

WAIPĀ NETWORKS

# NETWORK CONNECTION STANDARDS

2023

WAIPĀ   
NETWORKS

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# 1. INTRODUCTION

## 1.1 Disclaimer

This document is subject to change and can be updated without notice. For the latest version of the document, please visit our website, [www.waipanetworks.co.nz](http://www.waipanetworks.co.nz).

## 1.2 Introduction and purpose of this document

Waipā Networks is an electricity lines company that delivers electricity to customers in the Waipā and Kawhia areas, as indicated in Figure 1 below:



Figure 1: Waipā Networks Operational Area

Our activities include:

- Ownership, management, and operation of the electricity network that delivers power to customers in the area shown on the map.
- Electrical contracting services include service main installations, new subdivision builds, and electrical inspections.
- Tree maintenance services, both general arborist work and specialist maintenance near power lines.

## 1.3 Status of this standard

This document sets out the standards associated with a connection to our network. Connection to our network implies acceptance of and compliance with the standards in this document. This document should be considered in conjunction with any applicable law, rule, or regulation (Section 1.6). It should also be considered alongside any **electricity retailer supply agreement**. Where there is an apparent conflict in standards or terms, you should contact Waipā Networks for clarification.

## 1.4 Scope of this document

This document is a standard that describes the different aspects of connecting to Waipā Networks assets. In particular, the following areas are covered:

- Connecting to our network
- Technical requirements for connecting
- Ownership and responsibilities, and:
- General connection considerations

### Out of scope:

- Contracting work
  - Distributed Generation (refer to Waipā's dedicated webpage and Distributed Generation Standard for details)
  - Technical Design (Design standards, construction standards etc.)
- 

## 1.5 Definitions

The following are some common terms this document uses and what they mean.

### Capital Contribution

An amount of money determined by Waipā Networks that is payable by an external party to facilitate work such as supply to a new subdivision or upgrade of capacity for an existing connection.

### Electricity Retailer

A Company that sells electricity to customers. Electricity is delivered to customers on behalf of Electricity Retailers by Waipā Networks through the Network.

### Emergency

Any event that poses an immediate or imminent threat to the safety of persons or property or which may significantly interrupt or adversely affect the operation of the Network.

### Faults Service

The customer helpline is provided by Waipā Networks to report network faults and emergencies. The phone number is published on our website and in the local telephone directories.

### ICP

Installation Control Point is the point at which the electrical supply is deemed to supply an individual customer account. This will be where most customers' service main connects to the power pole or pillar in the road reserve.

### Network

The equipment Waipā Networks uses to deliver electricity to customers. This includes overhead and underground power lines (except service mains), transformers, service fuses, and other associated equipment.

## Network Connection Point (NCP) / POC

Point of Connection (POC) is defined in the Electricity Industry Participation Code 2010 (Code). It means a point at which electricity may flow into or out of a network. This document refers to the point where a customer Service Line connects to our Network.

## POS

Point of Supply (POS) is defined in section 2(3) of the Electricity Act 1992. It generally means the point or points on the property's boundary at which exclusive fittings enter that property, with a few exceptions (refer to the Act for details).

## Registry

The registry is a national database that contains information on every Point of Connection on a network from which electricity is supplied to a site. These Points of Connection are called Installation Control Points (ICPs). Each ICP has a unique identifier. The registry is the electricity industry's database of records of all ICPs.

## Utility Disputes

Utility Disputes Limited is an independent complaints resolution service available to electricity consumers, landowners/land occupiers. Utility Disputes was formerly called the Electricity and Gas Complaints Commission.

## Service Main

This consists of an overhead or underground power line, usually sited on private property, which connects a customer to the Network and is owned by the customer. Generally, any line on private property exclusively supplying that property is deemed a Service Main. See Appendix A for examples of Waipā Networks owned lines (the Network) versus privately owned equipment (Service Main).

## Supply Agreement

The agreement between a customer and an electricity retailer for electricity supply to an ICP.

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## 1.6 List of references

A list of key legislation/acts and regulations that are relevant to this document is referenced below:

- Health and Safety at Work Act 2015
- Electricity Act 1992
- New Zealand Electrical Codes of Practice
- Electricity (Safety) Regulations 2010 and Amendments
- Electricity Industry Act 2010
- Electricity Industry Participation Code
- AS/NZS 3000 Wiring Rules for Installations
- NZS 7901 Electricity and Gas Industries - Safety Management Systems for Public Safety
- Electricity (Hazards from Trees) Regulations 2003
- NZ Safety Manual for the Electricity Industry (SM-EI)

## 2. CONNECTING TO OUR NETWORK

### 2.1 Introduction

If you require a new connection or upgrade to an existing connection, it is important to contact us during the planning stage. This will ensure that network infrastructure is in place to supply your connection before the building or development process begins.

Where a point of connection (such as a distribution pillar) and sufficient capacity exist, your application's approval process may take up to ten working days. If a network extension, upgrade, or reconfiguration is required, the time it takes to approve the connection will naturally vary depending on the complexity of the alterations required.

Note: Any new connection must comply with this document's requirements.

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### 2.2 New connections

If you require a new connection to our network (e.g., to supply a new house, shed, etc.), the process is as follows:

1. Complete an '**Application for Network Connection**' form, which can be found and completed on our website. Note: Hard copies can be found at our office (150 Harrison Dr, Te Awamutu).

