



Pipe Lining & Coating Pty Ltd

PRODUCT APPRAISAL REPORT 1830 Issue 3

PLC FUSIONKOTE® Steel Pressure Pipe and Fittings

AS 1579:2001 Arc-welded steel pipes and fittings for water and wastewater

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Peer Reviewers

Name/Title	Organisation	Date
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WSAA Expert Panel	WSAA	26 May 2019
Peter Pittard, WSAA Consultant	WSAA	26 May 2019
Ashley Fletcher, WSAA Consultant	WSAA	18 June 2019
Carl Radford, Product Appraisal Manager	WSAA	20 June 2019
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Carl Radford, Product Appraisal Manager	WSAA	18 September 2019
Peter Pittard, WSAA Consultant	WSAA	16 July 2024
Carl Radford, Product Appraisal Manager	WSAA	18 July 2024

Overview of WSAA

The Water Services Association of Australia (WSAA) is the peak industry body representing the urban water industry. Our members provide water and sewerage services to over 20 million customers in Australia and New Zealand and many of Australia's largest industrial and commercial enterprises.

Based around our vision of 'customer driven, enriching life', WSAA facilitates collaboration, knowledge sharing, networking and cooperation within the urban water industry. We are proud of the collegiate attitude of our members which has led to industry-wide approaches to national water issues.

WSAA can demonstrate success in the standardisation of industry performance monitoring and benchmarking, as well as many research outcomes of national significance. The WSAA Executive retains strong links with policy makers and legislative bodies and their influencers, to monitor emerging issues of importance to the urban water industry.

WSAA was formed in 1995 as a non-profit organisation to foster the exchange of information between industry, government and the community, and to promote sustainable water resource management.

The urban water industry is committed to anchoring its services to customers' values, and to enrich communities where water services have broad economic, environmental and social values. In line with this our main activities focus on four areas:

1. influencing national and state policies on the provision of urban water services and sustainable water resource management
2. promoting debate on environmentally sustainable development and management of water resources and the community health requirements of public water supplies
3. improving industry performance and establishing benchmarks and industry leading practices for water service processes; and
4. fostering the exchange of information on education, training, research, water and wastewater management and treatment and other matters of common interest.

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1 EXECUTIVE SUMMARY

Pipe Lining & Coating Pty Ltd (PLC) is a leading Australian specialist manufacturer and supplier of mild steel pipes and fittings.

This appraisal is for a range of PLC FUSIONKOTE® mild steel pipes and fittings manufactured in accordance with AS 1579:2001 – *Arc-welded steel pipes and fittings for water and wastewater* for use in water supply and pressure sewerage systems.

This Issue 3 is a replacement for the previous version of the appraisal which had reached its 5-year expiry date.

The pipes and fittings are available in sizes ranging from 168mm OD to 3624mm OD with wall thicknesses ranging from 5mm to 30mm and pressure ratings up to 6.8MPa (depending on size). Pipe is supplied in standard lengths of 6, 9 or 12 metres, or as requested by customers.

PLC steel pipe and fittings are available with FUSIONKOTE fusion bonded polyethylene (FBPE) coating and either FBPE lining or cement mortar lining. A limited range of alternative coatings and linings can also be provided on request.

Seal coating is not included in the scope of this Appraisal.

Joining systems include plain ends for weld collar joints, bevelled ends for on-site butt-welded joints, stainless steel spigot band or FBPE coupling wraparound to facilitate jointing to ductile iron pipe sockets or couplings, spherical slip joints (SSJ) and flanged joints.

Fittings including bends, tees and reducers may be manufactured to standard PLC designs and lengths or to specific customer design requirements.

Pipe shells are sourced from Cangzhou Spiral Steel Pipe Group Co Ltd in China or manufactured in house by PLC at their Rutherford NSW facility. Coating and lining is completed by PLC.

Both PLC and Cangzhou holds an ISO 9001:2015 Quality Management System Licence.

The steel pipes and fittings have ISO Type 5 StandardsMark Product Certification to AS 1579:2001 *Arc-welded steel pipes and fittings for water and wastewater*.

This Appraisal has determined that PLC steel pipe and fittings, as detailed in this report, meet the requirements of WSA PS-203 – *Steel Pipes for Pressure and Non-pressure Applications – Drinking Water, Non-Drinking Water Supply and Sewerage* and WSA PS-204 – *Steel Fittings for Pressure and Non-pressure Applications – Drinking Water, Non-Drinking Water Supply and Sewerage* and are considered as 'fit-for-purpose'.

1.1 Recommendations

It is recommended that WSAA members, subject to any specific requirements of the member, accept or authorise PLC FUSIONKOTE pipes and fittings as detailed in this report for use in water supply reticulation networks and pressure sewerage applications including vacuum sewerage, provided pipeline design, manufacture, installation, acceptance testing and commissioning are in accordance with applicable Australian Standards, WSAA Codes and the manufacturer's recommendations.

2 THE APPLICANT

The applicant is Pipe Lining & Coating Pty Ltd.

2.1 The Manufacturer

Pipe Lining & Coating Pty Ltd (PLC) is a leading Australian specialist manufacturer and supplier of mild steel pipes and fittings.

PLC has manufacturing facilities in Rutherford NSW and has more than 30 years of history in supplying steel pipeline products and services for raw water, drinking water, irrigation,

wastewater, and sewer applications in the water, irrigation, mining, building, and process industries.

