection. Refer to 'Section 4.4 Connections' for more details on the requirements for the metered and unmetered connections.

The requirements for third-party telecommunication cabling arrangement on the SA Power Networks infrastructure is specified in TS201: 'Telecommunication Systems'.

The requirements for third-party signs, banners, electoral signage, and temporary third-party equipment are specified in NICC210: 'Signage, Banners & Temporary Equipment on the SA Power Networks Assets'.

2. Definitions and Abbreviations

2.1 Definitions

Agreement Term	The period the agreement is in force.
Aerial Line	Has the meaning given to that term in the Electricity (General) Regulations 2012, namely a powerline placed above the ground and in the open air but does not include bus bars or any direct current conductors used as traction trolley wires.
Connection Point	In this document connection point has the same meaning as point of supply as defined in AS/NZS 3000.
Customer	The customer as set out in the project specific offer letter.
Customer's Agent	A contractor and/or designer engaged by the customer.
Designer	A person who is suitably accredited designer (full or provisional) engaged by the customer and has satisfied the SA Power Networks terms and conditions (ie 3302) to undertake the design works.
Distribution Network	The assets (eg. poles, wires, underground cables, transformers, substations) operated by the SA Power Networks, which transports electricity to and from a customer's connection point.
Electrical Installation	A set of wires and associated fittings, equipment and accessories installed in a place for the conveyance, control, measurement, or use of the electricity that is, or is to be, or has been, supplied for consumption in the place, including anything declared by the regulation to be or form part of an electrical installation, but does not include: 1. electricity infrastructure owned or operated by an electricity entity; or 2. any wires, fittings, equipment, or accessories connected to and beyond any electrical outlet at which fixed wiring terminates (other than any such outlets used to connect sections of fixed wiring); or 3. anything declared by regulation not to be or form part of an electrical installation.
Facilities Access Agreement	Facilities Access Agreement (FAA) or Equipment Licence Agreement is a contract between the SA Power Networks and the third party outlining the conditions of the pole or the lighting column rental.
Facilities:	Poles, structures, buildings, towers, and land controlled by the SA Power Networks.
High Voltage	Voltage exceeding low voltage.
Low Voltage	Low Voltage exceeding 50 Vac or 120 Vdc ripple free but not exceeding 1000 Vac or 1500 Vdc.
The SA Power Networks Manager	The SA Power Networks Manager or the Authorised Officer serving that area of the customer's installation.
The SA Power Networks Infrastructure	Infrastructure includes (but not limited to be): 1. Stobie poles 2. Public lighting columns 3. Substation asset, overhead HV and LV mains 4. HV and/or LV connection (eg. joints, termination) 5. Underground cable/conduit installations 6. Ground mounted equipment. (eg. transformers, switching cubicles) 7. Service pit/pillars 8. The SA Power Networks telecommunications asset (includes overhead & underground cables, pits, pillars, microwave RF, tower, pole, building etc)

Definitions continued:

Negotiated Connection Services	As stated in section title 'Negotiated Connection Services' of Manual 18.
Third Party Equipment	The third-party fixtures, fittings, cables, telecommunications, and other equipment necessary or desirable for attachment to the SA Power Networks infrastructure for use by the third-party as part of the third-party operations (applicant's equipment in the Agreement).
Third-Party Personnel	Employees, contractors, subcontractors, and any other person engaged, representing, or instructed by the third-party.
Registered Electrical Worker	A person registered to conduct electrical work under the Plumbers, Gas Fitters and Electricians Act 1995.
Terms and Conditions	As defined in the SA Power Networks construction terms booklet, ie 3302: 'Construction Terms (Non-Contestable & Contestable)'

2.2 Abbreviations

AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator Limited (ACN 072 010 327)
AER	Australian Energy Regulator
AS	Australian Standard
AS/NZS	A jointly developed Australian and New Zealand Standard
ASM	The SA Power Networks Asset Services Manager
CCTV	Closed-Circuit Television Network
CMEN	Common Multiple Earthed Neutral Systems
DIT	The Department of Infrastructure and Transport
ESCOSA	Essential Services Commission of South Australia
E-Dwgs	The SA Power Networks Electronic Drawings
FAA	Facilities Access Agreement
FACM	The SA Power Networks Facilities Access Contract Manager
HV	High Voltage
IEC	International Electrotechnical Commission
LV	Low Voltage
MEN	Multiple Earthed Neutral Systems
NAP	Network Access Permit
NATA	National Association of Testing Authorities
NBN	National Broadband Network
NEM	National Electricity Market
NER	National Electricity Rules
NICC	The SA Power Networks publications Network Information for Contractors and Customers
RF	Radiofrequency Radiation
TS	The SA Power Networks published Technical Standards

2.3 Terminology

shall	Indicate a mandatory requirement.
Should or May	Indicates a recommendation that will not be mandatory but can be imposed on the customer as deemed appropriate by SA Power Networks.