Information you will need to complete the application process includes:

- Applicant name and details
  - Connection address
  - Electricity retailer
  - Site plan
  - Nominated electrician, and
  - Load requirements
2. A New Connection and administration fee (See <https://waipanetworks.co.nz/get-connected/electricity/> for pricing) must be paid alongside your application, and a site assessment will be made of the new connection point to determine if a network extension or upgrade is required. If upgrades are needed, the following two areas may apply:
    - a. A design fee for the alterations will be required, which Waipā Networks can provide and will cost \$1,000.00 (GST Inc). Note: If the connection proceeds, then this cost is deducted from the cost of upgrading.
    - b. A capital contribution may be required as a condition of approval. Details on our capital contribution policy can be found on our website at <https://waipanetworks.co.nz/disclosure/capital-contributions/>
- Waipā Networks will advise you as soon as possible if this is required.
- Note: For additional information about this process, please visit our website, which explains this process in more detail.
3. Once your connection application is approved, we will forward the 'Application for Network Connection' to your nominated electricity retailer. A current list of electricity retailers operating in our area can be found on our website.
  4. The electricity retailer will register the connection details in their system and organise for meters to be installed, inspected, and the connection livened.
  5. An inspector **MUST** sign off the installation (Certificate of Compliance and Record of Inspection) to ensure that the installation is safe. A copy of this compliance must be provided to Waipā Networks and sighted by our livening agent before livening the connection.

Notes:

- A new connection cannot be livened unless Waipā Networks and an electricity retailer approve.
- Each new connection should have an individual service line and point of connection to the network. Depending on individual circumstances, special approval may be given for new connections with a shared service line. Contact our office for further details.

## 2.3 Upgrades to existing connections

If you intend to increase the load of an existing connection significantly, you must complete an “Application for Network Connection”. Waipā Networks will then assess the new load to determine if any reconfiguration or increase in network capacity is required to facilitate the upgrade. A capital contribution may be required in some circumstances.

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## 2.4 Connection of distributed generation

Waipā Networks welcomes inquiries regarding distributed generation. Please refer to our website for information regarding the connection process and technical standards.

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## 2.5 Your electricity retailer

Waipā Networks does not sell electricity directly to customers. Instead, we deliver electricity on behalf of electricity retailers. Your retailer is responsible for connecting your supply to the network and billing you for the power you use. You must not be connected to the network unless you have registered for supply with an electricity retailer. A current list of electricity retailers supplying customers on our network can be found on our website.

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## 2.6 Access to your property

You must provide Waipā Networks reasonable access to inspect, maintain, upgrade, or repair any of our equipment on your property. Waipā Networks will reasonably attempt to advise you of our intent to enter your property. Waipā Networks is not required to advise you of our intention to enter your property in an emergency.

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## 2.7 Looking after your equipment

You must keep the electrical equipment on your property sufficiently maintained to prevent risk to persons, property, or network operation. This includes keeping your service main free from damage by trees, tree roots, or other external interference.

Electrical supply can be prone to interruptions and voltage fluctuations. You should protect all your sensitive electronic equipment and electrical appliances, such as computers, audio-visual devices, dishwashers, security systems, and garage door openers, with surge protection devices. You should also ensure that any 3-phase motors are protected should a phase be lost. Your electrician will be able to advise you on how to protect the equipment on your property.

Flickering power (usually indicated by flickering lights) can signal that your supply is about to be lost and can cause damage to sensitive electronic equipment. If you notice your lights flickering, immediately turn off any sensitive appliances at the wall and phone our FAULTS SERVICE.

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## 2.8 Insurance

Surge protectors prevent exposure of your appliances to most surges you will likely encounter. Unfortunately, extremely high voltage or current can sometimes be brought into contact with the low voltage lines due to, for example, a “car vs pole” accident or storm event. In these cases, the surge voltage imposed onto the low voltage network is usually too high for surge protectors to work effectively, damaging customers’ equipment or appliance. Hence, ensuring your property is insured for this type of damage is important. Please get in touch with your insurance company to confirm the electrical damage coverage your policy offers.

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## 2.9 Looking after our equipment

You must ensure that any equipment owned by Waipā Networks at/on your property is free from external interference.

## 2.10 Refusal to connect

Waipā Networks may refuse to connect where:

- A contribution to modify the network has not been paid
  - All information hasn't been provided in the connection form
  - Required easements or consents have not been obtained
  - An electricity retailer has not confirmed supply to the premises, or;
  - The installation is non-compliant with the Electricity Regulations or the requirements of this standard
- 

## 2.11 Termination of connection / disconnect

To disconnect your connection from the network, please advise your electricity retailer, who will organise the works to be completed.

Where a premise is disconnected from the network for more than six months, Waipā Networks may remove the portion of the network supplying the premises following written confirmation from the customer and property owner. If you wish to reconnect following this period, a full inspection of the installation is required before it may be reconnected. Refer to NZS 3019 for full details of this process.



## 3. OWNERSHIP BOUNDARIES AND RESPONSIBILITIES

This section discusses and defines several key points concerning ownership of assets and the transition from Waipā Networks to the consumer. Diagrams are available in Appendix A.

### 3.1 Point of connection

As defined in Section 3 of the Electricity Act 1992, the point at which the “Works” owned and operated by Waipā Networks stop, and the “electrical Installation” owned by the connected users commences is called “the Point of Connection (POC)”.

The distributor determines the POC to ensure disconnections (Isolation by de-energisation) without affecting the integrity of the network or the conveyance of electricity to any other ICP.

Responsibility for the assets/installations change from the distributor to the consumer at this point. The consumer/property owner may also have to contribute to works on the distribution system if their installation(s) initiates alterations (typically when large new connections, subdivisions and load increases are required).

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### 3.2 Asset ownership

Waipā Networks holds records regarding ownership of most equipment attached to its network. While we have an ownership policy for assets on the network, this position has changed over the years, and the diagrams in Appendix A reflect the general ownership demarcations. For any clarification of ownership and responsibilities regarding maintenance, replacements, and costs, don’t hesitate to contact Waipā Networks.