Pipe shells are either sourced from sub-suppliers Cangzhou Spiral Steel Pipe Group Co Ltd, located in Cangzhou City, Hebei Province, China or manufactured in-house by PLC at their Rutherford facility.

The application of cement mortar lining and fusion bonded polyethylene (FBPE) coating and lining is carried out by PLC at their Rutherford facility.

3 THE PRODUCT

This appraisal is for a range of PLC FUSIONKOTE mild steel pipes and fittings manufactured in accordance with AS 1579:2001 – *Arc-welded steel pipes and fittings for water and wastewater* for use in water supply and pressure sewerage systems. Pipes are manufactured by butt welded spiral weld or longitudinal and circumferential weld complying with welding standard AS/NZS 1554.1:2014.

The pipe and fittings are available in sizes ranging from 168mm OD to 3624mm OD with wall thicknesses ranging from 5mm to 30mm and with pressure ratings up to 6.8MPa (depending on size). PLC pipe is supplied in standard lengths of 6, 9 or 12 metres, or as requested by customers.

PLC steel pipe and fittings are available with FUSIONKOTE fusion bonded polyethylene (FBPE) coating and either FBPE lining or cement mortar lining. A limited range of alternative coatings and linings can also be provided on request.

Fusion bonded polyethylene (FBPE) coating and lining complies with AS 4321 and cement mortar lining complies with AS 1281.

General Purpose Portland Cement (GP) or Sulphate Resistant Cement (SR) is used for raw, drinking and non-drinking water, Calcium (High) Aluminate Cement (CAC) or FBPE is used for sewage and aggressive waters. (See WSAA TN6)

Seal coating is not included in the scope of this Appraisal.

Joining systems include plain ends for weld collar joints, bevelled ends for on-site butt-welded joints, stainless steel spigot band or FBPE coupling wraparound to facilitate jointing to ductile iron pipe sockets or couplings, spherical slip joints (SSJ) and flanged joints.

The mild steel shells are manufactured as follows:

- (a) 559mm OD to 3624mm OD longitudinal and circumferential welded pipe is manufactured by PLC, located in Rutherford NSW. The pipes are manufactured using steel grade 250-350 to AS/NZS 3678:2011 Structural steel - *Hot-rolled plates, floorplates and slabs*, are 100% non-destructively tested and are non-hydrostatically tested pipe.
- (b) 168mm OD to 2200mm OD spiral welded pipe is manufactured by Cangzhou using steel grade HU300 to AS/NZS 1594:2002 *Hot-rolled steel flat products*, supplied by Ling Yuan Iron & Steel Co Ltd. The pipes are hydrostatically tested by Cangzhou. Cangzhou, an API accredited mill, does not have product certification. All heats of steel for Cangzhou pipe is tested in Australia by a NATA certified laboratory for chemical and mechanical properties to AS/NZS 1594 and verified by Bureau Veritas Australia.

Fittings including bends, tees and reducers may be manufactured to standard PLC designs and lengths or to specific customer design requirements. Fittings are manufactured from pipes complying with AS 1579.

4 SCOPE OF THE APPRAISAL

This Scope of this appraisal includes PLC FUSIONKOTE mild steel pipe and fittings as described in Section 3 and included in the ISO Type 5 StandardsMark Product Certification Schedule attached in Appendix B.

5 APPRAISAL CRITERIA

5.1 Quality Assurance Requirements

The WSAA Product Appraisal Technical Advisory Group accepts steel pipe and fittings manufactured in compliance with AS 1579:2001 *Arc-welded steel pipes and fittings for water and wastewater* and duly certified by means of an ISO Type 5 product certification scheme undertaken by a JAS-ANZ accredited Conformity Assessment Body (CAB) or by an international accreditation system recognised by JAS-ANZ.

The manufacturer is generally expected to have a production management and control system that has been duly accredited in accordance with AS/NZS ISO 9001 as a prerequisite to undergoing a product certification audit.

The ISO Type 5 Product Certification Scheme shall meet the criteria described in WSA TN-08.

5.2 Performance Requirements

PLC FUSIONKOTE pressure pipe and fittings have been appraised for compliance with AS 1579:2001 *Arc-welded steel pipes and fittings for water and wastewater*.

Appraisal criteria are also determined by the WSAA Product Appraisal Technical Advisory Group and regularly reviewed to ensure that the criteria reflect the requirements of WSAA members.

The following Product Specifications are relevant to this application:

- WSA PS-203 – *Steel Pipes for Pressure and Non-pressure Applications – Drinking Water, Non-Drinking Water Supply and Sewerage.*
- WSA PS-204 – *Steel Fittings for Pressure and Non-pressure Applications – Drinking Water, Non-Drinking Water Supply and Sewerage.*

A copy of the Product Specification is available at the following link:

<https://www.wsaa.asn.au/shop/product/76476>

6 COMPLIANCE WITH APPRAISAL CRITERIA

6.1 Compliance with Quality Assurance Requirements

Pipe Lining & Coating Pty Ltd has submitted the following quality certificates:

- ISO 9001:2015 Certificate of Registration No. QEC 11122 issued to Pipe Lining & Coating Pty Ltd by Intertek SAI-Global.
- ISO 9001:2015 Certificate of Registration No. 11421Q45339R4M issued to Cangzhou Spiral Steel Pipes Group Co Ltd by Beijing East Allreach Certification Center.
- AS 1579:2001 ISO Type 5 StandardsMark Product Certification Licence No. SMK 02349 issued to Pipe Lining & Coating Pty Ltd by SAI-Global.

