

Non-Urban Metering Action Plan

2025



LOWER MURRAY
WATER

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1. Version History and Document Control

Version	Date	Author(s)	Notes
1	September 2019	Various	Initial LMW Meter Action Plan
2	September 2025	Manager Metering	Major revision to comply with the updated 2025 Victorian Non-Urban Metering Policy
	June 2028		Next review due date

Version	Recipient(s)	Approved By	Position	Date
2	All Staff	Darren Raeck	General Manager Service Delivery and Operations	September 2025

2. Introduction

This plan documents Lower Murray Water's (LMW) intention to comply with the Victorian Non-Urban Water Meter Policy (the Policy) and provides our direction for non-urban water meter management, investment and improvement under the Statement of Obligations to the Department of Energy, Environment and Climate Action (DEECA).

The Policy sets the requirements for Water Corporations to meet the national Metrological Assurance Framework for metering, align with the requirements of the Murray-Darling Basin Compliance Compact and to ensure that water taken under entitlements is accurately and comprehensively metered so that water users and the community can be confident about our water management and accounting.

2.1 Executive Summary

LMW manages 6,675 rural customer connections, of these 3,366 are for irrigation purposes, with the remaining 3,309 for domestic and stock use.

Each irrigation season, Australian Standard compliant or contemporary standard meters account for over 99% of non-urban water consumption, over 97% of this water is measured through the 3,044 meters that have telemetry fitted.

LMW has a Metering Policy and a Meter Management Procedure to provide direction on priorities for metering and telemetry, ensuring both effective coverage and accuracy of water take in our region.

The LMW Metering Policy sets out high level obligations and requirements for metering of non-potable water extraction from within LMW water managed areas or supply districts. The Meter Management Procedure for Potable & Non-Potable Meters provides the rationale for managing metering maintenance, meter replacement frequencies and provides the scope for meter validation timeframes to be enacted.

LMW currently maintains its meter fleet with a team of nationally certified meter installers/validators (CMI). In addition to this nationally accredited training, staff members have undertaken training provided by meter manufacturers for the maintenance and installation of the different meter types.

LMW's confidence in the accuracy of its meters is assured by regular readings through a comprehensive telemetry network, planned maintenance and meter validations and through a metering approval process which customers must adhere to when altering metering requirements. LMW plan to keep this confidence in metering going by ensuring appropriate resourcing is available to continue meter maintenance schedules.

3. Business Context

3.1 Water Resource Management Areas

LMW operates in a remote and arid area of Victoria, Australia extending along the Murray River from Kerang (Baraba Baraba land) to the South Australian (Latji Latji land) border. Our region makes up a large part of Victoria's food supply and agricultural industry, with our key industries of irrigated horticulture and dryland farming relying on the delivery of a clean and reliable supply of water. Other industries include food and beverage

manufacturing, transport and logistics, retail, health, and community services as well as tourism which relies heavily on the Murray River landscapes.

We provide this extensive region with urban water and sewerage treatment, supply, and disposal; river quality water for stock and irrigation; and collection and disposal of subsurface irrigation drainage.

LMW provides and monitors the extraction of non-urban untreated river water in pumped irrigation districts of Merbein, Red Cliffs, Robinvale as well as the Millewa rural district and some areas of the waterworks district of Yelta (Latji Latji land). LMW also measure the volumes of take direct from the Murray River and related surface water extractions for its private diversion customers.

Figure 1 - LMW service area & asset map



Groundwater

LMW have one active bore site that extracts ground water and desalinises it to supplement with surface water for irrigation of vines. These and any new installations for groundwater licences are fitted with AS4747 compliant pattern approved meters.

Surface Water

Surface water users pump water directly from the Murray River or connected tributaries through an LMW owned and maintained meter assembly to a private water supply system.

Irrigation Systems

LMW are responsible for operating the four irrigation districts of Mildura, Red Cliffs, Merbein and Robinvale. These are used to deliver irrigation and D&S water to customers who are responsible for the management of their own annual use.

Recycled Water

LMW provides recycled urban sourced treated wastewater to third party users to grow almonds, and broad acre crops. LMW also provide treated wastewater to third party users from its Wastewater Treatment Plant (WWTP) lagoons at Mildura, Koorlong and Robinvale.

3.2 Recent Modernisation

The Sunraysia Water Efficiency Project (SWEP) was a \$37.9 million channel efficiency project undertaken by LMW spanning the Merbein, Mildura and Red Cliffs Irrigation Districts. The project was supported and funded by the Australian Government via the Off-Farm Efficiency Program. The project was delivered over two years, with most works taking place in winter 2023 and 2024.

Project Delivery:

- 25km of irrigation channels lined to prevent seepage
- 2.5km of existing channel replaced by pipework
- 357 Dethridge wheel meters removed, a small number of these replaced by AS compliant flow meters.
- 101 D&S meters replaced with AS compliant meters

3.3 Strategic Plans affecting Metering

Sunraysia's pumped irrigation districts have changed significantly in recent decades. Urban encroachment on irrigation districts, volatile commodity markets and water policy reforms including water buybacks have shifted customer needs and priorities and will continue to influence future demand for rural water services in the LMW region.

To address this, LMW is developing a Rural Masterplan 2050 (RM2050) which will provide us with a long-term strategy to remain flexible in a changing environment and ensure we provide an efficient and appropriately priced service for the next generation. It will help us to respond to future challenges including population growth and urban development, ageing Sunraysia irrigation district assets, climate variability and global economic uncertainty.