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### 3.3 Moving equipment

As mentioned above, if you wish to move assets belonging to Waipā Networks, please contact our office. Most equipment can be moved, provided that sufficient notice is given and all requirements are met for using approved contractors, network design standards and all costs are met.

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### 3.4 Easements

Easements are required for all network equipment located in or on private property installed after 1 January 1993. Network equipment installed before 1 January 1993 is considered ‘existing works’; therefore, no easement is required. Please refer to the Electricity Act 1992 to clarify existing works and access.

Easements are not required for underground or overhead mains that are totally contained within a road reserve or land that will become a road reserve upon deposit of a Plan of Division.

Where an easement is required, the general rules are:

- When an applicant is lodging a survey plan in conjunction with a development, the applicant will fund and be responsible for creating an easement in gross favour of Waipā Networks.
- The applicant must liaise with Waipā Networks to ensure that the proposed design and the preferred easement meet Waipā Networks’ requirements.
- Unless otherwise agreed, all easements are to be surveyed by a registered surveyor and pegs placed in position before the work commences. The pegs must delineate the easement and the boundaries of blocks before, during and after the electricity distribution assets are installed.
- All easements must be surveyed and lodged with Waipā Networks’ drawing office and a copy of the land transfer plan showing easements in place.

## 4. TECHNICAL REQUIREMENTS OF CONNECTION

This section outlines the requirements for appliances, equipment and attachments which may be connected to the user's installation/connection.

### 4.1 Power factor

You must ensure the power factor at your ICP is at least 0.95 lagging. Your electrician can test and offer advice regarding your power factor. Waipā Networks reserves the right to apply penalty lines charges to any ICP that does not comply or, in some cases, instigate disconnection proceedings.

You will be responsible for all costs to maintain the power factor above 0.95 lagging at your connection.

### 4.2 Connections

All electrical installations must be inspected and certified by a qualified inspector registered with the Electrical Workers Registration Board (EWRB). Refer to AS/NZS 3000:2007 for details on wiring standards. Once inspected, an installation will have an Electrical Certificate of Compliance. Waipā Networks has its own inspectors that can provide this service.

### 4.3 Motor starting

Direct-on-line starting is acceptable for AC motors of the capacity and in locations as specified in the following table.

Type of Motor	Location and Rating		
	Rural	Urban	
		Residential	Non-Residential
Single-phase	Not exceeding 0.75 kW	Not exceeding 1.5kW	Not exceeding 2.2kW
3-phase 400V	Not exceeding 4.0kW	Not exceeding 4.0kW	Not exceeding 7.5kW

Direct-on-line starting is not permitted for motors exceeding the capacity in locations shown in the above table.

Any motor Variable Speed Drive (VSD) greater than 20kW capacity shall have mitigating equipment to limit harmonic distortion (THDi) to a maximum of 10%.

### 4.4 Welding sets

Welding set capacity and performance must conform with the following table:

Welders exceeding 5kVA input and up to 10kVA should have a power factor of not less than 0.8pf with a secondary voltage of 30V while operating at full load

Welders exceeding 10kVA input should have a power factor of not less than 0.8pf with a secondary voltage of 30V while operating at half-full load.

If the requirements above prove inadequate to mitigate interference and cause power quality problems, the causer will be required to arrange and pay for a totally independent power supply from the network suited to their requirements.

## 4.5 Capacitors

Sufficient power factor correction capacitors must be installed to ensure that the average power factor of a connected user's load, measured at the NCP as the ratio of kWh to KVAh consumed during any 30-minute period, is not less than 0.95 lagging.

Power factor correction capacitors may interfere with the networks' ripple controls signals and/or cause harmonic resonance problems. Connected users must configure and operate capacitors so that they do not interfere with the electricity network or the operation of our ripple control system.

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## 4.6 Safety

Electricity is dangerous. For this reason, care must be taken around power lines, especially if a line is damaged or in an abnormal state. There should be no attempt to isolate a line, climb an electrical structure, or alter a power line configuration without Waipā Networks' knowledge and permission. When around power lines, care should be taken so that no objects make contact with the power line. Items such as sports balls, sticks, and kites are at high risk of causing damage to the line and potentially causing electricity to flow to the earth, endangering anyone close to it.

If you notice that a line is faulty, hanging low, or on the ground, leave the line and the area around it clear. Broken power lines are, in many cases, still live. Call our faults service, and we will be able to assist.

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## 4.7 Interfering with the operation of Waipā Networks network or other installations

Connected users must not use any appliances or equipment that adversely affects the quality of the supply of electricity to another connected user. Any changes required to the network to mitigate any interference caused will be at the cost of the causer. The causer of interference can arrange and pay for an independent power supply from the network suited to their requirements.

Some common sources of interference and power quality problems can arise from motor starting, welding sets and capacitors.

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## 4.8 Unbalanced loads

All multiphase loads connected to the network shall be evenly balanced across all phases of the distribution network as can be practically achieved.

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## 4.9 Load control

All household storage devices must have a Waipā Networks supplied ripple relay receiver installed. Household storage devices can include but are not limited to:

- Electrical hot water cylinder
- Underfloor heating
- Spa pools

The purpose of this relay is to allow Waipā networks to control load during peak times and minimise the constraints on our distribution network.

## 5. NETWORK OPERATION AND REQUIREMENTS

This section outlines Waipā Networks' responsibilities and any general connection requirements.

