Building and Plumbing Handbook

A guide for working with Water Corporation

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1 Introduction

Water Corporation has produced this handbook to assist builders and plumbers to work with us and our regulators to deliver the best possible outcomes for our customers, by protecting public health as well as public and privately owned assets.

Water Corporation recognises the need for government bodies, utilities and industry to work together to identify relevant areas of responsibility within the industry and the services delivered to the community.

In addition to their customer obligations, there are also statutory obligations in protecting water and wastewater infrastructure. Laws and regulations relevant to Water Corporation's operations and assets that set out these obligations are listed within this publication, as a guide to other documents that need to be understood when delivering services.

Information provided within this handbook was accurate at the time of publishing. Content updates will be made to the online version as required, which can be found at **watercorporation.com.au/plumbinghandbook**.

2 Definitions

Before You Dig Australia plans (BYDA)

A Before You Dig Australia **(**BYDA**)** plan is an extract from Water Corporation's mapping system, which contains detailed information about water, wastewater and drainage mains. BYDA plans are used by licensed plumbing contractors when they need to locate sewer connection points.

Drainage plumbing

Sanitary drainage used to convey wastewater to a sewer.

Drainage plumbing diagrams (flimsy)

Drainage plumbing diagrams (formerly known as 'as-constructed diagram' or 'flimsy') are a diagrammatic representation of drainage plumbing work within a property and are certified by a licensed plumbing contractor. The contractor is legally obliged to provide the Department of Local Government, Industry Regulation and Safety – Building and Energy Division (Building and Energy) with the drainage plumbing diagram.

The Electronic Submissions Interface (ESInet)

The Electronic Submissions Interface (ESInet), provides access to Water Corporation's spatial database for asset information, allowing the self-service extraction of digital asset data into an AutoCAD design format. Note: ESInet is not an alternative to BYDA.

Licensed plumbing contractor

A person who holds a plumbing contractor's licence under the Plumbers Licensing and Plumbing Standards Regulations 2000 (Plumbing Regulations).

Licensed tradesperson

A person who holds a tradesperson's licence under the Plumbing Regulations.

Licensed tradesperson (drainer)

A person who holds a tradesperson's licence (drainage plumbing) under the Plumbing Regulations.

Property sewer connection

The part of a sewer connecting a wastewater inlet to any Water Corporation sewer that is between the inlet and the property connection point.

Sewers

A drainage pipe laid for the carriage of sewage or wastewater. This term does not include a sanitary drainage. If not specified this means a Water Corporation sewer.

3 Working with Water Corporation

Prior to undertaking works near or on Water Corporation assets, customers must make themselves familiar with Water Corporation requirements. Information relating to this can be found in the following links:

- Small Developments Handbook – a guide to the subdivision process and Water Corporation requirements.
- Working near assets (watercorporation.com.au/developing-and-building/Working-near-assets) – provides information on how the approval process works and includes the Asset Protection Risk Assessment Form, which may be required to be attached in the application.

Land owners proposing a building development or connecting to Water Corporation water, sewer or drainage lines are required by law to make an application to Water Corporation. Applications can be lodged online via BuilderNet©.

3.1 BuilderNet©

BuilderNet©, our online lodgement system, is the quickest and easiest way to lodge:

- building applications (including sewer connections)
- water service application
- sewer applications

BuilderNet© is available free of charge, with the exception of standard Water Corporation fees and charges applicable to building and service applications.

Please refer to Section 4 – Connection to Water Corporation mains (page 8), for further information about pre-connection requirements.

3.2 Building applications

Request quotations and approvals for:

- minor plans for non-habitable structures (e.g. swimming pools, garages and sheds greater than 40 m²)
- alterations or additions to existing buildings
- multi-residential or commercial developments (including associated water service connections and sewer junctions).

Note: These requests are typically submitted by builders, hydraulic consultants and architects.

3.3 Water and sewer applications

You can also request the following:

- new water meters or services (e.g. fire services, temporary services and sub- meters)
- work on existing water meters or services (e.g. relocations, modifications, disconnections)
- new sewer junctions
- work on existing sewer services (e.g. alterations to access chambers, cutting and sealing pipes, and installing spigots)
- sewer conversions and connecting properties to sewers.

Note: These requests are typically submitted by builders, plumbers, consulting engineers and developers. An endorsed APRA is required as part of the quoting process.

3.4 Before You Dig Australia plans

Before You Dig Australia (BYDA) plans can be obtained via **BYDA** (byda.com.au) for most properties and are provided electronically in PDF format. BYDA offer free plan reading education sessions, available via their website (byda.com.au/education/book-a-free-session).

BYDA plans show the location of water and sewer mains, system connections and other Water Corporation infrastructure near properties. They are useful to licensed plumbing contractors, surveyors, developers, builders, consulting engineers, hydraulic consultants, architects, local government officers and real estate agents.

3.5 BuilderNet© registration

Go to **BuilderNet.watercorporation.com.au**, select ‘New Registered User’ and complete the form. Registration is required for customers that intend to use the system on a regular basis.

For further information, visit the website or contact **13 13 95**.

4 Connection to Water Corporation mains

As per the Water Services Act, it is an offence to interfere with, alter or connect to a Water Corporation water or sewer main without prior approval from Water Corporation.

4.1 Water supply connections

Connections to Water Corporation mains are provided by a meter and builders standpipe, which must be installed by Water Corporation.

Missing or damaged meters or damage to water services or pipe work must be reported to Water Corporation on **13 13 75**.

4.2 Fire services

Fire Services are provided solely for firefighting and testing firefighting equipment. Under no circumstances is a fire service to be used for any unauthorised purpose such as washing down trucks and driveways or connecting a domestic supply (including reticulation) via the fire service.

If a plumber has identified a cross connection, they must advise the customer that water use from a fire service for purposes other than firefighting is illegal.

Fire services are subject to backflow protection requirements (see Section 5 - Backflow prevention, page 13) and are provided under an agreement.

4.3 Flow control devices

Flow control devices (FCDs) have been installed in water services for all commercial and multi-residential developments.



Typical flow control devices, image courtesy of Maric Flow Control

The device limits the water supply flow rate to the flow applied for and what has been paid for through infrastructure contributions.

Note: FCDs control the rate at which the water is supplied to a property and will not reduce water pressure. A pressure reducing valve (PRV) is required for this. FCDs are located on the downstream face of a meter and it is the plumber's responsibility to ensure that it remains in place when the internal pipework is fixed to the meter.

It is an offence to tamper with a meter, including the removal of the FCD. FCDs may be the cause of a flow lower than is required by the property owner. In this case, the customer will need to apply for a higher flow and pay the appropriate infrastructure contributions.

FCDs can potentially cause turbulence that affects the accuracy of turbine type meters, which are generally larger than 40 millimetres (mm).

To minimise the risk, the FCD must be placed a minimum of one metre from the meter.

Prior to making an application for a water supply connection, the builder/plumber must ensure there is adequate space between the property boundary and the building to install the necessary pipework to accommodate the spacing between the FCD and the meter.

4.4 Sewer connections

Connections to Water Corporation sewer mains are provided via a connection point, which must be installed or supervised by a Water Corporation representative. As per the Water Services Act, it is an offence to connect private plumbing work to this connection point without approval.

There is a risk to lives and health if the correct precautions are not taken.

In addition to obtaining Water Corporation approval to connect to sewer mains, licensed plumbing contractors are required to adhere to Plumbers Licensing Board (PLB) requirements. Please visit the Building and Energy page on the WA.gov.au website for further information.

The licensed plumbing contractor/builder must confirm there is adequate fall to the sewer main prior to starting building construction. The conditions a builder must comply with are included with the approval.

Other important requirements:

- confirm location of the sewer connection point
- provide for overflow relief
- Water Corporation access chambers must be kept clear for ease of access
- maintain minimum cover levels on Water Corporation sewer mains, as per Water Corporation's Working Safely Near our Assets technical guidelines available on our website
- exercise caution when changing site levels verify the location of existing pipe work prior to construction or connection
- obtain separate approval where trade waste will be discharged (see Section 9 - Trade Waste, page 22)
- provide boundary containment backflow prevention devices appropriate to the property backflow risk posed by the activities carried out at the property, as assessed by Water Corporation (see Section 5 - Backflow prevention, page 13).

4.5 New sewer connections

Construction of the drainage plumbing within a property is the responsibility of the land owner. In those situations where a new sewer connection point (sewer junction) is cut into a sewer main it must be installed or supervised by a Water Corporation representative.

It is a requirement to obtain approval to work near our assets by applying for an Asset Protection Risk Assessment (APRA). The APRA must be in place prior to scheduling your work order with us. Information is available on our website that explains the APRA process.

Licensed plumbing contractors are responsible for:

- ensuring an application has been lodged and payment made to Water Corporation for the connection
- excavating the sewer and make the site safe for one of our representatives to cut in the sewer connection
- constructing the property connection into the property boundary
- providing as-constructed information showing 'ins and ups'. (Refer to Section 4.8, page 11 for further detail)
- showing all boundary traps and other fittings so the property connection (junction) is greater than or equal to the diameter of the internal drainage plumbing connection to it.

