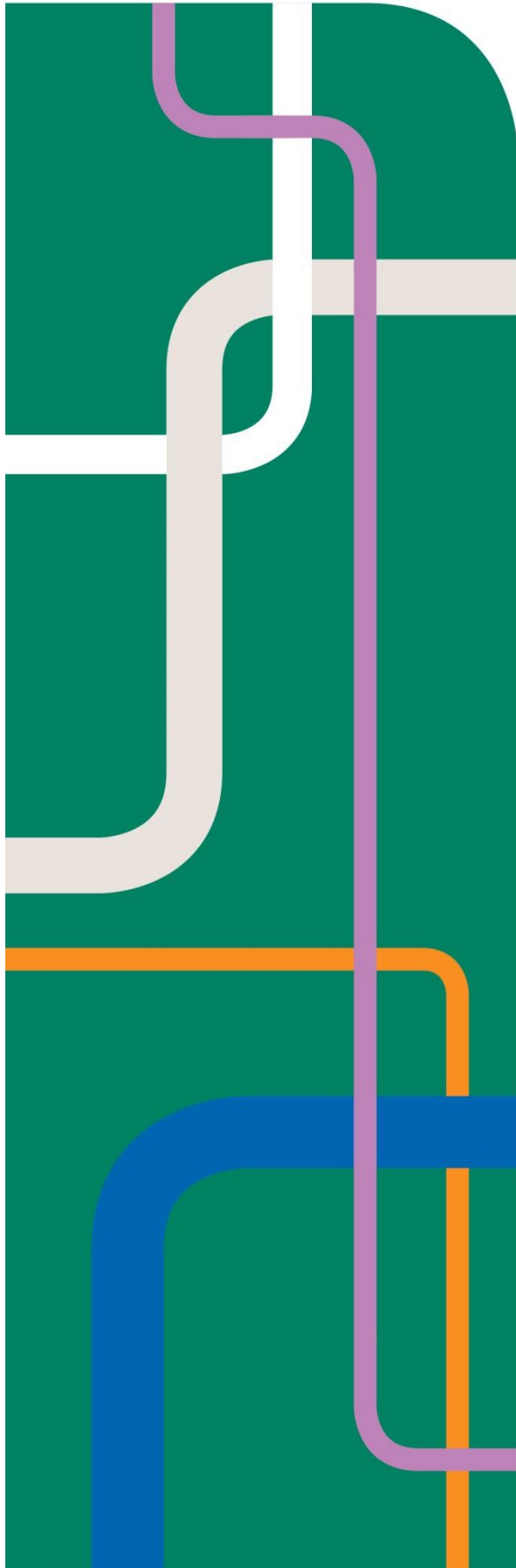




Government
of South Australia



Engineering Services

Authorised Products **TS 0507**

Pressure Sewer Systems

Revision: 1.0
Date: 08 April 2016

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Only the current revision of this Standard should be used which is available for download from the SA Water website.

Significant/Major Changes Incorporated in This Edition

This is the first issue of this Technical Standard.

The document is based upon the October 2014 edition of Authorised Items for Pressure Sewer Systems.




Document Controls

Revision History

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1 Introduction

This Document lists conforming products approved for installation within SA Water's infrastructure networks.

The products listed have been approved after their evaluation based upon the SA Water product appraisal procedure.

Approved products shall only be obtained from the listed manufacturer or their authorised agent.

1.1 Purpose

Design Consultants and Construction Contractors should use the information presented within this document for confirmation of products SA Water has authorised for use.

Product Manufacturers, suppliers and other stakeholders may also use the information as reference material.

SA Water personnel should source items from the Store. If not stocked they should procure by means of:

- utilising the relevant SA Water Period Contract or Standing Offer Arrangement,
- where an item is not covered under a Contract or Standing Offer Arrangement, contacting a relevant Stores or Procurement Officer.