Technology Uplift Project (TUP)

LMW is currently in the testing phase of changing the billing system from TechnologyOne – Property & Rating to InFor.

Previously meter attribute data would be housed both within TechOne and the asset management system InFor. Now InFor will become the source of truth for all meter attribute data, billing and asset management processes.

Part of the project will also include changes in how service requests are generated for meter inspections, maintenance and how tenancy change/solicitor reads are gathered.

This is expected to be implemented by the end of 2025.

Water Plan 5

LMW's capital works budget for irrigation meter replacements increased significantly from the previous water plan.

This was largely due to the fact a significant number of contemporary standard meters are approaching end of life and will need to be replaced in the coming years. It also allowed all previously identified sites that required an accurate meter to be installed to be replaced by AS compliant meters before the June 2025 deadline. LMW will continue to monitor water usage on existing sites that have an outside contemporary standard meter installed, but are currently exempt for low use, for future upgrade requirements.

Part of the budget also included funds dedicated to meter validations to confirm metering accuracy standards and drive the meter replacement program.

4. Meter Fleet Profile

The metering standards for non-urban water are specified for two main categories of meters:

- full flowing pipe meters; and,
- open channel meters

LMW have a small proportion of outdated open channel meters in the form of Dethridge Wheels within its jurisdiction. The majority of these were removed during the Sunraysia Water Efficiency Project (SWEP), the remainder being inactive services that are cost prohibitive to remove. To avoid use LMW often locks the connections as they are superseded with a more modern full flowing pipe connection. Any upgrading or replacement of metering for channel connections will be with compliant full flowing meters, LMW are not seeking to use open channel meters for customer billing so all references to open channel meters has been excluded from this MAP.

LMW manages four irrigation supply districts. These managed supply networks have bulk extraction master meters that are validated each year under LMW's bulk entitlement meter management plan.

4.1 Summary of Meter Classifications

LMW manages 6,675 rural customer connections, of these 3,366 are for irrigation purposes, with the remaining 3,309 for domestic and stock use.

Of these connections there are currently 2,241 AS compliant meters, 3,245 are of contemporary standard, 1,124 are non-compliant meters and 67 are unmetered, all being exempt from immediate replacement due to low use and/or out of scope D&S meters.

In line with the Policy's compliance category and requirement codes (Table 1), LMW's customer metering fleet profile at the end of the 2024/2025 irrigation season is outlined in Table 2.

High Risk Meters

From the 2024/25 season there were 14 meters that meet the high-risk definition of use greater than or equal to 5000ML. The combined water use through these meters was 130,042 ML or 21.6% of total surface water extracted through non-urban customer meters. All of these meters are of AS4747 or contemporary standard, have telemetry fitted and are validated annually.

Exempt Meters

As outlined in table 2, LMW has 1,124 meters that are outside contemporary standard (OT) that are exempt from immediate replacement.

Of these 778 are outside scope (EXOS) being for domestic and stock purposes. The remaining 346 are low use (EXLU), either not used at all or using less than 10ML per annum.

Table 1 – DEECA Non-Urban Water Compliance and Requirement Codes

Compliance Category	Code	Description
Compliant	AS	Pattern approved meter, installed by a certified installer, complies with AS4747 standard and has a certificate
Contemporary (Interim)	CO	A meter that can operate within the maximum permissible error rate of $\pm 5\%$ under in-situ conditions and provides for ongoing validation. This would include pattern approved meters that fail to meet all requirements of AS4747.
Outside contemporary standard	OT	All other measurement devices that are unable to meet validation requirements. These devices may or may not measure within the accuracy standards.
Unmetered	UM	Unmetered
Requirement	Code	Description
Accurate meter required	AM	Site is to have a maximum permissible error of $\pm 5\%$ under in-situ conditions.
Exempt – outside scope	EXOS	Exempt as water use is for a D&S license, drain diversion license, stormwater, or meters managed by other Water Corporations
Exempt – low use	EXLU	Below the threshold for high accuracy meters. Where the existing surface water license is $\leq 10\text{ML}$, the existing ground water license is $\leq 20\text{ML}$.
Exempt – high cost	EXHC	Cost is disproportionate to the benefits. Including but not limited to: • Where the site is not in use as it's not equipped with a pump or physically cannot operate • The low frequency or low annual volume of take (ten-year average less than 10 ML/year and no annual use > 20 ML) do not require a meter • Excessive costs imposed by site conditions • Adequate water measurement is provided by the bulk water meter, or • The bottom 5 per cent of sites based on use within a water resource management area. Unless these sites are in a higher risk resource area, basic metering is adequate to fulfil water management objectives under the National Water Initiative
Exempt – supply system change planned	MO	Meter is located within an area planned for modernization or reconfiguration and the meter upgrade, relocation or removal will be part of the modernization or reconfiguration.

