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Network Connection Standard

1 Introduction

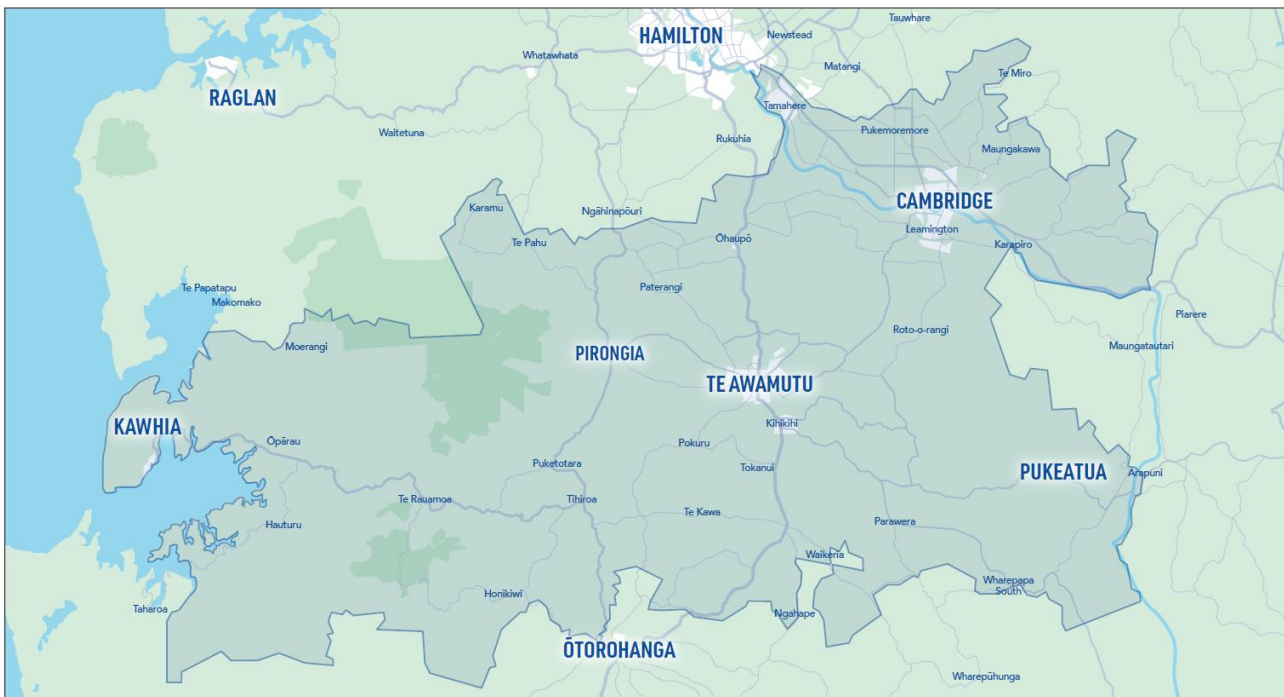
1.1 Disclaimer

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).

1.2 Introduction and purpose of this document

Waipā Networks is an electricity lines company that delivers electricity to consumers predominantly in the Waipā district and parts of the Waikato district and Ōtorohanga district, including Kāwhia and Tamahere, as indicated in Figure 1 below:

Figure 1: Waipā Networks Operational Area



This network connection standard outlines technical requirements for connections to Waipā Networks’ electricity distribution network. It is relevant to all stakeholders in Waipā Networks’ business, including electricity retailers, contractors, developers, connected customers, consultants and advisers.

Overall, this standard outlines how we accommodate and manage electrical loads on our network. It starts by explaining the connection process, then covers the design and construction of our network and the customer’s installation, followed by network operation.

1.3 Scope of this document

This document defines the required connection process for both temporary construction supplies and permanent connections.

It defines the mandatory technical requirements for connecting to Waipā Networks assets. It specifies applicable technical criteria and references the standards, procedures, and policies that must be followed. Compliance with the requirements and referenced documentation in this standard is required for all connections.

1.4 In particular, the following areas are covered:

- Connecting to our network
- General and technical connection requirements
- Ownership and responsibilities
- Network operations
- Technical criteria for electric lines and metering equipment.

Out of scope:

- Contracting work
- Detail technical standards (Design standards, construction standards, etc.).

1.5 Definition

Refer to Appendix for relevant definitions.

1.6 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.

1.7 List of references

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

- *Electricity Industry Act 2010*
- *Electricity Act 1992*
- *Electricity Industry Participation Code*
- *Electricity (Safety) Regulations 2010 and Amendments*
- *New Zealand Electrical Codes of Practice (ECP)*
- *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*
- *Health and Safety at Work Act 2015*

Network Connection Standard

- NZ Safety Manual for the Electricity Industry (SM-EI)

2 Connecting to our network

If you require a new connection or an upgrade to an existing connection, it is important to contact us during the planning stage.

Prior to connecting any new residential or commercial installation to the electricity network, Waipā must be satisfied that the proposed connection can be completed safely and without negatively impacting the supply or quality of electricity to existing customers.

Approval of all new connections, load or generation increases outside an existing agreement, or upgrades to existing mains fuses or protection devices is at Waipā's discretion. Connections will only be approved where adequate network capacity exists, and an appropriate network configuration is available.

2.1 New connections

Any new connection will need to comply with all the requirements of this document. 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 the 'Application for Network Connection'

This can be found and completed on our website (<https://waipanetworks.co.nz/get-connected-2/>). Information you will require to complete the application process includes:

- Applicant name and details
- Connection address
- Electricity retailer
- Site/Concept plan
- Nominated electrician, and
- Load requirements.

Refers to Section 3.1 for different types or categories of connection.

2. Connection Fees (application/administration) apply as follows:

- Application Fee
This fee applies to non-standard requests that require additional work to progress, such as technical assessment, design input, scoping and preparation of a quote.

Note: Current fees are published on our website

Waipā Networks will review your application to determine whether the request is standard (progress able without project-specific design input) or non-standard (requiring technical assessment, design, and/or a tailored quote).

3. Quoting and connection charges (where connection works are required)

If connection works are required (for example, an extension, upgrade, relocation, or new assets such as transformer capacity), Waipā Networks will provide the customer with a quote for the required works. This is noted as a connection charge per our Connection Policy - a copy can be found in the following link.

<https://Waipanetworks.co.nz/disclosure/capital-contributions/>

For additional information about this process, please visit our website.

4. Retailer coordination and livening

Once network approval is given (and the connection work is completed where required), the connection must also be approved and registered by an electricity retailer before it can be livened. A current list of electricity retailers operating in our area is available on our website.

[\(https://waipanetworks.co.nz/customersurveysterm sandconditions/retailers-faqs-complaints/list-of-retailers/\)](https://waipanetworks.co.nz/customersurveysterm sandconditions/retailers-faqs-complaints/list-of-retailers/)

Your retailer will arrange metering and coordinate livening.

5. An inspector MUST sign off on the installation

The customer must provide Certificate of Compliance and Record of Inspection to Waipā Networks and the two documents must be sighted by our livening agent before livening the connection.

Notes:

- *A new connection cannot be livened unless approval has been given by both Waipā Networks and an electricity retailer.*
- *Each new connection should have an individual service line and point of connection to the network. Special approval may be given for new connections with a shared service line dependent on the individual circumstances. Contact our office for further details.*

2.2 Altering and upgrading existing connections

Your electrician, contractor or consultant should advise you of any alteration or upgrade needed for your existing connection. If you intend to alter, upgrade or increase the load of an existing connection, you must complete an 'Application for Network Connection' as per Section 2.1. 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 connection charge may be required in some circumstances based on our Connection Policy.

2.3 Connection of distributed generation

2.3.1 General

Distributed Generation (DG) means equipment used to generate electricity, connected to a distribution network and capable of exporting energy into the network (even if actual export seems unlikely). Any generating plant that is intended to be operated while synchronised to the network is deemed to be capable of exporting energy (generation used for localised or islanded purposes is excluded).

DG examples include solar photovoltaic (PV), battery systems, wind, gas, diesel and biomass. The capacity of DG can vary across a wide range, e.g. from a small-scale domestic PV system of several kW connected via an inverter system, to a large-scale commercial solar or wind farm of tens of MW connected via dedicated HV substations.

Installing distributed generation can be complex and has a wide range of implications, including safety, network performance and power quality, all of which may require further investment in the network prior to connection.

Waipā Networks is supportive of the development of safe and reliable distributed generation within our network. Our policies and procedures call for an application to be made to Waipā Network before any connection can be made to the network in accordance with the requirements of Part 6 of the Electricity Industry Participation Code.

Any agreement to connect distributed generation to our network may include costs associated with design, safety and reinforcement of the existing network. If network modifications are required, the design and schedule for this project work will need to be factored into your installation planning and/or costing.

Refer to our Distribution Generation Policy for further details.

2.3.2 Metering requirements for DG

Refer to Section 7.2.

2.3.3 Installation and protection requirements

The technical requirements for connecting inverter-based DG at 230 V or 400 V must comply with AS/NZS4777.1 2024 and AS/NZS4777.2 2020. Inverters must be from the approved list. A list of approved compliant inverters can be found on the Clean Energy Council website:

<https://www.cleanenergycouncil.org.au/industry/products/inverters/approved-inverters>

Inverter connected must be set to 'Australia A' regional settings for Volt-Watt, Volt-VAR, overvoltage and undervoltage at all times. All frequency settings shall be set to the 'New Zealand' regional settings. For inverter installations exceeding 200 kVA or in remote areas

of the network, additional protection may be required. This will be advised at the time of the initial application.

For other generator types, the distributed generator must be equipped with the appropriate protection elements as required by the “EEA Guide for the Connection of Generating Plant” or as agreed with Waipā Networks. Distributed generators must consult Waipā Networks regarding any special arrangements or protection that may be necessary due to the generator and network characteristics.

2.3.4 Connection process

If you are interested in making an application to connect distributed generation, please view our website for information on the process (<https://waipanetworks.co.nz/get-connected-2/distributed-generation/>). or contact Waipā Networks’ Customer Services team (<https://waipanetworks.co.nz/about/contact/>).

2.4 Your Electricity Retailer

Waipā Networks does not sell electricity directly to consumers. Instead, we provide distribution services to retailers or major customers (with a direct connection agreement with us) to deliver electricity to the Network Connection Point for each consumer. 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.

2.5 Access to your property

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

Also refer to Section 4.5 Access and for further details.

2.6 Looking after your equipment

You must take reasonable care to protect any Waipā Networks equipment located on your property from damage or interference. This includes keeping the area around the equipment safe and accessible for inspection, maintenance, upgrade, or repair, and ensuring your service main is not damaged by trees, tree roots, or other external interference. Electrical supply can be prone to interruptions and voltage fluctuations. You should ensure that all your sensitive electronic equipment, such as computers, audiovisual devices, dishwashers, security systems, and garage door openers, is protected by surge protection devices. You should also ensure that any 3-phase motors are protected in case

a phase is 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 be a sign that your supply could 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 us on 0800 800 769 or report a fault via our website.

2.7 Insurance

Surge protectors prevent exposure of your appliances to most surges you are likely to encounter. Unfortunately, extremely high voltage or current can sometimes be brought into contact with the low voltage lines because of an accident or lightning strike. In these cases, the voltage is usually too high for surge protectors to work effectively, so it is important to make sure your property is insured for this type of damage. Please contact your insurance company to confirm the electrical damage coverage your policy offers.

2.8 Refusal to connect

Waipā Networks may refuse to proceed with a connection where:

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

2.9 Termination of connection / disconnect

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

In the case that you may wish to reconnect following this period, a Certificate of Verification of the installation is required before it may be reconnected. This is a legal safety requirement to ensure the wiring and equipment are still safe to use, often referred to as a "vacant disconnection" inspection.

Where a premise is disconnected from the network for a period longer than six months, Waipā Networks may remove the portion of the network supplying the premises following written confirmation from both the consumer and property owner.

3 General technical requirements

The network connection provided to a consumer will depend on factors such as the required network connection capacity, the placement of the consumer's main switchboard, and the characteristics and location of the consumer's installation.

Before being connected to the electricity network, all consumer installations and appliances shall have been designed, constructed, configured, and installed to comply with the requirements of this standard and the following:

- All applicable electricity Acts, (Safety) Regulations and Code of Practices.
- AS/NZS 3000
- M-NDDC-002 Overhead Distribution Line Design Standard
- M-NDDC-004 Overhead Distribution Line Construction Standard
- M-NDDC-003 Underground Distribution Network Design Standard
- M-NDDC-005 Underground Distribution Network Construction Standard

3.1 Connection categories

Connection at the individual ICP level is categorised as one of the following pricing categories. Refer to our Pricing Categories on our website for further details.

- **Residential**

Residential consumers are classified as such where the primary use of the electrical supply is for domestic or residential purposes, as determined by the electricity retailer. The Network reserves the right to challenge an electricity retailer's classification if it believes it is incorrect and backdate any charges in cases where a classification has been proven incorrect. In rural areas, this category may also be applied to individual ICPs required for domestic water pumps (stock or irrigation pumps are classed as General).

The following are provided as the minimum standard or default provision:

- **Urban residential** - with **up to two phases** (fuses spaces) allocated at the connection point, **15kVA total** over all connected phases.
- **Rural residential** - with **up to three phases** (fuses spaces) allocated at the connection point, **15kVA total** over all connected phases.

The default fuse rating is 63A and up to 100A for each fuse holder.

The total demand is determined based on the sum of connected phases. Demand or phases required exceeding the above-stated default value will need to be requested by the Customer as part of the connection process.

- **General**

Customers will be put into the General category, which may include businesses, schools, non-profit organisations, and other non-residential small-to-medium connections.

General consumers are all other metered low voltage ICPs defined as **not being Residential**, and maximum demand is expected to be **70kVA or less** (i.e. fuse rating 100A or less).

Fuse size and number of phases will be requested by the customer as part of the connection process.

- **Larger connections**

- **400V Contract** - This is generally used for larger commercial or industrial load connecting at LV where anticipated maximum demand is expected to exceed 70kVA, and the LV fusing exceeds 100A. Given the size of the demand, there are generally 3-phase connections.

- **11kV Contract** - ICPs supplied at 11kV require 11kV metering at the Point of Connection. Customer owns, operate and maintains the downstream 11kV and LV network and distribution transformers. The customer may choose to rent a distribution transformer from Waipā Networks as an option.

- **Non-standard customers**

These are typically very large connections with dedicated assets. Waipā Networks has individual agreements and pricing for these connections and charges customers directly rather than through a Retailer.

- **Non-metered, including street lighting**

Non-metered supplies are typically telecommunication repeater cabinets and similar low-wattage ICPs. These small installations are charged at a fixed daily rate. Street lighting is generally non-metered, and consumption is calculated based on hours of operation and lamp wattage. Streetlights are charged based on their estimated kWh consumption.

Non-metered plans are only available where the load is measurable in terms of average daily kWh and will not exceed 3000 kWh per year. Streetlights are considered Distributed Unmetered Load (DUML) and have multiple connection points to the network, but with only one applicable ICP per GXP per customer. For DUML the 3,000 kWh limit applies to each connection point rather than each ICP.

3.2 Minimum scheme and upstream network upgrade

The "minimum scheme" is the least-cost, standard, and technically compliant network extension or alteration required to meet a customer's connection needs. It serves as the baseline for calculating capital contributions, distinguishing essential, network-enhancing work from additional, non-essential, or bespoke upgrades requested by the applicant.

Key aspects of a minimum scheme:

- **Definition:** The minimum necessary assets, designed to engineering standards, including security and firmness of capacity, to establish a connection meeting good electricity industry practice.
- **Application:** Used for new connections, alterations, or subdivisions to define the base cost for which the customer is liable.
- **Components:** The scheme typically includes the minimum required cabling, transformers, and switchgear for the requested load.
- **Planning Rules and Regulations:** The minimum scheme will be designed to meet national and local government planning rules and regulations.

Any customer-requested (or distributor-specified) enhancements beyond the minimum scheme will be at the customer's (or distributor's) cost.

Where an upgrade to network infrastructure upstream to the new network extension is required to support the development, the costing methodology in Waipā Networks' New Connection Policy will be followed

3.3 Requirements for network extension and connection

3.3.1 Large subdivisions with HV extension

When a new subdivision is being assessed for electrical reticulation, the design will consider the overall developments (i.e. including future stages) and the relevant council's growth cell master plan, ensuring the designs (constructed in stages) will suit the future needs. This approach will ensure the incremental network extension will be built in a coordinated manner, converging into an integral part of the network architecture over time, minimising the total cost to the customers in the long run. Consideration and requirement includes:

- 1) For developments within a council's growth cell or structure plan area, Waipā Networks will develop a 'master' reticulation plan upfront based on the best information available at the time and refer to and update this plan as each stage of development is requested by individual developers.
- 2) When developers submit plans for Waipā Networks to design electrical reticulation, the developer must provide all known future stages (if available) or indicate if there will be future stages, possible loading requirements for these stages and when they will likely occur. This will enable Waipā Networks to accurately assess the need of this development and create a design that best serves the network and the consumers.
- 3) Assessment load increase impact on the network against the Network Planning Criteria as documented in our Asset Management Plan.
- 4) Provision for larger size cable and easements for circuits through private property, and to a staged development of the network. The route and sizing of 11 kV extensions for subdivisions and extensions is subject to Network team review and recommendation.
- 5) Where the subdivision (inclusive of future staging) will supply more than 150 customers, the feasibility and practicality of an alternative interconnected HV supply(s) must be considered and assessed.
- 6) Each Transformer will be supplied separately from an HV fuse, providing exclusive protection for the Transformer.
- 7) New large subdivisions are generally reticulated with underground cable systems. Individual low voltage (LV) circuits from transformers through a subdivision will not exceed 250m in length. This will enable us to meet the voltage standard (refer to Section 5.2) and allow for an optional back feed from another LV circuit on either the same or a different transformer.
 - o All Waipā Network LV cables used in subdivision reticulation will be a minimum size of 4c 185mm² AL XLPE or a similar rated equivalent.
 - o When creating LV back feed options, LV switching pillar at both the mid-point and the end-point of each circuit will be allowed.

