

Queensland Interim Water Meter Standard for Non-urban Metering

1. Introduction

The Queensland Interim Water Meter Standard for Non-urban Metering (Interim Standard) will apply to non-urban water meters installed from 1 January 2013, until revised or replaced by the National Water Meter Standards (National Standards).

The Interim Standard is designed to reflect the scope and intention of the National Metering Policy, and enable the purchase and installation of compliant new meters until the National Standards become fully operational.

This Interim Standard will apply to the specification and installation of mechanical and electronic type water meters used to monitor the extraction of water by water entitlement holders as required by the Department of Natural Resources and Mines (DNRM). This Interim Standard is to be read in conjunction with the Australian Technical Specification ATS 4747 which provides detailed specifications for meters, installation, maintenance and validation.

All meters installed, maintained and validated in accordance with ATS 4747 and this Interim Standard will be exempt from the pattern approval requirement until the National Standards become fully operational. This Interim Standard enables new meters to be installed with confidence that they will not need to be removed at a later stage.

At a time when the National Standards become fully operational and when there is a sufficient supply of pattern approved meters, the intention is that this Interim Standard will be withdrawn, and all meters in Queensland will comply with the National Standards thereafter.

2. Requirements

Meter body

1. Meters shall be pattern approved and marked with the correct verification stamp prior to installation, unless the condition in requirement 3 below is met.
2. Meters shall comply with the Australian Technical Specification 4747 applying to non-urban water supply in fully-charged closed conduits and open channels.
3. If a suitable pattern approved meter is not available at the time of installation, then a non-pattern approved meter that is certified to measure volumetric flow within the maximum permissible limit of error (plus or minus 5%) must be installed. Publication of information regarding the meter being able to measure volumetric flow within the maximum permissible limit of error (plus or minus 5%) on the manufacturer's website, or in the manufacturer's installation manual and/or information from a reputable testing facility, will be deemed to meet these requirements.
4. The meter must be installed such that it operates within the maximum permissible limit of error of plus or minus 5%. In the absence of other recommendations by the meter manufacturer, the meter must be installed:
 - Between sections of similar straight rigid pipe with uniform and circular cross section equal to the meter bore diameter.
 - The length of upstream pipe section must be at least ten times the pipe diameter and the downstream pipe section must be at least five times the pipe diameter.
 - Where the meter is installed close on the discharge side of a pump, the straight upstream pipe section from the meter must be increased to at least twenty times the pipe diameter, as prescribed by ATS 4747.5.



Diagrams illustrating a range of meter installation scenarios are shown at the end of this Interim Standard.

5. Isolation valves and control valves must be located outside the specified lengths of pipe, preferably downstream of the meter wherever possible.

6. All threaded and flanged connections and other connections must comply with the relevant Australian Standards or manufacturers specifications.

7. Associated fittings such as flow straightening devices, pipe reducers and expanders, strainers, bends and drain valves must be located outside the specified lengths of pipe. All fittings and connections must be free of air and water leakage.

8. The completed meter installation must be validated by a certified validator who must certify that the meter is suited to the site conditions, is operating within the maximum permissible limit of error and that the meter has been installed in accordance with ATS 4747, the manufacturer's directions and this Interim Standard.

9. Tamper seals are to be applied by a certified validator at the time the meter installation is validated.

10. Meters must display cumulative totals and rate of flow in metric units (e.g. Megalitres, Kilotres, Megalitres/day, Litres/Second).

11. Meters must be labelled so as to show the direction of flow, orientation or any other necessary installation information to achieve the required accuracy.

12. The primary element, flow display unit and other ancillary equipment associated with the meter must be protected to at least IP65 in accordance with AS1939 (IP Code).

13. The meter manufacturer's installation manual must be available at the installation site at the time of validation by a certified validator and must include sufficient instructions and recommendations to ensure the meter can be

installed and attain the required metrological performance at the site.

14. The meter must have the capability to produce a meter reading as an electronic output and must be capable of being fitted with an electronic data logger and automatic reading device that will allow remote reading of the meter.

15. Meters must have a clearly identifiable manufacturer's serial number securely attached or imprinted.

Meter site

16. Under the *Work Health and Safety Act 2011* the meter site is considered a workplace and DNRM may as reasonably practicable, request compliance with specifications and standards to ensure safety and eliminate or minimise hazards and risks.

17. Wherever possible, the meter should be installed above ground. Where that is not practical the meter may be installed in a pit or box provided it complies with the relevant Australian Standards for construction and where applicable the relevant Australian Standards for confined spaces. The meter must be installed so that it can be opened or removed from the installation to allow inspection of the internal components by a certified validator.