3. Relevant Rules, Regulations, Standards and Codes

3.1 Standards and Codes

The following listed documents are for the additional information and other documentation should be required on a project specific basis.

Please Note: It is the responsibility of the installer to ensure you have complied with all applicable, SA Legislative Regulations (under Acts), ESCOSA/ENA/AEMC/IEC documentation, relevant AS/NZS standards, the SA Power Networks publications, and you have ensured their current publications, before implementing them.

Standards Australia Publications:

AS/NZS 3000	Electrical Installations (Wiring Rules)
AS/NZS 3112	Approval and Test Specification - Plugs and Socket-Outlets
AS 5577	Electricity Network Safety Management Systems

SA Power Networks' Documents:

Manuals:	
Manual 18	The SA Power Networks Connections & Ancillary Network Services
Manual 14	The SA Power Networks Safety, Reliability, Maintenance & Technical Management Plan
Manual 26	The SA Power Networks Facilities Access Manual
Manual 32	The SA Power Networks Service and Installation Rules
Technical Standards & NICC Brochures:	
NICC210	Signage, Banners & Temporary Equipment on the SA Power Networks Assets.
NICC401	Information on Network Design and Installation by an External Contractor
NICC404	Working in the Vicinity of the SA Power Networks Infrastructure - Network Access Permit Process
TS 102	Easement Standard for the SA Power Networks Infrastructure
Relevant E-Dwgs Series	

3.2 Legislation and Regulations

This section provides a list of the relevant legislation and regulations which shall apply to the design, manufacture, installation, testing and commissioning, and operations and maintenance of all plant and equipment for the distribution network.

In an event where there is any inconsistency between legislation and regulations and these technical requirements, the legislation and regulations shall prevail.

- Electricity Act 1996 and Electricity (General) Regulations 2012
- Work Health & Safety Act 2012 and Work Health & Safety Regulations 2012
- Environment Protection Act 1993 and Environment Protection Regulations 2009
- Electricity Corporations (Restructuring and Disposal) Act and Regulations 1999

4. General requirements

4.1 Facilities access

Access granted to make use of the SA Power Networks infrastructure will be subject to the Facilities Access Agreement terms and conditions, network access permits, which will be consistent with requirements of the Electricity Act 1996 & SA Electricity (General) Regulations 2012, the SA Distribution Code, the SA Power Networks technical standards, any other rules, and regulations with which the SA Power Networks is required to comply in the conduct of its electricity distribution business.

SA Power Networks shall determine whether 'License Agreement' is necessary between the parties. Please contact the SA Power Networks Facilities Access Contract Manager (FACM) on 8404 5399 or send an email to facilitiesaccess@sapowernetworks.com.au.

SA Power Networks provides an interim authorisation to The Department for Infrastructure and Transport (DIT) for the installation of the traffic signals, control boxes and pedestrian control devices.

Further detail on Facilities Access is available on the SA Power Networks internet website at https://www.sapowernetworks.com.au/industry/facilities-access/

4.1.1 Conditions when 'Facilities Access Agreement' is not required

Where, SA Power Networks has determined that a 'Facilities Access Agreement' (FAA) is not required, the following minimum conditions for attaching third-party equipment shall apply:

(1) The customer shall obtain approval from the relevant local council or the Department of Infrastructure and Transport (DIT), as applicable.

(2) If deemed necessary by SA Power Networks, on case-by-case basis, the customer will arrange for a local SA Power Networks' representative or accredited inspector to visit the site to inspect third-party equipment, the proposed poles, and to agree that the installation proposed can be achieved without unnecessary risk to the SA Power Networks plant, workers and or the public. The customer shall contribute towards the cost of such site visit.

(3) Specify dates of installation and or removal, as applicable.

