Accredited Service Provider (ASP)

Level 2 Guidelines

Date: February 2025
Revision: 0

Ausgrid

Disclaimer

Ausgrid is registered as both a Distribution Network Service Provider and a Transmission Network Service Provider.

This document does not purport to contain all information that a prospective customer/third party would need to complete work near or on Ausgrid Assets.

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Ausgrid boundaries

Please find an overview of our Ausgrid Franchise Area Boundary map. This can also be found on the Ausgrid website.

Remember to refer to the 'Look up and live' website for more information on the electricity grid. The Look up and Live map is an interactive geospatial map that has been developed to display Australia's above ground utility network information, including sourced third-party information.

We are committed to working with you as an ASP2 contractor.

Ausgrid

Welcome to the Accredited Service Provider (ASP) Level 2 Guidelines

These guidelines are designed to support your work on the Ausgrid network by bringing together important information in one easy-to-access resource. They consolidate key requirements from Ausgrid's standards, policies, and external resources to help you navigate the pre-connection, connection, and post-connection activities confidently and efficiently.

This document outlines the essential technical, procedural and safety requirements for working on the Ausgrid network. For detailed or specific information, always refer back to the original standards and referenced documents. Any deviations from Ausgrid's Network Standards or the NSW Service and Installation Rules must be submitted to Ausgrid for approval before work begins.

To ensure that you have the most up-to-date information, we recommend regularly checking Ausgrid's website and related documentation. Periodic updates will be made to this guideline to reflect any changes in standards or requirements.

By following these guidelines, **you contribute to the safety, reliability, and quality of Ausgrid's network operations.**

Ausgrid

Using the guidelines

The Ausgrid Level 2 Accredited Service Provider Guidelines is structured in three key sections:

Section 1: Pre-connection

1. Authorisation
2. Connecting to the network
3. Emergency works
4. Service installation and compliance
5. Technical documentation

Section 2: Connection

6. Connections
7. Underground services
8. Overhead services
9. Special small services
10. Kiosk and substation works
11. Testing of connections

Section 3: Post-connection

12. Completing a Notification of Service Work (NOSW)
13. Non-conformance
14. Defect notices
15. Dispute resolution

The banner at the bottom of each page is hyperlinked to help you navigate through the guidelines, and help you jump from section to section.

Legend References and links to further information References and links to Standards and technical documentation

Quick contact and assistance reference

Query	Contact Details / Further Information	Services
General Enquiries	13 13 65	General Services
Power Outage, Hazard or Emergency	13 13 88 (24 hrs hotline)	24 hrs line for the reporting of faults, hazards, or any electrical emergency
ASP2 Authorisation	ASPAuthorisations@ausgrid.com.au	Authorisation enquiries
Pegasus Enquiries	1300 208 498 ausgrid@pegasus.net.au https://ausgridpartners.com.au https://services.ausgrid.com.au/SignIn	General information Register for ASP Authorisation Pegasus Portal helpline Pegasus Portal link
ASP2 Material Stores	(02) 4325 8760 ASP2sales@ausgrid.com.au	ASP Material Sales provides ASP2s with access to materials and equipment for use on the Ausgrid network
ASP2 Training	www.ausgrid.com.au/ASP2s-and-Contractors/Training	Check mandatory training requirements, course availability and book training
Service Installation and Compliance group	serviceandinstallationcompliance@ausgrid.com.au	Technical enquiries, clarification on rulings, dispensation requests
Service Support	02 8569 6498 servicesupport@ausgrid.com.au	Tiger tail installations, pole-top transformer and kiosk connections, high load escorts, mandatory inspection appointments (>100A), service installation and compliance enquiries, non-compliance/safety defect enquiries, and unlocking commercial pillars.
Further information	https://www.ausgrid.com.au/ASP2s-and-Contractors/Installation-and-service	General information for ASP2s

Section 1

Pre-Connection

Ausgrid

Section 1: Pre-connection

1. Authorisation
2. Connecting to the network
3. Emergency works
4. Service installation and compliance
5. Technical documentation

Table of contents

Ausgrid training

1.0 Minimum mandatory training

Ausgrid's **minimum mandatory training** equips ASP2s with the essential knowledge and skills required to meet safety, compliance and network operational standards. **Our training includes:**

- Ausgrid's Electrical Safety Rules
- Ausgrid Authorisation Session (eLearn course)
- Ausgrid - Environmental Awareness
- Provide cardiopulmonary resuscitation
- Provide first aid in an ESI environment
- Perform rescue from a live LV panel
- Apply access procedures to work on or near electrical network infrastructure
- Prepare to work safely in the construction industry
- Class 2A – disconnect and reconnection (D&R)
- Class 2B – underground services
- Class 2C – overhead services
- Class 2D – metering & energising installations
- Class 2XD - Electrically Qualified Observer
- Class 2XE (A) - Non-electrically Qualified Apprentice
- Class 2XE - Non-Electrically Qualified
- Class 2XF - Telecommunications Worker

For more information about training, visit the Ausgrid website.

Ausgrid Partners information site

Partners and subcontractors working for Ausgrid must first be registered in the **Ausgrid Partners Safety Management System (APSMS).** if requested to do so.

The online system underscores the Ausgrid commitment to the health, safety and wellbeing of everyone working for us. It allows Ausgrid and its partners and subcontractors to manage a shared duty of care and meet health and safety obligations.

ES4 Cl 6.7

Ausgrid ASP2 Role Matrix and Business Rules

1.1 ASP2 Role Matrix

The Ausgrid ASP2 Role Matrix provides the required competencies and training for each class of ASP Authorisation. It is designed to guide ASP2s through the process of becoming authorised and maintaining their Authorisation class.

For more information on the ASP Role Matrix, visit the Ausgrid partner site.

Ausgrid Business Rules

The Business Rules outline the requirements for the documents you upload to the Ausgrid ASP Authorisation Management System for your Authorisation. Meeting these requirements will save time and help ensure your workers are without delays. These documents include those needed for both companies and for individuals.

For Companies	For Individuals
› Company certificates	› Licences
› Insurances	› Certificates
› Licences	› Statement of attainment
› Company statistics	

For more information on the Ausgrid Business Rules, visit the Pegasus portal.

ES4 Cl 6.6.1

Applying and registering for Authorisation

1.2 Scheme Rules

The Scheme Rules stipulate that individuals and companies conducting contestable network service work must be registered under the ASP Scheme and authorised by Ausgrid for the specific class of contestable network service.

These individuals and companies are referred to as "authorised persons." Each authorised person must be associated with an authorised ASP company.

ASP2 companies seeking Ausgrid Authorisation must apply to Ausgrid to enter into an Authorisation Agreement with Ausgrid, which must be renewed on an annual basis.

ASP2 Accreditation	An ASP2 Company must first obtain accreditation with the Department of Climate Change, Energy, the Environment and Water. Please refer to the ASP Accreditation Scheme website for information.
ASP2 Company Authorisation	The ASP2 Company is required to register in the Ausgrid ASP Authorisation Management System. To complete Authorisation the company will need to provide the following documentation: › A signed Ausgrid ASP Level 2 Company Authorisation Agreement. › A Department of Climate Change, Energy, the Environment and Water accreditation letter.
ASP2 Company Authorisation Session	New ASP2 companies must attend a meeting with Ausgrid for Authorisation. This meeting covers safety, procedures, and compliance, and allows for questions about working on or near Ausgrid's network.
ASP2 Individual Authorisation	Once the ASP2 company Authorisation is complete, ASP2 companies must register each worker for individual Authorisation through the Ausgrid ASP Authorisation Management System and assign relevant role(s) to each individual worker. To complete Authorisation the individual will need to: › Provide a signed Individual ASP2 Authorisation Agreement. › Complete all training relevant to the role assigned by the ASP2 company. › Upload evidence of training and competencies relevant to the allocated role(s), to the Ausgrid ASP Authorisation management System for ASP2.

ES4 Cl 6.1-6.9

Maintaining authorisation, warranty and sealing requirements

1.3 Maintaining authorisation

To keep an ASP2 Authorisation, all mandatory training and competencies must remain up to date. Refresher training evidence must be submitted before the current training expires.

If training expires, the ASP2 Authorisation becomes non-compliant, and the individual is not permitted to perform Level 2 contestable work on Ausgrid's network. Authorisation can be reinstated once training is refreshed and verified in the ASP Authorisation Management System.

ES4 Cl 11.2.2, 11.4

1.4 Warranty and insurance

The ASP2 company must guarantee completed contestable construction work to be free of defects due to faulty materials, design, or workmanship for a period of 3 years.

ES4 Cl 6.9.2

1.5 Sealing pliers and seals

All authorised individuals for 2A, 2B, 2C, and 2D must use approved sealing pliers for sealing service equipment after any new work or alterations, disconnections and reconnections, or any other tasks that involve breaking existing seals, including testing.

ASP companies are responsible for the security of sealing pliers issued to their authorised employees. These tools must be used only by the individual they were assigned to.

ES4 Cl 10.5

Notes:

- Personalised dies issued by Ausgrid remain the property of Ausgrid at all times.
- An authorised individual is only permitted to carry one (1) set of NSW Electricity Distributor sealing pliers for contestable work (Ausgrid, Endeavour Energy or Essential Energy)
- Sealing pliers issued to an ASP company/individual ASP by another NSW Electricity Distributor or Metering Provider are acceptable for use in Ausgrid's area provided they are registered with Ausgrid during the Authorisation process.

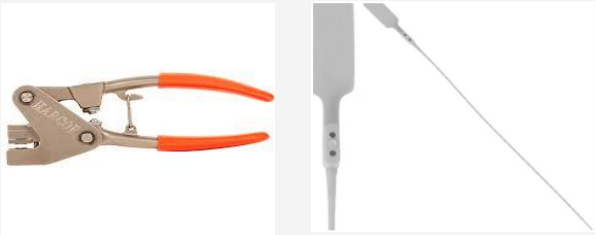


Image of Harcor sealing pliers and seals

Requests for sealing pliers and personalised dies can be made via email at ASPAuthorisations@ausgrid.com.au. Ausgrid approved Yellow Energy Seals (S/C: HA07014) are available for purchase from Harcor.

Authorisation restrictions and safety requirements

1.6 Authorisation restrictions and rules

The following information relates to restrictions and rules for carrying out contestable work within Ausgrid's franchise area, as an Authorised Service provider (ASP2).

ASP2s must not use Ausgrid's trademarks (including logo) or designs for the purpose of promoting their business. The name Ausgrid and its various forms of signage are registered trademarks and designs. Ausgrid will take action to protect its trademarks and designs from unauthorised use.

When any training or competency required for an individual's ASP Authorisation expires, their ASP Authorisation will lapse, and they will not be permitted to carry out contestable work in Ausgrid's network area.

Any exemption or approval to differ from ES4 Accredited Service Provider Authorisation or other Ausgrid policies, standards, or any other relevant publication relevant to ASP work must be in writing. Verbal discussions will not be taken into account in the event of a breach or a dispute.

ASP Authorisation given by Ausgrid is not valid for work performed in any other electricity distributor's network area.

1.7 Mandatory safety requirements

- The installation of temporary line covers and/or insulating mats on overhead distribution mains or overhead services for any reason other than performing contestable works is not permitted.
- Carrying out contestable work without current ASP accreditation or ASP Authorisation or during suspension of accreditation or Authorisation is unauthorised work and will be treated as such.
- Carrying out contestable work without the appropriate class of ASP accreditation or ASP Authorisation is in breach and disciplinary actions may be taken against the person/s undertaking the works, including the business if applicable.

ES4 Cl 6.17,6.18 7.4, 7.4.1

Guidelines for connection applications

2.0 About your connection application - timeframes

- Application forms are processed within **5–10 business days**
- Applications that require technical assessment may take a little longer for approval, but you will be contacted within **10 business days**
- Ensure a **connection application** is submitted and approved by Ausgrid before starting any service work.

For more information about connecting to Ausgrid's electricity network, visit: www.Ausgrid.com.au/Connections.

2.1 Modifying an existing connection under 100Amps

Use the 'Modify an existing connection under 100Amps' form to apply for changes to existing residential or commercial connections of 100Amps or less, such as:

- Separation of supply
- Amalgamation of connections
- Disconnection or reconnection
- Install or replace an "A" pole (Private)
- Altering, installing or removing a controlled load.

2.2 Apply for a new connection under 100Amps

Use the 'Apply for a new connection under 100Amps' form to apply for new residential or commercial connections, such as:

- For loads up to **100Amps**
- That **do not** have plant, motors or equipment rated at **30Amps or more**
- Where you intend to connect multiple premises where the total maximum demand at the location is **100Amps or less**
- For new **Embedded Generation** or **Standby Generation**.

Guidelines for connection applications

2.3 Apply to connect a Permanently Unmetered Supply (PUMS)

A **new application** must be submitted for PUMS installations, for:

- New permanently unmetered supply
- Modifying/altering a permanently unmetered supply
- Disconnecting a permanently unmetered supply

You need to get Ausgrid approval for your proposed installation before you apply for a PUMS connection. Refer to the **Ausgrid website** for more information. A Request for Approval is to be submitted via email with all relevant information to **pums@ausgrid.com.au.**

2.4 Apply for a permanent disconnection

When a customer proposes to permanently disconnect the electricity supply from their premises to the Ausgrid Network, specific permission must be obtained prior to the work being carried out, with approval being obtained from Ausgrid prior to carrying out the disconnection.

Please refer to the Ausgrid website to make an application to permanently disconnect a property - a single or multiple premises, from the electricity network.

2.5 Requirements for a temporary supply

We can provide a short-term connection, known as '**temporary builder's services**' (TBS), to provide power during construction.

To apply for temporary supply, apply for a new or modified connection.

Making a preliminary enquiry

2.6 How to make a Preliminary Enquiry

If you need further assistance from Ausgrid, you can submit a preliminary enquiry for advice on:

- Embedded networks
- General connection enquires
- General embedded generation or energy storage enquiries
- New or altered residential or small commercial/industrial
- New or altered large commercial/industrial or urban development

To submit a Preliminary, visit the "Apply for Connection" page on the Ausgrid website

Please include **all relevant technical details** with your enquiry.

We aim to respond to a preliminary enquiry within **10 business days**, depending on the complexity of your request.

Applying for large connections exceeding 100Amps

2.7 Large connections exceeding 100Amps

This process and associated form should be used for new connections that involve a:

- New connection above 100Amps
- New multi-tenanted or embedded network, such as:
    - Apartment blocks
    - Retirement villages
    - Shopping centres
- New connection at high-voltage
- New connection and new embedded generation or standby generation exceeding 100Amps

To submit a Preliminary Enquiry, visit the "Apply for Connection" page on the Ausgrid website.

Important Note:

Private Installation Documentation is to be **uploaded to the portal 30 business days** prior to the proposed electrification date.

2.8 Application requirements

When applying for a connection exceeding 100Amps, the applicant will also be required to submit private installation documentation via the **Ausgrid Customer Portal**.

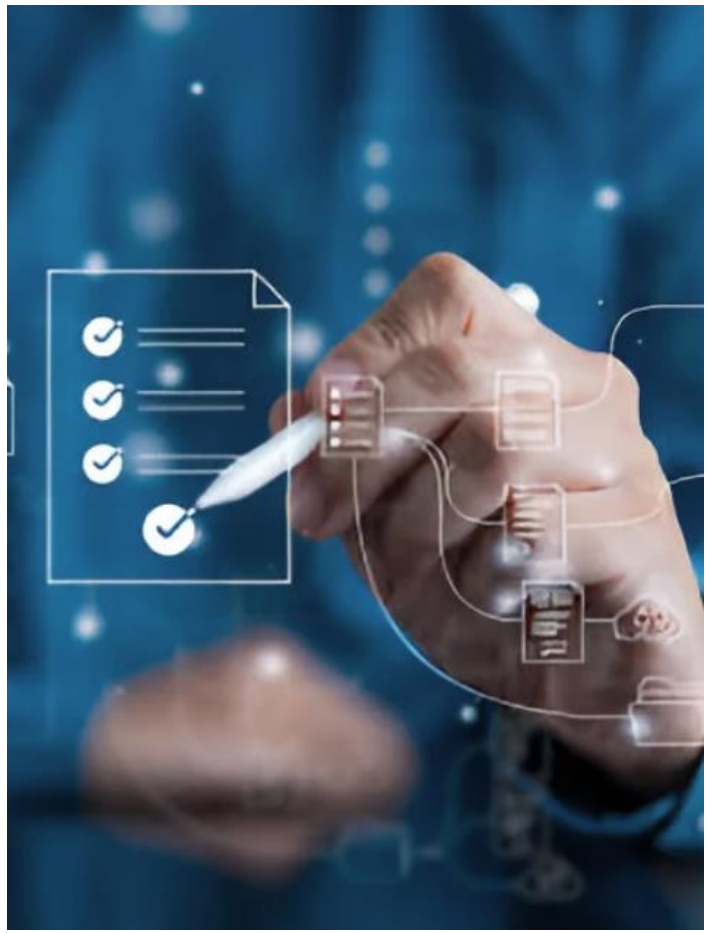
An Ausgrid representative will check your private installation application and will request the applicant to provide additional supporting documentation via the **Ausgrid Customer Portal**.

The following forms and documentation will be required, as a minimum, to be uploaded into the Ausgrid Customer Portal:

- Installation Inspector Appointment Checklist
- Switchboard Compliance Statement
- Site layout and Main switchboard location plans
- Service Protective Device (SPD) (Protection Settings, Discrimination)
- Main Switchboard Plans and Single line diagram
- Ausgrid customer outage request form (when required).

For more information about connecting to Ausgrid's electricity network, visit the Ausgrid website.

Private installation documentation submission process



1	**Access the Ausgrid Portal**	To access the Ausgrid Customer Portal, visit: **https://services.ausgrid.com.au/SignIn** and log in to access Connections Project.
2	**Navigate to the project**	Ensure ASP2 Projects is selected and search the relevant project in the search bar by selecting the chevron (›) on the right which will open the project “Summary” page.
3	**Receive a notification**	**Ausgrid will initiate the document request process - documents cannot be uploaded if it is not initiated .** You will receive an automated email notification from NoReply@ConnectionProjects.com that will direct you to log into the portal to view the required document/s.
4	**Upload requested documents**	Access the Ausgrid Customer Portal and navigate to the Private Installation tab in the project. **Select the required document and upload**. Repeat this step for each required document.
5	**Submit documents**	**Submission is not possible until all required documents have been uploaded**. Once you upload all your documents they will be saved in draft. Once documents are submitted you are unable to upload any other documents.
6	**Check the status**	After Ausgrid has completed the review, the status will be updated on the portal to reflect “Review completed” or “Resubmission” for your further action. You will receive an automated email notification from **NoReply@ConnectionProjects.com** that will provide you with a status update.

Process for emergency works

3.0 Emergency works for less than 100Amps

If any emergency works are required, prior to commencing any work you should contact Ausgrid's emergency line on **13 13 88** to report the emergency. You can also **request an incident number** to use as the job number for the emergency job.

Should the site require additional assistance, or if Ausgrid is not aware of the emergency, and you are not completing any works, please inform the Call Centre on **13 13 88** and an Ausgrid Emergency Service Officer will be despatched to assess the site.

ES4 Cl:10.4, ES3 Part A Cl:6.2.6

An "Emergency NOSW" form must be submitted to Ausgrid within 2 working days upon completion of any service work.

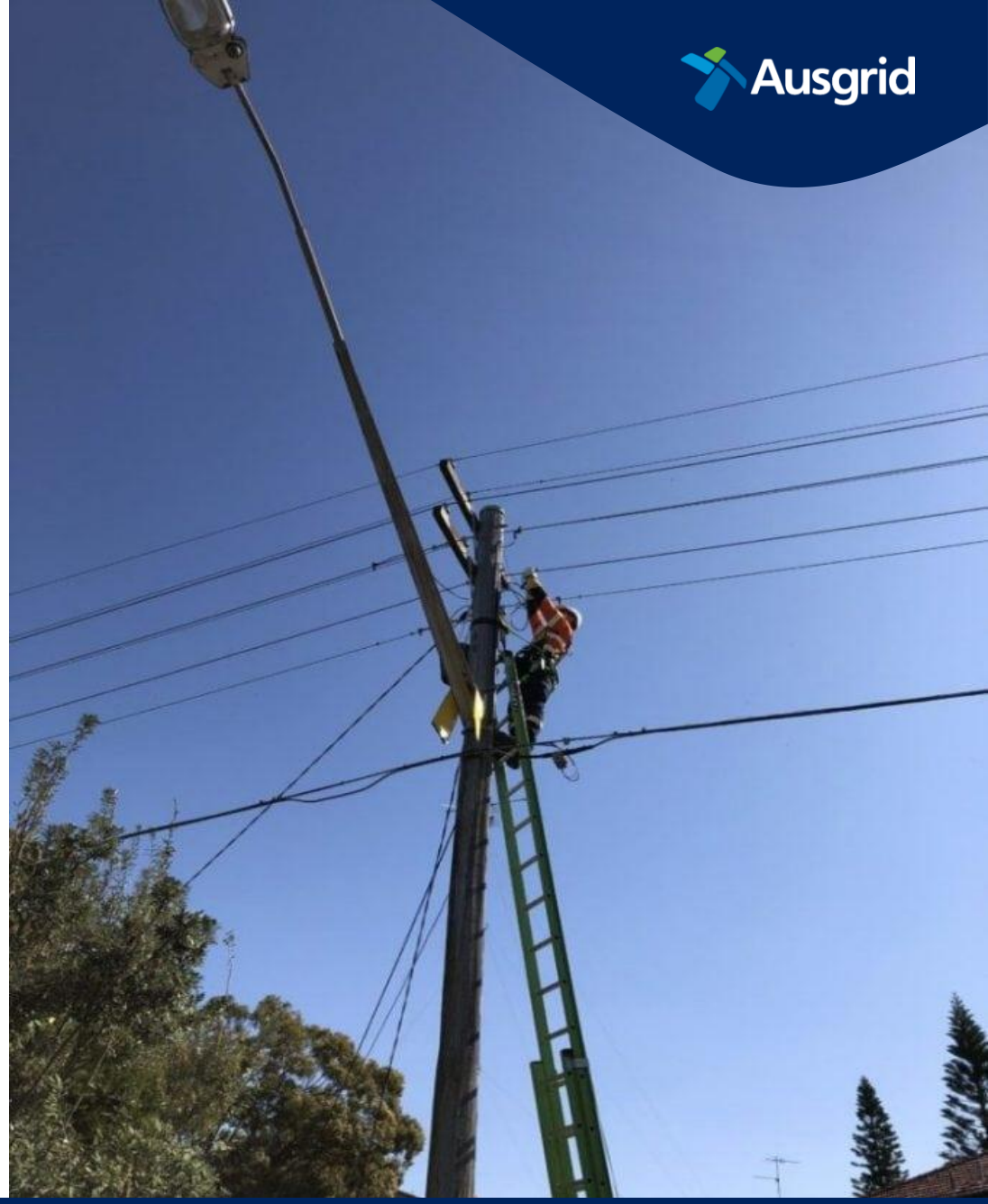
3.1 Emergency works exceeding 100Amps

If any emergency works are required, prior to commencing any work you should contact Ausgrid's emergency line on **13 13 88** to report the emergency. You can also **request an incident number** to use as the job number for the emergency job.

You will also need to contact the Service Installation and Compliance group prior to work commencing, to allow the appropriate information to be reviewed, and outcome provided, by an Ausgrid representative. Please proceed with after-hours work and contact us during business hours to provide the required information.

The Ausgrid Call Centre may be able to transfer your call to an appropriate representative once the OMS number has been received for further assistance.

ES4 Cl 10.4



Unmetered supply and emergency procedures

3.2 Unmetered supply

In the event of an ASP attending a site where the Metering device is nonfunctional or damaged, the ASP shall not, under any circumstances provide unmetered supply to the site. Please contact Ausgrid's emergency line on 13 13 88 to report the issue, and an Ausgrid Emergency Service Officer will be dispatched to the site.

Only Authorised personnel under the request from a retailer may alter or change the metering devices on an electrical installation.

ES3 Part A Cl 6.2.6

Image of Unmetered Supply

3.3 Emergency and Safety Rules

Depending on the situation, you may need to call emergency services such as Fire, Ambulance or Police on **000**.

Please refer to Ausgrid's Electrical Safety Rules (ESR) for further information.

3.4 What to do in an emergency?

If you find conditions that may be a danger to people in a public place, such as damaged live mains and apparatus, fallen mains or leakage current on poles, you must initially:

1. Remain well clear of the mains and apparatus (at least 8m for fallen HV or unidentified conductors). Please refer to the **ESR guidelines**.
2. Stay in a position to warn people until the danger has been removed. If you cannot do this, arrange for another responsible person to do so.

You must then do one of the following:

› Report the matter to Ausgrid's Emergency number **13 13 88**. You can also report an Environmental Emergency to Ausgrid by calling **9394 6659** or **0412 070 574** (after business hours). The Poisons information centre can be reached on **13 11 26**.

› Arrange for someone to make the call for you.

Connection requirements for subdivided land

4.0 Determining common coupling point

When new or altered connection arrangements are proposed, it will be necessary to determine the most effective way to connect the service and metering equipment in advance to ensure compliance with the relevant documentation outlined in the **Service and Installation Rules of NSW.** ES1 Cl 2.2

4.1 Requirements for subdivided land

The premises connection to subdivided land depends on the type of and title under which the subdivision is created. The following premises connection arrangements shall apply. ES1 Cl 3.1

4.2 Torrens Title Properties

All Torrens Title lots are to be treated as separate electrical installations and connected via a separate service connection. Ausgrid's policy regarding electrical installations and service connections for Torrens Title lots includes:

a) Each Torrens Title lot requires a:
   - Separate electrical installation
   - Separate service connection

b) Premises connection assets must not encroach on other lots unless covered by a registered easement favouring Ausgrid.

c) Exceptions for sharing unmetered consumer-owned infrastructure may be considered if:
   - There are justified practical reasons
   - A legally binding arrangement exists between all affected landowners

Please Note: Please consult with the Service, Installation and Compliance group regarding items (b) and (c) prior to service installation and connection.

d) The legally binding arrangement must specify obligations for Ownership, Maintenance, Relocation and Repair

e) Acceptable arrangements include Community Title, Strata Title and 88B easement with 88BA Positive Covenant

These rules ensure clear ownership, maintenance responsibilities, and legal protections for shared electrical infrastructure on Torrens Title properties.

For more information please go to the **Ausgrid Subdivisions section** for details on subdivided land.

ES1 Cl 3.1.1

Connection requirements for subdivided and adjoining property

4.3 Strata title properties

Strata title subdivisions will be connected via one point of supply. Any deviations from this arrangement must be approved by Ausgrid via the Service Installation and Compliance group.

ES1 Cl 3.1.2

4.4 Community title properties

Community title subdivisions will have one point of supply to the development, but each separate dwelling can be separately metered. The electrical reticulation to each dwelling must comply with AS/NZS3000.

ES1 Cl 3.1.3

4.5 Connections crossing an adjoining property

New or altered service mains (underground or overhead) are to be constructed so they do not cross an adjoining property. If there is no other alternative, a suitable easement in favour of Ausgrid must be obtained for the service mains where they cross the adjoining property. Dedicated privately owned consumers mains that cross adjoining property must also be covered by a suitable easement in favour of the property being supplied.