3.3.2 LV Subdivisions and/or LV extension requirement

When a new LV subdivision is assessed for electrical reticulation, the design will consider the following factors.

- 1) For a multi-dwelling, single-parcel LV subdivision –
 - a) A single point of supply supplying a distribution board to a private network. A POC/POS to the building will be supplied from a single pillar with appropriately sized fuses to accommodate the cable size and loading requirements determined by the developer's electrician as part of their maximum demand calculations provided to Waipā Networks on application.

- 2) For a multiple land parcel development that has a shared driveway:
 - a) If there are more than six houses, Waipā Networks will supply an LV reticulated network down the shared driveway to provide each ICP with exclusive fuses as the POC/POS. This connection may be via an in-ground pit pillar. This design allows for a simple and easy disconnection of any one ICP that does not affect any other ICP.
 - b) A pillar will also be required in the road reserve to allow for connection of the LV reticulation in the shared driveway to the existing LV network.
 - c) Where there are six or fewer land parcels with a shared driveway, a new pillar will be required in the road reserve. The developer will label each cable that is run to the pillar to allow for identification by Waipā Networks when connecting the cables in the pillar to the live the ICP's.
 - d) Unless by specific agreement, the LV reticulation in the driveway, including all pillars, cable and fuses are to be owned by Waipā Networks.
- 3) For an existing land parcel that is being split into multiple titles with no shared driveway:
 - a) Where a land parcel is split in such a way that the existing service mains travel through a subsequently created parcel to reach a POC/POS, evidence of an easement between the affected parcels will be required by Waipā Networks to approve the POC/POS as compliant.

Where no easement is provided, the existing service mains will require a new POC/POS in the road reserve.

Where the existing service mains reach the POC/POS in the road reserve without travelling through another lot, they may be reused without a new POC/POS.

Any other land parcels without existing connections will need a new POC/POS to be created in the road reserve.
 - b) For a rural connection where the transformer is already installed inside private property, servicing an existing connection and a new land parcel(s) is/are to be created and the driveway is shared by all parcels, the existing transformer may be used as the connection point for any new parcel(s). If the service mains travel through any other parcel to reach the LV reticulation, evidence of an easement between the affected parcels will be required by Waipā Networks to approve the POC/POS as compliant.

Where no easement is provided, the existing service mains will require a new POC/POS in the road reserve.

Note:

- 1) All private service main cables should be run to within 1m of the LV network pillar with sufficient slack to allow for location by Waipā Networks' connection team.

- 2) Any land parcel with existing LV reticulation on the opposite side of the road requires a road crossing to be installed and a pillar (or overhead fuses on the pole) in the road reserve adjacent to the property boundary, as the future POC/POS. Generally, the road crossing will be underground in an urban environment with an underground network, or may be overhead in a rural environment with an overhead network.
- 3) Where two adjacent parcels require a POC/POS in the road reserve, a pillar will be required between those two parcels in the road reserve. Where non-adjacent parcels require a new POC/POS, a new pillar may be required for each ICP.
- 4) A network LV pillar may be no more than 5m from the boundary of any connected ICP.

3.3.3 Lines inside private property

3.3.3.1 Network-owned lines

Installation of any new network-owned lines inside private property to service LV connections will be subject to the following electrical design rules:

- 1) Waipā Networks will install, own and maintain all new infrastructure up to and including the transformer, unless a specific agreement is reached and signed by both Waipā Networks and the owner of the property stating the ownership is to be held by the customer. If a property owner owns the HV infrastructure, the ongoing maintenance costs of that infrastructure are also the responsibility of the property owner.
- 2) For newly installed Waipā Networks-owned infrastructure installed on private property, an easement will be required to be provided by the property developer-owner in favour of Waipā Networks over the entire network-owned portion of the line to allow for access and maintenance. This easement area will be 3m wide on either side of the centre of the line. Refer to Section 4.5 for further details.

3.3.3.2 Privately owned 11kV or LV lines

Where an existing 11 kV private line is within private land that is proposed to be subdivided into separate land parcels or titles, the following requirements apply.

If the existing line route is assessed as not suitable to be considered for reuse, and a new network extension will then be required, then the section 3.3.3.1 will be followed. The removal of the existing private line will be at the owner's cost.

If the line route is intended to be reused and is assessed as suitable for future reticulation purposes, Waipā Networks generally will require the ownership of the private line to be transferred to Waipā Networks, as this line will most likely be supplying different customers in the future. This will be reviewed on a case-by-case basis. In this case:

- 1) The condition of the components on this private line must be in a safe, fit for purpose (e.g., sufficient ground clearance of the lines from the ground as per

NZEC34, poles not leaning, etc.) and acceptable condition before Waipā Network takes over the ownership. Components in acceptable condition will have at least 10 years of effective life remaining before replacement is required. Any components that do not meet these criteria must be brought up to the current Waipā Networks standard at the owner's cost.

- 2) The ownership of the line will then be transferred to Waipā Networks under a change of ownership agreement and an easement agreement.
- 3) Additional upgrades may also be required, such as HV fusing at the line tee-off point to the existing network, or transformer upgrades, to meet the minimum network construction standard.
- 4) Waipā Networks will not own private LV service mains cables beyond the existing or proposed POC/POS.

In exceptional circumstances, if this privately owned line is determined and agreed to remain private, then this agreement will be documented with a clear demarcation of the proposed POC/POS. An additional protection device may be required at the proposed POC/POS.

3.3.4 Large Industrial Consumers

Large industrial customers typically have dedicated supply transformers and/or ring main units owned by Waipā Networks, which may also be located on the customers' premises and will be subject to the following requirements:

1. A protection and/or isolating device is required at the transformer LV terminals within the LV cubicle.

For transformers smaller than 1 MVA, this protection/isolating device will be a set of ganged fuse disconnect links.

For transformers 1MVA or greater, this protection device will be either an LV circuit breaker. In a situation where the transformer is 1.5MVA or less and located very close to the customer's LV main switchboard that already has protection on its incomer, this LV circuit breaker may be substituted by a set of ganged fuse disconnect links, mainly for isolation purposes.
2. A circuit breaker-type protection device (either a circuit breaker in an RMU or an overhead recloser) will be required as the HV protection device for a transformer of size 1MVA or above.
3. Sufficient space shall be provided by the customer in the form of an easement to allow for the transformer and/or RMU, HV cables and earthing to be installed (see Waipā Networks Transformer Easement design drawing.)
4. New transformers must be installed in a location compliant with the fire rating requirements for the transformer and/or customer's premises, as they are oil-filled and cooled. Outdoor oil-filled transformers shall be located from any building or structure, as an indicative guide for initial planning:

- Transformer up to 1,250 kVA - generally $\leq 1,000\text{L}$ of oil
 - Other transformer or non-combustible surface - 1m
 - Building - combustibile surface
 - 3m in a low-density residential situation
 - 6m others
 - Building - 2-hour fire-resistant surface - 1m
- Transformer up to 1,500 kVA - generally $\leq 2,000\text{L}$ of oil
 - Other transformer or non-combustible surface - 3m
 - Building - combustibile surface - 7.5m
 - Building - 2-hour fire-resistant surface - 1.5m

We will work with the customer to confirm transformer location, and the responsibility rests with the customer to check and confirm specific requirements with its building insurer.

5. The transformer and RMU locations must allow safe access for maintenance and emergency response and must not obstruct emergency egress routes.

3.3.5 Privately owned 11kV networks

Where a developer requires a new privately owned 11kV network for their development, or if an existing private network connection is required, it will be subjected to the following design requirements:

1. An HV metering unit will be installed at the property boundary and be subject to retailer connection requirements.
2. The Private network will be supplied by an HV protection and isolation device, including a RMU fuse/CB model, recloser, or HV OH fuse (may be in conjunction with an ABS), depending on network configuration.

3.3.6 Multiple connections and isolation

3.3.6.1 General requirements for multiple connections

Where a developer is creating multiple connections on a common property, the following conditions shall apply:

- 1) Between two and five connections on a common property are to be individually fused at the Waipā Networks connection point, with separate service mains. Any variation to this policy will be considered on a case-by-case basis, as outlined under section 4.6.2 Multiple Tenancy Installations.

- 2) Greater than five tenancy connections per lot, building or apartment shall have a fused LV service box (or LV cabinet if not enough space in a service box with a fuse disconnect unit, with internal reticulation and fusing).
- 3) Where an additional unit is built on an existing or new property, but the land remains as one title, then the second dwelling can be supplied from a connection at the first property's meter board if the connection complies with AS/NZS300 and the New Zealand Electricity regulations and Act even where two separate ICP connections will be required. Waipa Networks will treat the two properties as one when it comes to isolating supply at the POS/POC.

3.3.6.2 Multiple tenancy installations

Multiple tenancy installations - one building that has a single point of connection to Waipā Networks, with multiple tenancies that are individually metered. Each tenancy will be separately isolatable (within and as part of the Installation) and have its own ICP.

All applications for multiple tenancy installations shall be submitted in writing to Waipā Networks' Customer team, with the following information:

- 1) The capacity of each tenancy (number of phases and amps) and the nature of the proposed connection (residential, retail shop, food outlet, commercial, storage unit).
- 2) A single line diagram showing the proposed fusing and electrical layout at the tenancy isolation point, verifying that each connection can be separately isolated.
- 3) A site / building layout plan, with clarification on how the individual isolation points will be accessible to Waipā Networks
- 4) Information on which a Waipā Networks approved contractor verifies the internal fusing capacity and isolation points arrangement prior to livening.
- 5) For commercial/industrial sites, the capacity at the Waipā Networks connection point shall not be greater than the net sum of the individual tenancies. This applies to sites connected to the LV network and those connected to a transformer that is dedicated to that site.

3.3.7 Distributed Generation connections

For large or Medium and small Distributed Generation connections that want to be connected to Waipā's network they will be subject to the rules outlined in the Waipā Networks DG Connection Standard and to AS/NZS 4777 part 1 and part 2.

Additionally, the following will be required for large solar connections

1. They will have a dedicated connection from an RMU which has a dedicated Circuit breaker and protection relay (for protection requirements, see the Waipā Networks protection standard).

2. New connections will be subject to Network capacity constraints which will be discussed at the time of the application. Network capacity constraints can be removed at the cost of the developer of the solar farm.

3.4 Overloads and Protection Requirements

3.4.1 General Overloads and Protection Requirements

For consumers supplied via an LV fuse, the connection capacity is generally determined by the protection rating of the service fuse. If the consumer's load exceeds the protection rating, protection operation can result.

For consumers supplied at LV via direct connection to the LV terminals of a transformer, the nominal capacity of the connection is the transformer rating or the protection rating on the consumers' main switchboard. Transformers have some overload capacity, and consumers are permitted to utilise this subject to the following conditions:

2. The consumer's installation shall have suitable protection devices capable of isolating the installation from the network.
3. Where the incoming circuit breaker is owned by the consumer and it is used as to limit over-currents, then the circuit breaker's protection relay/relays shall be limited to the maximum line current allowed by the consumers price category or tariff option. The current adjusting mechanisms of relays shall be sealed to prevent any adjustment of these settings unless the prior approval of Waipā Networks has been obtained.
4. The consumer's electric line and main switch shall be rated to carry the overload.
5. The loading on the transformer shall not exceed the appropriate values for normal cyclic duty. In instances where this persistently occurs then the Networks Planning Team shall be asked to investigate.
6. Any installation connected to the electricity network shall be protected against short circuits or earth faults as per E(S)R and AS / NZS 3000.

3.4.2 HV Network Protection

7. For consumers supplied via HV fuses the connection capacity shall comply with the requirements of Waipā Networks Network Fuse Protection Standard.
8. To ensure satisfactory operation of Waipā Networks and the consumer's protection systems, operating times, discrimination, and sensitivity at the point of supply shall be agreed between Waipā Networks and the consumer. These settings may be reviewed by Waipā Networks from time to time.

3.5 Earthing

The installation's earthing system shall be designed to comply with:

9. The relevant regulations of the E(S)R and associated Electrical Codes of Practice - in (but not limited to) *NZIECP 35 Power Systems Earthing*.

10. The requirements of *Waipā Networks Earthing Design Standards*.

Deviations from these requirements require prior written approval from Waipā Networks.

3.6 Fault Level Considerations

3.6.1 Short Circuit Rating

The short circuit rating of consumers' equipment at the point of connection should not be less than the maximum prospective fault level of the distribution network to which it is connected.

The choice of equipment for connection at LV may consider a reduction in the fault level caused by the electric line.

Consumers can obtain the maximum prospective short circuit current at their point of connection on request to Waipā Networks.

3.6.2 Consumer Contribution to Fault Levels

The design of the network may need to consider the contribution to fault level by the consumer's apparatus, such as large motor loads. To permit these assessments to be carried out, information should be exchanged on prospective fault-power in-feed at the connection point.

3.7 Vegetation

All power distribution networks are governed by the Electricity (Hazard from Trees) Regulations 2003 with respect to trees. To view these regulations, visit www.legislation.govt.nz. A summary brochure explaining both your and Waipā Networks' rights and responsibilities under the act is available from us 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 contacts 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 the highest risk are those 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 any concerns about a tree on your property or on the road reserve, please call Waipā Networks.

3.8 Cable Locations & Safety Disconnections

3.8.1 Cable Locations

If you intend to carry out any digging or other earthworks at your property or in the road reserve, it is important to make sure you know the location on any underground services. Waipā Networks provides a cable location service where one of our field service team will attend the site and mark out the approximate location of underground cables.

3.8.2 Safety Disconnections

If you need to carry out maintenance (such as painting, 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 damage to property. Waipā Networks can carry out the disconnection and reconnect the property when you have finished the work.

Please contact our office for more information on either of these services.

3.9 High Loads

A "High Load Application" form (<https://waipanetworks.co.nz/safety/travelling-with-high-loads/>) must be filled out by the customer for all loads that will exceed 4.3m in overall height. Some loads will require an escort and may require power to be disconnected from consumers. The customer should apply a minimum of 15 working days prior to the planned moving date to allow sufficient time to assess the requirements of the application. 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.

4 Ownership Boundaries and Responsibilities

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

4.1 Point of Supply

As defined in Part 1 Section 2 of the Electricity Act 1992, point of supply in relation to a property means the point or points on the boundary of the property at which exclusive fittings enter that property, except that:

- 1) If there are both HV lines and a transformer owned by the electricity distributor on the property, the point of supply is the point at which electricity from the transformer enters exclusive fittings; or
- 2) If there are non-exclusive fittings on the property, the point of supply is the point at which those fittings become exclusive fittings; or
- 3) If the exclusive fittings on the property are owned by a consumer who is a tenant or licensee of the owner or occupier of the property, the point of supply is the point at which those exclusive fittings enter the area leased or licensed by the owner; or
- 4) If there is a specific agreement that any other point on the property is the Point of Supply, the Point of Supply is the agreed point.

Exclusive fittings mean fittings used or intended to be used for the purpose of supplying electricity exclusively to that property.

The consumer's point of supply (POS) is the location in the electrical circuit where the ownership of the equipment relating to the supply of electricity changes between Waipā Networks and the consumer. In some instances, Waipā Networks will own fittings in the consumer's premise that is on the consumer side of the POS. This may include, but is not limited to, equipment such as switches, transformers, metering equipment and load control equipment.

Where the voltage at the consumer's POS is other than standard low voltage (400V/230V) (i.e. 11 kV or 33kV), the POS is defined in a specific agreement between Waipā Networks and the customer. Although generally all assets and fittings on the distribution network side of the POS belong to Waipā Networks, while those on the customer's side belong to the customer, there are some exceptions, i.e.:

1. Waipā Networks will own and maintain certain equipment on a connected user's premise, including load control relays. The connection equipment at the POS location shall comply with Waipā Networks Design and Construction standards and shall incorporate a means to allow Waipā Networks to disconnect a user.
2. For High Voltage connections between the Waipā Networks distribution system and the connected user's system, the POS will be subject to a specific written agreement

between the two parties. Note the normal connection arrangement where transformers owned by Waipā Networks are located on private property is for the POS to be located at the LV output of the transformer.

The POS for LV service “Mains” is defined as follows:

1. The primary defining feature is the last LV fuse before the service “Mains” enters a building.
2. Where the fuse is in the road reserve or other public area, the point at which ownership changes from Waipā Networks to private is at the property boundary of the customer, whether it is an overhead or underground service.
3. Where the LV fuse is located inside a private property, the ownership transition is at the fuse and the pole or pillar where the fuse owned by Waipā Networks is mounted.

4.2 Point of Connection

A point of connection (POC) is a point where electricity flows into or out of Waipā Networks’ network to a customer’s installation, specifically, the Installation Control Point (ICP). It is the point at which the retailer/trader is deemed to supply electricity to the consumer. It marks the boundary between the customer’s electrical installation and the utility’s distribution network.

The POC is determined by the distributor to ensure disconnections (Isolation by de-energisation) without affecting the integrity of the network or the conveyance of electricity to any other ICP. It is at POC that a connection is reconnected (energised) or disconnected (de-energised and isolated from the network)

The examples provided in Appendix A details the point of connection (ICP) and point of supply (POS) in various connection scenarios. In circumstances not covered by examples, the distributor shall determine the point of isolation and, where applicable, its metering requirements.

Existing connections may be treated on a case-by-case basis, due to the cost implications for existing consumers, to comply with the distributor’s isolation requirements.

4.3 Asset Ownership

Waipā Networks holds records in terms of 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 any clarification of ownership and responsibilities in terms of maintenance, replacements and costs, please contact Waipā Networks.

4.4 Moving Equipment

As 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, including the use of approved contractors, adherence to network design standards, and payment of all costs.