Copies of the Quality Assurance and Product Certification licences have been included in Appendix B and are also available from WSAA.

6.2 Compliance with Performance Requirements

6.2.1 Steel

PLC manufactures pipe and fittings from analysis or structural grade hot rolled steel complying with AS/NZS 1594:2002 or AS/NZS 3678:2011.

Fittings are made from pipe complying with AS 1579 or fabricated from structural steel complying with AS/NZS 1594:2002 or AS/NZS 3678:2011. Pipe manufactured in accordance with API Specification 5L may also be used for branches only – as is allowed in AS 1579.

The rated pressure of hydrostatically tested pipe is based on 72% of steel yield strength, being either the specified minimum yield strength (SMYS) or nominal minimum yield strength (NMYS) as specified in AS 1579. Welding is carried out in accordance with AS/NZS 1554.1:2014 Category SP. Pipe welds are produced using at least one internal pass and one external pass.

6.2.2 Type Testing

AS 1579, AS 4321 and AS 1281 call up a range of tests for steel pipes and fittings and their linings and coatings.

AS 1579 tests include marking, effect on water, material properties, welding procedure qualification, dimensions, flanged joints, welded joints, non-hydrostatically tested pipe-NDT of welds, hydrostatic pressure testing, NDT of welds in fittings, joint dimensions and joint assembly tests.

AS 4321 tests include PE compound composition, PE reinstatement compound composition, thermal stability, water absorption, penetration resistance, tensile stress at yield, ESCR, density, impact resistance, water absorption, adhesion to steel, adhesion to PE coating, effect on water, cathodic disbondment, surface preparation and thickness.

AS 1281 tests include cement compliance, aggregate compliance, chloride content, admixture material properties, laitance thickness, lining thickness, surface quality and setback.

PLC has provided copies of test reports to demonstrate compliance with the nominated type test requirements.

6.2.3 Contact with drinking water

PLC has submitted test reports from Australian Water Quality Centre (NATA Accreditation No. 1115) to demonstrate compliance of the following materials with AS/NZS 4020:2018.

- FUSIONKOTE (FBPE): Report No. 346694 dated 16th September 2022.
- Cement Mortar: Report No. 338493 dated 8th April 2022.
- AV Protectit CML repair mix: Report No. 317355 dated 16th August 2021.
- Tankguard 412 Epoxy Repair for FBPE: Report No. 329137 dated 14th January 2022.

7 PIPE & FITTING INSTRUCTIONS, TRAINING AND INSTALLATION

FUSIONKOTE pressure pipe has been a commonly used product in the water industry for many years. Installation instructions are available directly from PLC.

8 PRODUCT MARKING

FUSIONKOTE pipes and fittings are marked in accordance with the requirements of the appropriate standards:

- (a) The place of manufacture
- (b) Serial number
- (c) Pipe size. Outside Diameter x Wall Thickness x Length
- (d) Pressure classification
- (e) Date Lined/Manufactured
- (f) Standard e.g., AS 1579, AS 4321, AS 1281

9 PACKAGING AND TRANSPORTATION

PLC provides information on transportation, handling and storage. Agencies should ensure that pipe is inspected when delivered to site to ensure that there has been no transport damage caused by movement and abrasion to the coating.

Pipes are delivered by road transport and delivered directly to site, unless requested otherwise by customers.

10 PRODUCT WARRANTY

The products are covered by the normal commercial and legal requirements of the *Competition and Consumer Act 2010 (Cth)*, which covers manufacture to the relevant standard, and details of Pipe Lining and Coating Pty Ltd's warranty is included in the Terms and Conditions of Sale.

11 WATER AGENCY EXPERIENCE WITH THE PRODUCT OR FIELD TESTING REPORT

Numerous examples of projects where PLC FUSIONKOTE MSCL pipes were provided for this Appraisal. The pipes have been used successfully by many water agencies over many years and therefore a field trial was not deemed necessary.

12 OUTCOMES OF EXPERT PANEL PRODUCT REVIEW

No issues have been raised.

13 FUTURE WORKS

No future works have been identified.

14 DISCLAIMER

This Product Appraisal Report (Report) is issued by the Water Services Association of Australia Limited on the understanding that:

This Report applies to the product(s) as submitted. Any changes to the product(s) either minor or major shall void this Report.

To maintain the recommendations of this Report any such changes shall be detailed and notified to the Product Appraisal Manager for consideration and review of the Report and appropriate action. Appraisals and their recommendations will be the subject of continuous review dependent upon the satisfactory performance of products.

WSAA reserves the right to undertake random audits of product manufacture and installation. Where products fail to maintain appraised performance requirements the appraisal and its recommendations may be modified and reissued. Appraisal reports will be reviewed and reissued at regular intervals not exceeding five (5) years.

The following information explains a number of very important limits on your ability to rely on the information in this Report. Please read it carefully and take it into account when considering the contents of this Report.

Any enquiries regarding this report should be directed to the Program Manager, Carl Radford, email carl.radford@wsaa.asn.au.

