

Australian/New Zealand Standard<sup>®</sup>

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**Buried flexible pipelines**

**Part 1: Structural design**

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## **AS/NZS 2566.1:1998**

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This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee WS/28, Design and Installation of Buried Flexible Pipes. It was approved on behalf of the Council of Standards Australia on 17 October 1997 and on behalf of the Council of Standards New Zealand on 5 November 1997. It was published on 5 January 1998.

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The following interests are represented on Committee WS/28:

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Australian Chamber of Commerce and Industry  
AUSTRROADS (Australia)  
Composites Institute of Australia  
Concrete Pipe Association of Australasia  
Department of Land and Water Conservation, N.S.W.  
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## PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee WS/28, Design and Installation of Buried Flexible Pipes, to supersede AS 2566—1982, *Plastics pipelaying design*.

This Standard is one of a proposed series which deal with buried flexible pipes. The series so far comprises:

Part 1: Structural design (this Standard).

Part 2: Installation (in course of preparation).

The objective of this Standard is to provide designers with procedures for the structural design of buried flexible pipelines.

Published concurrently with this Standard is AS/NZS 2566.1 Supp 1, *Buried flexible pipeline—Part 1: Structural design—Commentary (Supplement to AS 2566.1—1997)*, which contains additional information on and explanations of particular technical aspects of this Standard. It also includes an appendix with examples showing the applications of the provisions of this Standard.

Statements expressed in mandatory terms in notes to figures and tables are deemed to be requirements of this Standard.

The term ‘normative’ has been used in this Standard to define the application of the appendix to which it applies. A ‘normative’ appendix is an integral part of a Standard.

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## STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

**Australian/New Zealand Standard****Buried flexible pipelines****Part 1: Structural design**

## SECTION 1 SCOPE AND GENERAL

**1.1 SCOPE** This Standard sets out a practice for the structural design of buried flexible pipelines which rely primarily upon side support to resist vertical loads without excessive deformation. The interactive pipe/embedment structure is considered only in the transverse direction. Structural performance is predicted in the long-term for pipes in trenches and embankments but not for jacked or bored lines. For the purposes of this Standard, the long-term design basis is 50 years, to take account of creep and other time-dependent effects. The equations used in this Standard apply to pipes with outside diameters equal to or greater than 75 mm, initial ring-bending stiffness equal to or greater than 1250 N/m/m and long-term ring-bending stiffness equal to or greater than 625 N/m/m.

This Standard provides methods and data for calculating the response of a pipe to loadings from—

- (a) soil;
- (b) superimpositions on the soil; and
- (c) both positive and negative internal pressures.

**1.2 APPLICATION** This Standard provides a basis for assessing the selection of pipe class and embedment methods. It applies to flexible pipes conveying water, waste water, stormwater or slurry, for both pressure and non-pressure applications, or as conduits for the later installation of cables or pipes.

This Standard is applicable to flexible pipes, manufactured from the materials listed in the table below, that are—

- (a) homogeneous or composite;
- (b) creep affected (plastics) or unaffected (metallic); or
- (c) plain or structured wall.

Abbreviation	Material
<b>Plastics</b>	
ABS	Acrylonitrile butadiene styrene
GRP	Glass filament reinforced plastics
PVC	Polyvinyl chloride
OPVC	Oriented PVC
PE	Polyethylene
<b>Metallic</b>	
AL	Aluminium
DI	Ductile iron
MS	Steel



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