1.2 Glossary

The following glossary items are used in this document:

Term	Description
BSP	British Standard Pipe
DICL	Ductile Iron Cement Clad
DN	Diameter Nominal
FBE	Fusion Bonded Epoxy
PE	Polyethylene
PVC	Polyvinyl Chloride
PVC M	Polyvinyl Chloride Modified
SA Water	South Australian Water Corporation
TG	SA Water Technical Guideline
TS	SA Water Technical Standard

1.3 References

1.3.1 Australian and International

The following table identifies Australian and International standards and other similar documents referenced in this document:

Number	Title
AS 2032	Code of practice for the installation of PVC pipe systems
AS 2033	Installation of polyethylene pipe systems
AS 2638-2	Gate valves for water works purposes
AS 3496	Metal-bodied and plastic-bodied taps
AS 3680	Polyethylene sleeving for ductile iron pipelines
AS 3681	Guidelines for the application of polyethylene sleeving to ductile iron pipelines and fittings
AS 3996	Access covers and grates
AS 4794	Non-return valves - swing check and tilting disc
AS 4795	Butterfly valves for water works purposes
AS/NZS 2280	Ductile iron pipes and fittings
AS/NZS 2648-1	Underground marking tape - non-detectable tape
AS/NZS 4129	Fittings for polyethylene pipe for pressure applications
AS/NZS 4130	Polyethylene (PE) pipes for pressure applications
AS/NZS 4765	Modified PVC (PVC-M) pipes for pressure applications
WSA 109	Flange Gaskets and O-Rings
WSA PS 260	Gate valves - resilient seated
WSA PS 262	Extension spindles for gate valves
WSA PS 263	Butterfly valves
WSA PS 264	Non-return (reflux) valves
WSA PS 275	Air Valves for Sewerage
WSA PS 312	Flange Gaskets and O-Rings
WSA PS 318	Marking tape, detectable
WSA PS 319	Marking tape, non-detectable

1.3.2 SA Water Documents

The following table identifies the SA Water standards and other similar documents referenced in this document:

Number	Title

1.4 Definitions

The following definitions are applicable to this document:

Term	Description
SA Water's Representative	The SA Water representative with delegated authority under a Contract or engagement, including (as applicable): <ul style="list-style-type: none"> • Superintendent's Representative (e.g. AS 4300 & AS 2124 etc.) • SA Water Project Manager • SA Water Contract Audit Officer • Reticulation Networks Wastewater/ Water Specialist • SA Water nominated contact person
Responsible Discipline Lead	The engineering discipline expert responsible for TS 0507 defined on page 3 (via SA Water's Representative)
Pressure Sewer System	A complete system wherein macerated sewage is conveyed under pressure generated by pumping units located on each property to a sewage treatment facility or other sewerage system.

1.5 Disclaimer

- SA Water reserves the right to alter, amend or withdraw this document, at any time, without prior notice.
- SA Water does not give preference to any particular make or type of product listed herein. Manufacturers are presented in alphabetical order, not in any order of preference.
- All products listed may be subject to change by the manufacturer. In such circumstances manufacturers are required to notify SA Water of any changes in the design, materials or manufacturing process of any approved product. SA Water is reliant upon manufacturers providing such notification in a timely manner and takes no responsibility for any issue that may arise should a manufacturer fail to do so.
- It is the responsibility of the Designer/ Constructor to ensure selected products are appropriate for the intended application.
- It is the responsibility of the Designer/ Constructor to ensure the product complies with the infrastructure category and meets the relevant Australian standards.
- It is the responsibility of the Constructor to ensure components do not exceed any expiry date.
- Product sizing may vary between manufacturers. Size range provided herein is a guide only and the Designer/ Constructor shall refer to the manufacturer for the product size and availability.
- Pipe and fitting sizing has been limited to DN 200 throughout this document. Larger sizes are available from the manufacturer. However, consideration of any product not itemised herein is subject to SA Water approval.
- Information within this document is correct at time of publication E&OE. The date of publication of this document can be found on the front page, and, in the left hand corner of the footer on each subsequent page.

2 Scope


This document specifies products that are authorised for use in Pressure Sewer Systems covered by:

- WSA 07-2007, and,
- As defined in Clause 1.4.