4.5 Access and Easement

Some parts of our network are located on private property. Waipā Networks' right to have equipment located on private property may be protected by:

- a registered interest (e.g. title or easement)
- an un-registered or registered agreement (e.g. rental arrangement or lease)
- Section 22 Electricity Act 1992 (if installed or prior to 1 January 1993).

The current practice for the installation of new Waipā Networks-owned equipment on private property is for an easement or title to the land to be established to protect the right to be installed, and an agreement in writing of the ownership of any equipment and ongoing access for Waipā Networks to operate and maintain the equipment.

For installation of any new network on private property, Waipā Networks will either:

- request an easement for its underground or overhead network
- request title for a distribution transformer or pillar site in circumstances where the underlying property is currently being subdivided
- request an easement if the property is not currently being subdivided or the substation is part of a unit title development or an internal substation that forms part of a larger building.

Generally, we require access to private property on a limited basis for the future maintenance and operation of equipment or to enable works on the networks to be carried out. You must provide us with reasonable access, and where possible, contact will be made with the customer prior to entry onto the premises. However, in an emergency, access may be required at any time without prior customer contact. Arrangements are to be made to ensure 24-hour unobstructed access is maintained.

When a customer-initiated project requires an easement, Waipā Networks will provide an easement agreement for execution before any work begins and/or before a network clearance certificate is issued.

A copy of the Land Transfer (LT) plan must be supplied to Waipā Networks confirming that the required easement(s) are in place.

Waipā Networks will manage the easement registration process, with all associated costs—including those incurred by Waipā Networks—borne by the customer.

5 Technical Requirements for Consumer Installation and Appliances

5.1 Introduction

An “installation” is the electrical equipment on the customer's premises, excluding appliances. The customer (landlord, or property owner, as appropriate) owns the installation and is responsible for providing and maintaining it. Electrically, there is free interaction and interdependence between events that occur within the customer’s installation and our network. Consideration of the key aspects of design, construction, maintenance and operation of installations is required to ensure that both ours and the customer’s needs are met.

5.2 Supply voltage standard at the POC/POS

These are governed by Electricity (Safety) Regulations 2010 Clause 28, which states:

- The supply of electricity to installations operating at a voltage of 200 volts AC or more but not exceeding 250 volts AC (calculated or measured at the point of supply):
 - must be at standard low voltage
 - except for momentary fluctuations, must be kept within +/-10% of that voltage¹

This is the **operational or compliance** limit. Given the newness and potential impact to customers, EEA is preparing technical guidelines due out in mid-late 2026

In the interim Waipā Networks will follow +10% and -6% as the limits for **design or planning** (such as new connections and distributed generation connection assessment).

Note: For Waipā Network, standard Low Voltage is 230 volts AC between phase and neutral.

- The supply of electricity to installations operating at other than standard low voltage (calculated or measured at the point of supply):
 - must be at a voltage agreed between the electricity retailer and the customer
 - unless otherwise agreed between the electricity retailer and the customer, and except for momentary fluctuations, must be maintained within 6% of the agreed supply voltage.

¹ Amendment 2025, which came into force on Nov 2025, increased this limit from +/-6% to +/-10%.

5.3 Load Power Factor

The average power factor of a connected customer's load, measured at the NCP as the ratio of kWh to kVAh consumed during any 30-minute period, shall not be less than 0.95 lagging at any time.

This requirement is to ensure additional loading on our network resulting from reactive energy load flows during times of peak loading is minimal. Power factor correction capacitors may interfere with ripple control signals and/or cause harmonic resonance problems. Customers must operate such equipment connected to their installations so that it does not interfere with the electricity network or the operation of our ripple control system.

The customer's electrician or consultant will be able to offer advice and test regarding the power factor. The consumer will be responsible for all costs to comply with this requirement. Waipā Networks reserves the right to apply penalty line charges to any ICP that does not comply, or in some cases, instigate disconnection proceedings.

5.4 Electrical Protection

Electrical protection is required to protect staff and equipment on both the customer's installation and premises, and Waipā Networks' network and equipment. Some parameters of protection operation are stipulated in the Electricity (Safety) Regulations 2010. To ensure correct operation of the equipment, our protection and the customer's protection must be compatible and correctly coordinated.

To facilitate compatibility and coordination with Waipā Networks' equipment, the customer's designer must take into account the effects any changes will have on the existing protection system and provide the necessary modifications to ensure that the integrity of the overall protection is maintained.

5.4.1 Safeguarding the network

Maximum clearance times must be within the limits established by Waipā Networks in accordance with protection settings and equipment short circuit ratings.

5.4.2 Safeguarding a customer's installation

The electricity supply to a customer's installation may be subject to multiple short interruptions caused by switching facilities that may be in use on our network. We will, on request, provide details of auto-re-closing or automatic switching facilities, including protection arrangements, so the customer can take this into account during the design of their installation or our network.

5.4.3 Protection against damage

With certain types of fault protection arrangements on our network, one or two phases of a three-phase supply may disconnect. The customer should therefore ensure equipment such as three-phase electric motors is adequately protected, as required by AS/NZS 3000, from phase failure, earth faults, surges, overload and over/under voltage.

5.4.4 Discrimination in operating times

Adequate discrimination must be maintained between the operating times of any customer protection equipment and Waipā Networks' equipment. We may request evidence of satisfactory discrimination.

5.4.5 Short circuit rating of customer fittings

The short circuit rating of customer fittings at the NCP should be not less than the design fault level of our network. Design fault levels are specified in our design standards and are available on request. This is the responsibility of a qualified person such as an electrician to determine as required by AS/NZS 3000.

5.4.6 Protection of distributed generators

For protection of distributed generators refer to section 2.3.3.

5.4.7 No interconnection

The Customer shall ensure that the customer's installation does not create an interconnection between any two ICPs or between any two NCPs without prior written consent from Waipā Networks.

5.5 Protecting sensitive equipment

Modern electronically controlled appliances are much less tolerant of electrical spikes and surges than older appliances. Spikes and surges (also known as fluctuations) can be caused by home appliances switching on and off, a vehicle hitting a power pole or opossums/birds/trees touching power lines.

To reduce the impact of fluctuations on sensitive equipment we recommend that customers install appropriate surge protection devices as recommended by the equipment supplier.

Protection requirements for electrical installations are covered by AS/NZS 3000

5.6 Interfering with the operation of Waipā Networks' system or other installations

Connected users must not use any appliances or equipment that adversely affect the quality of 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. Those who caused the interference can arrange and pay for a totally independent power supply from the network, which is suited to their own requirements.

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

5.6.1 Voltage Fluctuations

Some electric appliances, such as motors with fluctuating loads and welders, can cause voltage fluctuations in the distribution network, resulting in annoyance to other consumers. The consumer’s installation or electrical appliances shall not cause voltage fluctuations at the point of supply more than the threshold of irritability in the *Electricity Regulations*, and its associated *Electrical Codes of Practice* referred to in *Schedule 2*.

For welding sets, capacity and performance must conform to 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 to be 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, which is suited to their requirements.

5.6.2 Motor starting

The starting of electric motors can cause severe voltage dips on the network, resulting in disturbance to other consumers.

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)	0.75kW	1.5kW	2.2kW
3-phase 400V (not exceeding)	2.5kW	4.0kW	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) that is greater than 20kW capacity shall have mitigating equipment to limit harmonic distortion (THDi) to a maximum of 10%.

5.6.3 Harmonic disturbances

Harmonics shall be managed in accordance with the EEA publication Power Quality (PQ) Guidelines. Harmonic voltages and currents introduced into the network by a consumer's installation or appliances shall not exceed the levels specified in the following documents:

11. NZECP 36 Harmonic Levels

12. AS/NZS TR IEC 61000.3.6:2012 Electromagnetic Compatibility (EMC) - Limits - Assessment of emission limits for distorting loads in MV, HV and EHV power systems

Note: E(S)R Regulation 31 Requirements Related to Quality of Supply.

5.6.4 Radio and television interference

Consumers' installations and appliances shall not impose interference on the network that affects the operation of radios, televisions, and / or other communication systems as prescribed in all current New Zealand Radio Interference Noise Regulations and any other standard New Zealand industry radio interference requirements.

5.6.5 Consumer disturbances

Consumer initiated disturbances shall be managed in accordance with AS/NZS 61000.3.6 Electromagnetic Compatibility (EMC) - Limits - Assessment of emission limits for distorting loads in MV, HV and EHV power systems.

5.6.6 Signalling

The network shall not be used for the purpose of conveying signals unless express and prior written approval is given by Waipā Networks prior to the transmission of any signals.

Should the consumer use their own electrical installation to convey signals, Waipā Networks will not provide any warranty as to the electrical characteristics or signalling properties of the network, or the network's capability or suitability in that regard. The signals shall not cause any interference or damage to the network or to other consumers connected to the network, and the consumers shall be responsible for installing suitable blocking filters to ensure any signals do not interfere with the network or other consumers installations.

5.6.7 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. Where a connected user does

not maintain its installation to balance load across the phases and a variance of more than 15kVA or 5% (whichever is higher) exists between phases, the Network may take steps to rectify or mitigate such imbalance at the connected user's cost.

5.6.8 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 network's ripple control 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.

Consumers are permitted to install unblocked capacitor kVA capacity up to two percent of the connection kVA capacity.

Note: For 3-phase connections, the maximum kVA per phase is one-third (i.e., 1/3) the total kVA allowed. For capacitor loads exceeding the limit above, specific permission to connect shall be obtained from Waipā Networks. The consumer shall be responsible for the provision and correct operation of the blocking chokes.

Consumers installing fluorescent lighting loads are advised to use fittings with lead-lag ballasts, which will provide power factor correction without the risk of ripple signal absorption. Electronic fluorescent lighting ballasts do not require capacitors for power factor correction; hence, they also will not absorb ripple control signals.

5.7 Load control

All household storage devices such as an electrical hot water cylinder, may have a Waipā Networks-supplied ripple relay receiver installed. The purpose of this relay is to allow Waipā Networks to control load during peak times and minimise the constraints on our distribution network.

5.8 Safety

Electricity is dangerous. For this reason, care must be taken around power lines, especially if a line is damaged or in a state that is abnormal. 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 can accidentally touch the power line. Items such as sports balls, sticks, and kites are items that are at high risk of

causing damage to the line and potentially cause electricity to flow to earth endangering anyone near to it.

It is recommended to keep a minimum safe distance of 4 metres from our overhead lines, transformers, and other equipment. This distance helps to ensure customers' safety and the safety of Waipā Networks staff and contractors. If the customer will work near our network or need to access our equipment, please contact Waipā Networks first for the necessary safety instructions.

If you notice that a line is faulty, hanging low, or on the ground, then 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.

6 Technical criteria – electric line

6.1 LV connections

Connection of service lines to premises/installations, both in the case of new work and in the case of disconnection/reconnection for any purpose, shall comply with:

13. E(S)R, including (but not limited to) Regulations contained in Part 5 Safety of Installations.
14. E(S)R, Regulation 38 Testing works before connecting to the supply.
15. The EEA Guide for Livening of Service Connections to Premises.

LV connections can be made by connecting an LV electric line to the network LV distribution system or by connecting to the LV side of a transformer located on the consumer's premises. The requirement for a transformer is dependent upon: the connection capacity required, the capacity and present loading on any existing LV distribution in the vicinity and the distance from the consumer's property boundary to the consumer's main switchboard.

Each connection application will be considered individually, and the most appropriate connection method will be determined by Waipā Networks.

6.1.1 Electric line neutral size

All Electric Line neutral conductors should be the same size as the phase conductors. This will reduce the risk of neutral conductor overloads caused by unbalanced loads and harmonics.

6.1.2 Pilot cable

1. Streetlighting Pilot Cable

Where a street light cable is identified as a pilot cable owned by Waipā Networks, Waipā Networks is responsible for the maintenance of the cable, and no work shall be executed on such cables without instruction from Waipā Networks Management.

6.1.3 Isolation points

Isolation of each individual electric line shall be possible and will generally be carried out using the LV fuses.

Contractors shall ensure that when removing electric line fuses to disconnect one consumer that it will not also isolate another consumer.

6.1.4 Structural requirements

An overhead electric line should not add a physical force or bending moment to the network beyond what the design allowance built into the network equipment can safely withstand – refer to *M-NDDC-002 Overhead Distribution Line Design Standard* as the means of compliance with this requirement.

6.2 Overhead LV lines

All overhead lines shall maintain the safe distances as required by (but not limited to) the requirements of E(S)R Regulation 17 Maintaining Safe Distances.

Where open pair overhead lines are permissible, the phase conductors shall be covered with black PVC and the neutral conductor shall be bare, as prescribed in *T-NDME-001 Overhead Aerial Conductors Specification*.

The consumer is responsible for providing solid supports for conductor insulators and terminations for their installation.

It is recommended that, where possible, a neutral screened cable be used for aerial electric lines due to the enhanced safety this provides for all parties. Overhead Aerial Conductors Specification prescribes aerial electric lines that are approved for use on the network.

6.3 LV underground conductor

6.3.1 General

Underground service cables may share the same trench as other services. Clearances to services owned by other organisations shall be as prescribed in Waipā Networks Underground Distribution Network Construction Standard.

Cables laid in road reserves (the national transportation corridor) are required to be plotted to sufficient accuracy for future location in accordance with the requirements of The National Code of Practice for Utilities' Access to the Transport Corridors, and those details shall be provided to Waipā Networks in accordance with the requirements of this standard, As-built Process.

Waipā Networks does not keep any records of service/distribution main cable routes on consumer-owned (i.e., private) property. It is recommended that contractors either

provide details to the consumer and/or encourage the consumer to make their own records.

Waipā Network's own practice and recommendation is that all service/distribution electric lines shall be buried to the depths prescribed in the Underground Network Construction Standard for works in the road reserve and to the requirements of AS/NZS 3000 where the electric line is laid within the consumers property.

Clearances of overhead run electric lines run in the road reserve shall comply to the heights prescribed in the Overhead Lines Construction Standard and to the requirements of AS/NZS 3000 where the electric line runs above the consumer's property.

Both ends of each phase conductor of an underground service/ distribution main shall be colour coded in accordance with the colour/s stated on the wiring application and as prescribed the Underground Network Construction Standard.

6.3.2 LV underground electric line in LV underground network areas

LV electric line in areas with underground LV distribution will be connected to the distribution network via an LV service box of appropriate size located on the property boundary.

6.3.3 LV pillar boxes

Pillar boxes are special-purpose junction boxes that accommodate LV service fuses and provide facilities for connection to the LV underground distribution cables.

Pillar boxes are normally located on the street side of the consumer's property boundary. Waipā Networks will, after consulting with the consumer or developer, determine the position of the LV service box. In residential areas, service boxes are generally placed on the street frontage at the junction of two property boundaries, allowing the box to serve two (2) consumers.

Where a subdivided lot is more than ten (10) metres from an existing LV service box, a new service box will need to be established at the property boundary.

NOTE: LV service boxes shall be of a type approved for use on Waipā Networks' networks as prescribed in *Low-Voltage Service and Link Boxes and Cabinets - Part B - List of Approved Boxes and Cabinets (under development)*.

6.3.4 Connection of electric line into service boxes

The connection of the LV electric Line into service boxes will be physically undertaken either by Waipā Networks or by a Waipā Networks-approved contractor.

The consumer is responsible for the fitting of any electric line tails and for the provision of suitable cable lugs.

6.4 LV Underground electric line in an overhead area

6.4.1 Pole Top Supply

In areas where the existing LV distribution network is overhead, consumers can be connected via an underground electric line running directly from a pole top to a meter box or main switchboard by having the electric line buried to the base of a nearby pole, attached to the pole and terminated onto a pole top fuse, subject to the following conditions:

1. A suitable pole must be available on the same side of the street as the consumer and within five (5) metres of the consumer's boundary.
2. The physical circumstances, such as ground levels and footpath conditions, are suitable for the installation of an underground cable.
3. All electric line cables shall be copper neutral screened. If the phase conductors are aluminium, then appropriate bi-metallic stalk lugs shall be supplied by the consumer.
4. The cable in the road reserve shall be laid as prescribed in *M-NDDC-005 Underground Distribution Network Construction Standard*. The cable on the consumer's property shall be installed in accordance with the requirements of *AS / NZS 3000*.
5. The cable shall cross the consumer's property boundary at a location determined by Waipā Networks that results in minimum trenching in the road reserve. All trenching and reinstatement shall be in accordance with the requirements of the local roading authority and *M-NDDC-005 Underground Distribution Network Construction Standard*.
6. The cable shall be appropriately mechanically protected above the ground level in accordance with the requirements of *M-NDDC-005 Underground Network Construction Standard*.
7. The cable length shall allow for the length of cable required up the pole.
8. Where a connection to a pole-mounted fuse is being made, the connection shall utilise the methods prescribed in *M-NDDC-004 Overhead Distribution Line Construction Standard* to prevent water ingress under the phase insulation. The cores of the cable shall be clearly marked at both ends to avoid any confusion.

6.5 Service box supply

In circumstances where an underground connection is required, and the conditions for a pole top supply cannot be met, an underground supply can be provided in an overhead area via an LV service box located in the road reserve.

6.6 HV electric line and substations

When it is necessary to install a transformer on a consumer's premises, the consumer shall make available on the consumer's premises suitable space to accommodate the transformer, HV cable or lines, associated switchgear, and metering equipment. Waipā

Networks' equipment accommodation requirements are prescribed in the below-mentioned design and construction standards.

The consumer shall also grant an easement in Waipā Networks' favour to facilitate its unrestricted access to all the equipment and fittings that are associated with the conveyance of electricity to both the consumer and any other consumers. All easements shall comply with the requirements of 392S011 Waipā Networks Land Access and Easement Policy. Waipā Networks' legal team shall always be involved in the preparation of those agreements.

Substations shall comply with the requirements of *M-NDDC-005 Underground Distribution Network Construction Standard* and (but not limited to) section 15 HV Distribution Substations.