ES1 Cl 3.1.1

Additional points of supply and conditions

4.6 Additional points of supply

Where an application for an **additional supply** to a single lot has been approved, the ASP may connect an additional service where the following conditions are met: ES1 Cl 3.2

Requirements by dwelling type:

Residential: Additional points of supply must be for less than 100A and be to supply or allow:

- Electric Vehicle Charging Infrastructure (EVCI) on a separate structure from the primary supply, or
- One connection per dwelling (including duplexes) separated by a fire-rated wall or located on a separate structure from the primary supply.

Industrial and Commercial: Additional points of supply must be for less than 100A and be to supply:

- Electric Vehicle Charging Infrastructure (EVCI) on a separate structure from the primary supply

General conditions:

- The new point must serve a distinct development or function, like an EV charging station.
- No interconnection is allowed between existing and new supply points.
- All switchboards and distribution boards must be clearly labelled in accordance with AS/NZS 3000 and relevant standards.
- Each supply point must have a different National Metering Identifier (NMI).
- Address earth potential rise risks for properties with both high and low voltage connections.
- Temporary supplies must be disconnected once permanent supply is established.
- Multiple services cannot connect to the same common structure (e.g. private poles or pillars).

Consumer Mains Requirements with Overhead Service work

4.7 Guidelines relating to consumer mains requirements for overhead service work

When upgrading or replacing the consumer mains conductors in an existing premises supplied via an overhead service cable, the following guidelines must be adhered to. The following premises connection arrangements shall apply:

NSWSR Section 3

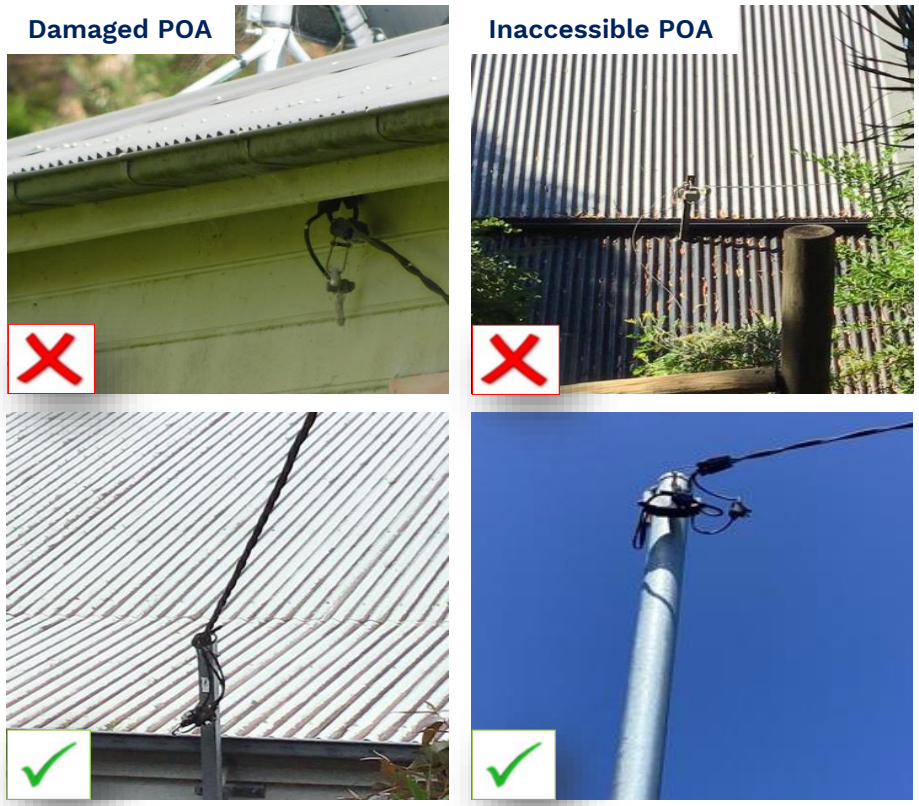


Image of Incorrect and correct point of attachment examples.

1. New Installation	› The installation will be regarded as new. Therefore, compliance with the NSW Service and Installation Rules (Section 3) and AS/NZS 3000 Wiring Rules is mandatory.
2. Point of Attachment	› Ensure the point of attachment is not obstructed and is accessible from ground level with a ladder. › The point of attachment maintains the required height and service clearances. › The attachment must meet the strength rating requirements as specified in the Service and Installation Rules of NSW.
3. Overcurrent Protection	› Consumer mains conductors must be equipped with overcurrent protection as specified in Sections 2 and 3 of AS/NZS 3000 Wiring Rules.
4. Construction Standards	› The consumer mains conductors must be constructed in accordance with Section 3 of AS/NZS 3000 Wiring Rules.
5. Earthing System Compliance	› The main earthing system of the electrical installation must comply with Section 5 of AS/NZS 3000 Wiring Rules.

Service Connections to Paper Lead Distribution Cables

4.8 Service connections to paper lead distribution cables

Level 2, Class B ASP2s are prohibited from connecting to existing paper lead distribution cables.

No live work is permitted on paper lead distribution cables, including the relocating or re-terminating of paper lead cables, such as when replacing obsolete service fuse cabinets with new Service Protective Device enclosures.

All jointing on paper lead distribution cables must be performed by Ausgrid or an Authorised Level 1 paper lead cable jointer for contestable projects.

Allow a **minimum of 3 months** for Ausgrid to schedule any required work with relevant authorities. Contact Service Support to arrange service connection.

NS199 should be referred to for information on safety considerations of other Ausgrid LV cables.

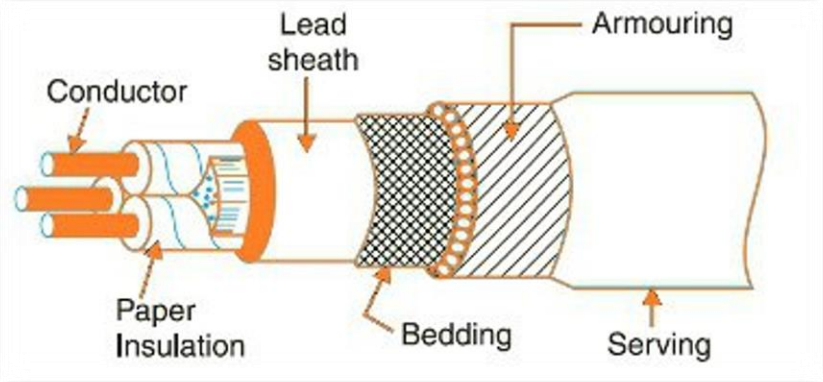


Image of a paper lead cable

4.9 Preferred Connection Methods

ES1 Cl 3.8 ES4 Cl:10.2.2.3 NS199 Cl 6.0

Below are the preferred connections methods on properties in order from **left to right**.

Install New Ausgrid Distribution Pillar	Install New Private Pillar on Customer Property	Tee connected Service
› Extend existing paper lead cable with XLPE › Level 2 Class B ASP can connect to the new pillar	› Utilise a tee joint to connect to the paper lead cable › Connection to the new pillar by Level 2, Class B ASP	› Allowed only as a last resort › Must be performed by a Level 1 ASP as a Contestable project or Ausgrid.

Managing tap-off consumer mains connections in older areas

4.10 ‘Tap-off’ consumer mains connections

In older reticulated areas it was common for multiple premises to be connected (tapped off) by a single Ausgrid service line via cross property consumer’s mains.

The procedures for removing cross-property tap-off consumer's mains in older reticulated areas, particularly common in terrace houses is as follows:

ES1 Cl 3.7

1. Inform and coordinate with the neighbour before work begins.
2. Arrange for the installation and funding of temporary tap-off consumer’s mains to the neighbouring premises prior to disconnecting and removing the existing tap-off consumer’s mains. Allow the neighbour time to arrange a permanent service line connection to their premises.
3. Do not remove the existing tap-off if temporary mains cannot be installed until a new permanent connection is ready.
4. Provide at least four business days' written notice for any power interruptions.
5. Submit necessary forms (NOSW/CCEW) for the work done.
6. Private legal advice should be sought if the adjoining property owner is unwilling to cooperate or to install a new separate service line.

Ausgrid will issue a Defect Report on temporary connections and follow up to ensure permanent arrangements are made.

Neighbours must arrange for a new separate service line or establish a suitable easement within a reasonable timeframe. These procedures aim to ensure minimal disruption to neighbouring properties while facilitating necessary upgrades to electrical connections.

Image of Tap-off consumer mains connections

Service protective device requirements

4.11 New connections

All new installations supplied with a service over 100Amps must have a circuit breaker as the Service Protective Device at the installation main switchboard.

The circuit-breaker/Service Protective Device may also function as the main switch for the installation.

4.12 Alteration and additions

Situations where Ausgrid may require a Service Protective Device (SPD) to be installed at the main switchboard for existing installations with a service or network connection over 100Amps, replacement, relocation, or extension of consumers mains, include:

- Relocation, reconstruction, or significant alteration of main switchboard or CT Metering enclosure.
- Addition of switchgear panels for increased capacity or load management equipment.
- Addition of circuits increasing maximum demand or requiring upstream protection changes.
- Substation capacity increase due to installation changes. ES1 Cl 3.10.1, 3.10.2

Image of Service protective device and kiosk substation

Please note: All modifications to large Main switchboards must comply with AS/NZS 61439 series. Each situation must be assessed by Ausgrid on a case-by-case basis prior to conducting the additions or alterations. Please contact the Service Installation and Compliance group for assessment.

Guidelines for maintaining older electrical installations

4.13 Maintenance of existing installations

It is particularly important to pay special attention to the following aspects when dealing with old or deteriorated electrical installations:

- High resistance connections
- Deteriorated or failed insulation
- Private aerial mains with considerable risk of starting bushfires

These issues can pose significant safety hazards and require thorough inspection and maintenance. Addressing these problems promptly can prevent electrical failures, fire risks and potential incidents.

The following electrical equipment shall not be worked on LIVE.

- Old underground service termination boxes and old overhead mains connection boxes.
    - As required by Ausgrid Network Standard NS199 - workers must not remove the cover from, or perform any work on, an underground service terminal box unless electricity supply to the box has been isolated.
- 200-400Amps Service Fuse cabinets. These cabinets are deemed obsolete and should be replaced at every opportunity.

ES1 Cl 2.9, NS199 Cl:11.0 ESR-Appendix A

Images of service termination boxes

Image of metal clad service fuse cabinet

Live work restrictions for metal clad fuses and service enclosures

4.14 Metal clad fuses and service enclosures

Metal clad fuses and metal clad service enclosures (handbag connections) are present on services throughout the Ausgrid network and are generally installed at customer switchboards.

There is a risk of an uncontrolled discharge of electricity when working on or operating (removing/installing) the fuse as the equipment is contained within a metal enclosure.

Ausgrid's Electrical Safety Rules - Appendix A Live LV task list, **does not** permit work on Live Metal Clad Fuses and Service Enclosures. ESR App- A

Image of metal clad service fuse

Images of metal clad service enclosures (handbag connections) with modifications completed

Ausgrid locking systems

4.15 Ausgrid approved electricity locking system

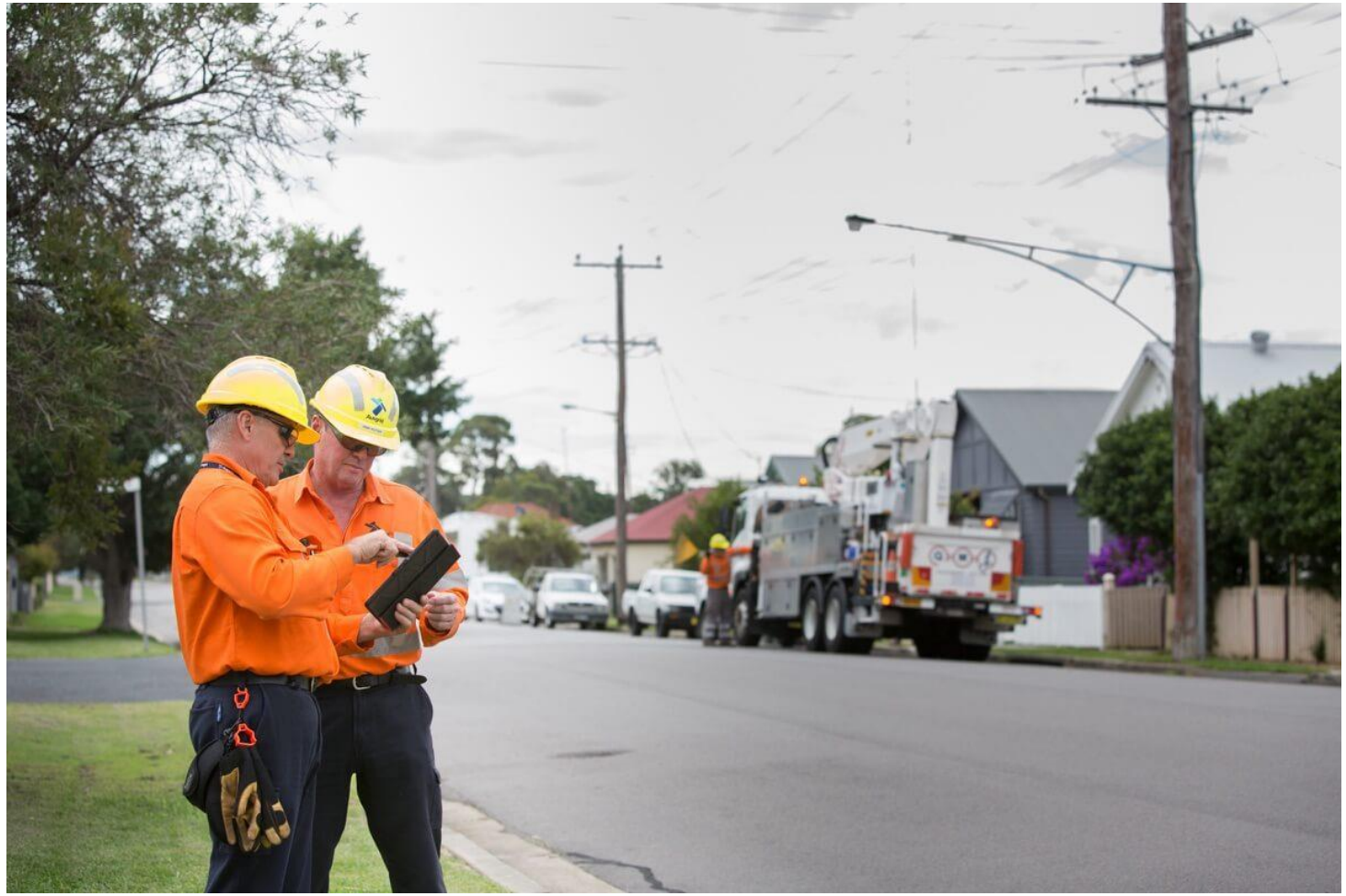
Ausgrid has a restricted Electricity Metering (EM) locking system for installations in its network area. These locks on meter boxes and enclosures allow access by the customer and authorised Ausgrid staff.

All new sites, requiring Ausgrid master keyed locks, now require the installation of the EM Utilities locking system. The EM locking system must be installed when replacing existing damaged or faulty locks.

The full range of EM locking options, including master keying and multi-utility access, is available from Integrity Locksmiths & Security. For all residential, commercial and trade inquiries contact the EM Call Centre at Integrity Locksmiths on **1300 664 582** or visit their web site **www.integritysecurity.com.au.**

It is the responsibility of the owner of the electrical installation to allow access to their switchboard for any works that they initiate.

ES1 Cl 2.11



Mandatory inspections and appointment scheduling

4.16 Mandatory inspections and appointments

For discussions regarding specific arrangements for connecting a customer's electrical installation or to schedule an inspection appointment, please contact Service Support.

To ensure a mutually convenient time, allow at least 20 business days' notice for appointment arrangements. Before the inspection, please ensure that all installation work is complete and that any necessary notifications and security deposits have been submitted.

If the work involves the inspection of electrical installation work, the customer or the contractor requesting the work will be required to pay the recoverable costs involved in providing inspection services.

The fee for all mandatory inspections and appointment inspections will be charged in accordance with the Australian Energy Regulator (AER) regulated fees, which are detailed in Ausgrid's **Connection Policy – Connection Charges** document.

ES1 Cl 6.3, 6.4

4.17 Work requiring mandatory inspection prior to energising

The following types of installation work must be inspected by Ausgrid prior to energising:

- New underground/overhead service exceeding 100Amps
- New consumers mains and main switchboards where the load at these points exceeds 100 Amps
- New electrical installations supplied at high voltage
- Generator installations with fixed rotating machines >30kVA or generator connection points >50A, excluding solar
- Generator Transfer Switch installations, excluding solar
- Altered large installation main switchboards greater than 100 Amps.*
- Greater than 100 Amps metered and unmetered mains*, where Ausgrid is required to attend to isolate supply.

ES1 Cl 6.1, 6.2

***Customer installations of any type identified as posing an unacceptable risk to the safety and reliability of the network will be inspected.**

Electricity metering requirements and relocation restrictions with main switchboard upgrades

4.18 Metering requirements

All new, upgraded or replacement metering must be a Type 1-4 Metering Installation. The installation of this metering must be arranged through the customer's electricity retailer.

4.19 Relocation restrictions

1. **General restrictions:**

   Existing Ausgrid Time of Use (ToU) or flat rate whole current meters, including meter panels with installed metering instruments, must not be relocated to a new location, whether on the same meter panel or a different one.

2. **Exceptions:**

   Type 5 meters associated with specific prefixes may be relocated or reused with the same National Metering Identifier (NMI).

   Such relocations must be carried out by an Ausgrid authorised Class 2D Accredited Service Provider.

   Contact the Service and Installation Compliance group for advice.

ES3 Part A Cl: 6.1 ,6.2.4

Images of incorrect and correct metering device installation on main switchboard upgrades

Standards and guidelines

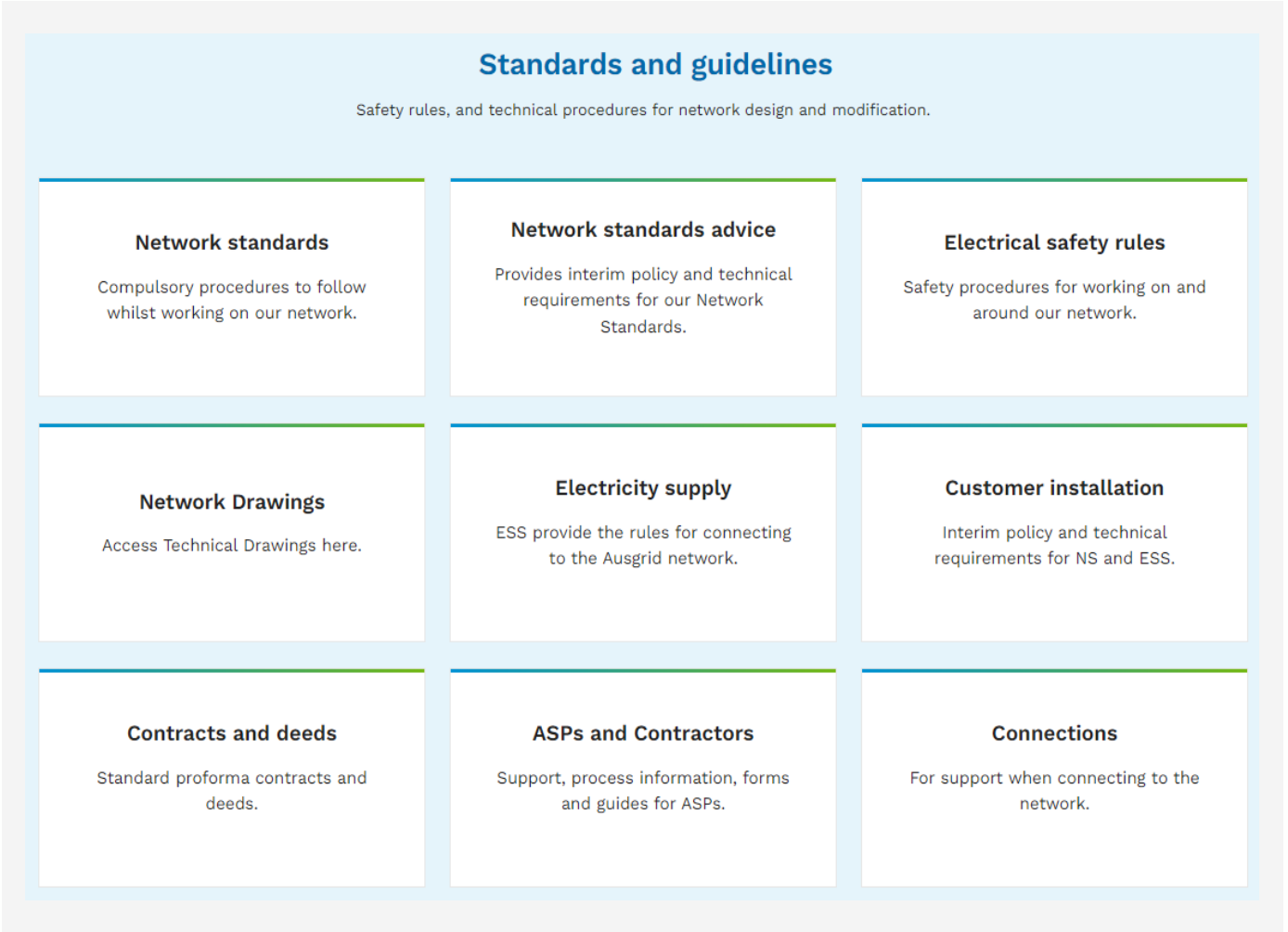
5.0 Technical documentation

Ausgrid standards and guidelines outline the procedures and Authorisations required when maintaining or changing network infrastructure. The ASP is responsible for keeping up to date with information on safety hazards, changes to relevant policies and the requirements of accreditation and ASP Authorisation.

Ausgrid also notifies ASP2s of recent incidents, accidents or general updates that may be relevant to ASP2s through ASP Safety Alerts and General Information Notices (GIs). The latest safety alerts, GIs, can be downloaded from the Ausgrid website.

For more information, visit the Ausgrid website.

You can also register and subscribe to our email notification service for updates to Ausgrid technical documentation, visit: Subscribe to Technical Documentation Updates – Ausgrid.



Ausgrid document reference library

Below are the links to relevant resources to support you in understanding the process and requirements for your electrical installation and connection needs.

1	Alternative Control Services Fee Schedule
2	Connection Policy
3	Contract for Design Related Services
4	Electrical Safety Rules (ESR)
5	Electricity Network Safety Management System Manual
6	ES1 – Premises Connection Requirements
7	ES3 – Part A Metering Installations
8	ES3 – Part B Metering Equipment Technical Description for Type 5 & 6 Metering Installations
9	ES4 - Accredited Service Provider Authorisation
10	ES7 - Network Price Guide
11	NS100 Field Recording of Network Assets
12	NS110 Design of Underground Residential Subdivisions
13	NS112: Design of Underground Industrial and Commercial Areas
14	NS124 Specification for Overhead Service Connections up to 400Amps
15	NS127 Low Voltage Cable Joints and Terminations
16	NS130 Specification for Laying of Underground cables up to and including 11kV
17	NS145: External Annexure M - Private Poles in Ausgrid's Franchise Area
18	NS146 Inspection Procedure for Working on Poles
19	NS156 Excavating Near Ausgrid Underground Cables or Conduits
20	NS174 Environmental Procedures
21	NS181 Approval of Materials & Equipment and Network Standard Variations
22	NS183 Installation of Private Attachments on Ausgrid Poles
23	NS194 Embedded generation
24	NS199 Safe Electrical Work on Specific Underground Assets
25	NS211 Working with Asbestos Products
26	NS282 Service Testing
27	T0005 NEG-NPR05 Field Recording Guide

Other standards and document reference library

Below are the links to relevant resources to support you in understanding the process and requirements for your electrical installation and connection needs.

1	NSW Accredited Service Provider (ASP) Scheme Rules
2	ENA Doc 001-2019 National Electricity Network Safety Code
3	ENA Doc 023-2009 Guideline for Safe Vegetation Management Work
4	Other ENA Guidelines
5	ISSC3 Guideline for Managing Vegetation Near Power Lines
6	ISSC14 Guide to Electrical Workers Safety Equipment
7	Service and Installation Rules of New South Wales
8	Work Cover Code of Practice - Work Near Overhead Power Lines 2006

Section 2

Connection

Ausgrid

Section 2: Connection

6. Connections
7. Underground services
8. Overhead services
9. Special small services
10. Kiosk and substation works
11. Testing of connections

Table of contents

Ausgrid

Section 2: Connection

6. Connections
7. Underground services
8. Overhead services
9. Special small services
10. Kiosk and substation works
11. Testing of connections

Table of contents continued...

Ausgrid

Overview

Prior and during the connection of service work to the Ausgrid network all ASP2s must ensure:

- All mandatory safety training and or annual safety refresher training and individual competency is complete and up to date, as per their ASP Authorisation.
- The ASP company/individual ASP details are up to date within the ASP Authorisation Management System (Pegasus).
- The ASP must obtain prior approval from Ausgrid and be issued with an 'Installation Job Number' by submitting or ensuring the customer has submitted a connection application form before.'
- Risks and hazards are managed in line with their company's safe system of work and adhere to their WHS risk management principles, when working on or near the Ausgrid network.
- A Safe Work Method Statement (SWMS) and Pre-Start Risk Assessment has been completed on-site prior to commencing work for each type of contestable work conducted by the ASP in Ausgrid's network area.
- That their systems of work align with Ausgrid's Network Standards and Ausgrid's Electrical Safety Rules.
- That all work on or near exposed live low voltage (LV) mains and apparatus, is completed following the Live work protocols as set out in Ausgrid's Electrical Safety Rules.
- A copy of the Certificate of Electrical Compliance - Electrical Work (CCEW) from the electrical contractor has been received before starting any type of service work to ensure the installation is ready for connection.
- That the consumer's mains, the location and type of switchboard and earthing system at the electrical installation, have been installed correctly and in accordance with AS/NZS3000 and the Service and Installation rules of NSW.
- That all necessary safety checks and tests have been carried out in accordance with the approved training procedures before a service cable is energised. **Workers must comply with Network Standard NS282** – Service Testing, when connecting or reconnecting any installation to the LV network
- If it is found during an inspection that the energising work was carried out at an installation containing service defects or major installation safety breaches that the Class 2B or 2C ASP was responsible for checking, Ausgrid will defect both the installing electrical contractor, and the Class 2B or 2C ASP (service installer).
- Disciplinary action will be taken against an ASP for energising unsafe installations or for not taking adequate precautions.

In any instance where rules differentiate between the Service and Installation rules NSW and Ausgrid's network standards, the Network Standards will take precedence.

Working safely on or near the Ausgrid network

6.0 Safety principles

Please refer to **Ausgrid's Electrical Safety Rules (ESR)** to ensure that basic safety principles for work on or near the Ausgrid network are being performed, including but not limited to:

- Work Health and Safety
- Risk Assessment requirements
- Incident Reporting
- Maintaining a Safe Distance from Live Exposed Conductors
- Insulate earth potential
- Insulate all other conductors
- Insulating gloves
- One potential at a time
- Body separation
- Safety Observer
- Working Safely on or near Low Voltage
- Hazardous Materials
- PPE, Tools, and Equipment
- First-Aid Kits/AED
- Emergency Rescue Kits
- Mobile Plant near Live Exposed LV

Workers must not make uninsulated contact with a live LV underground/overhead cable if the insulation appears defective. This includes cables with visible calcium adipate and PVC sheathed cables with visible swelling (refer to Network Standard NS199).

