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Pr8132 - Specification for Sub-Metering

Pr8132 - Specification for Sub-Metering

Document Details

This document is only valid on the day it was printed.

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| Document Owner | Head of Asset Management |
| Document Author | Infrastructure Standards and Assurance Manager |
| References | Refer to Appendix B of this document |

Version Review

| Revision | Reviewed by | Approved by | Date approved | Revision type |
|----------|--------------------------------------|--------------------------|------------------------|---|
| 4.0 | D. Fillmore | A. Creevey | 05/05/2020 | Periodic review. Document type transferred from Policy to Technical Specification. Previously known as OP8132 - Sub-Metering Policy Technical Specifications. |
| 5.0 | Y.Skinner / L. Bryson | N/A | Minor amend 03/03/2021 | Minor amendment to update reference to Queensland Plumbing and Wastewater Code from (2017) Part 4 to (2019) Part B1.2. No change to content. |
| 6.0 | Y.Skinner / B.Fox | G. West | 23/12/2021 | <ul style="list-style-type: none"> • Development of sub-meter drawings for inclusion. • Lockable isolation valve in drawings and wording as indicated in documents. • Remove reference and photos to v100. • AMR's calibrated to the kL's (not litres). |
| 7.0 | Y. Skinner B. Fox L. Bryson | I. Beirne | 27/07/2022 | <ul style="list-style-type: none"> • Update legislation references to reflect current Act/Regs. • Remove reference and photos to v100. |
| 8.0 | J. Munro Document Control Officer | N/A | N/A | 19/09/2023 Minor admin amend align with template format |
| 9.0 | Y. Skinner | Head of Asset Management | 21/10/2024 | Periodic review. Minor typos corrected. |
| 10.0 | L. Bryson | N/A | N/A | 06/08/2025 Minor amend to update position titles as per current SIS org structure. |

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1. Introduction

Prior to the introduction of the new Queensland Plumbing and Wastewater Code (QPW code) on 1 January 2008 it was not mandatory to install water meters within multi-unit residential premises and commercial premises. This meant that in most circumstances individual lot owners had no knowledge of their individual water use and consequently may have been discouraged in their attempts to reduce their individual consumption.

As from 1 January 2008 it has been mandatory to install sub-meters in all new multi-unit developments and some non-residential premises. This will enable water service providers to directly charge the owners of separate lots in new buildings for their actual water consumption.

2. Purpose

The purpose of the technical specification is to help ensure that any decisions in respect to sub-metering are consistent and in line with the intent of the Unitywater Sub-Metering Policy (OP8131). The technical specification may be amended from time to time. Any decision made by Unitywater in connection with a particular development takes precedence over the technical specifications.

Sub-meters installed to these specifications shall become the property of Unitywater. Where legislation requires, property owners shall be billed from these sub-meters and occupants shall receive a water advice notice.

3. Master Meter

It shall continue to be a requirement to install a master meter at the boundary of a development and Unitywater will install an approved master meter upon application from the developer.

The only exception to this is where Unitywater has given approval for each lot to have an independent water service connected to Unitywater's water main and there is no common property usage.

4. Sub-Meter

All sub-meters shall be pattern approved by the National Measurement Institute (NMI). Meters that are acceptable to Unitywater are listed on the SEQ Accepted Civil Infrastructure Products and Materials (IPAM) List (www.seqcode.com.au/products).

The size of all sub-meters in a complex shall be determined by hydraulic analysis. Generally 20 mm sub-meters shall be used however if larger sizes are required this will require the approval of Unitywater.

All sub-meters shall have a unique serial number stamped on them. See Pr10068 - Specification for Water Meters.

The applicant/developer will supply the sub-meters under the following conditions:

- a. the chosen meter is one of the meters approved by Unitywater
- b. Unitywater approves the chosen meter
- c. all sub-meters of the same size installed in a complex are the same make and model.

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All sub-meters shall have integral dual check valves (DualCV). However this requirement does not remove any obligation of the applicant/developer to undertake a backflow hazard assessment of the complex.

Sub-meters shall be installed with isolation valves on each side of the meter together with an adjustable meter coupling on one side of the meter and a standard meter coupling on the other side of the meter to enable safe removal of the meter. The isolation valve on the network side of the meter is to be lockable. The sub-meter and the meter couplings are referred to as the sub-meter assembly.

4.1 Sub-meter Installation

All sub-meters shall be installed in accordance with any conditions imposed by their pattern approval certificate.

If the sub-meter is to be installed in any orientation other than horizontal orientation, the meter must be capable of operation in the vertical or other angular alignment without performance degradation and that capability must be referenced in the pattern approval certificate.

4.1.1 Installation without AMR

Where possible sub-meters shall be grouped together and they must be installed at ground level in an accessible area in the common area, in common property or in a public area. If located in a public area they must be installed within three metres of the property boundary and preferably within the footpath to facilitate direct reading, testing and replacement.

All sub-meters shall be installed in a location that must be unrestricted at all times, including:

- keyless access
- free from complex security systems
- no obstruction or hazards from vehicular movements
- free from vegetation and other forms of obstructions and hazards.