4.5.1 Boundary/running traps

As per Water Corporation's design standards, and the applicable Australian plumbing standards, boundary traps shall be installed on all property connections where the junction is located on:

- sewers that are 300 mm or larger in diameter
- IO or IS sewers where the downstream sewer is 300 mm or larger in diameter, and
- any Water Corporation sewers, regardless of diameter, that conveys a pumped discharge.

For further information about the provision of boundary traps on property connections please contact Water Corporations Building Services on **13 13 95**.

4.5.2 Gullies in flood prone areas

All external gullies in flood prone areas, including the North West Region (26 degrees south of the Earth's equatorial plane), must be fitted with WaterMarked "pop up" covers.

4.6 Reporting of lost sewer junctions

The builder/plumber is required to confirm the location and depth of a sewer connection point prior to commencing work on-site.

Water Corporation provides a diagram showing the location of sewer connection points (junctions) at the time an application to connect is made.

When establishing the position of the connection point, care must be taken where the connection is relatively long or where there are "in and up" measurements provided.

On occasions licensed plumbing contractors experience difficulty in locating the junction, see section 6 for information on how to interpret Water Corporation plans. Only the licensed plumbing contractor responsible for the site can lodge a report of a lost junction. Prior to reporting a lost junction, the licensed plumbing contractor must confirm:

1. there is a valid and current approval from Water Corporation to connect to the sewer

2. they are the licensed plumbing contractor responsible for the site

3. they have excavated at least one metre either side of the given measurement and 0.6 metres deeper than the depth established from the BYDA plan.

The following explains the process and any pre-requisite actions for reporting a lost sewer junction:

- All reports shall be made by contacting Water Corporation on **13 13 95**.
- You will be asked to confirm the prerequisite steps are complete. You will be required to accept that Water Corporation may seek to recover any costs should the junction be located within the correct limits.
- Where the excavation can be safely secured, you will be required to do so pending resolution.*
- Where the excavation cannot be secured, you will be required to backfill.**
- You will be advised at the time of making a report of the likely resolution date.
- Water Corporation will not be able to assist if the plumber/builder has not followed this process, or there is no record of a current application to connect to the sewer – and or a copy of the plan is not available on site.

*The licensed plumbing contractor is responsible for the safety of site excavations at all times.

**Prior to backfilling the excavation, we recommend taking photographs to support your Lost Junction Report.

4.7 Drainage plumbing diagrams

Please refer to the drainage plumbing guidance note on the Building and Energy page on the WA.gov.au website for further information on drainage plumbing diagrams.

4.8 "IN and UP" Measurements

Where the property connection has been brought into a property the 'as constructed' sketch must include IN and UP measurements from the centerline of the sewer main to the connection end points within the property (refer to Section 4.4, page 9).

4.9 Property connections to vacuum wastewater systems

The Australian Standard AS/NZS 3500 Part 2 Clause 3.18 specifies installation requirements. The clause is subject to WA variations in the Plumbing Code of Australia, schedule 11. Licensed plumbing contractors are expected to be aware of these requirements.

Note: Vacuum sewer schemes may have a restricted capacity. If you intend to connect anything other than a single residence, such as commercial or industrial properties, to a vacuum wastewater system you must obtain advice on **13 13 95**.

Diagram 1 below illustrates a connection where the collection chamber is located outside the property boundary.

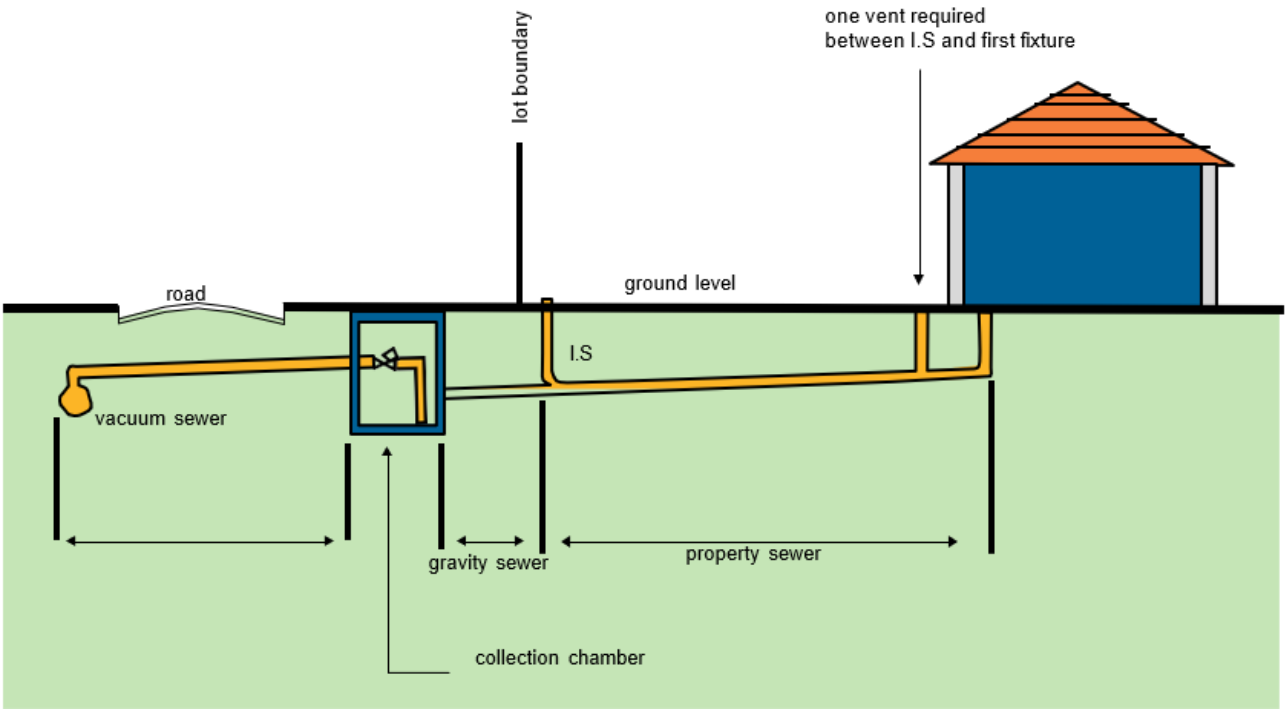


Diagram 1 Collection where collection chamber is located outside property boundary.

In instances where a vacuum sewer is present, most properties are connected as shown in Diagram 2 below.

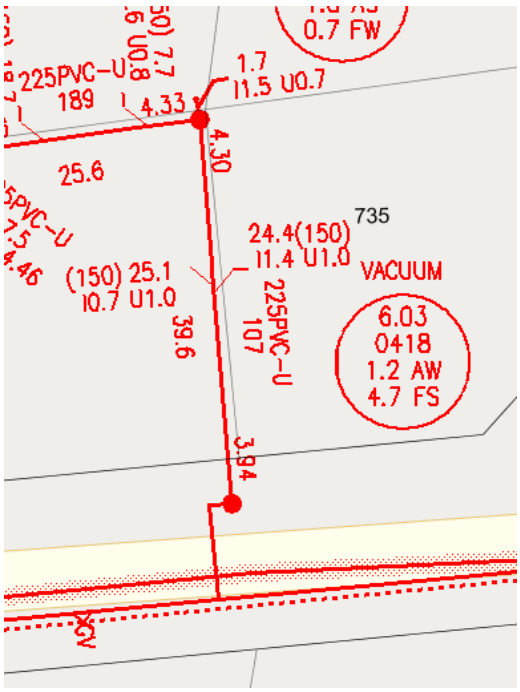


Diagram 2 Present vacuum sewer.

5 Backflow prevention

An ongoing threat to the quality of Water Corporation's drinking water supply is the backward flow of water from a customer's property through their property's water service connection (fire services included).

This water may be contaminated by the activities within the property, and may cause death, health problems or inconvenience to persons ingesting or using the water.

5.1 What is backflow?

Backflow is the reversal of the normal direction of water flow in a water supply plumbing system. It occurs when the water delivery main is at a lower pressure than the internal plumbing system (backsiphonage).

Backsiphonage can occur when there is a burst or ruptured water main, or when there are periods of high demand. Excessive demand during fire fighting operations can also result in backsiphonage.

Backflow can also occur if a water pump (such as a bore pump) is cross connected to the internal water plumbing system and is pumping bore water at a higher pressure than the water mains pressure (backpressure).

If a property's drinking water supply is inadvertently interconnected with a source of pollution, either through a cross connection or simply a hose submerged in a container of liquid, then these pollutants could enter the water supply when there is an overpressure on the private property side or a sudden drop in water mains pressure.

5.2 Backflow Prevention Policy

Water Corporation's Backflow Prevention Policy requires the installation of approved backflow prevention containment devices at the boundary of every water service connection to a property (including fire services). Currently, fire services that were installed prior to May 2010 are not required to install a boundary device unless the fire service is being altered at the property boundary. This policy is supported by relevant legislation and plumbing standards.