Table 2 – LMW Customer Meter Fleet Profile 2024/25

Meter Compliance & Requirement Status 2024/25 (Number & Volume in ML)					
Groundwater	AS4747 (AS)	Contemporary (CO)	Outside Contemporary (OT)	Unmetered (UM)	Total
Volume (ML)	541.91	0	0	0	541.91
Volume %	100	0	0	0	100
Number of Meters	2	0	0	0	2
Accurate meter required (AM)	N/A	N/A	0	0	0
Exempt – Outside Scope (EXOS)	N/A	N/A	0	0	0
Exempt – Low use (EXLU)	N/A	N/A	0	0	0
Exempt – High cost (EXHC)	N/A	N/A	0	0	0
Exempt – Supply system changes planned (MO)	N/A	N/A	0	0	0
Surface Water	AS4747 (AS)	Contemporary (CO)	Outside Contemporary (OT)	Unmetered (UM)	Total
Volume (ML)	267,459.98	332,239.21	1,282.42	0	600,981.61
Volume %	44.77	55.02	0.21	0	100
Number of Meters	2239	3245	1124	67	6673
Accurate meter required (AM)	N/A	N/A	0	0	0
Exempt – Outside Scope (EXOS)	N/A	N/A	778	0	778
Exempt – Low use (EXLU)	N/A	N/A	346	67	413
Exempt – High cost (EXHC)	N/A	N/A	0	0	0
Exempt – Supply system changes planned (MO)	N/A	N/A	0	0	0
Telemetry Data	AS4747 (AS)	Contemporary (CO)	Outside Contemporary (OT)	Unmetered (UM)	Total
Number of Meters with Telemetry	1910	1084	1	0	2995
Telemetered Volume (ML)	267,386.65	317,347.98	5.39	0	584,740.02
Total Volume %	44.5	52.8	-	0	97.3

5. Processes to Assure Meter Accuracy

All meters require processes in place to ensure meter accuracy, this section details how LMW plans to manage and operate its meters at the agreed levels of service while optimising life-cycle costs.

5.1 Metering Objectives

LMW metering objectives are aligned with the Victorian Non-Urban Metering Policy objectives, which include:

- To encourage comprehensive metering of non-urban water extraction in a way that is consistent with risk to water resources
- To provide for water take to be measured accurately and reliably
- To provide that meters installed are accurate and well maintained
- The benefit of water measurement outweighs the costs
- To improve reporting by linking the meters compliance data with water use data in the Victorian Water Register (VWR)

LMW monitors its metering fleet and data regularly, to identify connection's that pose a risk to the resource they are drawing from by either the overall volume they extract, or the compliance and accuracy of the meter fitted to that connection.

5.2 Metering Requirements

In line with requirements in the Policy:

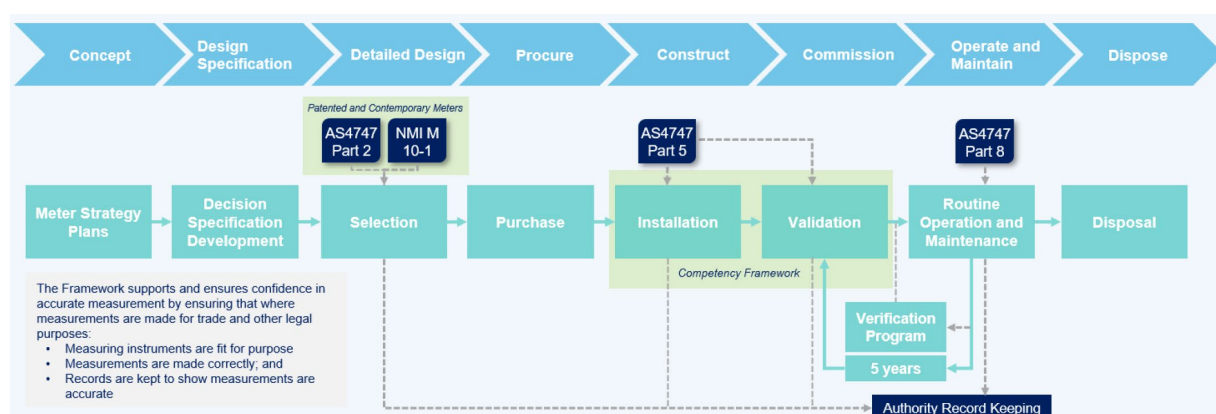
- All new or upgraded extraction sites will be fitted with AS compliant meters.
- Meters installed on existing sites that meet a contemporary (interim) standard will be replaced at the end of their operational life by an AS compliant meter.
- Any meter that does not comply with contemporary standards will be replaced by an AS compliant meter, unless otherwise exempt under the thresholds described in Table 1.
- Telemetry will be installed on all new or upgraded extraction sites used for irrigation purposes. (Excludes domestic & stock use)
- Unmetered D&S connections will be metered at the point of property sale.

5.3 Overview of Meter Lifecycle Management

The following life-cycle diagram within Figure 2 shows the main steps in maintaining all meter types that are able to be validated, from developing Meter Action Plans through to disposal. The diagram shows the links with national standards.

LMW have a meter management procedure that sets out lifecycle management of other water meter types that are unable to be validated (mechanical).

Figure 2 – Non-urban meter asset lifecycle



5.4 Metering Standards and Selection

The metering standards for non-urban water are specified for two main categories of meters:

- full flowing pipe meters; and,
- open channel meters

Documentation of requirements under the assurance framework are listed in Table 3

Table 3 – Metering Standards and the Assurance Framework for Non-urban Metering

Requirement	Description
Overall Measurement Requirement	Measurement Assurance Framework [2009]
Measuring instruments are fit for purpose	NMI M 10 for full flowing pipe meters [2010] and NMI M 11 for open channel meters [2009] Approved meters are called - pattern approved See Pattern Approval Requirements - Department of Industry Science & Resources for more information.
Measurements are made correctly	AS4747 – Current edition (3 rd) 2013 Sections 1, 2, 5 & 8 for full flowing pipe meters Sections 1, 3, 6 & 8 for open channel meters These standards include the requirement for duly qualified personnel for most tasks – called Certified Meter Installers and Validators.
Record-keeping to prove measurements are accurate	NMI retains records on meter testing for pattern approval AS4747 specifies the data to record

General Meter Selection Requirements

AS4747 compliant meters will be used at sites requiring accurate meters. Meter selection for exempt sites will prioritise cost-effective metering.

