

Land Development Manual

Information contained within this manual is for guidance and is subject to change.

Current as at September 2025

CTD/004134



LOWER MURRAY
WATER

Table of Contents

- 1.The Purpose of this Manual
 - 1.1 Intended Audience
 - 1.2 Water Corporations Powers
- 2. Introduction
- 3. General
 - 3.1 Responsibility for Service Provision
 - 3.2 New Customer Contributions (NCCs)
 - 3.3 New Customer Contributions Exemptions
 - 3.4 Reimbursable Works (Shared Assets)
 - 3.5 Temporary Works
 - 3.6 Unnecessary Works
- 4. Existing Services
 - 4.1 Existing Service-Realignment
 - 4.2 Existing Service Abandonment
 - 4.3 Existing Combined Sewerage Drains
 - 4.4 Existing Private Water Services
 - 4.5 Rural Investigation
 - 4.6 Lower Murray Water Managed Land & Rural Irrigation Mains / Channels
 - 4.6.1 Rural Irrigation Mains / Channels
 - 4.6.2 Lower Murray Water Land
 - 4.6.3 Vegetation Impacts
 - 4.6.4 Bushfire Management Overlay & Public Open Space
 - 4.6.5 Planting Over Lower Murray Water Assets
- 5. Residential Development or Subdivision
 - 5.1 Sewerage Requirements
 - 5.2 Potable Water Requirements
 - 5.3 Super Lots
- 6. Industrial/Commercial
 - 6.1 Sewerage Requirements
 - 6.2 Potable Water Requirements
 - 6.3 Trade Waste
 - 6.4 Water Tappings
 - 6.5 Backflow Prevention
- 7 Multi-Unit Developments
 - 7.1 Standards
 - 7.2 Dual Occupancy Without an Owners Corporation
 - 7.3 Existing Multi-Unit Developments
 - 7.4 Water Tappings

8. Multi-Storey

- 8.1 Pressure and Flow
- 8.2 Metering
- 8.3 Private Plumbing Works
- 8.4 Existing Multi-storey Developments
- 8.5 Water Tappings

9. Easements and Reserves

10. Connections

- 10.1 Connection requirements
- 10.2 Applications and Fees
 - 10.2.1 Water
 - 10.2.2 Sewer, Fire Services, Alterations, Renovations, Un-serviced Structures
- 10.3 Conditions of Connection
- 10.4 Standards
- 10.5 Sewer Connections
 - 10.5.1 Plumber Responsibilities
- 10.6 Water Connections
- 10.7 Responsibilities
- 10.8 Connection Standards

11. Land Development - Developer Design & Constructed Works

- 11.1 What are Developer Design & Constructed Works?
- 11.2 Phases
- 11.3 Who Pays for the Works?
- 11.4 Consultants

12. Overview

- 12.1 Reference Documents
- 12.2 General
 - 12.2.1 Developer Design & Construct (DD&C) Agreement
 - 12.2.2 DD&C Fees & Charges
 - 12.2.3 Standards
 - 12.2.4 Materials
- 12.3 Design Solution
 - 12.3.1 Sewerage Works
 - 12.3.2 Sewer Lot Control
 - 12.3.3 Sewer Property Connection Points
 - 12.3.4 Water
- 12.4 Design Coordination
- 12.5 Design Drawings
- 12.6 Lodging the Design
- 12.7 Auditing / Reviewing the Design

13 Pre-Construction

- 13.1 Overview
- 13.2 Pre-commencement Meeting
- 13.3 Quality Assurance Inspections
- 14 Construction
 - 14.1 Overview
 - 14.2 General
 - 14.3 Occupational Health and Safety
 - 14.4 Construction Access to Private Property & Trespass
 - 14.5 Construction Hold Points
 - 14.6 Alteration to Existing Lower Murray Water Assets.
 - 14.7 Disinfection and Water Quality Testing of Mains
 - 14.8 Connection with a Shutdown of the Main
 - 14.9 Work on Live Assets - Sewerage Connections
 - 14.10 Hydrant Use and Cross Contamination
 - 14.11 Trench Backfill Requirements
 - 14.12 Acceptance Testing
 - 14.12.1 Water Supply
 - 14.12.2 Sewer
 - 14.12.3 As Constructed Plans / Asset Information
 - 14.13 Lower Murray Water Audits
 - 14.14 Preliminary Acceptance of Works (PAOW)
- 15. Maintenance /Defects Liability Period
 - 15.1 Auditing
 - 15.2 End of Maintenance / Defects Liability Period
 - 15.3 Final Acceptance of Works (FAOW)
- 16. Responding to Faults
- 17. Shared Assets
 - 17.1 Lower Murray Water Responsibilities
 - 17.2 Shared Cost Assets
 - 17.3 Non-Reimbursable
 - 17.4 Payment
- 18. Definitions

1. The Purpose of this Manual

This Land Development Manual outlines the approval process for connecting to Lower Murray Water's (LMW) water and sewerage services. Bear in mind that it only provides general advice for standard subdivisions. If your development is based on a non-standard subdivision, you should contact LMW for specific advice on the water and sewerage requirements.

Please don't treat this manual as technical, engineering, or legal advice. If you are developing land that needs reticulated water and/or sewerage services from LMW, you should get your own technical, engineering and legal advice.

1.1 Intended Audience

The Land Development Manual has been written for all engineering consultants, contractors, surveyors, developers, landowners, councils and Lower Murray Water personnel involved in land development within the Corporation's coverage area.

1.2 Water Corporations Powers

Victorian water corporations (Authorities) have a wide range of powers under the Water Act 1989 (Vic).

As an Authority, these powers give Lower Murray Water the right to place conditions on planning applications and subdivision plans, to enter into agreements and contracts, acquire land and easements, enter properties and carry out works related to sewerage systems and water supplies.

Any development requiring new or improved works must comply with the Water Act as follows:

Section 145:

- (1) A person must not, without an Authority's consent, cause or permit—
 - a. any works to be connected to the works of the Authority; or
 - b. the alteration or removal of any works that are connected to the works of the Authority; or
 - c. anything to be discharged into the works of the Authority.
- (2) An application for the Authority's consent must be made in a manner determined by the Authority and must be accompanied by—
 - a. any fee fixed by a determination of the Authority under subsection (3C); and
 - b. any plan that the Authority requires; and
 - c. any other information that the Authority requires.
- (3) An Authority may make a determination for or with respect to the fee to accompany an application for the Authority's consent under this section.

Section 268:

- (1) An Authority that intends to provide services which will benefit a property may, by notice in writing, require the owner of the property to meet or contribute to the present day cost of any works that are used or will be able to be used directly or indirectly for the provision of those services, and any fireplugs attached to those works.
- (2) If a proposal for the subdivision of land is referred to an Authority under the Planning and Environment Act 1987, the Authority may, by notice in writing, require the owner of the property to meet or contribute to the present day cost of any works that are used or will be able to be used directly or indirectly for the provision of services that will benefit the property, and any fireplugs attached to those works.
- (3) The amount of payment required from an owner must be assessed by the Authority to be fair and reasonable, taking into account the benefit to that property relative to the benefit to other properties.

Section 269:

- (1) An Authority that provides services to a property may, by notice in writing, require the owner of the property to contribute to the present day cost of any works referred to in section 268(1) if the use of any service for which those things are used increases, or will increase, because of development of the land or any other change, or proposed change, in the use of the land.
- (2) The amount of the payment required from an owner must—
 - a. be assessed by the Authority to be fair and reasonable in all the circumstances; and
 - b. take into account any payment that the owner has made or is liable to make under section 268 or 270 in relation to that property.

Section 270:

- (1) An Authority may, by notice in writing, require the owner of a property which becomes a serviced property to meet or contribute to the present day cost of any works that are used or will be able to be used directly or indirectly for the provision of services to that property.