5.3 New developments, redevelopments and changed services

At the time of building approval, development application, redevelopment or changes to existing water services, the applicant will be informed of the property's backflow risk rating.

The following building application types will be assessed for backflow risk:

- new developments
- redevelopments of existing facilities
- changes to any existing water service
- additions/alterations (including where no water service applications are included, applicable only if the property has existing meters)
- multiple residence and/or commercial (includes where no water service applications are included, applicable only if the property has existing meters)
- any applications that involve a fire service

- any applications where the minimum water service size applied for is greater than 25 mm in size (except fire services, where the backflow advice applies regardless of the service size).

Building application approvals also include:

- a backflow approval sticker as part of the approved site plan document
- the applicable backflow information sheet (directed towards the applicant), based on the assessed initial backflow risk (high, medium or low); and
- plumber's information sheet (designed for the applicant to provide to their nominated licensed plumbing contractor and/or hydraulics consultant).

Site-specific activities will determine the final level of backflow risk. Certain commercial and industrial processes may default the property risk rating to high.

If a property owner considers the risk rating assigned to their property is higher than the risk of activities being carried out, then the property owner may appeal this rating. Please contact our Backflow team by calling **(08) 9373 1412** or emailing **backflow@watercorporation.com.au** to discuss and obtain an appeal form.

The property owner must consult a suitably qualified licensed plumbing contractor or hydraulic consultant first, and submit a duly completed appeal form in accordance with the backflow provisions available on National Construction Code - Volume 3 - Plumbing Code of Australia 2022, to Water Corporation within 28 days of receiving risk rating advice. Water Corporation will advise the property owner of the outcome of the review, and the following conditions apply:

- The risk rating of a property determines the minimum requirement for the type of containment protection backflow device(s).
- Irrespective of the risk rating of a property, all fire services are rated medium risk and require (as a minimum) a medium rated device to be installed.
- If the future land use is unknown, the default risk rating is high.
- Where a property has mixed use in terms of risk rating, then the risk rating shall default to the highest risk rating for the purposes of determining the type of backflow prevention device to be installed at the boundary.
- Changes in the activities within a property can result in a change of the backflow risk rating and the containment protection backflow device(s) required.

5.4 Backflow prevention device

The containment backflow prevention device must be installed on the customer's side of the water connection at the property boundary and belongs to the owner of the property.

The installation of a containment backflow prevention device does not eliminate the need for zone and individual backflow prevention devices that may be required under plumbing standards. Water Corporation does not manage zone or individual backflow protection.

All backflow prevention devices that are installed at the boundary must be registered. This information should be submitted to Water Corporation by a licensed plumbing contractor qualified to install and commission the devices.

The following conditions apply:

- Boundary containment backflow prevention devices are required to be installed as part of the plumbing system downstream, and as close as practicable to the property's water meter (or property boundary if no water meter is available). Refer to the Appendix section, page 34.
- No connections are permitted between the meter outlet and the containment backflow prevention device.
- If continuity of supply is critical to your client, consider connecting duplicate devices in parallel. If the property has more than one water service, you will need to install a device/s at the connection point for each of those services.
- All fire services are rated as medium risk, and the installation of a medium risk rated device is required, as a minimum (excludes fire services installed prior to May 2010).
- The installation of some forms of backflow prevention devices will reduce water pressure/ flow rate downstream of the device. If the water pressure and/or flow rate is critical to your client, then this should be discussed with your client/hydraulic consultant prior to choosing and installing the final backflow prevention device.

Work related to the installation, testing, maintenance, repair or replacement of backflow devices is identified as plumbing work and is therefore covered by the Plumbing Regulations.

Only licensed plumbing contractors who are qualified to install, test and certify backflow prevention devices are permitted to carry out such works.

Water Corporation will inspect properties to ensure ongoing compliance with its Backflow Prevention Policy.

5.5 Backflow Regulations and Standards

Water Corporation requirements relating to the installation, testing, maintenance, repair or replacement of a backflow prevention device are supported by legislation under the Water Services Regulations 2013 and Plumbing Regulations.

5.5.1 Regulations for backflow prevention

The requirement to have and maintain backflow prevention devices at the boundary of a property is required under regulations 42 and 43 of the Water Services Regulations 2013.

Due to the potentially serious nature of a backflow incident, Water Corporation can in accordance with these regulations serve an order on a property owner or occupier to install backflow devices.

The regulations also provide for penalties for non-compliance under the *Water Services Act 2012* (WA). Water Corporation has the power to restrict or disconnect water services, to protect the drinking water supply from potential contamination caused by a backflow event from a property.

5.5.2 Standards for backflow prevention

In addition to all plumbing regulations, licensed plumbing contractors must also apply the latest versions of following standards for backflow prevention:

- AS/NZS 3500 Part 1: Water Services.

- AS/NZS 2845 Water supply - Backflow prevention devices Part 1: Materials, design and performance requirements.
- AS 2845 Water supply - Backflow prevention devices Part 2: Registered air gaps and registered break tanks.
- AS 2845 Water supply - Backflow prevention devices Part 3: Field testing and maintenance of testable devices

5.6 Ongoing backflow device maintenance

Testable backflow prevention devices at the property boundary must be installed on high or medium risk properties. These require testing;

- after installation, maintenance or repair, and
- at intervals not exceeding 12 months.

Only a licensed plumbing contractor, permitted to test the devices, can test the testable backflow devices.

Water Corporation will send an annual reminder letter to the property owner for these boundary devices. Failure to maintain a backflow device will result in the serving of a non-compliance notice to the property owner or occupier in accordance with regulation 43 of Water Services Regulations 2013.

Backflow test reports must be submitted online to Water Corporation no later than five working days after the test is carried out.

Water Corporation does not manage zone or individual type backflow prevention and will not accept test reports for these types of devices.

Test reports for boundary containment backflow must be submitted online.

To submit backflow test reports online visit: **watercorporation.com.au/backflowlodgement.**

6 Interpreting BYDA Plans

BYDA plans are extracts from Water Corporation's mapping system that, among other things, show the location of sewer connection points. It is essential for all plumbers to be able to interpret BYDA plans.

When using BYDA plans there are limitations in how the information may be used. Users must not rely entirely on the plan.

When the information is critical, the pipe position must be physically confirmed prior to any mechanical excavation or boring.

6.1 Water BYDA Plan

The following water BYDA plan in Diagram 3 below is intended as a guide only.



Diagram 3 BYDA Plan example.

6.2 Sewer BYDA Plan

Some junctions in older areas (typically those prior to 1986) have not been brought into properties or are up to one metre below ground level. Licensed plumbing contractors must not rely on previous experience or the graphical representation of BYDA plans when locating sewer connection points.

The following sewer BYDA plan and drawing in diagram 4 and 5, respectively, are intended as a guide.

The examples in diagram 4 and 5 illustrates why it is necessary to accurately interpret BYDA plans. In diagram 5, while the connection for Lot 517 is shown outside the property line, the dimensions show the connection point has been brought in 2.7 metres and up 1.9 metres from the sewer line.

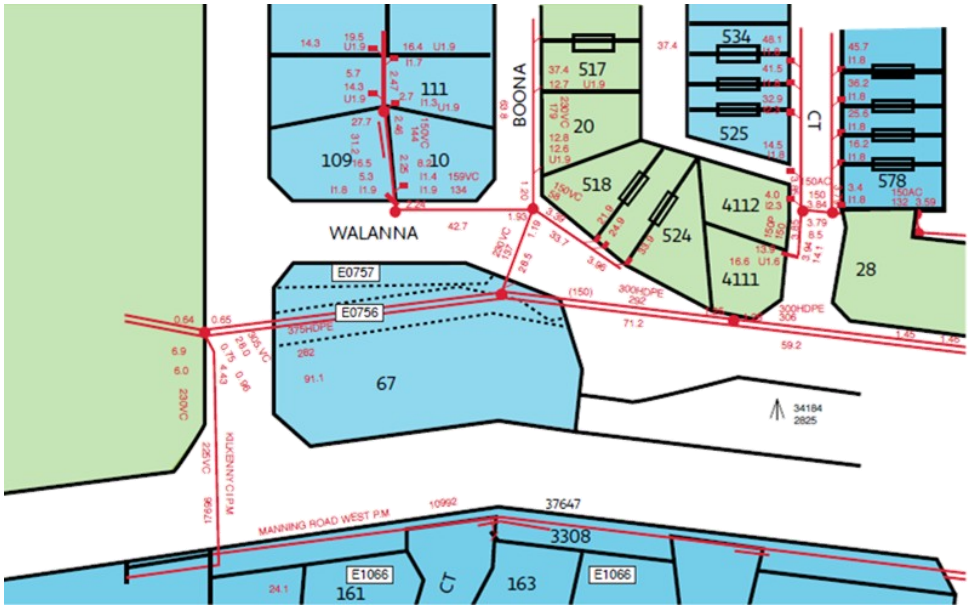


Diagram 4 BYDA Plan example with sewer lines.

The graphic for Lot 111 reflects the measurement which indicates it has been brought in 1.3 metres and up 1.9 metres from the sewer line. Common in older suburbs, the sewer connection point may not be brought into the property. The licensed plumbing contractor is responsible for correctly interpreting the BYDA plan.