The preferred meters are:

- Mechanical meters for the majority of domestic and stock connections. LMW has recently started using pattern approved Sensus WP Dynamic mechanical meters primarily for new and replacement D&S installations. Elster Q4000 electromagnetic meters are sometimes used depending on installation conditions.
- Electromagnetic flow meters for all irrigation connections larger than 50mm. LMW uses pattern approved Aquamonix i500 and Siemens Mag8000 flow meters as the primary irrigation metering options.

LMW has no plans to install open channel meters.

Full Flowing Pipe Meter Selection Process

LMW non-urban water users must gain approval from LMW for any new connection, modification, enlargement, relocation, disconnection, alteration or removal of any existing meter connection prior to commencement of works on the property.

The request for a new or modified connection is initiated by the customer, who is then notified of the maximum flow available from that connection, based on pipeline constraints and delivery share. For irrigation connections, an irrigation plan is then submitted by the customer for LMW to determine further approval requirements.

LMW metering staff will then choose an appropriate meter based on the selection process listed below:

- Connection pipe details upstream and downstream
- Proposed power supply source details: mains, battery, solar (noting solar will require checking on shading and orientation)
- Flow range
- Manufacturers installation specifications
- Water quality
- Site access constraints and safety
- List of possible technical challenges
- Telemetry requirements
- Cost benefit analysis

The Pattern Approved Meters for use in Australia can be found at:

<https://www.agriculture.gov.au/sites/default/files/documents/mdb-pattern-approved-non-urban-meters.pdf>

5.5 Meter Installation

AS4747 Part 5 covers the installation requirements for full flowing meters. LMW will ensure all new meter installations are completed in accordance with AS4747 part 5, however where site constraints limit the ability to do so, the best feasible option will be chosen to ensure maximum accuracy within $\pm 5\%$. LMW has developed a set of standard meter installation plans which can be found in Appendix A.

In circumstances where meters are installed by a non-certified installer, validation of those meters will be undertaken by a CMI qualified technician as a part of the commissioning process.

5.6 Tamper Evident Seals

Tamper evident seals will be installed on all new and replacement meter installations, or whenever meter maintenance requires existing seals to be broken.

In circumstances where a tamper evident seal is found to be missing, the meter will be inspected and validated by a CMI qualified technician and seals replaced.

LMW sources its tamper evident seals from a sole supplier and all batch numbers are traceable back to the source.

LMW supply seals to contractors performing works for us and who are CMI accredited.

On above ground installations, the seals will be placed through a bolt on each meter flange to prevent removal or turning of the meter to access meter turbines or electrodes. They will also be placed on any removable parts or panels that access the inner workings of the meter dial and/or transmitter.

5.7 Meter Validation

AS4747 Part 8, Section 2.4 covers the validation requirements for full flowing pipe meters.

All new and replacement meters are validated at the time of installation. Prior to 2023, after the initial validation, meters were only validated on an adhoc basis, usually when a problem was identified.

Through the current water plan, LMW now has a dedicated budget specifically to proactively validate meters, with the aim to validate 20% of its electronic meter fleet annually to achieve a validation every 5 years for each meter.

LMW's bulk entitlement meters, and high-risk customer meters with annual usage $\geq 5000\text{ML}$ are validated yearly.

Initially, this program is targeting aging contemporary standard meters and those with regular usage. LMW continues to validate meters when a problem is identified or after maintenance that may affect the accuracy of the meter is undertaken.

At this stage, LMW has opted not to create work orders to revalidate each meter but has an online dashboard that displays when a meter was last validated, the validation outcome and its next due date. This dashboard updates daily whenever a validation certificate is uploaded to our content manager system.

5.8 Meter Verification

AS4747 Part 8 sections 2.5 and 2.6 covers the in-situ volumetric measurement and verification requirements for both meter categories. These are non-mandatory sections of the standard and with current methods, these tests are not cost-effective and are limited to testing only one flow supply situation - as all variables must be maintained during the test.

LMW do not complete in-situ verification as there is no standard for it and is not cost effective, mainly due to the majority of meters installed below ground.

Verification of meters is confirmed by:

- Installing a pattern approved meter
- Installing meter to AS4747.5 standard
- Validation by certified meter installer
- Maintained and checked by certified persons.

5.9 Meter Maintenance

AS4747 Part 8 section 2.7 covers the maintenance requirements for both meter categories. Appendix C of the standard is an informative section covering competencies and activities.

LMW carries out maintenance when a problem is detected, and also as a preventative measure (e.g. meter battery replacement schedules prior to failure). Maintenance will consist of:

- Servicing/internal cleaning of mechanical meters
- Cleaning solar panels
- Replacing batteries
- Replacement of transmitter or telemetry components
- Re-establishing telemetry communications
- Overall repair or replacement, dependant on costs and age of the meter

5.10 Meter Disposal

Meters must be returned to LMW to be scrapped once removed or replaced to prevent being used elsewhere. They will be sorted depending on material composition and placed in the appropriate scrap disposal bins.

LMW has an asset disposal procedure that ensures the meter is listed as decommissioned in all applicable asset & billing registers and GIS systems and physically disposed of appropriately.

