AS/NZS 3725:2007

Australian/New Zealand Standard™

Design for installation of buried concrete pipes

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee WS-006, Concrete Pipes. It was approved on behalf of the Council of Standards Australia on 07 September 2006 and on behalf of the Council of Standards New Zealand on 15 December 2006.
This Standard was published on 23 January 2007.

The following are represented on Committee WS-006:

Australasian Railway Association
Australian Chamber of Commerce and Industry
Brisbane City Council
Business New Zealand
Cement & Concrete Association of New Zealand
Engineers Australia
Main Roads Department, QLD
Master Builders Australia
New Zealand Water and Waste Association
Precast New Zealand
University of Tasmania
Water Services Association of Australia

Keeping Standards up-to-date

Standards are living documents which reflect progress in science, technology and systems. To maintain their currency, all Standards are periodically reviewed, and new editions are published. Between editions, amendments may be issued. Standards may also be withdrawn. It is important that readers assure themselves they are using a current Standard, which should include any amendments which may have been published since the Standard was purchased.

Detailed information about joint Australian/New Zealand Standards can be found by visiting the Standards Web Shop at www.standards.com.au or Standards New Zealand web site at www.standards.co.nz and looking up the relevant Standard in the on-line catalogue.

Alternatively, both organizations publish an annual printed Catalogue with full details of all current Standards. For more frequent listings or notification of revisions, amendments and withdrawals, Standards Australia and Standards New Zealand offer a number of update options. For information about these services, users should contact their respective national Standards organization.

We also welcome suggestions for improvement in our Standards, and especially encourage readers to notify us immediately of any apparent inaccuracies or ambiguities. Please address your comments to the Chief Executive of either Standards Australia or Standards New Zealand at the address shown on the back cover.

This Standard was issued in draft form for comment as DR 04236.

Australian/New Zealand Standard™

Design for installation of buried concrete pipes

Originated as AS CA33—1962.
Revised and designated AS 3725—1989.
Jointly revised and redesignated AS/NZS 3725:2007

Jointly published by Standards Australia, GPO Box 476, Sydney, NSW 2001 and Standards New Zealand, Private Bag 2439, Wellington 6020

ISBN 0 7337 7982 4

PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee WS-006, Concrete Pipes, to supersede AS 3725—1989, *Loads on buried concrete pipes* by a Joint Australian/New Zealand Standard that incorporates current best practice.

The objective of the Standard is to enable an appropriate class of concrete pipe, manufactured in accordance with AS 4058, *Precast concrete pipes—pressure and non-pressure* or AS 4139, *Fibre reinforced concrete pipes*, to be selected for use in below-ground installations.

NOTE: At the time of publication of this Standard, AS 4058 is under review by the Committee and intended to be replaced by a Joint Australian/New Zealand Standard in due course (to become AS/NZS 4058). In the meantime, for New Zealand applications, all references to AS 4058 throughout this Standard should be deemed to include references to NZS 3107, *Specification for precast concrete drainage and pressure pipes*, as appropriate and applicable.

The Standard provides rules for calculating the working loads on concrete pipes due to fill and superimposed loads and a range of installation options. It relates these to the test loads applied to sample pipes in accordance with the methods of test set out in the product standards.

Where a choice is given between an Australian Standard and a New Zealand Standard (for example AS 1289, *Methods of testing soils for engineering purposes* and the equivalent NZS 4402, *Methods of testing soils for civil engineering purposes*), the Australian Standard will apply in Australia and the New Zealand Standard will apply in New Zealand.

The procedures in the Standard also apply to the calculation of external working loads on concrete pressure pipes. In this case, however, the loads due to internal pressures need to be considered in conjunction with the external loads. The method of assessing the required strength of a pipe under this combination of loads is included in the Standard.

AS/NZS 3725 Supp 1 is a Commentary on this Standard. The Commentary contains additional information and explanations of particular technical aspects of the Standard. It includes, as an appendix, examples of calculations in accordance with this Standard, particularly with reference to the selection of a pipe class from AS 4058, *Precast concrete pipes—Pressure and non-pressure* and AS 4139, *Fibre reinforced concrete pipes*. The Commentary is an informative document and does not form part of the Standard.

Statement expressed in mandatory terms in notes to tables are deemed to be requirements of this Standard.

CONTENTS

STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

Australian/New Zealand Standard
Design for installation of buried concrete pipes

1 SCOPE

This Standard sets out methods and provides data for the following:

(a) Calculating the vertical working loads on buried concrete pipes due to—

  (i) the materials covering the pipes; and

  (ii) superimposed loads.

(b) Relating the minimum proof test load to the selection of appropriate pipes made in accordance with either AS 4058 or AS 4139, to the calculated vertical working loads on concrete pipes installed under particular conditions, including that of combined vertical load plus internal pressure.

In addition, the Standard classifies types of pipe installation and types of bedding and sets minimum requirements for the soil materials around the pipes and compaction of these materials.

NOTE: AS/NZS 3724 Supp 1 is a Commentary on this Standard. It provides further information relevant to many Clauses in this Standard. The Supplement, while bound with the Standard, is 'informative' and does not form an integral part of the Standard.

2 APPLICATION

2.1 General

This Standard applies to concrete pipes complying with AS 4058 or AS 4139, where they are laid or intended to be laid in one or other of the specified installation conditions.

This Standard does not apply to flexible buried pipes.

2.2 Use of other materials or methods

This Standard shall not be interpreted so as to prevent the use of materials or methods of design or construction not specifically referred to herein, provided that such materials or methods can be shown to meet the intent of this Standard.

2.3 Existing structures

Where the strength or serviceability of an existing structure is to be evaluated, the general principles of this Standard may be applied. The actual properties of the materials in the structure shall be used.

3 REFERENCED DOCUMENTS

The following documents are referred to in this Standard:

AS		
1289		Methods of testing soils for engineering purposes
1289.3.4.1	Method 3.4.1:	Soil classification tests—Determination of the linear shrinkage of a soil—Standard method
1289.3.6.1	Method 3.6.1:	Soil classification tests—Determination of the particle size distribution of a soil—Standard method of analysis by sieving