Refer to Water Corporation's Residential-guidelines-for-designers.pdf for information on calculating sewer main alignment and depth.

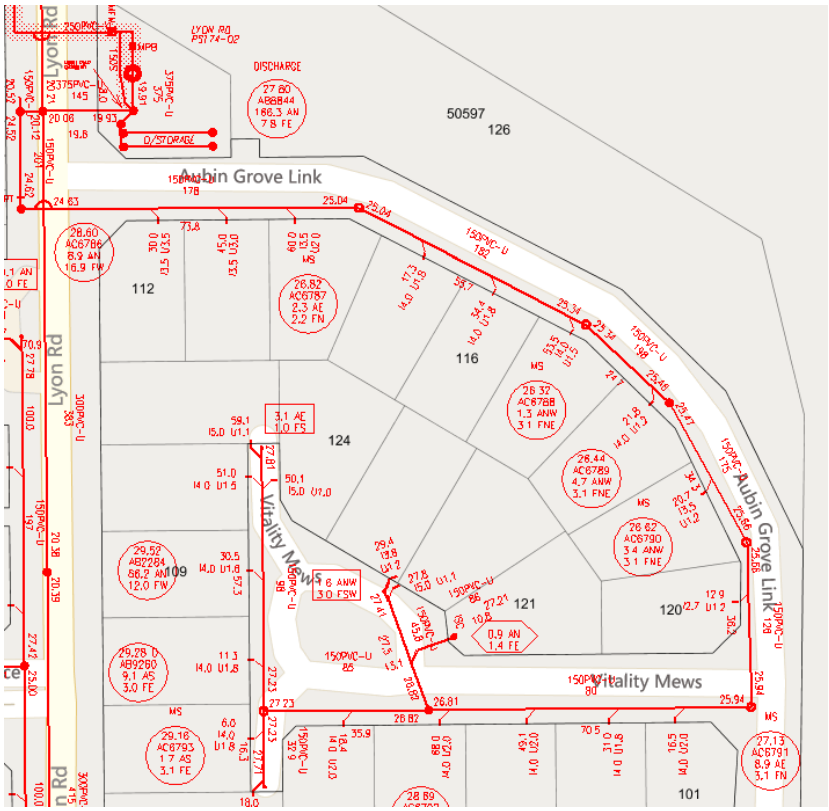


Diagram 5 BYDA sewer drawing.

7 Disconnection from Water Corporation mains

7.1 Water supply

Before demolition of any building, the landowner is required to notify Water Corporation prior to the demolition commencing (Section 82, *Water Service Act 2012*).

Once the demolition is complete, if there are no immediate plans for further development at the property, Water Corporation may require the meter to be disconnected to reduce the risk of damage, theft, wasted water or contamination of the water supply.

Where further development is planned, the water meter may remain on site, subject to the installation of a standpipe by a licensed plumbing contractor, compliant with AS/NZS 3500: Part 1.

Where a landowner chooses to leave the water meter on site, they will be responsible for any damage to the water service or water theft.

Diagram 6 below illustrates how the connection for a temporary standpipe may be made.

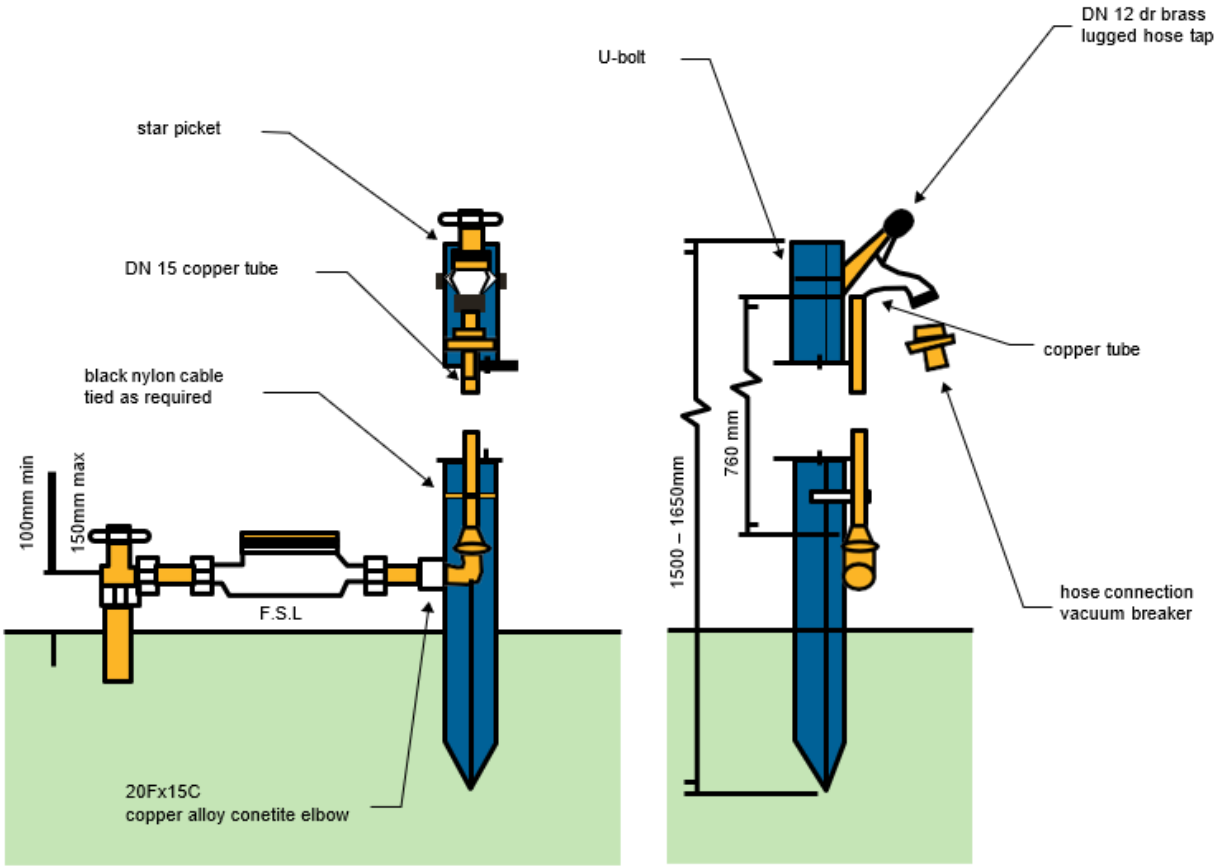


Diagram 6 Connection for temporary standpipe.

7.2 Sewerage

Prior to the demolition of any building the landowner is required to engage a licensed plumbing contractor to disconnect the building from the sewer main and ensure the sewer connection point is left sealed, compliant with the relevant plumbing standards. Refer to the Building and Energy page on the WA.gov.au website for more information.

Drains shall be sealed using approved methods as listed in AS/NZS 3500 Part 2 with the required drainage plumbing diagram.

Diagram 7 below illustrate correct sewer disconnections.

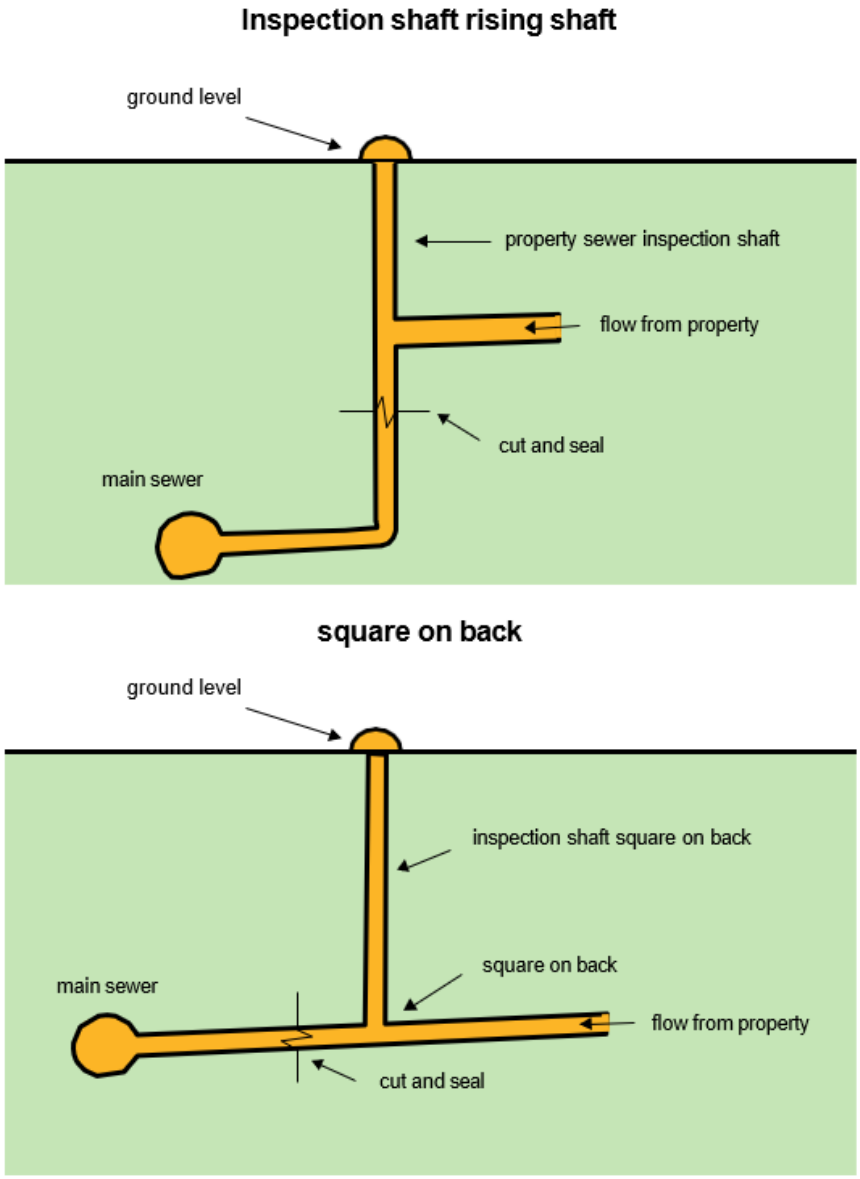


Diagram 7 Correct sewer disconnections.