Cables identified with these defects must be reported for corrective action in accordance with Network Standard NS199. Please contact **Ausgrid's Emergency Line 13 13 88 to report defects.**

All work must be carried out in accordance with environmental requirements in a manner that will prevent pollution and environmental damage. ASP2s shall comply with all applicable laws, ordinances, rules, regulations, and contract provisions regarding environmental protection measures.

For more information, please refer to NS174c Environmental Procedures.

ESR Cl 1.1.3, 3.1.1,3.1.2, 9.5.4 NS199 Cl:6.2

Easements

6.1 Requirements

Where overhead mains and/or underground cables cross private land, they must be protected by a registered easement. The only exception to this is where service mains providing connection between the network and the customer's connection point are located on the same property as the customer's point of supply.

All new or altered overhead/underground service to an installation must not cross an adjoining private property, unless covered by a suitable easement.

Developers of sites must include details of all easements to be created in favour of Ausgrid on the final subdivision plan lodged with the NSW Land Registry Services. If land involved with the required easements is not subject to sub-division, a separate Plan of Easement and the required Transfer of Grant shall be prepared. Easements are to be created in accordance with: For Torrens Title Section 88B of the Conveyancing Act, 1919 as amended For Community Title Section 37 of the Community Land Development Act, 2021.

In non-urban areas, pole substations shall be located within the easement for the overhead mains that supply/are supplied by the substation, however the section of easement(s) in which the pole substation is located must be a minimum of 15 metres x 15 metres with the substation located at the centre.

NS143 Cl 5.0, 7.0

Refer to NS143 Easements, Leases and Rights of Way (details Ausgrid's requirements for easements) for further information.

Image of non-urban area easement example with overhead consumer mains

6.2 Footway allocations

For footway allocations, refer to **NSW Streets Opening Coordination Council (SOCC)** - Guide to Codes and Practices for Streets Opening 2018 edition.

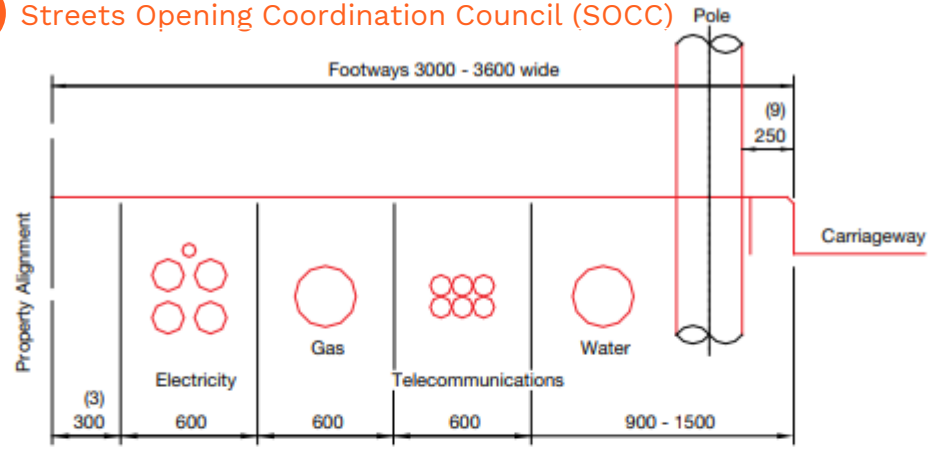
For Regional footway allocations prior to 2018, refer to **NSW Streets Opening Conference - Guide to Codes and Practices for Streets Opening 2009 edition. Essential Resources & Tools | NSW SOCC (streetsopening.com.au)**

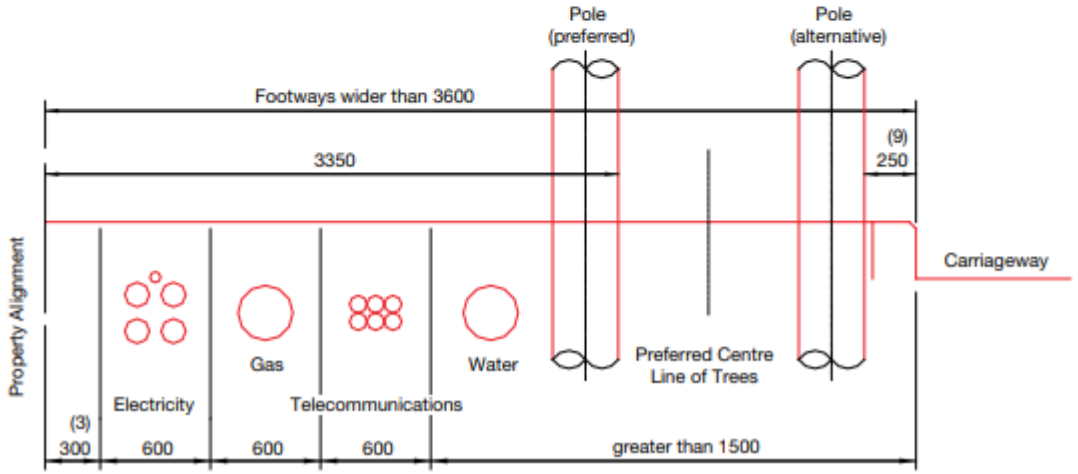
https://streetsopening.com.au/, NS143 5.0, 7.0

6.3 Footway allocations by streets

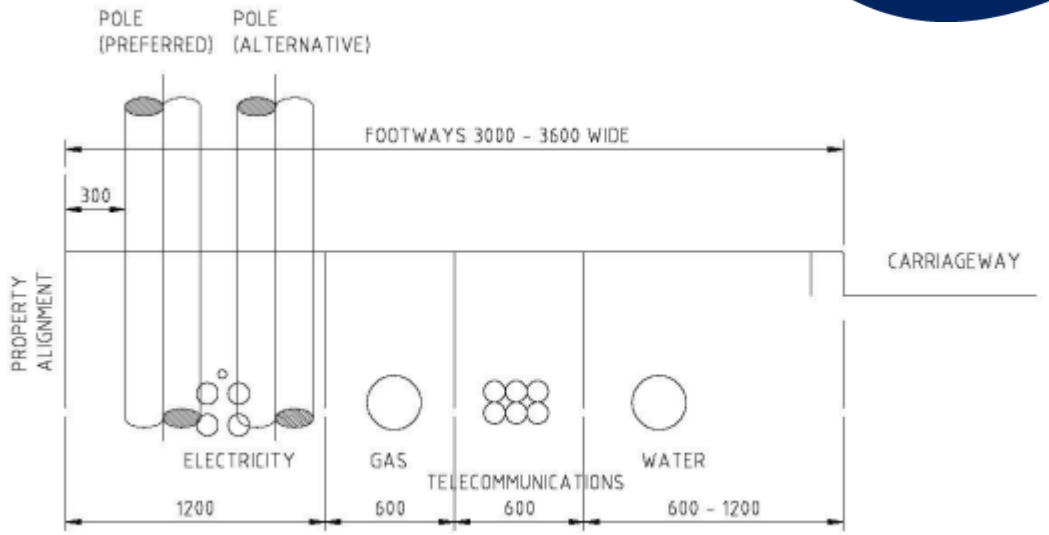
The below diagrams provides information on the easement allocations of streets.

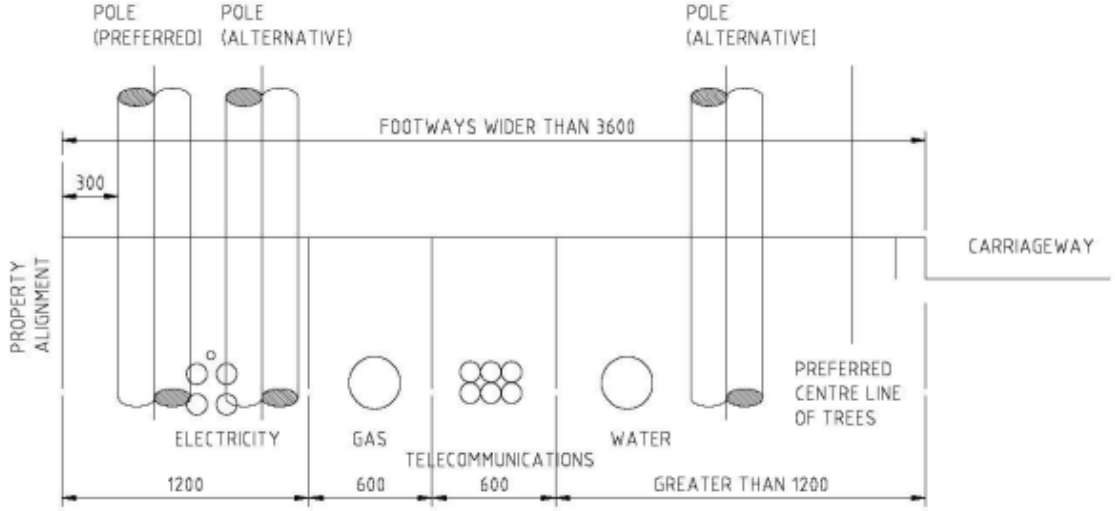
Streets Opening Coordination Council (SOCC)





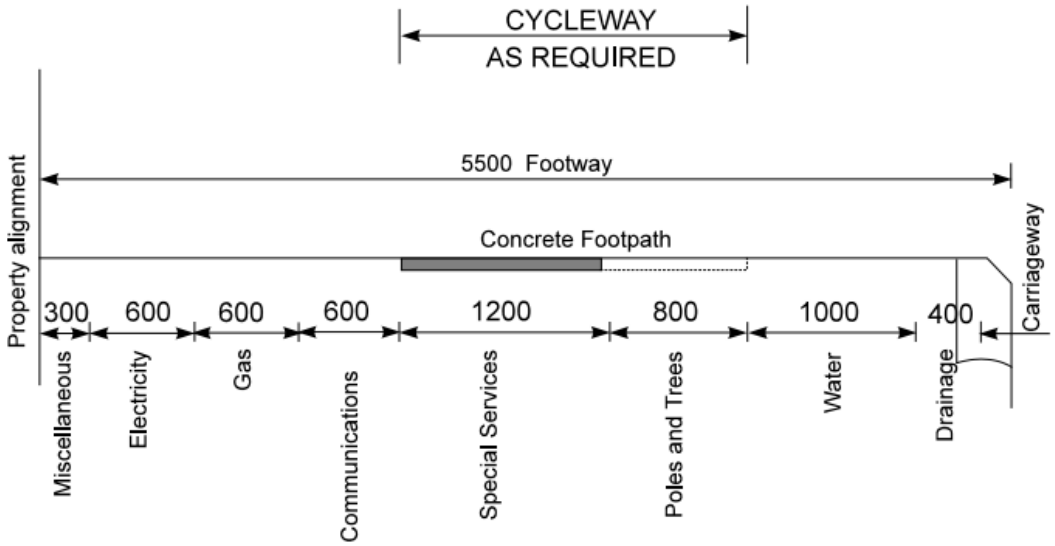
Streets dedicated prior to 1 January 1991

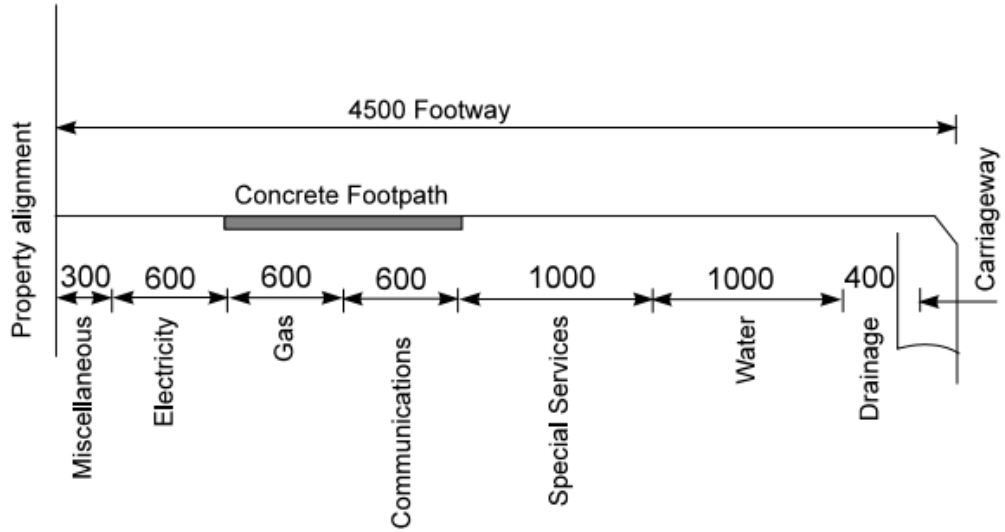


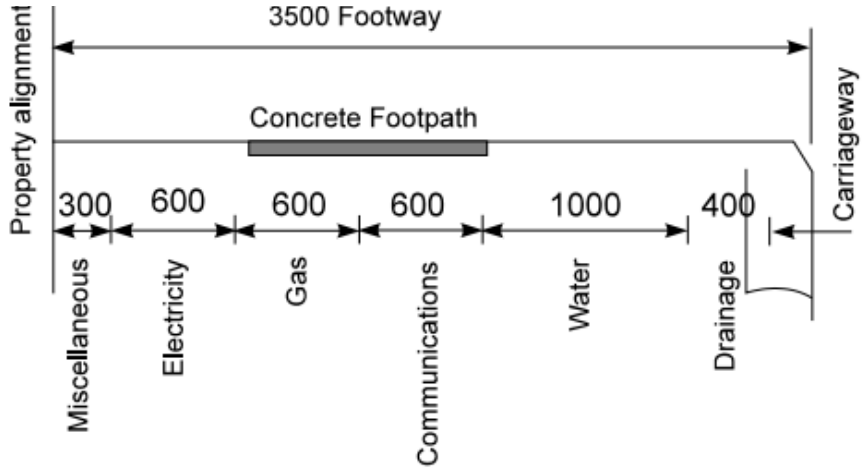


Streets dedicated after to 1 January 1991

6.4 Footway allocations by region – Maitland and Cessnock City Councils Easements



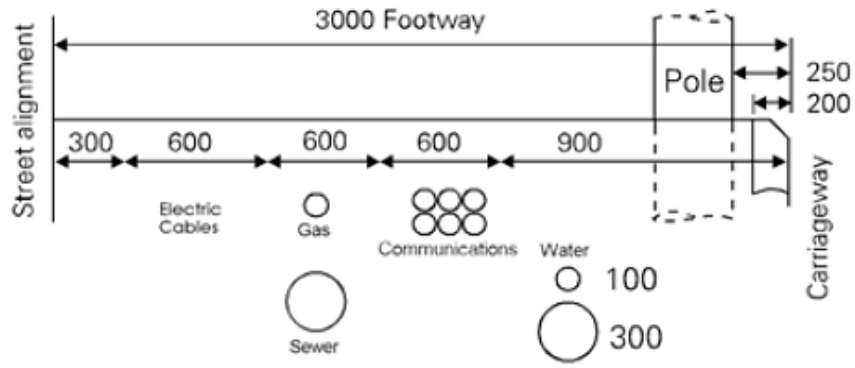


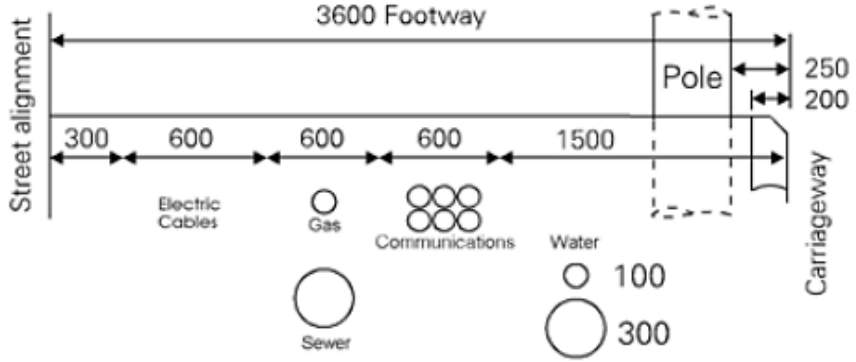


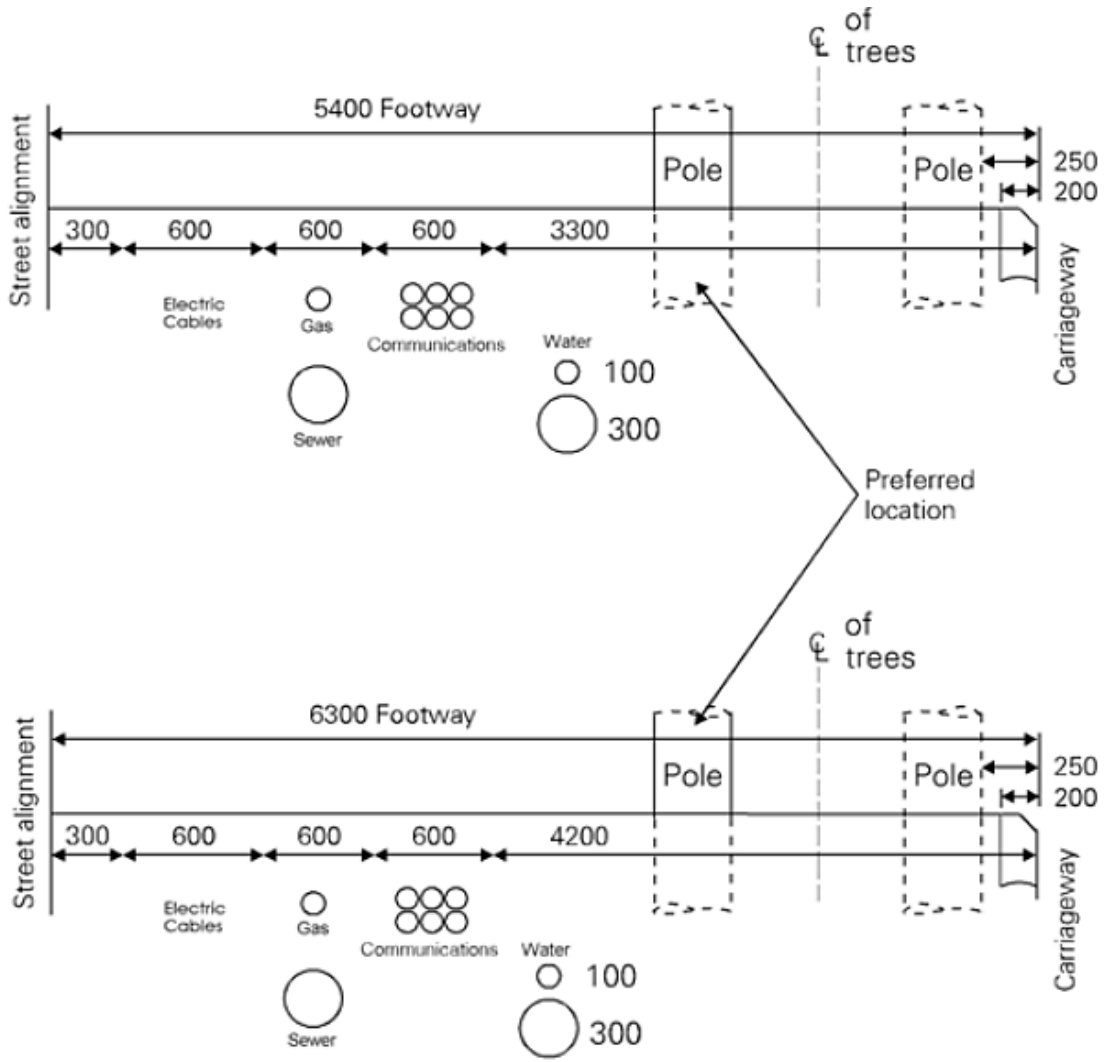
Note: Cycleways only on 5500mm footpaths.

All dimensions are in millimetres.

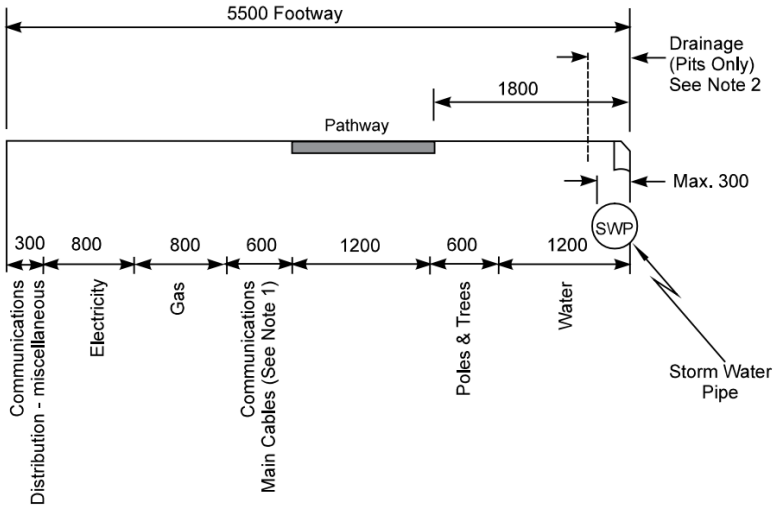
6.5 Footway allocations by region – Central Coast Easements

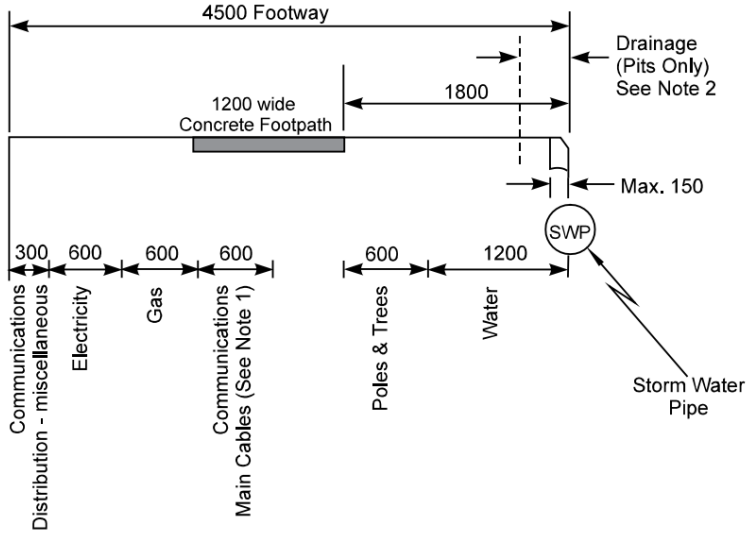


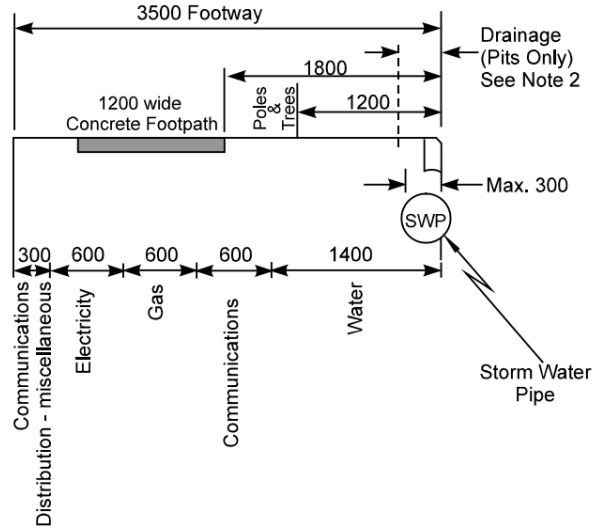




6.6 Footway allocations by region – Lake Macquarie, Newcastle City, Port Stephens Region Easements







Note 1: Pathway allocation available to accommodate telecommunication main cables and access holes.

Note 2: Should be in roadway and should not encroach in footpath more than 380mm.

All dimensions are in millimetres.

Electricity easements on private property

6.7 Requirements

An electricity easement provides 'right of way' for Ausgrid to access, maintain and repair overhead powerlines, underground cables, pillars and substations on private property.

While ownership of the land remains with the property, certain restrictions may apply to how the land can be used. Easements also exist for telephone lines, water and sewage mains and natural gas supply lines.

An electricity easement on private property must be provided. The easement must be a continuous, unobstructed area along the full length of the easement to allow Ausgrid staff access to powerlines, transformers and other equipment at all times.

There should be no obstructions in the easement within 5 metres of a power line, transformer, pole, equipment, or support wire, or within 10 metres of a steel power line structure.

If you want to use an Ausgrid easement, you need to obtain written approval from us before any work commences. A local building permit is not sufficient approval.

For more information, refer to the Ausgrid website.
https://www.ausgrid.com.au/In-your-community/Easements

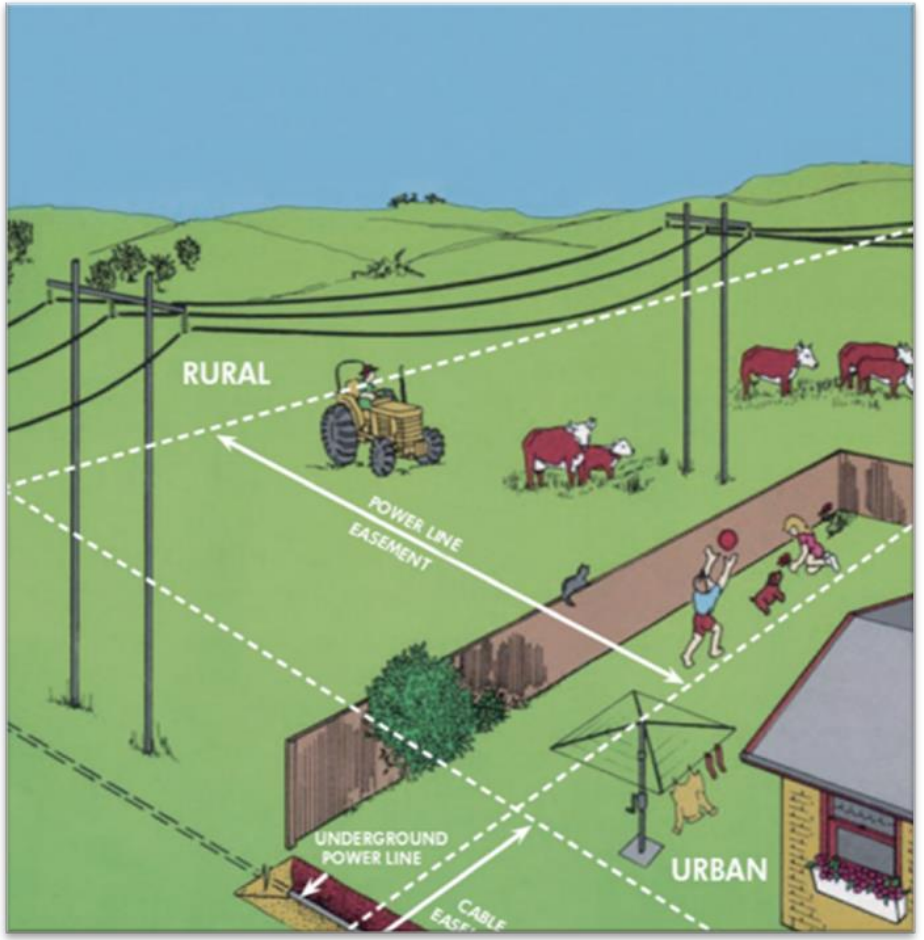


Image of Electricity Easements on Private Property

Underground Services

7.0 Underground cable locations

Connections to Ausgrid's Underground network are set out in Network Standards NS127 Low Voltage Cable Joints and Terminations and are to be read in conjunction with the Service and Installation Rules of New South Wales.