All substations and HV circuits on the consumer's property shall be designed and constructed in accordance with the requirements of (but not limited to) the following documents:

1. *M-NDDC-003 Underground Distribution Network Design Standard*
2. *M-NDDC-005 Underground Distribution Network Construction Standard*
3. *M-NDDC-002 Overhead Distribution Line Design Standard*
4. *M-NDDC-004 Overhead Distribution Network Construction Standard.*
5. *High Voltage Metering Units - Purchasing Guidelines Specification.*

In addition to any requirements prescribed in the above-mentioned Waipā Networks standards, the connection of any HV installation to Waipā Networks' Electricity Networks shall also comply with the EEA Guide for the Connection of High Voltage Electrical Installations.

7 Metering equipment

7.1 General requirements

Unless otherwise contracted, the quantity of electricity delivered through the NCP to the customer's premises will be measured by metering equipment installed according to the Electricity Industry Participation Code.

In most cases, meters are owned, installed, operated and maintained by the electricity retailer, the customer or an agreed third party (i.e. retailer's Metering Equipment Provider). Waipā Networks does not own the meters at a customer's premises.

- Metering equipment shall be provided in accordance with the relevant Distributor Agreement and shall be to EIPC standards. All metering equipment installed at connected user premises must comply with EIPC standards in order to qualify for any pricing or commercial incentives Waipā Networks offers to connected users.
- All New Connections are required to have meters installed that are capable of downloading half-hour (HHR) data for revenue purposes.

Where Waipā Networks owns high-voltage switchgear dedicated to supplying a specific customer on a case-by-case basis, an agreement may be required for us to provide measuring HV instrument transformers (i.e., voltage and current transformers) for metering purposes. This equipment must be designed and tested to comply with the connection capacity and the requirements of the Electricity Industry Participation Code.

For residential customer connections, a meter box as specified for domestic electric meter boxes - NZS 6206:1980, is required before connection can proceed.

7.2 Metering for Distributed Generations

All DG sites shall have import/export meter installed for compliance monitoring purpose.

A DG that exports with no intention to be paid for its generated electricity ('gifting') will still require an import/export meter.

Refer to Section 2.6 for the Specific Metering Requirement for DG connected at LV.

7.3 Metering Required by Waipā Networks

Waipā Networks may install an additional set of metering equipment at or after any consumer's point of supply for checking and distribution network management purposes. Consumers shall provide appropriate space within their premises to accommodate Waipā Networks' metering equipment.

7.4 Metering of Waipā Networks assets

Electricity consumed by Waipā Networks-owned buildings shall be treated as if they are a consumer's installation, therefore, an ICP must exist, and the energy consumed is accounted for by Waipā Networks' designated energy Retailer / Trader.

Notes:

- *Electricity consumed by Waipā Networks equipment for the purposes of distributing and operating Waipā Networks electricity network's - i.e., Works - shall be exempted from this requirement.*
- *The testing and inspection requirements prescribed in section Metering Requirements shall also be applied for all Waipā Networks metering installations.*

Network Connection Standard

8 Streetlighting and under-veranda lighting

8.1 General streetlighting requirements

The Network does not own any streetlighting luminaires, columns, lamps and outstretch arm. Streetlights are generally owned by a third party, such as a local authority or the NZ Transport Agency (NZTA) or Waipa District Council.

Each streetlight site / position is regarded by Waipā Networks an installation as defined in AS/NZS 3000 Wiring Rules.

Each supply shall comply with the requirements of section 6.1 LV Connections.

Note: See Waipa Network drawings WNL5416 and WNL5417 for connection and demarcation points.

8.2 Connection of streetlight to the network

Connection of streetlights to Waipā Networks electricity networks shall only be undertaken by contractors who have been approved of by Waipā Networks to do those works.

Each streetlight pole / column shall have a switchboard. The connection point shall be the supply side fuse terminal at the switchboard.

Streetlights shall be directly connected to Waipā Networks electricity networks by a single core cable. Streetlight cable sizes approved for use on Waipā Networks are prescribed in *Network Underground Cables - Part B - Approved Cables and Manufacturers List*.

Each individual streetlight luminaire shall be supplied from a dedicated streetlight circuit protected by its own fuse holder fitted with an HRC fuse (maximum of forty (40) amps per phase) that can supply a highly inductive/capacitive load. The HRC fuse holder shall be approved for use on Waipā Networks as prescribed in High Voltage and Low Voltage Fuse Equipment - Part B - Approved Fuses List.

Where more than one (1) streetlight is supplied from an LV network connection, the number of streetlights supplied shall be limited to the load capacity of the cabling. The supply cable shall be looped in and out of each streetlight pole / column respectively.

Streetlight loading shall be distributed evenly between all three phases with consideration to load balancing of Waipā Networks LV distribution network - Waipā Networks requirements are prescribed in the standards listed in Underground Network Construction Standard under General Technical Requirements section.

8.3 Under-veranda lighting connections

The connection of under-veranda lighting to Waipā Networks electricity networks shall only be undertaken by contractors who have been approved by Waipā Networks to do those works.

Under-veranda lighting shall be supplied by a suitably rated fuse (maximum of forty (40) amps per phase) that can supply a highly inductive/capacitive load. Each supply shall comply with the requirements of Connection Requirements section of this standard. Also refer to Waipā Networks Streetlight Supply, Control and Ownership Policy for guidance on ownership details.

8.4 Streetlight column wiring and earthing

A switchboard shall be installed inside the streetlight column at a height not lower than 300mm above finished ground level. The switchboard shall meet the requirements of AS/NZS 3000 Wiring Rules and be equipped with a neutral bar, earth bar, and HRC fuse.

The neutral and earth bar shall be linked with a removable link.

Wiring connections shall be as shown in 393S007 section 7.4.3 Diagram - Streetlight Earthing.

8.4.1 Streetlight earthing

Each streetlight pole/column shall be earthed by means of a 6mm² copper insulated earthing conductor connected to an earth electrode. The earth electrode shall be 13mm diameter copper-clad steel.

The earthing conductor shall be connected to the earth electrode in accordance with Waipā Networks Permanent *Earthing - Part B - Construction Requirements*.

8.4.2 Streetlight luminaires mounted on Waipā Networks poles

Where streetlight luminaires are installed on Waipā Networks poles, each luminaire shall be directly connected to Waipā Networks LV network supply by means of an HRC fuse, connected to the phase conductor.

Fuse protection shall be in accordance with *M-NDDC-007 Network Fuse Protection Standard*.

The HRC fuse link shall be six (6) amps with utilisation category gG with rupturing capacity of 120 kA.

The fuse carrier shall be thirty (30) amp (minimum, preferably 100 amp rated) rated and mounted on the cross arm.

Each alternate luminaire shall be connected to an alternate phase for load balancing purposes.

9 Network Operations

This section outlines Waipā Networks' responsibilities as well as any general requirements of connection.

9.1 Interruptions

9.1.1 Planned interruptions

Waipā Networks may need to turn the power off to your property on occasion to carry out testing, maintenance, upgrades, or other work involving our network operations. We will notify you of a planned interruption by the following means:

6. A notification provided to your electricity retailer, who will, in turn, notify you under the terms of your supply agreement
7. If you have signed up to our e-mail notification system, an e-mail will be sent to you (refer to our website for details on this service)
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 consumers and where possible we will try and schedule them in a manner as to keep this inconvenience to a minimum. However, it is difficult to accommodate all consumers, and 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 contact us immediately.

9.1.2 Unplanned interruptions

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

8. Adverse weather
9. Motor vehicle accidents
10. Animals
11. Trees
12. Equipment failure
13. Other external interference.

If the power to your property goes off unexpectedly then please call our faults service. This service will advise you if there are any reported faults currently on our network and gives you the opportunity to report a fault.

In the event of an unplanned interruption our staff will make all reasonable attempts to have the power back on 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:

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

9.2 Faults reponse

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

18. Full or partial loss of power supply
19. Flickering power
20. Failure of ripple control devices (commonly affecting the hot water supply)
21. Trees touching or threatening power lines
22. Other external event affecting power lines
23. 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 a fault at your property and the cause is found to be internal to your property there will in most cases be a charge for the service.

10 Consumer complaints

10.1 Complaints

Waipā Networks is proud of the services it provides. If you have a complaint about our service, you are welcome to use our free Complaints Resolution Process. If you would like information regarding this process, or wish to lodge a complaint, please contact our Consumer Team.

10.2 Utility disputes

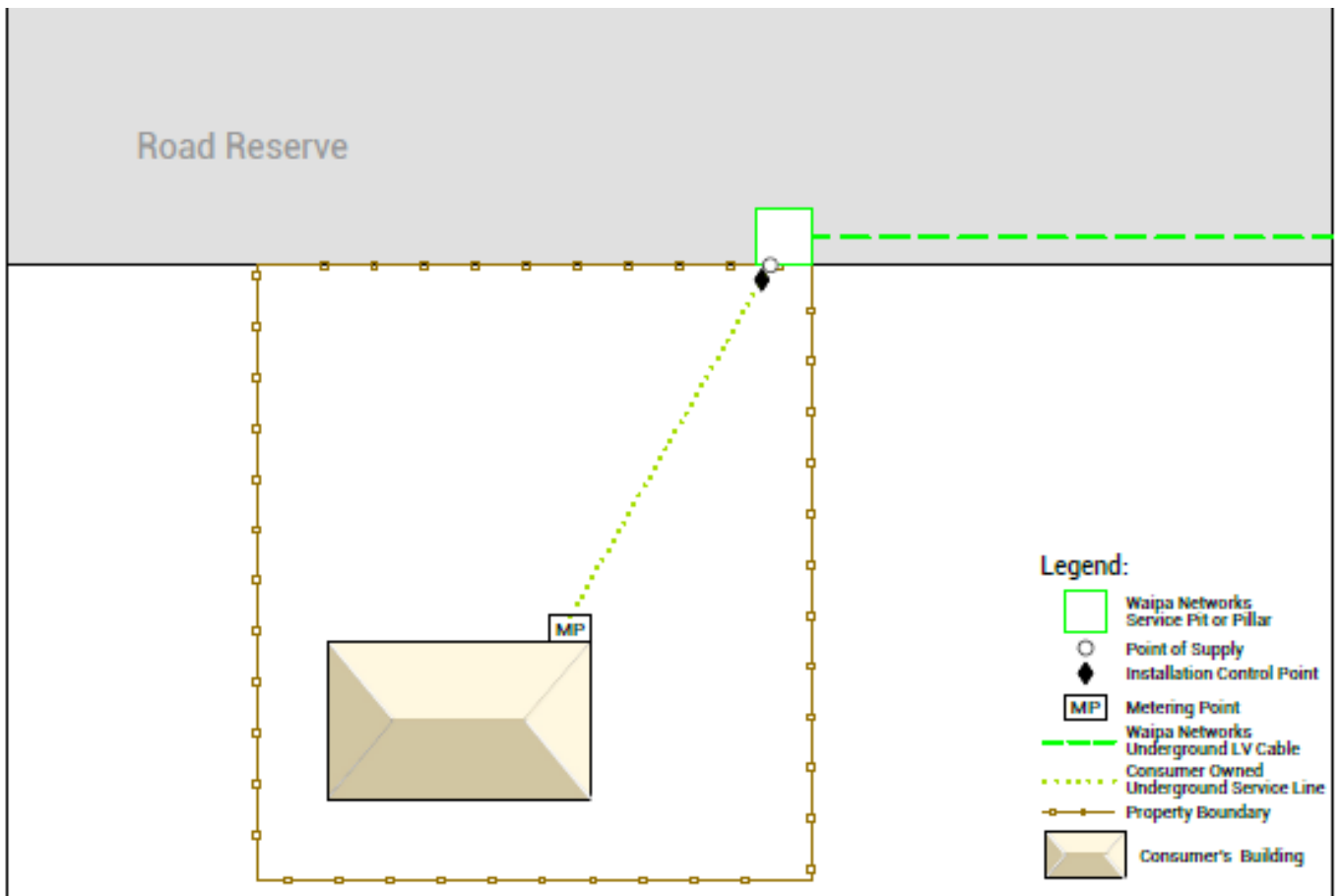
Utility Disputes Limited is a free and independent complaints resolution service available to electricity consumers and landowner/land occupiers. Waipā Networks is a member of this scheme, and should you not be satisfied with the outcome of our free internal Complaints Resolution Process you are able to make use of this service. For information about Utility Disputes please visit www.utilitiesdisputes.co.nz.

Network Connection Standard

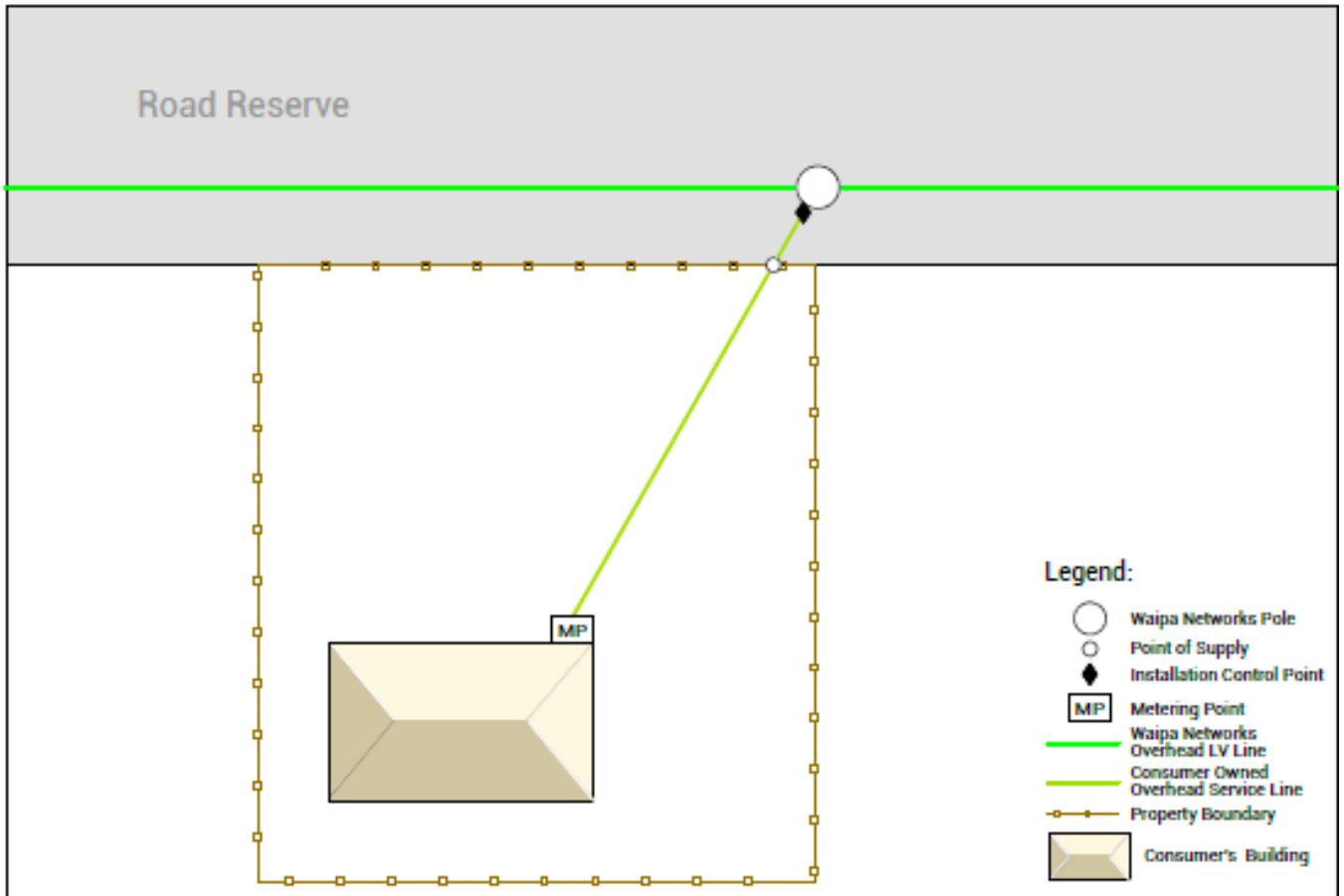
11 Appendix - network connection configurations

This section describes the different types of configurations that new customers can connect to the network. It illustrates the general ownership and responsibilities of Waipā Networks and the customer

