Townsville City Council
Townsville Water

Technical Specification for
Submetering of Multi-Unit Properties (MUP)

Version Control

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1.INTRODUCTION

1.1. Background

This document is written as a precursor to the inclusion of submetering specifications into Townsville City Council's (TCC) Water Supply Standards (WSS). It contains guidelines and technical information for the individual submetering of multi-unit residential and commercial properties (MUPs), required to fulfil the Development Application condition introduced under the Water Act and Other Legislation Amendment 2007.

Submeters installed to these guidelines shall become the property of TCC. Property owners may be billed from these submeters by Townsville City Council and occupiers will receive Water Advises, on water consumption.

The master meter shall continue to be installed at the property boundary and shall remain Council's primary record of water consumption.

For the purpose of this document, a lot is defined as a 'sole occupancy unit'. In other words: an area of exclusive use within the property.

1.2. Scope

This document contains details about the following:

- where submeters are required;
- submeter selection information and associated infrastructure;
- submeter installation requirements; and
- Automatic Meter Reading (AMR) technology requirements.

1.3. Contacts

Please contact Townsville City Council Customer Service on 4727 9000 (during business hours) if you require assistance interpreting these specifications.

2. SUBMETERS

All sub-meters installed in MUPs must fulfil the requirements of this section. The responsibility for making sure submeters conform is the responsibility of the developer.

2.1 Requirement for Submeters

This section contains a description of where submeters are required.

2.1.1 Queensland Plumbing and Wastewater Code

Following is an excerpt from the *Queensland Plumbing and Wastewater Code* defining meterable premises, where individual tenancies or owner's water use must be metered:

(a) Each lot within a *community title scheme*, including the *common property*, in a *water service provider's* area; or
(b) *the sole occupancy unit* of a *Class 2, 4, 5, 6, 7 or 8* building in a *water service provider's* area; or
(c) 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.

Where *sole occupancy unit* means:

(a) a room or other part of a 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 and includes—
(i) a dwelling; or
(ii) a room or suite of associated rooms in a *Class 4, 5, 6, 7 or 8* building; or
(b) any part of the building that is *common area or common property*.

And *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-

(a) a space that contains only-
(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 3 vehicles; or
(iv) A combination of the above; or
(v) A mezzanine.

(End of excerpt. Words in italics have legal definitions in the Queensland Plumbing and Wastewater Code.)

If the development contains more than one land use, then each land use shall follow the relevant submetering requirements. For example, a high rise building with shops on the ground floor, offices on intermediate floors with residential apartments above and a hotel on top may require:

- Each shop to be metered individually;
- Each floor of the office space to be metered;
- Each residential apartment to be metered separately; and
- A single meter for the hotel usage.

2.1.2. Body Corporate Usage

The master meter (MM) at the boundary of the property will be considered a Body Corporate meter for the purpose of billing. The volume of water used by the Body Corporate will be determined by subtracting the sum of the usage registered on the submeters from the MM.

2.2. Submeter Installation

A single cold water sub-meter capturing all cold water entering the lot must service each lot within the MUP. These submeters shall capture only the water entering the lot for which they are assigned.

All submeters are to be installed by licensed plumbers. Care must be taken to ensure that the submeter type selected can be installed with the dial face in a position where an unassisted person standing on the floor can easily read it.

Australian Standard AS/NZS3500 outlines a number of provisions in regard to backflow protection. Where necessary, a hazard assessment may be completed for the development as well as for individual lots.

All submeters must comply with the dimensions described in Appendix D of AS3565.1. Submeters assemblies 20mm size must have end connections of 14 threads per inch. Other sizes must conform to the Australian Standards if available, otherwise with normal Council practice (details can be provided on request).

All sub-meter boxes, whether housing single or multiple sub-meters, must be identified on the outside with the words “Water Submeter” or “Water Submeters” respectively, in readable and permanent print.

The following installation options apply to all submeters within a development.

2.2.1. Cold Water Submeter - Installation Option 1

Submeters must be installed so that they are accessible from ground level in common areas outside the building, in a weather-resistant hinged submeter cupboard or on the side of the building or other structure or free standing.

Access to the submeters must be unrestricted at all reasonable times. This option does not require AMR technology as the submeters shall be manually read in the usual process of meter reading. It is envisaged, but not compulsory, that this may be the most suitable solution for single buildings up to 3 storeys in height.

See the following sections on Buried Submeter Boxes and Submeter Cupboards for further details.

2.2.2. Cold Water Meter - Installation Option 2

In cases where submeters at ground level are impractical (e.g. high rise buildings), or where access to any of the submeters is restricted in any way (e.g. gated communities) submeters are to be installed in the following manner:

In the case of high rise buildings the submeters must be located in a single latched cupboard in a common area on each floor. If the design of the development makes it impractical to install all submeters in a single cupboard then multiple cupboards may be used, so long as their number is minimised.

In the case of gated communities and horizontal developments the submeters must be located in submeter boxes on common property less than 3m outside the front boundary of the lot for which the submeter is required.

Alternatively, for either type of development the submeters may be located in a utility room that is accessible through the common property. Requirements are the same as for those in submeter cupboards.

If a development is a mixture of both a gated community and consists of high rise buildings, then the submeter installations may be a mixture of those described above.

As part of Installation Option 2, AMR technology must be installed to facilitate submeter reading. See Section 3 for more information about the AMR requirements and responsibilities.

2.2.3. Buried Submeter Boxes

Buried submeters are not permitted.