ASP2s performing underground connections shall also familiarise themselves with Appendix A of the Electrical Safety Rules and Network Standard NS199 Safe Electrical Work on Specific Underground Assets, as these documents provide additional information on Ausgrid pillars and connection requirements.

If you do any sort of excavation, you should be aware that interfering with underground cables could result in danger to yourself and people nearby. Damage to cables can cause loss of supply to Ausgrid customers and can be costly to repair.

Before carrying out any earthworks or excavations it is important that you check the location of underground services, including electricity mains that may be in or near the area you are working.

Call 1100 (Before You Dig) well in advance of any actual digging work as you may find that you need to make adjustments to your excavation plans to prevent damage to cables or pipes.

ES1 Cl 2.6, NS156

When planning an excavation, it is vital to contact Before You Dig as part of the process. Call 1100 – free call (except from mobiles).

Mandatory safety requirements for underground pillars

7.1 Mandatory safety requirements for underground pillars

All work on specific Ausgrid pillars and standards must be conducted in accordance with the Electrical Safety Rules. Additionally, certain types of Ausgrid pillars have specific task prerequisites that must be followed. Please refer to the relevant documentation for these requirements.

- Network Standard NS199 Safe Electrical work on specific Underground Assets. NS199 Cl:7.0
- Electrical Safety Rules, Appendix A – Task List - Work on or near live exposed LV.

The following pillar types within Ausgrid's franchise area serve as examples of those with limitations on certain tasks that can be performed while live. Please note that this is not an exhaustive list of all pillars with such requirements.

7.2 Examples of mandatory safety requirements for underground pillars

Image of Single Link Pillar

Image of Menai Pillar

Image of Steel Framed Pillar

Image of “SDP” Pillar

Image of Mackellar CSB Pillar

Image of Tom Thumb Pillar

Image of Town Pillar

Image of K&N Pillar

Image of Upper Hunter Pillar

Underground service cable requirements

7.3 Service and installation rules

New installation requirements for Underground services are covered in Section 2 of the **Service and Installation Rules of New South Wales and Ausgrid Network Standard NS127 Low Voltage Cable Joints and Terminations**.

ASP2s must familiarise themselves with these documents regarding cable types, connections, UGOH connections, pillar types and all other applicable requirements.

NS127 Cl 1.0, 2.0, 3.1

All materials used for the underground services must be selected from the Ausgrid Approved Material List NS181.

7.4 Cable requirements

- 70mm² must be compacted conductor type
- Any intermediate service ratings (based on the assessed demand of the installation) shall use the next largest service rating/cable available. The 50mm² cable may also be used for a 100Amps service to satisfy voltage drop requirements.
- Services exceeding 200A and up to 400Amps, shall be supplied direct from a distribution substation, or after consultation with Ausgrid supplied from the distribution pillars. Additional training competencies are required to conduct the installation and connection of underground services above 200 and up to and including 400.
- Services larger than 400Amps shall be directly supplied from a distribution substation (contact Ausgrid for further details).

Rating	Cross-sectional Area (mm^2)	Cable Description
100	16 or 25	Circular, stranded, copper conductor, single-core, two-core or four-core.
200	50 or 70*	Circular, stranded, copper conductor, single-core or four-core.
>200A	185	Circular, stranded, copper conductor, single-core
	240 or 300	90 degree sector shaped, solid aluminium conductor, multicore

7.5 Cable requirements

All new and replacement underground services must be constructed using new materials only.

Underground service cables must: NS127 Cl 3.3 NS110 Cl 5, NS112 Cl 6

- Be of uniform construction between the connection point and point of supply
- Not contain joints
- Be XLPE insulated PVC sheathed construction
- Be on Ausgrid's approved material list. Refer to NS181 approved material list.

Use of second hand or used service cable is not permitted.

Cross-Sectional Area	Description	Stock Code
16	Circular, stranded, copper conductor, single core cable	Refer NS181
16	Circular, stranded, copper conductor, two core cable	174565
16	Circular, stranded, copper conductor, four core cable	148668
25	Circular, stranded, copper conductor, single core cable	Refer NS181
25	Circular, stranded, copper conductor, four core cable	H109462
50	Circular, stranded, copper conductor, four core cable	149112

7.6 Conduit requirements

Underground service cables of less than 240mm^2 must be installed in conduit throughout their entire length.

Underground service conduits, including underground to overhead connections (UGOH's) must be installed in a straight line. Any bends in the conduit must be sweep bends, with only one permitted on the customer's premises.

A sketch of the underground service/consumers mains route must be clearly marked on the inside of the Main switchboard enclosure. Underground service cables, including underground to overhead service cables (UGOH's), must be installed in approved conduits.

NS224 Cl 19.3, NS130, Cl 10.2

Service Current rating	Conduit Size
100A	› 40mm UPVC › 50mm UPVC › 80mm UPVC if 50mm^2 Cu is used to overcome voltage drop
200A	80mm UPVC
>200A	125mm UPVC

7.7 Service cable roadway crossing

Service cable roadway crossings must be made in conduits.

Conduits must comply with the requirements for roadway crossings. Conduits must be laid as close to being perpendicular to the carriageway as practicable and should terminate at the road-side edge of Ausgrid's cable allocation.

Refer to NS130 for the cable allocation that applies in the relevant area. Minor deviations to align with offset lot boundaries on opposite sides of the road are permitted.

NS110 Cl 5.7, 4.4 NS130 Cl 10.8

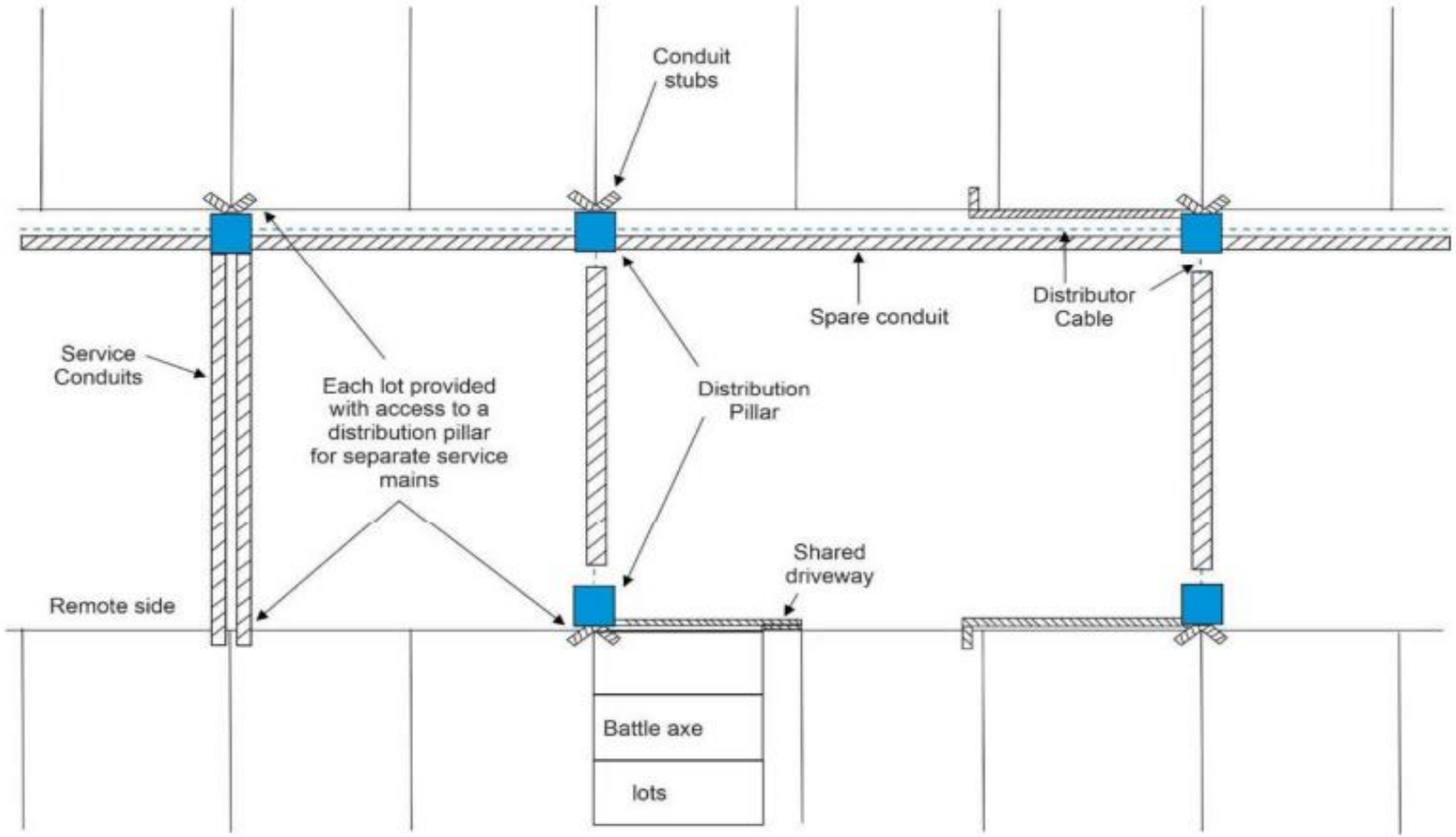


Image of typical arrangements of low voltage system -LV distributor on one side of the street.

Service connections to Distribution pillars

7.8 Service connections at Point of common coupling (Distribution Pillar)

All Underground service mains work shall be carried out **in accordance with the Service Rules and applicable Network Standards.** The following items must be adhered to whilst performing contestable connections.

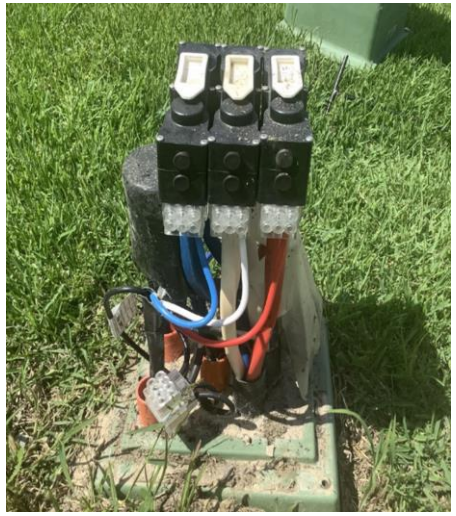
- Only authorised ASP2s are permitted to access Ausgrid's Network pillars.
- When the underground service is installed prior to the day of energisation, the cable(s) must be short circuited, sealed, identified, and danger tagged at both ends.
- Only one service active conductor is to be connected per hole within a termination block in an Ausgrid network pillar.
- Only one service neutral conductor is to be connected per hole within a termination block or bolt on a neutral bar in an Ausgrid network pillar.
- Each underground service cable must be clearly identified with a permanently installed, water-resistant tag. This tag should be indelibly marked with the relevant street number and the name of the premises it supplies.

NS110 Cl 4.4.2, ES4 Cl 10.2.2, NSWSR Cl2.4.1.1

7.9 Ausgrid Distribution Pillars

Ausgrid's franchise area contains multiple types of distribution pillar construction, and the pictures provide an example of types of pillars on the network.
Please note that this is not an exhaustive list of all pillars installed on the network and excludes existing obsolete pillar arrangements.

NS127 NS224, NS199 Cl 7.0



7.10 Examples of variants of Ausgrid Distribution Pillars








NS127 and NS224

7.11 Low voltage links

Where a service is to be connected to a **link pillar**, the connection of the terminated service (electrically) must be indicated on the NOSW (i.e. which side of the links supplies the new service).

Where an ASP2 cannot determine the supply side of the LV links, this should be clearly indicated on the NOSW.

ES4 Cl:10.4.2, NS110 Annexure D

When indicating which side of the link the underground service is terminated to, indicate in reference to the North point direction. i.e..(East, West, South, North) side of link.

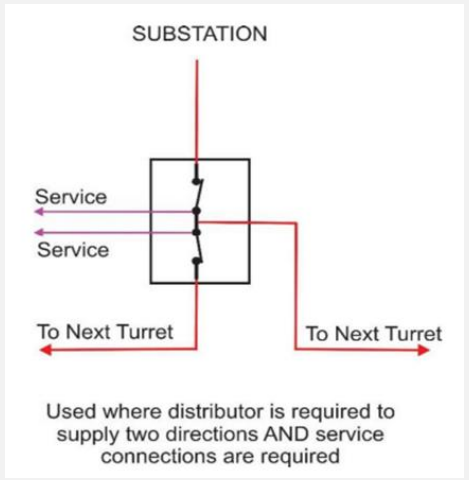


Image of Double Pillar

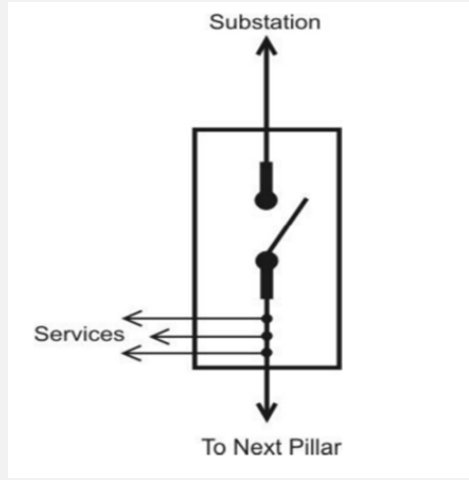


Image of Single Pillar

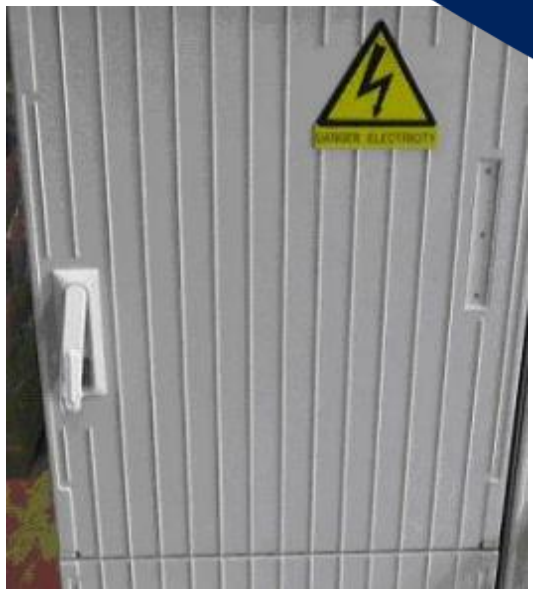
Service connections to Commercial pillars

7.12 Service connections to Commercial pillars

Service connections to commercial pillars must be carried out in accordance with Network Standard **NS224 Low Voltage Suburban Commercial and Industrial Underground Distribution Utilising Pillars**. Service connection requirements to commercial pillars include:

- **Six different electrical configurations** are available within Commercial Pillars. These configurations are referred to as Configurations A to F inclusive.
- 100A, 200A and special small services connect to the phase terminal block/s and the neutral bar.
- The neutral connection for 100A, 200A and special small services shall be located directly below the phase conductors for the given service cable.
- A separate bolted connection for each neutral connection shall be used.
- >200A services connect directly to the phase busbars and neutral bar. These connections are lugged and bolted, 185mm^2 circular stranded copper conductor, XLPE / PVC (double insulated). Pillar will need to be Isolated from the network to install cables.
- A service cable (including special small services) shall have its active conductors zip tied together at 100mm centres.
- Additional cable length shall be left inside the cabinet to allow for the re-terminating of service cables. This can be achieved by creating an “S” shape in the service cables in the base unit area.
- Each of the phase conductors (adjacent to the service terminal block) and the neutral conductor (adjacent to the neutral bar) for each service cable shall be labelled.
- **As access to these pillars is via an Abloy locking system, contact Service Support to arrange access.**

NS224 Cl: 23.0



Images of Commercial pillar

Service connections at Customers Premises

7.13 Service connections at connection point

Ausgrid **does not specify the requirements** for the physical installation of private pits or pillars.

Private pits and pillars must be installed in accordance with the requirements of AS/NZS 3000 and the Service and Installation Rules of NSW.

Where the Ausgrid cable terminates in a private pit or pillar the equipment shall be selected in accordance with the requirements of AS/NZS 3000.

Due to **connection limitations within private pits and pillars** one of the following options shall be adhered to:

a) The service cable connection within the private pit shall be by an approved jointing kit in accordance with Network Standard NS127 Low Voltage Cable Joints and Terminations.

b) The service cable connection within the private pillar shall be made utilising one of the following termination methods:

- CABAC TB503 Terminal Block - 3 Way - 3 x 50mm^2
- CABAC TB506 Terminal Block - 6 Way – 6 x 50mm^2
- Appropriate cable sized M12 compression lug, M12 x 35mm stainless steel bolt, nut and 2 x flat/spring washer assemblies and heat shrink moulded sealing cap.

c) For **connection requirements not covered** as per the above options, please contact the Service and Installation Compliance group for advice.

NS127 Cl 3.2, 44.1, NS181

Images of correct jointing kit for pits as per NS127 Clause 44.0 and Table 44.1

Image of 3-way terminal block Stock code - 176271

Image of 6 way terminal block Stock code - 150409

Image of M12 Compression Lug, Heat shrink moulded sealing cap and M12 Stainless steel Bolt/Nut/Washers

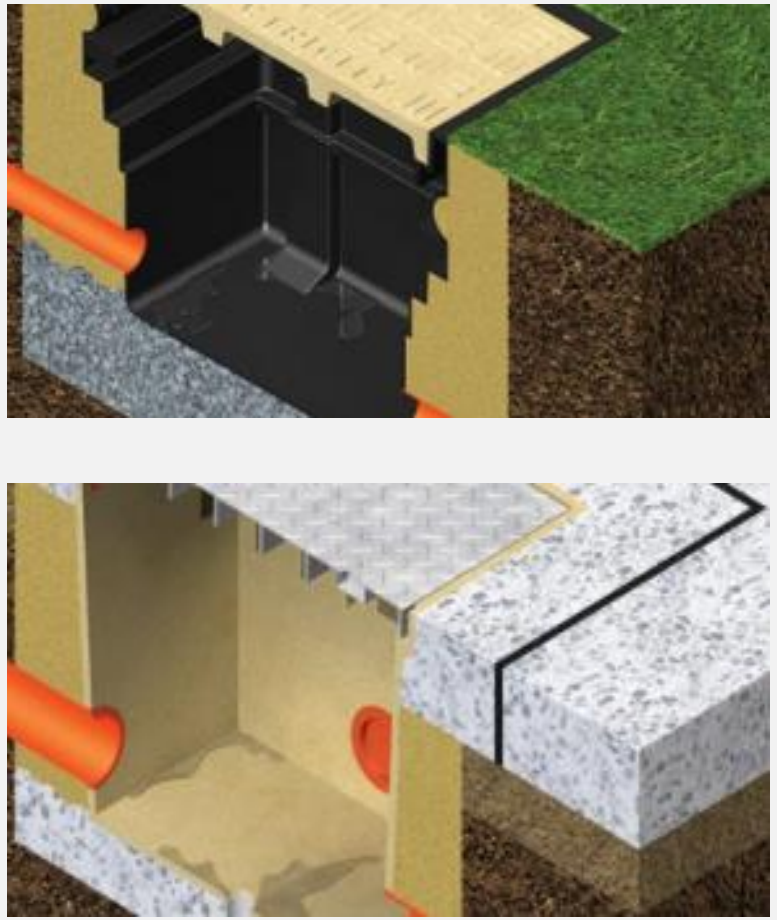
7.14 Service connections in Private Pits

For underground services to be terminated within a private pit, the following conditions must be met:

1. The installation must comply with all relevant Service and Installation Rules of New South Wales and AS/NZS 3000 Wiring Rules requirements.
2. A minimum 1500mm in length of both service cable and consumers mains must be coiled within the pit.
3. The cable manufacturer's specified minimum bending radius must not be reduced.
4. An approved Straight through Joint kit as detailed within Ausgrid's **NS127 Low Voltage Cable Joint and Terminations** standard must be used.
5. Measures must be taken to minimise the amount of standing water within the private pit and conduits.
    a) A drainage point is to be provided from the base of the pit to allow water to soak away.
    b) Reasonable clearance below the lowest conduit entry and the base of the pit is required for drainage purposes.
    c) For landscaped application, where foot traffic only is anticipated, a gravel base should be laid

Joints must be made by an appropriately qualified and authorised person, following the kit manufacturer's instruction.

ASP GI's Cl GI16_23



Images of Private Pits

7.15 Use of Corrugated Conduit for Underground Services

The **Service and Installation Rules of New South Wales** state that underground service cables must be installed in heavy duty UPVC conduit as specified in AS/NZS 3000 for Category A system enclosures, or as specified by the electricity distributor. **UPVC conduit** is made from unplasticised polyvinyl chloride, making the conduit of the rigid type.

Unless site specific written approval for the use of a draw-in box has been provided by Ausgrid's Service and Installation Compliance team, the underground service must be **installed in rigid (UPVC) heavy duty conduit** for its entire length.

If the **use of a draw-in box has been approved** by Ausgrid's Service and Installation Compliance team, only then may a length of heavy-duty flexible conduit up to 1.2 metres in length be used from the draw-in box, to allow the cable to enter the cavity and main switchboard.

A private pillar may be required if the above conditions cannot be met.

ASP GI's Cl GI11_23

Image of incorrect and correct installation example

7.16 Draw-In Box for Underground Service Installations

The **Service and Installation Rules of New South Wales 2019 (Clause 2.5.2)** requires permission to be sought from the network provider for the use of a draw-in box when installing underground services. Approval for the use of a draw-in box will only be provided upon evaluation of site-specific conditions.

The Level 2 Accredited Service Provider or Electrical Contractor must submit a written request for approval by email to the Service Installation and Compliance group

The following information must be provided to assist in the review of this application:

1. Address of the installation where the draw-in box is intended to be installed.
2. Site specific conditions and reasoning why a draw-in box is required.
3. Photos of proposed location for the draw-in box, showing why the draw-in box is required.

If it is deemed that the use of a draw-in box is warranted, the Service and Installation Compliance team may stipulate minimum sizing requirements and water ingress protection measures.

ASP GI's Cl GI24_22

Images of draw-in box

Underground to Overhead service connections

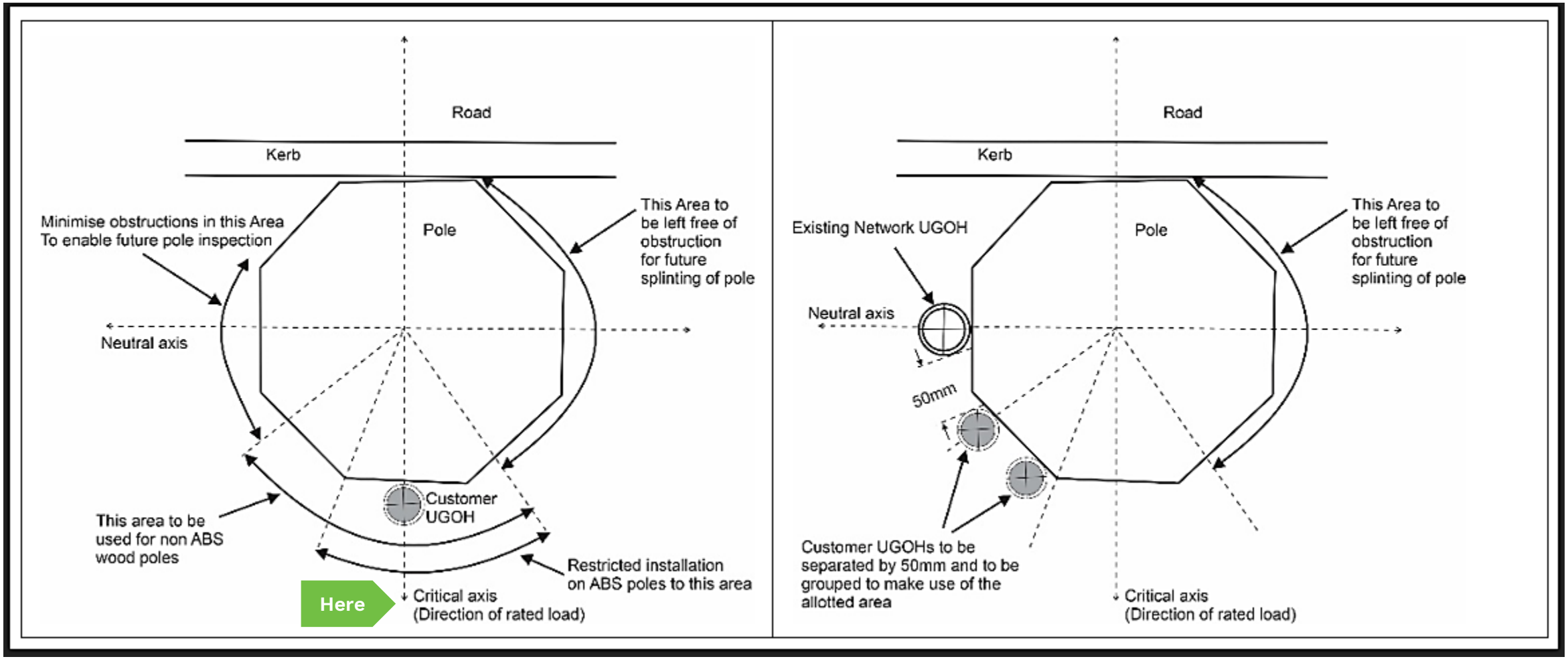
7.17 Underground to Overhead (UGOH) connections

Only the approved construction standards detailed in Network Standard NS127 and the Service and Installation Rules of NSW shall be used.

- The total number of service UGOH connections on an Ausgrid pole is stipulated in the **Service and Installation Rules of NSW (Clause 2.10.4)**.
- **UGOHs must be positioned to minimise vehicle impact**, considering nearside traffic and adjacent driveways.
- If no LV network UGOH exists, place the first customer UGOH on the footpath side (critical axis).
- Group UGOH's at ground level, ensuring one side (neutral axis) remains clear for future steel splint installation and pole inspection.
- Maintain a **50mm clearance** between the mechanical protection of adjacent UGOH's at ground level to facilitate installation and pole inspection.
- If an **LV network UGOH is present**, install the first customer UGOH adjacent to it.
- **All customer UGOH's on high voltage poles** (except ABS poles) must be connected to the non-climbing side of the pole.
- Supplies to services greater than 200A will be via a distribution pillar installed in the footway, where site conditions allow it, to facilitate future service connections. Please contact the Service and Installation Compliance group for further information.
- Insulation piercing connectors shall either have a grease filled cap fitted to seal the service cable core ends or the end of the service cable shall be sealed with UV inhibited heat shrink caps.
- Conduit saddles shall be fitted no more than 1000mm apart.
- **LV network service neutral connections** shall incorporate two bolt connectors.

NS127 Cl: 3.5-3.8

7.18 The location of the critical axis area on the distribution pole is shown below.



7.19 Mechanical protection of Customer UGOH's

Mechanical protection shall be installed in accordance with section 2 of the Service and Installation Rules of NSW and Network Standard NS127.

- The required mechanical protection should be **between 2500mm above groundline and 300mm below groundline.**
- The mechanical protection should be **of tubular or 'U' section construction**.
- The mechanical protection should have **no side flanges** (side securing tabs are permitted).
- Use **non-metallic mechanical protection on poles with HV earth down leads**, and within 2000mm below the lowest conductors.
- The following **non-metallic UGOH cover** is approved for use as mechanical protection of LV service UGOH cables (Ausgrid stock code 184571).
- If the mechanical protection used on Customer LV UGOH cables is metallic, the metallic protection cover shall be made of galvanised steel and shall be bonded to the neutral of the LV overhead mains or LV ABC mains.
- If the metallic UGOH cover has a drilled hole in the cover (approximately 50mm from top of the cover) to fix the 70mm² lug (stock code H95851), using stainless steel M12 nut, spring washer, flat washer and M12 x 20mm bolt, connect the neutral bond as shown adjacent. Bolt head must be inside the cover to avoid damage to the UGOH cable.
- A **70mm² copper insulated cable** (stock code 60111) must be used to bond the LV UGOH cover to the neutral.

