

Network Standard

NETWORK

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NW000-S0054

**NS183 INSTALLATION OF PRIVATE ATTACHMENTS ON AUSGRID
POLES**



ISSUE

For issue to all Ausgrid and Accredited Service Providers', and is for reference by field, technical and engineering staff.

Ausgrid maintains a copy of this and other Network Standards together with updates and amendments on www.ausgrid.com.au.

Where this Standard is issued as a controlled document replacing an earlier edition, remove and destroy the superseded document

DISCLAIMER

As Ausgrid's Standards are subject to ongoing review, the information contained in this document may be amended by Ausgrid at any time. It is possible that conflict may exist between Standard documents. In this event, the most recent Standard shall prevail.

This document has been developed using information available from field and other sources and is suitable for most situations encountered in Ausgrid. Particular conditions, projects or localities may require special or different practices. It is the responsibility of the local manager, supervisor, assured quality contractor, accredited service provider and the individuals involved to make sure that a safe system of work is employed and that statutory requirements are met.

Ausgrid disclaims any and all liability to any person or persons for any procedure, process or any other thing done or not done, as a result of this Standard.

All design work, and the associated supply of materials and equipment, must be undertaken in accordance with and consideration of relevant legislative and regulatory requirements, latest revision of Ausgrid's Network Standards and specifications and Australian Standards. Designs submitted shall be declared as fit for purpose. Where the designer wishes to include a variation to a network standard or an alternative material or equipment to that currently approved the designer must obtain authorisation from the Network Standard owner before incorporating a variation to a Network Standard in a design.

All designers including external designers authorised as Accredited Service Providers will seek approval through the approved process as outlined in NS181 Approval of Materials and Equipment and Network Standard Variations. Seeking approval will ensure Network Standards are appropriately updated and that a consistent interpretation of the legislative framework is employed.

Notes: 1. Compliance with this Network Standard does not automatically satisfy the requirements of a Designer Safety Report. The designer must comply with the provisions of the Workplace Health and Safety Regulation 2017 (NSW - Part 6.2 Duties of designer of structure and person who commissions construction work) which requires the designer to provide a written safety report to the person who commissioned the design. This report must be provided to Ausgrid in all instances, including where the design was commissioned by or on behalf of a person who proposes to connect premises to Ausgrid's network, and will form part of the Designer Safety Report which must also be presented to Ausgrid. Further information is provided in Network Standard (NS) 212 Integrated Support Requirements for Ausgrid Network Assets.

2. Where the procedural requirements of this document conflict with contestable project procedures, the contestable project procedures shall take precedent for the whole project or part thereof which is classified as contestable. Any external contact with Ausgrid for contestable works projects is to be made via the Ausgrid officer responsible for facilitating the contestable project. The Contestable Ausgrid officer will liaise with Ausgrid internal departments and specialists as necessary to fulfil the requirements of this Standard. All other technical aspects of this document which are not procedural in nature shall apply to contestable works projects.

INTERPRETATION

In the event that any user of this Standard considers that any of its provisions is uncertain, ambiguous or otherwise in need of interpretation, the user should request Ausgrid to clarify the provision. Ausgrid's interpretation shall then apply as though it was included in the Standard, and is final and binding. No correspondence will be entered into with any person disputing the meaning of the provision published in the Standard or the accuracy of Ausgrid's interpretation.

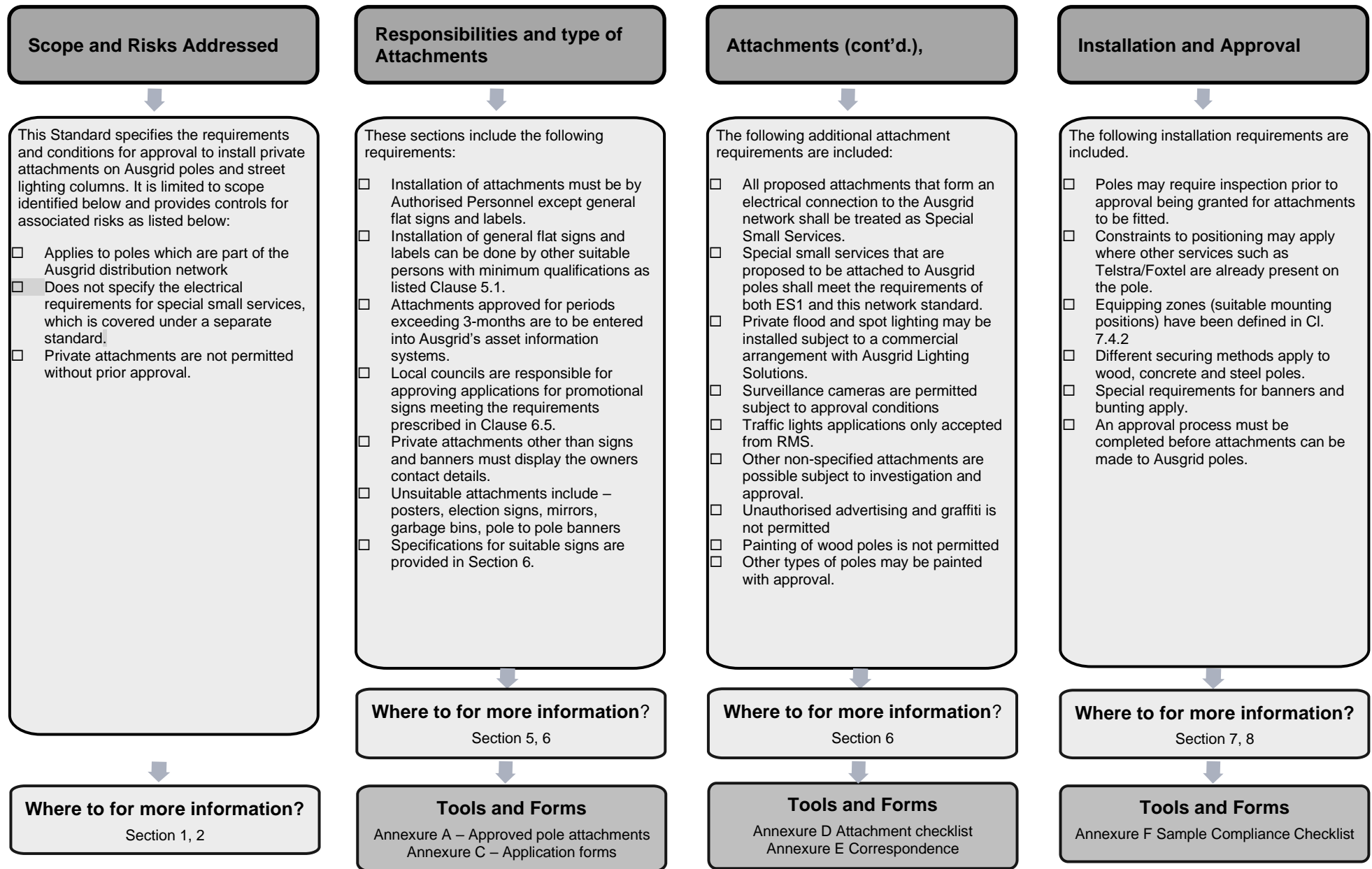
KEYPOINTS

This Standard has a summary of content labelled "KEYPOINTS FOR THIS STANDARD". The inclusion or omission of items in this summary does not signify any specific importance or criticality to the items described. It is meant to simply provide the reader with a quick assessment of some of the major issues addressed by the Standard. To fully appreciate the content and the requirements of the Standard it must be read in its entirety.

AMENDMENTS TO THIS STANDARD

Where there are changes to this Standard from the previously approved version, any previous shading is removed and the newly affected paragraphs are shaded with a grey background. Where the document changes exceed 25% of the document content, any grey background in the document is to be removed and the following words should be shown below the title block on the right hand side of the page in bold and italic, for example, Supersedes – document details (for example, "Supersedes Document Type (Category) Document No. Amendment No.").

KEY POINTS OF THIS STANDARD



Network Standard NS183 Installation of Private Attachments on Ausgrid Poles

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1.0 PURPOSE

This Standard specifies the requirements and conditions for approval to install private attachments on Ausgrid poles and street lighting columns.