Metering data and attributes will be retained for review in the billing and asset management systems.

6. Metered Data Management

LMW has a number of systems that manage data from our metering fleet.

Processrio

This is a 3rd party software platform which has replaced the original platform MeterMade, but is still maintained by a principal contractor, 37South PTY LTD. This program captures all of our telemetry data and sends the totalizer readings to our data warehouse.

Data Warehouse

The data warehouse captures telemetry data every 15 minutes, when each base station sends back individual metering data captured within its signal radius. These meter readings are linked in the data warehouse to the corresponding connection in the billing system. Abnormal reads may be held within the data warehouse until corrections or maintenance has been undertaken, or in the case of parent meter reads, until all child readings are obtained so billed usage can be calculated correctly.

A report is generated and emailed out daily with all telemetered meter readings, showing those exceptions to instigate an investigation on the validity of the data or maintenance required.

Billing System

Telemetry meter readings are uploaded from the data warehouse to the billing system on a daily basis. Part of this process involves an automated validation, where high readings are flagged for further investigation by LMW staff before manually validating. Validated reads are sent daily to the Victorian Water Register after this upload and validation process has occurred. The billing system also holds meter attribute data, such as meter size, type, serial number and installation date, in addition to other fields.

Asset Management System

The asset management system also holds meter attribute data, such as those fields listed above. The billing and asset management systems are soon to be merged into the same program, InFor.

Temetra

Temetra is another 3rd party software platform used to gather manual meter reads. Read processes are generated by routes in the billing system, then sent to Temetra to be assigned to a meter reader to gather the reads and enter them via a handheld device. Once all reads in the route have been collected, a cursory validation takes place within Temetra before transferring them to the billing system for further validation.

Content Manager

Content Manager is used to house meter data, such as installation records, validation certificates and other documentation relating to metering, from individual property meters, up to the overall metering policies and procedures.

WaterNow

WaterNow is LMW's water ordering system, used to manage water distribution within the irrigation districts. Meter data and usage history is also housed within this program so users can make informed decisions to manage their ABA balance when ordering water through the online portal.

Grafana

Grafana is a platform to visualize and monitor data. LMW uses a series of dashboards to keep track of requirements, current and future for things such as meter validations, meter replacements, faults and usage against delivery/extraction share etc and total pumped volumes.

6.1 Meter Reads

Manual meter reads are undertaken at different frequencies depending on the service area and usage history on the meter.

Note: Meters with active telemetry will send updated reads daily at a minimum. Where the totaliser read has moved, readings will get uploaded daily to the billing system, readings with no totaliser movement will upload at the end of each month or when a reading cycle takes place.

Table 4 – Manual Meter Reading Frequency

Meter Read Frequencies					
Service Areas	D&S Meters	Irrigation - No telemetry, no water orders	Irrigation - No telemetry, with water orders	Unused Meters	Comments
Irrigation Districts	Quarterly	Quarterly	Fortnightly	Annually	Meters with no telemetry may be low use mechanical meters or those with current telemetry faults
Private Diverters	Quarterly	Monthly	N/A	Annually	Private diverters don't place water orders

6.2 Reporting

Reports are generated automatically detailing total bulk extraction within each 24hr period for each of our irrigation districts, urban treatment plants and private diverters in each river reach. This report is emailed daily to select personnel from GMW, MDBA, DEECA and internal LMW staff.

A separate automated report is also emailed daily to select LMW staff detailing all of the telemetry reads that have come in during the past 24hrs, separating high reads,

backwards reads, usage against water orders and other issues that need further investigation.

An annual metering data request is submitted to DEECA each August detailing the status of LMW's meter fleet, including but not limited to:

- Number of meters under each compliance category- AS, CO, OT
- Volume of water taken by meters under each compliance category
- Number of OT meters currently exempt under each exemption code
- Number of telemetered sites and usage volume recorded via telemetered meters
- Meter install/decommissioning numbers and number of maintenance inspections.

The report is compiled from data located within LMW's billing/asset systems and from a number of other database reports. As part of the migration to a new billing system, LMW are looking at adding meter compliance codes to the current meter attributes to streamline this process.

7. Metering Investment Program & Finances

LMW's pricing submission (Water Plan 5) has been reviewed and approved by the Essential Services Commission (ESC). This document also establishes a revenue cap for LMW over the course of the water plan.

On an annual basis LMW develops our Corporate Plan that is approved by the LMW Board and Minister for Water. The Corporate Plan contains our 5-year financial forecast and identifies key organisational objectives and projects.

7.1 Forward Look Capital Program

LMW's irrigation meter replacement program budget reflects the expected number of meters requiring replacement in each of the successive years of the current water plan. This expected number has increased significantly due to the number of irrigation meters replaced during the Sunraysia Modernisation Project (1&2) coming of age.

Over time, meter accuracy declines due to a number of factors, mainly age-related wear and tear, environmental conditions, sediment build up, water ingress to the meter body and/or failed electrical connections, wiring or components. The meter will either be replaced or repaired depending on the type of fault, age of the meter and cost of repairs. Failed meters are usually identified in the following ways:

- Maintenance inspections
- Validations
- Meter reading
- Telemetry data
- Customer queries

Through compiling the annual metering data request that is submitted to DEECA each year, non-compliant meters may also be identified for replacement due to no longer being exempt under low use thresholds.