NS127 Cl:3.5

- Install two IPCs when connecting the bonding cable to LV ABC mains.
- Install two split bolts when connecting the bonding cable to bare copper mains.

Image of UGOH Cover, Non-Metallic

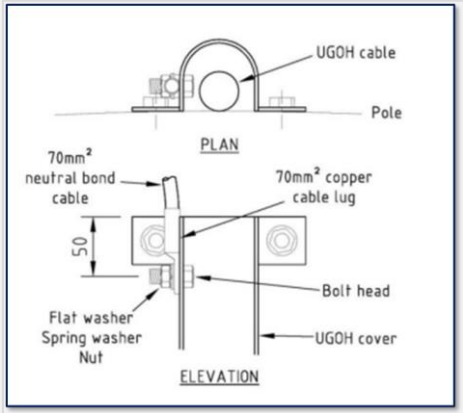


Image of Neutral Connection Bond to the Metallic Cover

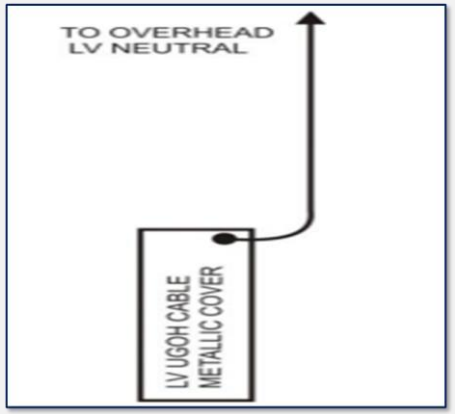


Image of Metallic UGOH Cover Bonded to Neutral

Image of Galvanised 1.9mm folded U section UGOH Cover

7.20 UGOH Construction – Single Core Service Cable

Key information

- 300mm of the **cable cover** is to be installed below ground line.
- Insulation piercing connectors shall either have a grease filled cap fitted to seal the service cable core ends; or the **end** of the service cable shall be sealed with UV inhibited heat shrink cap.
- Conduit saddles shall be fitted no more than 1000mm apart.
- Minimum **height of cable cover** is 2500mm above ground line.
- LV Network service neutral connections shall incorporate two bolt connectors.
- The **cable sheath** shall be removed for the length of cable that enters the insulating piercing connector. The cable insulation shall not be removed. There shall be no more than 2mm of exposed insulation between the end of the cable sheath and the insulation piercing connector.
- The **internal diameter of the conduit weather loop** shall not be tighter than 2 times the minimum internal bending radius of the cable.

NS127 Fig 6.1 Table 6.1

Item	Description
1	Wood Pole
2	Non-Metallic cable cover
3	Flexible PVC Conduit
4	Tap of Connectors
5	Galvanised self-drilling timber screw
6	UV stabilised cable tie
7	Insulation piercing conductor
8	Coach screw M12 x 75
9	Conduit Saddle to suit flexible PC conduit

7.21 UGOH Construction – Multicore Service Cable

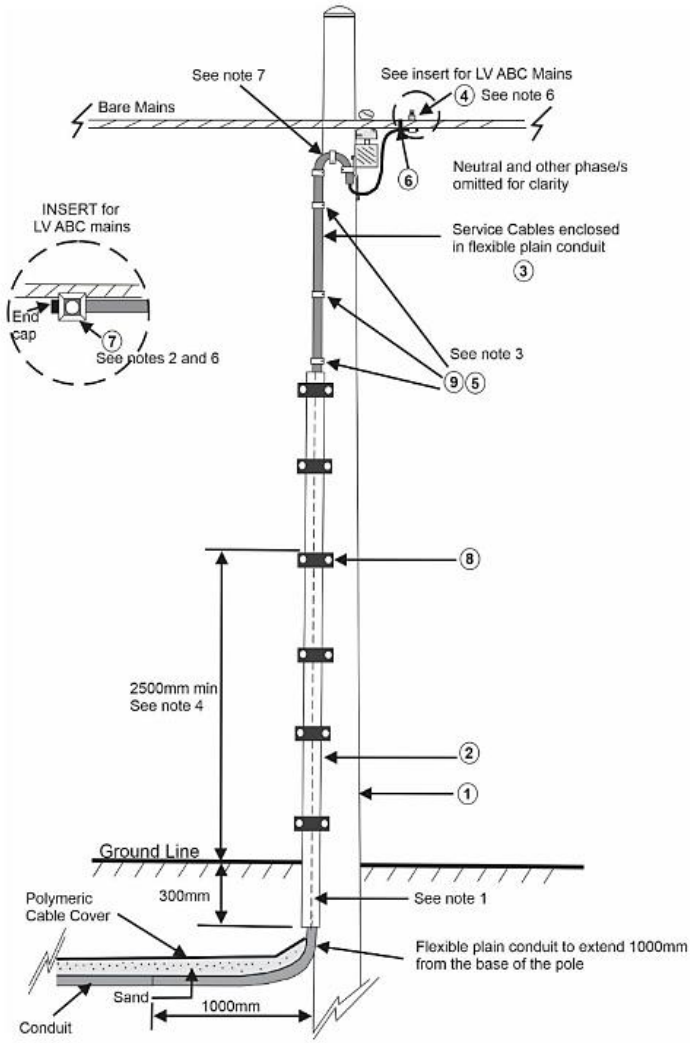
Key information

- 300mm of the **cable cover** is to be installed below ground line.
- Insulation **piercing connectors** shall either have a grease filled cap fitted to seal the service cable core ends; or the end of the service cable shall be sealed with UV inhibited heat shrink cap.
- Conduit **saddles** shall be fitted no more than 1000mm apart.
- Minimum height of **cable cover** is 2500mm above ground line.
- The **PVC-covered copper cable** shall have a core conductor in which all conductors shall be circular stranded plain annealed copper complying with the requirements of AS1125, and the insulation shall be black V-90, and shall be UV stabilised by the addition of a minimum of 1% carbon black. The insulation thickness shall comply with the requirements of Section 6 of AS/NZ 5000.1 and be marked V-90 UV.
- All **heat shrink components** are packaged into a single kit. Refer to item 7 for details.
- LV Network service neutral connections shall incorporate two bolt connectors.
- Buy in from TE Connectivity Part No CKB25/25 or from Acculec Power Part No CASB25.
- All measurements are in **millimetres (mm)** unless marked otherwise.

NS127 Fig 5.1 Table 5.1

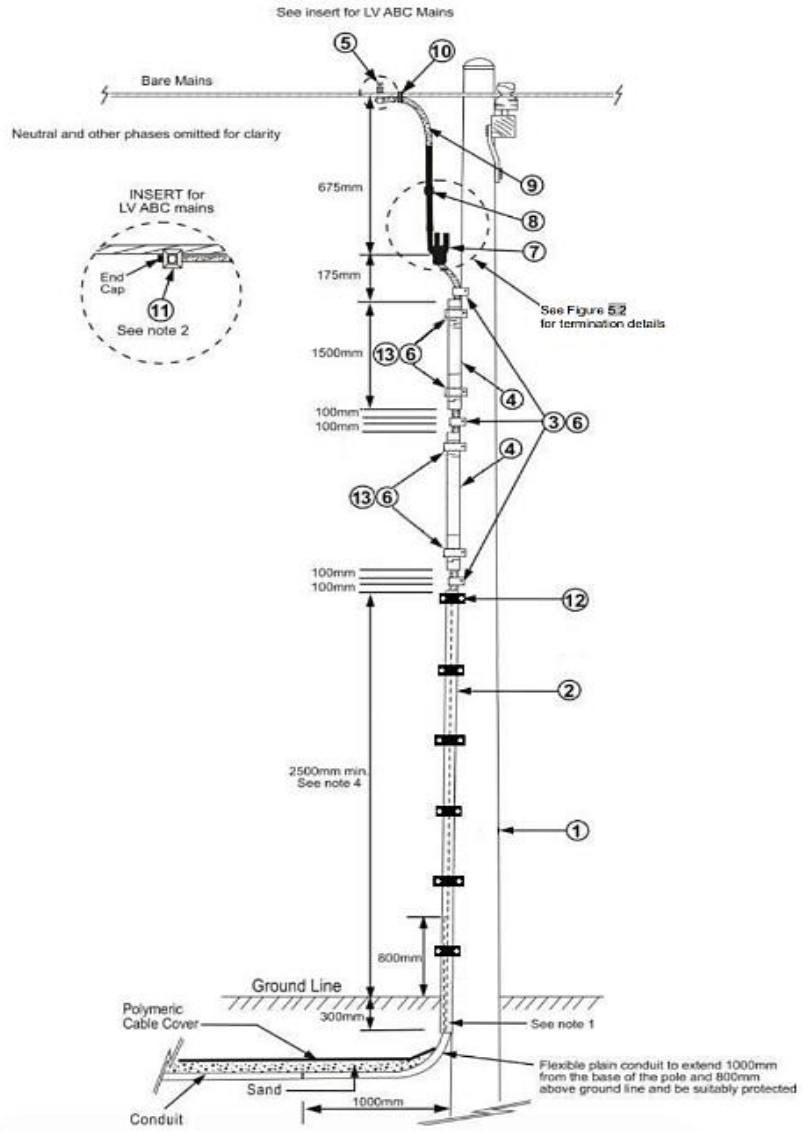
Item	Description
1	Wood Pole
2	Non-Metallic cable cover
3	Galvanised saddle with nitrile rubber liner
4	Flexible PVC Conduit
5	Tap-off connectors
6	Galvanised self-drilling timber screw
7	Heat shrink termination kit
8	Crimp link
9	PVC-covered copper cable
10	UV stabilised cable tie
11	Insulation piercing conductors
12	Coach screw M12x75
13	Conduit saddle to suit flexible PVC conduit

7.22 Diagrams of UGOH Construction



Single core Service Cable.

NS127 Cl 6.0



Multicore Service Cable.

NS127 Cl 5.0

Connections to overhead services

Connections to Ausgrid's overhead network are set out in **Network Standard NS124 Specification for Overhead Service Connections Up To 400Amps** and are to be read in conjunction with the Service and Installation Rules of New South Wales.

Connection services to customers' premises may only be provided by accredited service providers and their individual employees, as authorised by the electricity distributor.

Additional information can be found on the Ausgrid website and drawings of standard overhead constructions can be found at:
https://www.ausgrid.com.au/ASP2s-and-Contractors/Technical- documentation/Network-Standards/NS124-drawings

Under no conditions are **service mains** to cross over the boundary of any property other than that property for which the service is intended, unless covered by a suitable easement as outlined in section 6.

Service mains must be installed from the pole nearest to the connecting customers point of attachment terminated inside the lot boundary.

The premises listed below, which are in an urban overhead distribution mains area, must make provision for connection to future underground distribution mains:

- commercial premises with a property frontage greater than 50 metres.
- multiple residential developments (e.g. home units or villa homes) not including duplexes.

In such developments the customer must install:

- an underground service line to a suitable existing street pole; or
- sheathed underground consumers mains to a customer pole erected near the front property boundary (within 1 metre).

ES1 Cl 2.5, 3.3

Traffic management and pole safety inspections

8.0 Traffic management

All **contestable service work** shall be carried out safely with the least possible obstruction to traffic and pedestrians. A **traffic management plan must be prepared** for each project in accordance with statutory requirements.

Vehicle and pedestrian access to properties shall be maintained wherever possible. Useful references to traffic related guides are:

› AS1742 Manual of Uniform Traffic Control Devices

› Roads and Traffic Authority guide 'Traffic Control at Worksites' 6.3

8.1 Pole safety inspections

Before working on any pole, **personnel must satisfy themselves that it is safe to do so and that there is no danger of the pole collapsing during the course of work**.

Particular care must be taken where the pole loading is to be significantly altered.

Refer to **Network Standard NS146 Safety Inspection Procedure for Working on Poles** for full explanation of the pre-climbing procedures.

Clause 9.5.2 Electrical Safety Rules also states that all authorised personnel are required to be appropriately trained for the work concerned and must have a thorough knowledge of the applicable parts of Ausgrid's Electrical Safety Rules.

Image of Defective pole marking – Orange Band

Image of Condemned pole cross

Image of Old defective pole marking

NS146 Sect3,4

8.2 Working on or near pole with telecommunication transmitters

When working on Ausgrid distributor poles with telecommunication transmitters please refer to **Network Standard NS102 Working on or near poles with telecommunication transmitters**.

Where telecommunication transmitter installations are installed on Ausgrid poles or street lighting columns, anyone required to climb or work near these installations must carry out the climbing or work in accordance with NS102.

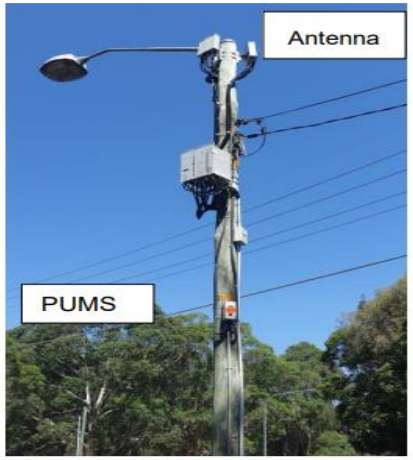
Refer to the **Annexure A of NS102 for types of telecommunication antennas installed on Ausgrid assets**.

For more information on telecommunications and transmitters, please refer to: **Radio Frequency National Site Archive.**

NS102 Cl:1.1

Images of Warning signs provided on Network Poles

Omni Antenna



Small Cell Antenna

Small Cell Antenna with ground mounted equipment cabinet

Images of Small Cell type examples on the Ausgrid network

Overhead service clearances

8.3 Overhead service clearances

Overhead service clearances must be achieved under all conditions **(refer to Note 3 of Table 3-4 of the Service and Installation Rules of NSW).** The point of attachment is to be 3m minimum above the ground, floor or platform level.

The clearances from overhead services to ground, structures and communications services and vegetation shall be maintained in accordance with clause 3.5 of the Service and Installation Rules.

NSWSR Table 3.4, Fig 3.4

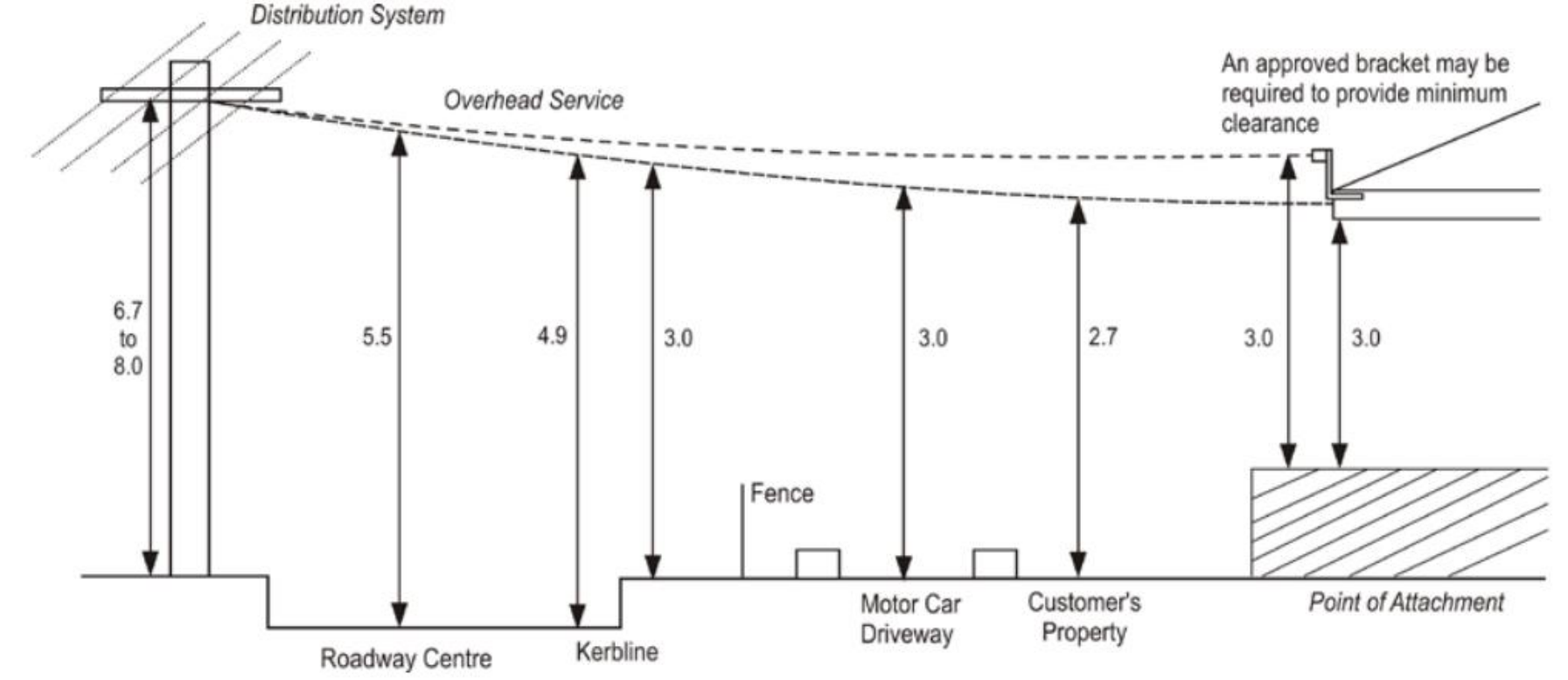


Diagram of Minimum Clearances to Insulated Overhead Services

8.4 Clearance requirements

	From the insulated service conductors to the surface of:	Minimum clearances (metres)
1	Any part of a freeway or arterial road	5.5 vertically
2	The centre of a carriageway of a public road	5.5 vertically
3	Any part of a carriageway of a public road (other than the centre)	4.9 vertically
4	Vehicular crossing of a footway in a public road (other than a residential driveway)	4.5 vertically
5	Vehicular crossing of a footway in a public road for a residential driveway and any other part of a footway	3.0 vertically
6	Land which is not associated with a dwelling and which is likely to be used by vehicles, including non-urban small acreages and hobby farms	4.5 vertically
7	Land which is, or is likely to be used by vehicles and is associated with a dwelling	3.0 vertically
8	Land not likely to be used by vehicles	2.7 vertically
9	Those parts of any structure normally accessible to persons. (See Note 1)	2.7 vertically
10	Any area above a roof	1.25
11	Any area around a radio or TV aerial	1.8
12	Those parts of any structure not normally accessible to persons. (See Note 2) (including below a projecting slab, balcony or sign)	0.1 in any direction
13	The edge of any opening window, balcony, veranda, clothes line or fence etc	Out of normal reach (see Note 4)
14	Point of Attachment	3.0 vertically not normally accessible without a ladder or other device (see Notes 1-4)
15	Farmland where mechanical equipment is used	5.5 vertically
16	Trees and shrubs	0.5 in any direction
17	Vicinity of boat ramps, launching areas (avoid if possible)	10.0 vertically
18	Communications conductors	0.6 in any direction

8.5 Interpret the clearance requirements as follows (Notes to section 8.4):

1. **Structure Normally Accessible to Persons** includes:
   a) The whole area of any flat roof accessible without the use of a ladder.
   b) Any part of a hip or gable roof accessible without a ladder up to the nearest hip or gable.
   c) Any portion of a balustrade or other structure which will support a person and is accessible without a ladder.
2. **Not Normally Accessible to Persons** excludes roofs and includes any portion of a fence, balustrade, advertising sign or other structure which will not support a person or is not accessible without a ladder.
3. **The minimum clearances outlined in 8.4** must be achieved under all conditions regardless of:
   a) Conductors swing due to the influence of wind.
   b) Conductor sag due to the influence of load current and ambient temperature.

   The requirements of **8.4** may be achieved if the maximum allowable service line sag for a particular conductor size and span is added to the minimum clearance. Refer to Table 3-8 within the Service and Installation Rules of NSW.
4. **Out of Normal Reach** means 1.25metres from any normally accessible position. The requirement that an overhead service must be out of normal reach of persons may be achieved in some cases by the provision of a permanent Insulated barrier

8.6 Roads with unmade edges

Refer to NS124 Specification for Overhead Service Connections up to 400Amps

Where kerbs are absent within a roadway and the area within 3 metres of the tarred or formed surface of a road is vehicle-accessible, the clearances set out in Table 2 of NS124 apply, to ensure safe vehicle passage and parking without overhead service contact.

NS124 Cl:7.4.1

This clearance requirement applies to both sides of the roadway but usually limits only one.

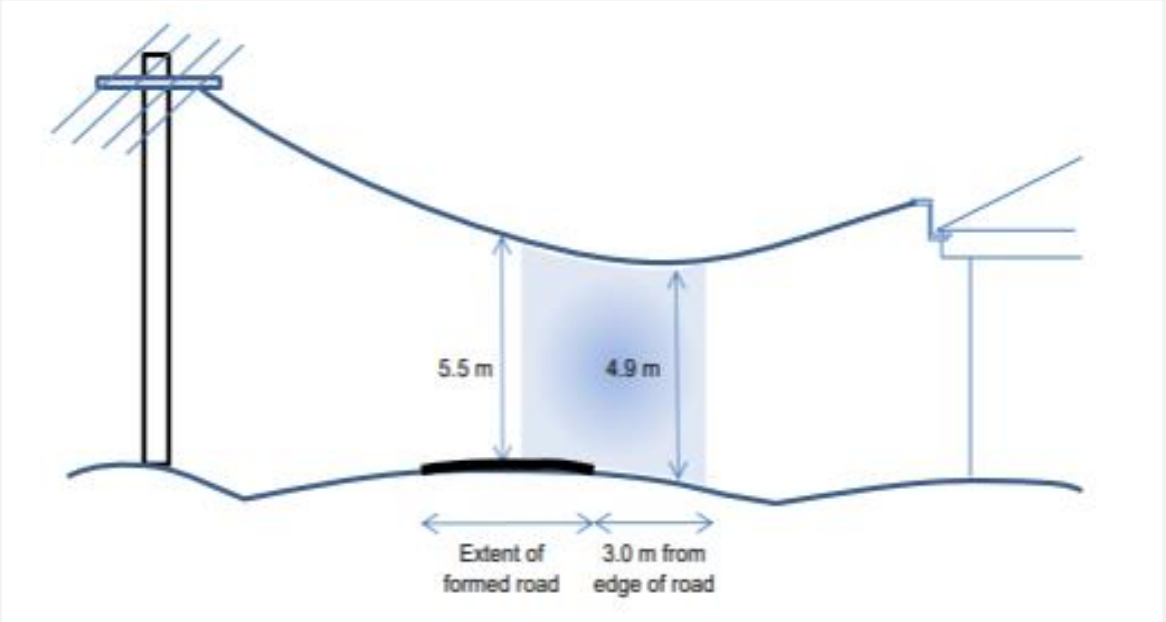


Diagram of clearances for overhead services over roads with unmade edges

8.7 Overhead service near swimming pools

Overhead lines shall be designed such that the distances between conductors and existing swimming pools are not less than those specified in table below.

Swimming pools shall not be installed closer to overhead lines than the distances specified in table below.

Dimension	Location	Insulated Service	
		Option 1	Option 2
		M	M
A	Horizontal distance from pool edge to closest conductor	3.5	1.5
B	Distance from nearest conductor to any point on the ground within the fenced pool area	4.6	6.5

Select one of the two options for insulated service wires.
Interpolation is not permitted.

An overhead service must not cross a swimming pool.

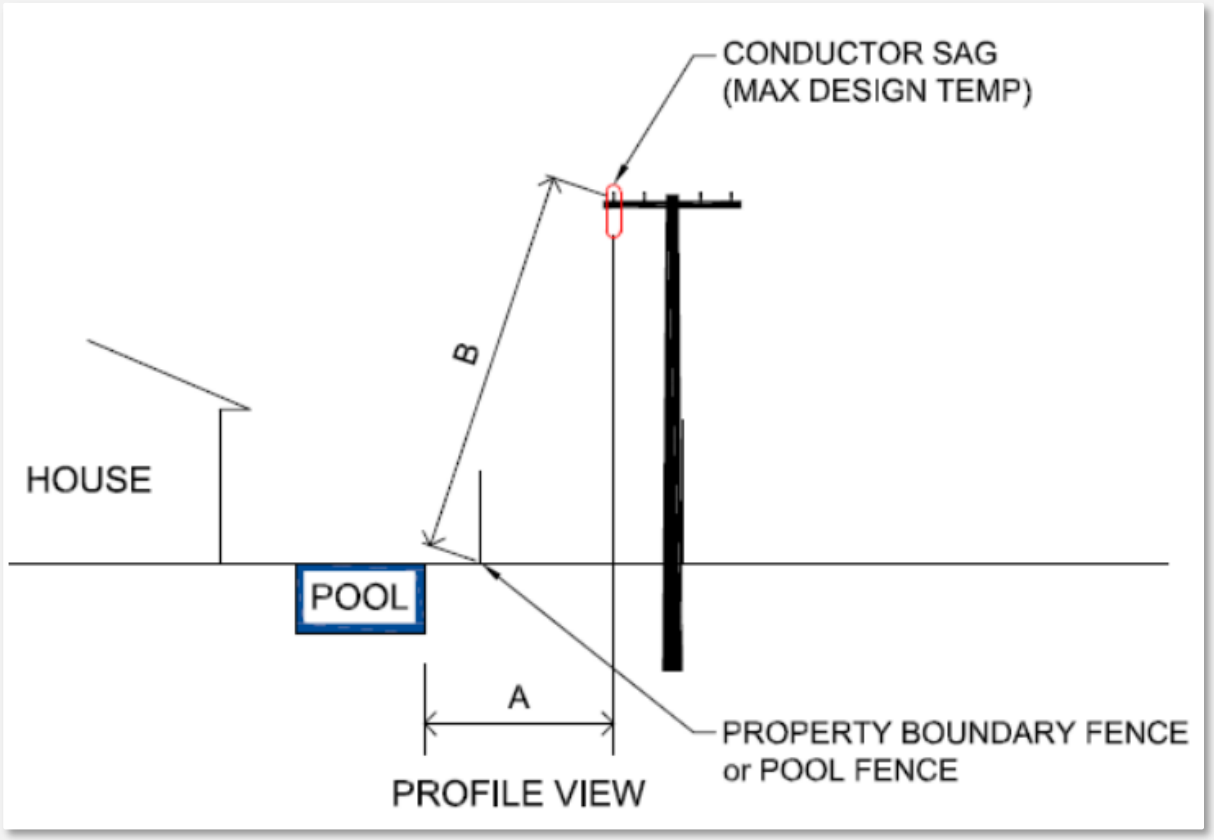


Diagram of clearance between swimming pools and overhead distribution lines

NS220 Cl:10.10

8.6 Connection of bare private LV aerial mains

Customers **must not** install new or replacement bare private aerial mains or reconnect existing disused bare private aerial mains unless specific approval has been given by Ausgrid.

For more information, refer to ES1-Premises Connection Requirements.

ES1 Cl:3.9, NS124 Cl:8.5

8.7 Connection to concrete distributor poles

LV Service wires are to be insulated from the pole with an 11kV longrod insulator attached to the service take off bolt.

