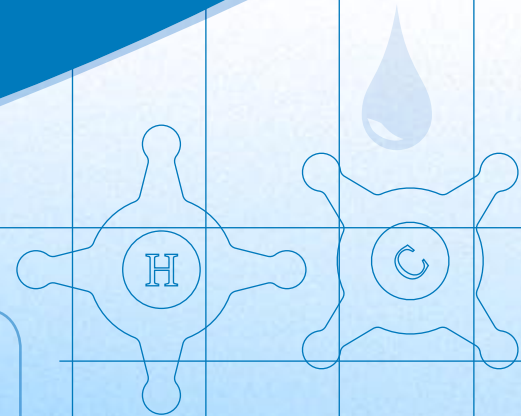


Recycled Water Plumbing Guide

DUAL PIPE PLUMBING SYSTEMS



DUAL PIPE SYSTEM



GUIDE FOR PLUMBERS



Plumbing
Industry
Commission

MINISTER'S FOREWORD

The high quality of life we enjoy in Melbourne and across Victoria is globally recognised. Much of this is achieved through good urban design creating quality public environments to support the social, cultural, economic and environmental well being of our metropolitan, suburban and regional communities.

Water is the essential and most precious element that is integral to our public environments, industry, gardens and basically every element of the Victorian way of life.

The Victorian Government is committed to ensuring Victoria uses its water as smartly and efficiently as possible. The policy statement "water for the future" provides a clear vision and a range of initiatives to sustainably use water resources.

One of the key elements of the initiative is to increase the use of recycled water to 20 per cent in Melbourne by 2010. While Network Utility Operators have already introduced recycled water in several new developments with many more communities expected to come on-line.

The Plumbing Industry Commission should be congratulated for realising the importance of the 'Recycled Water Plumbing Guide: Dual Pipe Plumbing Systems' and further developing it to make it easier for more Victorian households to access recycled water.

This guide will equip Licensed and Registered Plumbing Practitioners with the appropriate information to ensure proper installation of dual pipe systems and further reduce Victorian households' reliance on mains water.

The Dual Pipe System has previously been referred to as a 'Third Pipe System'. The Dual Pipe System provides Victorian households with a metered drinking water supply and separately metered reticulated recycled water supply.

Water is the essential and most precious element that is integral to our public environments, industry, gardens and basically every element of the Victorian way of life.



A handwritten signature in blue ink that reads "Justin Madden".

Justin Madden MP
Minister for Planning

COMMISSIONER'S FOREWORD

Population growth, coupled with climate change and reduced rainfall has made the need to conserve water and seek alternative water sources a major priority.

Currently, supplying high quality, class 'A' recycled water direct to houses is an effective way to preserve our mains water supply.

Recycled water is suited to a myriad of non-personal uses, which reduces household dependency on mains water supply.

Several Network Utility Operators have already committed to supplying recycled water via dual pipe plumbing systems to households.

This guide has been developed to ensure that Licensed and Registered Plumbing Practitioners properly install the dual pipe system.

The 'Recycled Water Plumbing Guide – Dual Pipe Plumbing Systems' has been prepared in partnership with the Plumbing Industry Commission and several Victorian Network Utility Operators.

The 'Recycled Water Plumbing Guide – Dual Pipe Plumbing Systems' has been prepared in partnership with the Plumbing Industry Commission and several Victorian Network Utility Operators to provide a clear guide for a uniform and safe installation and use of recycled water.



Tony Arnel
Plumbing Industry Commissioner

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A GUIDE FOR PLUMBERS

Network Utility Operators have made 'Class A' recycled water available to several new estate developments and more recycled water access is expected to become available in the future.

Domestic properties within these estates will require dual pipe water supply systems.