This type of installation does not require AMR technology as the sub-meters can be manually read in the usual process of meter reading.

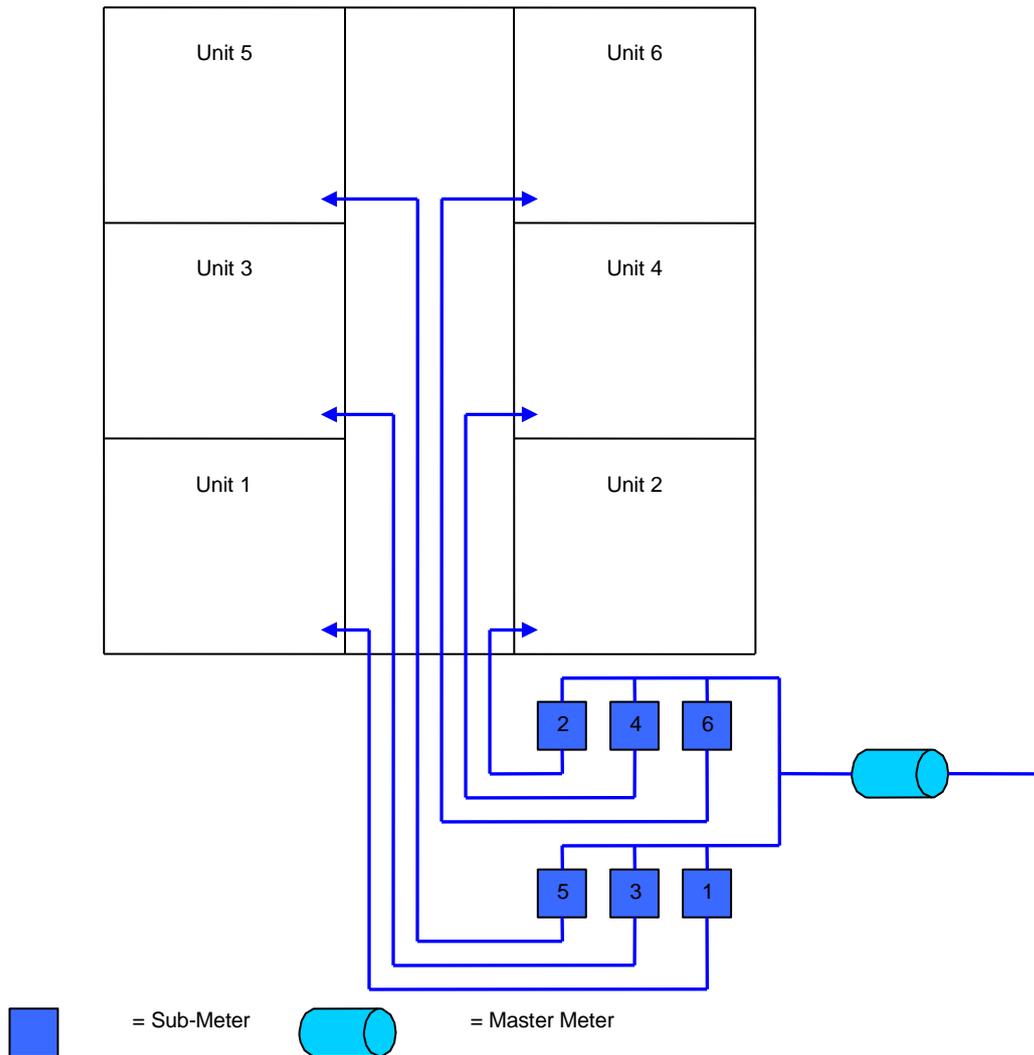
This installation option is most suitable for horizontal developments which include free standing units or attached units supplied through one water meter for each unit and where the meter is usually located at or near the front property boundary of the unit.

It is envisaged, but not mandatory, that this installation option may be the most suitable solution for horizontal developments or vertical developments up to three storeys in height.

In buildings up to and including three stories and where the hydraulic analysis of the plumbing shows an acceptable level of pressure loss, sub-meters shall be installed in a weather resistant sub-meter cabinet located at an accessible side of the building or in a cabinet in a common area (stairwell landing, beside the elevator shaft, etc.) on the ground floor (refer Figure 1). Alternatively, Unitywater may approve installation of the sub-meters in a meter box below ground subject to the meter box being of sufficient size and being easily accessible.

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Figure 1: A Schematic Elevation of a Limited High Rise Development



See also the following sections relating to Sub-meter Enclosures for further details.

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4.1.2 Installation with approved AMR Technology

In certain installations it will be necessary to utilise an approved AMR system to facilitate reading of the sub-meters. This necessity may be due to the impracticality of installing all sub-meters at ground level (e.g. high-rise buildings), or where access to any of the sub-meters is restricted in any way (e.g. gated communities).