NS125 Drawing 565720

8.8 Low Voltage Links

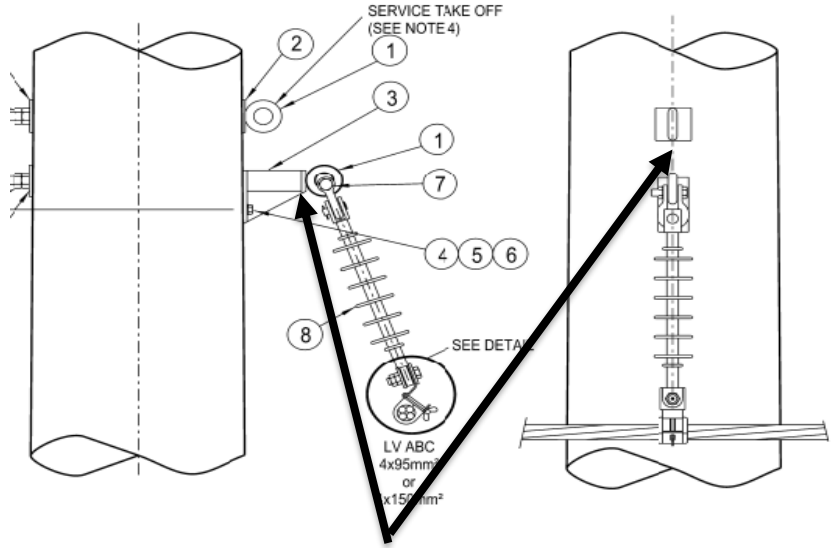
Where an **overhead service** is to be connected to a pole with a link or open point, the connection of the terminated service (electrically) must be indicated on the NOSW (i.e. which side of the links supplies the new service).

Where an ASP cannot determine the supply side of the LV links, this should be indicated on the NOSW.

ES4 Cl:10.4.2

Image of Low voltage links

When indicating what side of the link the overhead service is terminated to, indicate in reference to the North point direction. i.e. (East, West, South, North) side of link.



Service Take-Off point for conductive poles

Diagram of connection requirements to Concrete Pole, plus 11kV longrod Insulator.

Overhead service cable requirements

8.9 New installation requirements

New installation requirements for overhead services are covered in Section 3 of the Service and Installation Rules of New South Wales and Ausgrid Network Standard NS124 - Specification for Overhead Service Connections up to 400Amps.

ASP2s must familiarise themselves with these documents regarding cable types, connections, clearances, accessibility, strength ratings, pole sizing and depth of sinking and all other applicable requirements.

All materials used for the overhead services must be selected from the Ausgrid Approved Material List NS181.

Refer to Annexure A - Stock codes of Approved Items within NS124 for tables of approved materials.

- All new and replacement Overhead services must be constructed using new materials only.
- Use of second hand or used service cable is not permitted.

Overhead service cables must:

- be of uniform construction between the connection point and point of supply.
- not contain joints.
- not be colour cored multicore.
- For services up to 100Amps, a weak link (S-hook) is required between the service termination clamp and the pole.
- Services shall attach directly to the distributor pole where clearances can be maintained. Attachment to the cross arm is only permitted where clearances cannot be maintained if attached to the distributor pole.

Number of Phase	Nominal Load	Cable No./Size/ Type
1	100A	1 x 25 mm² Two Core Stranded Aluminium XLPE Insulated
2	100A	1 x 25 mm² Four Core Stranded Aluminium XLPE Insulated
3	100A	1 x 25 mm² Four Core Stranded Aluminium XLPE Insulated
	200A	1 x 95 mm² Four Core Stranded Aluminium XLPE Insulated
	400A	2 x 95 mm² Four Core Stranded Aluminium XLPE Insulated

NS124 Cl:7.2, Table 1

Service connections at Point of common coupling (Distributor mains)

8.10 Service connections at Point of common coupling (Distributor mains)

All Overhead Service Mains Work shall be carried out in accordance with the Service and Installation Rules of NSW and applicable Network Standards. The following items must be adhered to whilst performing contestable connections.

Weather loops are **NOT** to be installed at the connection point on the distributors.

Ausgrid requires the use of weak links on all distribution end terminations for 100Amp services.

Note: Direction of pull of the overhead service line should not be less than 45 degrees with respect to the hook.

Overhead service connections must be fully removed from the overhead mains when services are disconnected.

Redundant hardware resulting from service work that is carried out on Ausgrid poles must be removed from the pole. This includes shackles, line taps, insulators, service clamps and cabling.

NS124 Cl:7.6, 8.2, 8.3, 8.4

8.10 Service connections at Point of common coupling (distributor mains)

All Overhead Service Mains Work shall be carried out in accordance with the Service and Installation Rules of NSW and applicable Network Standards. The following items must be adhered to whilst performing contestable connections.

When **overhead services** are disconnected from LV ABC mains the service cable tails must be suitably terminated/capped with an approved heat shrink or cable end cap.

Overhead service cables must be disconnected from the overhead mains and fully removed.

Coiling up and attaching to pole is not permitted.

Deteriorated insulation and conductor damage to XLPE Service cables.

If found in service, please report immediately to Ausgrid via the **Emergency Line 13 13 88**.

Insulation (UV damage-White section) to XLPE Service cables.

If found in service, please report immediately to Ausgrid via the **Emergency Line 13 13 88**.

Neutral and active connections on distributor mains

8.11 Neutral and active connections on distributor mains

All **neutral conductor connections** must be made utilising double bolt neutral connectors as shown on the standard construction drawings. For ABC mains, we use 2 separate single-bolt IPCs, for bare mains we use a single connector with 2 independent bolts.

Connectors are to be installed as per the manufacturer's instructions. It is important to note that the connectors are intended to be used as single use only and are not intended for reuse. A **new connector** must be used each time a connection is to be remade.

NS124 Cl:8.0, NS181

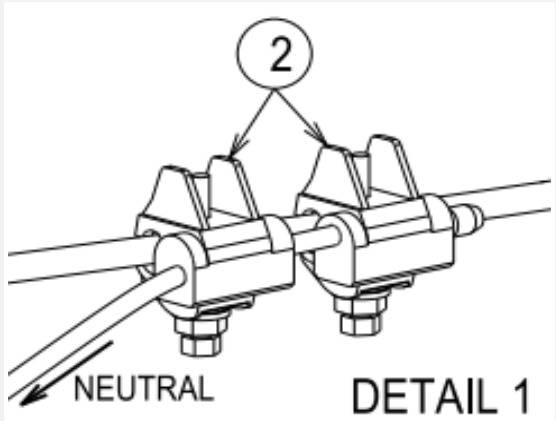


Diagram of ABC Mains Neutral Connection Requirements

Example of ABC Mains Neutral connector Stock code 73593/143891

Example of Copper Mains Connector Stock code H109694

Example of Aluminium Mains Connector Stock code 175051

Example of Bare Aluminium Distributor Mains double Neutral connector Stock code 182904

Example of Bare Copper Distributor Mains double Neutral Connector Stock code 182905

Additional requirements for Aerial Bundled cables

8.12 Additional requirements for aerial bundled cable (ABC)

To **prevent corrosion of the aluminium conductor** and maintain the fully insulated system, it is essential that the XLPE insulation has no holes. Any piercing holes left from G-Clamps (for test lamps) or from connectors, workers should use mastic tape (S/C: 69807) for reinstating insulation and preventing moisture ingress. A single layer is sufficient for holes left by G-Clamps, or 3 layers half-lapped for other damage. (Electrical tape is not suitable)

End cores on Aerial bundled cable (ABC) not terminated within a sealed connector must be sealed with approved heat shrink or cable end cap.

- END CAPS -Push on 25mm^2 - Stock code H109447
- END CAPS- Push on 95mm^2 and 150mm^2 – Stock code H77222

8.13 LV ABC piercing connections

The following requirements must be adhered to when using IPC connectors.

- Piercing connections shall not be made under electrical load.
- IPCs are single use components and shall never be reused.
- IPCs shall not be used for sealing holes left by other piercing connectors or test devices.
- IPCs shall be installed in accordance with the manufacturer's instructions In addition to the tools specified by the manufacturer.

NS124 Cl 8.4, NS125 Cl 5.11

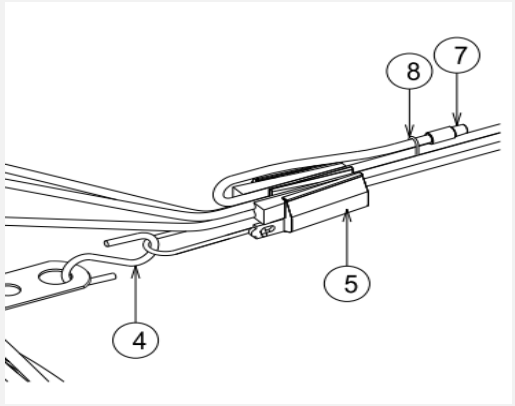


Diagram of End Cap on LV ABC Service Mains

Image of End Cap

Image of Core Separator LV ABC

Image of Cable Test Point LV ABC

Service connections at Connection Point (Customer Side)

8.14 Installation requirements

The **overhead service wire** must be installed in accordance with the Service and Installation Rules, on the customers premises, and maintain the correct height, clearances, method of attachment and structural integrity of the point of attachment/private poles.

8.15 Structural requirements of an Overhead service support

Overhead Service supports provided at the customer's point of attachment must satisfy the strength requirements prescribed in **Section 3.7.6 of the Service Rules**.

All anchor bolts shall be installed in such a manner as to transfer the load to a structurally adequate portion of the building otherwise approval from a structural engineer is required.

NS124 Cl:8.8 NSWSR Cl: 3.7.6

Image of types of Point of attachment brackets

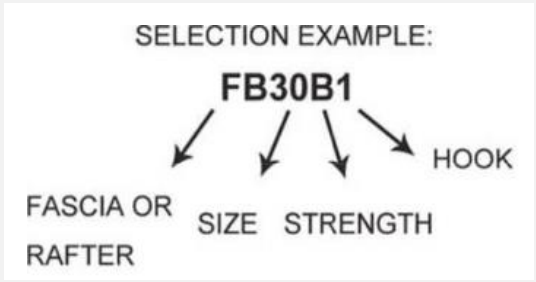


Image of Bracket Type Description

Choosing a bracket: Refer to NSW Service and Installation Rules NSW Figure 3-8 for description and Table 3-7 for strength.

8.16 Private poles

When installing a private post or pole, it must be appropriately sized and strategically located to eliminate the need for an additional electricity distributor's pole in the street. Refer to Section 3 of Service and Installation Rules of New South Wales for private pole requirements.

NS145 Annexure M – NS145 Private Poles in Ausgrid's Franchise Area provides information about private poles that are commonly found in the Ausgrid franchise area.

This information may be useful in differentiating between Ausgrid poles and private poles.

NSWSR Cl:3.7.2

Image of Private poles installation on street

8.17 Neutral bonding at Overhead service support bracket

Neutral conductors in service cables are **NOT** permitted to be bonded to service supports (metallic or otherwise) in new installations. Where a service cable is being replaced, all conditions of **clause 3.1.5 of the Service Rules** shall apply.

NS124 Cl:8.6

Image of Service Cable Neutral cable bonded to metallic point of attachment bracket

8.18 Bargeboard fuses

At premises where bargeboard fuses are to be installed or replaced, **Sicame PFV100 series fuse units** are currently approved for use.

It should be noted that a **Sicame HSC435 (or equivalent) connector** and 1m cable assembly must be installed in conjunction with the fuse unit to create a Connection Link.

The **bargeboard fuse unit** shall be secured via an approved bracket and connected in accordance with the manufacturer's instructions.

NS124 Cl:8.4, 8.7

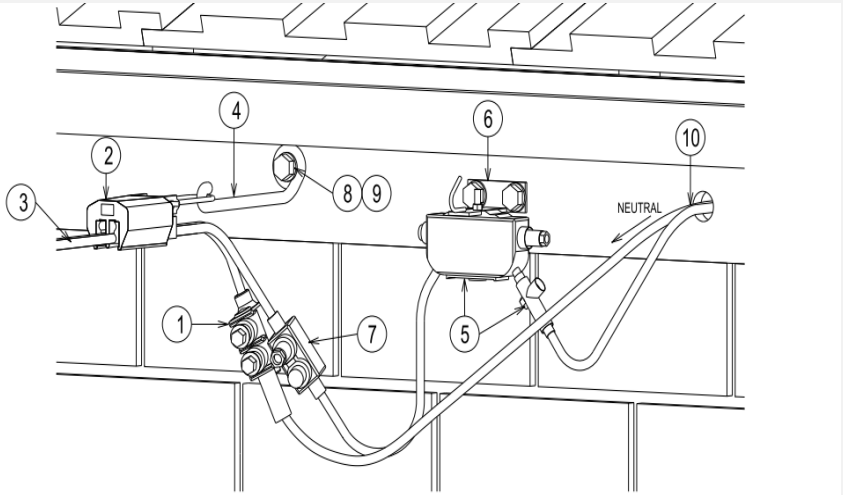


Diagram of Bargeboard Fuse Installation Details

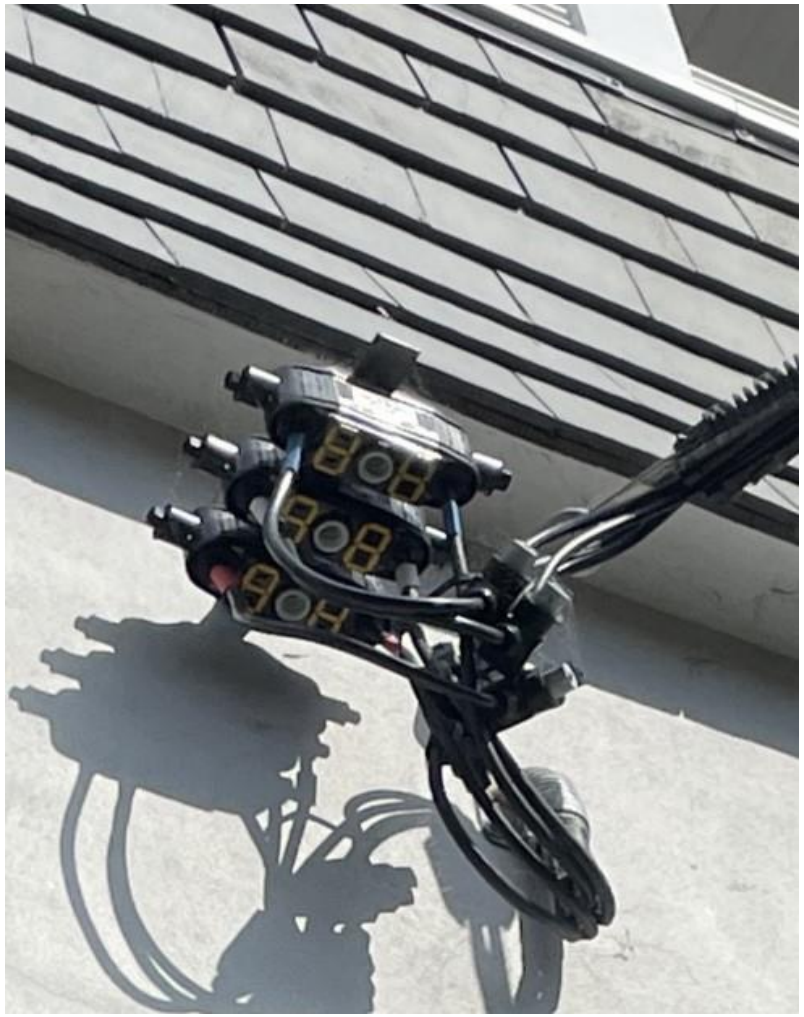
NS124 drawing No. 233215

Image of Sicame PFV100 series fuse unit

Image of Switch disconnect, 100A, 6-95sqmm to 1.5-25 water blocking connector pre-installed – PFV100695WB

8.19 Bargeboard fuse unit material list

No.	Description	Stock code
1	Connector - Splice for neutral phase, 6-25 Al/Cu insulated service	182906
2	Clamp - Cable strain 2-4 Core 6-25mm²	H102491
3	Cable - 2x25mm² Al ABC XLPE	H109298
4	Eyenut - m12, extended, galvanised Hook - Q type, extended, drg : 117807/1	H39281 128934
5	Fuse - Sicame pfv100 695 WB (or equivalent)	-
6	Bracket - Fuse mounting (Sicame or equivalent)	-
7	Connector - Sicame HSC435 ce-16+cable	-
8	Bolt - M12, galvanised, length to suit	-
9	Washer - Flat, m12, galvanised	177982
10	Consumer Mains	



8.20 Neutral and Active Connections on Consumer mains

All **neutral conductor connections** must be made utilising double bolt neutral connectors.

Connectors are to be installed as per the manufacturer's instructions. It is important to note that the connectors are intended to be used as single use only and are not intended for reuse.

A new connector must be used each time a connection is to be remade. NS124 Cl:8.9 , Annexure A

Flexible multistranded conductors are unsuitable for termination into these connectors.

Image of flexible multistranded conductor

Neutral Connectors

Examples of Neutral Connectors – Stock code 182906

Active Connectors

Examples of Active Connectors – Stock code H109686

8.21 Main Connections Boxes

Old-style Mains Connection Boxes (MCBs), as illustrated below, were previously used in certain areas of Ausgrid's network to establish the 'point of supply'. This point marks the connection between:

› Ausgrid's overhead service mains.

› The consumer's mains of a customer's installation.

The **MCB is considered part of the customer's installation** and typically located at the front of buildings, near the Point of Attachment for either:

› Overhead service mains, or

› Overhead consumer's mains.

8.22 Risk associated with old-style mains connection boxes (MCBs)

› **Arc Exposure Risk:** Due to deterioration, old-style MCBs pose a significant risk of arc exposure to workers who remove the cover or perform any work on the MCB while the overhead service mains are energised.

› **Essential Controls:** To mitigate this risk, workers must adhere to the following safety protocols:

- **Isolation:** Electricity supply to an old-style MCB must be completely isolated before removing the cover.
- **De-energisation Verification:** Once the cover is removed, all exposed conductors within the MCB must be verified as de-energised before any further work is performed.

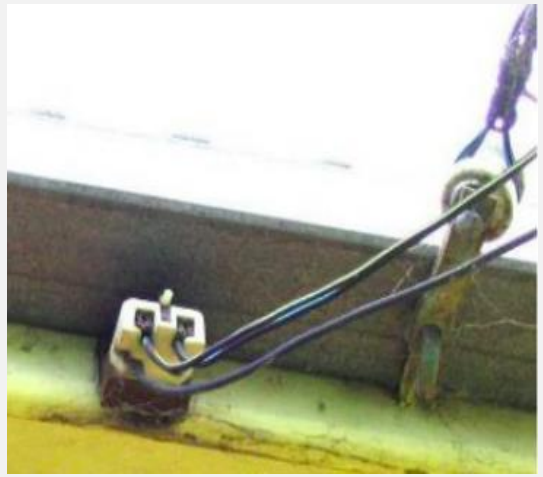


Image of Mains Connection Boxes and where they can be located

Overhead Service requirements up to 200Amps

8.23 Overhead service requirements up to 200Amps

All **services and consumers mains rated above 100Amps** must be inspected prior to energising.

Where individual circumstances preclude this from occurring, prior written approval must be obtained from the Service and Installation Compliance office for each occasion.

Overhead service greater than 200Amps will require additional requirements, please refer to the **Service & Installation Compliance** for further information.

NS124 Section 7, ES1 Cl:6.1,6.2 ES4 Cl:10.2.3 NS181

8.24 Cable Requirements

Description	Stock Code
2x95mm^2 LV ABC	H78279
4x95mm^2 LV ABC	67959

8.25 Active and Neutral Connections on Distributor mains

All **neutral conductor connections** must be made utilising double bolt neutral connectors.

Connectors are to be installed as per the manufacturer's instructions. It is important to note that the connectors are intended to be used as **SINGLE USE ONLY** and are not intended for reuse.

A new connector must be used each time a connection is to be remade.

NS124 Annexure A,8.9 Drawing 168790

Example of Connector Stock code 73569

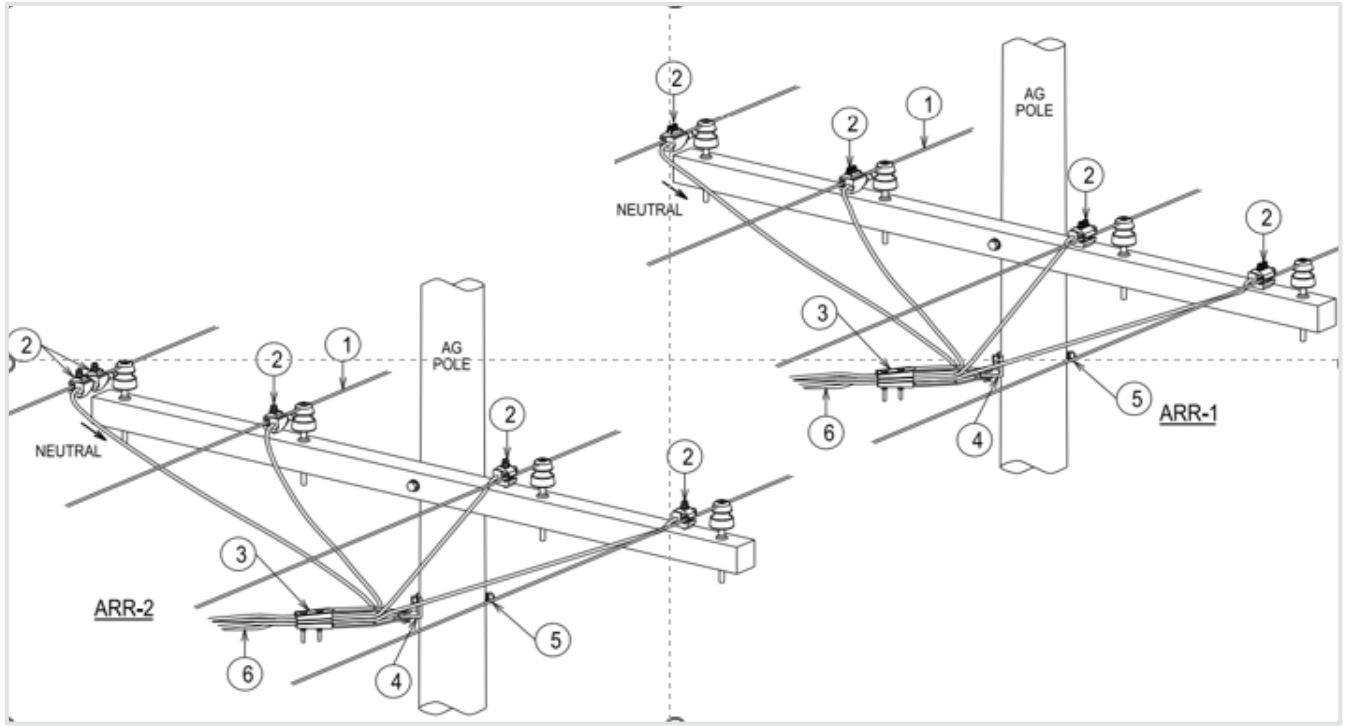
Example of Connector Stock code 176580

Example of Connector Stock code 73593

8.26 Standard construction 200Amp Service to Bare Mains

Material list

No.	Description	Stock Aluminium – ARR-1	Stock Copper- ARR-2
1	Conductor - Bare wire overhead	-	-
2	Connector -Bare mains/IPC	73569	176580
3	Clamp - Strain clamp 2-4 core 95mm² ABC	176652	176652
4	Termination bracket - right angle, galvanised	66571	66571
5	Bolt & nut - M20, galvanised (length to suit)	TBA	TBA
6	Service cable - 4x95mm² Al XLPE ABC	67959	67959

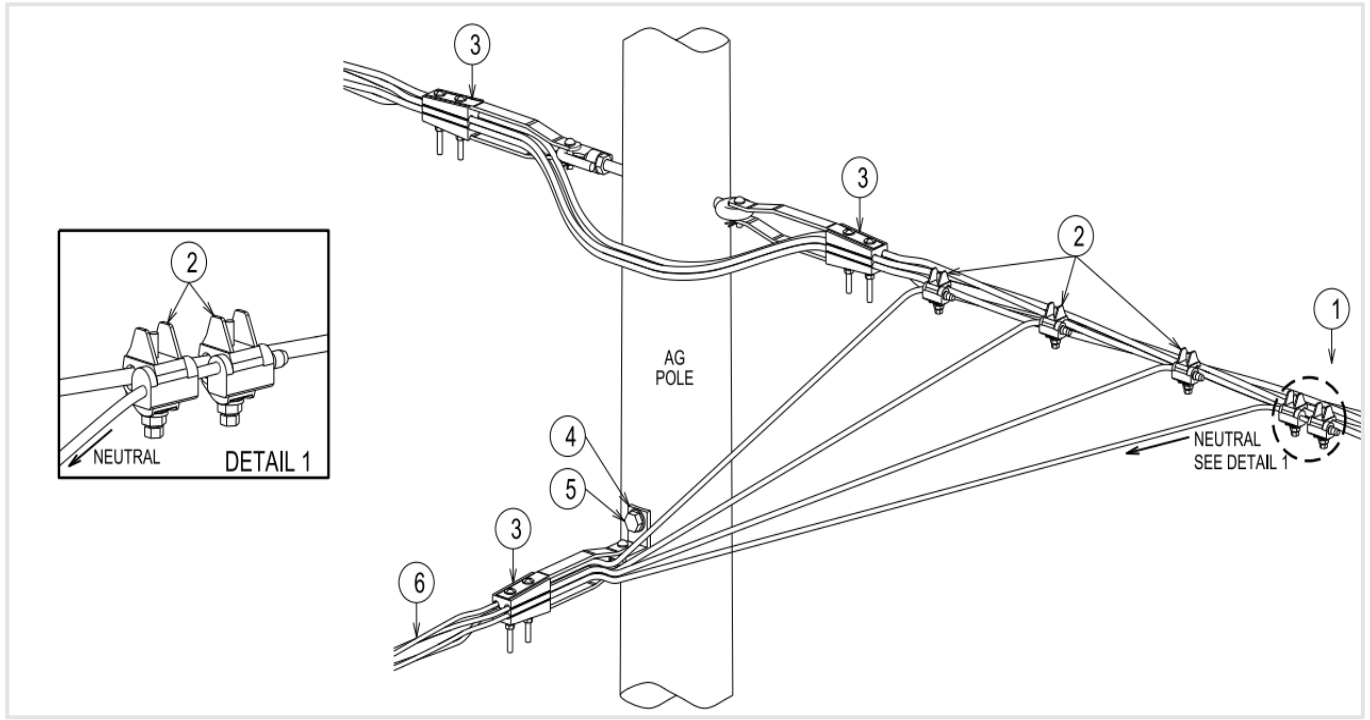


Refer NS124 Drawing #168790-APR-2- Copper distributor mains - APR-1- Aluminium distributor mains.