18. The meter must be installed in a horizontal pipe only. The meter must not be installed in a vertical downpipe or pipe with a falling slope where it might be subject to partial pipe flow.

19. Where a meter is installed downstream of a rising pressurised main pipe, an isolation valve is required upstream of the meter to enable safe meter removal.

20. The meter must be installed so that its register can be read visually from a position above the centre of the pipe.

21. Tamper seals are to be applied by the certified validator at the time of validation.

22. Where the meter or any ancillary equipment is connected to an electrical supply, the electrical works must be carried out by a qualified

electrician and comply with the relevant Australian Standards.

23. Handrails, ladders and platforms must be fixed, and be constructed to comply with the Australian Standards.

24. The meter site and access to it must, at all times, be safe and be kept clear of:

- Oil, grease, noxious fumes and hazardous materials
- Long grass, overgrown vegetation and loose soil
- Dangerous machinery or equipment

25. Vehicular access must be provided from the nearest public road to the meter site. Keys to locked gates must be provided to DNRM or its contractors upon request.

Meter maintenance

26. The meter must be maintained over its working life in accordance with ATS 4747 and the manufacturer's requirements. Maintenance must be undertaken at least every five years by a certified validator or more frequently if the metrological performance of the meter is in doubt or due to local water conditions. Evidence of re-validation is to be provided to DNRM, using the approved form, once validation is completed.

27. When work that might affect the metrological performance of the meter is undertaken (including during installation and maintenance), the meter must be validated by a certified validator. This work includes, but is not limited to, meter removal, replacement and re-calibration, as well as replacement of internal parts, sensors and transducers. Minor maintenance such as battery replacement and cleaning of external parts of the meter does not require validation.

28. A meter must be re-validated if its tamper seals are broken by works undertaken by a person who is not a certified validator.

29. If required by DNRM the meter installation must provide for in-situ testing of the accuracy of the meter. Such provision might include flow diversion devices, a standard access valve or standard pipe sections.

30. Where the works is used to take both supplemented and unsupplemented water, the meter must be installed so that at a minimum the meter has been installed in accordance with ATS 4747, the manufacturer's directions and this Interim Standard.

References

The National Framework for Non-urban Water Metering Policy Paper – 7 December 2009
<www.environment.gov.au/water/publications/agriculture/ris-metering-non-urban.html>

Australian Technical Specification ATS 4747
<www.saiglobal.com>

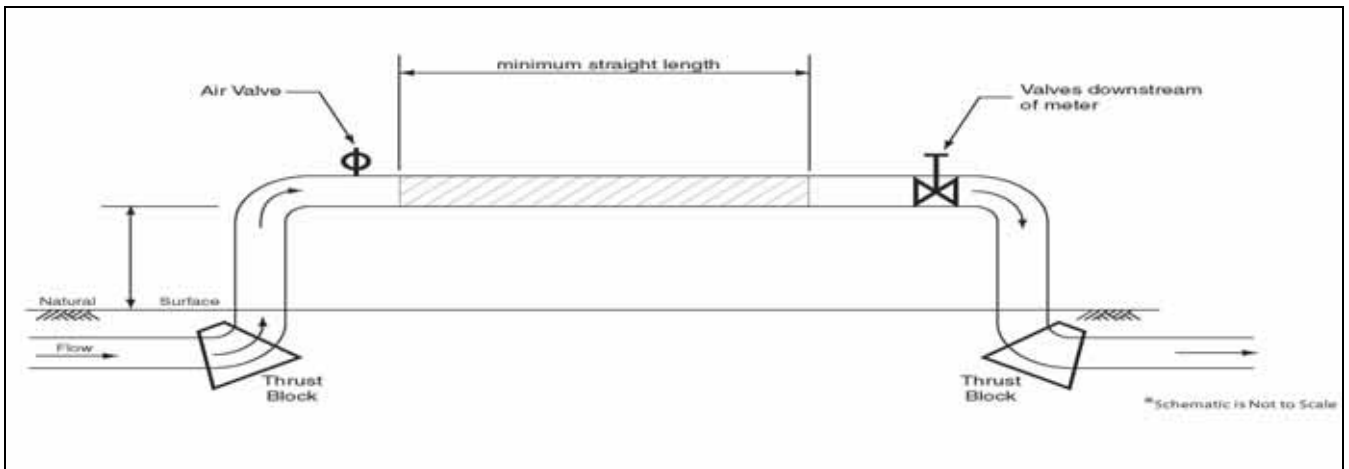
Further information

Further information on water metering is available on the department's web site at
<www.dnrm.qld.gov.au>