### 5.1 Interruptions

#### 5.1.1 Planned interruptions

Waipā Networks may need to turn the power off to your property on occasion to carry out testing or a planned interruption by the following means:

1. A notification provided to your ELECTRICITY RETAILER, who will, in turn, notify you under the terms of your SUPPLY AGREEMENT,
2. If you have signed up for our email notification system, an e-mail will be sent to you (refer to our website for details on this service),
3. If there are special circumstances (such as urgent maintenance), we may give you a written notice delivered to your property.

The shutdown notification will advise you of the reason for the shutdown, the time and date, and an alternative time and date (should the work be unable to be completed on the planned date).

Shutdowns cause inconvenience for customers, and where possible, we will try and schedule them in a manner to keep this inconvenience to a minimum. However, it is difficult to accommodate all customers, so shutdowns will only be rescheduled in special circumstances. If you receive a shutdown notification and believe you have sufficient reason for it to be rescheduled, please get in touch with us immediately.

#### 5.1.2 Unplanned interruptions

Sometimes the supply to your property will be interrupted due to circumstances outside our control. These include, but are not limited to, the following:

- Adverse weather
- Motor vehicle accidents
- Animals
- Trees
- Equipment failure
- Other external interference

If your property's power goes off unexpectedly, please call our faults service. This service will advise you if there are any reported faults on our network and allow you to report a fault.

In the event of an unplanned interruption, our staff will make all reasonable attempts to return the power to your property as soon as possible. During a major storm, this may take longer than usual, and we recommend you call our faults service periodically for updates.

In the event of an unplanned interruption:

- Turn off any sensitive appliances at the wall.
- Make sure you have a cell phone or non-powered landline phone handy.
- Call our faults service for information or to log a fault.
- Leave a light on to know when the power has returned.
- If your neighbour's power comes back on and yours doesn't, call our faults service.

## 5.2 Faults service

Waipā Networks operates a faults service. The faults service typically covers the following types of problems:

- Full or partial loss of power supply.
- Flickering power.
- Failure of ripple control devices (commonly affecting the hot water supply).
- Trees are touching or threatening power lines.
- Other external events affecting power lines.
- Any other safety issue affecting power lines.

Our faults service numbers are published in the local telephone directories and are available on our website.

Note: If we attend to a fault at your property and the cause is found to be internal to your property, there will be a charge for the service in most cases.

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## 5.3 Cable locations and safety disconnections

### 5.3.1 Cable locations

If you intend to conduct any digging or other earthworks at your property or the road reserve, it is important to ensure you know the location of any underground services. Waipā Networks provides a cable location service where one of our field service teams will attend the site and determine the approximate location of underground cables.

### 5.3.2 Safety disconnections

If you need to carry out maintenance (such as painting or tree trimming) near your service main, it is important that you have the power temporarily disconnected to prevent the risk of electrical shock to persons or property damage. Waipā Networks can disconnect and reconnect the property when you have finished the work.

Please get in touch with our office for more information on either of these services.

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## 5.4 Network design

Waipā's Design and Construction Manuals and technical specifications are regularly updated with the latest industry standards and practices. The standards are distributed via "Controlled Copies", issued to approved contractors who work on our network. At Waipā's discretion, uncontrolled extracts may be issued as required by the nature of the work.

### Constraints

Waipā Networks is continually exploring options to increase its reliability and the quality of power to our customers. For this reason, we are constantly looking for areas that may produce a restriction to the conveying of quality electricity. Once identified, these areas are studied, and plans are developed to strengthen, lengthen, or rebuild the line to remove foreseeable restraints. This is an accepted part of the management of our network, and all projects are clearly outlined in our Asset Management Plan (AMP), which can be found on our website.

## 5.5 High loads

A High Load Application is required to be completed for all loads that will exceed 4.25m in overall height. Some loads will require an escort and may require power to be disconnected to customers. You should apply a minimum of 14 days before the planned moving date to allow sufficient time to assess the application requirements. Once the application has been processed, a permit will be issued along with any specific conditions. Application forms are available upon request from our office.

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## 5.6 Vegetation

All power distribution networks are governed by the Electricity (Hazard from Trees) Regulations 2003 concerning trees. To view these regulations, visit [www.legislation.govt.nz](http://www.legislation.govt.nz). A summary brochure explaining your and Waipā Networks' rights and responsibilities under the act is available on request or from our website.

Trees growing close to power lines present a real danger to public safety. They also cause a significant number of power cuts and voltage problems. If a tree makes contact with a power line, a current can flow through the tree to the earth. This current could electrocute anyone near or touching the tree. People at highest risk are anyone maintaining the tree and children playing around or in the tree.

You must ensure trees on your property are kept clear from power lines both on your property and in the road reserve. Do not attempt to clear any foliage near power lines without consulting with Waipā Networks first.

If you have concerns about a tree on your property or the road reserve, please call Waipā Networks or Waikato Tree Services.

## 6. CUSTOMER COMPLAINTS

### 6.1 Complaints

Waipā Networks is proud of the services we provide. If you have a complaint about our service, you can use our free Complaints Resolution Process. If you would like information regarding this process or wish to complain, please contact our Customer Services Manager.