2. Introduction

Generally, any urban development of land, redevelopment of land or subdivision of land will require the provision of water and sewerage services.

In built up areas these services may already be available to the property being developed. However, it is important that a developer contemplating a development project checks that services are available to the site and, if available, that they are adequate and have sufficient capacity to provide a service to the developer's proposal.

Developers are required to access the services of a consultants to undertake design and supervision as required for the particular development. Developers and consultants should contact Lower Murray Water to determine what services are available. Not all services are suitable for connection due to size or depth and therefore proper investigation will be required.

If it is determined that services are not readily available to the site or they need upgrading, then arrangements need to be made for the provision of new “developer design & constructed” works to provide the necessary service. The Land Development Manual sets out the process for the provision of new “developer design & constructed” works and conditions for connection to services as well as associated policy.

If it is determined that no new works are required, then this is classified as a “non-works” development.

The Land Development Manual details the servicing requirements, design, construction, quality assurance and audit policy for Land Development activities.

The business rules in this manual refer to standard subdivisional developments. Where these provisions are inappropriate for a development, then the requirements for the development will be determined on a case-by-case basis and specified in the Developer Design & Construct Agreement issued by Lower Murray Water.

The Land Development Manual should be read in conjunction with the Developer Design & Construct Agreement, issued by Lower Murray Water with each land development project, LMW current Schedule of Fees & Charges, LMW Civil Standards for Sewer & Water Pipeline Installation and the current WSAA codes.

This Land Development Manual is subject to review and change. Developers and Consultants are required to ensure they are accessing the current available version.

3. General

Development, for the purposes of this manual, refers to all aspects of any land or building development related to provision of water supply and sewerage services (including trade waste).

Development in this context may range from large scale residential, commercial or industrial developments (including subdivisions) to individual customers seeking a single water or sewerage connection. The specific requirements and extent of the process detailed in this manual may vary based upon the size and complexity of a particular development.

If a development requires new works to extend or upgrade water and sewer networks to provide these services to a development, the developer is required to arrange and pay for the construction.

The design and survey of the works are to be undertaken in accordance with Lower Murray Water’s technical requirements, specifications and as set out in any formal

correspondence. We use the following criteria to determine the requirements for sewerage and water works.

The requirements for servicing a development are described in sections of this manual including:

- Boundary Sewers and Water Mains servicing two developments
- Connections
- Developer Design & Constructed Works
- Easements and Reserves
- Existing services
- Multi-story developments
- Industrial lots
- Multiple unit developments
- Residential lots
- Temporary works

3.1 Responsibility for Service Provision

Lower Murray Water

Lower Murray Water is responsible for providing shared infrastructure assets (such, treatment plants, pump stations and trunk water and sewer mains) with sufficient capacity in accordance with a predetermined servicing plan.

Developers

Developers are responsible for:

- Providing reticulation assets and the cost of connecting those assets to Lower Murray Water's infrastructure
- Paying the costs associated with bringing forward the provision of shared infrastructure assets if they are required ahead of Lower Murray Water's asset development sequence.

3.2 New Customer Contributions (NCCs)

The Essential Services Commission (ESC) is Victoria's water industry regulator. The ESC approves standard rates for New Customer Contributions (NCCs, also known as developer charges).

NCCs are a one-off upfront charge applied to all new connections to either Lower Murray Water's sewer or water networks. This can be initiated by either a new development, subdivision or application to connect.

They support provision of incremental infrastructure and associated costs and share the costs for growth between new and existing customers.

New developments are paid by the developer during the subdivision process however many existing vacant blocks where fees have not been charged are applied when property owners request connection or further develop.

Specialised non subdivisional or higher water usage developments are charged based on an equivalent lot calculation. This is a measure of the demand that a connection will place on Lower Murray Water infrastructure in terms of water consumption and discharge compared to an average residential dwelling. A single equivalent lot will utilise a 20mm water tapping & meter. Examples of specialised non subdivisional or higher water usage developments are but not limited to:

- Caravan parks
- Commercial or industrial developments
- Hospitals or private hospitals
- Nursing homes
- Reserves or public open space
- Schools or other non-rateable properties
- Sporting grounds/complexes

Non-standard sewer NCCs are calculated where the application of a standard NCC for a single lot, occupancy or dwelling doesn't apply.

The table below sets out the ratios applicable for each meter size. A 20mm meter is considered equivalent to a single Lot.

Meter Size	Equivalent Residential Connection
20mm	1.00
25mm	1.56
32mm	2.56
40mm	4.00
50mm	6.25
80mm	16.00

Please contact Lower Murray Water with details of your proposed development for confirmation of the New Customer Contribution (NCC) that may apply to your commercial or non-subdivisional development.

Lower Murray Water will outline fees where the Standardised NCC Charge is not applicable due to the nature and/or locality of the development.

The Essential Services Commission website has information on the pricing determination for New Customer Contributions.

3.3 New Customer Contributions Exemptions

New Customer Contributions are not payable for:

- Lots defined on the plan of subdivision as staged or super lots until that area is further developed, or
- Land set aside for reserves, retarding basins and main road widening that does not need a water supply or sewerage service at the time of subdivision.

If a water supply or sewer connection point is requested at a later date due to development, the NCCs are charged and paid at the prevailing rate.

3.4 Reimbursable Works (Shared Assets)

Lower Murray Water funds some assets in accordance with the Essential Services Commission (ESC) guidelines. Where a developer/owner is required to provide a pipeline greater than the reticulation size, Lower Murray Water will reimburse the increased sizing of these shared distribution assets.

Lower Murray Water will require reimbursable (shared asset) works to be designed and constructed in accordance with the relevant standards, and as efficiently as possible. To achieve these objectives, the developer must:

- Enter into a Developer Design & Construct Agreement for the provision of required works.
- Construct the works in accordance with the asset requirements specified by Lower Murray Water.
- Make sure the consultant follows Lower Murray Water's design process.
- Involve Lower Murray Water actively in the design and construction procurement phases of the development works.

3.5 Temporary Works

Lower Murray Water will not normally support the installation of temporary works however may consider applications or justifications on a case by case basis.

Where temporary works are requested, and approved by Lower Murray Water, they are to be paid in full by the owners/developers. Lower Murray Water will not be involved in any cost sharing arrangements.

Before any temporary works are installed, the owners/developers must:

- Determine the development intentions of adjoining landowners so that temporary works are sized appropriately.
- Ensure the design of temporary works allow for the future transfer of the temporary system to the permanent system.
- Determine any cost sharing arrangements to be made between the owners.
- Provide land for temporary works.
- Agree to the specific conditions provided by Lower Murray Water that may also include the reimbursement to Lower Murray Water of any additional operational costs.

3.6 Unnecessary Works

Owners need to pay the full cost of any works that Lower Murray Water considers to be in excess of those required to provide an efficient system. Reimbursements do not apply to these works.

Unnecessary increases to infrastructure sizing without Lower Murray Water's approval is not permitted.

4. Existing Services

4.1 Existing Service-Realignment

Where an existing service is to be realigned due to redevelopment or changes to the subdivision of land, the property owner is liable for all associated costs of decommissioning, removal and construction of realigned assets in accordance with Lower Murray Water's requirements.

4.2 Existing Service Abandonment

If a service needs to be abandoned due to redevelopment or changes to the subdivision of land, the property owner:

- Must pay all associated costs including, removal and decommissioning.
- May have to pay the undepreciated value of the service being abandoned and removed.

4.3 Existing Combined Sewerage Drains

Where a development's parent lot is currently serviced by a combined drain with another existing lot, the combined drain cannot be used to connect additional lots. The developer must provide separate connection points to each of the new lots. This may require sewer main extension which will be at the developer's expense.