8 Maintenance work

This section provides guidelines for customers and licensed plumbing contractors on maintenance responsibility for blockages in drainage plumbing. The property sewer connection is the pipe between the inspection shaft and the junction on Water Corporation's sewer main, shown as A to B on the diagram below.

The guidelines ensure that property owners are not responsible for excavating to excessively deep sewers or for excavation outside their property. They apply to the inspection shaft (IS sewers), long sewerage connections and jointly used main drains (other than in strata schemes).

8.1 Blockage clearing

Property owners are responsible for the cost of clearing any blockage in their property sewer connection, where the blockage can be cleared from the inspection shaft.

Water Corporation will not reimburse licensed plumbing contractors for clearing any blockage where it is found to be in the property connection. Water Corporation may either clear the blockage from the inspection shaft or advise the licensed plumbing contractor to return and complete the work.

8.2 CCTV inspections

Property owners are responsible for the cost of any CCTV requirements where the CCTV is initiated by a licensed plumbing contractor.

8.3 Excavation assistance

If Water Corporation determines that an excavation is required to repair the property sewer connection, Water Corporation will assist the plumber when:

- the depth of the required excavation is 2.5 metres or more, or
- excavation is required outside the property.

Water Corporation will assist with excavation where the issue is within the 'blue zone' as indicated in Diagram 8

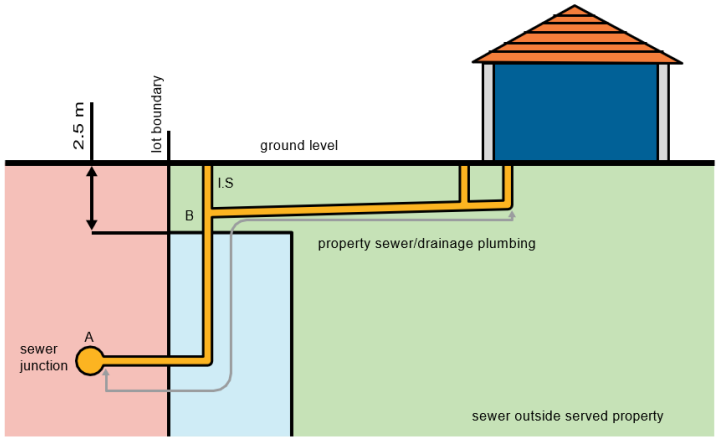


Diagram 8 Example of sewer arrangement

9 Trade waste

Trade waste or industrial waste is any wastewater discharged from business (other than waste from office facilities or staff amenities).

Business operators are legally required to have a trade waste permit when disposing trade waste into our wastewater system. If the wrong waste goes down the system, it could cause serious harm to public health and the environment.

9.1 Applying for a trade waste permit

Complete a trade waste application form, along with any relevant supplement forms and submit to Water Corporation with site hydraulic drawings (plumbing design drawings) for assessment prior to discharging trade waste. See **watercorporation.com.au/Help-and-advice/Trade-waste/Apply/Apply-to-discharge-trade-waste** for information on how to apply for approval to discharge trade waste.



9.2 Food handling and preparation industry

(For all other industry type requirements, see Section 9.7)

The grease and fat contained in wastewater can accumulate both in your drains and our wastewater system, resulting in odorous and toxic gases, corrosion, blockages and wastewater overflows.

Blockages and overflows impact the community and our ability to provide customers effective wastewater services. Under the *Water Services Act 2012*, all businesses involved in the food handling and preparation industry must obtain written permission in the form of a trade waste permit before discharging any waste into our wastewater system, and comply with all permit conditions including the installation or upgrade of a grease arrestor.

9.3 Grease arrestor and other pre-treatment requirements

(For the food handling and preparation industry)

During the trade waste application assessment process, our trade waste officers assess if a grease arrestor is required based on the type of activities being undertaken. Generally, businesses that prepare and cook food will require a grease arrestor.

Table 1 below shows typical pre-treatment requirements for different types of food handling and preparation businesses.

Table 1. Minimum pre-treatment requirements.

Minimum pre-treatment required	Examples of typical business	
Installing Water Corporation accepted grease arrestor	Cafes, restaurants Lunch bars, Delis Takeaway shops Fish and chips	Function centres Taverns/hotels Quick service restaurants Catering establishments Food manufacturing School canteens

	Kebab shops Butcher shops Bakeries	
Installing Water Corporation accepted in-sink and floor strainer units	Childcare centres Fish retail (wet processing) School canteens (no cooking) Bakeries (bread only, no pies or cakes)	Takeaway pizza only (No other type of food prepared on site) Donut shops

Only pre-treatment devices, accepted for use by Water Corporation, should be installed and connected to the sewer.

For more information on pre-treatment products visit:
watercorporation.com.au/pretreatmentproducts.

9.4 Grease arrestors sizing

Having the correct size grease arrestor is critical in ensuring the wastewater discharged from a greasy waste producer has the optimum conditions to efficiently remove suspended solids, oil and grease.

Two methods can be used to determine the appropriate size of a grease arrestor. Both are based on ensuring the wastewater has a minimum retention time of one hour.

Note: Water Corporation has a minimum grease arrestor size of 500 litres and a maximum size of up to 10,000 litres. Although grease arrestors larger than 2,000 litres have been approved for individual use by Water Corporation, these are not approved to be used in series. The maximum allowable units in series are two (2) units and the total maximum allowable capacity of any units in series is therefore 4,000 litres (2x2,000 litres). Customers wishing to install these larger grease arrestors should seek our approval before installation.

9.4.1 Peak flow rates method

Where known, the hourly peak wastewater flow rate can be used to determine the recommended grease arrestor size. Compare the peak hourly flow with the ‘Calculated grease arrestor size range’ in Table 3 to determine the corresponding ‘Minimum grease arrestor size’.

9.4.2 Fixture unit rating method

Add the fixture unit ratings (see Table 2) for all fixtures that feed into the grease arrestor and multiply this by 100 litres. Check where this calculated volume lies in the ‘Calculated grease arrestor size range’ (Table 3 below) to determine the corresponding ‘Minimum grease arrestor size’.

Table 2. Fixture unit ratings

Fixture	Fixture unit rating	Fixture	Fixture unit rating
Steamer	1	**Kitchen sink**	3
Wok (per burner)	1	**Double kitchen sink**	3
Hand Basin	1	**Pot sink**	5
Rinse sink	3	**Double pot sink**	5
Combi Oven	5		

Table 3. Recommended grease arrestor sizes

Maximum number of fixture units	Calculated grease arrestor size range (litres)	Recommended grease arrestor size (litres)
7	100 - 700	500
13	701 - 1300	1000
17	1301 - 1700	1500
26	1701 - 2600	2000
52	2601 - 5200	2 x 2000, 4000
78	5201 - 7800	6000

9.5 Shared grease arrestors

Water Corporation will only approve shared tenancy grease arrestors when the property owner or the owner's designated agent (such as a shopping centre manager), agrees to take responsibility, and applies for a trade waste permit.

In circumstances where Water Corporation approves businesses to share a grease arrestor, the minimum size can be calculated using either method. If using method one, the combined fixture unit rating of all businesses sharing the grease arrestor must be used.

The minimum size for a shared arrestor is 1,000 litres. Where the fixture unit loading is too high for a single grease arrestor, and it is not practical to connect grease arrestors in series, the waste streams are to be split, and diverted to individual grease arrestors to accommodate the fixture loadings.

9.6 Non-typical grease arrestors

Water Corporation may accept the use of other types of grease arrestors, such as those that may include filters. These types of grease arrestors may be subject to specific conditions or use restrictions. We recommend seeking advice from us prior to installing non-typical grease arrestors.