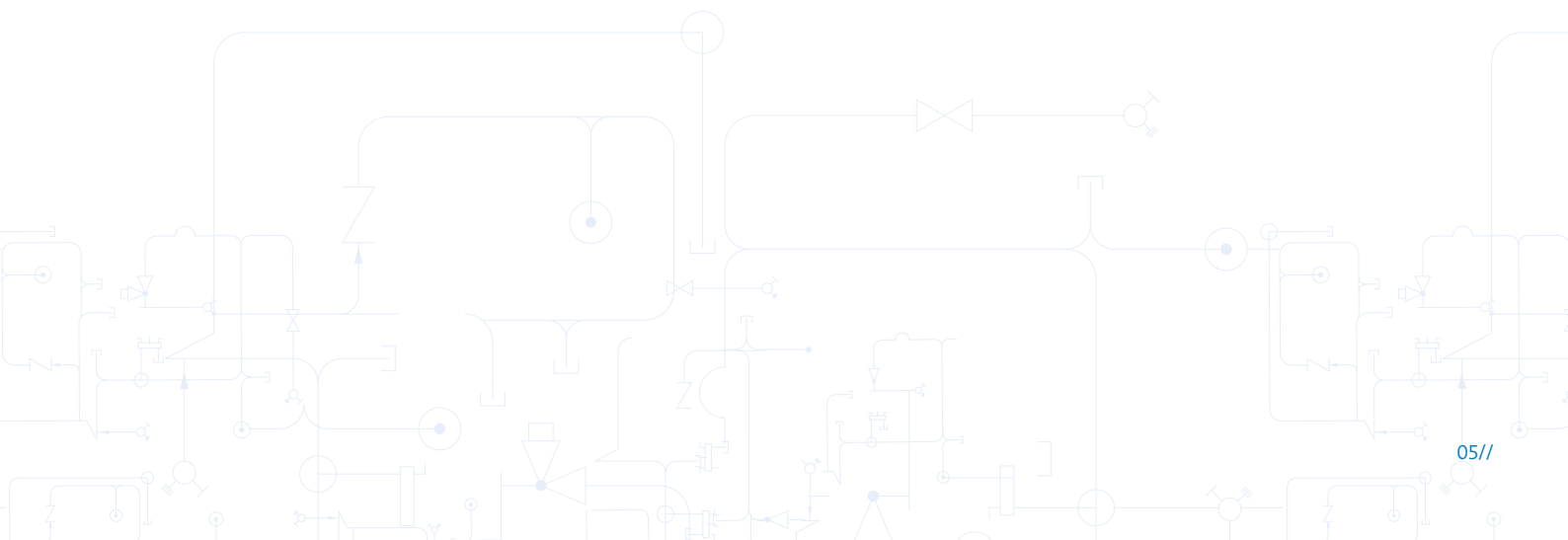
Where dual pipe water supply systems are available, they will consist of two separate water mains, with one for drinking water and another for recycled water. Recycled water piping will have very distinctive features of identification - the most distinctive is the purple coloured mains piping.

The Plumbing Industry Commission and the Network Utility Operators have developed this guide to ensure dual pipe systems are installed correctly. The main objective is to ensure recycled water can't accidentally be cross-connected to the drinking water supply.

Once the work is completed and prior to occupancy, the Licensed or Registered Plumbing Practitioner is required to commission both the drinking and the recycled water supply, and ensure they are working correctly. This guide shows plumbing practitioners how to do this.

As with all plumbing work, the plumbing practitioner is required to submit a 'Compliance Certificate' to the consumer upon completion.

The Plumbing Industry Commission and the Network Utility Operators have developed this guide to ensure dual pipe systems are installed correctly. The main objective is to protect user's health and safety by ensuring recycled water can't accidentally be cross-connected to the drinking water supply.



A GUIDE FOR PLUMBERS

What can 'Class A' recycled water be used for?

Recycled water CAN be used for the following:

- ✓ Toilet flushing
- ✓ Garden irrigation
- ✓ Washing cars
- ✓ Filling ornamental ponds
- ✓ Fire fighting
- ✓ Construction purposes

Recycled water must NOT be used for the following:

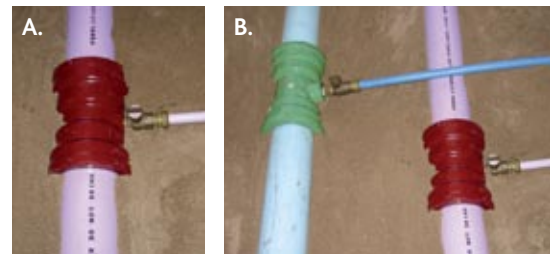
- ✗ Drinking (human consumption)
- ✗ Cooking or other kitchen purposes
- ✗ Personal washing, such as baths, showers, hand basins and bidets
- ✗ Evaporative coolers
- ✗ Indoor household cleaning
- ✗ Swimming pools/spas
- ✗ Recreation involving water contact

