

## StormPRO®

A premium stormwater solution for non-pressure drainage applications



Lightweight

Superior performance/material - compared to traditional pipe material

Easy to handle - Cost effective to install

Simple & effective joints

Adapts to soil movement

Domestic or industrial applications

Used in aggressive or saline soils

High chemical resistance

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## INTRODUCTION

Vinidex StormPRO® provides the stormwater markets with a modern pipe and fittings system for non-pressure drainage applications.

StormPRO® pipes are twin-wall, corrugated polypropylene pipes for non-pressure applications, manufactured in accordance with AS/NZS 5065.

Utilising modern co-extrusion techniques, StormPRO® is manufactured with a smooth bore for optimum hydraulic performance and a corrugated outside wall for high stiffness to weight ratio.

StormPRO® pipes combine the strength and toughness of advanced polypropylene materials with a structured wall design.

StormPRO® has its own fittings specially designed for stormwater needs, providing a cost-effective system for drainage applications.

Vinidex StormPRO® can be installed in trafficable areas including under road pavements and non-trafficable areas. StormPRO® is sensitive to the environment, with its material efficient design reducing raw material usage, long life and recyclability at the end of life contributing to reduced environmental needs.

StormPRO® is less likely to crack than rigid pipe, resulting in less leakage and consequential environmental issues.

## APPLICATIONS

- Roads – infrastructure, stormwater, asset renewal
- Rail – stormwater run-off
- Mining – stormwater and aggressive ground
- Rural – culverts and land drainage
- Land development – residential and industrial

# Why choose StormPRO®

- A full premium system solution up to DN900
- Superior material performance
- Lower total installed cost
- Light weight product, easy to handle
- Less heavy lifting equipment required
- Pipes easy to cut and join



## **Benefits of StormPRO® Jointing**

- Reduced jointing forces
- Ease of jointing
- Enhanced joint performance under adverse soil movement and deflection conditions
- Effective rubber ring design

## **Pipes easy to cut**

### **Optimum hydraulic performance**

- Smooth inner skin for hydraulic flow
- Surface is resistant to build up

### **Can be used in aggressive or saline soils, sensitive to the environment**

### **Light internal colour to facilitate video inspection**

## **StormPRO® fittings, accessories and tools**

- Polypropylene (PP), Polyethylene (PE) and Polyvinyl Chloride (PVC) materials are used in PRO fittings
- All pipe and fittings are SN8 minimum
- Vinidex offers a range of adaptors to connect to other non PRO Vinidex systems.
- Vinidex also offers fittings, accessories and tools specifically designed for StormPRO® applications.
- The PROgrommet is a quick and easy system to install 100mm and 150mm connections to StormPRO pipe.
- The PROsaw has been specifically designed to accommodate the PRO rib height and for simple installation of the PROgrommet.
- Special fittings can also be made to order, contact Vinidex for more information.

## PRODUCT RANGE

Vinidex StormPRO® pipes are used for stormwater applications. StormPRO® has a black coloured corrugated outside surface and a smooth light grey interior.

Each length of StormPRO® pipe is supplied with the rubber rings required for jointing. StormPRO® pipe is available in standard rubber ring jointed spigot/socket configuration (Sp/So) and comes in 3m and 6m as standard lengths. Other lengths available on request. Please see below tables for Product Data.

### StormPRO® Pipe Range 3 & 6m Lengths



Vinide Code	Nominal Size (mm)	Effective Length (m)	Approx. Weigh (kg/length)	Crate Quantity	Semi Truck Load	B-Double ruck Load
<b>6m Range</b>						
29456	225	5.99	18.9	12	144	216
29458	300	5.94	31.2	6	72	108
29460	375	5.93	48.0	4 or 6	60	90
29471	450	5.95	72.1	2	40	60
29473	525	5.89	93.5	2	32	48
29475	600	5.85	120.5	3	18	27
29418	750	5.92	187.5	2	12	18
29419	900	5.91	256.7	2	8	12
<b>3m Range - call for availability</b>						
29485	225	2.92	10.0	12	288	432
29406	300	2.88	15.5	6	144	216
29407	375	2.87	24.0	4 or 6	120	180
29482	450	2.86	36.9	2	80	120
29453	525	2.80	46.2	2	64	96
29484	600	2.76	59.7	3	36	54
29454	750	2.82	92.8	2	24	36
29405	900	2.81	135.7	2	16	24

Note: Rubber Rings supplied with all pipes and fittings. Lubricants are also supplied with pipes. Additional rubber rings may be ordered if required.