9.7 Pre-treatment requirements for other industry types

Most trade waste discharged to sewers will require some form of pre-treatment. For example, businesses such as, mechanical servicing, vehicle/plant washing, fuel stations, etc., that generate petroleum-based oily wastewater discharge, will require an oil/water separator. These come in various types such as the Coalescing Plate Separator (CPS) Vertical Gravity Separator (VGS) or Hydrocyclone.

For these and other types of approved pre-treatment products, that may be applicable to your business, visit: **watercorporation.com.au/pretreatmentproducts.**

Typical drawings of pre-treatment apparatuses are also available on Water Corporation's website. More complex wastewater may require the producer of the waste to engage a wastewater treatment or plumbing consultant, to design a suitable treatment system to meet our acceptance criteria.

Only pre-treatment devices, which are accepted for use by Water Corporation, should be installed and connected to the sewer. Always check with your supplier prior to purchasing any pre-treatment product.

9.8 Discharge restrictions

9.8.1 Dishwashers and glasswashers

Dishwashers and glasswashers are not to discharge into grease arrestors, because of detergents, high water temperatures and surge loads. This can overload the arrestor or can liquefy or emulsify oil and grease, allowing it to be discharged to sewer.

9.8.2 Swimming pools

Backwash and drainage from domestic swimming pools and spas are not considered as trade waste and are not permitted to be discharged to sewer. For disposal options, please contact your local council. Backwash and drainage from "Aquatic Facilities" as defined in Health (Aquatic Facilities) Regulations 2007 (WA) must apply for a trade waste permit prior to connection to sewer and meet all applicable trade waste policies.

9.8.3 Storm water

Storm water from domestic or commercial premises must not be connected or discharged to the sewer as it is considered a prohibited discharge.

9.8.4 Food waste disposal units (garbage grinders)

The installation of garbage grinders on any service connected to the sewer is prohibited.

10 Development issues

Licensed plumbing contractors need to be aware that issues affecting plumbing work may arise during the development of land.

Development of land includes:

- amalgamation by subdivision of two or more lots
- any green title or strata subdivision
- any building on a land parcel.

The main areas that plumbers should be aware of are:

- internal sewer or water lines that extend into another lot when a lot is subdivided
- water meters located in a new lot separated from an existing house
- sub meters that may be required on a multi-residential development or strata scheme.

Plumbing should be rationalised for any development, to minimise the number of meters and sewer connection points. This makes the property easier to manage and may reduce the annual service charges for the land. Please refer to Part 6A of the Plumbers Licensing and Plumbing Standards Regulations 2000 for more information.

10.1 Isolation of internal lines

At the time of subdivision, internal water or sewer lines may be isolated from the building they are servicing. The problem is more severe if the sewer connection point or the water meter is isolated, as illustrated Diagram 9 below.

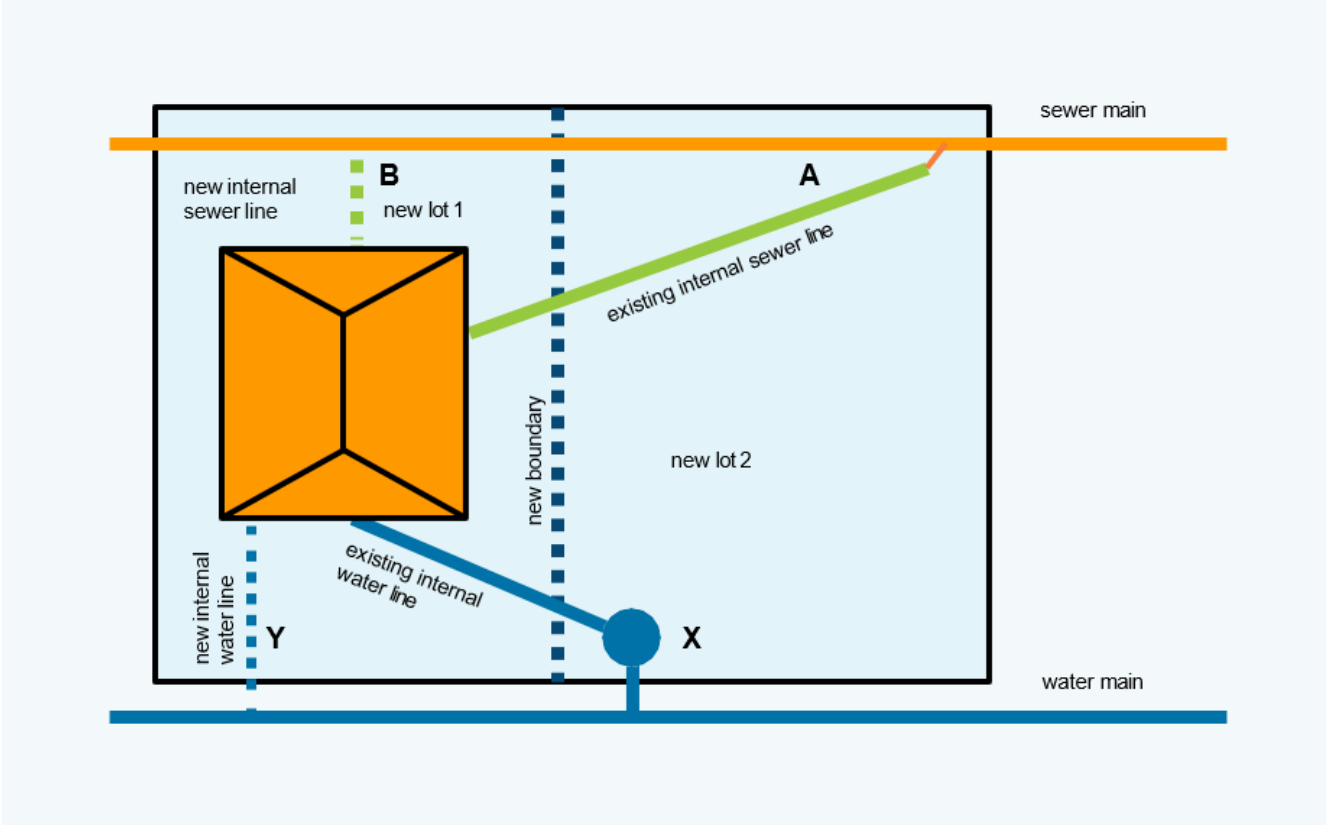


Diagram 9 Isolation of lines.

Diagram 9 highlights where a single lot was subdivided into two green title lots with all services contained within each property boundary. Existing internal water and drainage plumbing service lines extend into the new Lot 2. Prior to the subdivision being finalised, a new sewer connection point at B must be provided and to realign the drainage plumbing line going to A, so it is entirely within the new Lot 1 to a new connection point at B.

The water connection point at X would need to be relocated to Y and an additional meter provided for in the subdivision process.

10.2 Survey Strata schemes

Through the strata subdivision process, Water Corporation will ensure access to our services is available at the boundary of the Strata Scheme in accordance with our Water Services Licence requirements and servicing standards.

The developer is responsible for ensuring that all lots proposed under the Strata Scheme have adequate access to these services, and that any existing plumbing is adequately protected. The developer may choose to install dormant plumbing (water and sewer) and/or relocate any existing internal plumbing.

Dormant sewer or water lines are a section of internal plumbing laid in the ground to connect a building to the sewer or water mains in the future. Dormant lines are typically laid during strata development to avoid strata neighbours intruding upon each other to install lines after the scheme is established.

Refer to the *Plumbers Licensing Boards Technical note on Survey Strata Lots* for further information on strata schemes.

10.3 Metering Access

10.3.1 Access

Water Corporation is the owner of the meters and associated fittings. It is illegal to tamper with any part of the meter and customers have an obligation to maintain 24/7 clear access for the meter to be read and replaced.

10.3.2 Multi-unit developments

There are two metering options available to all residential properties and non-residential strata properties that require metering at an individual unit level:

1. Fit individual meters at an agreed road frontage adjacent to a water main for individually subdivided, or strata titled lots.
2. Fit a master meter at an agreed road frontage adjacent to a water main which connects to sub-meters via private internal plumbing.

For all sub-meter installations, the work must comply with the standards and instructions issued by Water Corporation at the time of the work being carried out.

Water Corporation is responsible for maintaining the sub-meter and tails. The strata company is responsible for all internal pipework which must be undertaken by a licensed plumbing contractor.

Installation requirements include:

- As a safety requirement, bridging cables (earthing strap) must be attached onto the vertical copper pipe on both ends of the meter assembly.
- Vertical pipework is not to be set in concrete, brick paving, bitumen etc, as some flexibility in the pipework is required for meter replacement.
- Water Corporation personnel must have access to meter assembly at all times. Plastic pipe, if used, must be at least 300 mm below ground level. Plastic pipe must not be used to support a meter assembly

- The clearances shown here are required to facilitate meter reading and/or replacement when required. This is a requirement under Water Services Regulations 2013, N23.

Further information about the installation requirements and application process can be found at: **watercorporation.com.au/Developing-and-building/Applying-for-services**.

10.3.3 Assembly requirements – 20 mm water meter

Note: Water Corporation does not have control over what the plumbing industry can install and can only apply its specifications and requirements when asked to take over the metering for the property.

