

PERMANENT VALVE & VALVE RESTRAINT IF SPECIFIED IN THE DESIGN (REFER MRWA-W-308)

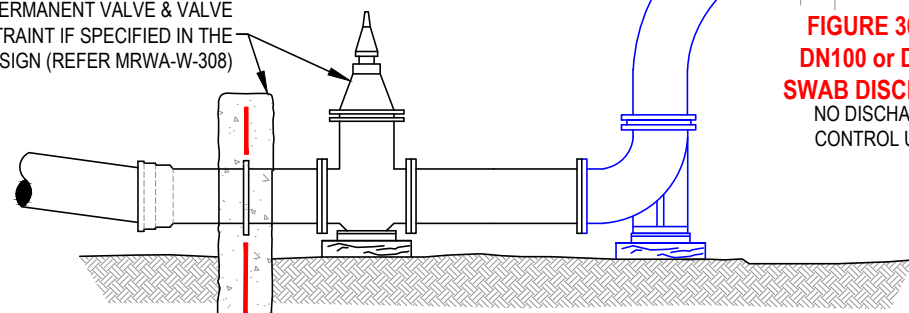


FIGURE 309-A: SWABBING TO LOWER ELEVATION WITH PERMANENT END OF LINE VALVE

PERMANENT VALVE & VALVE RESTRAINT IF SPECIFIED IN THE DESIGN (REFER MRWA-W-308)

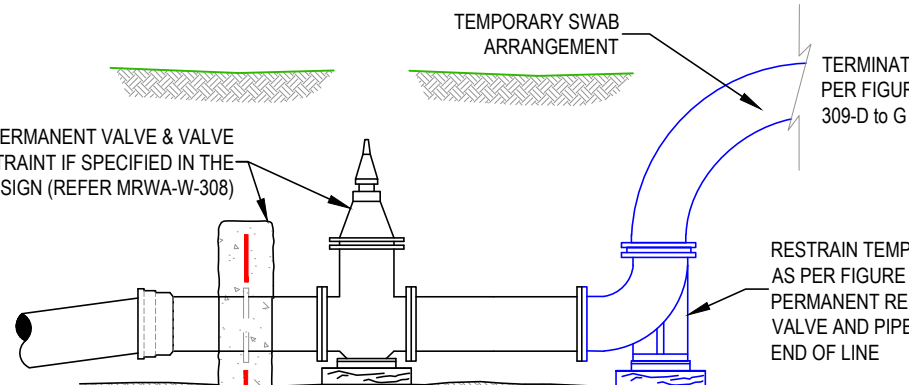


FIGURE 309-B: SWABBING TO HIGHER ELEVATION WITH PERMANENT END OF LINE VALVE

FIGURE 309-D: DN100 or DN150 SWAB DISCHARGE NO DISCHARGE CONTROL UNIT

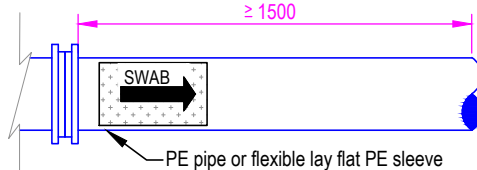


FIGURE 309-E: DN225 SWAB DISCHARGE CONTROL UNIT

PE pipe or flexible lay flat PE sleeve / hose may be acceptable for ≤DN225 mains where safe to do so.