Proposed attachments must be approved, in writing, by Ausgrid before installation can proceed. Standing approval may be given for some attachment classes on application, for example, street name signs for local councils. Unless the Asset Owner has an existing general agreement in place a written approval must be given before any equipment is attached to an Ausgrid pole.

2.0 SCOPE

The requirements of this standard apply to timber, concrete and steel poles and lighting columns owned by Ausgrid. Intended users of this Standard include (but not limited to) Ausgrid staff, Accredited Service Providers and contractors, local councils, and statutory authorities.

This Standard applies to all general attachment types. However, additional attachment types may emerge from time to time, which are not covered in this Standard. These attachments will need to be assessed and classified by Ausgrid before being incorporated into this Standard.

NS183 covers pole-mounted mobile communication antennae installations. This Standard does not specify the requirements for pole-mounted communications cabling. Refer NS232 for **Telecommunications Cables** on Ausgrid poles.

This Standard does not specify the electrical requirements for pole-mounted Special Small Services, which is covered under Ausgrid's electricity supply standard ES1- Premises Connection Requirements.

In the event that clarification is required, the reader should contact an Ausgrid Regional Network Planning group or Network Connections team for advice.

3.0 REFERENCES

3.1 General

All work covered in this document shall conform to all relevant Legislation, Standards, Codes of Practice and Network Standards. Current Network Standards are available on Ausgrid's Internet site at www.ausgrid.com.au.

3.2 Ausgrid documents

- Bushfire Risk Management Plan
- Company Form (Governance) - Network Technical Document Endorsement and Approval
- Company Procedure (Governance) - Network Technical Document Endorsement and Approval
- Company Procedure (Network) – Network Standards Compliance
- Company Procedure (Network) - Production / Review of Engineering Technical Documents within BMS
- Customer Installation Safety Plan
- Division Workplace Instruction (Network) – Production /review of Network Standards
- Electrical Safety Rules
- Electricity Network Safety Management System Manual
- ES1 Premises Connection Requirements
- NS100 Field Recording of Network Assets
- NS102 Working on or near Poles with **Telecommunication Transmitters**
- NS109 Design Standards for Overhead Developments
- NS145 Pole Inspection and Treatment Procedures
- NS146 Safety Inspection Procedure for Working on Poles
- NS181 Approval of Materials and Equipment and Network Standard Variations

- NS212 Integrated Support Requirements for Ausgrid Network Assets
- NS232 Telecommunications cables on Ausgrid Poles
- Public Electrical Safety Awareness Plan
- Public Lighting Management Plan
- Tree Safety Management Plan

3.3 Other standards and documents

- EC 18 – Training of Personnel Working on or near Electricity Works
- ENA Doc 001-2019 National Electricity Network Safety Code
- NENS 04-2003 National Guidelines for Safe Approach Distances to Electrical Apparatus

3.4 Acts and regulations

- Electrical (Installation Safety) Regulation 1992
- Electricity Safety Act 1945
- Electricity Supply Act 1995
- Electricity Supply (General) Regulation 2014 (NSW)
- Electricity Supply (Safety and Network Management) Regulation 2014
- Work Health and Safety Act 2011 and Regulation 2017

4.0 DEFINITIONS

Accredited Service Provider (ASP)	An individual or entity accredited by the NSW Department of Planning and Environment, Energy, Water and Portfolio Strategy Division, in accordance with the Electricity Supply (Safety and Network Management) Regulation 2014 (NSW).
Approved Attachment	An attachment that has been assessed by Ausgrid and satisfies the requirements of Network Standard NS183.
Attachment Owner (AO)	The party legally responsible for any private attachment (authorised or unauthorised) that is installed on an Ausgrid pole
Authorised Personnel	Persons with current Level 1 or 2 accreditation under the Energy and Resources Division of NSW Department of Industry
Business Management System (BMS)	An Ausgrid internal integrated policy and procedure framework that contains the approved version of documents.
Copper-Chrome Arsenate (CCA) Impregnated Pole	A debarked, naturally round timber pole with the sapwood pressure impregnated with Copper Chrome Arsenate (CCA) timber preservative. CCA poles are greenish colour. The timber from CCA poles must not be burned, as the fumes given off are highly toxic.
Document control	Ausgrid employees who work with printed copies of document must check the BMS regularly to monitor version control. Documents are considered “UNCONTROLLED IF PRINTED”, as indicated in the footer.
Commercial Gain	Money or other benefits
Network Standard	A document, including Network Planning Standards, that describes the Company's minimum requirements for planning, design, construction, maintenance, technical specification, environmental, property and metering activities on the distribution and transmission network. These documents are stored in the Network Category of the Document repository.
Private Attachment	Any pole mounted device that is neither owned by Ausgrid nor installed for an Ausgrid core business purpose.

Promotional Sign/Banner	Any sign or banner that identifies and or promotes non-profit services, events or activities for community information or benefit, or for licensed charities.
Public utility	An organisation that maintains infrastructure for a public service
Review date	The review date displayed in the header of the document is the future date for review of a document. The default period is three years from the date of approval however a review may be mandated at any time where a need is identified. Potential needs for a review include changes in legislation, organisational changes, restructures, occurrence of an incident or changes in technology or work practice and/or identification of efficiency improvements.

5.0 RESPONSIBILITIES

5.1 Attachment owner

The Attachment Owner must ensure that Authorised Personnel as defined in this standard carry out the installation of all Private Attachments except general flat signs and labels.

In cases where general flat signs and labels shall be installed and will be fixed to a pole no higher than 5 metres above ground level, the Attachment Owner may elect to use other suitably qualified personnel to carry out the installation. In this instance, the minimum qualifications and requirements of qualified personnel are:

- An Electrician holding a current 'Qualified Supervisor's Certificate - Electrical' (NSW) or equivalent.
- Demonstrated competence in the identification of potential electrical hazards that may exist on a pole based on infrastructure present and testing for the existence of touch potential.

Note: Information about step and touch potential and above ground electrical hazards on poles in general is available in Ausgrid's Network Standard NS146.

5.2 Ausgrid Regional Services

Ausgrid's Regional Services are responsible for handling applications for private attachments (except promotional signage) on Ausgrid poles that do not make an electrical connection to the Ausgrid network, in accordance with the requirements set out in this standard.

A flowchart summarising the process to be followed can be found in Annexure B.

For enquires contact the offices listed in Table 1.

Applications for attachment types not classified in this standard shall be forwarded to the Ausgrid Asset Management Division Engineering group for assessment.

5.3 Ausgrid Network Connections

Ausgrid's Customer Connections teams are responsible for handling applications for private attachments on Ausgrid poles that make an electrical connection to the Ausgrid network, in accordance with the requirements set out in ES1 Premises Connection Requirements.

Applications for attachment types not classified in this standard shall be forwarded to the Ausgrid Asset Management Division Engineering group for assessment as a part of the approval process.

5.4 Recording requirements

Regional Services Officers and Ausgrid Customer Connections team members shall record all approvals given for private attachments in a suitable database or spreadsheet. Pole attachments approved for periods exceeding three months shall also need to be recorded in the relevant asset information system. Regional Services shall forward details of such approvals to the relevant administrators for entry into the system within seven days of granting the approval.

5.5 Local councils

Local Councils are responsible for approving applications to install promotional signs (including banners and bunting) on Ausgrid poles within their designated Areas, under the condition that the promotional signs meet the requirements prescribed in Clause 6.5.

Assessment of promotional signs shall be carried by an officer of the council concerned in accordance with the approval criteria set out in this Network Standard.

6.0 ATTACHMENTS

6.1 General

Only Approved private attachments are permitted on Ausgrid poles. An attachment is considered Approved if it has been assessed by Ausgrid and satisfies the requirements of this Standard. An approved attachment must be authorised in writing by Ausgrid before being installed.

Only those attachments that would substantially be either directly or indirectly for public benefit will be approved for attachment on Ausgrid poles.

6.2 Private attachments

All private attachments other than signs and banners must display the attachment owner's contact details in the event that the attachment is damaged or requires removal. A suitable water proof label providing the attachment owner's name and telephone number shall be fixed either directly to the attachment or to the pole adjacent to the attachment. Labels installed on Ausgrid's poles must be secured in accordance with Clause 7.5 of this standard.

In an emergency situation Ausgrid reserves the right to remove the equipment without notifying the owner (i.e. if Ausgrid cannot contact the owner).