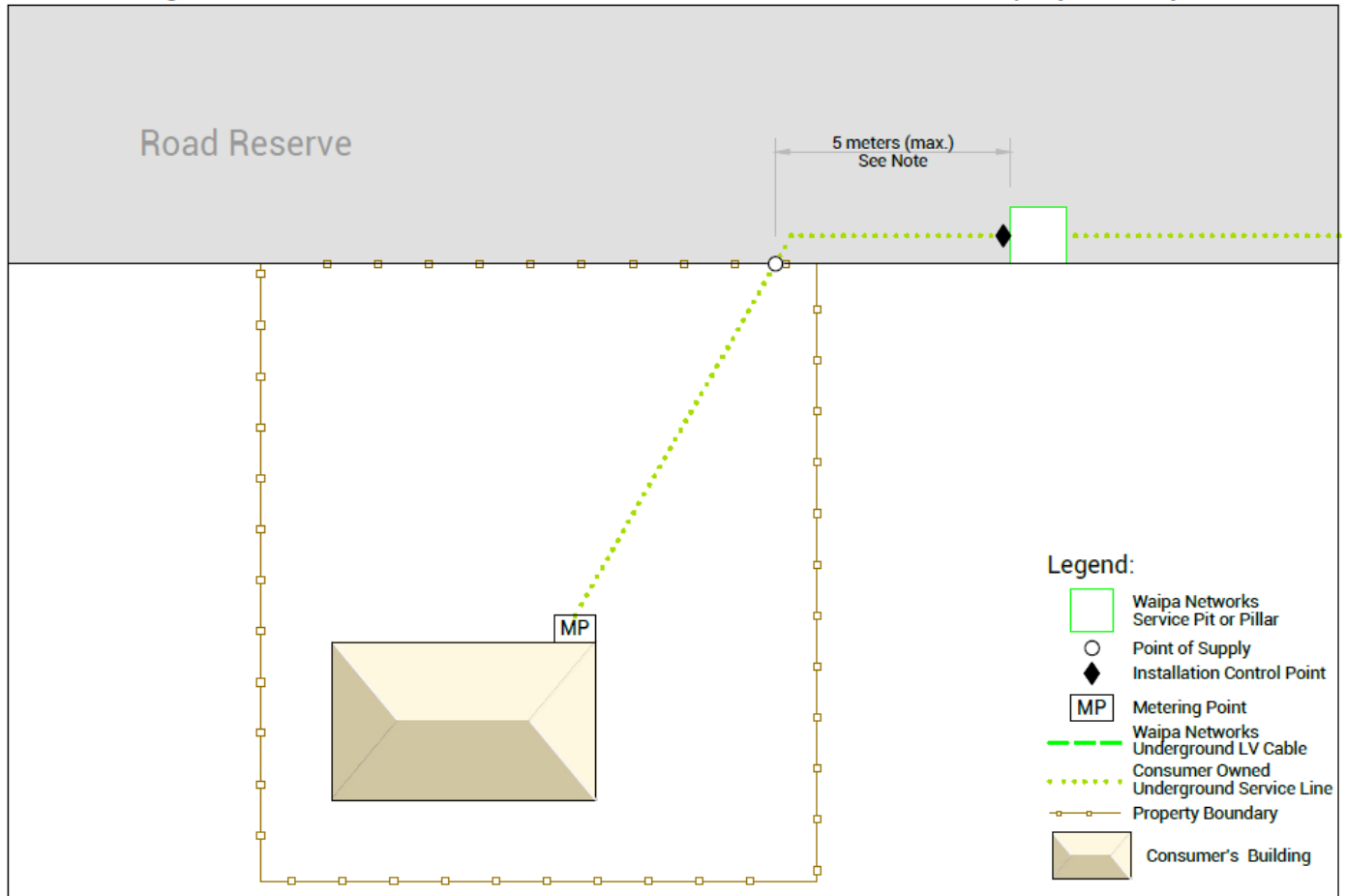
11.1 LV supply to one consumer from service pit or pillar located on the property boundary



11.2 LV supply to one consumer from overhead line on the property boundary



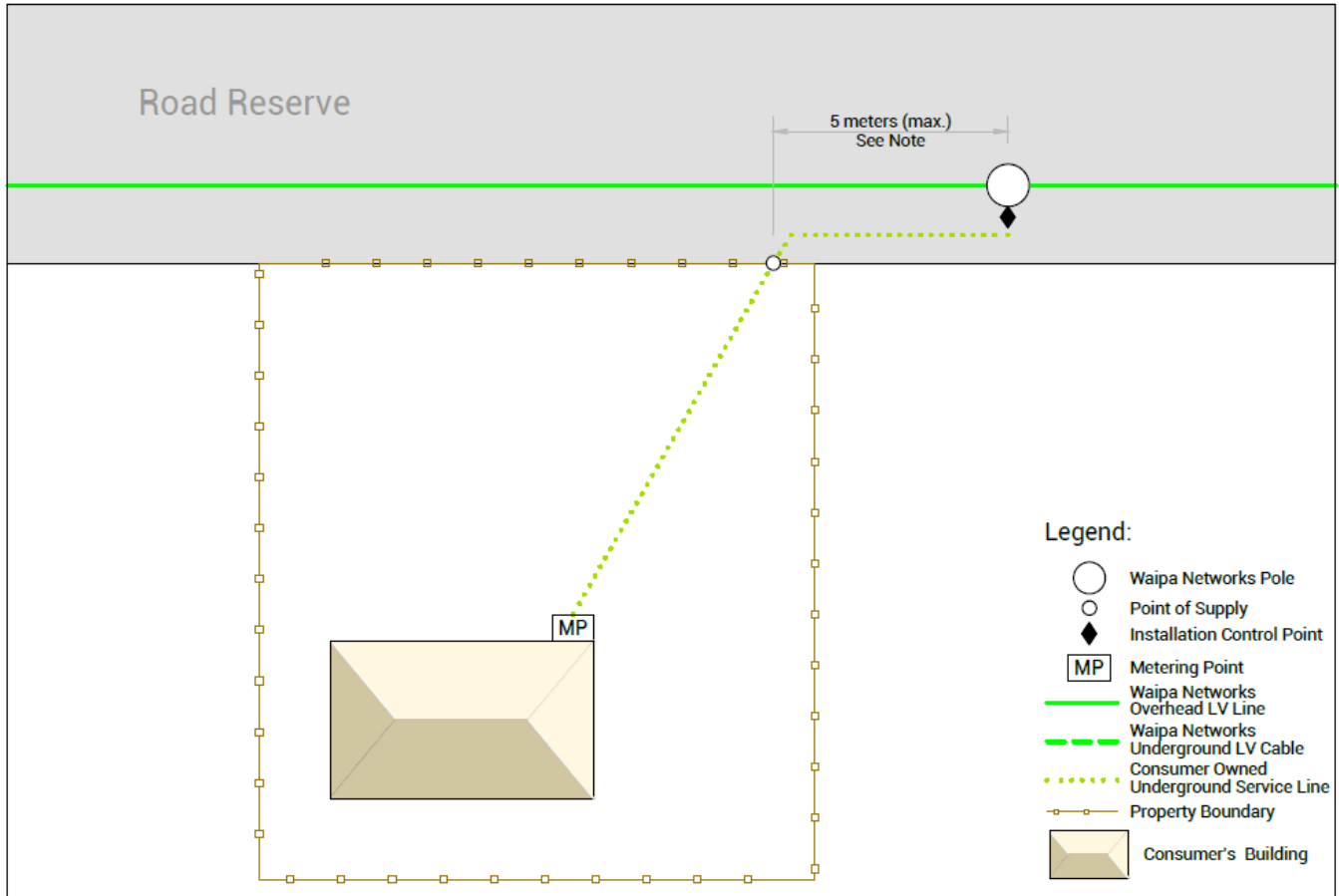
11.3 LV underground cable to one consumer from service pit or pillar not located on the property boundary



Notes:

- Underground service cables located within the road reserve with a horizontal distance of up to 5 metres, measured from the point the service line leaves the property boundary to the point of connection, are customer-owned but shall be maintained by Waipā Networks.
- Where the horizontal distance exceeds 5 metres, the underground service cable outside the boundary shall be owned and maintained by Waipā Networks. – Note: new connections will not be permitted where the connection point exceeds 5 meters form the boundary.

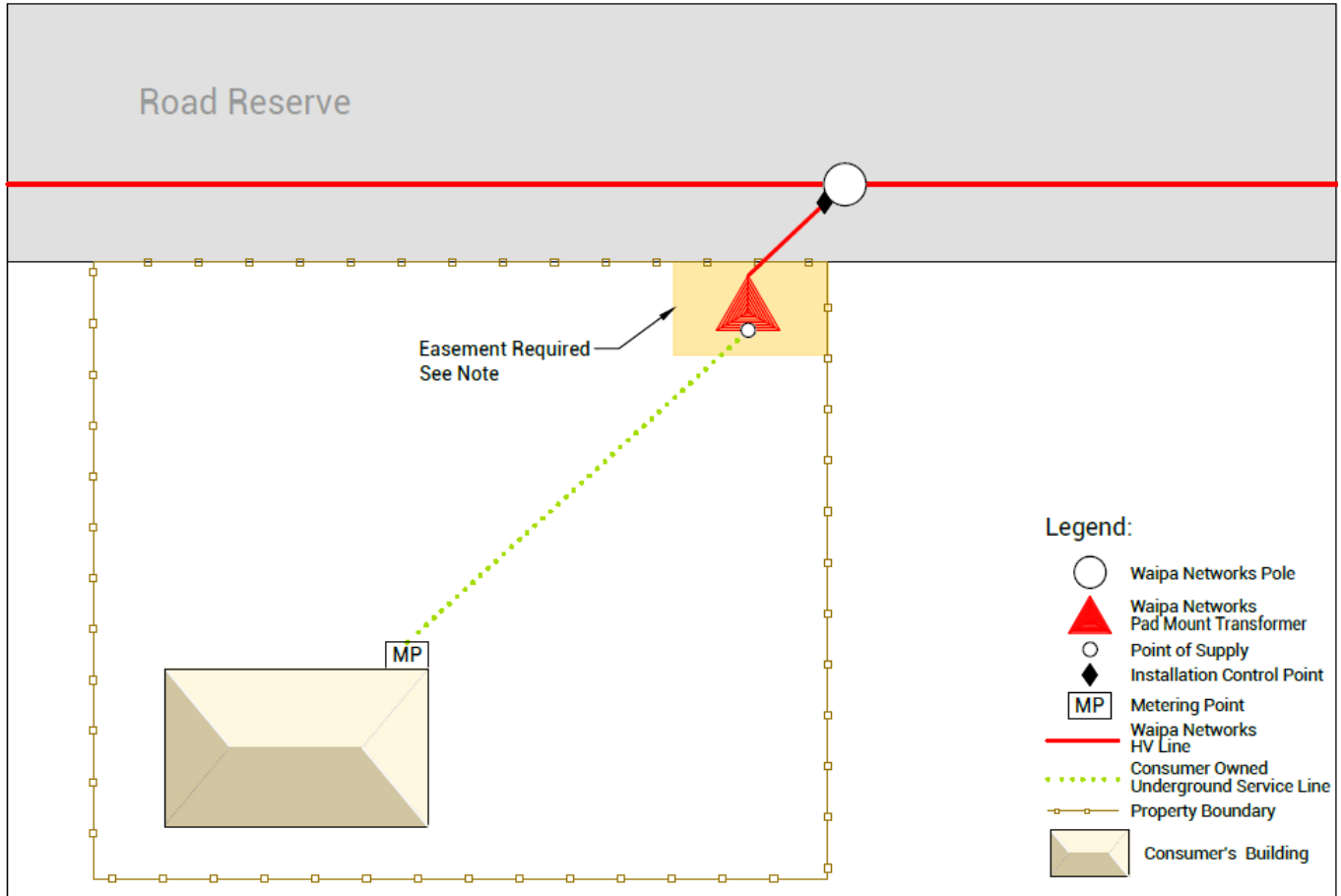
11.4 LV underground cable to one consumer from overhead network pole not located on property boundary



Notes:

1. Underground service cables located within the road reserve with a horizontal distance of up to 5 metres, measured from the point the service line leaves the property boundary to the point of connection, are customer-owned but shall be maintained by Waipā Networks.
2. Where the horizontal distance exceeds 5 metres, the underground service cable outside the boundary shall be owned and maintained by Waipā Networks. – Note: new connections will not be permitted where the connection point exceeds 5 meters from the boundary.

11.5 HV Supplied connection to a single transformer supplying one consumer



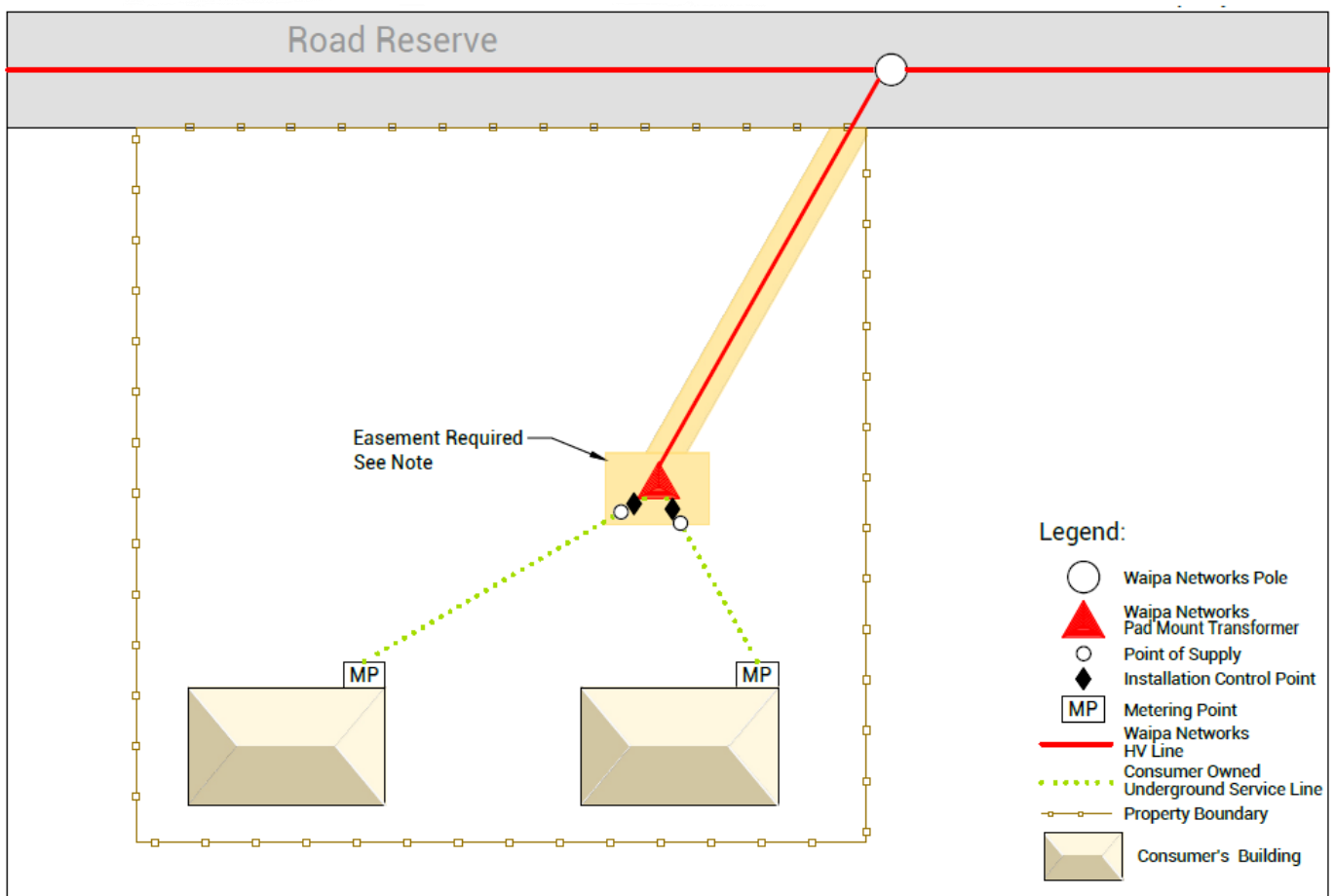
Notes:

1. Waipā Networks assets located within private property require an easement to provide access for operation and maintenance.
 24. Standard easement dimensions for pad-mounted transformers are as follows:

Transformer Rating	Length (mm)	Width (mm)
100-500 kVA	5300	4300
750-1000 kVA	5870	4600
1500 kVA	6110	4600
 25. Where a transformer is installed near a building or similar structure, a greater easement area is required. Refer to standard drawing C-TX025 - Pad Mount Transformer Standard Easement for more details.
2. For a dedicated transformer (pad-mounted or pole-mounted) on common property, no LV service pillar is required.

11.6 HV supplied connection to single transformer supplying multiple consumers on the same common property

Scenario: This situation covers a single transformer located on a single property on which multiple installations are located, each of which are individually metered. The same situation can be applied to multi-story buildings (e.g. apartments, offices, etc.).



Notes:

1. Waipā Networks assets located within private property require an easement to provide access for operation and maintenance.
 26. Standard easement dimensions for pad-mounted transformers are as follows:

Transformer Rating	Length (mm)	Width(mm)
100-500 kVA	5300	4300
750-1000 kVA	5870	4600
1500 kVA	6110	4600
 27. Where a transformer is installed near a building, a greater easement area is required. Refer to standard drawing C-TX025 – Pad Mount Transformer Standard Easement for more details.
 28. Where Waipā Networks underground HV lines are located within private property, a minimum easement width of 3.0 metres is required. For overhead lines, a minimum easement width of 5.0 metres is required.
2. For a dedicated transformer (pad-mounted or pole-mounted) on common property, no LV service pillar is required.