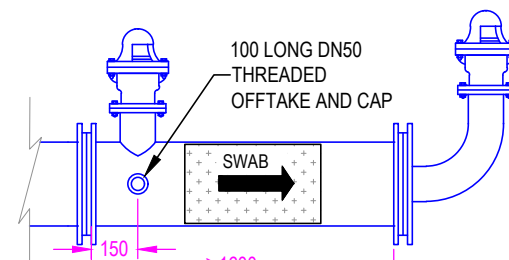


FIGURE 309-F: DN300 SWAB DISCHARGE CONTROL UNIT

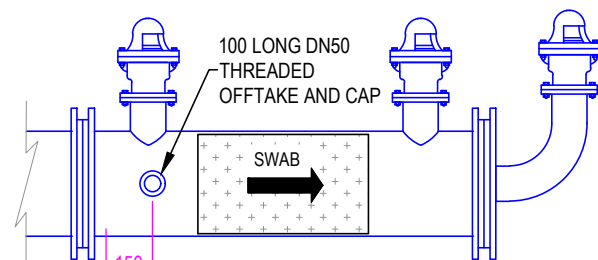


FIGURE 309-G: DN375 AND DN450 SWAB DISCHARGE CONTROL UNIT

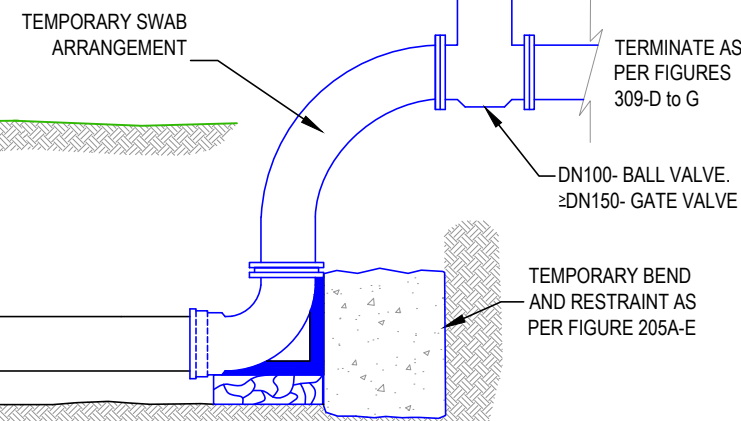


FIGURE 309-C: SWABBING TO LOWER ELEVATION WITHOUT A PERMANENT END OF LINE VALVE AND A TEMPORARY SWABBING ASSEMBLY VALVE

SWABBING DESIGN:

- All mains ≥DN100 and > 15m long shall be swabbed.
- Swabbing design shall be integrated into the design plan(s) as per MRWA-W-102A.
- Swab from lower to higher elevations. Discuss alternatives with the Water Agency when this is not practical.
- Each swab should be for a single size of main where practical.
- Swab from the existing system to dead ends.
- Typically, longer and larger diameter mains are swabbed first. Offtakes are then swabbed.
- Swabbing shall be sequenced to avoid swabbing the same pipework more than once if practical.

ITEMS SHOWN IN BLUE ARE TEMPORARY

PROCESS FOR PLACING NEW AND REHABILITATED WATER MAINS INTO SERVICE (SWABBING, TESTING, CHLORINATION AND CONNECTION):

- Throughout this process, comply with the current MRWA Specification No.04-02: Water Quality Compliance Specification.
 - Discharged drinking water (DW) may only be discharged to open land where it will pond, to a tanker truck or to a storm water system in conjunction with adequate silt containment & environmental controls.
 - Discharged non-drinking (NDW) water may only be discharged to open land where it will pond or to a tanker truck.
 - Where there is a compelling reason, the task order may be varied from that designated below on approval from Water Agency.
- Validate the swabbing design, ensuring all swabbing is from a lower to higher elevation. If this cannot be practically achieved, ensure Water Agency acceptance is received for swabbing from a higher to lower elevation.
 - Place swabs into new mains as they are constructed in accordance with the designer's swabbing design. All swabs for mains ≥DN225 in size shall be installed within mains (these shall not be installed through hydrants).
 - Complete all construction, including any temporary chlorination assemblies (if required) and property services, excepting:
 - Short final connections between existing and new pipework, and
 - In-line butterfly divide valves, non-return valves or pressure reducing valves in pipework which would interfere with swabbing. These shall be installed in step 14.
 - Notify the relevant Water Agency of the intent to carry out testing.
 - Swab and flush all lines in the order described in the swabbing design.
 - Isolate each line prior to it being swabbed.
 - Fit any required temporary fittings as per Fig 308-F & swab discharge control units as per Figs 309-D to 309-G & Table 309-A.
 - Install swabs for ≤DN150 mains through hydrants where the swab was not installed during construction.
 - Ensure the line to be swabbed is full of water from the swab insertion point to the discharge point.
 - Swab each line, ensuring a swab velocity of 0.5 to 1.0 m/s. Record swab travel time which shall be between: [length(m) / 0.5m/s] and [length(m) / 1.0m/s]. Re-swab the main if velocity is out of range. When swabbing to a higher elevation, control swab velocity with launch point valve. When swabbing to a lower elevation, control swab velocity with the discharge point valve.
 - Check the discharged swab labels match that expected.
 - Flush the line and all associated property services until the discharged water appears free of colour and sediment beyond what exists in the source water.
 - Where discharge water fails to achieve the appearance of the source water, re-swab the line and flush it until it does.
 - Undertake dual water validation testing of NDW and DW services and ensure this is witnessed by the Water Agency.
 - Close feed and discharge valves, leaving the main pipe full and under pressure.
 - Remove any temporary charging or swabbing fittings.
 - Blank plate end of pipes or install washouts as per the Figure 308-A, 308-E, 308-F or 308-H option nominated in the design.
 - Ensure the Shut Off Block is isolated and full of water.
 - Pressure test the Shut Off Block and correct any leaks found. Where > 15m of pipe is altered, repeat step 5 for that pipework.
 - Contractors may elect to undertake their own pressure testing through the construction process to avoid this happening.
 - Before commencing to the next step, assess the time elapsed since step 5. Leaving water stagnant for long periods (more than a few days) may lead to a reduction in water quality, to the extent that some or all of step 5 may need to be repeated before steps 11 and 12 are undertaken.
 - For mains ≥DN225, chlorinate the main:
 - Install temporary chlorination equipment as per figure 308-F.
 - Chlorinate the main as per MRWA Specification No.04-02.
 - Wait the required period for the chlorine to take effect.
 - Flush out the chlorinated water, neutralizing it before it is discharged.
 - Undertake Water Quality sampling and testing as per MRWA Specification No.04-02.
 - Notify the Water Agency of any test failures and undertake any designated corrective measures. Typically, some or all of step 5 and step 12 will need to be repeated.
 - Once acceptable Water Quality test results have been achieved:
 - Construct permanent connections between existing and new pipework in accordance with Figure 308-C and 106-A to E.
 - Install any butterfly divide valves, non-return valves or pressure reducing valves which would have interfered with swabbing.
 - Place new pipeline(s) in service or, if required, notify the Water Agency to undertake this step.
 - Once all kerbs and paved surfaces are complete, install all surface fittings including appurtenances shrouds, covers & extension spindles.
 - Mark all appurtenances.
 - Provide As Constructed Information.