- Existing installations are likely to be fitted with a stopcock / isolating valve.
- All new 20 mm installation are being fitted with the right-angle ball valve. For properties with multi metering arrangements, Water Corporation is only responsible for tail to tail assembly.
- No branch or fitting to be connected within one metre (1,000 mm) from valve.

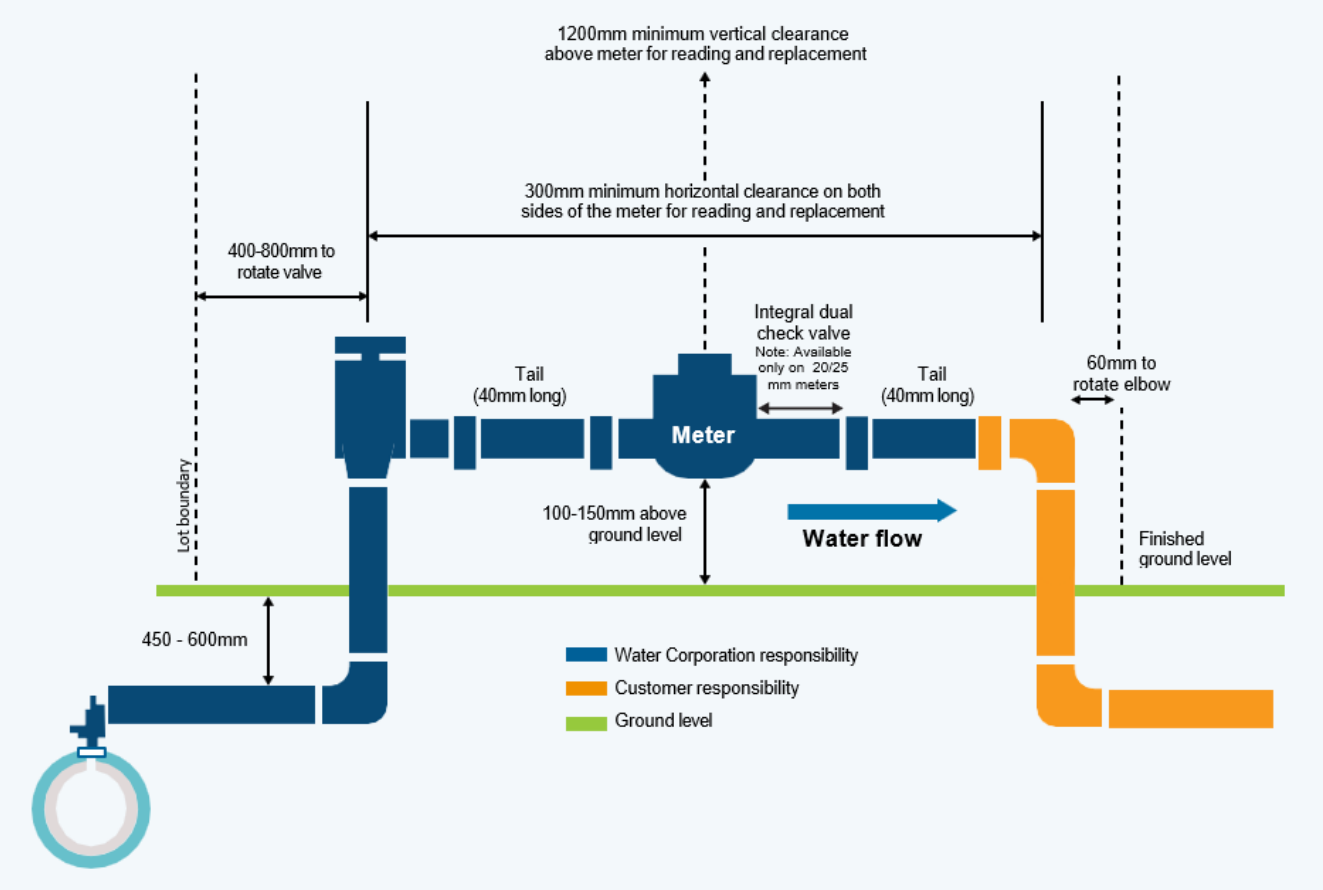


Diagram 10 20-25mm water meter with dual check valve arrangement

10.3.4 Installing meters below ground level in a box

Refer to Water Corporation's Strategic-Products-Register.pdf (Table B3) for details on acceptable meter boxes.

10.4 Proposals to construct, demolish or alter buildings

Any person proposing to build, demolish or alter any building or construction activity in an area served by a Water Corporation water or sewer main must obtain approval and pay the prescribed application fees prior to commencing construction, required under section 82(1) of *the Water Services Act 2012*.

Water Corporation provides guidance for single residential and some other building types. Builders must refer to our Residential Guidelines for Designers document to assist with the self-assessment of design prior to lodging an application.

The self-assessment allows you to identify the requirements to protect our sewer assets from the effects of building and construction activities. It is intended to maintain adequate access to Water Corporation sewer assets whilst assisting the protection of your proposed works from any future damage.

The Residential Guidelines for Designers can only be applied to the following building or construction activities within the prescribed proximity of our sewer mains:

- single residential buildings
- single storey addition/alteration to existing residential buildings
- below ground swimming pools, spas or tanks
- sheds
- retaining walls.

For any other building and construction activities not listed above, you will need to refer to our *Technical Guideline for safely working near Water Corporation assets*.

Builders and licensed plumbing contractors working for land developers should also consider the following points:

1. Our water and wastewater services are adequate for the proposed building or development. In some circumstances, it will be necessary to extend or enlarge the existing network and connections to the property.
2. Wherever possible, all survey levels provided should be in Australian Height Datum (AHD) as it assists in ensuring the building can be adequately served by the sewer, and makes the design of piling easier. This is particularly important where the ground level has been altered.
3. Builders are responsible for establishing the location of sewer connection points prior to starting any works. In the event that the connection point cannot serve the proposed building, or it is not located in the correct position, the builder will be responsible for any additional works necessary. This is particularly important in the redevelopment of lots in older suburbs.
4. In some circumstances, the builder may need to have the location of Water Corporation's pipe work confirmed by survey.
5. Licensed plumbing contractors are required by law to apply to Water Corporation prior to connecting a property to the sewer mains. On some occasions this application is made by the builder, however if you're unsure, licensed plumbing contractors should contact Water Corporation for advice on **13 13 95.**

6. Licensed plumbing contractors are required to submit a drainage plumbing diagram when they are the responsible person for drainage plumbing work that involves the installation, alteration or extension of drainage plumbing. Refer to the Building and Energy Drainage Plumbing Diagram homepage (dpd.demirs.wa.gov.au) for further information.

10.4.1 Sewer main alignments

Information on sewer main alignments can be found in the Residential Guidelines for Designers document.

Please refer to our Safely Working Near our Assets technical guidelines for guidance to protect Water Corporation's assets, and requirements for access to those services, where building and/or construction activities are carried out in their proximity.

If you require assistance please contact us on **13 13 95** or email **building.services@watercorporation.com.au.**

11 Electrical risks

To eliminate any potential risk caused by underground directional drilling activities into private, local government or Water Corporation sewers and drains, it's important to refer to Western Power for more information:

www.westernpower.com.au/safety/working-near-our-network.

Licensed plumbing contractors must exercise caution when clearing blockages in or near sewer lines particularly in the front verge. The safety of plumbers is at risk if cutting tools are used to clear the blockage that is potentially caused by live electrical cables.

Power companies and their electrical contractors are required to take all prescribed precautions to prevent the cross boring of electrical cables into sewers, drains and other pipes and conduits.

However, Western Power advises that live cables can often penetrate drainage pipes, storm water pipes, sewer mains and sewer connections to properties. This occurs due to high boring activity levels. In some instances, this may be undetected until the property owner or tenant reports and seeks to clear a sewer or drain blockage.

For more information, please refer to the Western Power website.

11.1 Warning – Licensed plumbing contractors

- Mechanical devices and high pressure cutters can cut into a cable, presenting a serious electric shock or electrocution.
- Never attempt to clear a blockage unless you are absolutely certain that a power cable is not the cause.
- Do not make assumptions about the installation or location of underground power cables.

Before commencing work, determine if property in the vicinity of a blockage is connected to underground power. If you are unsure, the following may indicate that an underground power cable may have caused the blockage.



11.2 What to look for at the property



- Is there a green dome on the property boundary?
- Is there an underground pit within the property or on the verge?
- Are there any signs of recent excavations?
- Does the property have overhead or underground power from the street to the building?

11.3 What to look for in the street



- Is the area serviced by underground power to either multiple or single properties?
- Are there poles with cables attached that run from the top of the pole to the ground?
- Is there a green cabinet displaying a danger warning sign?
- Are there any signs of recent excavations?

11.4 Tools and equipment

Consider the use of alternative blockage cleaning tools, such as lower pressure jet-washers. CCTV technology can also be used to positively identify the cause of blockages.