Recycled water main

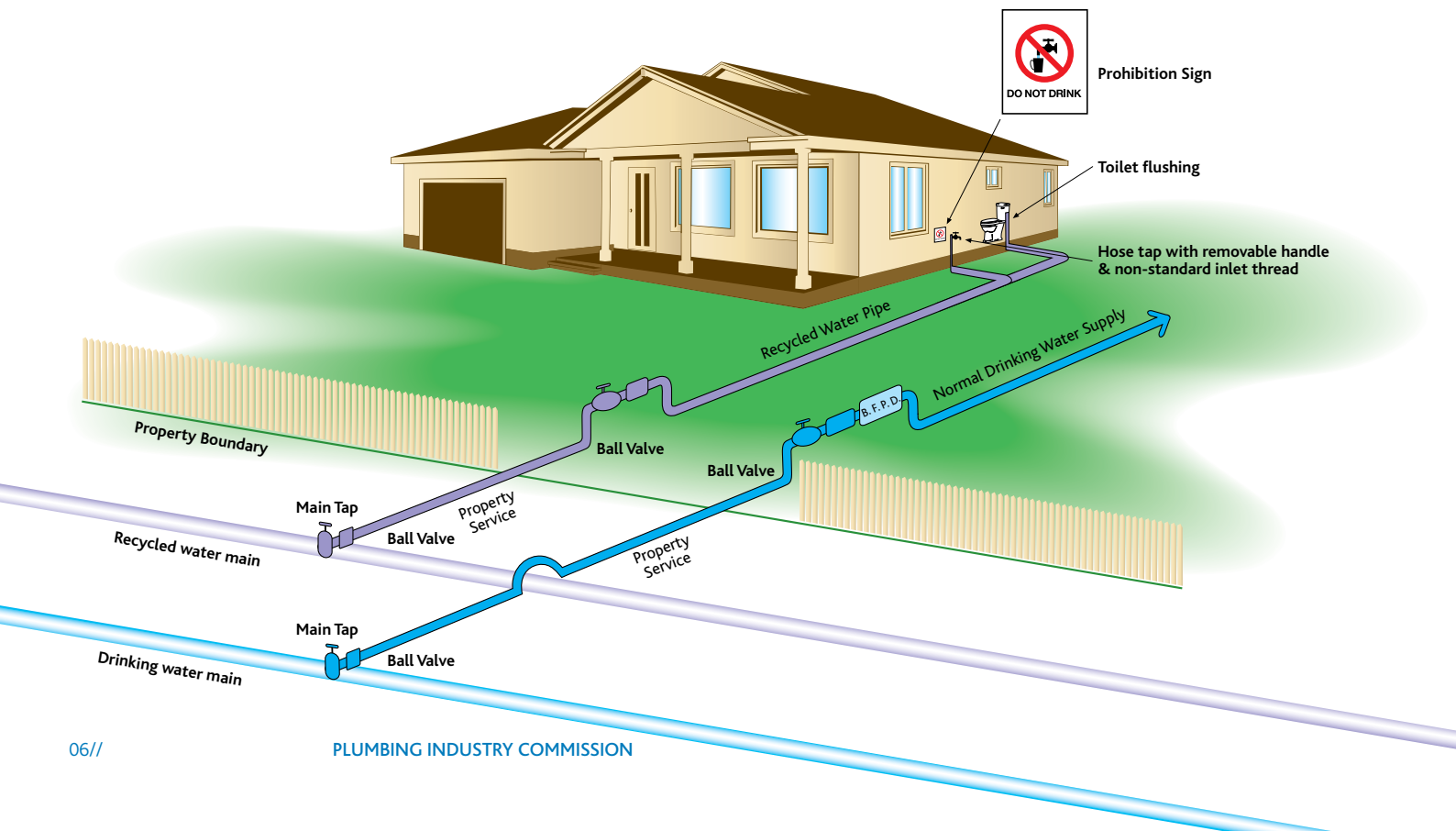
Recycled water is delivered to properties by a series of dedicated mains. Upon application to the Network Utility Operator, each property will be provided with both an individual recycled water connection from the recycled water main and a drinking water supply connection from the drinking water main.

The recycled water main is purple coloured and installed in the footpath or roadway. The drinking water main may be located in the same trench as the recycled water main but it will not be purple in colour.

- Where hydrants are provided in the recycled water main for fire fighting and standpipe use, the hydrants must be marked 'recycled water'.



A. Recycled water main and property service
B. Drinking water main and recycled water main



The main to meter property service

- ◆ Generally two DN 20 water service pipes will enter the property. One a purple colour for recycled water and the other a drinking water supply.
- ◆ In some instances the Network Utility Operator takes responsibility for installing the meter assemblies.
- ◆ In other instances the plumbing practitioner takes responsibility for the meter assembly installations.

The water meter assembly

The recycled water meter is purple in colour. Unless otherwise authorised by the Network Utility Operator, the meter is to be fitted above-ground, in an accessible position, as close as possible to the relevant property boundary and adjacent to the drinking water meter.

The plumbing practitioner must ensure that a consent has been taken out from the Network Utility Operator before commencing work.

- ◆ The Network Utility Operator will supply both water meters.
- ◆ The inlet and outlet threads of meters used for recycled water are different to those for drinking water to prevent interchange of the meters.
- ◆ The Network Utility Operator will provide the meter couplings for the drinking water meter which have special threads.
- ◆ To ensure stability, copper pipes that have been coloured purple must be used as the pipe risers for the meter assembly.
- ◆ The recycled water control valve must be purple coloured and fitted only above ground on the inlet to the meter.

- ◆ Any property service connections (tappings) are the responsibility of the Network Utility Operator.