3 Collection Tank & Pump Unit

Note:

- SA Water has only authorised and will only accept collection tanks and pumps which are supplied as a complete unit.
This ensures compatibility of support and connection systems.
- SA Water will only allow one type/supplier of tank and pump units to be used in a development or local area, because of the difficulty in managing a maintenance and repair system for a number of different types of unit.
The maintenance group responsible for the specific locality will maintain spare pumping units and spare parts for their particular type of unit.
- SA Water shall be consulted before a tank and pump system is specified. SA Water will nominate a unit to be used for the specified locality, based on the operational requirements of the area.
- Contractors will not be permitted to install a pumping unit other than that which is shown on the issued reticulation drawings for the development.


<p>All Fittings Shall Comply With Australian Standard</p>	<p>Product Example</p> 
	<p>Aquatec</p>
	<p>E-One</p>
	<p>Xylem (ITT Flygt)</p>
	<p>Mono</p>

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4 Boundary Kit Assembly

Note:

- Boundary Kits are available as kit form from Pressure Sewer Pump manufacturers
- Sizes and end connections vary between suppliers as applicable to their units

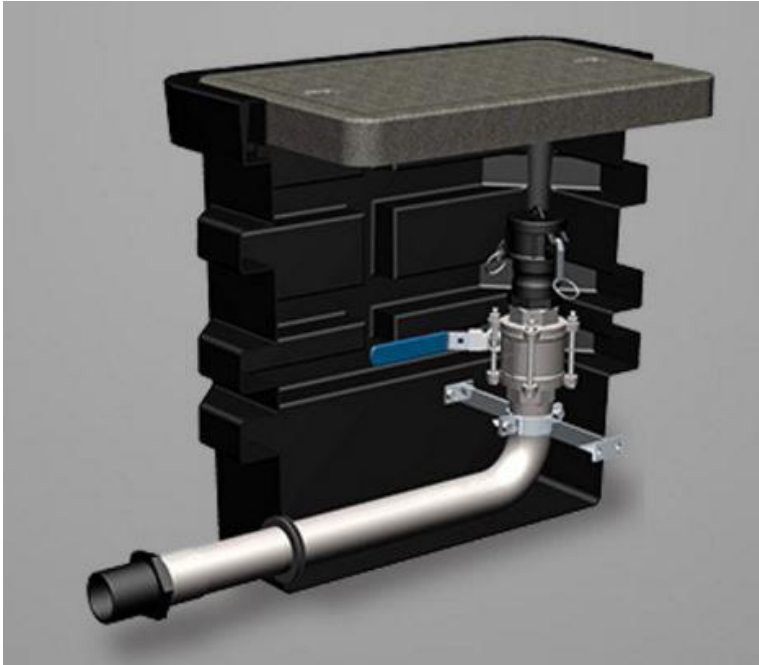
<p>All Fittings Shall Comply With Australian Standard</p>	<p>Product Example</p> 
	<p>Aquatec</p> <p>E-One</p> <p>Xylem (ITT Flygt)</p> <p>Mono</p> <p>Pressure Sewer Services</p>
<p>Manufacturer</p>	

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5 Flushing Valve Assembly

Note:


- Flushing Point Packages are available as kit form from some pump manufacturers
- External valve connection point to include a 50 mm or 100 mm (as applicable) Camlock coupling and sealing cap
- To be installed in accordance with Manufacturers and SA Water’s requirements
- Trafficable rated Covers and Boxes to be used when installed in roadways and driveways

<p>All Fittings Shall Comply With Australian Standard</p>	<p>Product Example</p> 
	<p>DN 50 - 200</p>
<p>Manufacturer</p>	<p>Aquatec</p>
	<p>George Fischer</p>
	<p>Iplex AVK</p>
	<p>Pressure Sewer Services</p>
	<p>Viadux</p>