### PRO2® Rubber Rings



Vinidex Code	Nominal Size (mm)	Type	Crate Quantity
83420	150	EPDM	240
83401	225	EPDM	100
83444	300	EPDM	50
83445	375	EPDM	20
83446	450	EPDM	12
83447	525	EPDM	10
83448	600	EPDM	10
83426	750	Spigot Ring EPDM	10
83391	900	Spigot Ring EPDM	8

Note: Rubber Rings are normally supplied with all pipes and fittings. Additional rubber rings may be ordered if required.

### PRO2® Rubber Rings for use with Slip Couplings



Vinidex Code	Nominal Size (mm)	Type	Crate Quantity
83416	750	EPDM	5
83417	900	SBR	3

Note: Rubber Rings are normally supplied with all pipes and fittings. Additional rubber rings may be ordered if required.

### Plain Couplings



Vinidex Code	Nominal Size (mm)	Material	Stiffness (SN)	Carton Quantity
30568	150	PVC	8	8
30320	225	PVC	8	2
30321	300	PVC	8	1
30322	375	PVC	8	1
30323	450	PP	8	1
30324	525	PP	8	1
30325	600	PP	8	1

### Slip Couplings



Vinidex Code	Nominal Size (mm)	Material	Stiffness (SN)	Carton Quantity
30450	150	PVC	8	8
30451	225	PVC	8	3
30452	300	PVC	8	1
30453	375	PVC	8	1
30454	450	PE	8	1
30455	525	PE	8	1
30456	600	PE	8	1
30457	750	PP	8	1
30458	900	PP	8	1

## 15° Bends



Vinidex Code	Nominal Size (mm)	Material	Angle (°)	Stiffness (SN)	Type	Carton Quantity
30245	150	PVC	15	8	FF	1
30238	225	PVC	15	8	FF	1
30247	300	PVC	15	8	FF	1
30248	375	PVC	15	8	FF	1

## 22.5° Bends



Vinidex Code	Nominal Size (mm)	Material	Angle (°)	Stiffness (SN)	Type	Carton Quantity
30249	150	PVC	22.5	8	FF	3
30250	225	PVC	22.5	8	FF	1
30251	300	PVC	22.5	8	FF	1
30252	375	PVC	22.5	8	FF	1

## 30° Bends



Vinidex Code	Nominal Size (mm)	Material	Angle (°)	Stiffness (SN)	Type	Carton Quantity
30253	150	PVC	30	8	FF	1
30254	225	PVC	30	8	FF	1
30255	300	PVC	30	8	FF	1
30256	375	PVC	30	8	FF	1
30477	450	PP	30	8	MF	1
30319	600	PP	30	8	MF	1

## 45° Bends



Vinidex Code	Nominal Size (mm)	Material	Angle (°)	Stiffness (SN)	Type	Carton Quantity
30548	150	PP	45	8	FF	8
32571	225	PVC	45	8	FF	1
32580	300	PVC	45	8	FF	1
32592	375	PVC	45	8	FF	1
32416	450	PP	45	8	MF	1
32418	525	PP	45	8	MF	1
32420	600	PP	45	8	MF	1
30555	750	PP	45	8	MF	1
30556	900	PP	45	8	MF	1

## 88° Bends



Vinidex Code	Nominal Size (mm)	Material	Angle (°)	Stiffness (SN)	Type	Carton Quantity
30539	150	PP	88	8	FF	4
32572	225	PVC	88	8	FF	1
32581	300	PVC	88	8	FF	1
32593	375	PVC	88	8	FF	1
32417	450	PP	88	8	MF	1
32419	525	PP	88	8	MF	1
32421	600	PP	88	8	MF	1
30546	750	PP	88	8	MF	1
30547	900	PP	88	8	MF	1