8.27 Standard construction 200Amp Service to LV ABC Mains

Material list

No.	Description	Stock 95mm²	Stock 150mm²
1	Mains Cable - 4 Core 95/150mm² XLPE ABC	67959	TBD
2	Connector - IPC 95-25/ 150-95mm²	73593	143891
3	Clamp - Strain clamp 2-4 Core 95mm² ABC	176652	176652
4	Termination bracket - right angle, galvanised	66571	66571
5	Bolt & nut - M20, galvanised (length to suit)	TBA	TBA
6	Service cable - 4x95mm² AL XLPE ABC	67959	67959



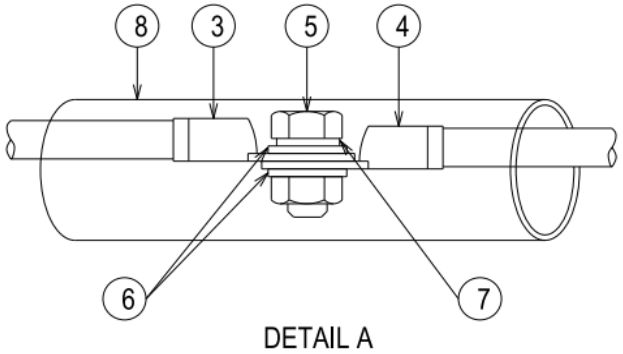
Refer NS124 Drawing #168793.

8.28 Active and Neutral Connections on Consumer Mains

For **services greater than 100 Amps**, connections at the point of attachment shall be made using M12 x 35mm stainless steel bolt, nut and washer assemblies and heat shrink insulation kit.

NS124 Cl: 8.4(b), 8.9, Annexure A, Drawing 162009

No.	DESCRIPTION	STOCK	QTY
1	CABLE - 4x95mm² AL ABC XLPE	67959	A/R
2	CLAMP - CABLE STRAIN 4 CORE 95mm² XLPE	176652	1
3	EYELUG - 95mm² ABC	58743	4
4	EYELUG - CUSTOMER CABLE	TBD	4
5	BOLT - M12x35mm, HEX, STAINLESS STEEL	45021	4
6	WASHER - M12, FLAT, STAINLESS STEEL	49429	8
7	WASHER - M12, SPRING, STAINLESS STEEL	143859	4
8	HEATSHRINK - SLEEVE(AS PER KIT STOCK CODE 90324)	TBD	4
9	EYEBOLT - M16/M20, LENGTH TO SUIT	N/A	1
10	POLE - STEEL, CUSTOMER(AS PER SERVICE & INSTALLATION RULES OF NSW)	-	1
11	CONSUMER MAINS	-	1



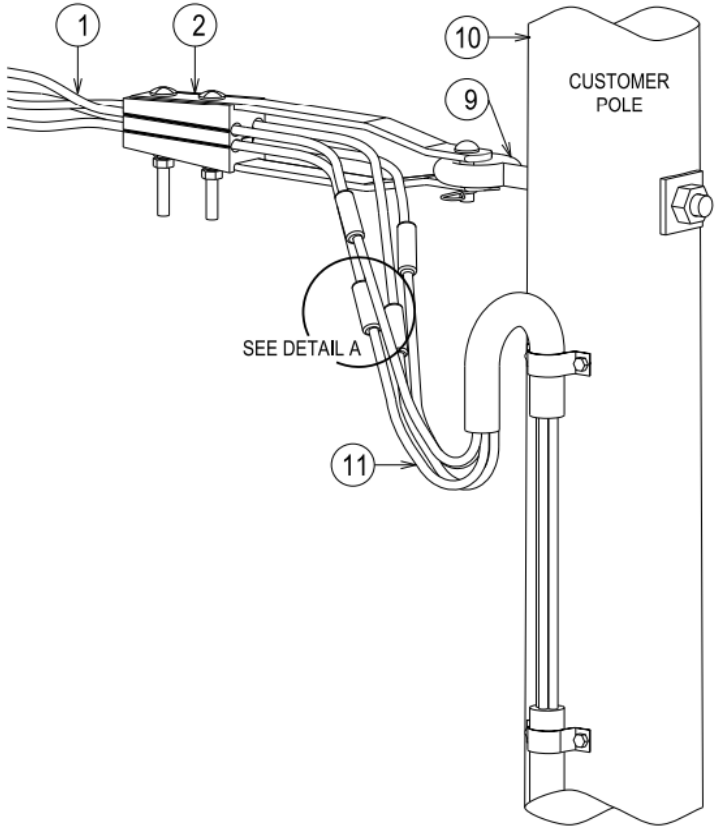


Image of 200Amp 3 Phase connection at Customers Pole A –Refer NS124 Drawing #162009

Image of 200Amp Service connected via IPC's

Image of 200Amp Service connected via Bolt and Lug

Before installation of each stainless-steel bolt, the thread shall be lubricated with specially formulated anti-seize grease containing nickel which is available on Ausgrid stock code 177212.

Suspended and Mid-span service requirements

8.29 Suspended/Mid-span services

A suspended or mid-span service is only permitted as a last resort.

The ASP must obtain written approval from the Service & Installation Compliance group before erecting this type of service. Ausgrid may require a site inspection prior to granting approval.

8.30 Mid-Span Installation Criteria

Where Ausgrid grants written approval for the installation of a mid-span service, and the low voltage distribution mains are of LV ABC construction, the following criteria must be followed:

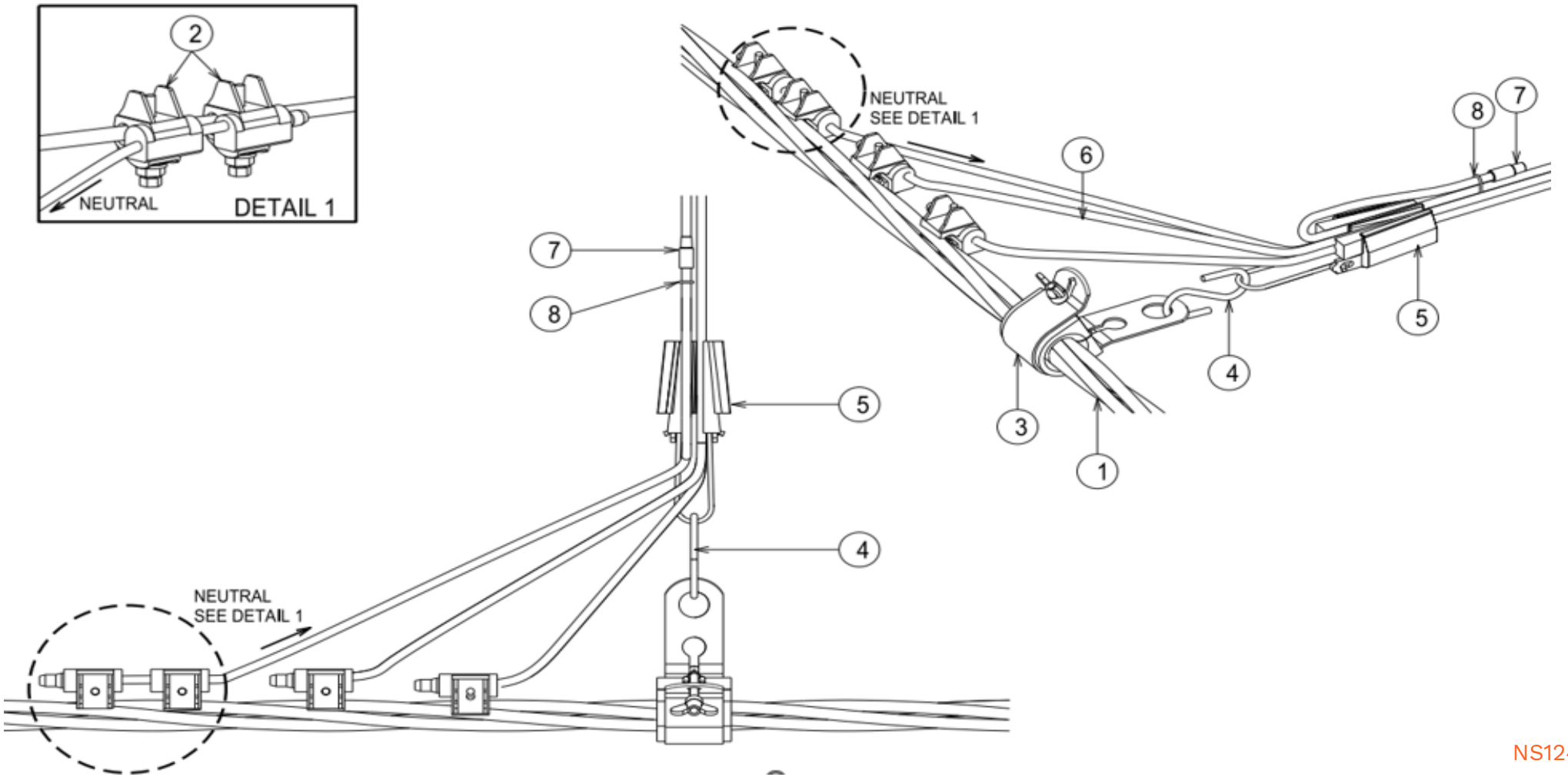
- Mid-span services shall supply properties on the same side of the street as the distribution mains.
- Mid-span services are only permitted for connections of 100Amps or less.
- Mid-span services shall not exceed 20 metres in length.
- Mid-span services shall not be used on spans exceeding 45m in length between distribution poles.
- The angle between the mid-span service and the distributor mains shall be as close to 90° as possible.
- Mid-span services shall not cross other service lines.
- Mid-span services may terminate on a customer's private pole.
- Mid-span services shall maintain required clearances from overhead services to ground, structures and communications services and vegetation.
- Refer to **NS124 Technical drawings 152476, 167458, 152477 for installation requirements.**

Where open wire distribution mains exist and no alternative options are available, written approval must be obtained from Ausgrid to install a suspended service. This installation must comply with the specifications outlined in NS124 Drawing #192104 . All relevant mid-span installation criteria must be followed.

8.31 Mid-Span material list

No.	Description	Stock 95mm²	Stock 150mm²
1	Mains cable - 4 core 95/150mm² XLPE ABC Connector	67959	TBD
2	Connector - IPC 95-25/ 150-95mm²	73593	143891
3	Clamp - Cable suspension	63057	148072
4	Link - Weak connecting	H18976	H81976
5	Clamp - Strain clamp 2-4 core 6-25mm²	H102491	H102491
6	Service cable - 4x25mm² XLPE, 4 core	H109280	H109280
7	End cap - 25mm² Push on	H109447	H109447
8	Cable tie	TBD	TBD

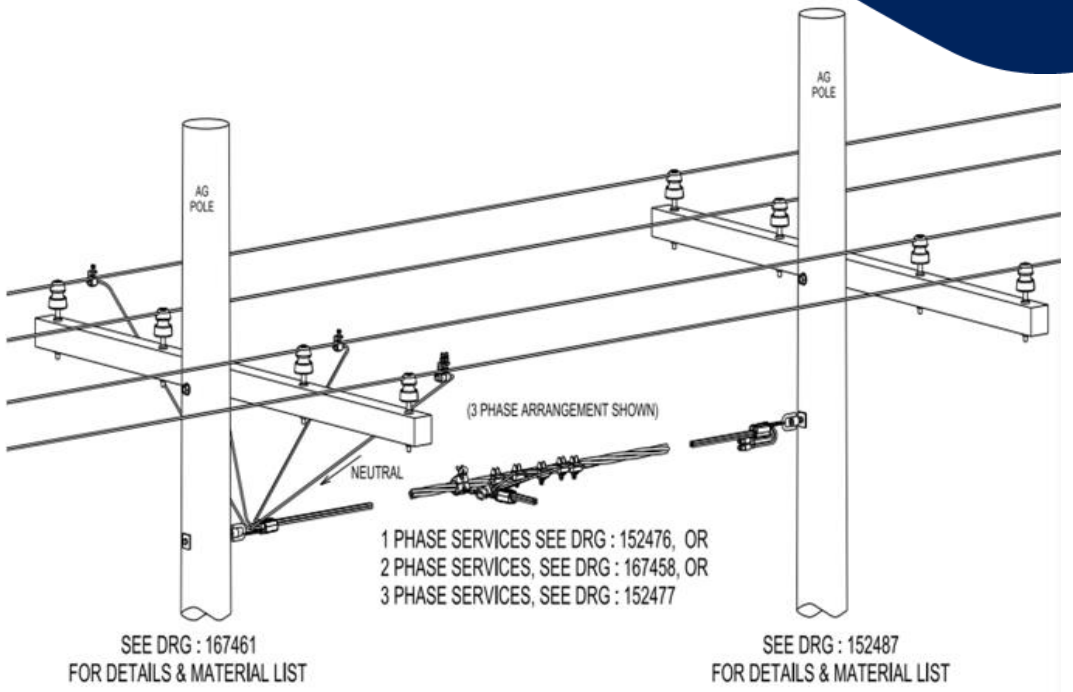
8.32 Mid Span to LV ABC Distributor diagram



NS124 Cl:7.3, 8.9

8.33 Examples of Suspended/Mid-span services

Images of Mid-span service from LVABC mains



Images of 100Amp open wire mains suspended in span service

Lead-in poles

8.34 Criteria when connecting a new overhead or a new underground to overhead (UGOH)s service mains

Overhead mains installed between the distributor pole and lead-in pole (road crossing pole) are classified as distributor mains conductors.

ASP2s are not permitted to alter, modify, remove or replace distributor mains conductors under their level 2 Authorisation.

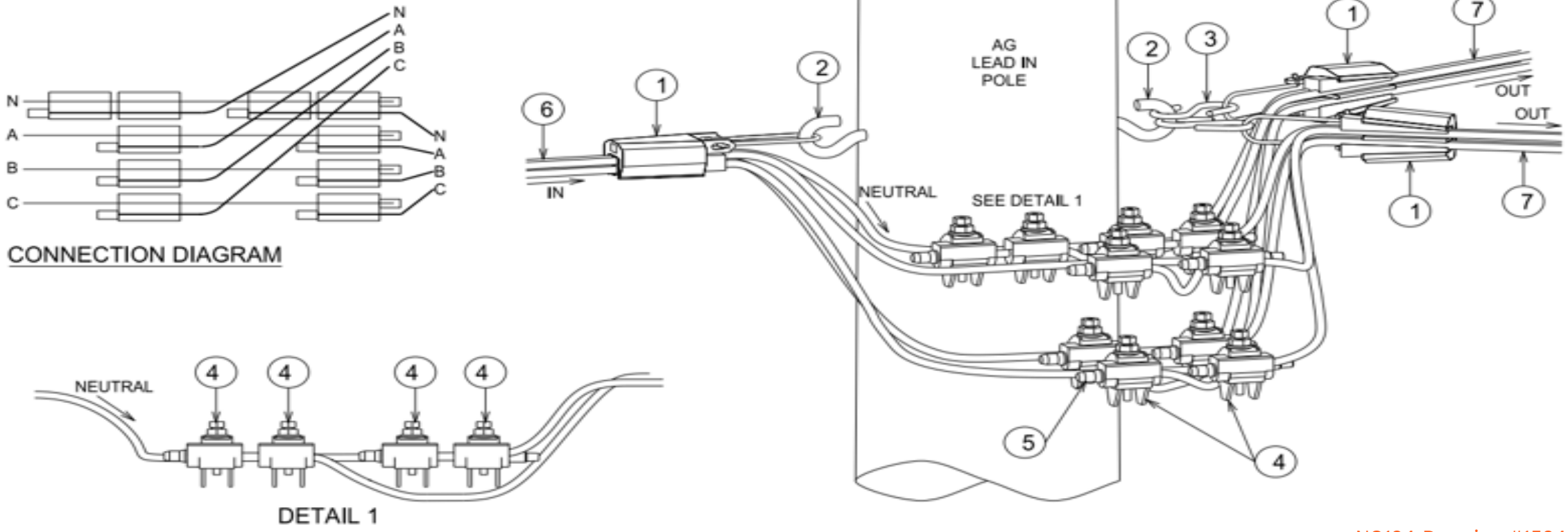
The following criteria must be followed when utilising a lead-in pole to connect a new overhead or a new underground to overhead (UGOH) service for a customer's premises.

- The distributor mains conductors installed between the distributor pole and the lead-in pole must be a minimum of 25mm² aluminium insulated XLPE conductor construction.
- The loading of the new overhead service line on the lead-in pole shall not exceed the design capacity of the lead in pole.
- Underground to overhead (UGOH) service line connections to a lead-in pole shall be installed as per the Service and Installation Rules and **NS124**.
- The customer's premises connecting to the lead-in pole shall be on the same side of the street as the lead in pole.
- The new overhead service line shall not cross or encroach an adjoining property boundaries.
- New overhead services shall not be connected to defective lead-in poles.
- No more than 2 customers per phase shall be connected to a lead-in pole.
- Lead-in poles owned by other utilities shall not be used to connect new or upgraded service line conductors.

Material list

No	Description	Stock
1	Clamp - Cable strain 4 core 25mm² ABC	H102491
2	Hook - Coach screw M12x146	H75697
3	Link-Weak connecting	H81976
4	Connector - Splice, 25-95mm² LV ABC/6-25mm² Al/Cu, Insulated service, insulation piercing	73593
5	Endcap - Push on 25mm²	H109447
6	Cable in - 4x25mm² AL XLPE ABC, 4 Core	H109280
7	Cable out - 4x25mm² AL XLPE ABC, 4 Core	H109280

8.35 Diagram of connections at lead-in pole



NS124 Drawing #152489

8.36 Lead-in pole examples

8.37 Permissions and requirements

A new service line connection between a private Pole A and an Ausgrid road-crossing pole is **not permitted**. The service line must be connected between the Pole A and the distribution mains located across the road in accordance with the Service and Installation Rules of NSW.

Due to installation requirements, and on a case-by-case basis, **Ausgrid will in certain circumstances permit the connection of an overhead service between a private Pole A and an Ausgrid road crossing pole**. The ASP must get **written approval** from the Service & Installation Compliance group prior to erecting this type of service.

Image of Private pole A supplied via road-crossing pole

Image of Private pole A supplied via distribution mains pole

Connections to Pole Mounted Substations

8.38 Options to avoid PT connections

ASP2 contractors are not permitted to work on or perform connections at pole transformers (PT's). New or upgraded service connections at pole transformers are only permitted where there are no reasonable alternatives. Where installation of a **mid-span service is permitted**, to negate the connection of the overhead service wire to a distributor pole supporting a PT transformer, please refer to mid-span installation criteria.

ES1 Cl:3.6, ES4 Cl:10.2.3.1, NS124 Cl:7.5

New Private pole installed and connected via mid span service where LV ABC distribution mains exist.

(MSWD outlined within the Electrical Safety Rules must be maintained)

Refer to 8.30 for midspan installation criteria.

Mid span connected service where LV ABC distribution mains exist installed to customers Point of Attachment bracket.

(MSWD outlined within the Electrical Safety Rules must maintained)

Refer to 8.30 for midspan installation criteria.

Where LV ABC mains do not exist

ASP2 contractor must contact Service support to arrange Ausgrid to perform the connection. The ASP2 must provide the service cable for the connection.

The ASP2 must submit a Notification of Service Work form (NOSW) for the connection to a PT pole.

Please allow sufficient time for connection.

Specials small service overview

Ausgrid sets specific guidelines for Special Small Services (SSS) and Permanent Unmetered Supplies (PUMS), which fall under Type 7 unmetered installations. The following outlines the key requirements for these:

As a general rule, **loads must not exceed 10Amps (2.4kW) single-phase from one Network Point of Common Coupling**. Additional specific approval will be required from Ausgrid for loads that exceed 10Amp single phase.

A new application must be submitted for each new or alteration of an existing PUMS installation.

PUMS Device Information: Prior to submitting an application, customers must provide Ausgrid with details of each PUMS device proposed for connection to the Ausgrid Network. This information should be submitted to the following email address: pums@ausgrid.com.au.

Customers must supply device specifications upon request. This includes:

- Total operating wattage
- Voltage
- Current
- Power factor

ES1 Cl:3.13,3.13.1, 3.13.2, NS183 Cl:6.6,7.5

9.0 Special small service installation requirements

Ausgrid Special Small Services (SSS)/Permanent Unmetered Supplies (PUMS) 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 Network Standard NS183 Installation of Private Attachments on Ausgrid Poles
- Ensure that PUMS installations can be fitted with an inspection label for compliance verification.

NS183 Cl:6.6, 7.0, 7.5

Image of SSS and PUMS supplies

Specials small service installation requirements

9.1 Securing attachments to timber poles

All attachments, other than telecommunication equipment, on timber poles shall be:

- **Secured** using galvanised steel clout nails or coach screws, driven their full depth into the pole.
- Exceptional care must be taken when drilling holes in CCA treated poles to avoid contact with the toxic dust or fumes.
- **No holes are allowed** to be drilled within 150mm of another hole, and attachments cannot be made above pole steps such that their use is impeded.
- **Steel band clamps** must not be used to secure attachments to timber poles

9.2 Securing attachments to 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.

9.3 Earthing

The earth electrode may be located:

- Adjacent to the electricity distributor's pole, in a customer's pit (containing the connection point termination box or a separate pit), or
- Within or adjacent to the structure being supplied. If within the structure the connection must be accessible from an inspection cover.

9.4 Underground Services for Permanently Unmetered Supplies

For **underground PUMS** services to be terminated within a private pit, the following conditions must be met:

1. The installation **must comply** with all relevant Service and Installation Rules of New South Wales and AS/NZS 3000 Wiring Rules requirements.
2. A **private pit of suitable ingress protection rating and construction** must be used.
3. **Terminations must be made** by an appropriately qualified and authorised person.

Image of Earth Pit

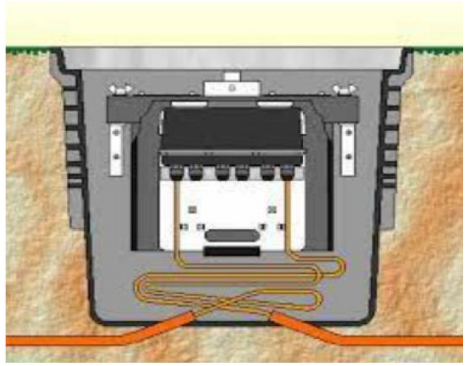


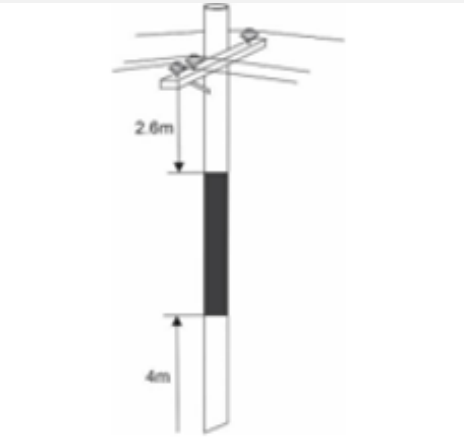
Image of PUMS Private Pit

Private attachment equipping zone

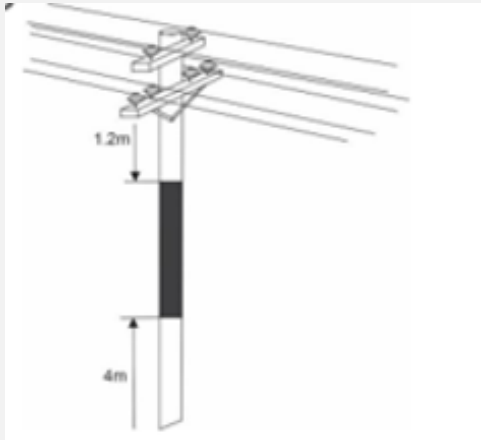
9.5 Private attachments

Private attachments **must be** positioned to maintain satisfactory clearances from telecommunications broadband service cables (where installed) and overhead mains. Images shown here for reference.

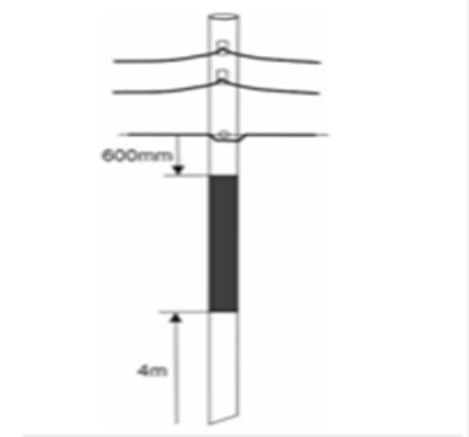
NS183 Cl:7.4.2



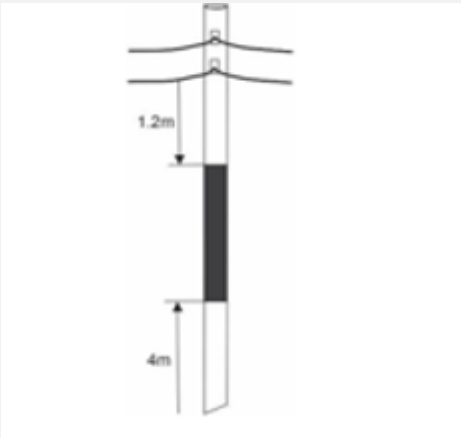
Pole supporting bare HV mains only



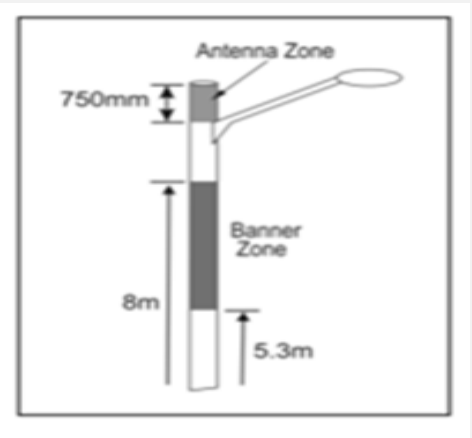
Pole supporting bare HV and or LV mains



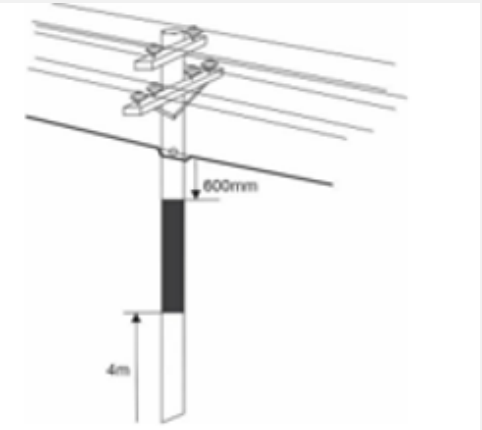
Pole supporting LV ABC mains and single or double broadband cables



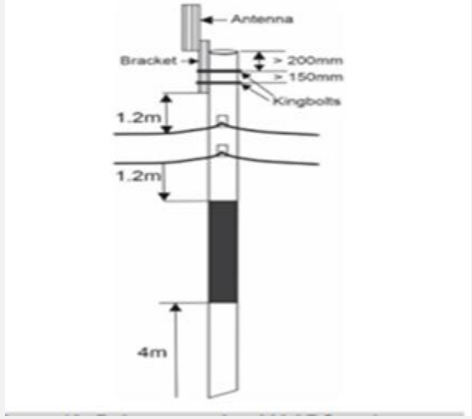
Pole supporting HV and/or LV ABC mains



Lighting column supporting a banner or microcell antenna



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



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

Kiosk substation overview

10.0 Kiosk substations

ASP2s **are not authorised** to pull the consumers mains into the substation or terminate the consumers mains within chamber or kiosk substations.

Only persons holding Class 1B and Class 1C Authorisation are permitted to terminate cables in Ausgrid substations.

In instances where an electrical contractor or a Level 2 Accredited Service Provider (ASP2) is involved, the responsibility to supply and install consumer mains is **limited to leaving the cables coiled** at an accessible location near the substation, as designated by a Level 1 Accredited Service Provider (ASP/1) or by Ausgrid.