4.4 Existing Private Water Services

Development of lot(s) currently connected to a private water service may only proceed once the private service has been disconnected at the water main. Provision of reticulated water to the development shall be in accordance with Lower Murray Water's requirements. Lower Murray Water does not maintain private services and does not guarantee the service of properties connected by a private service as this can only be guaranteed at the point of connection to a Lower Murray Water asset.

Where the development contains existing private or combined water connections to properties outside the proposed development, reticulated water services will be provided to serve these properties at the developer's expense.

4.5 Rural Investigation

Where the land being developed is within an LMW Irrigation District, Private Diversion Area or the Millewa Water District the developer will be required to lodge a Rural Subdivision Application form. This will instigate a rural investigation where LMW will assess and determine what requirements need to be met before the land can be developed. This may include but not limited to:

- Disconnecting existing LMW irrigation or drainage services
- Install new infrastructure
- Relocation or decommissioning/removal of rural assets
- Updating of the Victorian Water register
- Termination of Rural Services (Delivery Share)

- Excision from a water district

4.6 Lower Murray Water Managed Land & Rural Irrigation Mains / Channels and Drainage

4.6.1. Rural Irrigation Mains / Channels and Drainage

Where Lower Murray Water has existing irrigation and drainage infrastructure and it is no longer required, it is to be decommissioned to the satisfaction of the corporation at the developer's expense. This may include removal of old asbestos pipes. Where infrastructure is required to remain active the development must design the lot layout to provide protection and access to the Lower Murray Water assets.

Agreement may be required for the provision of a buffer zone within the development site to cater for drainage to protect the development from flooding from the irrigation main, rural channel or drainage.

Carriage way over LMW irrigation main easements or rural channels is subject to a Private Works Agreement.

4.6.2. Lower Murray Water Land

Where a development has the potential to impact on, or be impacted by adjacent Lower Murray Water land, the developer is required to discuss and reach agreement with Lower Murray Water on avoiding and mitigating impacts. The impacts may be on stormwater drainage, vegetation, channels and other infrastructure.

- Discussing the impacts as early as possible in the planning phase of a development will allow for the developer to obtain the required permits, approvals and referrals in a timely manner. These may include, but not be limited to:
 - Planning permits and offsets for vegetation removal
 - Permits to remove protected species under the *Flora and Fauna Guarantee Amendment Act 2019*
 - For crown land, consent from the responsible land manager
 - Cultural Heritage Assessments

4.6.3. Vegetation Impacts

Where developments impact on vegetation on Lower Murray Water owned or managed land all necessary permits, approvals and referrals must be obtained prior to works commencing.

Where development on the owner's land impacts on the root zones of trees on adjacent Lower Murray Water land, a planning permit and arborist's report may be required. For example, a site cutting may remove a substantial volume of tree roots, undermining stability and stressing or killing the tree.

Impacts to native vegetation on Lower Murray Water land are to be assessed by a DEECA registered vegetation assessor under the current native vegetation regulations. An arborist report may also be required if tree health and safety are compromised.

If trees on Lower Murray Water land are destabilised due to development works, the developer will be liable for any works to mitigate safety risks.

4.6.4. Bushfire Management Overlay & Public Open Space

Applications must not include Lower Murray Water owned or managed land as defendable space under the Bushfire Management Overlay. They may also not use this land to meet public open space, or subdivision amenity requirements as use and access may change over time.

4.6.5. Planting Over Lower Murray Water Assets

The developer is required to reach agreement with Lower Murray Water on any vegetation planted over Lower Murray Water assets. Vegetation planted over Lower Murray Water assets can be removed in the event of an emergency and for maintenance without compensation to the owner.

5. Residential Development or Subdivision

Any landowner wishing to subdivide their land will require a planning permit from Council. As a referral authority, Lower Murray Water will respond to the responsible authority detailing requirements for the provision of water and sewer services to each lot being created. Areas being developed adjacent to Lower Murray Water rural irrigation and drainage infrastructure or where it passes through the subject property, may also include conditions requiring protection or relocation of affected sections.

5.1 Sewerage Requirements

The condition requiring sewerage services to all lots may be withdrawn where a local council or the Environment Protection Authority (as the case requires) advises us in writing that it is satisfied that all domestic sewerage can be treated adequately and retained within the boundaries of each lot without danger to public health or the environment and the use is economically sustainable over the lifetime of the septic systems.

Whilst management of septic systems is the responsibility of the landowner, there is a community cost borne by council to monitor systems through their Domestic Wastewater Management Plan and a longer-term benefit may be to provide connection to sewerage services at the time of subdivision.

The relevant clauses in the State Environmental Protection Policy (SEPP) for Victorian waters must be considered along with relevant ministerial guidelines and planning policy. The Victorian Planning Policy applied through municipal planning schemes may also require connection to services regardless of ability to treat wastewater onsite.

5.2 Potable Water Requirements

Potable water is required to be provided by the developer to service any new lots created within a subdivision or previously unserviced lot being further developed according to The Victorian Planning Scheme section 32 and 56.07.

Please refer to section 10 of this manual for details about connections to Lower Murray Water's sewer and water and section 11 for details about Lower Murray Water's Developer Design & Construct process and requirements.

5.3 Super Lots / Staged Lot

For super lots that are unlikely to be subdivided further or may not be developed for a significant period of time, we may require the sewerage and water networks to be extended the full length of the super lot. This will be considered on a case by case basis and confirmed within formal communication provided by Lower Murray Water.

6. Industrial/Commercial

Any landowner wishing to subdivide their land will require a planning permit from Council. As a referral authority, Lower Murray Water will respond to the responsible authority detailing requirements for the provision of water and sewerage services to each lot being created.

Areas being developed adjacent to the Lower Murray Water rural irrigation and irrigation drainage system or where it passes through the subject property may also include conditions requiring the underground piping to be relocated or protected from possible damage.

Changes to usage altering demands on our services to existing industrial/commercial developments will also require application to Lower Murray Water.

6.1 Sewerage Requirements

Refer to residential section 5.1.

6.2 Potable Water Requirements

Refer to residential section 5.2.

6.3 Trade Waste

Lower Murray Water sewers can accept only limited amounts of trade waste into its sewers in addition to normal domestic waste. The developer must not assume that, by entering into a development, Lower Murray Water has agreed to accept trade waste discharge into its sewers.

The developer must notify Lower Murray Water if any prospective purchasers intend to discharge trade waste from the development.

Trade waste discharges must comply with Lower Murray Water's quality and quantity standards. Business owners operating in the development must apply to Lower Murray Water for approval to discharge trade waste. Lower Murray Water will supply details of its quality and quantity standards for trade waste at this time.

A copy of our Trade Waste Policy and Guidelines and Trade Waste application forms can be downloaded from our website.

6.4 Water Tappings

For any tappings greater than 20mm an application must be lodged prior to construction of the tapping. If these services are to be provided at the time that the reticulation mains are constructed, then Lower Murray Water approval must be obtained prior to construction. Increased annual water access charges will apply for services with a meter greater than 20mm.

For more information, please access our current Urban Customer Charter on our website or request a Schedule of Fees & Charges by contacting us at property.services@lmw.vic.gov.au

NOTE:

Water Act 1989, Section 165 (5) Subsection (4) (a) does not require an Authority to make sure that water pressure is adequate for firefighting.

6.5 Backflow Prevention

In accordance with the Water (Estimation, Supply and Sewerage) Regulations 2014, all owners of a serviced property when requested shall arrange for a plumber to install an appropriate high / medium / low rated backflow prevention device appropriate to the hazard rating and type of water service supplying the property.

The property owner is responsible for the purchase and installation costs of a backflow prevention containment device appropriate to the hazard rating of the development type as specified in AS/NZS 3500.1 Section 4 and the Plumbing Code of Australia.

The property owner is responsible for the maintenance and testing of the device as detailed in AS/NZS 3500.1, the Plumbing Code of Australia, AS/NZS 2845 Part 3 and the Water (Estimation, Supply and Sewerage) Regulations 2014 Section 11 and 12 (as amended) by a suitably qualified person.