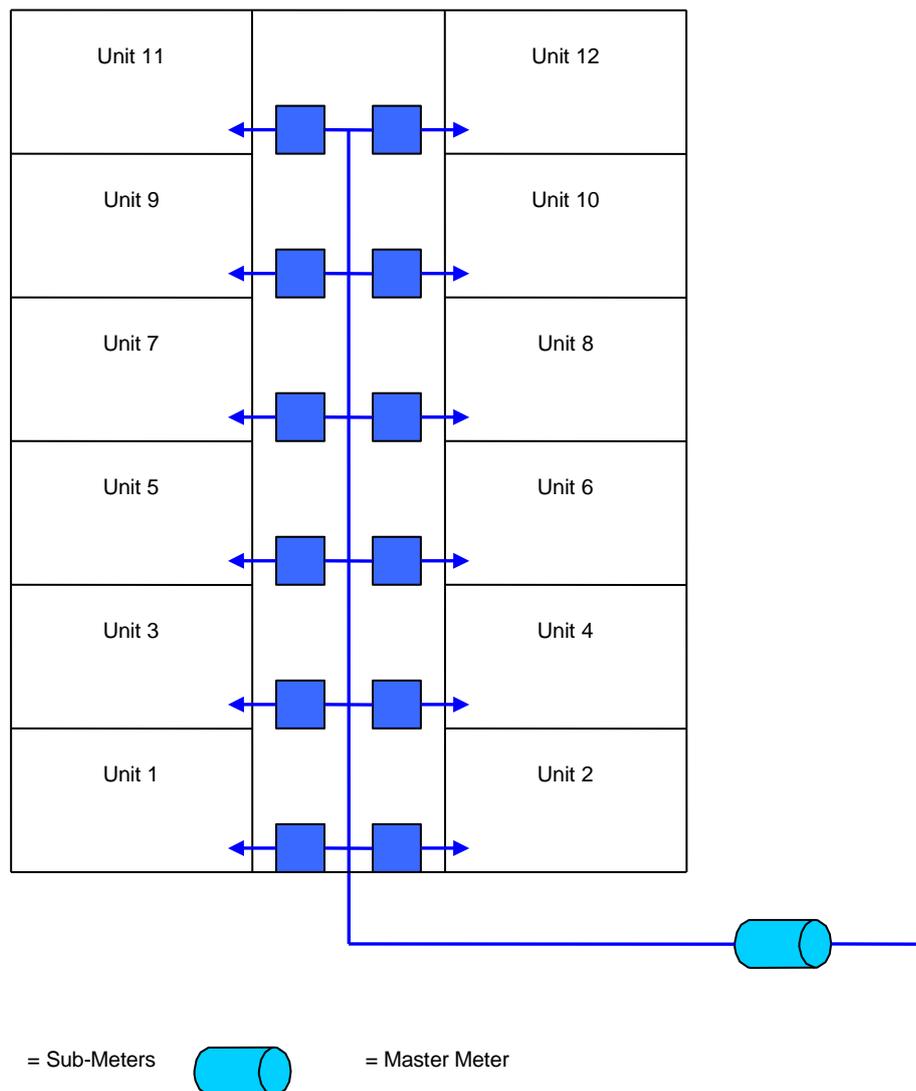
AMR systems that are acceptable to Unitywater are listed on the SEQ Accepted Civil Infrastructure Products and Materials (IPAM) List (www.seqcode.com.au/products).

In the case of a gated community an acceptable solution to maintain accessible sub-meters and any AMR may be the installation of a pedestrian gate that is fitted with a Unitywater lock.

Alternative access options may be considered if the applicant / developer can demonstrate that the option provides for accessible sub-meters and AMR.

In high rises of more than three stories, sub-meters may be installed in common areas such as stairwell landings or beside the elevator shaft (refer Figure 2) on each floor. For each floor the respective sub-meters shall be grouped in a hinged cabinet (or cupboard). Alternatively, more than one cabinet can be used for each floor.

Figure 2: A Schematic Elevation of a High Rise Development



See also the following section relating to Sub-meter Enclosures for further details.

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4.1.3 Sub-meter Enclosures

Sub-meters may be installed in cabinets or standard meter boxes. Whatever form the enclosure takes, the sub-meters shall be accessible and the dial face of the sub-meters located such that it can be easily read by one unassisted person without the need for ladders or other access provisions. Unitywater may withhold the approval if the location and enclosure is considered unsuitable.

Cabinets shall completely house the sub-meters including the isolation valves and sub-meters. The cabinets shall be hinged to enable opening by hand. The base of the cabinet shall be a maximum 1.2 m above floor level and the top of the cabinet should be a maximum of 2.0m above floor level.

The cabinet shall have a minimum depth of 150 mm and a minimum length of 700 mm and must be of sufficient dimensions to facilitate sub-meter maintenance and replacement. The spacing between adjacent service pipes shall be at least 150 mm centre to centre and the space between the outside pipes and the cabinet wall shall be a minimum of 100mm. The cabinet shall be designed to minimise the likelihood of injury to people walking past the cabinet. There shall be sufficient room for cabinet door(s) to swing open completely and be held open. All enclosures are to be drained to either the stormwater system or the sewerage system in a manner that prevents any seepage water causing damage to buildings and other infrastructure.

Cabinets are to be fitted with a latch and provision for a padlock.

If the cabinet also houses fire hose reels or gas meters, the fire and safety rating shall not be compromised.