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6 Pipes

6.1 PVC Pressure Pipe

All Fittings Shall Comply With Australian Standard	Modified PVC (PVC M)	AS 2032 AS/NZS 4765		
Specification	Series 2 (CIOD), PN16			
Notes	Modified PVC (PVC M)	<ul style="list-style-type: none"> If cream coloured pipe is not available, (normally blue) coloured pipe shall be sleeved using a cream coloured sleeving with wording stating PRESSURE SEWER All pipe connections shall be Rubber Ring Jointed (RRJ) 	 <p>DN 100 - 200</p>	
Manufacturers	Damos	PVC M	DN 100 – DN 250	
	Iplex	PVC M	BLUE Rhino	
	Key Plastics	PVC M	DN 100 – DN 200	
	Micron Pipelines	PVC M	DN 100 – DN 200	
	Pipemakers	PVC M	Enviromain	DN 100 & DN 150 Only
	Viadux	PVC M	Tuf-flo	DN 100 – DN 200
	Vinidex	PVC M	Hydro BLUE	

Note:

The following requirements shall be met if utilising plastic pipe in a pressure sewer system:

- Minimum pressure rating PN16
- Socket/Spigot Rubber Ring Joint (RRJ) pipe
- Thrust and anchor blocks are installed
- Applicable external corrosion protection systems are used
- Other general requirements specific for the pipe are employed
- PVC-O and GRP pipe may also be utilised but final selection must be confirmed with SA Water prior to installation.

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6.2 Polyethylene Pressure Pipe

Note:

- A detectable underground warning tape shall be laid on top of the embedment material and above the polyethylene pipe to allow the pipe to be located in the future

All Fittings Shall Comply With Australian Standard	AS 2033 AS/NZS 4129 AS/NZS 4130	
Specification	PE80 Pipe Type B-PN16 or PE100 Pipe – PN16	
Notes	Solid CREAM (preferred) or BLACK with CREAM stripe	OD 40, 50, 63, 90, 110, 125, 180 & 250
Manufacturers	Cromford Pipe (AFPM)	
	DM Plastics and Steel	
	Iplex	
	Poly Pipe	
	Vinidex	
	Zekt	

6.3 Ductile Iron Pipe

All Fittings Shall Comply With Australian Standard	AS 3680 AS 3681 AS/NZ 2280	
Specification		
Notes	<ul style="list-style-type: none"> • Ductile Iron Cement Lined (DICL) pipes can only be used with specific approval from SA Water • Cream sleeving marked with PRESSURE SEWER • Use of this type of pipe is to be approved by SA Water representative 	DN 80 - 200
Manufacturers	Viadux	Used with Tyton Lok Sealing Ring
	Von Roll	Used with Tyton Lok underground warning tape Ecopur

7 Fittings

7.1 Ductile Iron

NOTE:

- Only ductile iron fittings that are internally and externally FBE coated are permitted for use. Cement lined fittings are not to be used.
- The current range of Non cement lined, FBE coated ductile iron fittings as shown in the Approved Products for Mains Water Document are acceptable for use in a pressure sewer system.

7.2 Polyethylene

7.2.1 Electrofusion Fittings

All Fittings Shall Comply With Australian Standard	AS/NZS 4129 Only PE products identified in this document are approved for use. In addition, the products shall be obtained from one of the listed Manufacturers, or his Agent.
Specification	Items shall only be fabricated by welders who have attained the PMBWELD301B qualification.
Notes	Upon completion, the Fabrication Company shall provide the SA Water Representative with a Form : <ul style="list-style-type: none"> • Identifying every weld, with the date of the weld and name and id of the technician who undertook the weld • Itemising the materials used, ie item manufacturer & description. • Each weld shall be stamped with the welder id. • The Form shall be signed by an authorised officer of the Fabrication Company and shall be co-signed by the Construction Contractor installing the item.

.NOTE:

- Electrofusion of PE couplings is the preferred method of jointing
- Only factory butt welding is permitted
- Fabrication of PE pipe Specials by SA Water approved PE welders
- Diameters larger than OD 250 shall require SA Water approval.

