

AS/NZS 2041.1:2011  
(Incorporating Amendment No. 1)

AS/NZS 2041.1:2011

Australian/New Zealand Standard™

**Buried corrugated metal structures**

**Part 1: Design methods**



## **AS/NZS 2041.1:2011**

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee CE-025, Corrugated metal Drainage Pipes and Arches. It was approved on behalf of the Council of Standards Australia on 12 July 2011 and by the New Zealand Standards Approval Board on 15 July 2011.  
This Standard was published on 5 August 2011.

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The following are represented on Committee CE-025:

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*This Standard was issued in draft form for comment as DR 10015.*

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### **Part 1: Design methods**

Originated in Australia as AS A128—1962.  
Subsequent Editions AS 2041—1984 and AS 2042—1984.  
AS 2041—1984 and AS 2042—1984 jointly revised, amalgamated and designated AS/NZS 2041:1998.  
AS/NZS 2041:1998 revised, in part, and designated AS/NZS 2041.1:2011.  
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## PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee CE-025, Corrugated Metal Drainage Pipes and Arches, to supersede, in part, AS/NZS 2041:1998, *Buried corrugated metal structures*, AS 1762—1984, *Helical lock-seam corrugated steel pipes—Design and installation*, AS 3703.2—1989, *Long-span corrugated steel structures*, Part 2: *Design and installation*.

*This Standard incorporates Amendment No. 1 (September 2018). The changes required by the Amendment are indicated in the text by a marginal bar and amendment number against the clause, note, table, figure or part thereof affected.*

The objective of this Standard is to provide designers, manufacturers and installers of buried corrugated metal structures with requirements for the structural design of such structures for use in earthworks, primarily as drainage culverts or access ways.

This Standard is Part 1 of the AS/NZS 2041 series, *Buried corrugated metal structures*, which comprises the following parts:

### AS/NZS

- 2041 Buried corrugated metal structures
- 2041.1 Part 1: Design methods (this Standard)
- 2041.2 Part 2: Installation
- 2041.4 Part 4: Helically formed sinusoidal pipes
- 2041.6 Part 6: Bolted plate structures

Other parts of the series being proposed include the following:

- Part 3: Assessment of existing structures
- Part 5: Helically formed ribbed pipes
- Part 7: Bolted plate structures with transverse stiffeners
- Part 8: Metal box structures

This Edition includes the following changes:

- (a) The design methods are now applicable to any of the products in the AS/NZS 2041 series of Standards.
- (b) Installation requirements have been moved to AS/NZS 2041.2.
- (b) Design criteria for aluminium included.
- (c) Clearer presentation of the design model.
- (d) Limit state method included (harmonized with the Canadian Highway Bridge Design Code).
- (e) Current Australian, New Zealand and selected overseas design loads, including earthquake loads.
- (f) Greater comprehensive discussion of durability issues.
- (g) Method included for approval of profiles other than sinusoidal profiles.
- (h) Notations have been brought in line with ISO 3898, Bases for design of structures—Notation—General symbols.
- (i) Background material guidance on the requirements of various clauses in the Standard included (Appendix B and Appendix E).

Design requirements are based on empirical formulae established by full scale testing. Details of the methods for full size testing to determine properties are also included.

In this document, the words ‘this Standard’ indicates AS/NZS 2041.1.

The terms ‘normative’ and ‘informative’ have been used in this Standard to define the application of the appendix to which they apply. A ‘normative’ appendix is an integral part of a Standard, whereas an ‘informative’ appendix is only for information and guidance.

Statements expressed in mandatory terms in notes to Tables and Figures are deemed to be an integral part of the Standard. Notes to the text contain information and guidance and are not considered to be integral parts of the Standard.

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