Lower Murray Water must receive specific details of the Backflow Prevention Device (BPD) installed industrial/commercial properties for monitoring of ongoing compliance.

7 Multi-Unit Developments

7.1 Standards

For both residential and industrial/commercial multiple unit (multi-unit) developments, developers will be advised through early consultation or formal communication to construct works specific to their development proposal either or both:

- To Water Services Association of Australia (WSAA) and Lower Murray Water standards with Lower Murray Water owning, operating and maintaining the assets, or
- To AS/NZS 3500 Acceptable Solutions, or AS/NZS 3500 Performance Requirements, with the Owners Corporation owning, operating and maintaining the works.

The developer must apply the confirmed standard to services infrastructure, agreed by Lower Murray Water and specified within our written communication.

NOTE:

It should be noted that potential or future subdivision of such developments will require all water and sewer infrastructure to comply with **WSAA** standards and addendums or supplements to Lower Murray Water requirements.

Where the developer construct works, which the Owners Corporation or property owner will own, operate and maintain, Lower Murray Water will not be responsible for the level of service or quality of assets inside the parent property boundary.

The developer is responsible for engaging appropriately qualified professionals to design and install the appropriate private works for water and sewer. For this type of servicing arrangement, water quality, pressure and flow will be guaranteed only at the parent property boundary.

The developer must install meters as defined in our formal written communication. Where instructed, on completion of the works, the developer must supply Lower Murray Water a record of each meter location.

NOTE:

Fire hydrants and services are to be designed and installed to meet requirements and remain the responsibility of the property owner or Owners Corporation.

Water Act 1989, Section 165 (5) Subsection (4) (a) does not require an Authority to make sure that water pressure is adequate for firefighting.

7.2 Dual Occupancy Without an Owners Corporation

For dual occupancy developments without an Owners Corporation, one sewer connection point and one water tapping will be provided. It is mandatory for the water supply to have a separate sub meter to each individual dwelling.

7.3 Existing Multi-Unit Developments

All multi-storey developments must have Lower Murray Water sewerage and water services to the property boundary.

The maintenance, operation and replacement of the internal plumbing is the responsibility of the Owners Corporation or the owners in common.

7.4 Water Tappings

For any tappings greater than 20mm an application must be lodged prior to construction of the tapping. If these services are to be provided at the time that the reticulation mains are constructed, then Lower Murray Water's approval must be obtained prior to construction. Increased annual water access charges will apply for services with a meter greater than 20mm. Pressure and flow to support a larger tapping is not assured.

Lower Murray Water will confirm in our letter of Conditions of Connection what additional requirements may be necessary to be funded and installed by the developer.

8. Multi-Storey

Works required to service each unit within a multi-storey development will be constructed to a standard that the Owners Corporation, or property owners, will own, operate and maintain. The work done to provide a service to each unit must:

- Meet the plumbing regulations,
- Be to the satisfaction of the Victorian Building Authority, and
- For water supply, be to the satisfaction of the relevant fire authority.

Lower Murray Water will not be responsible for the level of service or quality of assets inside the parent property boundary. The property owner has a responsibility to engage the appropriate professionals to design and install the private works for water and sewer.

8.1 Pressure and Flow

Lower Murray Water guarantees water quality, pressure and flow only to the meter which is typically at ground floor level of each development. It may not be possible to deliver the same level of service to the upper floors; as such an alternative solution is required. Also, fire service requirements as defined by the CFA for the development may demand a greater volume or pressure of water than is available in the water supply network.

Applications for a pressure and flow information request are available via our website.

Options available are:

- Hydrant flow and pressure field test
- Hydraulic model simulation
- Both hydrant flow pressure test and hydraulic model simulation

Typically, developers' option to deliver acceptable pressures and flows to their developments is to install tank storage on the ground floor level which feeds a pump also located on the ground floor level.

Inline booster pumps are **not** accepted by Lower Murray Water. Analysis of inline booster pumps has found that many are oversized and/or incorrectly installed. This can lead to an increased risk of asset failure, supply deficiencies for surrounding customers, and ongoing maintenance problems.

NOTE:

Water Act 1989, Section 165 (5) Subsection (4) (a) does not require an Authority to make sure that water pressure is adequate for firefighting.

8.2 Metering

The developer is responsible for engaging appropriately qualified professionals to design and install the appropriate private works for water and sewer. For this type of servicing

arrangement, water quality, pressure and flow will be guaranteed only at the parent property boundary.

The developer must install meters as defined in our formal written communication. Where instructed, on completion of the works, the developer must supply Lower Murray Water a record of each meter location.

Fire service design should consider the fire authority (CFA) requirements for hydrant or other service locations. The developer will be required to reach agreement with Lower Murray Water regarding the conditions of connection.

8.3 Private Plumbing Works

Where the Owners Corporation is to own, operate and maintain the water or sewer service and the development is fronted by a water main and/or serviced by a sewer main, the supply is usually provided by a single tapping or one sewer connection point.

The Owner's Corporation is responsible for the maintenance, operation and replacement of any private water services.

8.4 Existing Multi-storey Developments

Multi-storey developments that already have water or sewerage services do not require the provision of Lower Murray Water owned water mains or sewerage services for a planning permit for the developments to be issued.

Further development of the subject property will be assessed by Lower Murray Water and conditions specified for any additional requirements.

The Owner's Corporation or the owners in common, are responsible for the maintenance, operation and replacement of internal services. These internal services are commonly known as private plumbing works.

8.5 Water Tappings

For any tappings greater than 20mm an application must be lodged prior to construction of the tapping. If these services are to be provided at the time that the reticulation mains are constructed, Lower Murray Water approval must be obtained prior to construction.

For services greater than 20mm increased annual water access charges will apply. Pressure and flow to support a larger tapping is not assured. Lower Murray Water will confirm in our letter of Conditions of Connection what additional requirements may be necessary to be funded and installed by the developer.

9. Easements and Reserves

Easements must be established on the Plan of Subdivision to cover any sewerage, rural irrigation and rural drainage services, or other Lower Murray Water assets that are located

on or proposed to cross private land. All easements need to comply with Section 12 of the *Subdivision Act 1988*.

The minimum easement width is 2 metres and increases depending on pipeline size. The Land Development department will be able to provide further information in relation to easement size requirements. The easement boundary is to be at least one metre from the nearest edge of the pipe.

- Purpose – “Pipelines or Ancillary Purposes”, “Channels”, “Carriageways”, “Waterway management” or “Drainage”.
- Origin – This Plan Section 136 of the *Water Act 1989*
- Land Benefitted/In Favour of – Lower Murray Urban and Rural Water Corporation

Lower Murray Water does not allow water mains to cross or be located on private land.

Reserves may need to be established for infrastructure such as Sewer Pumps Stations, Irrigation Channels or where the proposed sewer, water or rural service crosses land owned by another Government authority.

10. Connections

10.1 Connection requirements

Developers who want to connect to our water services or discharge into Lower Murray Water sewerage systems must have Lower Murray Water’s approval before starting any work. This includes backwash for swimming pools.

10.2 Applications and Fees

10.2.1 Water

Connections to Lower Murray Water’s water supply system is completed by plumbers performing the works on behalf of property owners/developers.

The property owner/developers appointed plumbing contractor will be required to lodge an application with Lower Murray Water for approval to connect the property to a water main. Once consent has been granted appropriate fees paid the plumber will be issued with a Consent to Connect notice and provided a water meter and a service location plan.

For further information on fees and charges, please contact the Land Development Team on 03 5051 3400 or email property.services@lmw.vic.gov.au

10.2.2 Sewer, Fire Services, Alterations, Renovations, Un-serviced Structures

Applications to amend your property sewer service which may be relocation of the existing property connection point or additional connection point required for renovation or other works can be made directly with Lower Murray Water.