(4) The customer indemnifies SA Power Networks against any claims resulting from the installation that result from a failure of the equipment and or installation method.

(5) Equipment shall be installed to achieve the minimum clearance as specified by the legislation, applicable standards, codes and or in accordance with the SA Power Networks clearances and any additional specification requirements.

(6) Customers pay any applicable charges for where applicable for 'Make Ready Works' required to allow third-party attachments.

(7) The customer agrees to remove the equipment at the SA Power Networks request and or the SA Power Networks will remove the equipment and recover the cost of the removal.

(8) The customer agrees to SA Power Networks removing the equipment in an emergency and will not be liable for damages the equipment should suffer because of its removal.

(9) It will be the requestor's responsibility to make the application for electrical power supply arrangements and formalise the license agreement between the parties associated with the connection.

(10) The SA Power Networks connection point for third-party equipment will be provided on request at the fuse terminals in the fuse box mounted on the Stobie pole or at the bottom of the public lighting column.

(11) All reticulation beyond the SA Power Networks connection point will be the responsibility of the requestor and be compliant with the requirements of the SA Power Networks Service and Installation Rules (SIR) and any other relevant standards and or codes of practice.

4.2 Restrictions

SA Power Networks shall not grant access for the following conditions:

(1) Access for the purpose of commercial advertising.
(2) Third-party signages and or electrical equipment attached to any SA Power Networks' ground level enclosure ie. padmount transformer, switching cubicle, service pillar and or any other ground level enclosures.
(3) The third-party will not attach any equipment to the SA Power Networks infrastructure that will cause the safe mechanical loading of the pole to be exceeded for the SA Power Networks normal design criteria.
(4) The third-party shall not drill into any SA Power Networks' assets for attaching their equipment.
(5) Any third-party equipment shall not be positioned such that it will conceal or obstruct any signs, identification numbers or any major SA Power Networks' equipment, and shall not overhang the kerb line.
(6) Third parties shall develop a **safe work method for attachment** of their equipment.
(7) No third-party climbing device are to lean against the SA Power Networks poles or light columns during attachment, maintenance, or removal.
(8) The attachment of catenary wires (ie. stay wires) on the SA Power Networks infrastructure is **not permitted in residential areas**, unless approved by SA Power Networks.
(9) The Electricity (General) Regulation 2012 sets out requirements for altering ground near electrical infrastructure that an excavation deeper than 300mm within 3.0m of a pole is **not permitted** without written authority from the SA Power Networks.
(10) The third-party equipment attachment shall not compromise to meet minimum distances from electrical circuits including complying to minimum clearances from the ground level as specified in the SA Electricity (General) Regulations 2012.

4.3 Installation compliance

4.3.1 Personnel

All third-party equipment shall be installed by persons suitably qualified and trained to work in proximity to exposed conductors in accordance with the Electricity Act 1996 and Electricity (General) Regulations 2012.

4.3.2 Equipment

All third-party equipment connected to the SA Power Networks network is to comply with the requirements of the current SA Power Networks Service and Installation Rules and AS/NZS 3000 - Wiring Rules requirements, and all conditions set out in the Facilities Access Agreement.

4.4 Connections

Depending on the equipment to be installed, a new electrical connection may be required.

On the Stobie poles, generally the connection point for third-party equipment will be provided on request at the fuse terminals in the fuse box mounted on the SA Power Networks asset.

On the public light columns, the SA Power Networks connection point will be provided at the bottom of the aperture approximately 600 mm above the finished ground level.

In addition, the installation of a suitable switching device between the connection point and the third-party equipment is required to avoid a SA Power Networks attendance charge for disconnection/ reconnection where power isolation is required for customer's purposes.

All reticulation beyond the connection point will be the responsibility of the requestor and be compliant with the requirements of the SA Power Networks Service and Installation Rules and any other relevant standards and or codes of practice.

Note that for particular equipment proposed for installation on the poles located in a MEN earthing area (multiple earthed neutral) may be deemed unsuitable due to the potential risk.

Visit our website for more information on how to apply for a new connection at:
https://www.sapowernetworks.com.au/connections/new-connections/

4.4.1 Unmetered connection supplies on Stobie poles

The attachment of low power usage third-party electrical equipment (eg < 5 A load) on the SA Power Networks Stobie poles or lighting columns are to be connected based on unmetered tariff supply arrangements in addition to an agreement between the parties.