6.2.1 Charges for private attachments

Ausgrid may charge a reasonable fee to cover processing and establishment of a private attachment. This fee will only apply if the private attachment is for commercial gain. There is no fee for attachments such as banners, bunting, Council's CCTV camera etc. In either case the owner has to notify Ausgrid if they want to change anything with the attachment (eg. upgrade/modify equipment etc.)

6.3 Unsuitable attachments

Proposed attachment types not specified in this Standard are considered unapproved attachments until assessed by Ausgrid. Certain attachment types have already been assessed by Ausgrid and classified unsuitable for use on Ausgrid poles. The following attachments are not permitted:

(a) Posters

Wrap-around posters are not permitted on Ausgrid poles under any circumstances. Such posters are typically taped or pasted to poles by or on behalf of clubs, hotels and small businesses to advertise their products and services. Wrap around posters act as a moisture trap that encourages soft rot, which can damage or reduce the life of a pole.

Flat posters used for promotional purposes are not permitted on Ausgrid poles unless they meet the requirements of Clause 6.5.

(b) Election signs

Signs and posters promoting political parties, representatives or candidates during public elections or otherwise are not permitted on Ausgrid poles. The erection of such signs or posters is prohibited under Section 151B of the Parliamentary Electorates and Elections Act 1912 (NSW). Employees and contractors are encouraged to report all instances of election posters on Ausgrid poles to the nearest Regional Services Office.

(c) Garbage bins

Historically, garbage bins were permitted on Ausgrid poles located near shops and bus stops if the pathway was deemed to be particularly narrow. However, a review of access issues for pole treatment personnel concluded that this practice is no longer satisfactory. Future applications to install garbage bins will not be accepted and bins will not be reinstalled when a pole is replaced.

(d) Pole to pole banners

The installation of banner spans between two (or more) poles or between poles and shopfront awnings is not permitted. Ausgrid poles are not designed to support the large wind forces these installations can produce. Strings of recessed decorative bunting may be installed between poles and shopfront awnings provided it meets the requirements given in Annexure A and is installed in accordance with Clause 7.5 of this standard.

6.4 Signs and labels

Applications to install signs, labels and other non-promotional notices on Ausgrid poles will generally be approved provided the size limits shown in Figure 1 are not exceeded and installation is in accordance with Section 7 of this Standard. Figure 2 shows a typical arrangement of public notice signs.

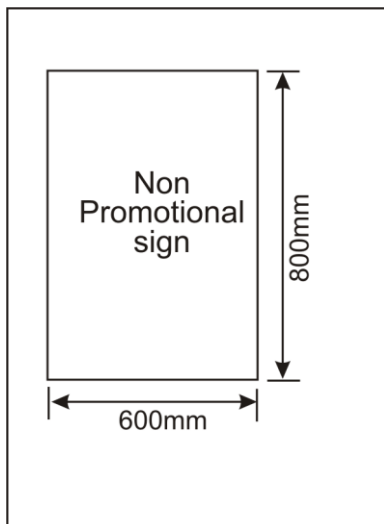


Figure 1: Size limit for non-promotional signs



Figure 2: Typical arrangement of public notice signs

Applications to install larger signs on a temporary basis for special notice or emergency warning purposes will be considered by Ausgrid on a case by case basis. Poles already supporting multiple signs or a combination of signs and other attachments as shown in Figure 3 are not suitable for further attachments.



Figure 3: Unacceptable sign clutter

6.5 Promotional signs, banners, and bunting

Applications to install signs and banners on Ausgrid poles for promotional purposes must be managed by the relevant Local Council. Ausgrid does not accept applications for promotional attachments.

Promotional content is limited to community activities such as festivals, charity events, and other non-commercial public notices. Advertising of products, commercial services, or any form of political promotion is not permitted.

Signs of a para-commercial nature may be permitted provided the applicant can demonstrate a public benefit outcome and that no business or product names are displayed. Examples of where such signs may be appropriate are private hospitals, veterinary clinics, and public swimming pools.

Promotional signs must be no larger than the size specified in Figure 4. Flexible plastic 'Coreflute' signs, will only be approved for temporary periods at the discretion of Ausgrid.

Promotional banners are only permitted on street lighting columns that are designed to accommodate them. Banners or flags may also be permitted on Ausgrid timber poles (subject to assessment) provided the banners do not interfere with existing pole access or other attachments, and maintain satisfactory clearance from overhead mains at all times (Refer to Note 1).

In general, banners must be no larger than the size specified in Figure 5. In cases where larger banners are required, the council assessing the application shall provide Ausgrid with a report from a certified structural engineer demonstrating that the banner loading is within safe limits for the pole concerned. Promotional signs and banners must be installed in accordance with Section 7 of this Standard.

Note 1: The minimum clearance between the banner support and bare overhead mains is the vertical length of the banner.

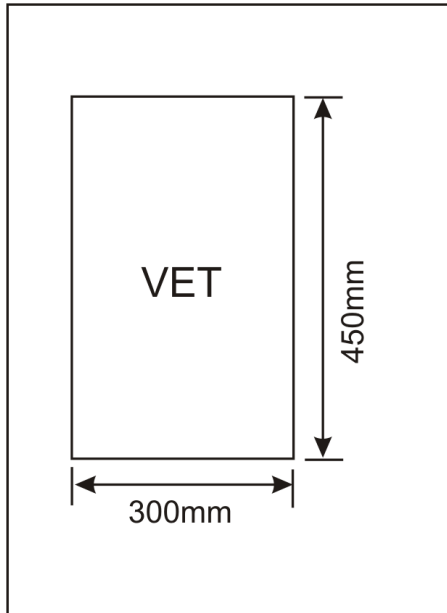


Figure 4: Size limit for Promotional signs

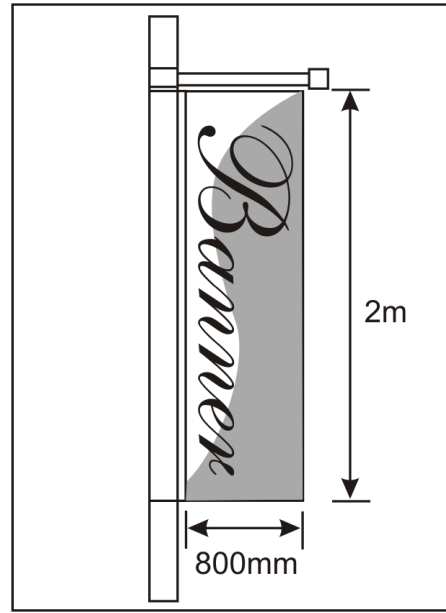


Figure 5: Size limit for promotional banners

Decorative bunting may be strung across a road way between an individual Ausgrid pole and a shop front awning, provided that:

- A minimum 2m clearance is maintained between the bunting and any low voltage overhead mains running along the shop fronts involved. Clearance to overhead mains of other voltages to be determined on application
- The bunting meets the criteria set out in Annexure A and is installed in accordance with Section 7 of this standard.

A limit of five bunting strings is permitted between a single Ausgrid pole and a set of adjacent awnings as shown in Figure 6.

Decorative bunting may be installed for temporary periods of up to 3 months. Periods beyond twelve months may be negotiated with Ausgrid.

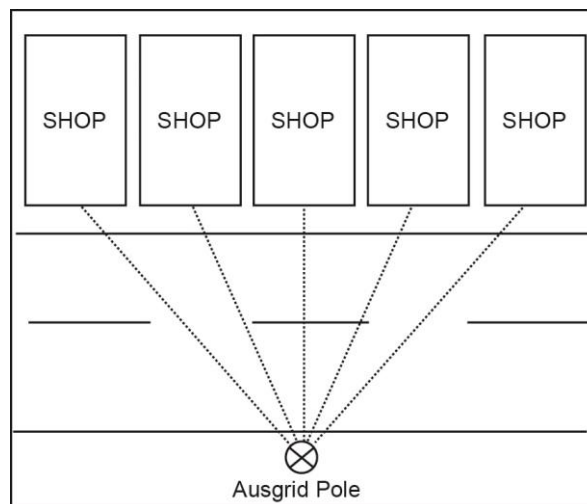


Figure 6: Decorative Bunting Installation with five spans

Bunting shall be for decorative purposes only and must not feature commercial advertisements or company logos.