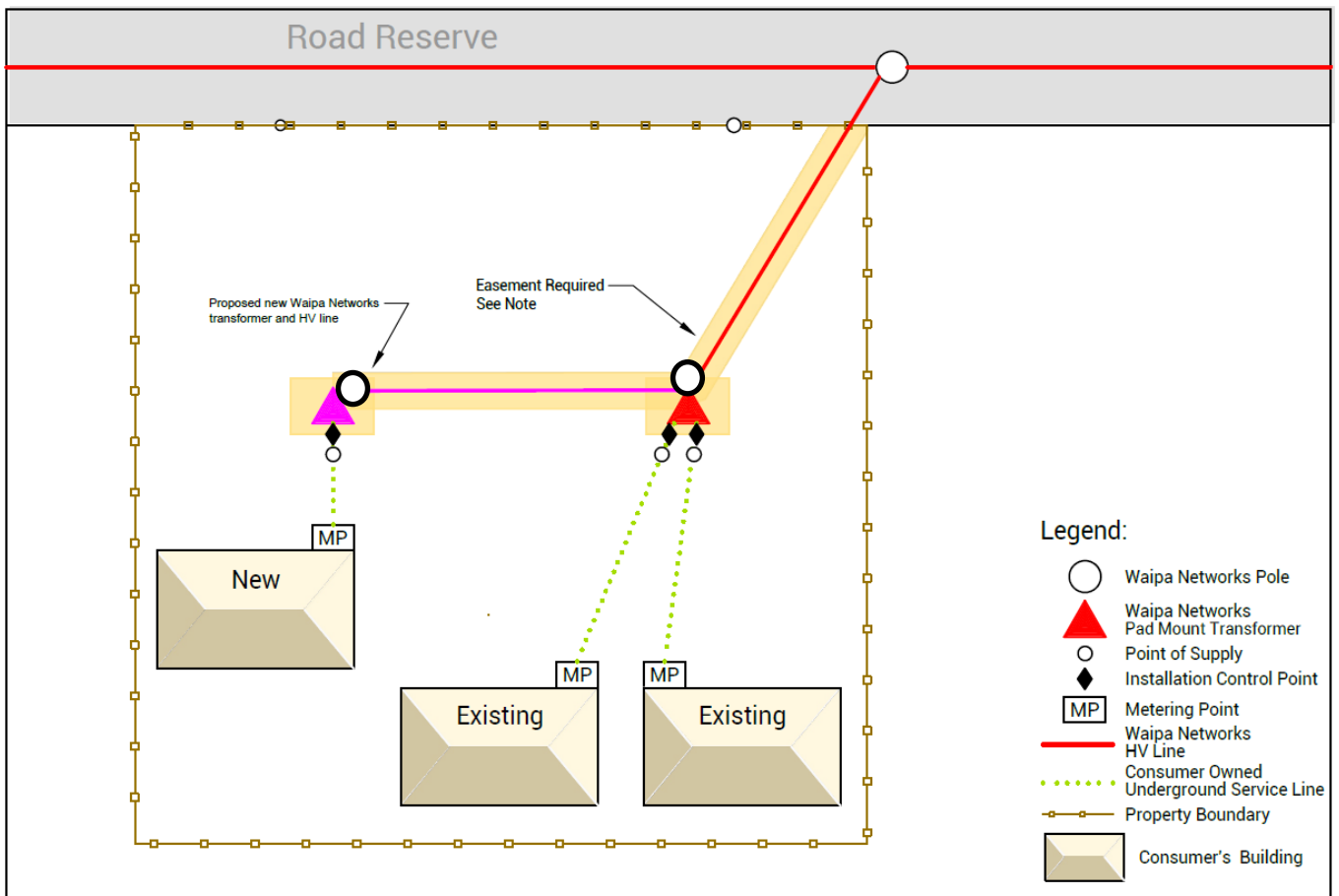
Network Connection Standard

3. Where a metered installation supplies multiple tenants, isolation of supplies and revenue collection are the responsibility of the building owner.
4. Each consumer shall have an individual metering point and a separate point of isolation, to which Waipā Networks has access rights, allowing any individual consumer to be isolated without affecting supply to other consumers.

11.7 HV supplied connections with multiple transformers on same common property with multiple consumers

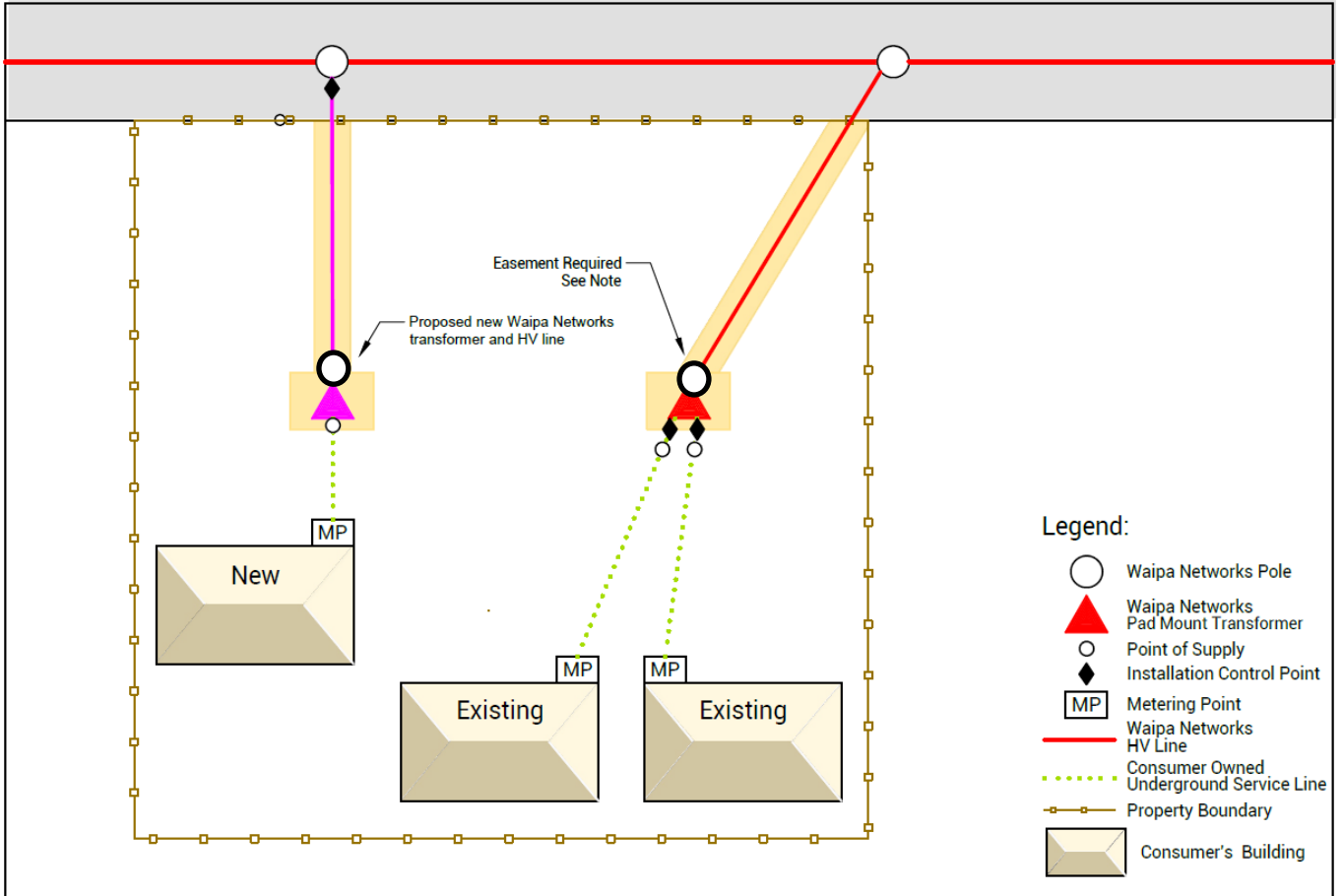
Scenario: This situation covers multiple transformers located on a single property on which multiple installations are located, each of which are individually metered. The same situation can be applied to multi-story buildings (e.g. apartments, offices, etc.).

OPTION 1



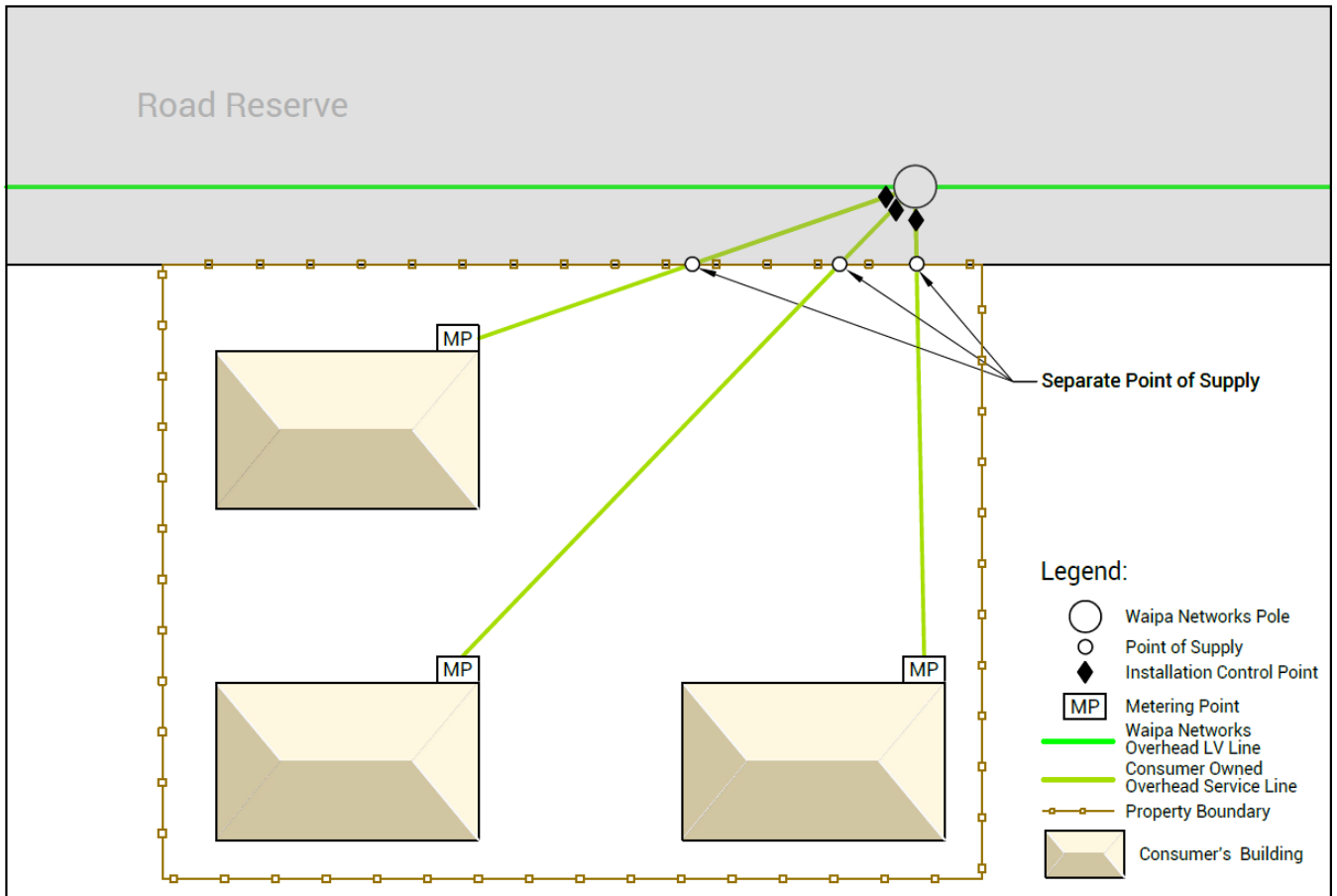
Remarks: See Notes on Appendix 11.6

OPTION 2

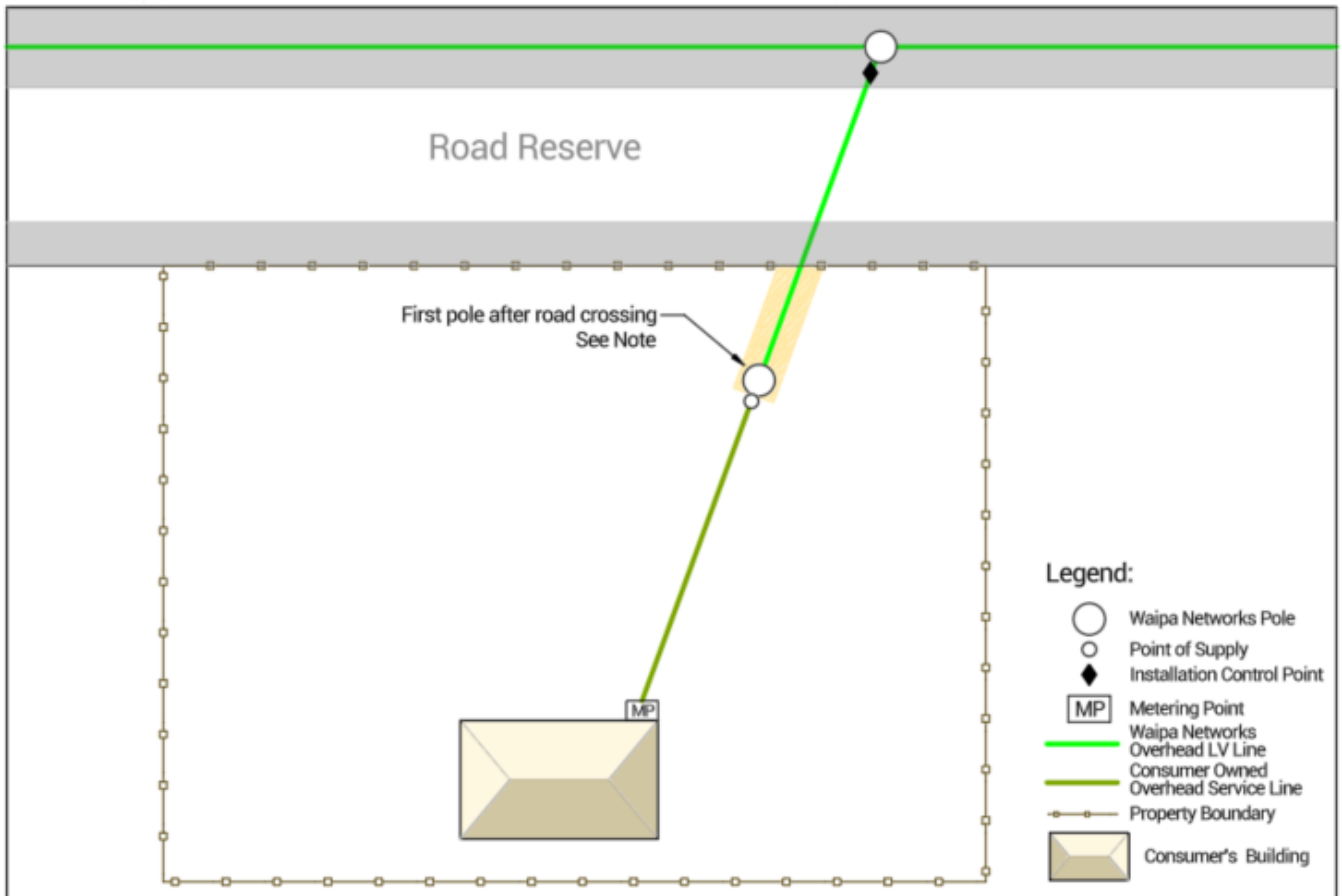


Remarks: See Notes on Appendix 11.6

11.8 LV multiple overhead connections from the network to multiple installations all located on common property

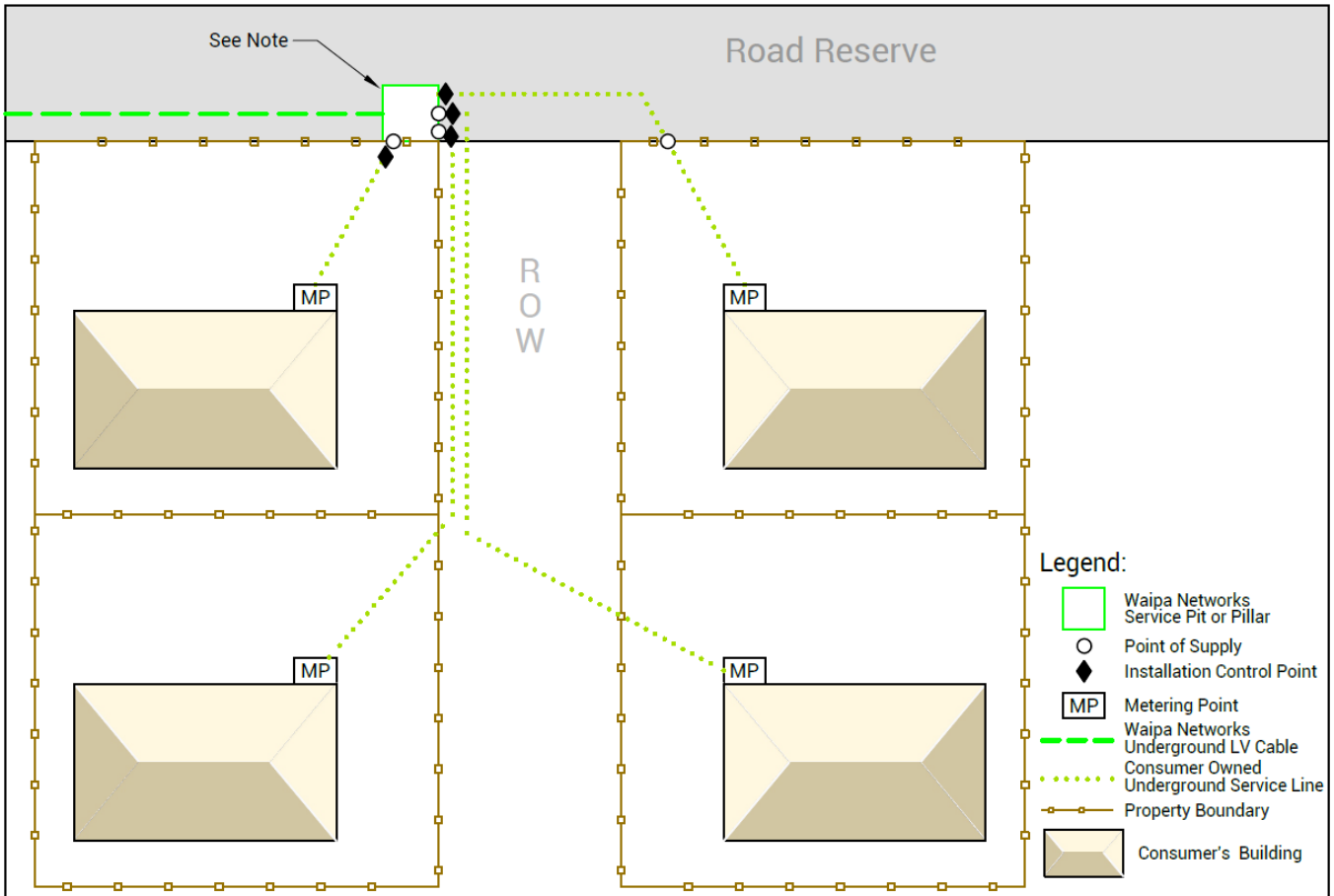


11.9 LV supply to one consumer from the network overhead line crossing the road



Note: The first LV pole and the associated overhead line from the network LV overhead line after the road crossing shall be owned and maintained by Waipā Networks, and shall require an easement unless it was installed before 1 January 1993