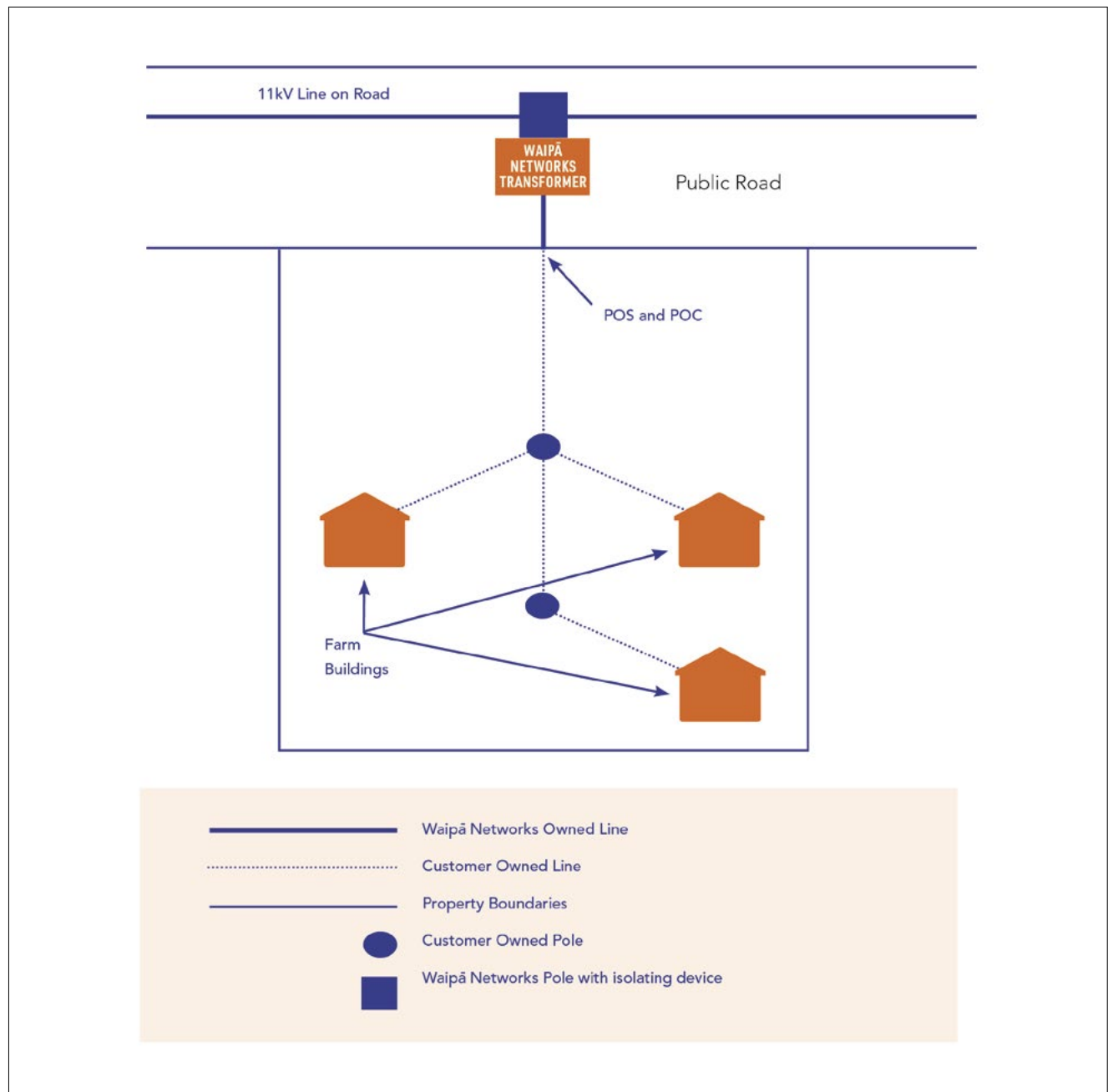
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### 6.2 Utility disputes

Utility Disputes Limited is a free and independent complaints resolution service available to electricity customers, landowners/land occupiers. Waipā Networks is a member of this scheme, and should you not be satisfied with the outcome of our free internal Complaints Resolution Process, you can use this service. For information about Utility Disputes, please visit [www.utilitiesdisputes.co.nz](http://www.utilitiesdisputes.co.nz).