Table 5 – Capital Budget for Meter Replacements

Capital Metering Budgets			
Service Areas	2025/26	2026/27	2027/28
Irrigation Districts			
Irrigation Meters	\$772,100	\$786,800	\$806,500
D&S Meters	\$46,800	\$47,700	\$48,900
Private Diverters			
Irrigation Meters	\$482,000	\$491,200	\$503,500
D&S Meters	\$25,100	\$25,600	\$26,200
Total	\$1,326,000	\$1,351,300	\$1,385,100

7.2 Cost Benefit Analysis

New or upgraded connections are funded by the customer, however ongoing maintenance and eventual replacement of the meter is funded by LMW.

In addition to service and delivery share charges for the administration and maintenance of the reticulation system, irrigation district customers are charged by how much water they use, whereas private diverters are charged a fee in relation to how much AUL is attached to the property.

Chart 1 reflects the minimum annual usage required to recover costs associated with a meter replacement within each of our irrigation systems. It does not account for additional operational expenditure such as pumping costs to deliver the water within the irrigation districts or ongoing meter maintenance.

Chart 2 reflects the minimum required AUL attached to a private diversion property to recover the costs associated with a meter replacement.

Average age of replacement and depreciation of meter assets takes place over a 15-year lifecycle; hence all calculations have been based on this duration.

Based on figures from chart 2, it may not be economically feasible to replace meters on private diverter D&S or small irrigation properties proactively and may be left in service until failure. In each instance these graphs will be used as a guide only but may be used to justify the type of meter, installation requirements, and replacement schedules for each connection.

Chart 1 – Cost of Meter Replacement Versus Water by Measure Revenue, Irrigation Districts