Applications are also required for unserviced structures such as a shed or carport. Where proposed structures are over LMW easements, LMW will assess impact to assets and if approved, a Build Over Easement Agreement will be required.

These applications can be made either by you, your builder or plumbers performing the work for you.

10.3 Conditions of Connection

Where services are available currently and they have sufficient capacity to enable the new development to connect, Lower Murray Water issues instructions for Connection. Generally, these instructions will include water meter arrangements and define how a connection is to be made to the existing water main or sewer pipes.

The developer must agree to these conditions, and pay all charges and fees, before the connection can be made.

Only licensed plumbers may complete this work.

Lower Murray Water's Customer Charter contains the conditions the property owner must comply with when connecting to Lower Murray Water's sewer and water infrastructure.

10.4 Standards

Connection standards and regulations:

- Plumbing Regulations – AS/NZS3500, National Plumbing & Drainage Code
- Sewerage Code of Australia WSA02-2014-3.1
- WSA 07-2007 – Pressure Sewerage Code of Australia
- Water Supply Code of Australia WSA 03-2011-3.1

10.5 Sewer Connections

Generally, only one property branch per property is permitted.

100mm is the minimum size for property branches, with the required size based on AS/NZS3500, National Plumbing and Drainage Code.

The maximum size of any sewer pipe a property connection can connect directly to is 225mm diameter. All property branches and connection points must be clear of buildings.

Property connection branches are to extend a 1.0m past the property boundary they service and require 1.0m horizontal clearance from side boundaries.

An existing connection point may be relocated at the property owner's cost subject to Lower Murray Water approval. Lower Murray Water or its contractors are the only authorised agencies allowed to work on Lower Murray Water assets and relocate connection points.

Where a gravity connection is not possible Lower Murray Water may permit a pumped connection subject to specific conditions. We require consulting engineers on behalf of developers to demonstrate they have considered all possible options prior to seeking permission for alternative servicing solutions.

10.5.1 Plumber Responsibilities

Plumbers must not connect to the sewer without obtaining a Victorian Building Authority (VBA) number from Lower Murray Water.

Lower Murray Water will not consent to connect prior to Preliminary Acceptance of Works (POAW) of any mains extension to service a new development.

Within five days of completing any major drainage plumbing work, plumbers must provide Lower Murray Water a revised As Constructed Drainage Plan (As Cons). This is a legal obligation.

10.6 Water Connections

Connection to an existing Lower Murray Water main is known as a tapping.

The plumbing contractor will be required to excavate and expose the water main with Lower Murray Water staff responsible for installing the tapping band and ferrule on the main.

The plumbing contractor will be solely responsible for all health and safety issues associated with the connection, including appropriate traffic management and applicable road opening permits. The plumbing contractor will also be responsible for the installation of the property service pipes (from the water main to the water meter assembly) backfilling and site restoration.

Where applicable, building plans or titles must be submitted so that Lower Murray Water can be satisfied proposed construction will not adversely impact on its infrastructure.

On allotments where property service pipes have been installed by the Developer at subdivision stage the plumbing contractor will be able to connect once application has been lodged and approved.

NOTE:

Some water (trunk) mains are identified as non-tapping mains that Lower Murray Water will not consent to a connection.

10.7 Responsibilities

The owner is responsible for maintenance of connections over 50mm and all fire services.

Lower Murray Water is responsible for all water meters and most connections up to 50mm.

New fire sprinkler services can be connected separately subject to there being no change to the existing connection and all Plumbing Regulations in accordance with AS/NZS3500 are met.

10.8 Connection Standards

All connections must be:

- Positioned at 90 degrees to the tapping on the water main,
- In a straight line from the stop valve at the main to the stop valve at the meter, and
- Clear of driveways and crossovers.

An approved water meter must be fitted to all connections.

A Backflow Prevention Device protects water in Lower Murray Water's mains from contamination. A Backflow Prevention Device (BPD) for containment protection must be provided on the water supply connection when requested. The developer / owner shall arrange for a plumber to install an appropriate high / medium / low rated backflow prevention device appropriate to the hazard rating and type of water service supplying the property.

Backflow Prevention Devices shall be installed and comply with requirements detailed within AS/NZS3500 National Plumbing and Drainage Code.

Lower Murray Water requires individual connections for sewer and water. Sub meters are therefore required for each separate occupancy on an individual lot or multi-unit development.

Lower Murray Water may consent to a larger tapping to the main with a stop valve and individual manifold mounted metres to service each of the dwellings. Specific requirements will be confirmed in Lower Murray Water's letter of consent to connect for each applicant.

The following table can be used as a guide to tapping /meter sizing requirements. These must be confirmed by your plumbing contractor prior to commencement of works.

Property Type	Tapping Size
1	20mm
2 - 3 Units	25mm
4 - 8 Units	32mm
9 - 17 Units	40mm

18 -24 Units	50mm
--------------	------

If more than 24 units are proposed, then the developer will be required to reach agreement with Lower Murray Water regarding the conditions of connection.

Multi-unit developments will generally be serviced by one connection to the water main, which will provide for separate fire and/or general services within the development. Additional connections may be approved for fire sprinkler services, and other special circumstances.

Applications for property service pipes over 50mm need to be assessed by Lower Murray Water for engineering and planning purposes. Applications must specify required minimum, maximum and nominal flow rates.

11. Land Development - Developer Design & Constructed Works

11.1 What are Developer Design & Constructed Works?

Lower Murray Water may require a developer to construct sewer and water mains (assets) to provide water and sewerage services to the new properties created by the development.

If a developer plans to subdivide or build, they must consult with Lower Murray Water to confirm if Developer Design & Constructed Works (DD&C) are required. If DD&C is required, Lower Murray Water will provide written confirmation of what works are required to develop the land.

NOTE:

It must not be assumed that Lower Murray Water is committing to accepting any future trade waste discharge into sewers.

11.2 Phases

There are several Developer Design & Constructed Work phases:

1. Early consultation with LMW
2. Engage registered consulting engineer
3. Preliminary design
4. Verified / Approved design
5. Construction
6. Preliminary Acceptance of Works (PAOW)
7. Maintenance Period
8. Final Acceptance of Works (FAOW)

11.3 Who Pays for the Works?

In most cases the developer pays for all works including temporary works. Lower Murray Water will negotiate to reimburse the developer for works they have built if:

- Lower Murray Water has requested that the developer build a main that is larger than what is needed for just the developer's development, or
- Lower Murray Water has requested the developer to install other assets on their behalf during construction works. This is typically infrastructure required to service future growth in Greenfield development areas.

Lower Murray Water will state in the Letter of Conditions, what additional works may be required and will initiate discussions with developers through their consultants to agree the best approach.

11.4 Consultants & Coordinators

The developer is required to engage an appropriately qualified engineering consultant to design and audit installation of any works. Consultants are required to have the knowledge and experience to design, audit and support the construction of the assets to Lower Murray Water standards.

The developer is required to appoint a Coordinator as the main point of contact and must receive all communication about the development, including those sent to and by other stakeholders. The developer or consultant can also act as the coordinator.

12. Overview



The consultant prepares a preliminary design of the services required to provide water and sewer mains to service the proposed development for submission to Lower Murray Water. They should seek asset plans or concept plans from Lower Murray Water prior to commencing this preliminary design to establish the most appropriate existing assets to connect to.

The consultant should provide a full development plan and individual designs for each proposed development stage.

The consultant is to design the water and sewer mains required to service the proposed development in accordance with the relevant standards and Lower Murray Water's Civil Standards and design requirements.

12.1 Reference Documents

Engineering consultants are required to have access to the appropriate Water Services Association of Australia (WSAA) Codes applicable for servicing within Lower Murray Water's region.

On completion of the preliminary design, the consultant submits the design to Lower Murray Water.