Local councils are responsible for installations of promotional signs, banners and bunting, be they for themselves or for a third party. No Ausgrid charges will apply to councils installing approved promotional attachments provided the council concerned agrees to keep the pole concerned free of posters for the term of the installation.

6.6 Special small services

If a proposed pole attachment forms an electrical connection to the Ausgrid network, it shall be considered a Special Small Service which shall meet the requirements prescribed in both ES1 Premises Connection Requirements and this Network Standard.

Approved special small services may be installed to supply other approved attachments or ancillary services. Special small services must be installed in accordance with Section 5 of the Service and Installation Rules of NSW, Section 3.13 of ES1 and Section 7 of this Network Standard.

6.7 Telecommunications

If a proposed pole attachment forms an electrical connection to the Ausgrid network, it shall be considered a Special Small Service (refer to Clause 6.6).

Telecommunications equipment such as small cells, microcells and broadband cable services and NBN may be installed on Ausgrid poles under a licensing agreement negotiated with Ausgrid. General information on these installations is provided in Annexure E of this network standard, NS102 Working on or near Poles with **Telecommunication Transmitters** and NS232 **Telecommunications Cables** on Ausgrid Poles.

Applications to install telecommunications equipment on Ausgrid poles must be made in writing to Ausgrid's Network Facilities Access by emailing to FacilitiesAccess@ausgrid.com.au.

6.7.1 Information required for telecommunication equipment submission

The following information is mandatory:

- Site Nomination Agreement (SNA);
- A 'certified' structural assessment;
- Environmental (EME) illustration;
- Design drawings
- A copy of the Technical Operations Manual.

The structural assessment must include physical details of the pole including;

- diameter
- height
- location of the disc (applicable to timber poles) and any detailed information on the disc
- the condition determined by visual inspection of the pole and a summary of the load calculation.

The following design drawing pack is mandatory:

- Title page;
- Site access, contact details and safety/construction requirements and related notes;
- Overall site plan, including locality sketch;
- Site elevations, detailing:
 - (i) Location of equipment (i.e. isolation switch, RRU's etc.) above natural ground level;
 - (ii) Typical U/G to O/H detail;
 - (iii) Antenna "sector" table;
 - (iv) Existing infrastructure such as flags, banners, cameras, signs and labels;
 - (v) Street furniture i.e. awnings, traffic lights, cabinets, brick walls, bus shelters etc.

- RF plumbing diagram;
- Equipment mounting details and attachment methods, stand-off brackets if applicable;
- Photo/s of proposed pole and site;
- Electrical design drawing and schematic/single line diagram;
- Service provider connection box and wiring diagram;
- Indicative plume diagrams;
- The physical dimensions of the antenna/s and the related equipment including size, weight, location and orientation on pole;
- Detail on the power supply and any associated communications cabling.

6.8 Lighting

If a proposed pole attachment forms an electrical connection to the Ausgrid network, it shall be considered a Special Small Service (refer to Clause 6.6).

Private flood or spot lighting may be installed on selected Ausgrid poles for security and commercial purposes. Ausgrid Lighting Solutions designs and installs private lighting under a commercial arrangement with customers. All lighting equipment installed on Ausgrid poles for private lighting remains the property of Ausgrid.

Typical private lighting installations are shown in Figures 7 and 8 below.



Figure 7: Single spot light mounted directly on LV cross arm



Figure 8: Pair of security flood lights mounted on a separate cross arm

6.9 Cameras

If a proposed pole attachment forms an electrical connection to the Ausgrid network, it shall be considered a Special Small Service (refer to Clause 6.6).

Approved video surveillance cameras may be installed on Ausgrid poles provided they are installed in accordance with Section 7 of this Standard. Approved cameras include CCTV, wireless video cameras and ancillary equipment meeting all relevant Australian Standards. A limit of two cameras per pole is permitted provided the cameras are connected to a common control unit and supplied via a single Special Small Service.

Typical surveillance camera installations are shown in Figures 9 and 10.

Approval to install surveillance cameras and associated equipment will only be given provided that the requested pole or column has been inspected by Ausgrid and deemed suitable for this purpose in accordance with Clause 7.2 of this document.



Figure 9: Typical CCT installation



Figure 10: Typical wireless camera installation with mini panel antenna mounted above

6.10 Traffic lights

Traffic lights may only be installed on Ausgrid poles in special circumstances. Applications will only be accepted from the Road Authority responsible for the control of the applicable public road (eg. Roads and Maritime Services (RMS)), who must demonstrate that the installation of a dedicated pole is either not possible or not practical at the given location.

Regional Services shall arrange a pole inspection to be carried out by Ausgrid at the Road Authority's cost before approval can be given. The size, weight, and positioning of traffic lights may apply considerable forces on the pole involved. Accordingly, the pole will need to be inspected both visually and mechanically by an approved method as outlined in Network Standard NS145.

6.11 Miscellaneous (unclassified) attachments

Unclassified attachments are devices that have not been assessed by Ausgrid and yet to be considered suitable for attachment to poles. Parties seeking to install attachments that are not specified in this Network Standard must provide technical details of the attachment along with the application form.

At a minimum, the information required includes:

- Function of the attachment
- All exterior dimensions
- Total weight
- Power consumption
- Method of attachment
- Duration of the installation

Ausgrid's Asset Management Divisions Engineering group shall assess unclassified attachments and arrange for this standard to be updated as applicable and reserve the right to charge an assessment fee.

6.12 Unauthorised advertising and graffiti

Graffiti and unauthorised advertising is strictly prohibited on Ausgrid's poles and lighting columns. Ausgrid staff and contractors are encouraged to remove posters and unauthorised signage from Ausgrid poles, where it is safe to do so. Where this may not be possible for access or safety reasons, the relevant Ausgrid Regional Services Office should be notified. Contact details for Ausgrid's Regional Services Offices are tabled in Section 8 of this Standard.

In cases such as Figures 11 and 12 where the advertiser can be clearly identified, photographs of the advertising should be taken, prior to removal, to support any warnings or legal action that Ausgrid may decide to undertake.



Figure 11: Typical example of unauthorised advertising signs



Figure 12: Pole with several identifiable advertising signs

Instances of offensive graffiti should be reported to Ausgrid as soon as possible so that arrangements can be made for prompt removal.

6.13 Painting of Ausgrid poles

6.13.1 Wood poles

Painting of wood poles is not allowed as it encourages the retention of moisture and provides conditions advantageous for termite infestation and fungi growth. The painting of wood poles hinders Ausgrid's ability to competently inspect the pole by covering over termite activity and evidence of fungal decay.

6.13.2 Steel, concrete, fibreglass poles

Steel, concrete, fibreglass and fibre cement (Titan) poles may be painted provided written permission is obtained from Ausgrid and the relevant Local Council.

7.0 INSTALLATION

7.1 General

All attachments must be installed:

- in accordance with the pole types outlined in the sections that follow
- attachments shall be positioned to maintain safe clearances from overhead conductors and in a manner that does not facilitate unauthorised climbing of the pole
- attachments must not obstruct or interfere with the operation or function of existing fixtures.

Where possible all attachments shall be located on the 'down traffic' or footpath side of the pole.

7.2 Authority

Private attachments are not permitted on Ausgrid poles without written authority from Ausgrid. Parties seeking to install private attachments (except for promotional signs, banners and bunting which are to be approved by local councils) must first apply to Ausgrid for the attachment to be assessed. If the attachment is approved and all applicable terms and conditions are met, authority will be issued for the installation to proceed.

Any private attachments installed without Ausgrid authority will be removed immediately and possible legal action taken against the Attachment Owner where applicable.

7.3 Pole inspection

Depending on the attachment type, poles may require an inspection by Ausgrid before authority to install approved attachments is given. The inspection shall determine whether the proposed pole is suitable for supporting the attachment.

Factors that influence the inspection are:

- Location of pole
- Pole type and access requirements
- Age and condition of pole
- Existing equipment

A pole inspection is not generally required where small community signs and labels (eg. bus stop signs, neighbourhood watch signs, etc.) and special small services are concerned. For all other attachments, Ausgrid shall carry out a visual inspection of the pole to determine its suitability based on the above criteria. In general the following pole types are not suitable for larger signs and electronic attachments:

- High voltage poles (11kV and above)
- Poles with underground to overhead network connections (UGOHs)
- Poles with under slung links, isolating points, and street light control point boxes
- Any other pole that must be climbed on a regular basis for operations or maintenance

In the event that a pole inspection renders a particular pole unsuitable for supporting additional attachments, the closest suitable alternative will be recommended.