The load shall be hard wired or connected by special purpose outlets. Standard type socket outlets (AS/NZS 3112) shall not be used.

It will be the requestor's responsibility to make the application for any unmetered supply arrangements.

Notes:

(1) SA Power Networks is under no obligation to accept an unmetered supply request until its suitability has been assessed by SA Power Networks in conjunction with accurate NATA test results.

(2) In considering the suitability of a load for an unmetered tariff, SA Power Networks shall be satisfied that the electrical usage can be accurately determined and that the load will not vary.

4.4.2 Metered connection supplies on Stobie poles

Where a metered connection arrangement is required, specific metered equipment may be permitted for installation on the Stobie poles under a relevant Facilities Access Agreement (ie. third-party owned EV chargers).

This metered connection and wiring arrangement shall meet the current metering rules and SI&R requirements.

Low voltage planning and assessment may also be required for each proposed metered site to ensure feasibility of connection and network capacity requirements.

Each site design and proposed Stobie pole needs to be reviewed and approved by the SA Power Networks prior to installation. Below is a typical electrical schematic for a metered solution.

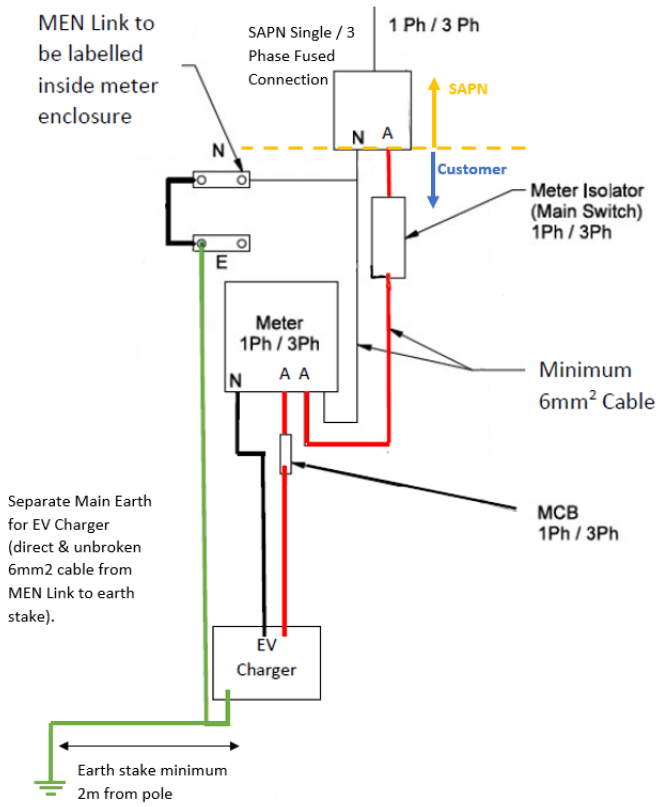

Figure 1: Typical electrical schematic

4.5 Asset identification

Third-party shall provide details of their equipment including site location for all attachments.

All assets shall be clearly identified as the respective owner's asset. All asset identification labels are required to be durable to all-weather conditions and clearly visible from the ground.

Refer to the SA Power Networks Service and Installation Rules for specific details relating to identification of assets.

4.6 Wind loading

Wind loading of all relevant third-party equipment to be attached to the SA Power Networks Stobie poles or lighting column is to be calculated to ensure that the Stobie pole or lighting column is not overloaded.

These calculations are to be presented in an engineering report to the relevant SA Power Networks Project Manager prior to approval for the installation of the third-party equipment is given.

Note: With certain equipment, depending on the size, weight and installation height, SA Power Networks may determine that structural calculations are not required.

The Facilities Access Contract Manager can assist in organising the calculations by the SA Power Networks engineer, which incur extra costs. Please forward an email to facilitiesaccess@sapowernetworks.com.au

4.7 RF hazard warning signage

Any third-party equipment using Radio Frequency (RF) device will require an 'RF danger' sign to be mounted on the device (refer Figures 2 and 3), which shall be the contractor's responsibility to install and maintain. The isolation point for the RF hazard should be below and well clear of the RF zone.