14.1 Issue of Report

This Report has been published and/or prepared by the Water Services Association of Australia Limited and nominated Project Manager and peer group of technical specialists (the Publishers).

The Report has been prepared for use within Australia only by technical specialists that have expertise in the function of products such as those appraised in the Report (the Recipients).

By accepting this Report, the Recipient acknowledges and represents to the Publisher(s) and each person involved in the preparation of the Report that the Recipient has understood and accepted the terms of this Disclaimer.

14.2 Limits on Reliance on Information and Recommendations

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The information and any recommendation contained (expressly or by implication) in this Report are provided in good faith (and subject to the limitations noted in this Report). However, you should treat the information as indicative only. You should not rely on that information or any such recommendation except to the extent that you reach an agreement to the contrary with the Publisher(s).

This Report does not contain all information that a person might require for the purposes of assessing any product discussed or appraised within it (Product). The product appraisal criteria used in preparing this Report may not address all relevant aspects of the Product.

Recipients should seek independent evidence of any matter which is material to their decisions in connection with an assessment of the Product and consult their own advisers for any technical information required. Any decision to use the Product should take into account the reliability of that independent evidence obtained by the Recipient regarding the Product.

Recipients should also independently verify and assess the appropriateness of any recommendation in the Report, especially given that any recommendation will not take into account a Recipient's particular needs or circumstances.

WSAA has not evaluated the extent of the product liability and professional indemnity insurance that the provider of the product maintains. Recipients should ensure that they evaluate the allocation of liability for product defects and any professional advice obtained in relation to the product or its specification including the requirements for product liability and professional indemnity insurance.

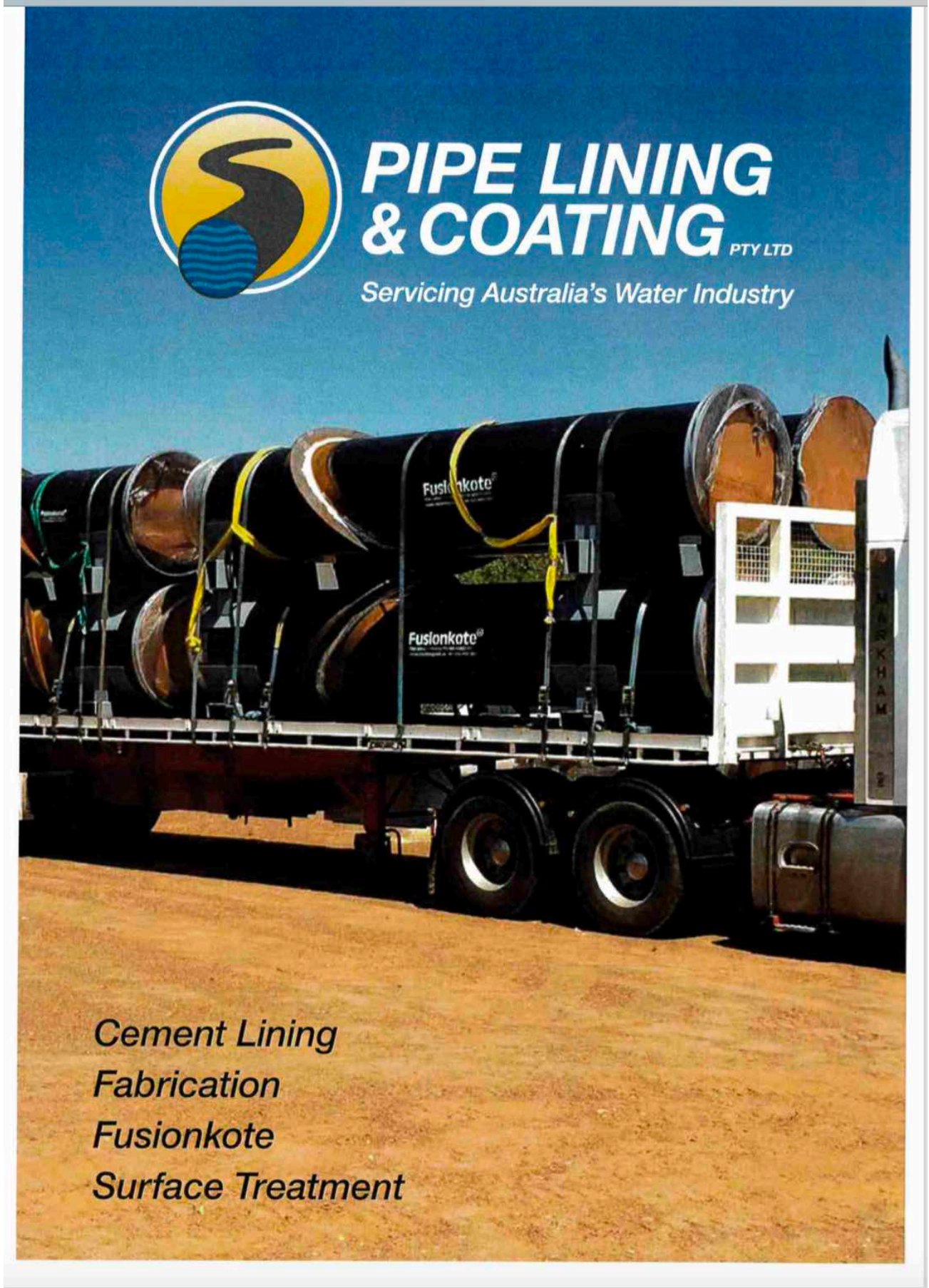
14.3 No Updating

Neither the Publisher(s) nor any person involved in the preparation of this Report [has] [have] any obligation to notify you of any change in the information contained in this Report or of any new information concerning the Publisher(s) or the Product or any other matter.