7.4 Positioning attachments

Refer to NS232 for information on positioning of telecommunications cables on Ausgrid poles.

7.4.1 Old telecommunication carriers arrangements

Under existing commercial arrangements between telecommunication carriers and Ausgrid, fixed areas on Ausgrid’s distribution poles are generally reserved for broadband and pay TV service cables. For single cable services (Optus) the area measures up to 2.1 m below the king bolt on the lowest cross arm supporting low voltage mains. In many cases an additional cable service (Telstra/Foxtel) may be installed 300mm below the Optus service.

Under these arrangements a minimum clearance of 600 mm shall be maintained between the private attachment and the lowest broadband service cable where installed.

7.4.2 Equipping zone

Private attachments must be positioned to maintain satisfactory clearances from telecommunications broadband service cables (where installed) and overhead mains. Given that various possible arrangements exist, pole-equipping zones have been defined to recommend appropriate locations to install private attachments. The equipping zones for a combination of typical pole configurations are shown in Figures 13 to 19 below.

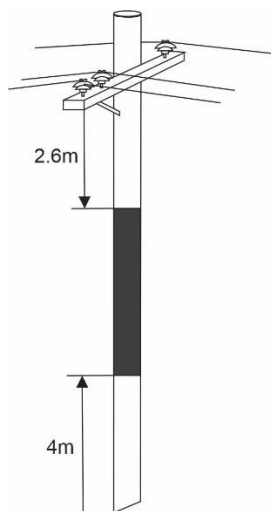


Figure 13: Pole supporting bare HV mains only

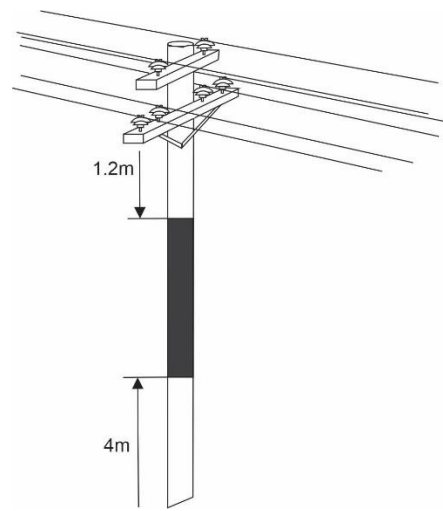


Figure 14: Pole supporting bare HV and or LV mains

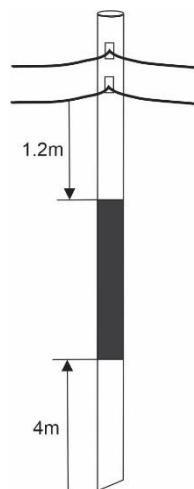


Figure 15: Pole supporting HV and/or LV ABC mains

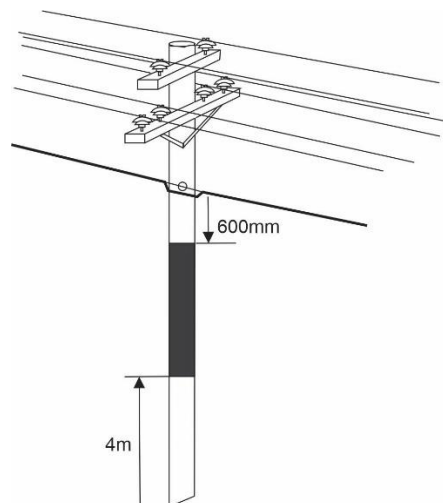


Figure 16: Pole supporting HV and/or LV mains and single or double broadband cables

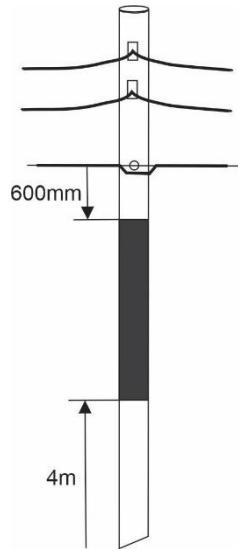


Figure 17: Pole supporting LV ABC and single or double broadband cables

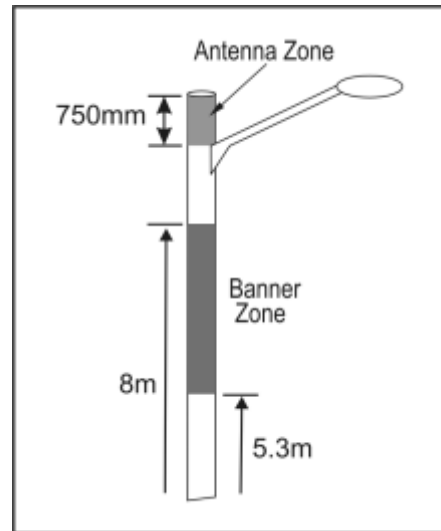


Figure 18: Lighting column supporting a banner or macrocell antenna

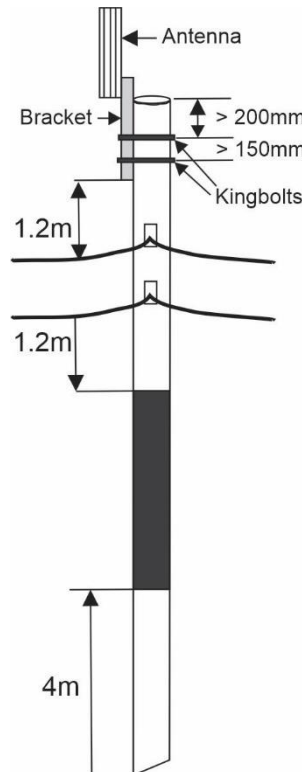


Figure 19: Pole supporting LV ABC and antenna mounted on top of the pole

The equipping zones given in Figures 13 to 19 above do not apply to private lighting installations which are installed in accordance with Ausgrid Lighting Solutions' design criteria. In general, private lighting is secured directly to the pole cross arm or to an outreach arm mounted near the top of the pole. For lights fixed directly to the pole, the method of securing the lighting shall be in line with Clause 7.5.

7.5 Securing attachments

7.5.1 Timber poles

All attachments, other than telecommunication equipment identified below, on timber poles shall be secured using galvanised steel clout nails or coach screws, driven their full depth into the pole. Telecommunication equipment such as remote radio unit (RRU) or antennae shall be installed using a combination of through bolts and coach screws. Persons installing the attachment shall ensure that the nails, screws or through bolts used are sufficient to provide adequate support for the attachment.

Note: Steel band clamps must not be used to secure attachments to timber poles.

Special care must be taken when drilling holes in CCA treated poles to avoid contact with the toxic dust or fumes. Appropriate safety equipment including glasses, gloves and a Class P2 or P3 particulate respirator must be worn at all times while drilling CCA treated poles.

7.5.1.1 Kingbolt holes

Bolt holes shall not exceed the size of the bolt by more than 2mm. Washers shall be fitted on both sides of the pole. The carrier's technical manuals shall include details of the mechanism to accommodate shrinkage and compression of the pole over time, such as locking nuts or conical/volute washers.

No holes are allowed to be drilled within 150 mm of another hole, and attachments cannot be made above pole steps such that their use is impeded.

7.5.2 Concrete, Composite fibre and steel poles and lighting standards

All attachments on concrete, composite fibre and steel poles and columns shall be secured using approved stainless steel band clamps.

Note: Concrete, composite fibre and steel poles must not be drilled to secure attachments.

Figure 20 is a typical example of a sign secured to a concrete column with stainless steel band clamps. Signs installed on a temporary basis shall be secured in the same manner as permanent signs. The use of plastic cable ties, wire, or other inappropriate means is not permitted. Figure 21 is an example of a sign secured using nylon 'zip' lock ties, which may be prone to rotating in windy conditions.



Figure 20: Road sign secured to a concrete column with stainless steel band clamps



Figure 21: Sign inappropriately secured using plastic cable ties

7.5.3 Banners and bunting

Banners shall only be installed on lighting columns or poles **not** supporting bare overhead mains.