## 45° Junctions



Vinidex Code	Nominal Size (mm)	Material	Angle (°)	Stiffness (SN)	Type	Carton Quantity
30490	150	PP	45	8	FF	3
32574	225 x 150	PVC	45	8	FF	1
32575	225	PVC	45	8	FF	1
32583	300 x 150	PVC	45	8	FF	1
32584	300 x 225	PVC	45	8	FF	1
32585	300	PVC	45	8	FF	1
32595	375 x 150	PVC	45	8	FF	1
32596	375 x 225	PVC	45	8	FF	1
32597	375 x 300	PVC	45	8	FF	1
32598	375	PVC	45	8	FF	1
32388	450 x 150	PP	45	8	MF	1
32389	450 x 225	PP	45	8	MF	1
32390	450 x 300	PP	45	8	MF	1
32391	450 x 375	PP	45	8	MF	1
32387	450	PP	45	8	MF	1
32392	525	PP	45	8	MF	1
32393	600	PP	45	8	MF	1
30512	750	PP	45	8	MF	1
30513	900	PP	45	8	MF	1

## 45° Junctions – Adaptor to PVC DWV



Vinidex Code	Nominal Size (mm)	Material	Angle (°)	Stiffness (SN)	Type	Jointing	Carton Quantity
32607	225 x 100	PVC	45	8	FF	SWJ	1
30364	225 x 100	PVC	45	8	FF	RRJ	1



## 88° Junctions



Vinidex Code	Nominal Size (mm)	Material	Angle (°)	Stiffness (SN)	Type	Carton Quantity
30461	150	PP	88	8	FF	3
32576	225 x 150	PVC	88	8	FF	1
32577	225	PVC	88	8	FF	1
32586	300 x 150	PVC	88	8	FF	1
32587	300 x 225	PVC	88	8	FF	1
32588	300	PVC	88	8	FF	1
32599	375 x 150	PVC	88	8	FF	1
32600	375 x 225	PVC	88	8	FF	1
32601	375 x 300	PVC	88	8	FF	1
32602	375	PVC	88	8	FF	1
32407	450 x 150	PP	88	8	MF	1
32404	450 x 225	PP	88	8	MF	1
32405	450 x 300	PP	88	8	MF	1
32406	450 x 375	PP	88	8	MF	1
32403	450	PP	88	8	MF	1
32408	525	PP	88	8	MF	1
32409	600	PP	88	8	MF	1
30486	750	PP	88	8	MF	1
30487	900	PP	88	8	MF	1

## 90° Stormwater Elbows



Vinidex Code	Nominal Size (mm)	Material	Angle (°)	Stiffness (SN)	Type	Carton Quantity
32573	225	PVC	90	8	FF	1
32582	300	PVC	90	8	FF	1
32594	375	PVC	90	8	FF	1

## Tees



Vinidex Code	Nominal Size (mm)	Material	Stiffness (SN)	Type	Carton Quantity
30519	150	PP	8	FF	3
32578	225 x 150	PVC	8	FF	1
32579	225	PVC	8	FF	1
32589	300 x 150	PVC	8	FF	1
32590	300 x 225	PVC	8	FF	1
32591	300	PVC	8	FF	1
32603	375 x 150	PVC	8	FF	1
32604	375 x 225	PVC	8	FF	1
32605	375 x 300	PVC	8	FF	1
32606	375	PVC	8	FF	1
32436	450 x 150	PP	8	MF	1
32437	450 x 225	PP	8	MF	1
32438	450 x 300	PP	8	MF	1
32439	450 x 375	PP	8	MF	1
32435	450	PP	8	MF	1
32441	525	PP	8	MF	1
32442	600	PP	8	MF	1
30533	750	PP	8	MF	1
30534	900	PP	8	MF	1

## Inspection Tees



Vinidex Code	Nominal Size (mm)	Material	Stiffness (SN)	Type	Carton Quantity
30514	150 x 150	PP	8	FF	3
30515	225 x 150	PVC	8	FF	1
30516	300 x 150	PVC	8	FF	1
30517	375 x 150	PVC	8	FF	1

## Push On Caps



Vinidex Code	Nominal Size (mm)	Material	Stiffness (SN)	Carton Quantity
30557	150	PP	8	36
30558	225	PP	8	14
30593	300	PVC	8	4
30594	375	PVC	8	2
30592	450	PP	10	1
30337	525	PP	10	1
30338	600	PP	10	1

## Level Invert Tapers (LIT)



Vinidex Code	Nominal Size (mm)	Material	Stiffness (SN)	Type	Carton Quantity
30342	225 x 150	PVC	8	FF	1
32608	300 x 150	PVC	8	FF	1
30152	300 x 225	PVC	8	FF	1
32611	375 x 225	PVC	8	FF	1
30153	375 x 300	PVC	8	FF	1