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Standard Pipe Size	PE Pipe Equivalent	
DN 100	125 mm OD	
DN 150	180 mm OD	
DN 200	250 mm OD	
<p>All Fittings Shall Comply With Australian Standard</p> <p>AS/NZS 4129</p>		


<p>Manufacturers</p>	<p>George Fischer</p>	
	<p>Philmac</p>	<p>Friatec</p>
	<p>Plasson</p>	<p>Smartfuse</p>
	<p>FusionPlast (Fusionweld)</p>	<p>Flex Tee & Multi Seal</p>
	<p>Rollmaplast</p>	

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7.2.2 Mechanical Jointing

DN 25 - 110	
Notes	PE fittings with male threaded end connectors shall not be screwed directly into pre tapped connectors or tapping saddles
Manufacturers	George Fischer
	Magnum (Iplex)
	Philmac
	Plasson
	Plast (Fusion Plast)

7.3 Brass

All Fittings Shall Comply With Australian Standard	
Specification	
Notes	
Manufacturers	

Brass 20 mm BSP M – 25 Poly Tube


8 Valves

Note:



- Only clockwise closing valves are to be used on manually closed valves

8.1 Segregating Valves DN 20 – DN 50

8.1.1 Brass with BSP End Connections



All Fittings Shall Comply With Australian Standard	AS 3496	 <p>DN 25 - 50</p>	
	Manufacturer	<p>Galvin</p> <p>Wadhams</p>	

8.1.2 DI with BSP End Connections

All Fittings Shall Comply With Australian Standard	AS 2638-2 WSA PS 260	 <p>Series 03/0X DN 20 - 50</p>	 <p>Series 03/4 or 03/6 DN 20 - 50</p>
		Manufacturer	<p>AVK (Iplex)</p>



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8.1.3 DI or POM with PE End Connections

All Fittings Shall Comply With Australian Standard	AS 2638-2 WSA PS 260		
		Series 03/30 OD25 - 63	Series 16/50 OD25 – 63 POM
Manufacturer	AVK (Iplex)		


8.2 Resilient Seat Gate Valves

8.2.1 PE Connection Ends


All Fittings Shall Comply With Australian Standard	AS 2638-2 WSA PS 260		
		Series 01/70 PE OD90 – 250	Series 36/80 PE OD75 - 250
		Tensile resistant PE ends – restrained joints	Fusions or butt weld applications
Manufacturer	AVK (Iplex)		

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8.2.2 Double Flanged


All Fittings Shall Comply With Australian Standard	AS 2638-2 WSA PS 260	 DN 80 - 200	
Specification	1.6 MPa unless otherwise specified		
Notes	Square Drive & Clockwise Closing		
Manufacturers	AVK (Iplex) (Series 57/40 1.6MPa) (Series 57/80 2.5 MPa)		
	Betta Valves		
	Crevet Pipelines		
	P.S.A (Turnflo)		
Viadux			

8.3 Butterfly Valves

All Fittings Shall Comply With Australian Standard	AS 4795 WSA PS 263	 DN 80 - 200	
Notes	<ul style="list-style-type: none"> • ONLY LUGGED OR DOUBLE FLANGED BUTTERFLY VALVES ARE TO BE USED FOR THIS APPLICATION • Not for use as inline isolation valve • Primarily used as an isolating valve for removal and repair of Gas/Air Release valves • Gearbox not required for this application 		
Manufacturers	AVK (Iplex)		
	Keystone (Viadux)		



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8.4 Swing Check Valves

All Fittings Shall Comply With Australian Standard	AS 4794 WSA PS 264	 <p>DN 80 - 200</p>
Specification	<ul style="list-style-type: none"> • Not for buried applications • Resilient Seated 	
Manufacturers	AVK (Iplex)	
	Crevet Pipelines	
	Tyco Water	
	Viadux	


8.5 Gas / Air Release Valves

All Fittings Shall Comply With Australian Standard	WSA PS 275
Specification	
Notes	To be mounted in above or below ground chamber


<p>ARI</p>  <p>Mod. D-020</p> <p>DN 50 - 200</p>	<p>Vent Master</p>  <p>DN 80 - 200</p>	<p>Vent-o-mat</p>  <p>Series RGX</p> <p>DN 50 - 200</p>
Manufacturer		
Amaid ARI	PIHA Vent Master	Vent-O-Mat