The cabinet must not be classifiable as a confined space for entry purposes.

A minimum of two square metres shall be made available in front of the cabinet as free working space. Adequate lighting shall be provided to enable meter reading at all times of the day or night.

All sub-meter cabinets, whether housing single or multiple sub-meters, must be identified on the outside with the words "Water Sub-meter" or "Water Sub-meters" respectively in readable and permanent print.

4.1.4 Other Requirements

a. Sub-meter identification

The sub-meters and any digital electronic readouts (DER) that are installed as part of an AMR system must be permanently identified with the unit number (as displayed on the unit door) that they serve.

b. As-constructed drawings

The hydraulic as-constructed drawings for the development must include a table detailing:

- sub-meter serial numbers and the description of the unit (e.g. unit number) supplied through each sub-meter
- the serial number of any equipment attached to the meter
- meter size, make and model
- location, e.g. "one metre on the right hand side of the drive-way".

The applicant's/developer's licensed plumber (responsible person) shall also provide the following information on the Unitywater notification form F8686:

- date of completion of the installation of the meters
- the reading on each meter on the date of completion.

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c. Connectivity Audit

Just prior to the completion of the installation work the responsible person shall contact Unitywater and request a connectivity audit. This connectivity audit ensures that each unit/lot/storey in the complex is fed through an individual sub-meter for that unit/lot/storey only and that this meter matches the description in the submitted drawings which shall be submitted with the request.

Unitywater will conduct the connectivity audit and make sure that the installation has been done in accordance with the Unitywater approval conditions and the approved hydraulic design and drawings.

4.2 Automatic Meter Reading

Where sub-meters cannot be installed in an accessible part of the development or complex, AMR technology is required. The installation of an AMR system does not alleviate the requirement for sub-meters to be installed in an accessible area in the common area, in common property or in a public area.

Optionally, an applicant/developer may also voluntarily choose to install an AMR system on accessible sub-meters.

If the applicant/developer wishes to use an AMR system, the applicant/developer shall forward a request in writing to Unitywater seeking permission to use such a system.

The applicant/developer shall only use the AMR system approved by Unitywater.

Unitywater has authorised the use of a number of AMR systems, incorporating both hardwired and radio technology. AMR systems that are acceptable to Unitywater are listed on the SEQ Accepted Civil Infrastructure Products and Materials (IPAM) List (www.seqcode.com.au/products).

It is expected that applicant/developers will select the most appropriate system for the development.

4.2.1 Technical Requirements

The AMR system shall incorporate preferably only one DER panel which must be located in an accessible location. The location requirements for the DER are the same as specified for sub-meter enclosures.

When an AMR system is used all sub-meters and the master meter must be linked to enable the meter reading data to be sent to the DER panel. AMR's must be calibrated to the kL reading of the meters.

The DER panel enclosure shall be weatherproof if located external to the building and shall be provided with a 240 volt power supply for the use of Unitywater together with a conduit and draw wire back to the telecommunications supply pit to facilitate future remote interrogation of the AMR. The enclosure shall have an extra volume allowance of 300mm x 200mm x 150mm deep after all equipment is installed to enable the installation of a modem for remote access to the AMR.

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4.2.2 Installation Requirements

A qualified technician approved by the AMR provider must install each component of the AMR system and work must be carried out to a recognised standard; e.g. the relevant Australian Standard.

The installation of the AMR does not remove the need to be able to manually read each sub-meter.

The AMR and the sub-meter itself must be separable items. Even if they are supplied by the same manufacturer, allowance must be made for the replacement of either component with a similar product of a different brand without the need to replace both components. This separation and replacement must be able to be performed in the field, without sending equipment away from site.

Before the final Plumbing Compliance Certificate is issued by Local Government, the AMR system must be fully commissioned and proven to be working by providing accurate reads from all sub-meters in the complex. This shall take place as part of the connectivity audit.

A full set of hydraulic and electrical as-constructed drawings must be submitted to the Local Government Plumbing Services for forwarding to Unitywater.

4.2.3 Electrical Requirements

The electrical installation of the AMR and connection to sub-meters shall be in accordance with:

- AS3000, AS3008 and all relevant Australian Standards
- supply authority regulations
- the requirements of all relevant statutes.

Specific Unitywater requirements include:

- The cable used to connect the AMR to each sub-meter pulsed output shall be 4-core shielded multi stranded instrument cable - 2 pair conductor 0.5mm² (7/0.30mm) screened.
- All cable terminations shall be soldered or gel filled crimp type connectors.
- All cables shall be clearly identified with the unit number to which the meter is connected.
- All cables shall be terminated and tested by the installer for continuity and that the correct sub-meter is terminated to the correct input at the AMR. No conduit or cabling entries are to be installed on the top or sides of the AMR enclosure (cubicle). Only bottom entry is permissible.
- The installer shall provide a dedicated 240-volt power circuit to the AMR via a lockable switch on the main electrical distribution board.
- The cubicle will incorporate a main switch for isolation of all power sources in the installation for safe de-energised servicing.
- All cubicles will incorporate one switched double socket power outlet connected to the dedicated AMR power circuit.
- All equipment in the cubicle shall be identified by Traffolyte labels screw fixed to the cubicle.
- A cubicle source supply isolation procedure identifying locations of the main circuit breaker shall be completed and secured to the inside of the cubicle door.