Assistance with locating underground power

Western Power	**13 13 51** **https://westernpower.com.au/**
Horizon Power	**13 13 51** **https://horizonpower.com.au/**
Atco	**13 13 56** **https://gas.atco.com/en-au.html**

12 Partnering with Water Corporation

12.1 Waterwise Plumbers

Water Corporation has had a rewarding association with the plumbing industry through the Waterwise Plumbers program since 2003.

The Master Plumber and Gasfitters Association offer a training course, endorsed by Water Corporation, for plumbers who wish to join the program. The training covers all activities related to water efficiency and plumbing.

What are the benefits of becoming a Waterwise Plumber?

- You will receive the most up-to-date training for yourself and/or your staff on the latest waterwise principles, practices and products. Being equipped with waterwise knowledge is both a requirement to become a Waterwise Plumber and a benefit to your business.
- Get access to exclusive Waterwise branding promoting yourself as a Waterwise Plumber and differentiate yourself from the competition.
- Being promoted by Water Corporation as being leaders in your industry with the best waterwise service and advice, and recommended to customers when they contact us.
- We direct our customers with plumbing enquiries to the list of Waterwise Plumbers on our website. Waterwise Plumbers are also preferred suppliers for various Water Corporation programs and projects. The Water Corporation engages with our Waterwise Plumbers wherever possible for initiatives throughout the community.
- Receive promotional materials to help promote yourself as a Waterwise Plumber.

12.2 Backflow Smart Testers Program

The Backflow Smart Testers Program allows plumbing businesses with accredited backflow testers to be promoted through our website if they register and agree to submit test reports through our web application only.

To be eligible for the Backflow Smart Testers Program, all of your accredited backflow testers must also be separately registered to submit test report forms online**.**

To participate in this program visit: **watercorporation.com.au/backflowsmartsignup.**

What are the advantages of the Backflow Smart Testers Program?

- Registered testers will have their business details listed on our website, and will be identifiable to our customers, who may choose to engage a Backflow Smart Tester to undertake work on their behalf.
- Customers will have access to an online search tool for backflow testing companies in their area.
- Water Corporation backflow test reminder and compliance letters will refer customers to the Backflow Smart Testers Program.

13 Legal obligations

The requirements under the following water legislation recognises the licensed plumbing contractor's role in protecting water and sewerage infrastructure and ensuring that the interests of all customers are protected:

- *Water Services Act 2012* (WA)
- Water Services Regulations 2013

14 Appendix

Explanation of notes to backflow boundary protection diagram

Explanation of notes to backflow boundary protection diagrams	
Note 1	All backflow prevention devices internal to the property boundary or downstream of a Water Corporation service (metered or otherwise that shall be located just within a property boundary) must comply according to the latest version of following plumbing standards: National Construction Code Volume 3 – Plumbing Code of Australia, AS/NZS 3500.1, AS/NZS 2845.1, AS 2845.2 and AS 2845.3.
Note 2(a)	A suitably rated backflow prevention device must be installed at the property boundary based upon the maximum level of backflow risk assigned to the customer's property by Water Corporation.
Note 2(b)	If the water service is <=25 mm in size and the customer's property is rated as a LOW form of backflow risk then Water Corporation's water service meter shall provide the necessary level of low backflow protection as the service meter has an integral dual check valve as part of its design.
Note 2(c)	If the water service is >25 mm in size and the customer's property is rated as a LOW form of backflow risk then a low rated form of backflow prevention must be installed, as a minimum, downstream of the service meter.
Note 2(d)	Where testable mechanical valve type backflow prevention devices are installed, the isolation valve upstream of the line strainer and the isolation valve immediately after the device must be resilient seated.
Note 2(e)	Where flow rate and/or pressure does not allow the use of a mechanical valve type backflow prevention device then refer to note 3.
Note 3	An Air Gap (AG) provides a high level form of backflow prevention protection against back siphonage only. A Break Tank (BT) provides a low level form of backflow prevention protection against back siphonage only. None of these devices provide any backflow prevention protection against back pressure. A Registered Air Gap (RAG) / Registered Break Tank (RBT) provides a high level form of backflow prevention protection and is commonly used as an alternative form of low / medium or high level of backflow prevention protection in scenarios where flow rate and / or pressure becomes a possible operational issue to a customer and / or DFES (Department of Fire and Emergency Services).
Note 4	Except with Water Corporation's written authority, no branch or fitting shall be connected to a private service pipe within a distance of one meter on the consumer's side of our stop-cock or water meter.
Note 5	It is the responsibility of the licensed plumbing contractor to ensure compliant plumbing work internal to the private property boundary (see Note 1). Images shown in the diagram 11 are for illustrative and informative purposes only. Water Corporation does not acknowledge nor assume any responsibility or legal liability for any non-compliant internal plumbing work as required by the Plumbers Licensing and Plumbing standards Regulations 2000.

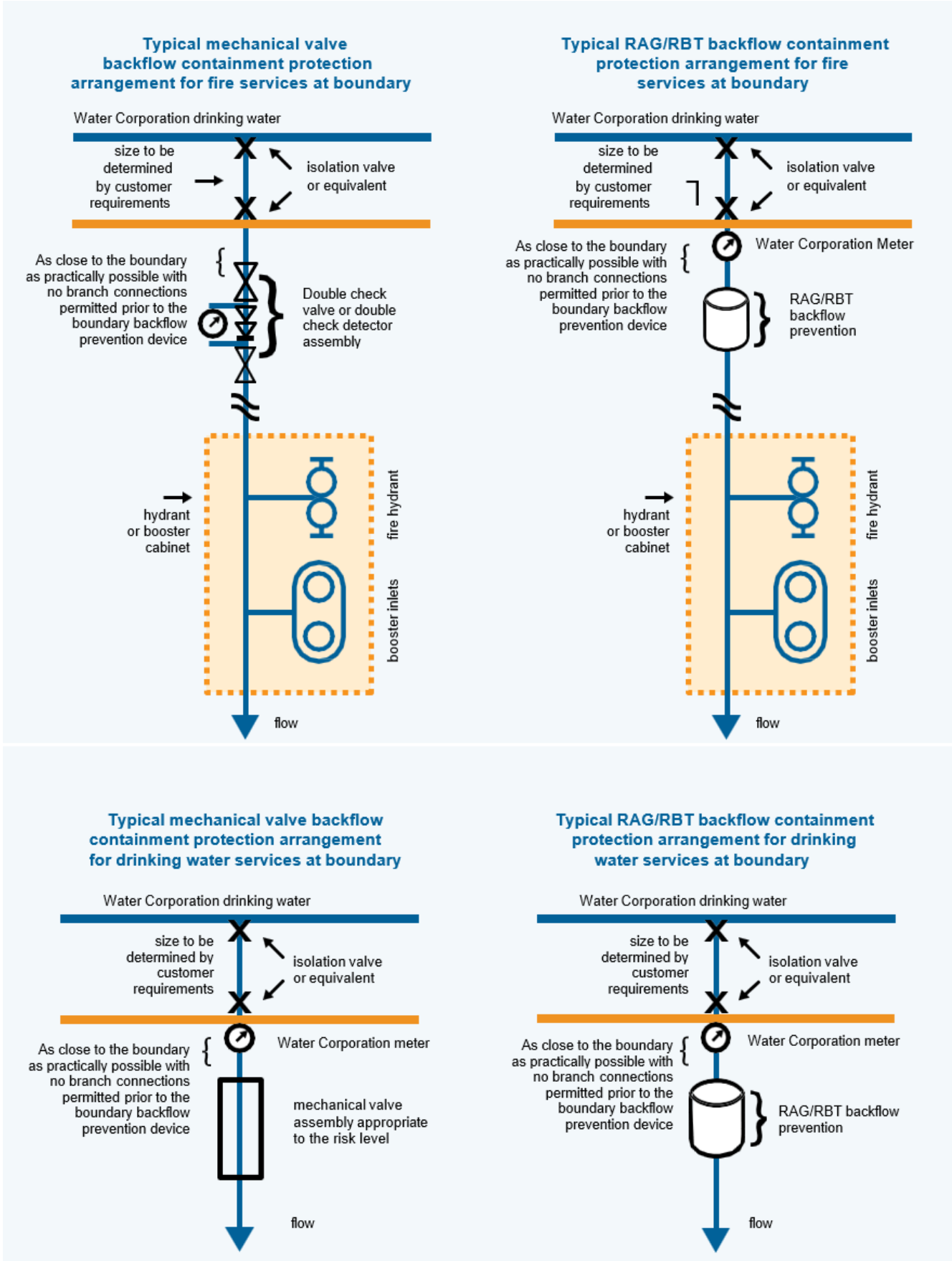


Diagram 11 Backflow boundary protection diagrams

15 Contact us

BuilderNet© is the most effective and efficient way of lodging your service connection and building applications with Water Corporation.

Faults, emergencies and security	**13 13 75** 24 Hours
Building services and subdivision enquiries	**13 13 95** 8am – 5pm weekdays
BuilderNet© helpline	**08) 9424 8411** 8am – 5pm weekdays
Waterwise helpline	**13 10 39** 24 hours
Waterwise helpline	**13 10 39** 24 hours
Website	**www.watercorporation.com.au**
Email	**building.services@watercorporation.com.au**