12.2 General

12.2.1 Developer Design & Construct Agreement

Lower Murray Water prepares a Developer Design & Construct (DD&C) Agreement which sets out the responsibilities of the developer, consultant, contractors and Lower Murray Water for the design and construction of the developer installed works.

A Lower Murray Water DD&C Agreement remains valid for a period of twelve months. If construction has not commenced within nine months of the date of this agreement, then the agreement is considered void and a new preliminary design will need to be submitted.

No construction works are to commence until a DD&C Agreement has been executed, appropriate fees paid, and onsite pre-commencement meeting held.

12.2.2 DD&C Fees & Charges

The Developer will be required to provide payment for several aspects of the development, including:

- The Initial Fee (Review Assessment of Detailed Design Drawings and Specifications).
- Administration / Quality Assurance Fee
- Subdivision Processing Fee
- New Customer Contributions (Sewer & Water).
- Maintenance Security (To be returned at the expiry of a 12-month defects liability period)
- Payment of ongoing maintenance costs (if applicable).
- Payment of direct costs incurred by LMW (if applicable).

The Developer is required to provide contractor quotes for the purposes of determining the Initial Fee, Administration / Review Fee & Maintenance Security. LMW will determine the amount should the quotes appear understated.

12.2.3 Standards

DD&C works designed in accordance with the relevant WSAA Codes and Lower Murray Water supplementary Civil Standards and specifications are acceptable.

12.2.4 Materials

Unless otherwise specified in the DD&C Agreement or subsequently approved by Lower Murray Water, all materials used in the development works must be approved for use by Lower Murray Water.

12.3 Design Solution

Lower Murray Water actively encourages developers and consultants to work with us to offer creative and innovative solutions relating to the concept, design and construction of water and sewerage infrastructure assets.

The design solution must:

- Be based on sound engineering principles,
- Provide effective and economic alternatives over the life of the asset,
- Provide the best value "whole of life" option that provides surety of ongoing effective and efficient performance of the system, and
- Include any special design parameters for particular works that Lower Murray Water has requested.

12.3.1 Sewerage Works

Unless otherwise specified by Lower Murray Water, the sewerage works design must also provide:

- Sufficient capacity for the catchment upstream of the development, and
- Gravity control of the catchment upstream of the development.
- Gravity control of each lot created within any proposed subdivision.

12.3.2 Sewer Lot Control

Sewer works by gravity. Usually a sewer connection point is provided to the lowest point of a lot ensuring that any part of the lot can contain plumbing fixtures. It is important to determine if the existing sewer branch will be able to control the proposed development. If it cannot then a new sewer branch or sewer mains extension may be required.

The developer must obtain Lower Murray Water's approval if the design proposes to provide any lot with only limited gravity control. Lots approved for limited gravity control must have the area of control identified on the design drawings.

Advice detailing the building envelope should also be included on the property title to ensure future purchasers are fully aware of its impact on their proposed building or development.

12.3.3 Sewer Property Connection Points

- Property connections are to terminate a minimum of 1.0m within the Lot it is servicing
- Where property connection sewers are to be constructed adjacent to storm water drains, the property connection shall be extended a minimum of 300mm beyond the storm water drain or to the edge of the easement, to eliminate the future need to construct the private property drain beneath the storm water drain
- Property connections are to maintain a minimum of 1.0m clearance to the side boundary
- Buildings or works over a property connection sewer is not permitted
- The property connection riser is to be capped 1.0m below the surface with a light cover. Works adjacent require a minimum 1.0m horizontal clearance from the centre of the property tie or be located outside the easement (whichever is greater)

12.3.4 Water

Successive shutoff blocks on a single source of supply are not allowed. The developer must provide either:

- A valving arrangement for two directional supply, or
- An alternate supply to the development.

At the completion of all stages of the development, the number of properties not supplied by an alternate water supply when a shut off block is isolated should not exceed 25.

12.4 Design Coordination

The consultant is responsible for coordinating the design of the works with any works, operations and services involving Lower Murray Water.

This responsibility extends to coordination with councils, VicRoads, utilities and other authorities or individuals who may have a direct or indirect interest in the construction and location of the proposed water or sewerage works.

Any requirements that affect the construction methods must be included on the design drawings.

12.5 Design Drawings

The verified design drawings must:

- Specify the standards or engineering concept used to design the works.
- Include any requirements that affect the construction methods.

12.6 Lodging the Design

Lower Murray Water must approve all designs prior to starting construction of the sewer and water infrastructure, the consultant must lodge:

- The full set of design documents,
- The design plans (in PDF format),
- A copy of any dispensation requests and Lower Murray Water's approval, and
- The registered consultant's nominated representative signature.

LMW will set out any additional documentation that is to be lodged at this time. If the design of the development works changes, the consultant must make sure that they provide Lower Murray Water with the most recent version of the design documents for approval prior to undertaking works.

12.7 Reviewing the Design

Lower Murray Water will review the submitted design. We will inform the consultant of any observations and/or non-conformances that need to be addressed prior to approving designs for construction purposes.

13 Pre-Construction

13.1 Overview

During the pre-construction phase the consultant notifies Lower Murray Water of their intention to start construction of the assets.

13.2 Pre-commencement meeting

LMW will conduct an onsite pre-commencement meeting with the developer, coordinator and/or consultant and nominated contractor to review Inspection and Test Plans, assess construction materials, discuss construction methods, hold points, LMW civil standards and testing requirements.

13.3 Quality Assurance Inspections

Lower Murray Water will regularly audit the construction of the development works. The developer and/or consultant or contractor will be informed of any observations and/or non-conformances that need to be addressed.

14 Construction

14.1 Overview

The consultant and/or coordinator project manages the construction of the assets and keeps Lower Murray Water fully informed of the progress of construction by providing the appropriate notifications.

Any special conditions in relation to construction of the development works will be set out in the Developer Design & Construct Agreement.

As many contractors specialise in a particular type of construction, the consultant may arrange for separate water and sewer main contractors to do the work, the contractors must also be approved by LMW prior to undertaking any works. Consultants and contractors must make sure that their work complies with the applicable Occupational Health and Safety Act, Regulations and Codes of Practice and Commonwealth Environmental Legislation, Victorian Environmental Legislation and Local Government requirements.

14.2 General

Any special conditions in relation to construction of the development works will be set out in the Developer Design & Construct (DD&C) Agreement.

DD&C works must be constructed in accordance with the relevant editions of the WSAA Codes and Lower Murray Water supplementary standards and specifications. The DD&C agreement may also specify other requirements to be considered in the design and construction stage.

As-constructed information must be provided in the format as specified in the Lower Murray Water design supplement.

Lower Murray Water will audit the works construction to make sure it occurs in accordance with the design and Lower Murray Water's requirements.

14.3 Occupational Health and Safety

Developers and their agents are responsible for assessing risks and establishing and implementing effective health and safety measures for all aspects of land development works.

Lower Murray Water's staff are its most precious asset and the safety, health and wellbeing of people in our community is our highest priority. At the forefront of this commitment is our occupational health and safety (OH&S) performance, which we continually strive to improve.

Lower Murray Water seeks to provide a safe working environment for all staff, contractors engaged by LMW and visitors in order to eliminate the risk of injury.

Lower Murray Water expects all developers and the contractors they engage demonstrate the same commitment to safety.

The developer and its agents are responsible for compliance with all OH&S legislation and regulatory requirements, including but not limited to the following:

- All relevant Worksafe compliance codes refer to www.worksafe.vic.gov.au
- All codes of practice and the Australian Standards
- Occupational Health and Safety Act 2004 (Vic)
- Occupational Health and Safety Regulations 2017 (Vic)

14.4 Construction Access to Private Property & Trespass

The developer or their consultant is responsible for negotiating access to private property. Written permission is required to be lodged with Lower Murray Water prior to commencement of any part of the works that require access to private property.