Banners must be installed on an approved bracket¹, with the upper end secured at both corners and the lower end anchored to the pole via an approved breakaway device, at the inside corner.

Banners are typically attached to steel (composite fibre and concrete) poles or lighting columns as shown in Figures 21 and 22. In special circumstances banners may also be installed on timber poles, providing the poles are not supporting bare overhead mains and the pole has been assessed and deemed suitable for the purpose.

Banners installed on poles or columns along public roadways must be attached such that the base of the banner is at least 5m above the roadway in accordance with the Roads and Maritime Services of New South Wales's requirements.

Bunting need only be tied off with secure knots in accordance with qualified installer procedures.



Figure 22: Banner support arm secured with approved stainless steel band clamps



Figure 23: Banner base anchor secured with approved stainless steel band clamps

¹ Supplied by Selby's Pty Ltd or equivalent

8.0 APPROVAL

Proposed private attachments must meet Ausgrid approval before authority to install them may be given. Such approval and authority do not override the powers and duties of network operators prescribed under the Electricity Supply Act 1995.

The approval process is as follows:

(a) The proposed attachment must be an approved type as detailed in Section 6 and tabled in Annexure A of this Standard. Attachments neither listed in Annexure A nor classified unsuitable (Clause 6.3) shall be deemed unclassified and will need to be assessed by Ausgrid. Ausgrid reserve the right to charge a fee for this assessment.

(b) If a proposed pole attachment forms an electrical connection to the Ausgrid network, it shall be considered a Special Small Service (refer to Clause 6.6). Parties seeking to install Special Small Services to Ausgrid poles shall lodge a Permanently Unmetered Supply (PUMS) online application where the installation of an AEMO approved meter is not practical. Where the supply is to be metered, a <100Amp connection application is to be made via Ausgrid's online application system. The online application system can be accessed via Ausgrid's website.

Parties seeking to install pole attachments without electrical connections (except for promotional signs and banners) shall lodge a written application with an Ausgrid Regional Network Planning Office / Network Services Office for processing (see Table 1).

Applications for promotional and banner attachments shall be lodged with the relevant Local Council who is responsible for the installation in accordance with this Standard.

(c) The Applicant may arrange installation once authority to install an attachment is received in writing from Ausgrid. Installation must be carried out by an approved person and in line with the installation criteria of Section 7 of this Standard. Installations not meeting these criteria will be removed immediately and authority cancelled.

Table 1 – Ausgrid Regional Network Planning/Services Offices

Ausgrid Supply Area	Regional Network Planning/ Services Office Locations
Upper Hunter Serving the following Council Areas: Muswellbrook, Singleton, Upper Hunter	Thomas Mitchel Drive MUSWELLBROOK NSW 2333 Telephone: 131365
Newcastle and Lower Hunter Serving the following Council Areas: Cessnock, Lake Macquarie, Maitland, Newcastle, Port Stephens	Building Block A 145 Newcastle Road WALLSEND NSW 2287 Telephone: 131365
Central Coast Serving the following Council Areas: Central Coast.	Ourimbah Depot 7-17 Ourimbah Creek Rd Ourimbah NSW Telephone: 131365
Sydney North Serving the following Council Areas: Hornsby, Hunters Hill, Ku-ring-gai, Lane Cove, Mosman, North Sydney, Northern Beaches, Ryde, Parramatta (part only), Willoughby.	Building 1\51-59 Bridge Road HORNSBY NSW 2077 Telephone: 131365
Sydney South Serving the following Council Areas: Bayside, Burwood, Canada Bay, Canterbury Bankstown, City of Sydney, Cumberland, Georges River, Hurstville, Inner West, Kogarah, Leichhardt, Marrickville, Randwick, Rockdale, Strathfield, Sutherland, Waverley, Woollahra.	130 Joynton Ave ZETLAND NSW 2017 Telephone: 131365

9.0 RECORDKEEPING

The table below identifies the types of records relating to the process, their storage location and retention period.

Table 2 – Recordkeeping

Type of Record	Storage Location	Retention Period*
Approved copy of the network standard	Document repository Network sub process Standard – Company	Unlimited
Draft Copies of the network standard during amendment/creation	Records management system Work Folder for Network Standards (HPRM ref. 2014/21250/293)	Unlimited
Working documents (emails, memos, impact assessment reports, etc.)	Records management system Work Folder for Network Standards (HPRM ref. 2014/21250/293)	Unlimited

* The following retention periods are subject to change eg if the records are required for legal matters or legislative changes. Before disposal, retention periods should be checked and authorised by the Records Manager.

10.0 AUTHORITIES AND RESPONSIBILITIES

For this network standard the authorities and responsibilities of Ausgrid employees and managers in relation to content, management and document control of this network standard can be obtained from the Company Procedure (Network) – Production / Review of Engineering Technical Documents within the documents repository. The responsibilities of persons for the design or construction work detailed in this network standard are identified throughout this standard in the context of the requirements to which they apply.

11.0 DOCUMENT CONTROL

Contents Coordinator : Manager – Transmission & Distribution Mains Engineering

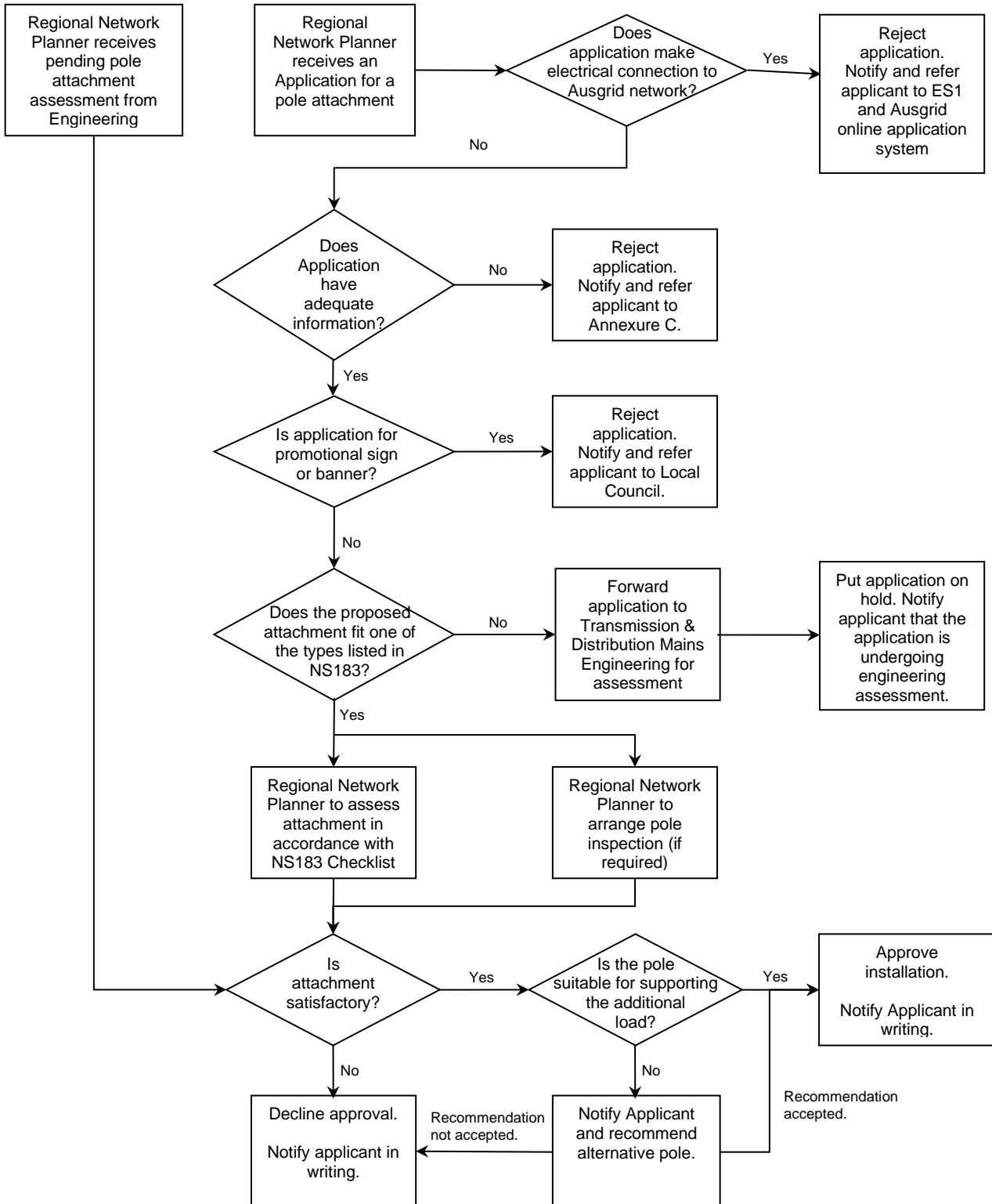
Distribution Coordinator : Senior Engineer Guidelines Policies and Standards