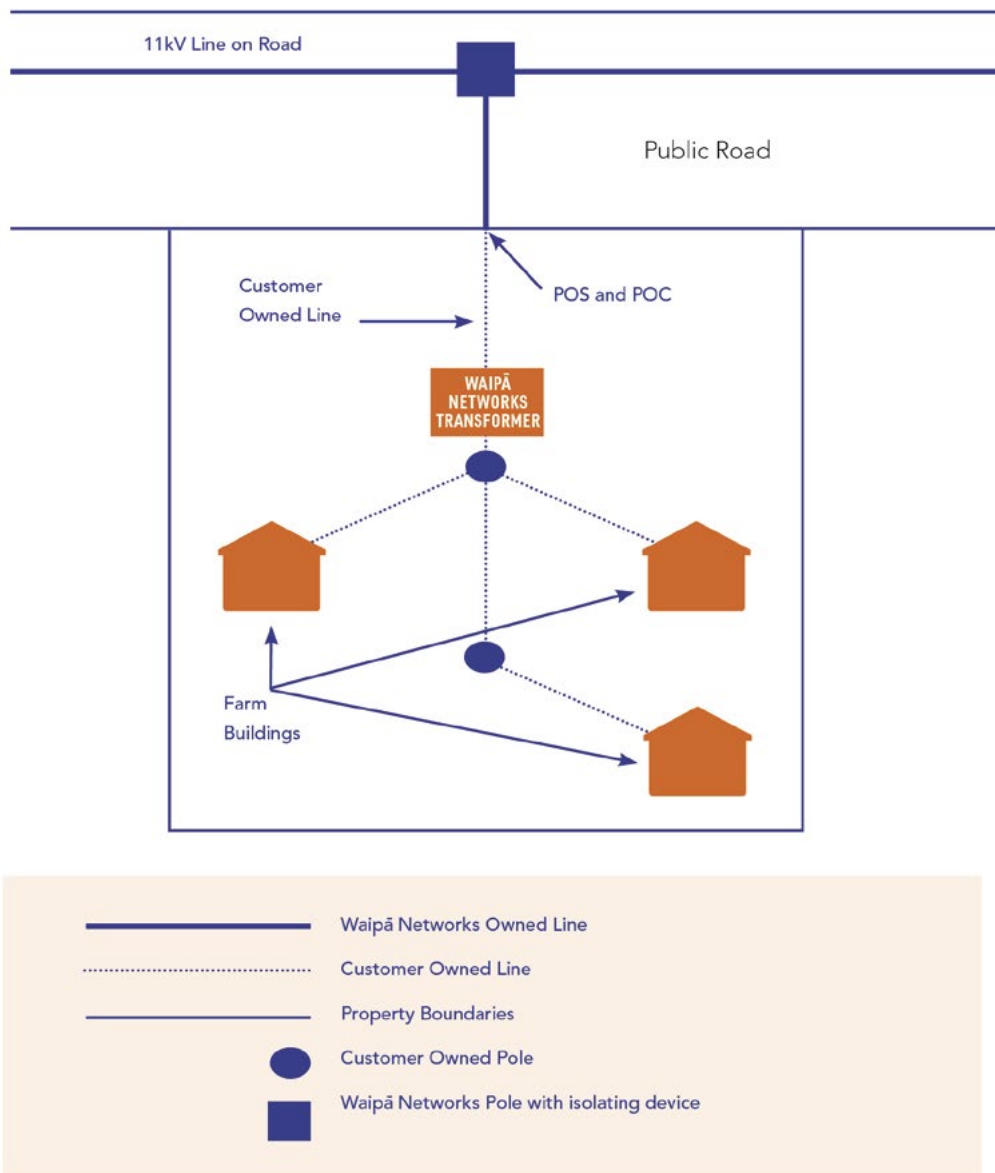
## 7. APPENDIX A – POINT OF SUPPLY AND POINT OF CONNECTION DIAGRAMS

### Farm supplied at 230/400 volts

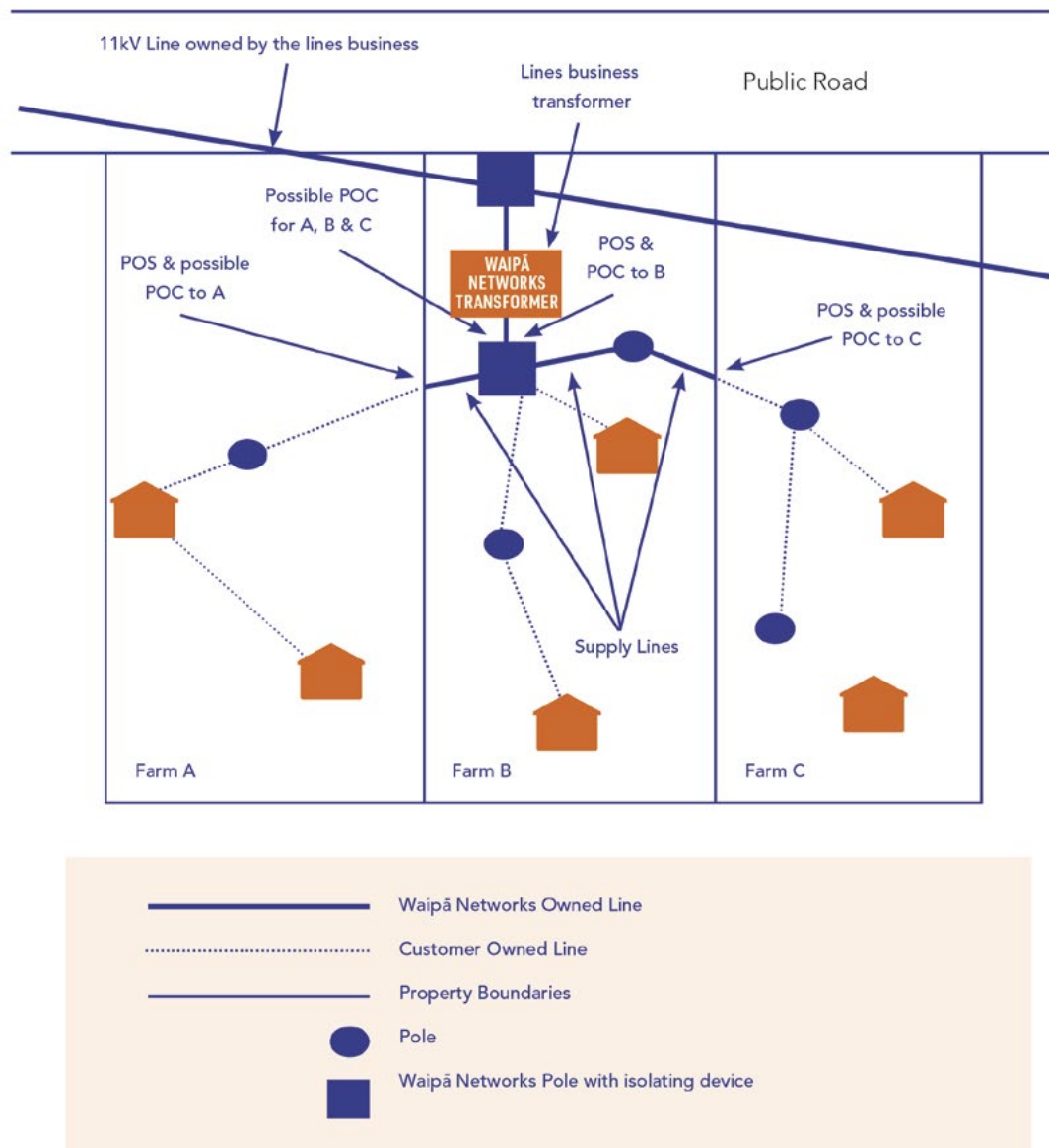




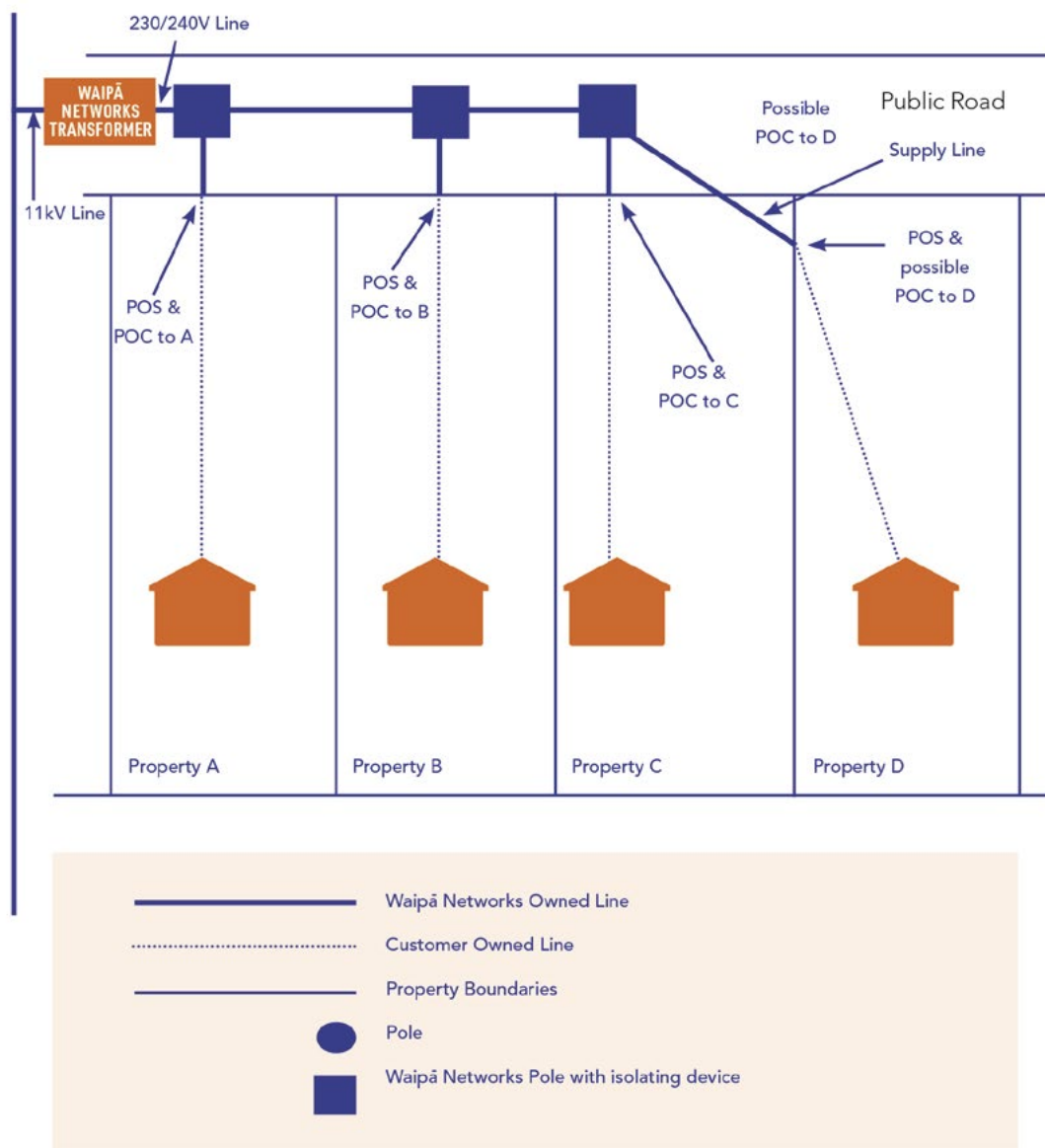
## Farm supplied at 11,000 volts



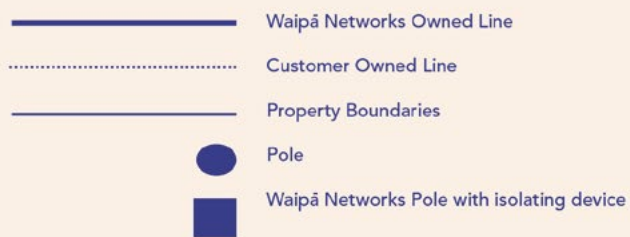
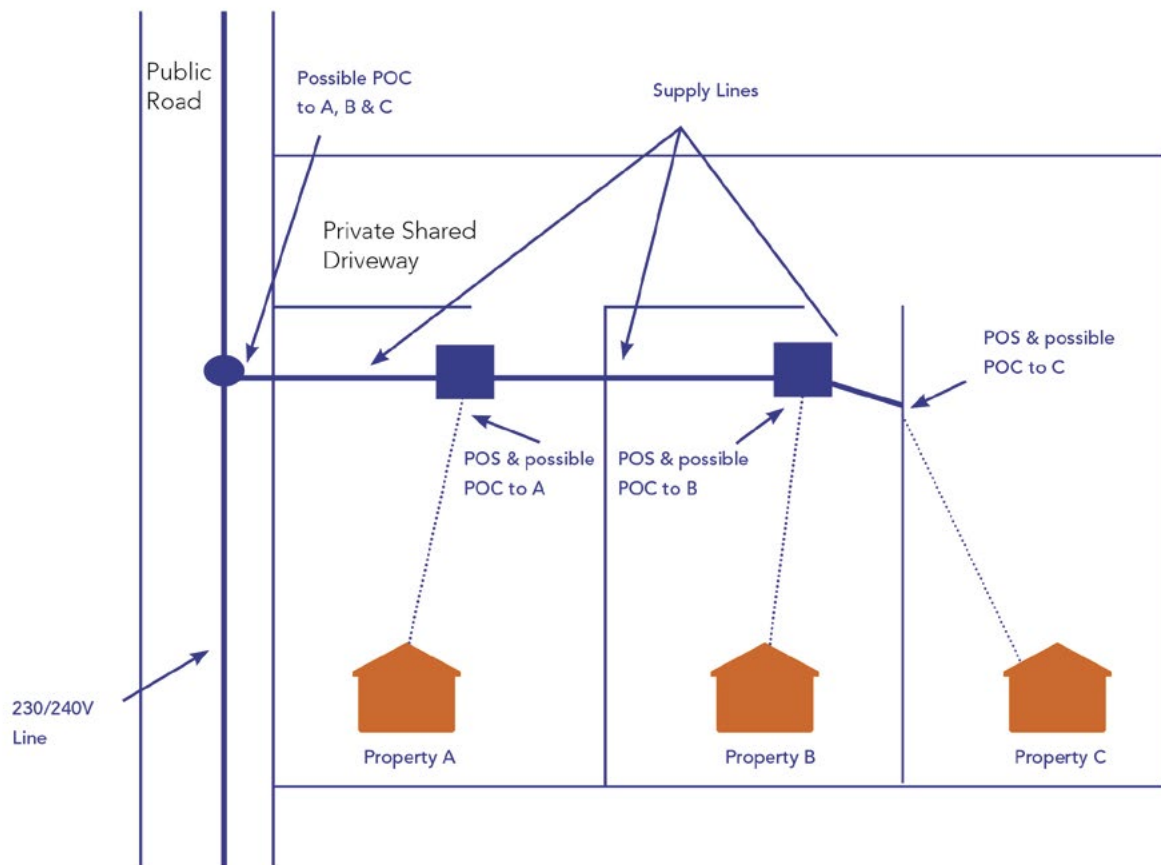
## Rural 11kV supply, with 11kV and 230/240V lines on private property



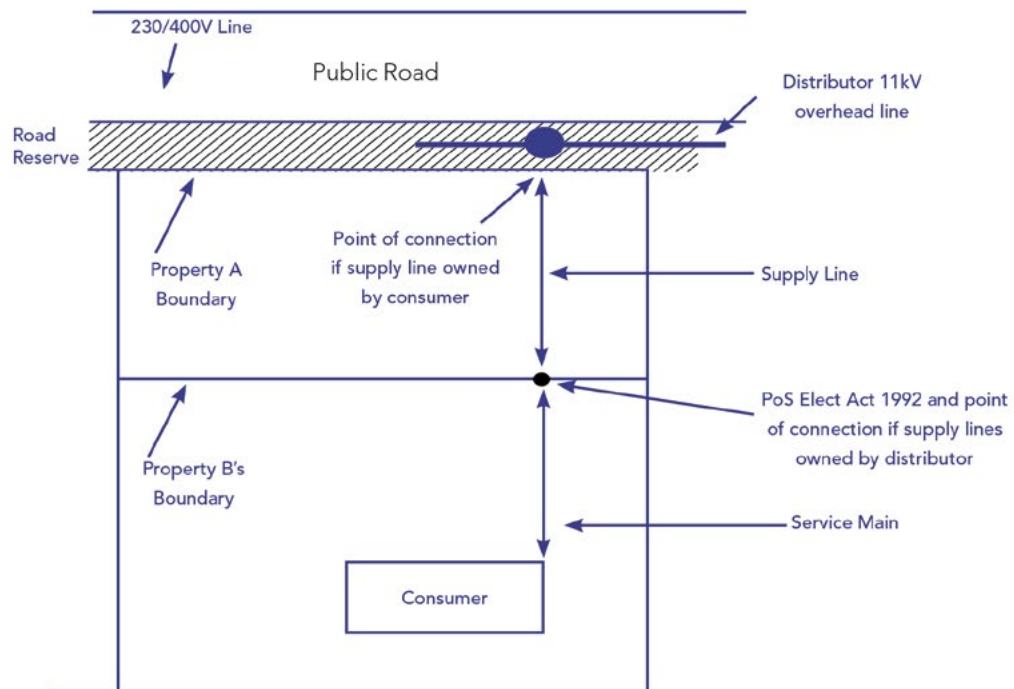
## Supply to single urban property



## Supply to three houses where lines cross private property



## Supply to consumer with supply line crossing neighbour's property



- Waipā Networks Owned Line
- Property Boundaries
- Pole

## 8. DOCUMENT HISTORY

Version	Modification	Prepared by	Approved by	Date	Next review
1.0	Original Document – Standards Compiled and Revised	Kerry Watson		June 2009	
1.1	Updates in terminology. New Appendix regarding lines ownership. Updated definition of Domestic Price Category	Kerry Watson	Ray Milner	31 May 2013	May 2015
1.2	New section added – 2.6	Lee Goddard	Ray Milner	17 November 2014	May 2015
1.3	Multiple changes, charts removed and changed	Lee Goddard	Ray Milner	14 January 2015	Jan 2016
1.4	Removed Tariff section, edits and updates throughout	Pete Armstrong	Adam Fletcher	18 January 2018	Jan 2020
1.5	General updates across the full document, section numberings changed Capital Contribution requirements are updated and referenced on the website 3 Ownership Boundaries and Responsibilities section updated and restructured 4.8 Unbalance loads section added	Weihaio Zhou Mikaere Ngarimu	Sean Horgan	01 May 2023	May 2025

**THANK YOU!**