Lower Murray Water will not generally enter into negotiations with property owners for access in order to construct assets. Developers are responsible for contacting property owners and negotiating access.

Where the developer has attempted and failed to negotiate access for connections to existing infrastructure within existing or implied easements, Lower Murray Water will forward a notice under the Water Act to gain access for the works. The developer's contractor is not to enter the property prior to Lower Murray Water advising property entry is permitted.

Note that access to private property without permission is Trespass and subject to law enforcement. At the completion of works, the developer or his representative is responsible for obtaining a signed reinstatement release from any affected landowners. Consent to Compliance will not be given until signed reinstatement release notices has been submitted to Lower Murray Water.

14.5 Construction Hold Points

During construction, there may be a number of hold points where the consultant must inform Lower Murray Water of the date on which works are occurring. These will be detailed in the DD&C agreement and include but are not limited to:

- Submission of Inspection and Test Plans
- Prior to backfilling of any initial works
- Following preparation of first section of pipe bedding
- Following installation of pipe overlay
- Following backfilling and compaction of first section of excavation backfill
- Prior to pouring concrete including manholes
- Prior to backfilling around pits
- Prior to testing (including compaction) or commissioning of works
- Sewer and water mains testing (Notice of intention to carry out test)

14.6 Alteration to Existing Lower Murray Water Assets.

If, as a result of a proposed development, existing Lower Murray Water assets require alteration:

- The work must be approved by Lower Murray Water
- The owner must pay the actual cost of this work
- Only Lower Murray Water employees or authorised contractors are permitted to carry out the work
- The conditions associated with the work are included in the DD&C Agreement

14.7 Disinfection and Water Quality Testing of Mains

The water quality from new drinking water mains must be safe, clear and free from objectionable taste and odour before the mains are put into service. Disinfection procedure and water quality parameters are contained in Lower Murray Water's Civil Standard – Pipeline Installation.

New mains can be connected to existing mains only after water main construction is completed and water quality tests completed to Lower Murray Water's satisfaction. Tests results must be provided to the Lower Murray Water Land Development department.

Lower Murray Water require test results before we will provide a connection to live assets and the issuing Preliminary Acceptance of Works.

14.8 Connection with a Shutdown of the Main

Lower Murray Water or its contractors are the only authorised agencies allowed to work on Lower Murray Water assets. The Land Development team will provide contact details for you to arrange live connection and water main shutdown.

Fees and charges apply for this service, a minimum of 72 hours' notice is required to allow for communication by Lower Murray Water with any customers that may be affected by the shutdown.

14.9 Work on Live Assets - Sewerage Connections

Only Lower Murray Water or its contractors will be engaged to perform connections to live sewer assets. A live sewer asset is an asset that either carries sewage or is connected to an asset that carries sewage.

Working on live sewer assets includes opening a maintenance/manhole cover, inserting tools into a maintenance hole or sewer shaft or entering a maintenance hole or sewer shaft. Working on live sewer assets poses particular risks, including:

- Limited entry and exit from the asset
- May contain a harmful atmosphere
- May pose a risk of fall-from-heights when at least two metres deep

Working on live sewer assets can be extremely hazardous and potentially life threatening. All works must be performed in accordance with current Occupational Health & Safety requirements.

Any special details and costs associated with connections to larger sized sewers will be included in the DD&C Agreement. Lower Murray Water may require the design consultant to provide written advice about the construction method for the connection.

14.10 Hydrant Use and Cross Contamination

Lower Murray Water only allow access to water via hydrants or valves where a portable hydrant meter has been hired from Lower Murray Water.

Access to water via hydrants or plugs via direct connection is not permitted by Lower Murray Water and may be subject to fines or possible imprisonment in accordance with Section 289 of the *Water Act 1989*.

14.11 Trench Backfill Requirements

Backfill and compaction of soils in excavations associated with the construction of water supply and sewerage assets must be done in accordance with the relevant WSAA Codes and Lower Murray Water Civil Standards.

Compaction tests requirements are as per WSAA Codes. Unsatisfactory compaction test results may require rework of the trench fill zone. All costs associated with rework and subsequent testing shall be borne by the Developer. Water compaction methods are not permitted.

14.12 Acceptance Testing

Acceptance testing of the DD&C works is a key hold point for completion of the works. Testing must be in accordance with the relevant WSAA code and Lower Murray Water's Civil Standards. Acceptance testing includes but is not limited to:

14.12.1 Water Supply

Water supply water testing includes:

- Visual inspection of all system components following installation
- Pressure testing of all system components
- Water quality to confirm the integrity of supply to new water supply areas and disinfection
- Compaction testing of all trench backfill

14.12.2 Sewer

Sewer testing includes:

- Visual inspection of all system components following installation
- Ovality (deflection) testing for all flexible pipes
- Vacuum/pressure testing of maintenance structures and pipelines, where specified
- Compaction testing of all trench backfill
- CCTV inspection, as specified within the DD&C Agreement
- Consultants are required to review all CCTV footage prior to submitting to Lower Murray Water. Any issues identified during consultant review must be rectified and additional CCTV footage provided as evidence to confirm identified defects have been resolved. This should be completed prior to Preliminary Acceptance of Works.

14.12.3 As Constructed Plans / Asset Information

As-constructed information must be supplied in PDF and AutoCAD format in accordance with Lower Murray Water's Civil Standards.

AutoCAD files - 'As Constructed' plans are to be submitted with all information bound/embedded in the AutoCAD files so there are no external references, shape files or any other attachments required to open the drawings.

Pipeline and Manhole attributes must be provided by completing and submitting the Asset Information Template which will be provided by LMW at the pre-commencement meeting.

14.13 Lower Murray Water Audits

Lower Murray Water performs onsite Practical Completion audits and combine these with other specific audit requirements such as CCTV review of all new sewer mains.

Lower Murray Water will notify the consultant and developer of any negative observations and non-conformance to be rectified.

14.14 Preliminary Acceptance of Works (PAOW)

If we acknowledge that the development works have been completed satisfactorily and all Negative Observations or Non-Conformances addressed and all other non-sewer and water development construction activities are complete then Lower Murray Water will issue Preliminary Acceptance of Works (PAOW).

The issuing of PAOW signals the start of the maintenance /defect's liability period. At this stage, and if all other requirements detailed in the DD&C Agreement have been met, Lower Murray Water sends the consent for a Statement of Compliance to the Council.

The issuing of PAOW also confirms Lower Murray Water's acceptance of these gifted assets to Lower Murray Water.

15. Maintenance /Defects Liability Period

The maintenance / defects liability period (12 months) begins once Lower Murray Water issues the PAOW to advise that it is satisfied the development works have been completed satisfactorily.

In cases where the type of asset, eg: a pump station, requires a longer timeframe, Lower Murray Water specifies this extended timeframe in the DD&C Agreement.

15.1 Auditing

Lower Murray Water may choose to audit the development works at any time during the maintenance /defect's liability period. Lower Murray Water will inform the developer, the consultant and/or contractor of any observations and/or non-conformances that need to be addressed.

15.2 End of Maintenance / Defects Liability Period

At the end of the maintenance / defect's liability period Lower Murray Water will inspect the works to make sure that:

- Other work on the site has not damaged any other Lower Murray Water asset
- All surface fittings are at the final surface level
- All markings to locate hydrants and water services are visible
- There are no subsidence issues.

If any minor defects were noted the consultant must provide evidence of these being rectified prior to LMW releasing maintenance security.

15.3 Final Acceptance of Works (FAOW)

Lower Murray Water will issue Final Acceptance of Works at the end of the maintenance / defect's liability period and any remedial action required has been completed.