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- Floating connections in the cubicle are not permitted and fixed terminals shall be used for additional connections where required.
- All 240v cabling shall maintain their double insulation for the entire length inside the cubicle until their entry into the circuit breaker section.
- All cables entering or leaving cubicles shall be labelled at both ends with PVC numbers and carriers.
- Cabling to all instruments shall be via screened instrument cable. Earth screen/tracer wires to be connected at the source end only so as to not create earth loop disturbances; where practical the screen shall be sleeved with clear tubing and terminated with a crimp lug.
- All cables passing through the gland plate shall be fitted with approved nylon compression glands to exclude any vermin or foreign fumes entering the cubicle.
- All wires shall be terminated using proprietary type insulated bootlace pins. All crimp lugs must be crimped using correct crimping tools.
- All consumer mains and electric power cables shall be continuous to and from the cubicle and all cable conductors will be stranded type; no joins shall be permitted underground.
- All conduit sizes are to be oversized by 30% to allow for future expansion.
- All conduit exposed to public access shall be UV stabilised and protected from mechanical damage by an additional covering to a height of 1200mm, manufactured from 3mm marine grade aluminium.

4.3 Hot Water Systems

In new developments Unitywater will not own, maintain or read hot water meters for communal hot water systems in a complex (i.e. hot water reticulated from a complex's central hot water service to individual units). Unitywater may however accept ownership, maintenance and reading responsibility for a sub-meter installed on the cold water inlet side of a central hot water service providing that the sub-meter meets all other requirements (i.e. accessibility).

The management of the complex may choose to source, install and manage hot water meters in accordance with the Plumbing and Drainage Act 2018 and the Plumbing and Drainage Regulation 2019. However, the reading of hot water meters and ongoing maintenance will be the responsibility of the complex management.

Water consumption measured through a cold water meter on the inlet side of a communal hot water system is part of common property water consumption under this Policy.

4.4 Asset Handover to Unitywater

The accuracy of the connectivity of the sub-meters and any AMR system will be verified during the connectivity audit identified in sections 4.1.4 (c) and 4.2.2.

Once the final Plumbing Compliance Certificate has been issued by Local Government, the ownership of the sub-meter assemblies transfer to Unitywater. The ownership and maintenance of the isolation valves and any AMR infrastructure remains the responsibility of the complex management.

5. Appendices

Refer to following pages.

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Appendix A – Definitions/Acronyms

The following definitions, abbreviations and acronyms are used throughout this specification.

| Term | Meaning |
|-----------------------------------|--|
| Accessible | The term accessible for water meter reading, maintenance and/or replacement purposes, means accessible within reasonable time (between 8 am-5 pm), with the sub-meters being located in a non-locked enclosure requiring a non-key access (PIN code), and not being obstructed by vehicles or other plant or equipment or vegetation. |
| AMR | The term AMR means Automatic Meter Reading and also includes Digital Electronic Readouts (DER) such as a display panel that can be scrolled through to read the respective sub-meter consumption. |
| Applicant | An applicant is the Body Corporate of an existing complex that has made the decision to retrofit sub-meters to ALL lots within the complex. |
| Body corporate | The term body corporate refers to a corporation or body of persons or even an individual, with a legal existence distinct from the individual person(s) making up the corporate entity. The purpose of the body corporate is to manage common property. |
| Boundary | boundary means the area between the property external walls and pathways, streets or fence. |
| Building classes 1 to 10 | Building classifications as defined by the Building Code of Australia – Classification of Buildings. Some common classes being: <ul style="list-style-type: none"> • Class 1a – detached dwelling or an attached dwelling separated by a fire-resisting wall. • Class 2 – a building containing more than 2 or more sole-occupancy units each being a separate dwelling. • Class 5 – an office building used for commercial purposes. • Class 6 – a shop or other building for the sale of goods by retail or the supply of services direct to the public. • Class 9 – a building of a public nature. • Class 10 – a non-habitable building or structure. |
| Common area | The term common area means an area of common property. |
| Common property | The Body Corporate and Community Title Management Act 1997 defines common property, for a community title scheme as, effectively, freehold land forming part of the scheme land, but not forming part of a lot included in the scheme. |
| Common property water consumption | The term common property water consumption refers to water used in common properties within a complex for irrigation, cleaning, recreation fixtures, etc. The common property water consumption for each meter read cycle will be decided by deducting the sum of consumption registered by all sub-meters from the consumption registered by the master meter. Water consumption through a communal hot water system is part of common property water consumption under this policy. |
| Communal hot water system | The term communal hot water system refers to a common system used to supply hot water to flats, apartments, houses or units in complexes. |