Annexure A – Approved Pole Attachments

Table A1 Approved pole attachment details

Attachment Type	Limits			Approval Criteria/Examples
	Height (cm)	Width (cm)	No. Units*	
Flat Sign/Label – Permanent	80	60	1	<ul style="list-style-type: none"> Refer to clause 6.4 Steel or aluminium sheet only Traffic speed limit signs Bus stop signs (private and public) Hydrant Labels
Large Flat Sign/Label - Temporary	by negotiation	by negotiation	1	<ul style="list-style-type: none"> Regional Services assessment
Promotional sign	45	35	1	<ul style="list-style-type: none"> Refer to clause 6.5 Veterinary Surgery, Private Hospital, Neighbourhood Watch signs
Promotional banner - General	200	80	1	<ul style="list-style-type: none"> Refer to clause 6.5 Carnivals, Charity Events, Cultural Festivals Approved break-away device required
Promotional Banner - Special Large	300	100	1	<ul style="list-style-type: none"> Approval subject to Ausgrid assessment Approved break-away device required
Decorative Bunting	30	-	5	<ul style="list-style-type: none"> 100 micron plastic 80% recess cuts at 25mm spacing
Camera	-	-	2	<ul style="list-style-type: none"> Closed-circuit video, Wireless video
RMS digital traffic counter			1	<ul style="list-style-type: none"> Poles not supporting overhead mains Temporary installations - various
RMS traffic lights	-	-	1	<ul style="list-style-type: none"> Only if no feasible alternative exists Full pole inspection required
RMS Special event sign (temporary)	90	90	1	<ul style="list-style-type: none"> Poles not having UGOH cables
Special small service connection point	-	-	1	<ul style="list-style-type: none"> In accordance with Section 5 of Service and Installation Rules of NSW
Telecommunications microcell antenna	-	-	2	<ul style="list-style-type: none"> Omni (whip), Pad Appropriate radiation warning and power down instruction labels to be installed
Telecommunications macrocell antenna/parabolic dish	-	-	2	<ul style="list-style-type: none"> In accordance with ARPANSA Radiation Protection Standard 2002 Appropriate radiation warning signs to and carrier contact details to be installed
Telecommunications small cell antenna	-	-	3	<ul style="list-style-type: none"> In accordance with ARPANSA Radiation Protection Standard 2002 Appropriate radiation warning signs to and carrier contact details to be installed
* per pole per applicant				

Annexure B – Approval process for attachments without electrical connection to the Ausgrid network (Flowchart)



Note: For the approval process of attachments with electrical connections to the Ausgrid network (i.e. Special Small Services, refer to ES1 Premises Connection Requirements).

Annexure C – Technical information to be supplied at the time of application for attachments without electrical connection to the Ausgrid Network (Sample)

Technical Information

1. Flat Rectangular Sign/Label

Length (cm)	Width (cm)	Weight (kg)	Material (eg metal, plastic, wood)
<input style="width: 90%;" type="text"/>	<input style="width: 90%;" type="text"/>	<input style="width: 90%;" type="text"/>	<input style="width: 90%;" type="text"/>

2. Camera

Type (CCT, wireless)	Manufacturer	Model	No Units
<input style="width: 90%;" type="text"/>	<input style="width: 90%;" type="text"/>	<input style="width: 90%;" type="text"/>	<input style="width: 90%;" type="text"/>
Interface - Manufacturer	Model	Length(cm)	Width(cm)
<input style="width: 90%;" type="text"/>	<input style="width: 90%;" type="text"/>	<input style="width: 90%;" type="text"/>	<input style="width: 90%;" type="text"/>
Antenna – Type	Make & Model	Depth(cm)	Weight(kg)
<input style="width: 90%;" type="text"/>	<input style="width: 90%;" type="text"/>	<input style="width: 90%;" type="text"/>	<input style="width: 90%;" type="text"/>
Special Small Service - Make & Model	Attachment Total Power (watts)		
<input style="width: 90%;" type="text"/>	<input style="width: 90%;" type="text"/>		

3. Other Attachments

For all other attachments please complete the details below and provide a sketch showing all relevant dimensions for each system component.

Description

Purpose

List all items below if the Attachment is a system comprising separate components (eg 1.camera, 2. interface, 3. antenna)

Item(s)*	Manufacturer	Model	Length(cm)	Width(cm)	Depth(cm)	Weight(kg)
<input style="width: 90%;" type="text"/>	<input style="width: 90%;" type="text"/>	<input style="width: 90%;" type="text"/>	<input style="width: 90%;" type="text"/>	<input style="width: 90%;" type="text"/>	<input style="width: 90%;" type="text"/>	<input style="width: 90%;" type="text"/>
<input style="width: 90%;" type="text"/>	<input style="width: 90%;" type="text"/>	<input style="width: 90%;" type="text"/>	<input style="width: 90%;" type="text"/>	<input style="width: 90%;" type="text"/>	<input style="width: 90%;" type="text"/>	<input style="width: 90%;" type="text"/>
<input style="width: 90%;" type="text"/>	<input style="width: 90%;" type="text"/>	<input style="width: 90%;" type="text"/>	<input style="width: 90%;" type="text"/>	<input style="width: 90%;" type="text"/>	<input style="width: 90%;" type="text"/>	<input style="width: 90%;" type="text"/>
<input style="width: 90%;" type="text"/>	<input style="width: 90%;" type="text"/>	<input style="width: 90%;" type="text"/>	<input style="width: 90%;" type="text"/>	<input style="width: 90%;" type="text"/>	<input style="width: 90%;" type="text"/>	<input style="width: 90%;" type="text"/>

Small Service manufacturer & model Total power consumption (watts)

Sketch or specification of device attached? Yes No → please provide sketch in space below

Annexure D – Attachment Assessment Check List

This check sheet is to be completed by Ausgrid Regional Services Staff authorised to assess applications for private attachments on Ausgrid poles.

D1 PART A – PROMOTIONAL SIGNS AND BANNERS

1. Is Application from the relevant local council?
 - Yes → Inform the council that they are responsible and refer to NS183 for reference
 - No → Refer applicant to relevant local council

D2 PART B – ALL OTHER ATTACHMENTS

2. Is Application for an attachment with an electrical connection to the Ausgrid network?
 - Yes → Reject application; refer applicant to ES1 and Ausgrid online application system.
 - No → Go to Item 2
3. Applicant has provided adequate information (See Annexure C)?
 - Yes → Go to Item 4
 - No → Reject application and notify applicant
4. Attachment complies with requirements of Annexure A of NS183 or has been assessed and approved Suitable by Transmission & Distribution Mains Engineering (T&DME)?
 - Yes → Go to Item 5
 - No because it is an *Unsuitable* attachment → Reject Application and notify applicant in writing.
 - No because it is an *Unclassified* attachment → Forward to T&DME for engineering assessment and notify Applicant of a delay in the process.
5. Notify Applicant that installation is approved.
6. Update Ausgrid records with application approval and attachment details.

Annexure E - Telecommunications Equipment on Ausgrid Assets (Poles) - Third Party Submission Guidelines

E1 Introduction

The use of Ausgrid assets (i.e. poles) for the installation of telecommunications equipment has accelerated substantially over recent years and with the introduction of the carrier 5G mobile networks, demand for sites will increase. For ease of interpretation, Ausgrid assets include timber poles, concrete poles, composite fibre poles, metal street light standards, monopoles and HV sub-transmission towers.

