AS 4060—1992
Reconfirmed 2018

Australian Standard®

Loads on buried vitrified clay pipes

This Australian Standard was prepared by Committee WS/15, Vitrified Clay Pipes. It was approved on behalf of the Council of Standards Australia on 22 July 1992 and published on 16 November 1992.

The following interests are represented on Committee WS/15:

Association of Hydraulic Services Consultants, Australia

Australian Clay Pipe Manufacturers Association

Department of Conservation and Environment, Victoria

Engineering and Water Supply Department, South Australi

Federated Master Plumbers of Australia

Melbourne Water

Public Works Department, New South Wales

Water Authority of Western Australia

Water Board, Sydney—Illawarra—Blue Mountains

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STANDARDS AUSTRALIA

RECONFIRMATION

OF
AS 4060–1992
Loads on buried vitrified clay pipes

RECONFIRMATION NOTICE

Major stakeholders of this publication have reviewed the content of this publication and in accordance with Standards Australia procedures for reconfirmation, it has been determined that the publication is still valid and does not require change.

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NOTES

Australian Standard®

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PREFACE

This Standard was prepared by the Standards Australia Committee on Vitrified Clay Pipes to supersede AS CA56—1968, *The construction of vitrified clay pipelines (up to and including 12-in diameter with flexible or rigid joint systems)*.

This Standard differs from AS CA56—1968 in that it is concerned principally with the calculation of working loads on buried pipes and the selection of the crushing strength class. Important installation criteria are also covered.

Supplement No. 1 to AS 4060, published concurrently with this Standard, contains supplementary 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 the crushing strength class of pipe from AS 1741—1991, *Vitrified clay pipes and fittings with flexible joints—Sewer quality*.

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STANDARDS AUSTRALIA

Australian Standard

Loads on buried vitrified clay pipes

1 SCOPE This Standard sets out requirements and provides data for—

(a) calculating the working loads on buried vitrified clay pipes due to—

(i) materials covering the pipes; and

(ii) superimposed loads; and

(b) selection of the crushing strength class for combinations of installation condition, support type, working load and factor of safety.

AS 1741 specifies the minimum crushing load for each nominal size and crushing strength class of vitrified clay pipes.

In addition, the Standard classifies installation conditions and support types and specifies requirements, including compaction, for the embedment.

2 APPLICATION This Standard applies only to vitrified clay pipes complying with AS 1741 where they are laid or intended to be laid in one or other of the specified installation conditions.

3 REFERENCED DOCUMENTS The following documents are referred to in this Standard:

AS

1289	Methods of testing soils for engineering purposes
1289.C6.1	Method C6.1: Soil classification tests—Determination of particle size distribution of a soil—Standard method of analysis by sieving
1289.E1.1	Method E1.1: Soil compaction and density tests—Determination of the dry density/moisture content relation of a soil using standard compaction—Standard method
1289.E3.2	Method E3.2: Soil compaction and density tests—Determination of the field dry density of a soil—Sand replacement method using a sand pouring apparatus
1289.E3.5	Method E3.5: Soil compaction and density tests—Determination of the field dry density of a soil—Water replacement method
1289.E4.1	Method E4.1: Soil compaction and density tests—Dry density ratio—Normal method
1289.E5.1	Method E5.1: Soil compaction and density tests—Determination of minimum and maximum dry density of a cohesionless material
1289.E6.1	Method E6.1: Soil compaction and density tests—Compaction control test—Density index method for a cohesionless material
1289.E8.1	Method E8.1: Soil compaction and density tests—Determination of field moisture content and field dry density of a soil—Method using a nuclear surface moisture-density gauge—Direct transmission mode
1289.E8.2	Method E8.2 Soil compaction and density tests—Determination of field moisture content and field dry density of a soil—Method using a nuclear surface moisture-density gauge—Backscatter mode
1726	SAA Site Investigation Code
1741	Vitrified clay pipes and fittings with flexible joints—Sewer quality
2758	Aggregates and rock for engineering purposes
2758.1	Part 1: Concrete aggregates
3600	Concrete structures
4060	Loads on buried vitrified clay pipes
4060	Supp 1 Commentary

NAASRA (National Association of Australian State Road Authorities) Bridge design specification

4 DEFINITIONS For the purpose of this Standard, the definitions below apply.

4.1 Bedding factor—the ratio of the allowable working load to the minimum crushing load specified in AS 1741 for the appropriate nominal size and crushing strength class.

4.2 Crushing strength class—of a pipe or fitting as determined by the crushing strength test (see AS 1741) and relates to the magnitude of the crushing load sustained without rupture.

4.3 Embedment—the zones that surround the pipe which are as follows (see Figure 1):

(a) *Bedding*—the zone that extends from the top of the foundation to the bottom of the pipe.

(b) *Haunch support*—the zone between the bedding and the overlay and may extend to the spring line.

(c) *Overlay*—the zone between either the haunch support or the bedding and either the trench fill or the embankment fill.