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| Term | Meaning |
|--------------------------------|--|
| Community management statement | The <i>Body Corporate and Community Title Management Act 1997</i> , Chapter 1 Part 4 Section 12, describes a community management statement as a document that a) identifies land; and b) otherwise complies with the requirements of the Act. One such requirement is to include a contribution schedule. |
| Community title scheme | The <i>Body Corporate and Community Title Management Act 1997</i> defines community title scheme as a single community management statement recorded by the registrar identifying land and the scheme land. |
| Complex | A complex includes Community Titles Schemes (CTs) and multi sole occupancy units of a class 2, 4, 5, 6, 7 or 8 building and each storey of a class 5 building. |
| Complying valve | A complying valve is a device incorporated as part of a water meter which a Water Service Provider can use to securely restrict the flow of water, either partially or fully, to the meterable premises. This is installed upstream of the master meter or sub-meter. |
| Connectivity audit | A connectivity audit is a verification process in which each sub-meter is matched with its respective unit. The aim of this audit is to ensure that each unit in a given complex is supplied through one sub-meter only and to make sure that the respective sub-meter is marked clearly with the number/description of that unit. |
| Contribution schedule | A contribution schedule is an agreement between the occupants of a complex and the management of that complex. This schedule states the method of distributing the water bills for common property water consumption among occupants/owners. |
| DER | Digital Electronic Readouts. See AMR. |
| Developer | A developer is a corporation or body of persons or even an individual, who builds a development in which the houses/units form part of a complex and can be sold to individual owners. |
| DualCV | DualCV stands for Dual Check Valve, a device used to prevent back flow and thus cross contamination of potable water network. |
| Existing development | An existing development is any development whereby the development has a Plumbing Compliance Certificate or the Developer has lodged a request for a Plumbing Compliance Certificate prior to 1 January 2008. |
| Fixed water access charge | Unitywater defines fixed water access charge as the charge for having your property provided with access to the reticulated or 'town' water network in your area. It covers water supply infrastructure including water mains and pipes, pumping stations, reservoirs, hydrants and any other associated infrastructure. |
| Horizontal development | A horizontal development includes free standing units or attached units supplied through one water meter for each unit and where the meter is usually located at the boundary of the unit. |
| Lot entitlement | The <i>Body Corporate and Community Title Management Act 1997</i> , Chapter 2 Part 5 Section 46, describes lot entitlement as a number allocated to the lot in the contribution schedule or interest schedule in the community management statement. |
| Management | The term management refers to the management of complex which can be a body corporate of a community title scheme or a representative body of a multi sole occupancy unit. |

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| Term | Meaning |
|---------------------|--|
| Master meter | A master meter is a water meter upstream of sub-meters and is used to register the bulk consumption of a multi-unit complex. |
| Meterable premises | The term meterable premises means: <ul style="list-style-type: none"> • all class 1 buildings; and • each lot within a community title scheme, including the common property, in a water service provider's area; and • the sole occupancy unit of a class 2,4,5,6,7,or 8 building in a water service provider's area; and • each storey of a class 5 building in a water service provider's area where the building consists of more than one storey and sole occupancy units are not identified at the time of the building's plumbing compliance assessment. |
| MPE | The term MPE stands for Maximum Permissible Error which a meter is allowed to operate within. |
| New development | The term new development means any complex submitting a request for a Plumbing Compliance Certificate after 1 January 2008. |
| Occupant/owner | The occupant/owner is an occupant or owner of a house, unit, flat or an apartment within a complex. |
| Pattern approval | The term pattern approval refers to a certificate issued by the National Measurement Institute. This certificate states that a meter of certain make and model has passed a set of tests and met a set of requirements in order to be used by a service provider for trade purposes. |
| Public area | The term public area means an area to which the public has lawful access – for example, a footpath. |
| QPW Code | The term QPW Code refers to the Queensland Plumbing and Wastewater Code; this code is required to be complied with under section 11 of the <i>Plumbing and Drainage Regulation 2019</i> . |
| Sole occupancy unit | The term sole occupancy unit, in relation to a building, means: <ol style="list-style-type: none"> a) a room or other part of the building for occupation by one or a joint owner, lessee, tenant, or other occupier to the exclusion of any other owner, lessee, tenant, or other occupier, including, for example – <ol style="list-style-type: none"> i. a dwelling; or ii. a room or suite of associated rooms in a building classified under the Building Code of Australia as a class 2, 4, 5, 6, 7 or 8 building; or b) any part of the building that is a common area or common property. |
| Storey | The term storey means a space within a building which is situated between one floor level and the floor level next above, or if there is no floor above, the ceiling or roof above, but not – <ol style="list-style-type: none"> a) a space that contains only – <ol style="list-style-type: none"> i. a lift shaft, stairway or meter room; or ii. a bathroom, shower room, laundry, water closet, or sanitary compartment; or iii. accommodation intended for not more than three vehicles; or iv. a combination of the above; or b) a mezzanine. |