A dual check valve is required on the outlet of the drinking water meter as part of the meter assembly. The dual check valve has to be visible, accessible and fitted in the horizontal section of the meter assembly.

Note: Some Network Utility Operators may fit water meters with inbuilt dual check valves.

Inside the property

The Installation of the recycled water service is to comply with this Guide. **UNDER NO CIRCUMSTANCES IS THERE TO BE CROSS-CONNECTION BETWEEN THE RECYCLED WATER SERVICE AND THE DRINKING WATER SERVICE.**

- ◆ All plumbing work inside the property is to be completed by a Licensed or Registered Plumbing Practitioner.
- ◆ All pipe work inside the property for use with recycled water must be approved.
- ◆ All buried pipes must have identification tape installed on top of the recycled water pipe running longitudinally and fastened to the pipe at three metre intervals.
- ◆ The tape must be at least 75mm wide and state **"Warning: Recycled or Reclaimed Water – Do Not Drink"** continually along its length and coloured purple.
- ◆ The recycled water pipe work must have a minimum separation of 300mm below ground and 100mm above ground from the drinking water pipe.
- ◆ All other installation requirements of AS/NZS3500.1: 2003 Sections 3 and 5 Installation of Cold Water Services, also apply.



Recycled water and drinking water meter assemblies

A GUIDE FOR PLUMBERS

Recycled water hose bib taps

- ◆ All external Recycled Water hose bib taps must be purple coloured, incorporate a removable handle and a non-standard inlet thread.
- ◆ Must have a prohibition sign complying with AS1319.

All external hose tap outlets on the drinking water service shall be fitted with hose connection vacuum breakers.

Commissioning the dual water supply systems

It is the responsibility of the installing plumbing practitioner to commission their work. All plumbing systems must be commissioned before occupancy and use by the consumer.

The commissioning procedures must be followed and detailed on the Compliance Certificate.



Steps to commissioning the drinking water system including the heated water supply

Water Service/rough in completed

Isolate/disconnect any fixtures or appliances that may be damaged by a high test pressure

Connect test bucket at a convenient point to enable testing of piping. (Both hot and cold if required)

Cap all open ends

Fill system with water

Isolate water main if connected to mains supply

Pressure test system to 1500 kPa with test bucket for not less than 30 minutes

Does pressure hold at 1500 kPa?

Yes

No

Locate and repair leak/s

Re-test at 1500 kPa for 30 minutes

If possible ensure the water service is charged at mains pressure during concealment prior to commissioning. Note: Smaller services may require regular flushing to eliminate problems caused by dead water over a long period.

Is service larger than DN80 or supplied from a storage tank?

No

Yes

After fit off flush each outlet (0.75 m/s velocity) to remove dirty water and debris

Service/tank to be flushed and disinfected as per Appendix G and/or H of AS/NZS 3500 Part 1

COMMISSIONING. When the water service has been completed and fitted off, check the operation of all taps, valves, cisterns, etc.

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Steps to commissioning the recycled water system

Turn off the drinking water supply to the property at the meter (drinking water meter and recycled water meter will be different colours). Recycled water supply to remain on.

Turn on all sink, bath and shower taps (both hot and cold) one by one. All taps should run dry after a short period of time.

After taps have run dry flush all toilets. Toilets should refill as normal provided they are connected to the recycled water supply.

Turn on all outside taps. The external drinking water tap should run dry. Taps that continue to run are connected to the recycled water supply and should be clearly identified via appropriate prohibition signs.

To check appliances within the home, such as dishwashers and washing machines, turn off the recycled water supply and turn the drinking supply back on. Run the recycled water supply dry via the outside taps or toilet flushing. Turn on the internal appliances. If the appliances do not fill they are connected to the incorrect supply and should be remedied.

Turn the recycled water supply back on at the meter. Turn on the tap connected to the recycled water supply that is located furthest away from the meter. Turn the tap back on slowly so that all air will be purged from the pipeline while it is being recharged.

It is the responsibility of the installing plumbing practitioner to commission their work. All plumbing systems must be commissioned before occupancy and use by the consumer.

Approved products

Approved products are those which have gone through the National Plumbing Product Approval Scheme and have an approval mark clearly displayed on the product. It will be either a Standards Mark or a WaterMark.

In addition, pipes to be used on recycled water need to be clearly and permanently identified 'Reclaimed/Recycled Water – DO NOT DRINK' and coloured purple.

Copper pipe for recycled meter assemblies or external stand pipes must be purple coloured.

If you are not sure if a product is approved, please contact the Plumbing Industry Commission Technical Advice Line on 1800 015 129.

The Standards Mark compliance



Australian Standard



WaterMark

The WaterMark compliance

Auspex dn 20 pn 16 pe-x reclaimed/recycled water – caution not for drinking 000131 op p1



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