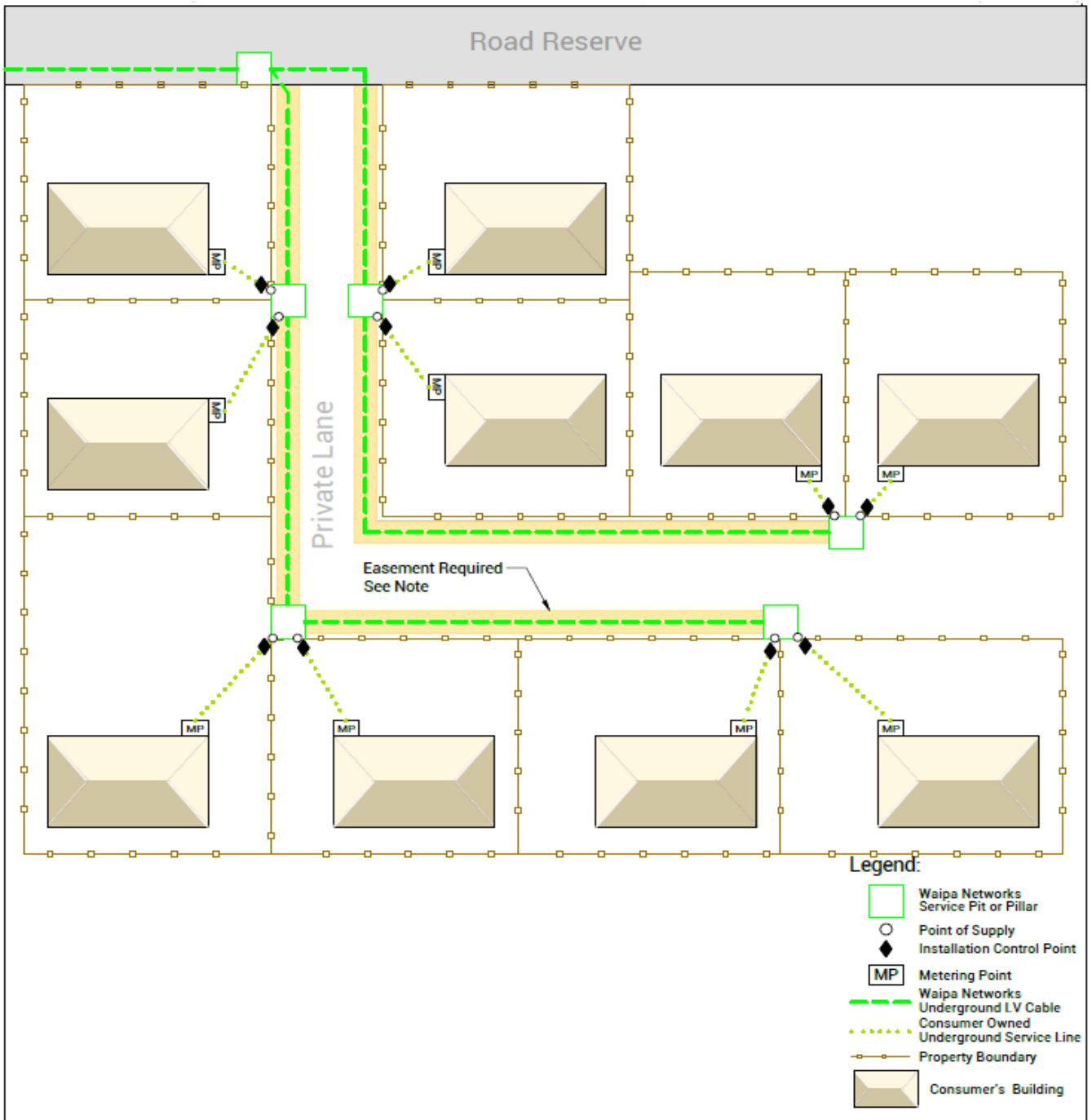
11.10 Multiple LV connections to the network, through a single point of connection (more than two connections, right of way)



Note:

Waipā Networks service pits or pillars may be positioned on either or both sides of the right-of-way, where practicable for the proposed connections.

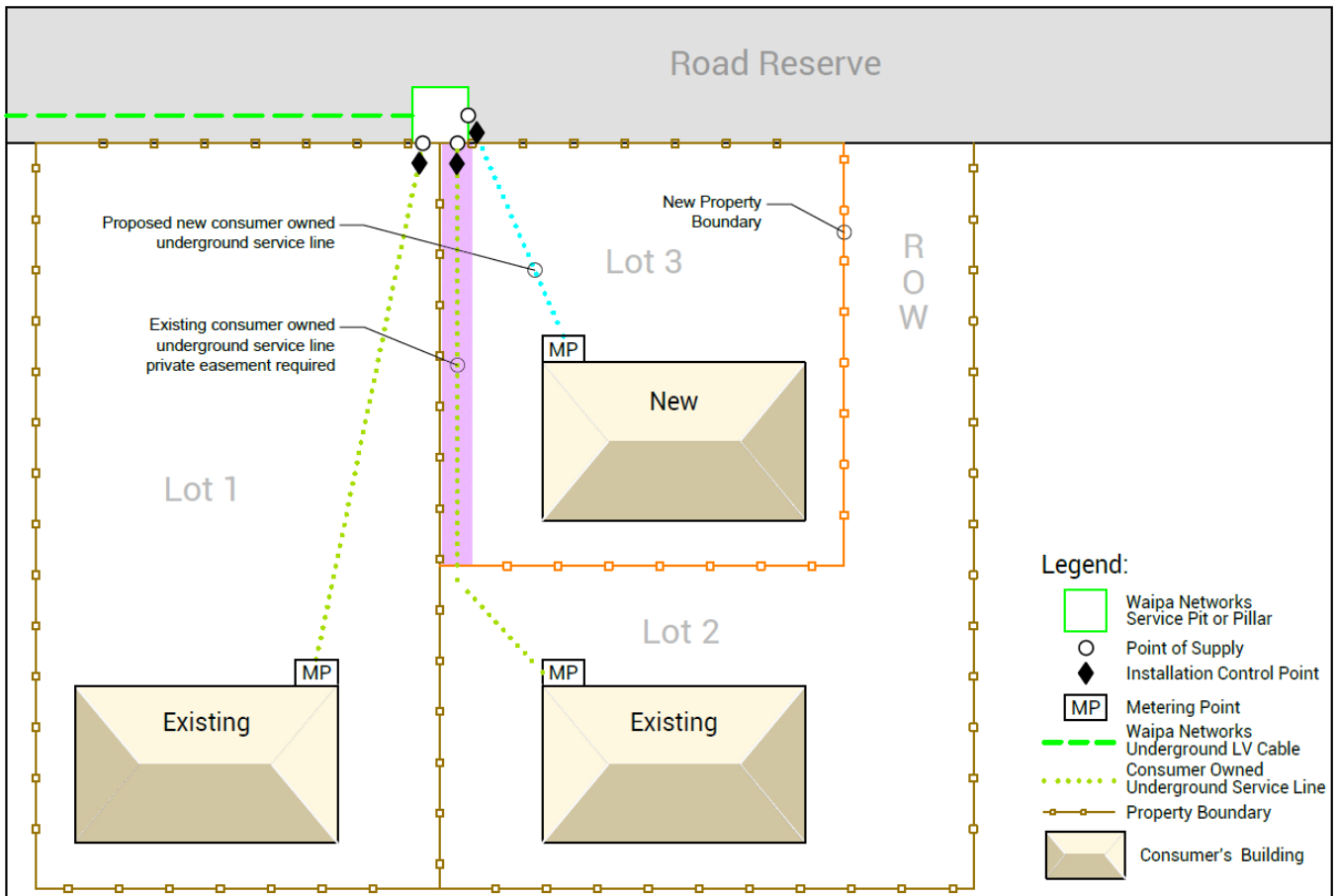
11.11 LV multiple underground connections to the network, located in different property, through multiple point of connection (private lane)



Note: Where Waipā Networks Underground LV lines and service pit or pillar are located within private property, a minimum easement width of 2.0 metres is required on the pillar and the LV network cables.

11.12 Existing LV underground connections from service pit/pillar located at the frontage boundary with proposed new front connection

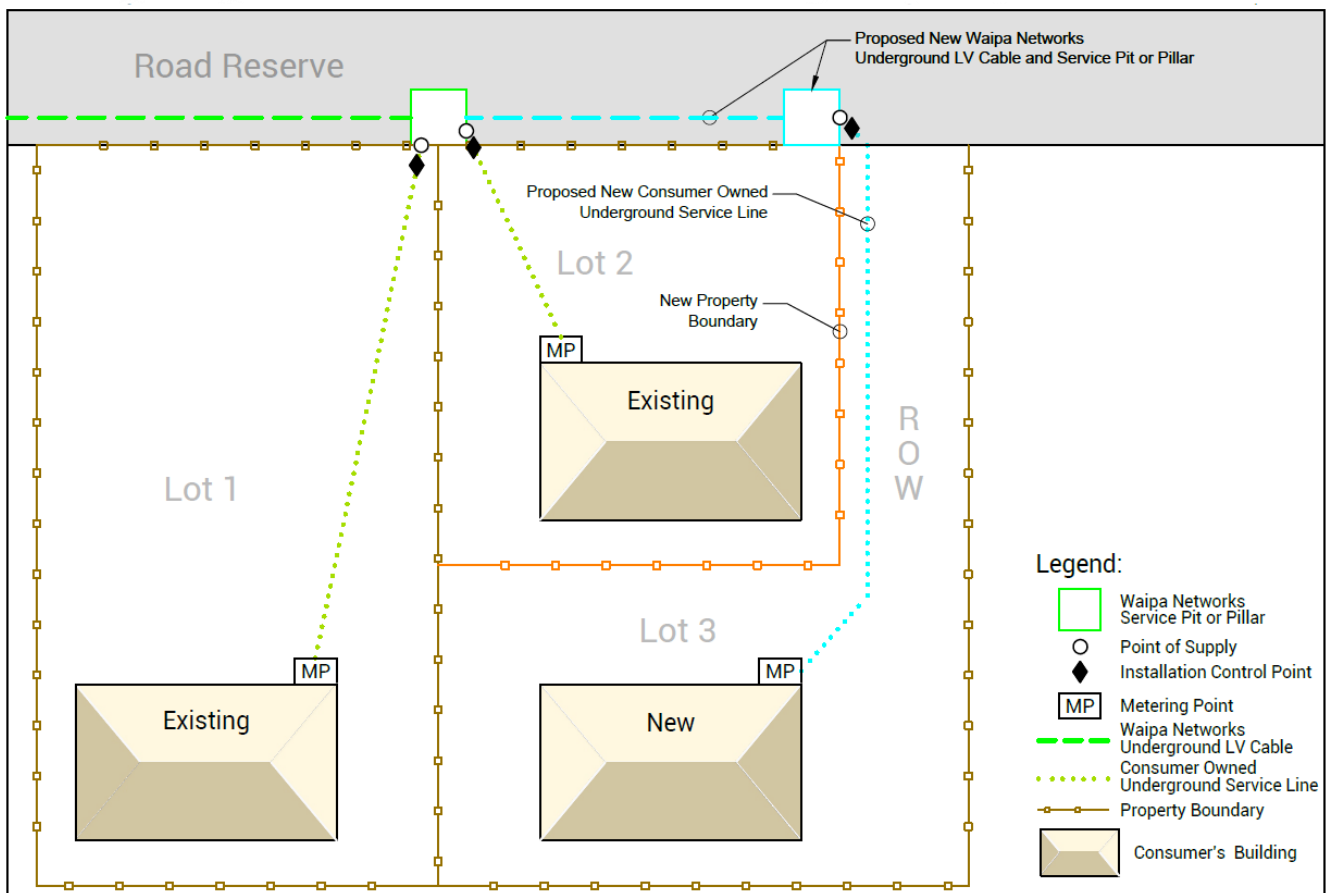
Scenario: Existing underground LV services supply Lot 1 and Lot 2 from the frontage boundary service pillar. The Lot 2 landowner (rear lot) has decided to subdivide and sell a portion of their property at the front, creating Lot 3.



Note: The existing consumer-owned underground service line supplying Lot 2 passes through Lot 3 and now requires a private easement.

11.13 Existing LV underground connections from service pit/pillar located at the frontage boundary with proposed new rear connection

Scenario: Existing underground LV services supply Lot 1 and Lot 2 from the frontage boundary service pillar. The Lot 2 landowner (front lot) has decided to subdivide and sell a portion of their property at the back, creating Lot 3.

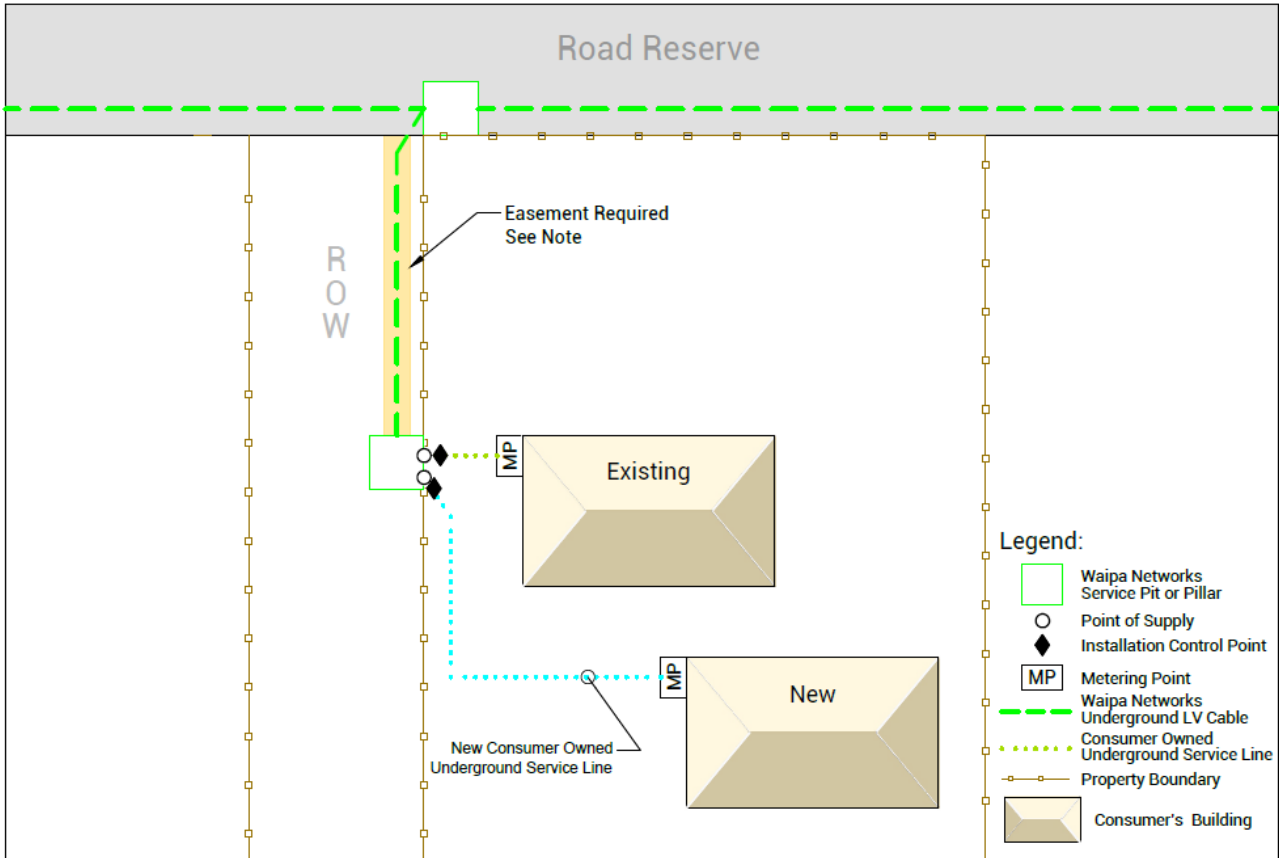


Note: The following conditions apply:

- The new installation must ideally follow the current design guidelines and will require connecting at a POC/POS at or within 5m of the property boundary.
- Alternatively, the property owner of Lot 2 & lot 3 is legally allowed to install a service main through the existing property (Lot 2) to supply lot 3 if an easement is put in place to convey electricity through the front property to supply the rear property (Waipa Networks would need to see a copy of the LT plan for this subdivision). This only applies for a maximum of one additional property.
- Sections only will be subject to the current design guidelines and require a supply available at the POS/POC on the property boundary unless the developer installs the mains cable for the new owner prior to the build. (Waipa Networks would need to see a copy of the LT plan for this subdivision).

Network Connection Standard

11.14 LV Supply to existing consumer from service pit or pillar with new connection located on common property (ROW)



Note: Where Waipā Networks Underground LV lines and service pit or pillar are located within private property, a minimum easement width of 2.0 metres is required.