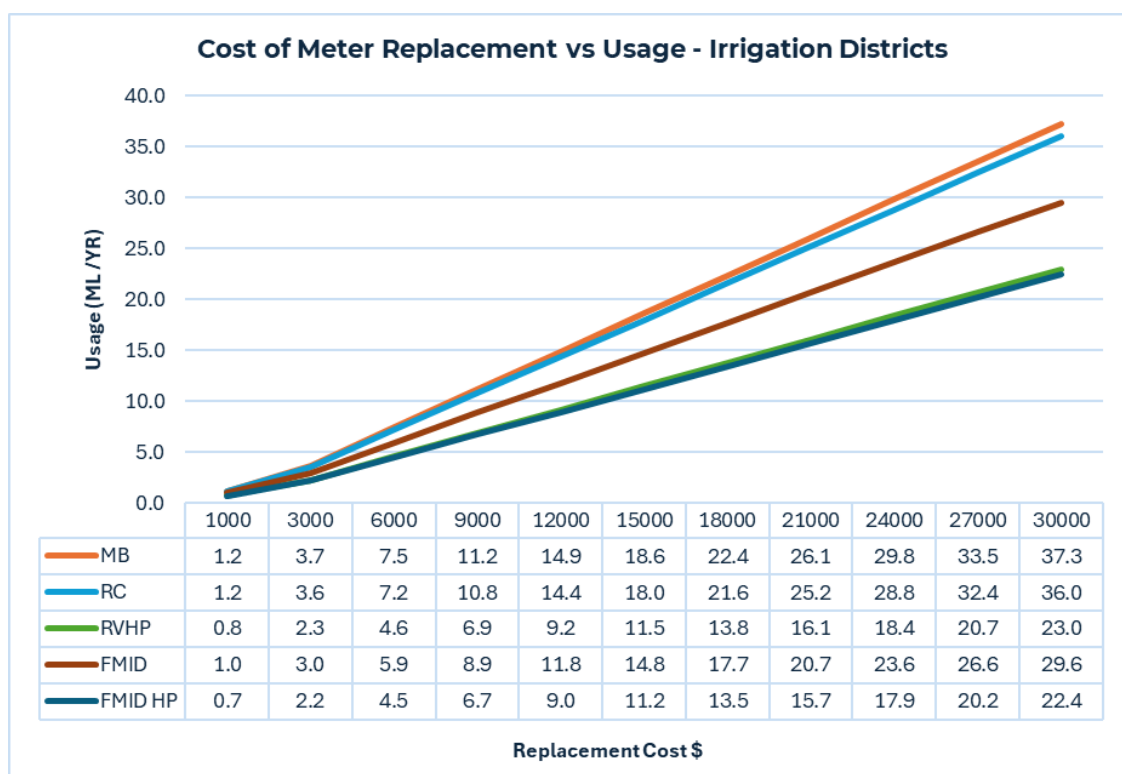
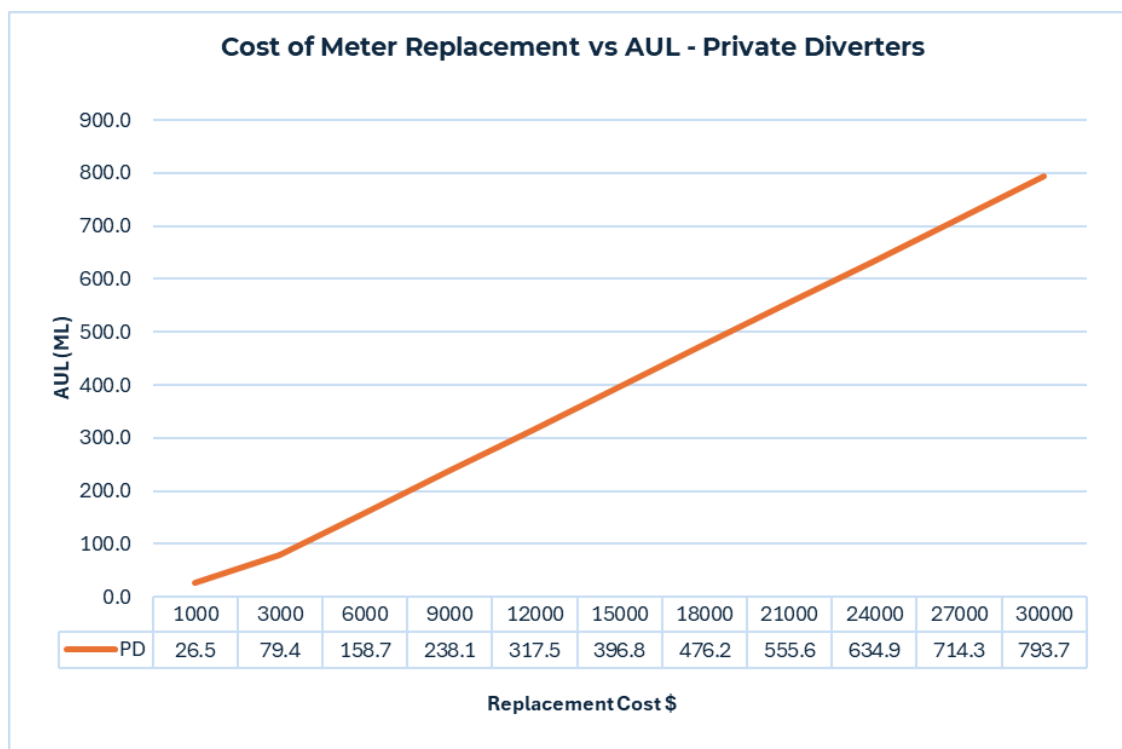
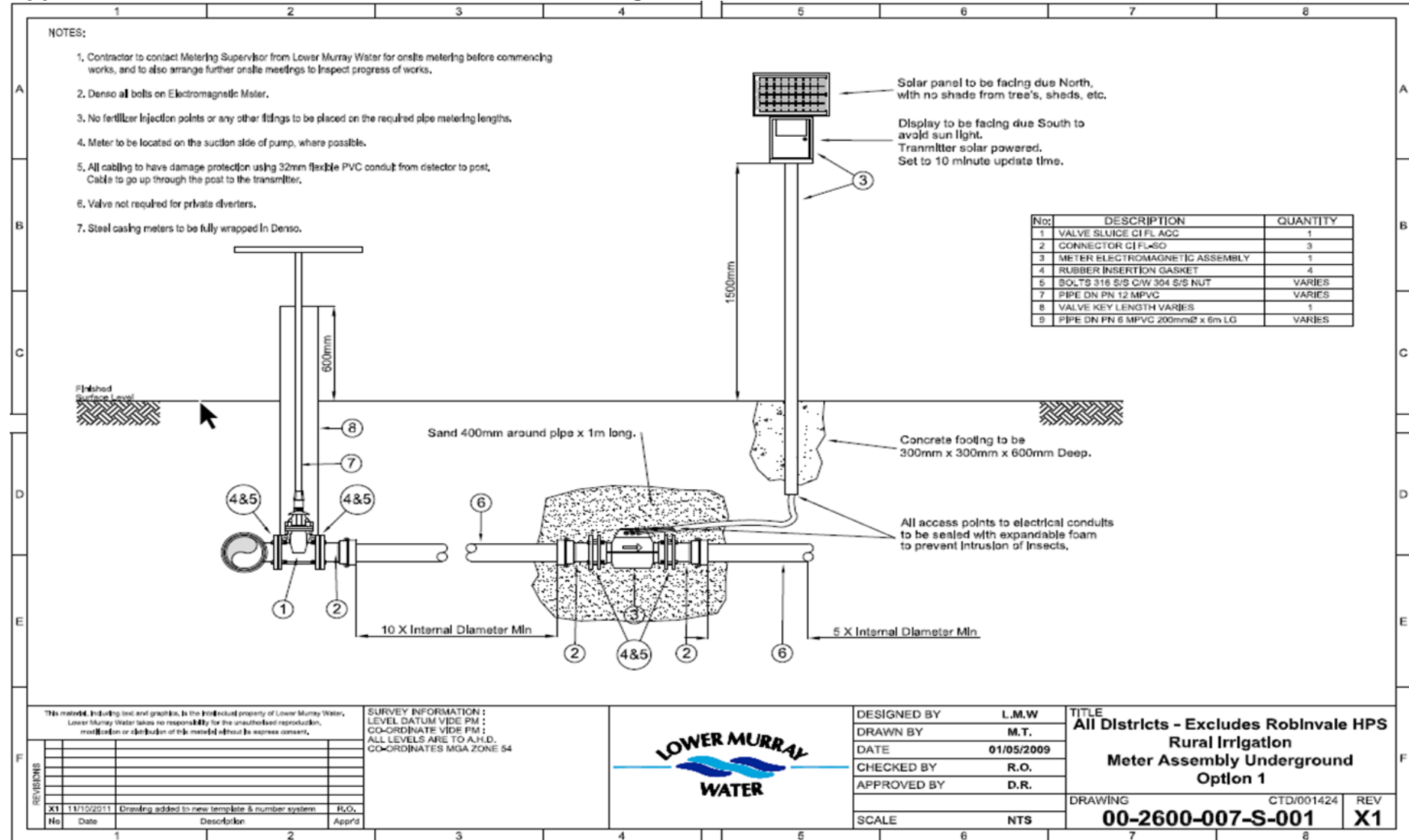