Figure 2: RF hazard warning sign **Figure 3: Antenna with RF field warning hazard sign**

4.8 Infrastructure condition assessment

On case-by-case basis, the customer will arrange for a local SA Power Networks' representative or accredited inspector to visit the site for infrastructure condition assessment, equipment inspection, and to ensure suitability of proposed poles for safety of the SA Power Networks plant, workers and public.

Subject to agreement, the customer should be required to contribute towards the cost of such site visit.

4.9 Removal of equipment

Any third-party equipment shall be removed at the owner's expense if advised by the SA Power Networks to do so.

4.10 Equipment damage

No damage is to be caused to any SA Power Networks' equipment, or any other third-party customers' equipment located on the SA Power Networks assets.

5. Stobie pole

The following conditions are required to be met when mounting any customers electrical equipment on the SA Power Networks Stobie pole.

5.1 Attachment on Stobie pole

Equipment brackets attached to Stobie poles shall be corrosion resistant and are to be designed to utilise the cored holes through the concrete face wherever available, refer Figure 4 and Section 4.9, for more details.

Figure 4: Bracket arrangement using existing bolt holes on Stobie pole

The alternative option of using stainless steel strapping for attaching third-party equipment on Stobie pole is acceptable, once approved by SA Power Networks. Refer to Figure 5.

Figure 5: Stainless steel strapping arrangement on Stobie pole

5.2 Position on Stobie pole

Third-party equipment position shall meet minimum clearance distance from live electrical conductors as specified in the SA Electricity (General) Regulations 2012.

Third Party equipment is not permitted at the same location as SA Power Networks or NBN optic fibre height and shall be placed at least half a metre away from infrastructure installed in the communications carrier window.

Equipment shall not be positioned such that it will conceal or obstruct any signs, identification numbers or any major SA Power Networks' equipment, and shall not overhang the kerb line.

Only approved equipment is permitted and shall be installed to the approved drawings including all brackets and mounting configurations. An example of a typical EV Charger is shown below in Figure 6, including the maximum height of the main switch, minimum height of the hardware above ground level.

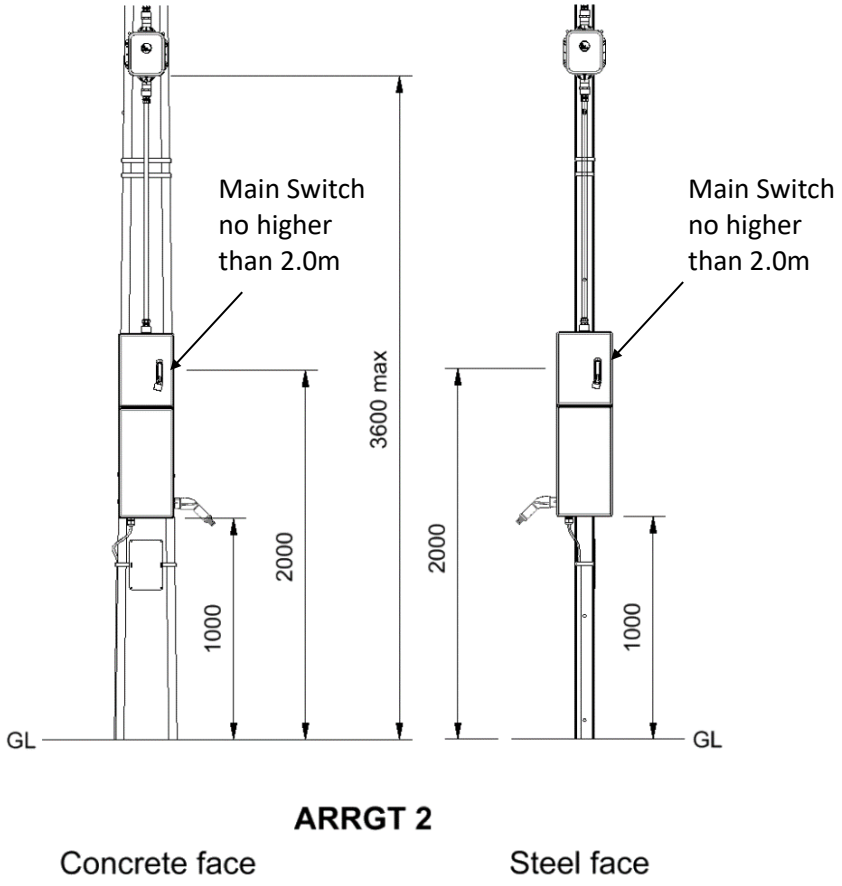

Figure 6: EV Charger with integrated meter

6. Lighting column

The following conditions are required to be met when mounting any customer's electrical equipment on the SA Power Networks light column.