2.2.4. Submeter Cupboards

Submeter cupboards shall be designed such that:

a) There is a minimum 100mm gap, perpendicular to the direction of the pipes, between submeters.
b) There is a minimum 100mm gap between the outermost valves and the edges of the cupboard.
c) Submeters shall not be installed within fire hose reel cabinets/cupboards.
d) The submeters are easily accessible and readable from floor level of common property, unassisted by a ladder or other equipment. Max height = 1.6m.
e) There is no need for a person performing normal maintenance duties to enter into the cupboard. (i.e. The cupboard must not be classifiable as a confined space for entry purposes.) Where meters are located in a utility room, adequate ventilation must be provided.
f) A minimum of 2 square metres is available in front of the cupboard as free working space.
g) Adequate lighting is available during daylight hours.
h) There is sufficient room for the cupboard door(s) to swing open completely and provision for them to be held open.
i) The cupboard does not need to be locked, but must be fastened with a latch where a council lock can be fitted in the future if required. If a lock is required, it must be a council approved lock.

Submeters installed in cupboards shall be **conventional** (also known as **inline**) meters.

2.3. Approved Submeters and Associated Infrastructure

Depending on their installation, submeters may be conventional or manifold meters. See Section 2.3.4 for further details.

2.3.1. Conventional Meter Assemblies

Where conventional 20mm meters are installed, each submeter must have ball valves on both sides for shutting off the water supply, and an adjustable meter coupling on one side of the meter and a standard meter coupling on the other side for the safe removal of the submeter.

These items together are referred to as the 'conventional submeter assembly'. The overall length of the assembly is to be no more than 500mm.

This submeter assembly shall connect to the Body Corporate plumbing on the upstream side and the lot owner's private plumbing on the downstream side, both with male iron adaptors.

Complete submeter assemblies including valves and authorised for use are available from the following manufacturers:

- Actaris Pty Ltd
- Elster Metering Pty Ltd
- Reliance Worldwide RMC

2.3.2. Meters Larger than 20mm

The following products have been approved for use on the cold water service:

Service size	Council approved Manufacturers	Product Specification
25mm	Actaris Elster RMC	Pulse output Australian Standard dimensions
32mm	Actaris Elster RMC	Pulse output Australian Standard dimensions
50mm	Actaris Elster RMC	Pulse output Australian Standard dimensions

Where these meters are installed internally, ball valves and meter couplings (at least one adjustable) will be required on either side, same as the 20mm submeter requirements.

Meters must be of Australian Standard dimensions and have Australian Standard threads where they connect to the building pipework.

Where a vertical turbine type submeter is larger than 32mm in diameter, there must be 10 times the diameter of straight pipe upstream of the submeter and 5 times the diameter of straight pipe downstream of the submeter, with all required valves and joints outside these sections. With a horizontal turbine type (Actaris) the straights may be reduced to 3 times diameter upstream and downstream.

2.3.3. Other Requirements

During design, consideration shall be given to appropriate submeter sizing. Residential lots may be metered by a 20mm submeter from the approved Manufacturers in Sections 2.3 and 2.3.2. Meters for non-residential lots must be sized as part of hydraulic design and approved by Council. Within a MUP, submeters of the same size shall be of the same brand.

The submeters and the meter interface units (MIUs) (installed as part of the AMR system, if required) must be permanently identified with the unit number that they serve and the manufacturer's serial number for the purpose of identifying them on Council's billing system. Identification must be by tagging the meter, in the form of a metal or plastic tag affixed with a metal ring.

The hydraulic As Constructed drawings for the development must include a table of:

- submeter serial numbers (and MIU serial numbers if applicable);
- the unit numbers they serve;
- the location of the submeters;
- the date of installation of the submeters;
- the submeter readings on installation.

An audit of the connectivity of submeters to their units may form part of the final plumbing inspection for the site. The Council will choose the percentage of units involved in the audit, to a maximum of 100%. In the event that any part of the development fails the connectivity audit, Council or their representative will test connectivity throughout the whole development at the developer's expense. Council may provide the developer with a list of areas requiring rectification before a final plumbing certificate can be issued.

3. Automatic Meter Reading Technology

Where submeters cannot be installed in an accessible part of the property (defined by Installation Option 1), AMR technology is be required.

Testing of the AMR system to ensure that accurate readings are received from all submeters will form part of the site audit before handover. Meters are read a number of times throughout the year. If the AMR system is not working, the body corporate will be informed and is responsible for rectifying the fault. The fault must be fixed within two weeks of notification.

3.1. Technical Requirements

An Authorised AMR system will need to be installed and connected to a Meter Reading Panel (MRP) in an accessible location. For a definition of an accessible location see Section 2.1.1.

The MRP shall have a display screen between 1.0m and 1.5m above the ground from where all submeter readings can be obtained. For example, either a scrolling system that allows the user to scroll up and down between apartments, or a numeric keypad for entering the apartment number and obtaining the relevant submeter reading.

It is preferable that all alarms would be communicated with the submeter reading, but as a minimum, the low battery alarm and submeter reading must be communicated. The MRP must be able to be read with an Itron Handheld.

The MRP shall be installed in an accessible location within the building or protected by a weather-proof cupboard.

3.2. 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. For example:

- Installation of water submeters must be carried out to the relevant Australian Standards.
- Installation of electrical systems must be carried out to the relevant Australian Standards.

All components of the AMR system must be installed in accessible locations in common areas for maintenance reasons, but shall be hidden from public view by means of a lockable cupboard.

The MIU and the submeter itself shall be separable items. Even if 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. This separation and connection must be able to be carried out in the field, without sending parts away from the site. The installation of the MIU must not impede the ability for a manual reading of the submeter to be taken. The MIU shall be fitted with tamper-proofing of some kind.

Before Council takes ownership of the submeters and AMR system, the AMR must be fully commissioned and proven to be working by providing accurate reads from all submeters in the development. This shall take place as part of the final plumbing inspection.

A full set of hydraulic and electrical As Constructed drawings must be submitted both to Council and to the Body Corporate for their records.