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| Term | Meaning |
|------------------------|--|
| Sub-meter | The term sub-meter is used to describe individual water meters within multi-unit complexes. The term also differentiates from master meter that measures the supply of water to a multi-unit complex as a whole. |
| Sub-metering | The term sub-metering refers to the installation of individual water meters to measure water consumption to individual houses, units, flats or apartments that form part of a complex. |
| Unit | A unit is a house, flat, lot of land or an apartment within a complex. |
| Vertical development | The term vertical development includes developments of more than one storey and developments where units are supplied through meters located inside the development in a common area such as stairwell landings or beside elevator shafts. |
| Water advice notice | Under section 139 of the <i>Water Supply (Safety and Reliability) Act 2008</i> , water service providers must give a water advice notice that notifies of water consumption to non-owner residents of residential premises, i.e. tenants. Transitional arrangements apply to the implementation if this requirement. |
| Water meter | A water meter means a device, including equipment related to the device, for measuring the volume of water supplied to premises. An example of equipment related to the device is a pulse meter or an automatic meter reader and associated technology or similar devices. |
| Water service provider | The term water service provider, for premises, means the persons registered under the <i>Water Supply (Safety and Reliability) Act 2008</i> , chapter 2, part 3, as the water service provider for retail water services for the premises. |
| Water supply | The term water supply means the plumbing supplying water to meterable premises from a water service. |

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Appendix B – References

General

All design, equipment and workmanship shall conform to the most recent requirements of relevant local, State and Commonwealth statutory requirements and applicable, current Australian Standards.

Where no Australian Standard exists, work shall conform to the most applicable, current IEC Standard.

Where conflict exists between different Codes, Standards or Regulations, the higher requirement shall apply.

The following legislation, related Regulation and Codes apply to this specification:

- [Plumbing and Drainage Act 2018 \(Qld\)](#)
- [Plumbing and Drainage Regulation 2019 \(Qld\)](#)
- Queensland Plumbing and Wastewater Code (2019), Part B1.2 – Water meter in new premises
- SEQ Accepted Civil Infrastructure Products and Materials List.

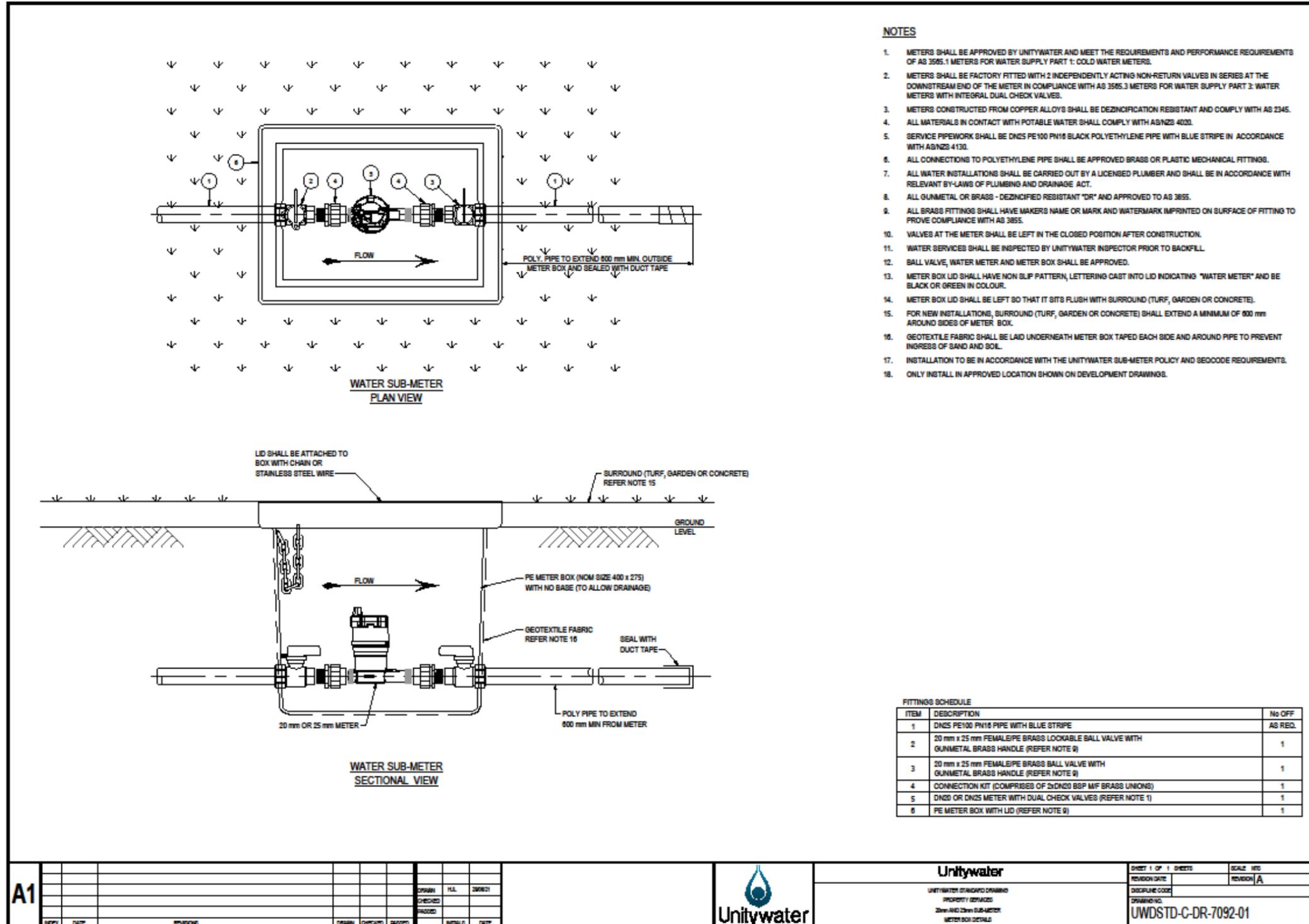
Relevant Unitywater documents that relate to this specification

| Document No. | Title |
|-------------------------|---|
| OP8131 | Sub-Metering Policy |
| Pr10068 | Specification for Water Meters |
| F8686 | Application to Inspect Sub-Meter Installation |