E2 Purpose

The purpose of this section is to provide guidance to customers, carriers, utilities, and third parties who are seeking access to Ausgrid assets/poles for the purpose of installing telecommunications equipment i.e. antennas and remote radio units (RRU's), including associated cabling and consumables. This guideline relates mainly to accessing timber poles and metal street light standards and is subject to change.

Note: The use of Monopoles and HV sub-transmission towers is subject to assessment on a 'case by case' basis.

E3 Request and Submission

The customer or carrier seeking access to Ausgrid poles will provide a submission regarding the proposed telecommunications equipment to be installed. Submissions are to be emailed to FacilitiesAccess@ausgrid.com.au.

E4 Pole Selection

The customer or carrier will nominate a specific Ausgrid pole as part of their submission, (it is assumed that the nominated pole meets the customer RF coverage) if the pole is deemed unsuitable by Ausgrid, and therefore rejected, the customer or carrier may request Ausgrid to nominate an alternate pole in the immediate vicinity.

In general, poles with LV distributors only are suitable providing all criteria in this guideline are met.

11kV distribution poles may be suitable and are limited to the following:

Pole which has a dedicated LV supply i.e. a LV supply which is not "switched".

E4.1 Related Notes

When identifying a potential pole location, particular attention must be paid to surrounding infrastructure i.e. existence of street furniture which could assist in vandalism of the proposed equipment and potentially may alter the attachment heights above natural ground level (NGL);

Orientation and protrusion of equipment on pole which may impact the transport lane or roadway.

E4.2 Avoidance of Specific Pole Types

To assist with applications and minimise rejections the following criteria will identify poles where installation of telecommunications infrastructure is not suitable and should be avoided when considering potential pole locations.

E4.2.1 General:

Installed equipment will encroach on the electrical safe working distances and will impact electrical maintenance activities;

- a) Are structurally inadequate or have suspect footings or are condemned (i.e. a visible "X" marked on pole) and poles due for replacement;

- b) Are reinforced (i.e. supported by steel galvanised nails or splints at base);
- c) Visibly are unsuitable (i.e. timber fungal decay, termite infestation or metal corrosion);
- d) Are considered to be 'busy' i.e. substantial existing infrastructure or require extensive Make Ready Works (MRW's).

E4.2.2 LV Poles:

- a) Have under-slung links (USL), IDT links, LV ABC link boxes attached;
- b) Have LV distributor UGOH cables attached.

E4.2.3 11kV Poles:

- a) UGOH cable attached;
- b) Have air break switches (ABS) attached;
- c) Have transformers attached;
- d) Are considered to be 'busy' i.e. substantial existing infrastructure or require extensive Make Ready Works (MRW's).
- e) For installations in between LV & HV conductors where LV conductors are bare



Figure E1: LV under slung links (USL) on pole

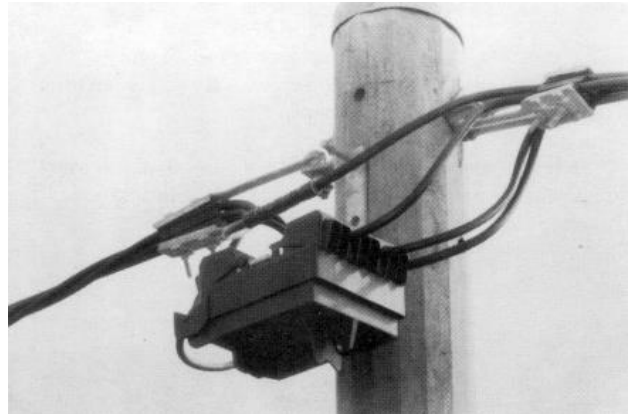


Figure E2: LV ABC Link box on pole



Figure E3: IDT links on LV mains

E5 ASP Accreditation

Only ASP's with appropriate accreditation are authorised to work on Ausgrid poles.

E6 Structural Criteria

Ausgrid has determined that the acceptable reliability criterion for distribution poles and street light's is Security Level 1 with a design life of 50 years in accordance with AS/NZS 7000.

This means that they shall be adequate for wind with a return period of 50 years.

E6.1 Timber Poles (with or without conductors)

The assessment of telecommunication equipment on timber poles is a two (2) tiered process.

Tier 1

The customer or carrier will provide certified calculations (produced by a structural engineer) for the additional equivalent pole loading for the proposed installation due to a site specific wind load with a 50 year (Refer to Note 1) return period in accordance with AS/NZS 7000 and AS/NZS 1170.2.

Site specific factors may include but shall not be limited to the following list.

1. The terrain category;
2. Topographic multipliers;
3. Direction multiplier.

The additional load shall take into account only the proposed installation and any other non-electrical items such as cable TV attachments, signs or flags etc. The wind load on all of these items shall be 'summed' to give an additional base moment and then presented as an equivalent additional pole loading as shown in the following table.

Item	Average Height	Drag Force	Moment from Base
Conductors	Excluded		
Pole			
Sign 1			
Sign 2			
Antenna 1			
Antenna 2			
Other			
Total Moment (ex-conductors)			
Equivalent Tip Load = $\left[\frac{\text{Total Moment}}{\text{Pole Height}} \right]$			

Add additional rows, equipment if applicable

Ausgrid will then take this information and review it using knowledge of standard loading situations to determine if the loading on the pole is acceptable.

Tier 2

If the initial assessment determines that the additional loading is not appropriate, then there are two options for the customer or carrier.

Option 1 - Find an alternate location for the proposed telecommunications equipment.

Option 2 - Undertake a detailed assessment which will involve gathering information (i.e. geotechnical, conductor type and stringing tensions) and accurately modelling the pole with the proposed equipment to determine realistic values for load capacity and loading and thereby, determine if the proposed installation is acceptable.

Note: This option may not be available where the sinking depth for a given pole is unknown (i.e. no manufacturer pole disc on a pole).

Note 1: A higher return period will be required if voltages greater than 11 kV are present on the pole

E6.2 Metal Streetlight Standards

This assessment is only appropriate for standards having the configuration shown on Ausgrid Drawings 66272 and 66273. Streetlight standards which do not have this configuration are out of scope.

A structural assessment (for standards with the configuration shown on Drawings 66272 and 66273) shall then be made using the following steps:

Step 1 - Load capacity

It is to be assumed that Ausgrid streetlight standards with the configuration shown on Drawings 66272 and 66273, as installed, have a capacity that is adequate for a design wind speed of $V_{des,\theta} = 44\text{m/s}$ (refer Clause 2.4.1 of AS1170.2).

Loading and drag areas on the streetlight standard are to be calculated using Drawings 66272, 66273 and 118244 and shall be used with the design wind speed to determine the load capacity of the standard.

Step 2 - Site Specific Loading

The loading on the standard shall be assessed with the proposed additional equipment and any other items that are installed. The total load shall be determined using the site specific direction, terrain and topographic factors, with a wind having a 50 year return period in accordance with AS/NZS 1170.2.

Step 3 - Statement of Compliance

The customer's or carrier's structural engineer shall provide certified calculations clearly stating that the loading determined in Step 2 does not exceed the capacity as determined in Step 1. If this is not the case, the streetlight standard shall be deemed "unsuitable" for the proposed installation.

All telecommunications equipment and associated cabling will be installed "external" on metal streetlight standards. Note: Any variances to this must be approved by Ausgrid.



Figure E4: Small Cell antenna installation on metal streetlight standard. Cable installation is external to the pole

E7 Location of Equipment on Pole

The location of telecommunications equipment on Ausgrid poles must adhere to the following criteria:

- a) Ausgrid Electrical Safety Rules;
- b) Ausgrid construction and network standards;
- c) Maintaining safe working clearances from existing “live” electrical conductors;
- d) Occupational, health and safety requirements;
- e) Ease of access regarding maintenance of existing electrical and street lighting infrastructure;
- f) Environmental EME restrictions.

Telecommunications equipment must not be installed within safe working distances, zones as detailed in the current version of the Ausgrid Electrical Safety Rules. Equipment must not impede or impact routine electrical and street lighting maintenance activities.

Where work practices “encroach” on the safe working distances, measures are to be put in place to safe guard installers i.e. risk assessments, covering of live mains, i.e. tiger tails, appropriate PPE and observers etc.

Telecommunications equipment must not be installed above bare “live” LV conductors. Equipment may be installed however above “bundled ABC” insulated LV conductors;

Note: Approvals are required from Ausgrid for these scenarios.