14.4 No Warranty

The Publisher(s) do[es] not, in any way, warrant that steps have been taken to verify or audit the accuracy or completeness of the information in this Report, or the accuracy, completeness or reasonableness of any recommendation in this Report.

APPENDIX A - PRODUCT LITERATURE



*Cement Lining
Fabrication
Fusionkote
Surface Treatment*



SERVICING AUSTRALIA'S WATER INDUSTRY FOR OVER 25 YEARS

PIPE AND FITTINGS

PLC specialises in the manufacture of fabricated pipes and fittings for the Water Industry, our experience includes the following listed items and customised requirements to meet client's specific needs.

- Lobster back bends
- Tees, equal and reducing
- Wye branches and bifurcations
- Concentric and eccentric reducers
- Manifolds and headers
- Dismantling joints and Expansion joints
- Structural attachments, supports, lifting lugs, weld collar bands and thrust/weep flanges

PIPE MANUFACTURE

PLC also has the capacity of manufacturing rolled and welded pipes for various applications including water pipelines, ventilation shafts, piling and casing. Our rolled and welded pipe production has the capabilities of up to 24 metre lengths and up to 2,4 metre diameter. Piling and casing can be produced up to 6,0 metre diameter x 3 metre width and subsequently assembled up to 24m lengths or as legally transportable.



STOCK MATERIAL

As a service to our customers and to support short delivery times, PLC maintains a stock holding of Spiral Welded Steel Pipe DN100-DN600 AS1579-2001/AS1594 HU300 and Forged Steel Flanges PN16 N80-DN1200 AS4087.





MOBILE CEMENT LINING PLANT

PLC's mobile cement lining plant is the only plant of its kind in Australia. Developed and commissioned after several expressions of interest from clients, the on-site cement lining of large remote pipeline projects eliminates the transport, storage and handling problems sometimes encountered. The mobile cement lining plant has the capability to internally line pipes ranging from 100NB to 2200NB and can be located with minimal site preparation making for ease of commissioning/ decommissioning and site rehabilitation on completion of the project.

The mobile cement lining plant has successfully completed two major pipeline projects. For both projects, the site for the plant set up was a waterfront location where environmental impact was a major factor. Water recycling was incorporated into the plant wash down system allowing PLC the option to reuse the water around the site for various applications including airborne dust control, and solid waste was removed and delivered to concrete recyclers. Both projects were completed on schedule and budget and facilitated client free issue pipe supply.

MSCL PIPES AND SPECIAL FITTINGS

PLC specialises in the centrifugal cement mortar lining of pipes. The capacity range of our Rutherford plant is 100NB to 2400NB in diameter in 6,9 and 12 metre lengths, applied to AS1281-2001. Complex fittings and configurations are completed using hand applied cement mortar linings and ends can be tapered to suit valve clearances or matched up to existing pipework internal diameters.

SURFACE TREATMENT

PLC offers alternate surface treatment coating systems to suit client's needs. All forms of paint systems to suit environmental and corrosion requirements including High Build Epoxy for both external and internal applications. Our surface treatment facility includes an 18m L x 4.8m W x 4.8m H blast chamber and continuous Wheelabrator grit blasting for up to 2m diameter Pipes.

All external and internal coatings are tested to Customer / Australian Standards.

FUSIONKOTE®

Fusionkote is a Fusion Bonded Medium Density Polyethylene (FBMDPE) coating developed by PLC. Upon receiving Australian Standard Certification to AS4321:2001 in December 2014, Fusionkote has found a highly receptive market and offers our Water Industry clients an independent and alternative source for this industry preferred coating system.

Fusionkote can be applied to all pipeline configurations including complex fittings and is high voltage continuity tested.

APPENDIX B - QUALITY CERTIFICATIONS

Copies of the following Quality Certificates are also available from WSAA.

TABLE B1 PIPE LINING & COATING PTY LTD – MANAGEMENT SYSTEMS

53 Gardiner Street Rutherford NSW 2320	
Quality Systems Standard	ISO 9001:2015
Certification licence no.	QEC11122
Certifying agency	Intertek SAI Global
First date of certification	7 October 1998
Current date of certification	3 July 2024
Expiry date of certification	4 July 2027

TABLE B2 CANGZHOU SPIRAL STEEL PIPE GROUP CO LTD – MANAGEMENT SYSTEMS

92 Jiefang East Road, Xinhua District, Cangzhou City	
Quality Systems Standard	ISO 9001:2015
Certification licence no.	11421Q45339R4M
Certifying agency	Beijing East Allreach Certification Center
First date of certification	9 December 2009
Current date of certification	12 August 2021
Expiry date of certification	11 August 2024

TABLE B3 PIPE LINING & COATING PTY LTD – PRODUCT CERTIFICATION

53 Gardiner Street Rutherford NSW 2320	
Product Standard/Spec	AS 1579:2001
Certificate No.	SMK02349
Certifying agency	SAI Global
First date of certification	9 May 2001
Current date of certification	25 January 2021
Expiry date of certification	17 May 2026



CERTIFICATE OF REGISTRATION

This is to certify that:

Pipe Lining & Coating Pty Ltd

ABN 84 002 752 490

53 Gardiner Street Rutherford NSW 2320 AUSTRALIA

operates a

QUALITY MANAGEMENT SYSTEM

which complies with the requirements of

ISO 9001:2015

for the following scope

The fabrication and surface treatment of plain carbon alloy and stainless steel pipes, fittings and structures. Surface treatments include abrasive blasting, painting, metallising, tape wrapping, cement lining, epoxy coating and fusion bonded medium density polyethylene.