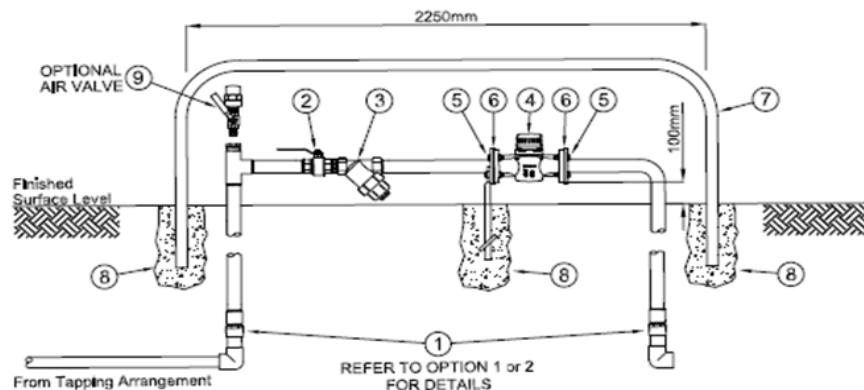
Chart 2 – Cost of Meter Replacement Versus Service Charges per ML of AUL, Private Diverters



Appendix A Standard Meter Installation Drawings



50mm DOMESTIC AND STOCK SUPPLY



NOTE:

1. Meter position to be determined by Lower Murray Water Superintendent.

50mm DOMESTIC AND STOCK SUPPLY		
No.	DESCRIPTION	QUANTITY
1	OPTION 1 PVC CONNECTION	
	*50mm PVC CLASS 12 PIPE- Length Varies	VARIES
	*50mm BEND 90° PVC	2
	*50mm VALVE SOCKET PVC	2
	*50mm SOCKET S/S	2
	OPTION 2 POLY CONNECTION	
	*63mm POLY x 50mm H BEND 90° POLY	2
2	50mm BALL VALVE S/S	1
3	50mm BANJO FILTER C/W #4 MESH	1
4	50mm WATER METER FLANGED ELSTER	1
5	M12 x 65mm Galvanized Bolts/Nuts/Washers	8
6	50mm FLANGED GASKETS	1
7	2m PROTECTION BAR	1
8	PRE-MIX CONCRETE	3
9	OPTIONAL 25mm AIR VALVE	
	25mm AIR VALVE	1
	25mm VALVE BALL S/S	1
	25mm NIPPLE S/S	1
	50mm x 25mm REDUCING POLY BUSH	1

CONNECTION TO METER ASSEMBLY

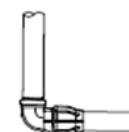
OPTION 1

S/S TO PVC CONNECTION

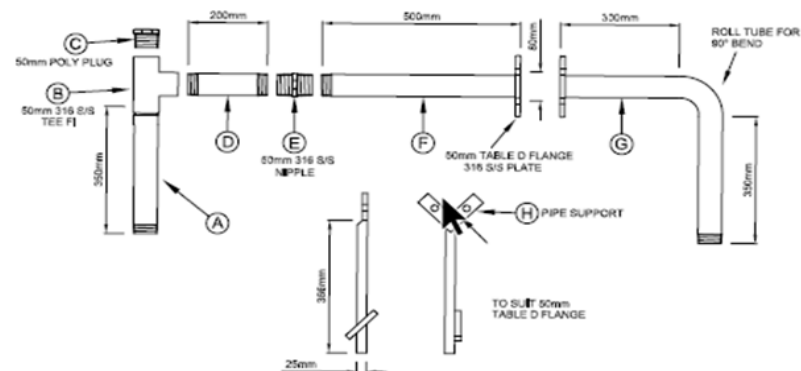


OPTION 2

S/S TO POLY CONNECTION

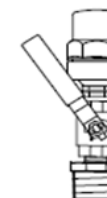


50mm 316 S/S PIPE WORK BREAKDOWN SCALE 1:10



50mm S/S PIPE WORK BREAKDOWN		
No.	DESCRIPTION	QUANTITY
A	50mm PIPE- LENGTH- 350mm	1
	50mm BSP THREAD EACH END	
B	50mm BSP TEE S/S 316	1
C	50mm POLY PLUG	1
D	50mm PIPE- LENGTH- 200mm	1
	50mm BSP THREAD EACH END	
E	50mm BSP NIPPLE S/S	1
F	50mm PIPE- LENGTH- 500mm	1
	50mm BSP THREAD ONE END	
	50mm FLANGE TABLE D OTHER END	
G	50mm PIPE- LENGTH- VARIES	1
	50mm BSP THREAD ONE END	
	50mm FLANGE TABLE D OTHER END	
	BEND TO BE ROLLED AT 90°	
H	PIPE SUPPORT	1

OPTIONAL 25mmØ AIR VALVE



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SURVEY INFORMATION:
LEVEL DATUM VIDE PM:
CO-ORDINATE VIDE PM:
ALL LEVELS ARE TO A.H.D.
CO-ORDINATES MGA ZONE 54



DESIGNED BY L.M.W.

DRAWN BY M.T.

DATE 01/05/2009

CHECKED BY R.O.

APPROVED BY D.R.

SCALE NTS

TITLE

All Districts - Excludes Robinvale
Rural Domestic and Stock
50mm Meter Assembly

DRAWING

CTD/001429

REV

00-2600-004-S-004

X1



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