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8.6 Camlock Couplings


<p>All Fittings Shall Comply With Australian Standard</p>	<p>AS 2638 WSA PS 262</p>	<div style="text-align: center;">  <p>DN 50 - 100</p> </div>
<p>Notes</p>	<ul style="list-style-type: none"> • Metal or Polyethylene • Coupling (Type F) with BSP male thread • Dust Cap (Type DC) 	
<p>Manufacturers</p>	<p>Austrahose</p>	
	<p>Philmac</p>	
	<p>Banjo</p>	

8.7 Valve Spindle Extension

<p>All Fittings Shall Comply With Australian Standard</p>	<p>AS 2638 WSA PS 262</p>	<div style="text-align: center;">  <p>Length 150, 300 & 450</p> </div>
<p>Manufacturers</p>	<p>Iplex</p>	
	<p>Hadaway</p>	
	<p>Viadux</p>	

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8.8 Jointing Kits

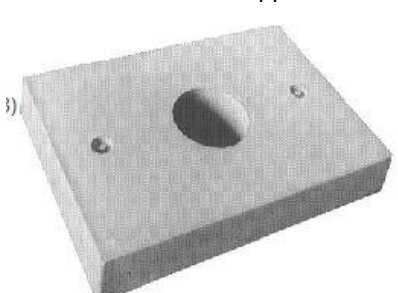

All Fittings Shall Comply With Australian Standard	WSA 109 WSA PS 312	 <p>DN 50 - 200</p>
Specification	Includes EPDM Gasket Plus Bolts, Nuts & Washers to suite	
Notes	Fasteners Range: <ul style="list-style-type: none"> • 316 stainless steel • Galvanised • High tensile steel 	
Manufacturers		
PN16 1.6 MPa Flanges	Iplex	
	Keystone (Viadux)	

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8.9 Valve Covers

8.9.1 Trafficable

All Fittings Shall Comply With Australian Standard	AS 3996
Specification	
Notes	


<p>Trafficable Cover Support Slab</p> 	<p>Full Height</p> 
<p>1200 x 800 x 170 Class "D"</p>	<p>Lid to be maked SEWER</p>
Manufacturer	
Bianco Precast	Bianco Precast
Cooke Pre-Cast Concrete	Cooke Pre-Cast Concrete
Webforge	Webforge

8.9.2 Non Trafficable


<p>Valve Cover system Small Non Trafficable</p> 	<p>Non-Trafficable Cover Support Ring</p> 	<p>Half Height</p> 
	<p>600 Ø x 140 Thick</p>	<p>Lid to be maked SEWER</p>
Manufacturer		
	Bianco Precast	
	Cooke Pre-Cast Concrete	
	Webforge	
Iplex Crevet		
Viadux		

8.10 Air Valve Covers

8.10.1 Trafficable

All Fittings Shall Comply With Australian Standard	AS 3996	 <p>DN 900, 1050 & 1200</p>
Specification	Class "D"	
Notes		
Manufacturers		
Bianco Precast		
Cooke Pre-Cast Concrete		
Webforge		


8.10.2 Non Trafficable

All Fittings Shall Comply With Australian Standard	AS 3996	 <p>DN 900, 1050 & 1200</p>
Specification	Class "B"	
Notes		
Manufacturers		
Bianco Precast		
Cooke Pre-Cast Concrete		
Webforge		


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9 Signs & Marking Tape

9.1 Metal Markers

Notes	Text:	
	<ul style="list-style-type: none"> • Pressure Sewer Stop Valve • Pressure Sewer Flushing Point • Pressure Sewer Air Valve 	
Manufacturer	Ottoway Engineering	
	Peninsular Castings	

9.2 Marking Tape

All Fittings Shall Comply With Australian Standard	AS/NZS 2648.1 WSA PS 318 WSA PS 319	
Specification	<ul style="list-style-type: none"> • Sewer tapes are to be CREAM • 'WARNING: RESTRAINED PIPELINE TYTON LOK FITTINGS' – Non Detectable • 'DANGER BURIED MAIN BELOW' – Non Detectable • 'DANGER BURIED MAIN BELOW' –Detectable 	
Notes	Detectable tape to be placed 100 – 150 mm below finished ground level above pipe	
Manufacturer	Boddingtons	
	Heatech	
	Romac Trading	
	Tapex	
	Viadux	

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