Certificate Number:

QEC11122

Originally Certified:

7 October 1998

Current Certification:

3 July 2024

Issue Date:

3 July 2024

Expiry Date:

4 July 2027



Calin Moldovean
President, Business Assurance

SAI Global Certification Services Pty. Ltd.
Level 7 Suite 7.01 45 Clarence Street
Sydney NSW 2000
Australia

Registered by:

SAI Global Certification Services Pty Ltd (ACN 108 716 669) Level 7 Suite 7.01 45 Clarence Street Sydney NSW 2000 Australia with SAI Global Pty Limited Level 7 Suite 7.01 45 Clarence Street Sydney NSW 2000 Australia ("SAI Global") and subject to the SAI Global Terms and Conditions for Certification. While all due care and skill was exercised in carrying out this assessment, SAI Global accepts responsibility only for proven negligence. This certificate remains the property of SAI Global and must be returned to SAI Global upon its request. To verify that this certificate is current please refer to SAI Global On-Line Certification register at <http://register.sai-global.com/>





Certificate

Certificate No.: 11421Q45339R4M

This is to certify that the Quality Management System of

CANGZHOU SPIRAL STEEL PIPES GROUP CO., LTD

Unified Social Credit Code: 91130900601212826W

No. 92 Jiefang East Road, Xinhua District, Cangzhou City, Hebei Province, China

Has been audited to conform to the following Quality Management System standard

GB/T19001-2016/ISO9001:2015

The Applicable Scope

The manufacturing of SSAW steel pipe within the qualification scope

Date of initial issuance: Dec. 09, 2009

Date of issuance: Aug. 12, 2021

Date of expiry: Aug. 11, 2024

Issued by: *Wu Fengru*



Beijing East Allreach Certification Center Co., Ltd.



中国认可
国际互认
管理体系
MANAGEMENT SYSTEM
CNAS C114-M

The certificate will remain valid only if the certified organization accepts surveillance audit at regular intervals and is audited to be qualified. The information of this certificate is available at EACC website (www.eacc.com.cn) and CNCA's official website (www.cnca.gov.cn), and it's also available by scanning the QR Code in the lower right corner.

EACC address: 1st Floor, No. 121 building, No. 17, Jingshengnansi Street, Jinqiao Science & Technology Industrial Base, Tongzhou Park of Zhongguancun Science & Technology Zone, Tongzhou District, Beijing 101102





STANDARDSMARK LICENCE

SAI Global hereby grants:

Pipe Lining & Coating Pty Ltd

ABN 84 002 752 490

53 Gardiner Street, Rutherford, NSW 2320, Australia

StandardsMark Licence

Manufactured to:

AS 1579-2001 - Arc-welded steel pipes and fittings for water and waste-water

"the StandardsMark Licensee" the right to use the STANDARDSMARK as shown below only in respect of the goods described and detailed in the Schedule which are produced by the Licensee or on behalf of the Licensee* and which comply with the appropriate Standard referred to above as from time to time amended. The Licence is granted subject to the rules governing the use of the STANDARDSMARK and the Terms and Conditions for certification and licence. The Licensee covenants to comply with all the Rules and Terms and Conditions.

Licence No: SMK02349

Issued : 25 January 2021

Expires : 17 May 2026

Originally Certified : 9 May 2001

Current Certification : 25 January 2021

Frank Camatsa
Global Head of Technical Services
SAI Global Assurance



* For details of manufacture, refer to the licensee

The STANDARDSMARK is a registered certification trademark of SAI Global Pty Limited (A.C.N. 050 644 642) and is issued under licence by SAI Global Certification Services Pty Limited (ACN 108 716 669) ("SAI Global") 680 George Street, Sydney NSW 2000, GPO Box 5420 Sydney NSW 2001. This certificate remains the property of SAI Global and must be returned to SAI Global upon its request. Refer to www.saiglobal.com, for the list of product models.



SCHEDULE TO STANDARDSMARK LICENCE

SAI Global hereby grants:

Pipe Lining & Coating Pty Ltd

53 Gardiner Street, Rutherford, NSW 2320, Australia

StandardsMark Licence

Manufactured to:

AS 1579-2001 - Arc-welded steel pipes and fittings for water and waste-water

Model identification of the goods on which the STANDARDSMARK may be used:

Model Identification	Model Name	Brand Name	Product Description	Product Type	Material Designation	Nominal Size (DN)	Outside Diameter (mm)	Wall Thickness (mm)	Rated Pressure (MPa)	Coating Designation	Lining Designation	Joint Designation	Date Endorsed
N/A	PLC	PLC	Pipework & Fittings	Pipe, bends, tees, reducers	AS/NZS 1579	3600	3624	12 - 30	3	Uncoated, or fusion bonded medium density polyethylene (AS4321) or tape wrapped or painted	Cement lined (AS1281), painted (epoxy lined), unlined	Plain, bevelled butt or flanged ends	11 Aug 2015
N/A	PLC	PLC	Pipework & Fittings	Pipe, bends, tees, reducers	AS/NZS 1579	3200	3224	12 - 30	3	Uncoated, or fusion bonded medium density polyethylene (AS4321) or tape wrapped or painted	Cement lined (AS1281), painted (epoxy lined), unlined	Plain, bevelled butt or flanged ends	11 Aug 2015
N/A	PLC	PLC	Pipework & Fittings	Pipe, bends, tees, reducers	AS/NZS 1579	2800	2824	12 - 30	3	Uncoated, or fusion bonded medium density polyethylene (AS4321) or tape wrapped or painted	Cement lined (AS1281), painted (epoxy lined), unlined	Plain, bevelled butt or flanged ends	11 Aug 2015
N/A	PLC	PLC	Pipework & Fittings	Pipe, bends, tees, reducers	AS/NZS 1579	2550	2582	12 - 30	3	Uncoated, or fusion bonded medium density polyethylene (AS4321) or tape wrapped or painted	Cement lined (AS1281), painted (epoxy lined), unlined	Plain, bevelled butt or flanged ends	11 Aug 2015
N/A	PLC	PLC	Pipework & Fittings	Pipe, bends, tees, reducers	AS/NZS 1579	2400	2424	12 - 16	3	Uncoated, or fusion bonded medium density polyethylene (AS4321) or tape wrapped or painted	Cement lined (AS1281), painted (epoxy lined), unlined	Plain, bevelled butt or flanged ends	11 Aug 2015

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SCHEDULE TO STANDARDSMARK LICENCE

Model Identification	Model Name	Brand Name	Product Description	Product Type	Material Designation	Nominal Size (DN)	Outside Diameter (mm)	Wall Thickness (mm)	Rated Pressure (MPa)	Coating Designation	Lining Designation	Joint Designation	Date Endorsed
N/A	PLC	PLC	Pipework & Fittings	Pipe, bends, tees, reducers	AS/NZS 1579	2000	2032	12 - 16	3	Uncoated, or fusion bonded medium density polyethylene (AS4321) or tape wrapped or painted	Cement lined (AS1281), painted (epoxy lined), unlined	Plain, bevelled butt or flanged ends	11 Aug 2015
N/A	PLC	PLC	Pipework & Fittings	Pipe, bends, tees, reducers	AS/NZS 1579	1800	1829	10 - 16	3	Uncoated, or fusion bonded medium density polyethylene (AS4321) or tape wrapped or painted	Cement lined (AS1281), painted (epoxy lined), unlined	Plain, bevelled butt or flanged ends	11 Aug 2015
N/A	PLC	PLC	Pipework & Fittings	Pipe, bends, tees, reducers	AS/NZS 1579	1600	1626	10-16	3	Uncoated, or fusion bonded medium density polyethylene (AS4321) or tape wrapped or painted	Cement lined (AS1281), painted (epoxy lined), unlined	Plain, bevelled butt or flanged ends	11 Aug 2015
N/A	PLC	PLC	Pipework & Fittings	Pipe, bends, tees, reducers	AS/NZS 1579	1400	1422	10-16	3	Non bonded medium density polyethylene or tape wrapped or fusion bonded medium density polyethylene or tape wrapped or painted	Cement lined (AS1281), painted (epoxy lined), unlined	Plain, bevelled butt or flanged ends	11 Aug 2015
N/A	PLC	PLC	Pipework & Fittings	Pipe, bends, tees, reducers	AS/NZS 1579	1200	1219	8-16	3	Uncoated, or fusion bonded medium density polyethylene (AS4321) or tape wrapped or painted	Cement lined (AS1281), painted (epoxy lined), unlined	Plain, bevelled butt or flanged ends	11 Aug 2015
N/A	PLC	PLC	Pipework & Fittings	Pipe, bends, tees, reducers	AS/NZS 1579	1050	1064	8 - 16	3	Uncoated, or fusion bonded medium density polyethylene (AS4321) or tape wrapped or painted	Cement lined (AS1281), painted (epoxy lined), unlined	Plain, bevelled butt or flanged ends	11 Aug 2015
N/A	PLC	PLC	Pipework & Fittings	Pipe, bends, tees, reducers	AS/NZS 1579	1000	1016	8 - 16	3	Uncoated, or fusion bonded medium density polyethylene (AS4321) or tape wrapped or painted	Cement lined (AS1281), painted (epoxy lined), unlined	Plain, bevelled butt or flanged ends	11 Aug 2015
N/A	PLC	PLC	Pipework & Fittings	Pipe, bends, tees, reducers	AS/NZS 1579	900	914	8 - 16	3	Uncoated, or fusion bonded medium density polyethylene (AS4321) or tape wrapped or painted	Cement lined (AS1281), painted (epoxy lined), unlined	Plain, bevelled butt or flanged ends	11 Aug 2015