Note: Electrical contractors and ASP2s are reminded to take extra care and avoid machine excavation when excavating in the vicinity of substations to avoid damaging the substation earthing or other cables. The requirements of Ausgrid's publication **NS156 Working Near or Around Underground Cables** and **NS141 Site Selection and Site Preparation Standards for Kiosk Type Substations must be followed**.

ES4 Cl: 15.0

Image of Kiosk substation

Substation direct distributor

10.1 Substation direct distributor

A direct distributor is classified as a cable that is allocated within the electricity footway allocation on public land, supplied directly from a kiosk substation as per below figure.

The supply availability from a direct distributor and the route length permitted for a direct distributor will be as determined by the ASP3 design.

NS112 Section 5, NS110 Section 3 NS112 Cl:5.2, NS110 Table 2

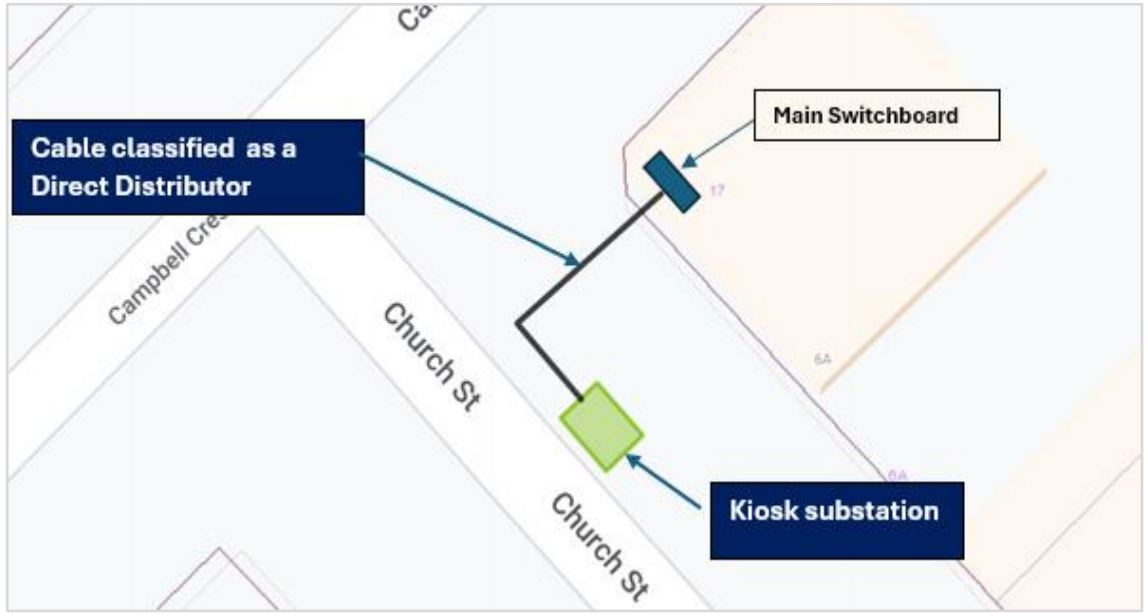


Image of direct distributor location

10.2 Direct Distributor sizes and rating

Conductor Type	Cross Sectional Area	Cable Description	General Application	Summer Cyclic Cable Rating – Amps	
				Direct Laid	Duct Laid
Aluminium	240	415 240 AL4 XQ Z / SAC	Direct distributor	440	355
Aluminium	300	415 300 AL4 XQ Z / SAC	Direct distributor	495	400
Copper	185	415 185 CU1 XQ Z (4 cables)	Direct distributor	520	420
	240	415V 240 CU4 XQ Z	Direct distributor	460	565
	300	415 300 CU1 XQ Z (4 cables)	Direct distributor	665	540
	500	415 500 CU1 XQ Z (4 cables)	Direct distributor	875	710

Substation consumer mains

10.3 Substation consumer mains

Consumers mains conductors are classified as a cable that is allocated within the customers private property and **supplied directly from a kiosk substation**, located within an electricity easement, on private property as per below figure.

Where supply is taken direct from a customer substation, the customer's main switchboard shall, be **easily accessible from the street**, located in a common area, and, where accessed via locked doorways or pathways, be provided with **approved electricity distributor locking systems.**

NSWSR Cl:4.2

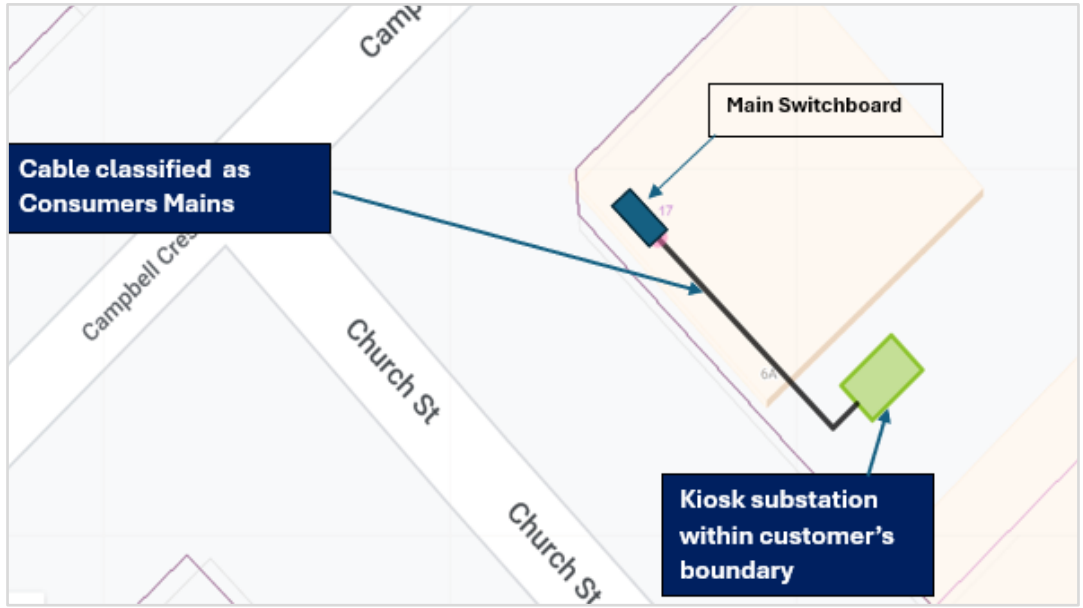


Image of consumers main's location

10.4 Consumer Mains cable sizes permissible

Refer to NS117 Design and Construction Standards for Kiosk Type Substations for additional requirements with Kiosk substation works.

The following table outlines the restrictions on the maximum number and size of consumers mains cables that can be terminated at the low voltage board of kiosk customer substations.

NS117 Cl: 12.5.1, Table 2

LV Panel rating	Maximum Number of Cables per Phase	Maximum size of Cables
400Amp	1	300mm² CU1XQZ
800Amp	2	300mm² CU1XQZ
1200/1600Amp	4	500mm² CU1XQZ
2500Amp Circuit Breaker	4	500mm² CU1XQZ
	3	630mm² CU1XQZ

Maximum Number and Size of Consumer Mains Cables

Service Connection testing

11.1 Service Connections – Safety Checks and Testing

All **necessary safety checks and tests** must be carried out in accordance with the approved training procedures before a service cable is energised.

Tests must be in accordance with **AS4741, Ausgrid's Network Standard NS282 - Service Testing and Ausgrid's ESRs.**

Failure to test or performing incorrect tests can lead to hazardous situations with the potential for property damage, personal injury and even death. Where there is any doubt about test results, do not connect the installation and **contact Ausgrid's Emergency line on 13 13 88.**

NS282

11.2 Tests required before energisation of installation

The **customer's installation** shall not be energised until the following tests have been performed with satisfactory results: Please refer to NS161 Specification for **Testing of Underground Cables.**

NS282 Cl: 1.11.1

- Polarity
- Phasing confirmation
- Phase to neutral voltage
- Phase rotation, for three-phase circuits
- Confirmation of installation earth; and
- Neutral integrity

11.3 Test required after energisation of installation

After the restoration of the customer's earth-neutral connection and the energisation of the customer's installation, one final test shall be performed (for M.E.N. installations only):Voltage between the customer's M.E.N. and independent earth.

NS282 Cl: 1.2, Section 3

11.4 Neutral Voltage Thresholds

Neutral Voltage (V)	Test Load	Result	Interpretation
Not more than 0.3 x I_{TL}	Not less than 9.0 A	Pass	Satisfactory
Above 0.3 x I_{TL} but not more than 0.5 x I_{TL}	Not less than 9.0 A	Fail pending investigation	Unsatisfactory without Ausgrid investigation and approval
Above 0.5 x I_{TL}	Not less than 9.0 A	Fail	Unsatisfactory

Neutral integrity testing

11.5 Neutral integrity testing

When replacing, installing, or repairing any phase or neutral conductor of an overhead or underground service connection, the neutral integrity shall be demonstrated **using either the Loop Impedance Method or the Voltage Method. The measured loop impedance** shall be classified into one of the categories in Table 11.6 below:

NS282 Section 3

11.6 Impedance Thresholds

Loop Impedance	Result	Interpretation
Not more than 0.6Ω	Pass	Satisfactory
Above 0.6Ω but not more than 1.0Ω	Fail pending investigation	Unsatisfactory without Ausgrid investigation and approval
Above 1.0Ω	Fail	Unsatisfactory

11.7 Neutral Voltage Thresholds for Common Test Loads

Test Load	Maximum Neutral Voltage for 'Pass'	Maximum Neutral Voltage for 'Fail pending investigation'
9 A (min)	2.7 V	4.5 V
10 A	3.0 V	5.0 V
11 A	3.3 V	5.5 V
12 A (max)	3.6 V	6.0 V

11.8 Fault Loop Impedance Testing procedure

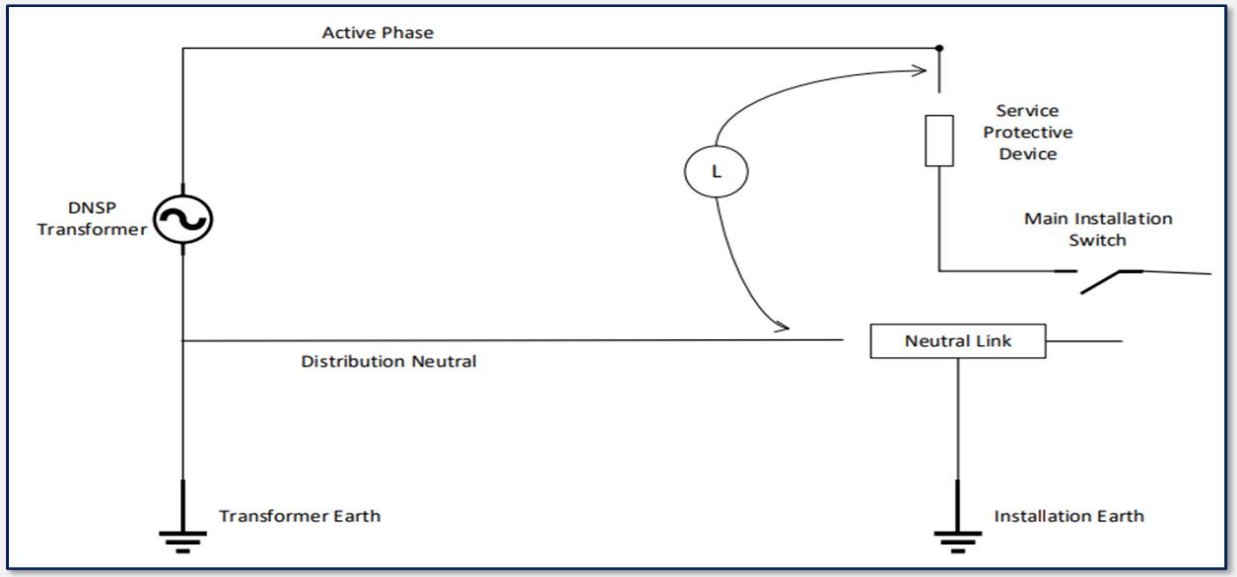


Image of Loop Impedance Method

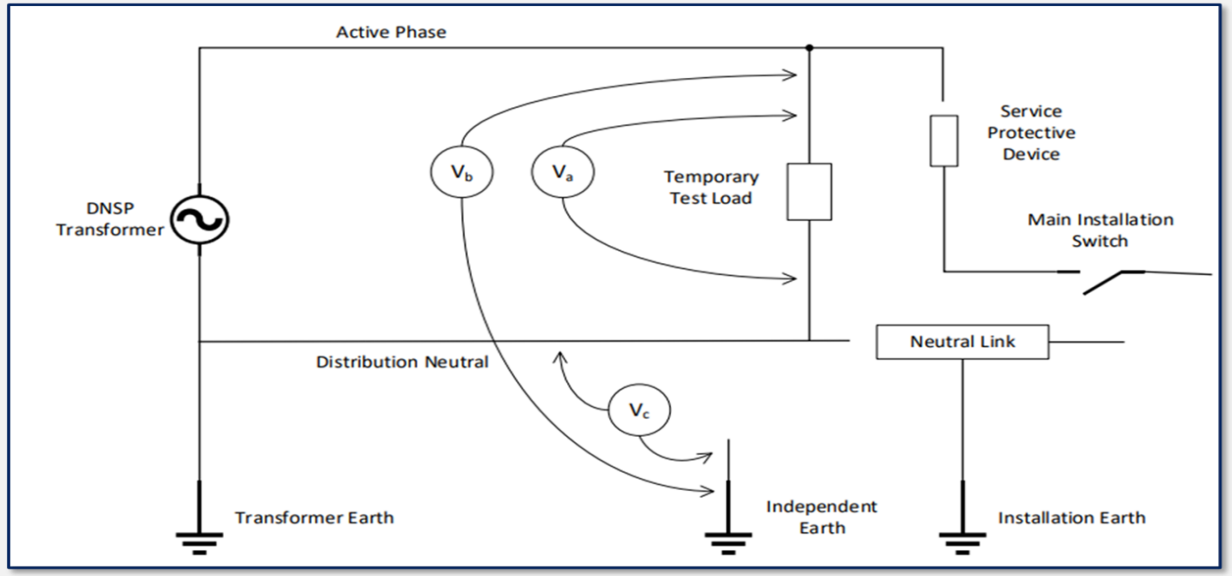
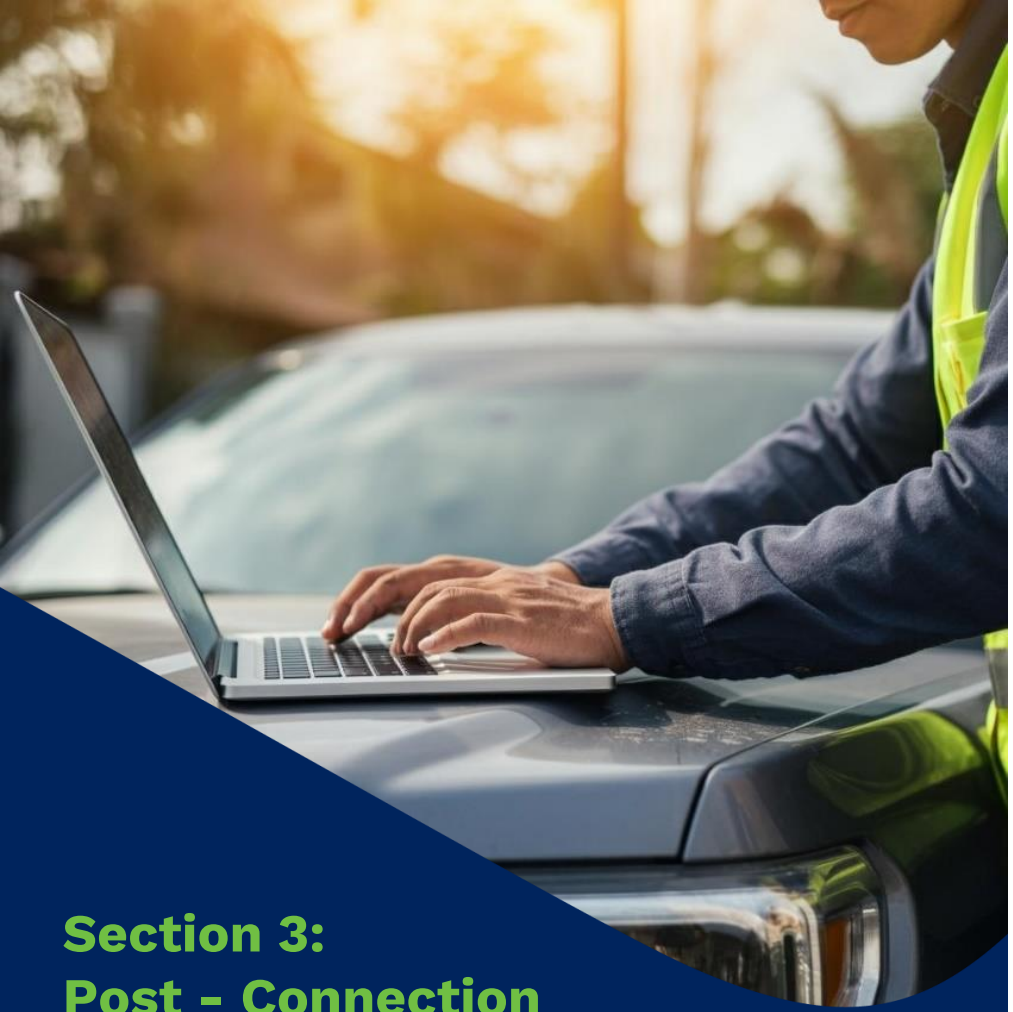


Image of Voltage Method

Section 3

Post-Connection

Ausgrid



Section 3:
Post - Connection

12. Completing a Notification of Service Work (NOSW)
13. Non-conformance
14. Defect notices
15. Dispute resolution

Table of contents

Ausgrid

Completing a Notification of Service Work (NOSW)

A condition of Authorisation is that all ASP2s must notify Ausgrid within the below specified time upon completing authorised work (including repairs). Notification to Ausgrid is via a NOSW. A completed NOSW form must be submitted to Ausgrid **within 2 working days.**

ASP2s are to use the **'Ausgrid NOSW portal' to submit NOSW's**. No paper based NOSW's will be accepted. Ausgrid NOSW portal: https://services.ausgrid.com.au/SignIn

Refer to ES4 - Accredited Service Provider Authorisation (Clause 10.4.1) for information on the requirements and minimum standards for NOSW Diagrams.

ASP2s should also be aware of the following:

- ASP2s should ensure that, before performing any contestable service work, a **Connection Application form is submitted to Ausgrid** to obtain an installation job number. This step is essential for compliance and coordination with Ausgrid's processes.
- **A NOSW is required where any contestable service work has been carried out within a Level 1 project.** A job number is not required; however, the Level 2 ASP must note down the Level 1 ASP project number on the NOSW.

Refer to the Ausgrid website for examples of NOSW diagrams to assist in completion.

- **A Certificate of Electrical Compliance** - Electrical Work (CCEW) covering the consumers mains conductors, main switchboard and earthing system must be submitted with the NOSW when associated with the connection of the service work.
- If applicable, the **NOSW form must include an "As Constructed" diagram of the overhead/underground service route** and details from the Point of Common Coupling through to the Connection Point.
- **Failure to provide all the required information on the NOSW** will attract a defect against the ASP2 company and the ASP2 company may incur an associated reinspection and/or investigation fee.
- Where a service is to be connected to a link pillar or a pole with a link or open point, the connection of the terminated service (electrically) **must be indicated on the NOSW** (i.e. which side of the links supplies the new service).
- **Failure to submit the NOSW** within the required time is in breach of the ASP's Authorisation.
- A **Notification of Service Work (NOSW)** submitted in draft form only through the Ausgrid portal shall not be deemed a valid submission. Such an action will be regarded as a breach of the Authorised Service Provider's (ASP) Authorisation.

ES4 Cl:6.13, 7.4, 10.2.2, 10.2.4.6, 10.4

Non-conformance

Non-compliance with the Service and Installation Rules of NSW or other relevant standards must be regarded as a defect and may also be regarded as a Safety Breach depending on the nature of the defect.

Defects are regarded as electrical installation and service installation work which do not comply with AS/NZS 3000 Wiring Rules, the Service and Installation Rules of NSW or Ausgrid's requirements and Network Standards that apply at the time of the installation.

Non-compliance with Ausgrid's ESRs will be regarded as a Safety Breach. In the event of Ausgrid becoming aware of the non-compliance, it will issue a notice to the customer and/or to the ASP2 specifying the breach and required rectification period.

All ASP2 Safety Breaches will be investigated under the conditions of Authorisation and may involve an interview and be reported to the NSW Department of Climate Change, Energy, Environment and Water as required under the Accreditation scheme.

Further information can be found in ES4 Section 10 – ASP2 Major Safety Breaches and defects Reporting and Follow-Up Procedures.

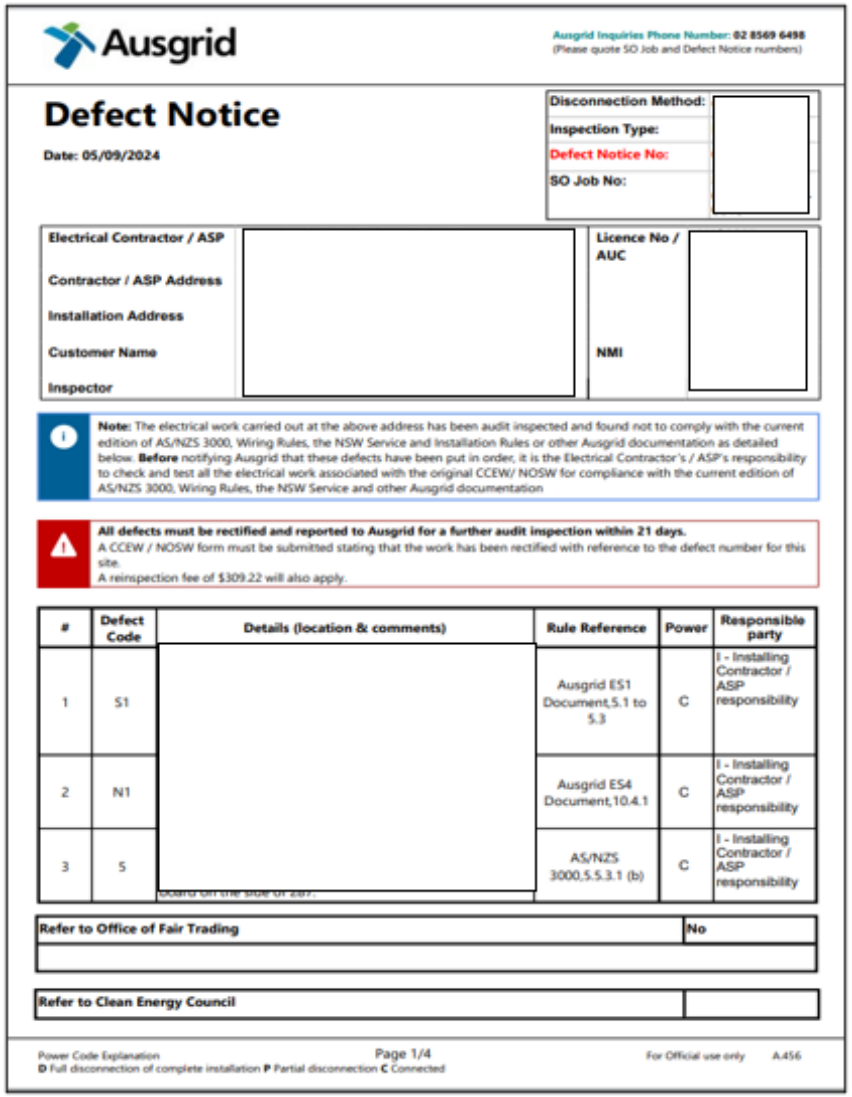
Defect notices

Ausgrid will leave a Defect Notice on site where appropriate. Each notice will be addressed to:

- The customer
- The installing contractor or Accredited Service Provider (ASP)

If notices cannot be left on site, they will be mailed. Defects must be rectified within the time frame specified on the notice.

Ausgrid will implement the following procedures when defects are identified during inspections. Defects may be temporarily isolated or disconnected, and if a defect cannot be satisfactorily isolated, the entire installation may be disconnected from Ausgrid's network.



Ausgrid

Ausgrid Inquiries Phone Number: 02 8569 6498
(Please quote SO Job and Defect Notice numbers)

Defect Notice

Date: 05/09/2024

Disconnection Method:	
Inspection Type:	
Defect Notice No:	
SO Job No:	

Electrical Contractor / ASP		Licence No / AUC	
Contractor / ASP Address			
Installation Address			
Customer Name		NMI	
Inspector			

Note: The electrical work carried out at the above address has been audit inspected and found not to comply with the current edition of AS/NZS 3000, Wiring Rules, the NSW Service and Installation Rules or other Ausgrid documentation as detailed below. **Before** notifying Ausgrid that these defects have been put in order, it is the Electrical Contractor's / ASP's responsibility to check and test all the electrical work associated with the original CCEW/ NOSW for compliance with the current edition of AS/NZS 3000, Wiring Rules, the NSW Service and other Ausgrid documentation

All defects must be rectified and reported to Ausgrid for a further audit inspection within 21 days.
A CCEW / NOSW form must be submitted stating that the work has been rectified with reference to the defect number for this site.
A reinspection fee of $309.22 will also apply.

#	Defect Code	Details (location & comments)	Rule Reference	Power	Responsible party
1	S1		Ausgrid ES1 Document,5.1 to 5.3	C	I - Installing Contractor / ASP responsibility
2	N1		Ausgrid ES4 Document,10.4.1	C	I - Installing Contractor / ASP responsibility
3	5		AS/NZS 3000,5.5.3.1 (b)	C	I - Installing Contractor / ASP responsibility

Refer to Office of Fair Trading	No
Refer to Clean Energy Council	

Power Code Explanation
D Full disconnection of complete installation P Partial disconnection C Connected

Page 1/4

For Official use only A.456

Image of Defect Notice Example

Dispute resolution

Initial Consultation

The dispute resolution procedures are specifically for Accredited Service Providers Level 2 (ASP2). They address disagreements regarding corrective or disciplinary actions taken by Ausgrid related to defective contestable work under the Ausgrid Service Provider Authorisation scheme, as detailed in publication ES4. If further clarification is needed after receiving an initial notification from Ausgrid, it is recommended to arrange an interview with Ausgrid to discuss the matter.

Authorisation Dispute Resolution Mechanism

Ausgrid reserves the right to suspend cancel or refuse ASP2 Authorisation as part of the agreements for Authorisation. Ausgrid encourages ASP2s to instigate their own investigation, corrective or disciplinary actions and communicate these with Ausgrid to enable fair and reasonable actions to be determined.

The mechanism for resolving disputes involving accreditation are detailed in the regulation and the Scheme Rules.

Internal Review

If an ASP2 wishes to dispute a decision or action imposed by Ausgrid, they may submit a written request for a review within five (5) business days of receiving the initial notification. This request should include the reasons for seeking the review and must be directed to the Authorisations Group.

Alternative Dispute Resolution – Mediation and/or Arbitration

If all reasonable steps have been exhausted to resolve the dispute, then the dispute or difference rising out of or in connection with the decision will be submitted to mediation and/or arbitration in accordance with, and subject to, The Institute of Arbitrators and Mediators Australia (IAMA) Arbitration Rules.

Please visit https://www.resolution.institute/ for further information

Thank you

Please contact the Service Installation and Compliance Group if you have any questions, or if you identify any issues with this document.

Ausgrid