## Level Invert Tapers (LIT) PRO Spigot to PVC DWV SCJ Socket



Vinidex Code	Nominal Size (mm)	Material	Carton Quantity
65090	150x100	PVC	20

## Adaptor Couplings – PRO Socket to PVC SCJ Socket



Vinidex Code	Nominal Size (mm)	Material	Stiffness (SN)	Carton Quantity
30583	150	PVC	8	8
30584	225	PVC	8	3
30585	300	PVC	8	1
30586	375	PVC	8	1

## Adaptor Couplings – PRO Socket to PVC RRJ Socket



Vinidex Code	Nominal Size (mm)	Material	Stiffness (SN)	Carton Quantity
30446	150	PVC	8	8
30447	225	PVC	8	2
30448	300	PVC	8	1

## Adaptor Couplings – PRO Spigot to PVC SCJ Socket



Vinidex Code	Nominal Size (mm)	Material	Carton Quantity
65112	150	PVC	7

## 90° PRO Saddles



Vinidex Code	Nominal Size (mm)	Carton Quantity
30155	225 x 100	1
30156	300 x 100	1
30157	375 x 100	1
30158	450 x 100	1
30213	450 x 150	1
30159	525 x 100	1
30160	600 x 100	1
30165	300 x 150	1
30166	375 x 150	1
30167	525 x 150	1
30168	600 x 150	1

## PRO Grommets



Vinidex Code	Nominal Size (mm)	Type	Carton Quantity
30220	225/300 100	EPDM/PVC	30
30221	375/450/525 100	EPDM/PVC	25
30222	300/375 150	EPDM/PVC	10
30223	375/450/525 150	EPDM/PVC	1
30224	600/750/900 150	EPDM/PVC	1

(For use with StormPRO® Only)

## PRO Saw



PROsaw 100-127mm



PROsaw 150-182mm

Vinidex Code	Type	Nominal Size (mm)
30231	100 Diameter - 127 PROsaw	100
30232	150 Diameter - 182 PROsaw	150

## Rubber Ring Jointing Lubricant



Vinidex Code	Quantity	Min. (Pack) Quantity	Carton Quantity
82393	500g	1	18
82395	1kg	1	12
82396	2kg	1	5
82397	4kg	1	4

Lubrication per Joint		
Diameter	Approx. Joints/500ml	Approx. Joints/1kg
225	13	26
300	9	18
375	8	16
450	6	12
525	5	10
600	4	8

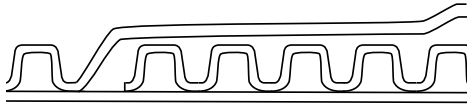
## PRODUCT DATA

### Pipe Dimensions

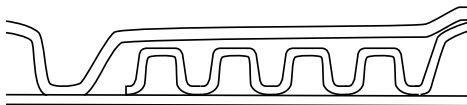
A schematic of the wall profile is shown in Figure A and significant dimensions are given in Table 1.

#### FIGURE A: WALL PROFILE

##### DN150 to 600



##### DN750 to 900



\*reduced spigot

## DIMENSIONS & EFFECTIVE LENGTHS

StormPRO® is available in spigot/socket configuration (Sp/So) in 6 & 3m lengths.

The effective length of pipes is the overall length minus the insertion depth into the socket. The effective lengths of StormPRO® are also given in Table 1.

Note: Nominal overall lengths are longer than effective length due to socket length.

TABLE 1: STORMPRO® PIPE DIMENSIONS

Nom. Dia.	Mean Pipe Outside Dia.	Mean Pipe Internal Dia.	Profile Pitch	Min. Profile Thickness	Inner Wall Thickness	Approx. Pipe Mass StormPRO	Length (Sp/So) Effective Length	Number of Pipes per crate
(mm)	(mm)	(mm)	(mm)	(mm)	(e)	(kg/length)	(m)	
225	259	226	26.2	1.5	1.6	10	2.92	12
300	343	300	34.9	1.85	2.0	16	2.88	6
375	428	374	44.9	2.3	2.4	25	2.87	4 or 6
450	514	448	52.8	2.8	3.1	38	2.86	2
525	600	523	66.0	3.2	3.5	49	2.80	2
600	682	596	75.4	3.7	3.9	62	2.76	3
750	835	731	88.0	4.6	5.0	98	2.82	2
900	999	873	105.6	5.2	5.7	134	2.81	2
225	259	226	26.2	1.5	1.6	19	5.99	12
300	343	300	34.9	1.85	2.0	31	5.94	6
375	428	374	44.9	2.3	2.4	48	5.93	4 or 6
450	514	448	52.8	2.8	3.1	72	5.95	2
525	600	523	66.0	3.2	3.5	94	5.89	2
600	682	596	75.4	3.7	3.9	121	5.85	3
750	835	731	88.0	4.6	5.0	190	5.92	2
900	999	873	105.6	5.2	5.7	260	5.91	2