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Model Identification	Model Name	Brand Name	Product Description	Product Type	Material Designation	Nominal Size (DN)	Outside Diameter (mm)	Wall Thickness (mm)	Rated Pressure (MPa)	Coating Designation	Lining Designation	Joint Designation	Date Endorsed
NIA	PLC	PLC	Pipework & Fittings	Pipe, bends, tees, reducers	AS/NZS 1579	800	813	6 - 16	3	Uncoated, or fusion bonded medium density polyethylene (AS4321) or tape wrapped or painted	Cement lined (AS1281), painted (epoxy lined), unlined	Plain, bevelled butt or flanged ends	11 Aug 2015
NIA	PLC	PLC	Pipework & Fittings	Pipe, bends, tees, reducers	AS/NZS 1579	750	762	6 - 16	3	Uncoated, or fusion bonded medium density polyethylene (AS4321) or tape wrapped or painted	Cement lined (AS1281), painted (epoxy lined), unlined	Plain, bevelled butt or flanged ends	11 Aug 2015
NIA	PLC	PLC	Pipework & Fittings	Pipe, bends, tees, reducers	AS/NZS 1579	700	711	6 - 16	3	Uncoated, or fusion bonded medium density polyethylene (AS4321) or tape wrapped or painted	Cement lined (AS1281), painted (epoxy lined), unlined	Plain, bevelled butt or flanged ends	11 Aug 2015
NIA	PLC	PLC	Pipework & Fittings	Pipe, bends, tees, reducers	AS/NZS 1579	600	610	6.4 - 16	3	Uncoated, or fusion bonded medium density polyethylene (AS4321) or tape wrapped or painted	, or fusion bonded medium density polyethylene or tape wrapped or painted Cement lined (AS1281), painted (epoxy lined), unlined	Plain, bevelled butt or flanged ends	11 Aug 2015
NIA	PLC	PLC	Pipework & Fittings	Pipe, bends, tees, reducers	AS/NZS 1579	500	508	6.4 - 16	3	Uncoated, or fusion bonded medium density polyethylene (AS4321) or tape wrapped or painted	Cement lined (AS1281), painted (epoxy lined), unlined	Plain, bevelled butt or flanged ends	11 Aug 2015
NIA	PLC	PLC	Pipework & Fittings	Pipe, bends, tees, reducers	AS/NZS 1579	500	457	6.4 / 9.5	3	Uncoated, or fusion bonded medium density polyethylene (AS4321) or tape wrapped or painted	Cement lined (AS1281), painted (epoxy lined), unlined	Plain, bevelled butt or flanged ends	11 Aug 2015
NIA	PLC	PLC	Pipework & Fittings	Pipe, bends, tees, reducers	AS/NZS 1579	400	406	6.4 / 9.5	3	Uncoated, or fusion bonded medium density polyethylene (AS4321) or tape wrapped or painted	Cement lined (AS1281), painted (epoxy lined), unlined	Plain, bevelled butt or flanged ends	11 Aug 2015
NIA	PLC	PLC	Pipework & Fittings	Pipe, bends, tees, reducers	AS/NZS 1579	350	356	6.4 / 9.5	3	Uncoated, or fusion bonded medium density polyethylene (AS4321) or tape wrapped or painted	Cement lined (AS1281), painted (epoxy lined), unlined	Plain, bevelled butt or flanged ends	11 Aug 2015

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SCHEDULE TO STANDARDSMARK LICENCE

Model Identification	Model Name	Brand Name	Product Description	Product Type	Material Designation	Nominal Size (DN)	Outside Diameter (mm)	Wall Thickness (mm)	Rated Pressure (MPa)	Coating Designation	Lining Designation	Joint Designation	Date Endorsed
N/A	PLC	PLC	Pipework & Fittings	Pipe, bends, tees, reducers	AS/NZS 1579	300	324	6.4 / 9.5	3	Uncoated, or fusion bonded medium density polyethylene (AS4321) or tape wrapped or painted	Cement lined (AS1281) painted (epoxy lined), unlined	Plain, bevelled butt or flanged ends	11 Aug 2015
N/A	PLC	PLC	Pipework & Fittings	Pipe, bends, tees, reducers	AS/NZS 1579	250	273	6.4 / 9.3	3	Uncoated, or fusion bonded medium density polyethylene (AS4321) or tape wrapped or painted	Cement lined (AS1281) painted (epoxy lined), unlined	Plain, bevelled butt or flanged ends	11 Aug 2015
N/A	PLC	PLC	Pipework & Fittings	Pipe, bends, tees, reducers	AS/NZS 1579	200	219	6.4 / 8.2	3	Uncoated, or fusion bonded medium density polyethylene (AS4321) or tape wrapped or painted	Cement lined (AS1281) painted (epoxy lined), unlined	Plain, bevelled butt or flanged ends	11 Aug 2015
N/A	PLC	PLC	Pipework & Fittings	Pipe, bends, tees, reducers	AS/NZS 1579	150	168	7.1	3	Uncoated, or fusion bonded medium density polyethylene (AS4321) or tape wrapped or painted	Cement lined (AS1281) painted (epoxy lined), unlined	Plain, bevelled butt or flanged ends	11 Aug 2015
N/A	PLC	PLC	Pipework & Fittings	Pipe, bends, tees, reducers	AS/NZS 1579	100	114	6	3	Uncoated, or fusion bonded medium density polyethylene (AS4321) or tape wrapped or painted	Cement lined (AS1281) painted (epoxy lined), unlined	Plain, bevelled butt or flanged ends	11 Aug 2015

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APPENDIX C - SUPPLIER CONTACTS

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