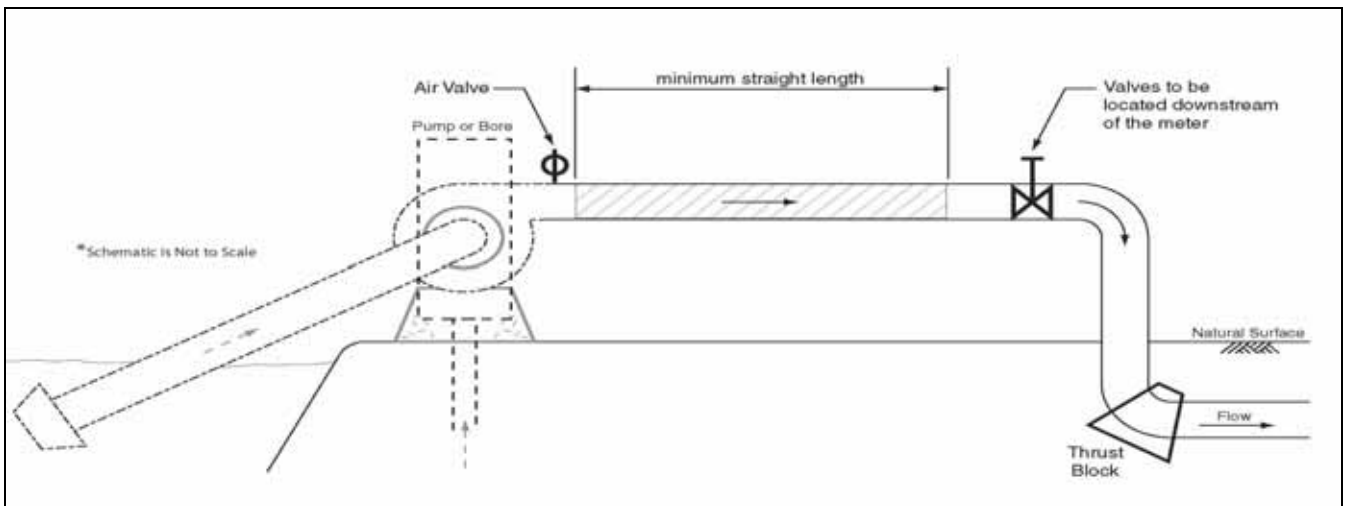
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Meter Installation Scenarios

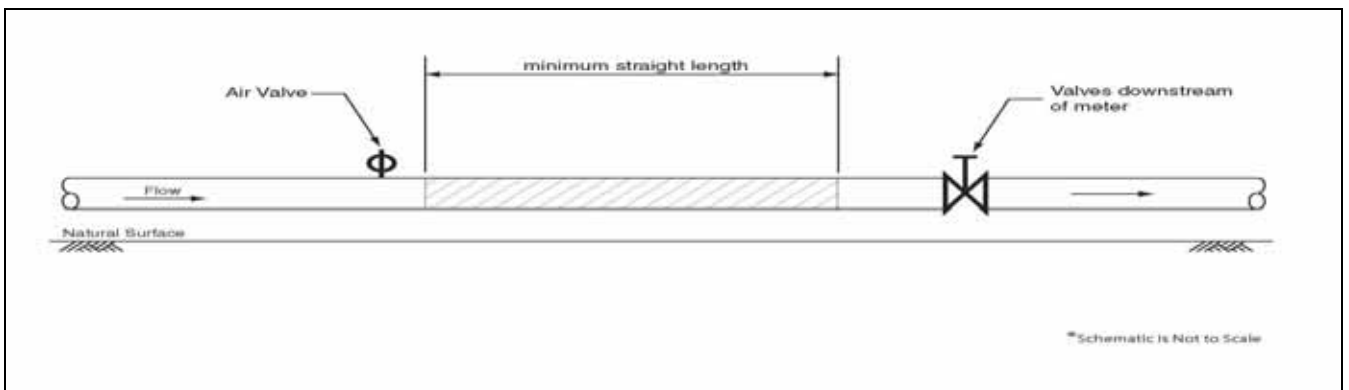
Underground pipe brought to surface



Exposed delivery pipe



Exposed pipe on surface



** Meter is to be installed within the "minimum straight length" section of pipe. In the absence of other recommendations by the meter manufacturer, the length of upstream pipe section must be at least ten times the pipe diameter and the downstream pipe section must be at least five times the pipe diameter.