International and Australian Standards referenced within this specification

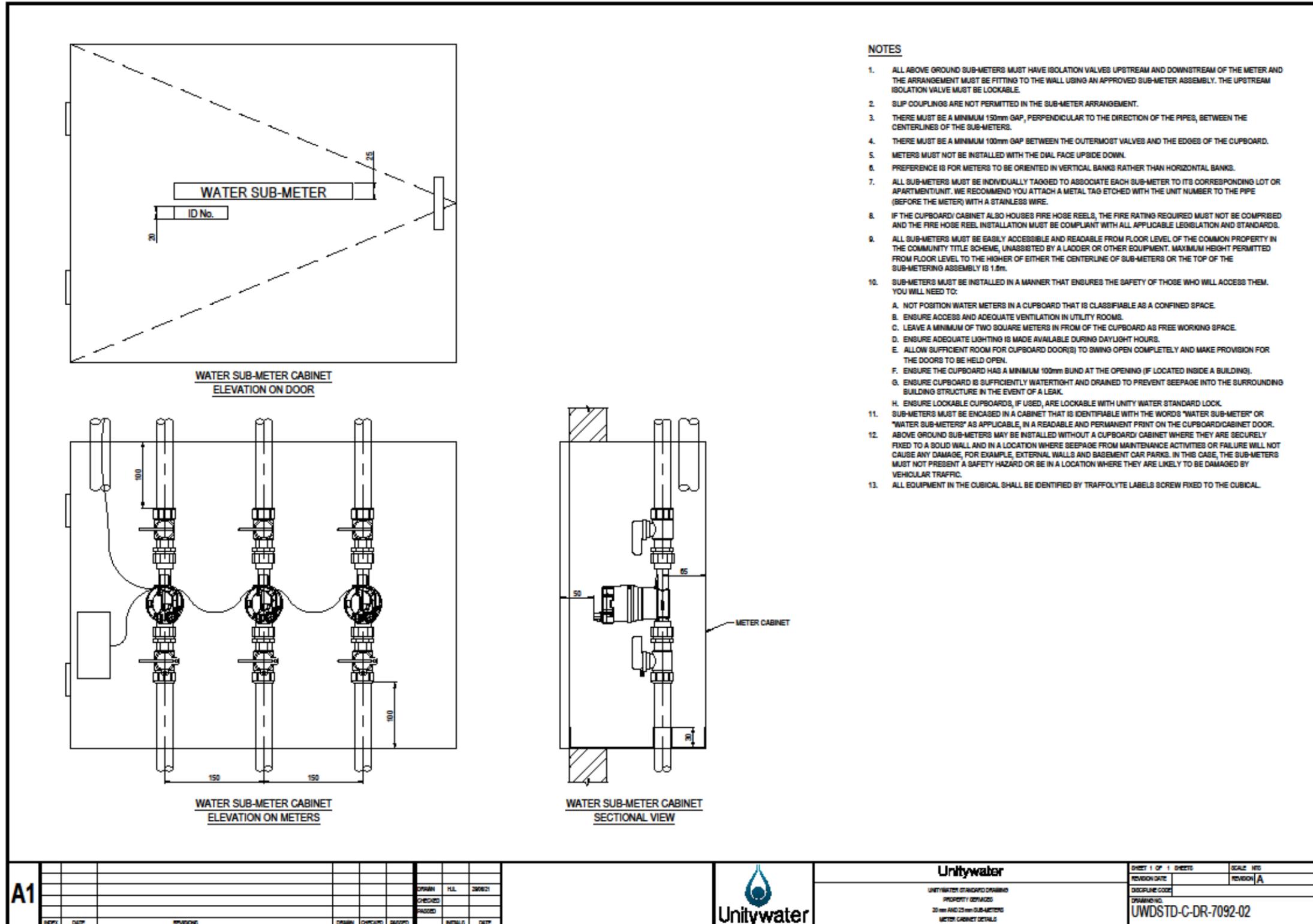
| Standard No. | Title |
|--------------|--|
| AS/NZS 3000 | Electrical Installations |
| AS/NZS 3008 | Electrical installations - Selection of cables |

Appendix C – Standard Drawings



Source: UWDSTD-C-DR-7092-01- General Arrangement 20mm & 25mm sub-meters Meter Box Details (A6942033)

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Source: UWDSTD-C-DR-7092-02 General Arrangement 20mm & 25mm sub-meters above ground meters in a cabinet (A6942037)