



CONSTRUCTION TECHNICAL NOTES

January 2026

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Version control

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We welcome feedback on this document. Send your feedback to:
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INTRODUCTION

This document outlines some of the essential construction practices required by Urban Utilities (UU) for projects related to a Water Approval process.

While contractors are already familiar with SEQ standards and construction requirements, this document serves as a reminder of some key construction details we look for during construction audits and compliance.

This document highlights:

- some common focus areas during inspections
- construction methods, and
- practices to help avoid rework and delays.

These items are based on our field experience, audit findings, and lessons learned, and this reference guide will continue to evolve over time.

Use this guide to:

- refresh your understanding of critical construction elements
- maintain alignment with Urban Utilities' expectations and
- ensure your work continues to meet the standards we rely on.

These Technical Notes are in addition to the:

- [Minor Works Contractor Guideline](#), and
- [Major Works Contractor Guideline](#).

NOTES FOR CONTRACTORS

- Always use approved materials, ask if unsure
- Do not undertake live works without relevant NAP
- Ensure all connection/s and disconnection/s are included in the NAP
- If unsure about the method to use, consult with your engineering consultant before proceeding.
- Ensure all works comply with Urban Utilities' technical standards and safety requirements.

SEWER

Sewer manhole construction

Underside of all maintenance hole top slabs (aspro) to be PE lined and sealed. The neck of the access opening is also to be PE lined. Install PE lining when required (deeper than 4m manhole, industrial area, within 100m downstream from rising sewer discharge manhole...etc)



Ensure the distance from the underside of the top slab to the finished surface level (FSL) does not exceed 350mm.

6 x stainless steel N12 dowels required in all new connections to existing manhole.



PE puddle flanges are required for all connections of PE sewer main to a manhole. Ensure required fall through MH is achieved, and pipes of different sizes are laid obvert to obvert as a minimum.



Ensure to use correct inner/outer forms for manhole construction.



Hydrophilic seal to manhole wall at base is required.

Hydrophilic seal and starter dowels are required on all manhole lifts.

It is recommended to take photos demonstrating this was completed.



Always check if internal of manhole looks as per required standards. (Benching is neat, smooth & suitable, ladder or step irons are installed properly and on a downstream side, with PE lining neatly trimmed.)



Ensure correct class of manhole top slab and cover are installed.
(Class B for non-trafficable location;
Class D for trafficable location)

Ensure metallic covers have correct diamond pattern.



Install internal drop using PVC pipe with SS brackets (internal drop is only allowed to an existing type F manhole and only 1 internal inlet per manhole is allowed).



External drop installation with reo cages.



Connection to an existing lamp-hole is not permitted; in these cases, lamp holes are to be replaced with an appropriate maintenance structure.

Concrete for manhole construction shall be special class S40 (WSA PS-358) with calcareous aggregate.

Installation of a pre-cast maintenance holes are not accepted by UU.

Sewer MS construction

HC connections into MS riser to have 500mm IL separation.

Number of connections (max 3 inlets to base where there are no inlets to riser; max 1 DN160PE or max 2 DN110PE to riser).

Install gusset positioned correctly (not upside down, like shown in photo)

A correctly positioned gusset allows for jetting or camera equipment for cleaning and maintenance.



Sewer PC installation

Sewer PC's junction to be concreted as per Code. Also, install detectable marking tape on all sewer mains and property connections. 5-7mm bedding material required. type 4 embedment + orange PC marker + PVC adaptor.



DN160 for all sewer road crossings. Sewer road crossing kerb marking - refer SEQ-SEW-1103-3.



General - sewer installation

Conduct all relevant tests as required, including concrete strength tests, ovality checks, vacuum and compaction tests, and CCTV inspections. Quality assurance (QA) results are to be provided to consultants during the as-constructed stage.

CCTV documentation—including footage and reports—to be submitted to the certifying RPEQ engineer as soon as possible after capture for review and acceptance.

All QA records are to be included in the as-constructed package provided to Urban Utilities.

WATER

General - water installation

- Water services and meters to be 1.2m clear of electrical sources (green boys)
- FH's to be installed 1m clear of all surface obstructions
- Detectable marker tape to be installed for all water mains and services. Use IPAM approved tape
- Cutting an existing AC main is not allowed. AC pipes to be replaced collar to collar. Live tapping of small services to AC main is permitted
- 316SS backing rings shall be used with full-face PE flanges. PE stub-flanges are not accepted

Small services installation

- DN40 PE is required for all dual road crossings (100mm MPVC conduits required). (SEQ-WAT-1107-1)
- Short side services (where the main is within the footpath on the same side as the properties being service) will all be single services.
- Sand class A or B to be used on smaller services.
- Pre-chlorinated pipes and fittings are required
- Ensure pressure test was performed and provide evidence of “bucket test” being performed.
- Live tapping onto existing mains are to be pressure tested before tapping.