6.1 Attachment on light column

Stainless steel strapping is to be used whenever attaching any third-party equipment on the SA Power Networks public lighting column. Refer to Figure 7.

Note: at no stage shall any third-party climbing equipment (ladders etc.) be leant against a light column.

Figure 7: Stainless steel strapping arrangement on public light column

6.2 Position on light column

The third-party typical equipment (Eg. CCTV etc) installed on public lighting columns shall be mounted at 4.0m (minimum), with third-party safety isolation switch installed at 3.0m (minimum), measured from finished ground level. Refer to Figure 8**.**

Maximum height shall be evaluated on a case-by-case basis, as part of the Facilities Access Agreement.

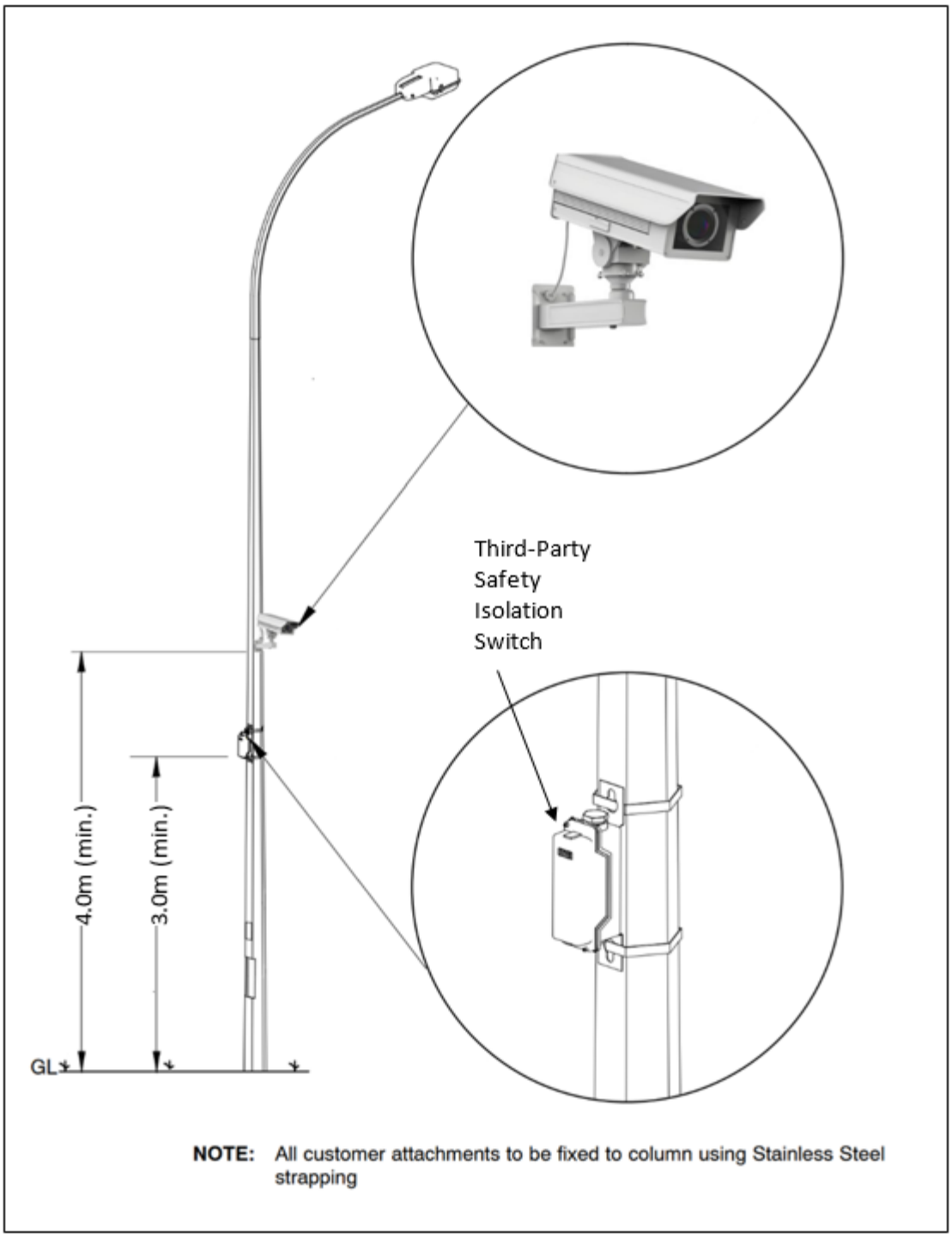

Figure 8: Third-party CCTV position on public light column

The typical Antennas (Eg. Small cells) can be attached 5.0m (minimum) on a straight section of column measured from ground level and 500mm (minimum) below the joint on the top of public light column where column starts curving, refer to Figure 9.

Third-party equipment shall not be positioned such that it will conceal or obstruct any signs, identification numbers or any major SA Power Networks' equipment, and shall not overhang the kerb line.

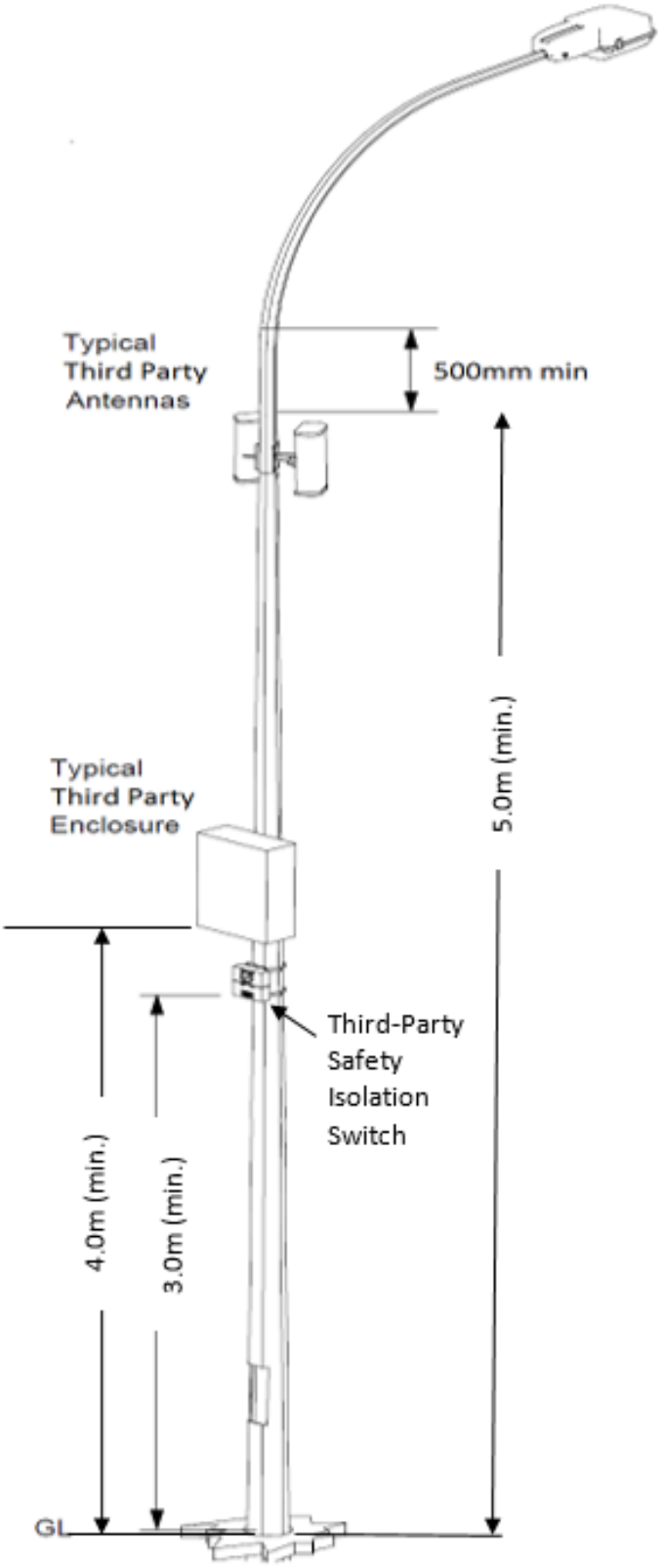

Figure 9: Third-party antenna positions on public light column