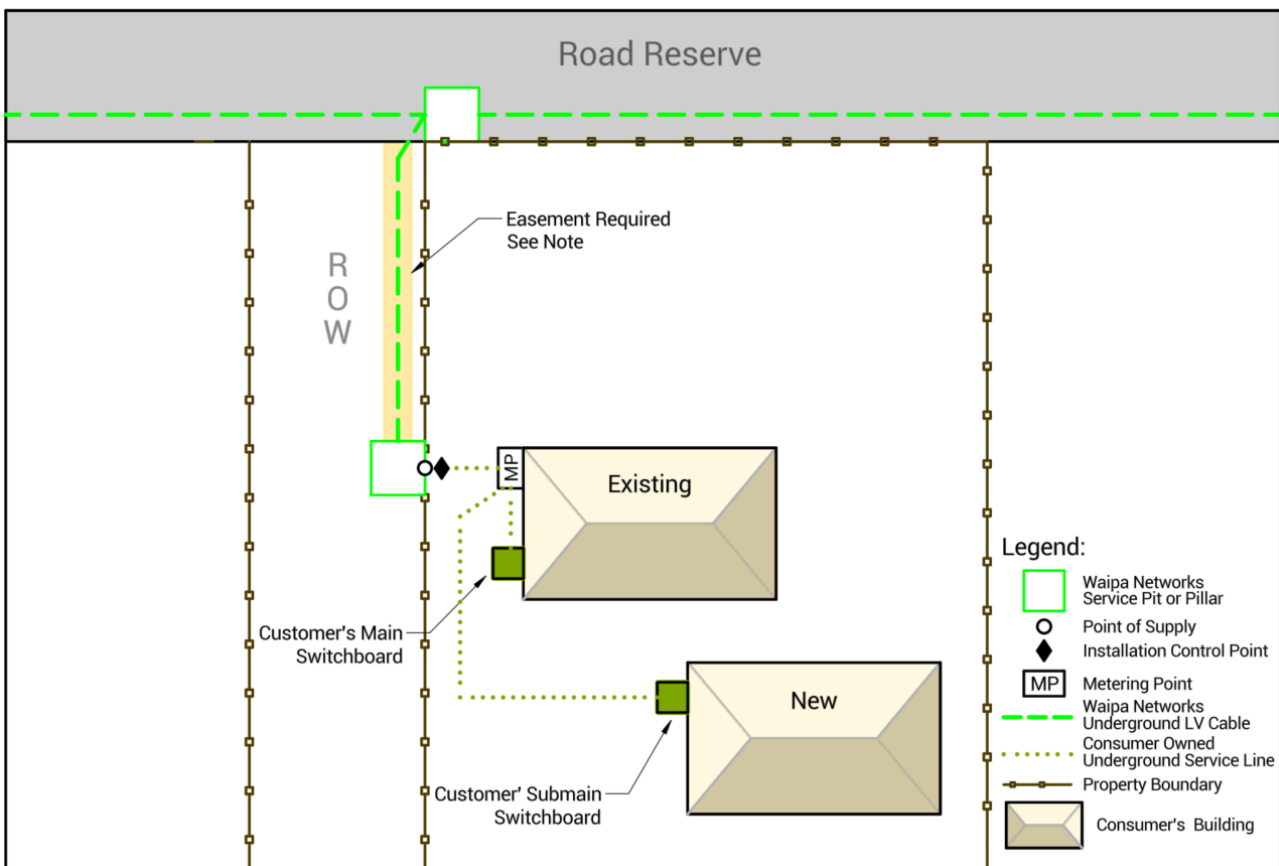
Network Connection Standard

11.15 LV Supply to Existing Consumer from Service Pit or Pillar with Additional Submain Located on Common Property (ROW)

Note: Where Waipā Networks Underground LV lines and service pit or pillar are located within private property, a minimum easement width of 2.0 metres is required

Note 1: If two ICP's are required, the MP must be upgraded to a DB to prevent double-billing and create a separate isolation point.

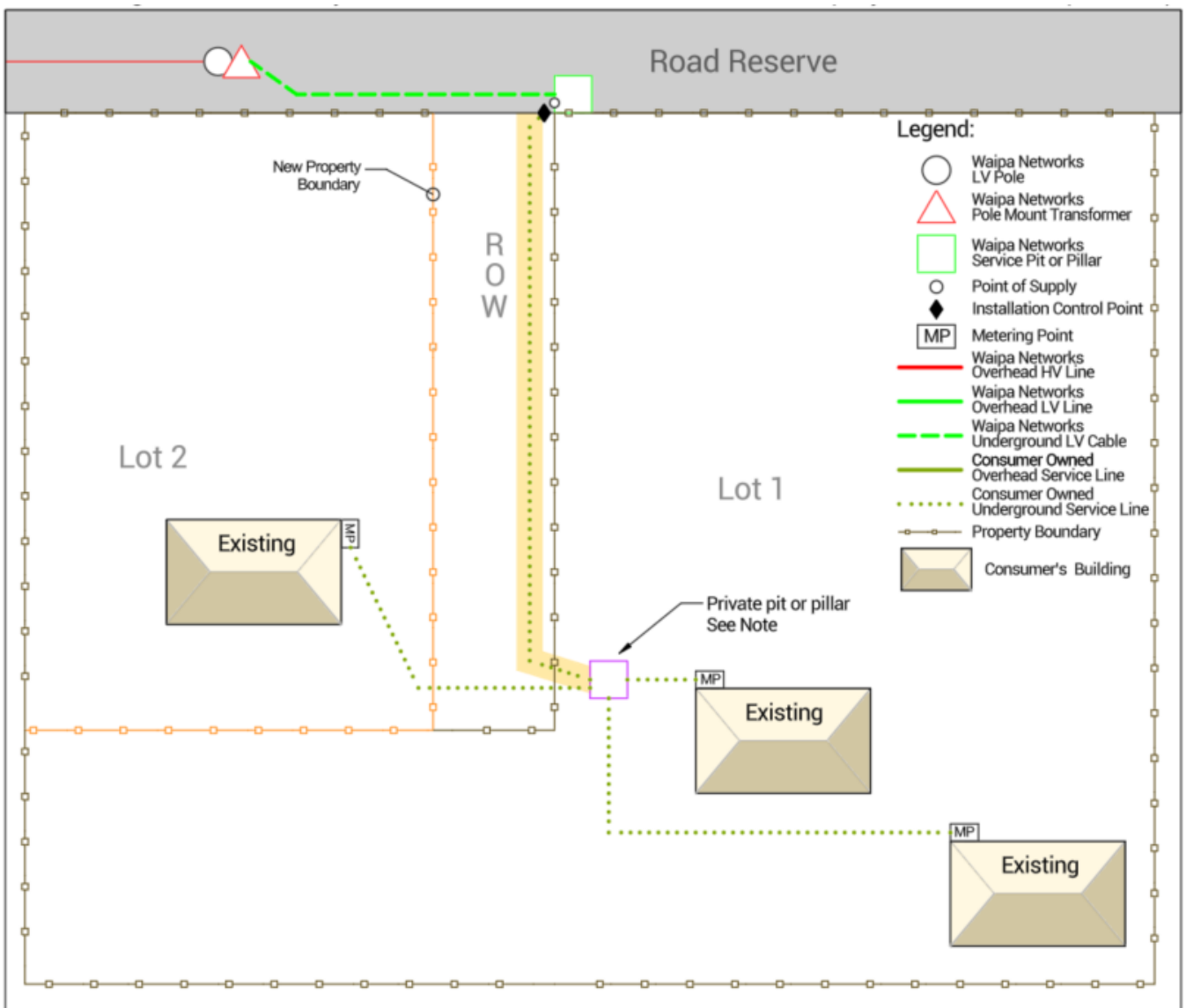
Note 2: if this property was to subdivide the new house would require a separate service mains supply cable to be run from the second house directly to the pillar box.



Network Connection Standard

11.16 Existing consumer currently connected to private pit or pillar on common property that is subdivided

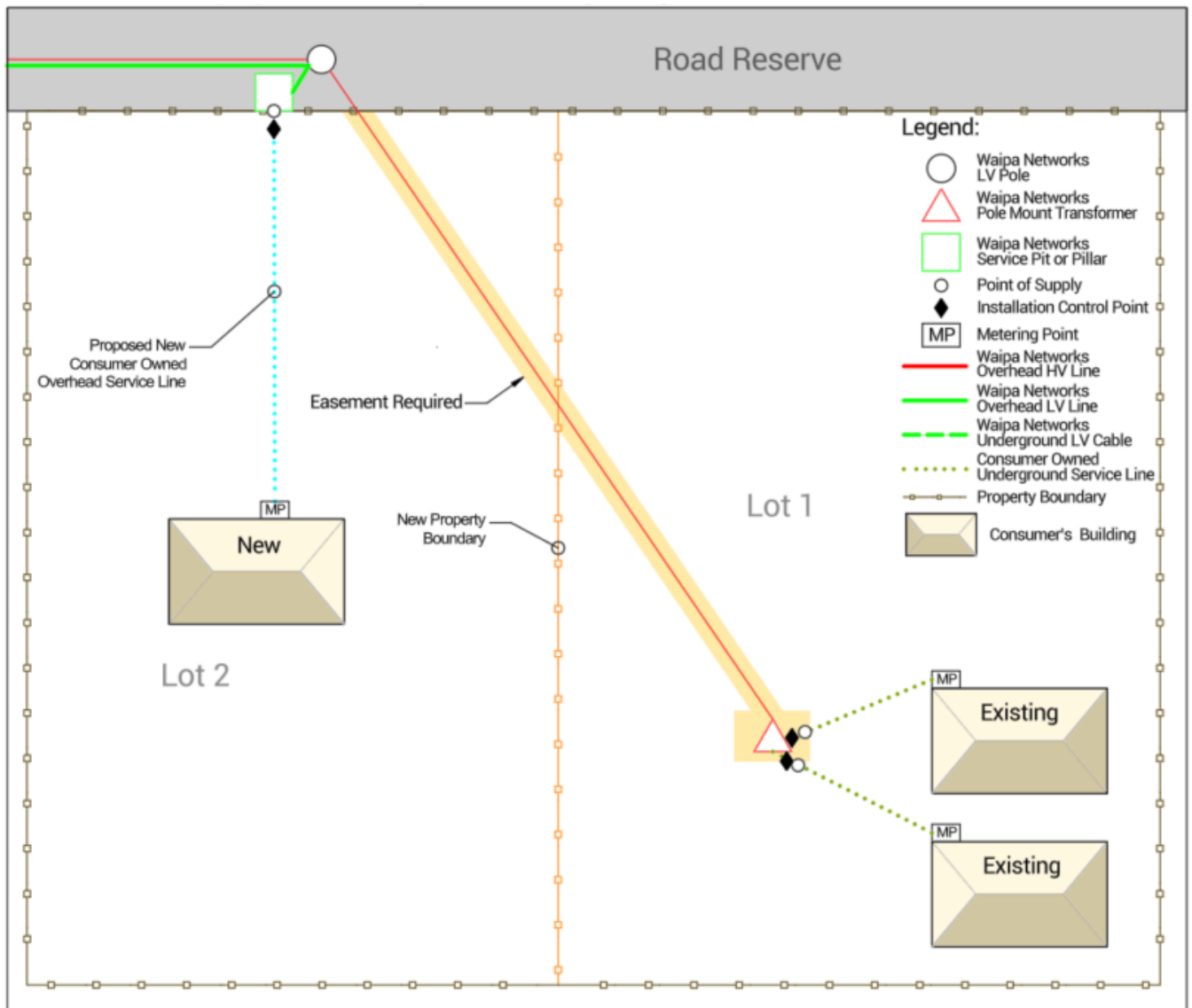
Scenario: A landowner has decided to subdivide and sell a portion of their property (Lot 2). Lot 2 is currently supplied via a privately owned pit/pillar located on the original property (Lot 1).



Note: The existing private pit or pillar shall be transferred to Waipā Networks ownership, and an easement shall be provided from the road reserve to the pillar. The condition of the pillar must be acceptable before subdivision approval is granted by Waipā Networks.

11.17 Subdivided property with an existing HV line passing through the new lot

Scenario: A landowner has decided to subdivide and sell a portion of their property (Lot 2). The Waipā Networks HV line passes through Lot 2, and an easement is required over both Lot 1 and Lot 2 to protect the network assets and provide ongoing access for operation and maintenance.

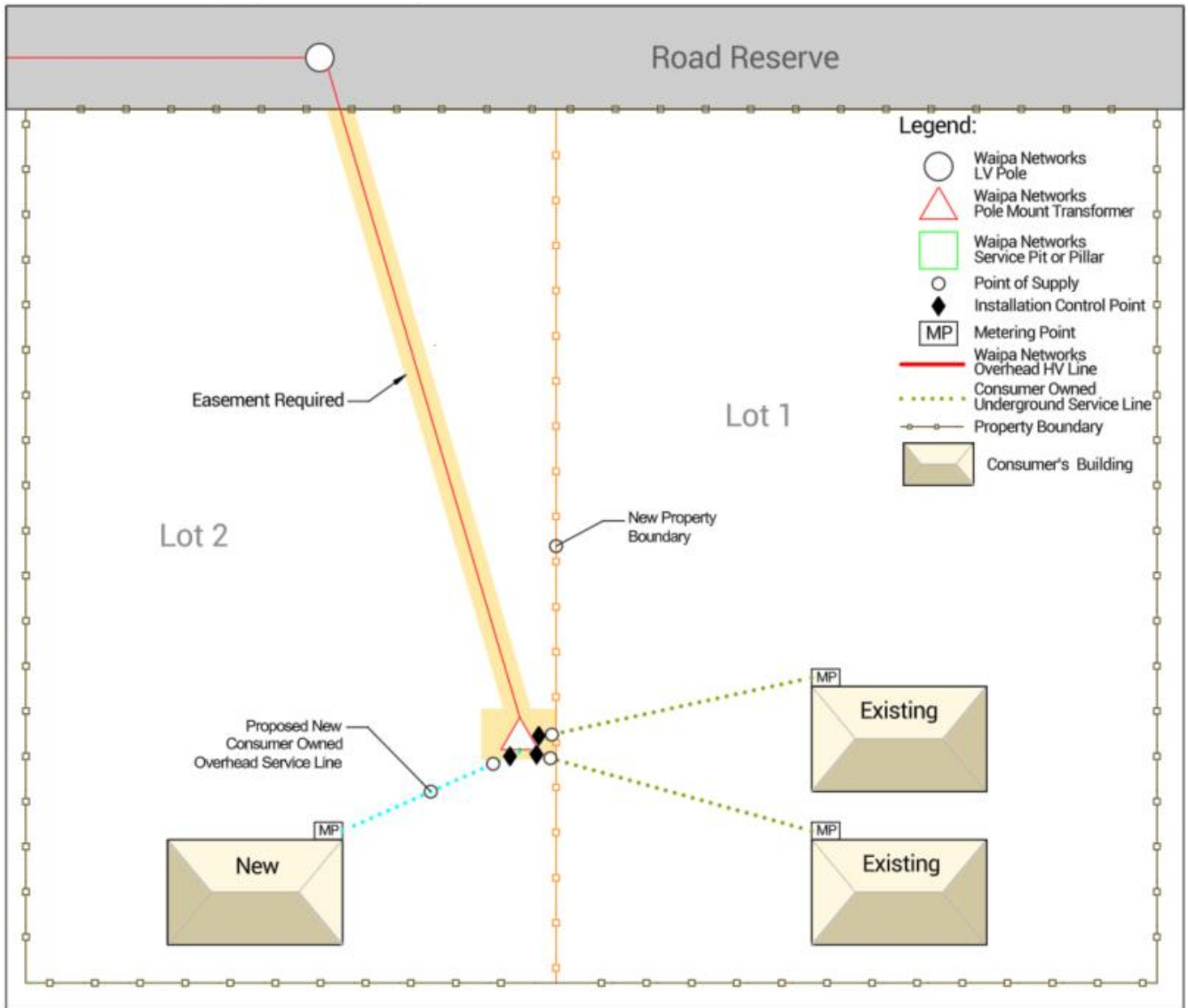


Remarks: See notes on Appendix 11.6

Network Connection Standard

11.18 Subdivided property with an existing transformer and HV line located in the new lot

Scenario: A landowner has decided to subdivide and sell a portion of their property (Lot 2). The Waipā Networks transformer and HV line are located within the new lot (Lot 2) and are currently covered by an existing easement over Lot 1. A new easement agreement is required over Lot 2 to maintain legal access and protect the network assets.



Remarks: See notes on Appendix 11.6

12 Appendix - Definition

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

Term	Definition
Electricity Retailer	<i>A Company that sells electricity to consumers. Electricity is delivered to consumers on behalf of Electricity Retailers by Waipā Networks through the Network.</i>
Emergency	<i>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.</i>
Faults Service	<i>The consumer help line provided by Waipā Networks for the purpose of reporting Network faults and emergencies. The phone number is published on our website and in the local telephone directories.</i>
ICP	<i>Installation Control Point is the point at which the electrical supply is deemed to supply an individual consumer account. For most consumers this will be the point where their service main connects to the power pole or pillar in the road reserve.</i>
Minimum Scheme	<i>The least-cost solution for any connection works provided by Waipā Networks, including for security and firmness of capacity, in accordance with the Waipā Networks' connection and operation standards or a different standard if agreed to in writing between the connection applicant and Waipā Networks Refer to Waipā Networks' New Connection Policy.</i>
Network Connection Point (NCP)	<i>The same as POC (refer below).</i>
POC	<i>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. For the purposes of this document, it refers to the point where a consumer Service Line connects to our Network.</i>

POS	<i>Point of Supply (POS) is defined in section 2(3) of the Electricity Act 1992. It generally means the point or points on the boundary of the property at which exclusive fittings enter that property, with a few exceptions (refer to the Act for details).</i>
Registry	<i>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 referred to as Installation Control Points (ICPs). Each ICP has a unique identifier. The registry is the electricity industry's database of record of all ICPs.</i>
Utilities Disputes	<i>Utilities Disputes Limited is an independent complaints resolution service available to electricity consumers and landowner/land occupiers. Utility Disputes was formerly called the Electricity and Gas Complaints Commission.</i>
Service Main	<i>This consists of an overhead or underground power line, usually sited on private property, which connects a consumer to the Network and is owned by the consumer. In general, any line on private property exclusively supplying that property is deemed to be a Service Main. See Appendix A for examples of Waipā Networks owned lines (the Network) versus privately owned equipment (Service Main).</i>
Supply Agreement	<i>The agreement between a consumer and an electricity retailer for the supply of electricity to an ICP.</i>