**Joint Details**

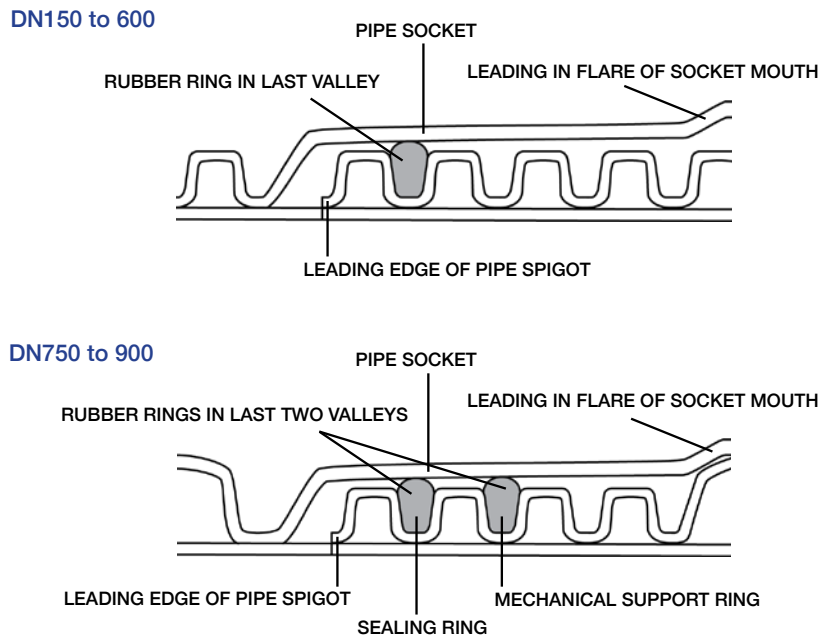
StormPRO® pipes have a simple and effective rubber ring joint system which is easy to assemble, leak-tight and protects against tree root intrusion.

For DN150 to DN600 pipes the rubber ring is located on the spigot in the last valley between the corrugations.

For DN750 and DN900 pipes with reduced spigots, two rings are used and are located in the last two valleys. The ring in the last valley is the sealing ring whereas the second ring is a mechanical support ring which has the dual benefit of providing redundant sealing capacity.

The Figure below shows the joint details in cross section.

**FIGURE B: JOINT CROSS SECTION**



**CHEMICAL RESISTANCE**

StormPRO® polypropylene pipes are resistant to corrosion by aggressive soils and substances typically found in stormwater runoff, including most industrial discharges. Therefore, the question of chemical resistance is likely to arise only if the pipes are used in unusual circumstances.

Chemical resistance is affected by concentration, temperature, period of contact and stress. Polypropylene is resistant to weak inorganic acids, organic acids, alcohols, ammonia and oxidising salts and has limited resistance to aliphatic hydrocarbons, esters, ketones and ethers.

Applications where high concentrations of salt water (saline water/sodium chloride) are present will not affect polypropylene.

Vinidex PRO fittings are manufactured from PVC, PP or PE, depending on size and configuration. These plastics materials have been proven in drainage applications for over 50 years.

Pollution control measures mean that these plastics materials can be safely used in any stormwater network, including in industrial areas. Polypropylene is generally not recommended for aromatic and halogenated hydrocarbons.

For more details or to check resistance to specific chemicals, refer to the Vinidex Chemical Resistance Guide on our website.