TABLE 309-A: SWABBING REQUIREMENTS

MAIN SIZE (DN)	SWAB DIAMETER (mm)	SWAB LENGTH (mm)	DISCHARGE CONTROL UNIT LENGTH (mm)	FLOW REQUIRED TO ACHIEVE A SWABBING VELOCITY 0.5 - 1.0 m/s		
				OPEN PIPE FLOW (l/s)	TWO HYDRANT FLOW (l/s)	THREE HYDRANT FLOW (l/s)
100 OR 125PE	150	300	NOT REQUIRED	7		
150 OR 180PE	200	350	NOT REQUIRED	15		
225 OR 280PE	300	400	1500	30		
300 OR 355PE	400	500	1600		2 x 30 = 60	
375 OR 450PE	475	550	1800			3 x 30 = 90
450 OR 560PE	550	650	2000			3 x 45 = 130
600	750	900	2600	SITE SPECIFIC PLAN REQUIRED		
750	900	1050	3200	SITE SPECIFIC PLAN REQUIRED		

NOTES Regarding Swabs:

- Swabs shall be pre-packaged, stored and handled hygienically.
- Swabs are single use only, manufactured from polyurethane foam to AS2281 & AS4020, SH or "severe hard" grade with a density of 27 to 29 kg/m³ and a static fatigue 6%.
- Swabs are to be marked with the entry point property address using a permanent marker. This is to aid swab reconciliation.
- Single swabs are acceptable for ≤DN200 mains. Two swabs are required for each swabbing run on mains > DN200.
- For mains larger than DN750, swabs shall 1.15 x Pipe ID in diameter, and 1.5 x Swab diameter in length.

DESIGNED:	R. JAGGER	DATE:	MAR 2020
DRAWN:	R. JAGGER	DATE:	MAR 2020
CHECKED:	NAME	DATE	APPROVED: NAME
<input checked="" type="checkbox"/>	CWW	G. ANTHONSEN	MAR 2020
<input checked="" type="checkbox"/>	SEWL	C. PAXMAN	MAR 2020
<input checked="" type="checkbox"/>	YVW	W. SHIMMIELD	MAR 2020

APPROVED:	NAME	DATE
<input checked="" type="checkbox"/>	CWW	J. DIPAULO
<input checked="" type="checkbox"/>	SEWL	D. O'DONOVAN
<input checked="" type="checkbox"/>	YVW	P. NGUYEN



MELBOURNE RETAIL WATER AGENCIES

MRWA WATER SUPPLY STANDARDS

SWABBING AND PLACING MAINS INTO SERVICE

NOT TO SCALE

MRWA-W-309

ISSUED 2020 | REVISION NO. 1