Ball valve required at tapping band for all small services. (SEQ-WAT-1107-1)



PE water service connecting to a PE water main must use an EF tapping saddle with an integral cutter/shut off.

Ball valve also required.



Water meter boxes to be wrapped in geotextile (SEQ-WAT-1107-3).

Tape around the box and to the pipe.



Large water services/water main/fittings installation

Construct thrust blocks on all unrestrained bends/tees. Refer to SEQ-WAT-1205-1 and SEQ-WAT-1206-1 for more details. All DICL pipes to be wrapped in PE plastic.



Pre-chlorinated pipes and fittings or NATA bacteriological testing required if possible.



Valves to be restrained as per SEQ-WAT-1206-1. Ensure all valves/hydrants to be clear of roadways and concrete hardstands.



Ensure large meter's location is acceptable and all required fittings are installed (large water meter to be accessible 24/7, otherwise AMR required). All fittings shall be installed in a manner that ensures they are free from any obstructions, thereby permitting their full and unrestricted operation.

NOTE: Urban Utilities requires the check valve to be installed before the strainer, which differs from what is pictured in the standard drawings.

Hydrant road marker/Hydrant kerb maker and pin/yellow painted hydrant lid
(SEQ-WAT-1300-1)



Springtop hydrant - (FH ears to be min 100mm; max 250mm from FSL)
Ears to be parallel with water main.
Permanent End of line FH to have ears facing perpendicular to main.



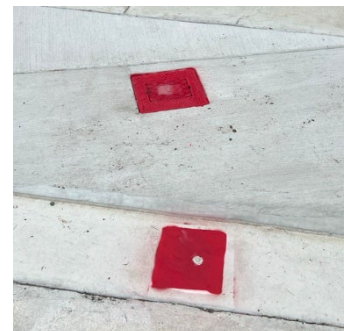
Valve road marker/valve kerb marker & pin/white painted valve lid
(SEQ-WAT-1300-1)



Valve spindle (provide extension spindle to ensure spindle cap depth: min (100mm); max (225mm) dimension)
Ensure shroud is centred over valve spindle.



Zone Valve to be painted red.



RELEVANT TO WATER AND SEWER - GENERAL CONSTRUCTION

Use correct tools for installation of PE pipes eg.

- radial peeler – don't manually scrape pipe
- pipe cutter - make sure pipe is cut square
- a serviced and correctly calibrated electrofusion welding machine
- approved electrofusion disposable cleaning wipes
(Refer to [PIPA -Guidelines](#) - POP001 for more details.)



Arrange for soil testing to establish and verify type of required embedment. If no geotechnical report is provided – adopt the worst-case scenario (use Type D/Type 4 for embedment as minimum).



- Bulkheads and trench-stops installation at correct intervals.
- Road crossings to be restored to council requirements, usually type L. (Refer to SEQ-SEW-1205-1 for sewer or SEQ-WAT-1204-1 for water for details).
- Any clashes with other services to be addressed as per advice from the RPEQ/ EC Consultant.
- Correct bedding depths and side haunching to be adhered to. (Refer to SEQ-SEW-1200-2; SEQ-SEW-1201-1; SEQ-SEW-1202-1; SEQ-SEW-1203-1 for sewer and SEQ-WAT-1200-2; SEQ-WAT-1201-1; SEQ-WAT-1202-1 SEQ-WAT-1203-1 for water for more details)

PE water services (including fire services) must be black with blue stripes. Black with red stripes is used only for internal plumbing fire services.

Internal sewer pipes to be light coloured, for clarity of CCTV footage; anything else requires approval.

Flow control plan/Shut plan

If the project you are working on has a **flow control plan** or **shut plan** involved, ensure you follow instructions as per these plans. If you are uncertain or have any questions, discuss them with your consultant and UU Technical Assurance Officers - TAO (for those complex ones), before commencing with live works.

Water live works at night

When performing **live works at night**, ensure you allow for additional fittings and pipes as a contingency. This helps accommodate unexpected scenarios that may arise during the works, such as:

- Needing to replace a longer section of pipe than initially planned
- Discovering incompatible pipe sizes or materials
- Encountering damaged or corroded fittings that require immediate replacement
- Needing to reroute due to unforeseen underground obstructions

Having these extra materials on hand can help avoid delays and ensure the live works proceed smoothly and safely.