16. Responding to Faults

If a fault is found in the works and it is deemed to be a deficiency in the design or construction, Lower Murray Water responds according to whether the fault is an emergency. If the fault is:

- An emergency that needs immediate attention, Lower Murray Water will undertake the repair and recover costs from the developer maintenance security held.
- Not an emergency, Lower Murray Water notifies the consultant and contractor to remedy the fault. If the fault is not fixed in the required timeframe Lower Murray Water will undertake the repair and recover costs from the developer's maintenance security held.

17. Shared Assets

17.1 Lower Murray Water Responsibilities

Lower Murray Water funds some assets in accordance with Essential Services Commission (ESC) guidelines. In general, where Lower Murray Water requires the construction of reticulation infrastructure pipelines to be larger than reticulation size required to service the development, we will fund the additional construction costs. Lower Murray Water will determine what portion of the construction cost is reimbursable. If deemed to be reimbursable the DD&C Agreement will include Lower Murray Waters contribution amount to be paid on PAOW.

Lower Murray Water will require that reimbursable shared asset works are designed and constructed in accordance with the relevant standards, and as efficiently as possible.

17.2 Shared Cost Assets

If Lower Murray Water requires a developer to design and construct reimbursable shared cost works, we will:

- Specify the asset that must be constructed in the DD&C Agreement and discussed during consultation meetings

- Reimburses the developer for the cost of undertaking these works.

By accepting the DD&C Agreement and specific works requirements the developer agrees to comply with Lower Murray Water's reimbursable shared asset works policy.

17.3 Non-Reimbursable

Lower Murray Water does not reimburse owners/developers the cost of:

- Any temporary works
- Special works such as water tanks (for water supply), or pumping stations and rising mains (for sewers) to support a satisfactory supply to a development
- Works that Lower Murray Water considers to be in excess of what is required to provide an efficient system.

17.4 Payment

Lower Murray Water reimburses the developer after the Preliminary Acceptance of Works has been issued or as otherwise discussed and agreed prior to commencement.

The reimbursement amount is specified in the DD&C Agreement. The amount is determined and agreed between the developer and Lower Murray Water and documented in subsequent correspondence from Lower Murray Water.

In general, the reimbursement amount is based on the lowest conforming quotation or tender for the relevant reimbursable shared asset works.

NOTE:

Lower Murray Water may at its discretion direct the developer to seek quotes or tenders from only a Lower Murray Water contractor or supplier panel.

17. Definitions

The following definitions apply in this manual:

As-constructed Information means the survey information describing the type, size, and location of the newly completed Developer Design & Constructed Works.

Asset means water or sewer infrastructure owned or to be owned by Lower Murray Water. Asset may include water main, sewer pipeline or associated structure (eg pump station or water tank).

Combined Sewerage Drain means privately owned and maintained sanitary drains servicing two or more properties that are separately titled.

Connection Point is the point where the service pipe from the premises connects with Lower Murray Water's water supply system or sewer network.

Consent to Statement of Compliance means a notice issued by Lower Murray Water to the appropriate Responsible Authority that it consents to issuing of a Statement of Compliance under section 21 of the *Subdivision Act* with respect to the Development.

Consultant has the same meaning as Registered Consultant.

Maintenance / Defects Liability Period means the period of time between the date of issuing a Preliminary Acceptance of Works and a Final Acceptance of Works in accordance with Lower Murray Water's Developer Design & Construct procedure.

Developer means the person or other legal entity that requests a new connection to Lower Murray Water's infrastructure, including Shared Assets authorised to execute a transfer of the land. The Developer may also be the Owner. This manual refers to Owner/Developer in many instances, as the clauses will apply to them equally.

Developer Installed Works means the works to be designed and constructed according to Lower Murray Water's Developer Design & Construct Agreement for the supply of water,) and sewerage assets and infrastructure to service each Lot, and includes any works undertaken in response to a notice issued by Lower Murray Water during the Defects Liability Period.

Dual Occupancy means two dwellings on one Lot.

ESC means the Essential Services Commission. The ESC is responsible for the economic regulation of Victoria's energy, water and transport essential services.

Fronted by (water and or sewer main) means to have a water main abutting the property boundary that provides for a legal water Tapping and/or sewer connection.

Lot Control means a sewer deep enough to enable sewerage to be discharged under gravity flow.

Live Asset means any pipe or other infrastructure which, at the relevant time:

- Is carrying water or sewage, and
- Is in operation, and

has not been isolated from other Live Assets.

Letter of Preliminary Acceptance of Works means a letter issued by Lower Murray Water at the end construction and after audit of the works and signifying Lower Murray Water's preliminary acceptance of those gifted assets.

Lot means an area within a development that is separately titled or that is, or can be, individually metered for water supply purposes.

Main means any pipe vested in, belonging to, or under the control of Lower Murray Water and used for conveying potable water also known as the water main.

Multi-Unit Development means more than two dwellings on one Lot.

New Customer Contributions (NCCs) means an upfront payment levied by Lower Murray Water when a customer builds or develops a property and connects to Lower Murray Water's sewerage or water network.

Nominated Representative means the person nominated by the consultant or contractor to verify and accept responsibility for the quality of the works on behalf of the consultant or contractor and recognised by Lower Murray Water as Key Personnel for that particular portion of the Development Works.

OH&S means occupational health and safety.

Owners Corporation means the entity that is created as part of a Plan of Subdivision in accordance with the *Owners Corporations Act 2006*. The Owners Corporation is responsible for the maintenance and administration of any common property and / or common services. For example, the Owners Corporation is responsible for any private water or sewers within the Plan of Subdivision.

Owner means the person or other legal entity who is the registered proprietor of the land, or a person who is authorised to execute a transfer of the land. The Owner may also be the Developer. This Manual refers to Owner/Developer in many instances, as the clauses will apply to them equally.

Parent Lot means the Lot that existed immediately prior to initial subdivision.

Plan of Subdivision means a plan showing the subdivision of land, prepared in accordance with the Subdivision Act.

Planning Permit means the permit required under the Planning and Environment Act 1987 for a use or development of the land.

Potable Water is water that is treated to be safe for drinking and food preparation.

Preliminary Design is the initial design submitted by the Consultant on behalf of the Developer which is assessed by Lower Murray Water. A Developer Design & Construct Agreement then determines any additional requirements or specific conditions to be included within the Verified design. Occasionally Lower Murray Water accepts the Preliminary design as a Verified version.

Private Plumbing Works is the plumbing within a property boundary that forms part of the building's internal and external plumbing needs.

Reserve means land that is set aside for public use. Reserves include general public open space, nature reserves, tree reserves, parks, public gardens, recreation reserves, sporting reserves, drainage reserves and sewerage reserves.

Responsible Authority means a responsible authority under the *Planning and Environment Act 1987*.

Reticulation Assets are generally defined as water mains that are 150mm or less in diameter and gravity sewerage mains that are 225mm or less.

Separate Occupancy Section 145 of the Water Act discusses separate occupancies and refers to the principles set out in the Valuation of Land Act. A separate occupancy is defined in the *Valuation of Land Act* as “*If a portion of a parcel of land on which a building is erected is occupied separately, or is obviously adapted to being occupied separately, from other land in the parcel, that portion must be regarded as forming a separate rateable property and must be valued accordingly*”.

Shared Assets means water or sewerage mains or pump stations, emergency storages or rising mains that are greater than the size required to service the proposed development and require upsizing as identified by Lower Murray Water to service future growth.

Subdivision Act means the Subdivision Act 1988 (Vic).

Super Lot means an area of land that is intended to be subdivided into further Lots, also known as a stage lot.

Tapping means the connection of the internal water service to Lower Murray Water’s water main.

Trade Waste is any liquid matter that is discharged, emitted or deposited to our sewerage network as a result of any trade business or undertaking.

VCAT means the Victorian Civil and Administration Tribunal.

Verified Design is the final design ready for construction including specific details as required by the DD&C Agreement, relevant codes and standards.

Water Act means the *Water Act 1989* (Vic).

WSAA means Water Services Association of Australia