## TEMPERATURE

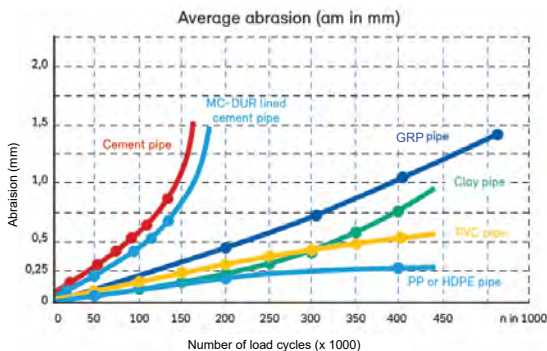
StormPRO® pipes have high temperature resistance. Continuous service temperatures of up to 60°C and short term applications of up to 90°C will not adversely affect the performance.

## WEATHERING RESISTANCE

StormPRO® pipes are manufactured from compounds containing additives which ensure their resistance to ultraviolet light and weathering during handling and storage.

## ABRASION RESISTANCE

StormPRO® pipes and in particular polypropylene have excellent abrasion resistance as well as stress crack resistance.



Abrasion resistance of various pipe materials determined using the Uarmstadt abrasion test.

## MANUFACTURE

StormPRO® pipes incorporate the latest manufacturing technology using continuous polypropylene dual extrusion combined with a vacuum controlled corrugating process. The twin-wall structure consists of simultaneously extruded smooth inner wall and corrugated outer wall. At the valley of each corrugation, where the inner and outer walls meet, the two surfaces are fused together for the full circumference of the pipe.

## STANDARDS

StormPRO® pipes are manufactured in accordance with AS/NZS 5065: "Polyethylene and Polypropylene pipes and fittings for drainage and sewerage applications", complying with the dimensional requirements of Type B pipes ID series.

AS/NZS 5065 classifies pipes according to their minimum ring-bending stiffness in short term laboratory tests.

This is a measure of the ability of a pipe to resist deformation due to an external load. Stiffness classes are identified by an SN number where a higher number indicates greater resistance to deflection.

StormPRO® pipes are classified as SN8 with a minimum stiffness of 8,000 N/m.m.

## MATERIAL PROPERTIES

TABLE 2: TYPICAL MATERIALS OF PROPERTIES OF STORMPRO®

Property	Value	Standard	
Polypropylene (PP) pipe compound	block copolymer		
Density	900kg/m <sup>3</sup>	ISO 1183	
Flexural modulus	1700MPa	ISO 178	
Creep ratio (2 years)	3	ISO 9967	
Pipe ring bending stiffness StormPRO®	8,000N/m.m	AS/NZS 1462.22	
Coefficient of thermal expansion	15 x 10 <sup>-5</sup> /°C	ISO 11359-2	
Tensile stress at yield (50mm/min)	31 MPa	ISO 527-2	
Tensile strain at yield (50mm/min)	8%	ISO 527-2	
Poisson's ratio	0.45	ISO 527-2	
Charpy impact strength - notched	(+23)	50kJ/m <sup>2</sup>	ISO 179-1
	(-20)	5 kJ/m <sup>2</sup>	ISO 179-1
Shore D hardness	60	ISO 868	
Melt flow rate	0.3g/10min	ISO 1133	
Melting point	130-170°C		

## INSTALLATION

Please refer to our StormPRO® installation guide to provide general information for the safe installation, maintenance and repair of Vinidex StormPRO® pipes. For more detailed information refer to AS/NZS 2566.2 "Buried flexible pipelines. Part 2: Installation".

For correctly designed and installed StormPRO® systems, the service life can be expected to be at least 100 years before major rehabilitation is required.

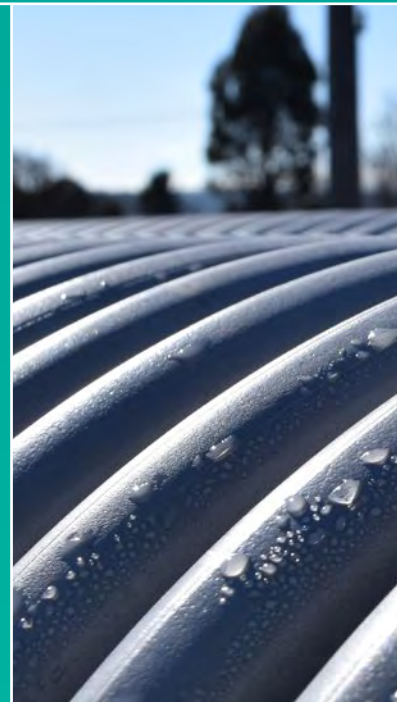
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