DISCONNECTION OF REDUNDANT SERVICES



Disconnection of redundant small water services

General rules

Scenario	Action
Any service	Remove service pipework where practicable
Any service	Record water meter serial number and final meter reading - to be provided at compliance stage. Appropriately dispose of redundant water meter (do not return to UU)

Field process guide — based on service configuration

A. If there IS a tapping band

✓ Ferrule Isolates	✗ Ferrule Doesn't Isolate
<ul style="list-style-type: none"> Isolate ferrule Remove meter and service line Tighten all glands and close ferrule back nut if installed Install brass plug at the ferrule outlet Type 2 NAP is required to perform this type of disconnection (no interruption of the water operation). 	<ul style="list-style-type: none"> Obtain NAP -Type 3. Isolate the reticulation main Remove ferrule Install brass blanking plug at the first female threaded outlet of the tapping band 

B. If there is NO tapping band (direct tapped):

Located in road reserve:

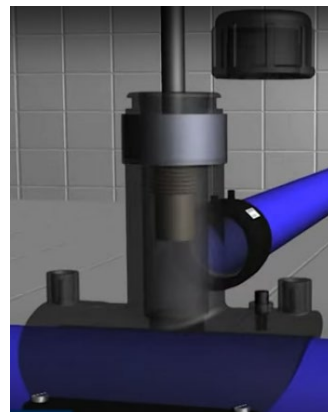
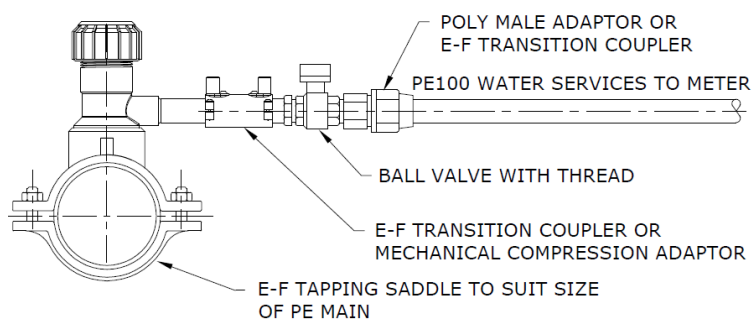
- Isolate reticulation main
- Remove direct tapped ferrule
- Choose based on condition:
 - If thread in main is suitable: install blanking cap directly into main
 - If thread damaged or concern exists: install a tapping band with blanking cap
 - Cut out the tapped location and replace with appropriate length of replacement main and approved connectors.

C. Disconnecting PE water services with integrated cutter saddle

When removing a redundant water service installed on a PE main using an integrated cutter saddle, follow these steps:

1. Isolate the service:

- Remove the cap from the cutter saddle
- Rotate the external spindle or handle in reverse to retract the cutter back toward the pipe. This action isolates the water flow
- Reinstall and securely tighten the cap



2. Seal and remove the service:

- If a full seal is confirmed at the cutter saddle, remove the service valve and plug the service
- If a full seal is **not** achieved - seal off the water service downstream of the service valve instead.

If a service is located in footpath:

- Assess ferrule condition (e.g. is it leaking, displaced, weeping?) and act accordingly – refer to the table below.
- Assess shutdown complexity

Condition	Action
Good condition AND approved/agreed by UU Field Assurance Officer (via audit or video call)	Leave ferrule in place and install blanking cap at ferrule outlet as per 2A.
Poor condition OR no audit approval	Isolate reticulation main, remove ferrule, and blank per Road Reserve method as per 2B.

Disconnection of redundant sewer services

(This is where the PC is capped separate to other works)

Removal of sewer PC in private property

Remove junction and replace with pipe

- Cut out the entire junction from the sewer main
- Replace with a new pipe section and appropriate couplings
- Ensure all joints are watertight and restore the main to original condition
- If the existing sewer main is relined the above does not apply.

Removal of sewer PC in all other locations

1. Cap at junction

- Expose the PC near the sewer main junction
- Cut back the PC pipe as close as practical to the junction
- Install a PVC or PE end cap onto the cut end of the PC
- Ensure a watertight seal
- Concrete encase the capped end to secure and seal the connection

Note 1: *if necessary, cut back at junction and use appropriate couplings to end cap*

Note 2: *if junction is damaged- remove junction and replace with pipe*

2. Other methods by approval

- Patch liner: used for difficult locations (e.g., deep jump-up, access consent denials etc.)
- Other approved methods as required by site conditions or engineering judgment

Quality Assurance for disconnecting services

- Inspect the capped or plugged connection for watertightness and structural integrity
- Photograph the completed works for records and compliance
- Complete all documentation as per Urban Utilities requirements
- Update as-constructed drawing noting removal method