AS 3798—1990

Australian Standard®

Guidelines on earthworks for commercial and residential developments

STANDARDS AUSTRALIA

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Australian Federation of Construction Contractors

Australian Geomechanics Society

Australian Local Government Engineers Association

Australian Road Research Board

Institution of Engineers, Australia

Ministry of Housing and Construction, Victoria

National Association of Australian State Road Authorities

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Railways of Australia Committee

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PREFACE

This Standard was prepared by the Standards Australia Committee on Earthworks in response to a widely distributed questionnaire that identified the need for guidance in the interpretation and application of AS 1289, *Methods of testing soil for engineering purposes,* to routine control testing and other relevant matters related to earthworks within commercial and residential developments.

The guidance contained in this Standard on specifying, execution, and control testing of earthworks and application of AS 1289 should reduce contractual disputes and, in many cases, subsequent arbitration or litigation.

In preparation of this Standard reference has been made to Guidelines for the specification and testing of earthworks prepared by the Sydney Group of the Australian Geomechanics Society and the assistance gained from this source is acknowledged.

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Guidelines on earthworks for commercial and residential developments

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE This Standard gives guidance on the specifying, execution, and control testing of earthworks and associated site preparation works within commercial and residential developments. The Standard also gives guidance on the interpretation and application of the relevant test methods specified in AS 1289.

The Standard does not apply to—

(a) railway, highway and major road constructions;

(b) selection, placement, and compaction of pavement materials;

(c) water retaining structures; and

(d) container terminals, airports or other heavy industrial applications.

NOTE: This Standard has been prepared primarily for use by those responsible for or involved with the design, specification, supervision and control testing of earthworks for commercial and residental developments.

1.2 REFERENCED DOCUMENTS The documents referred to in this Standard are listed in Appendix A.

1.3 DEFINITIONS For the purpose of this Standard, the definitions below apply:

1.3.1 Cohesionless soils—poorly graded sand and gravel mixtures generally with less than 5 percent fines (i.e. finer than 75 micron) which are non- plastic and which do not exhibit a well defined moisture-density relationship when tested in accordance with AS 1289.E1.1 or AS 1289.E1.2 and AS 1289.E2.1 or AS 1289.E2.2 and AS 1289.E7.1.

1.3.2 Cohesive soils—those materials which have a defined moisture-density relationship when tested in accordance with AS 1289.E1.1 or AS 1289.E1.2 and AS 1289.E2.1 or AS 1289.E2.2 and AS 1289.E7.1.

1.3.3 Collapsing soils—a soil that may suffer a significant decrease in volume under load or when it becomes nearly saturated. Such soils may have existed in this meta-stable state for long periods.

1.3.4 Dispersive soil—a soil whose clay component loses its structure on contact with water, forming particles of colloidal or near-colloidal size.

1.3.5 Foundation—that earth material immediately underlying and supporting any engineering structure; thus the foundation for a fill or building is the stripped surface and a fill itself can be a foundation for a building.

1.3.6 Reactive soils—clay soils, for which a change in moisture content may result in a sufficient change in volume to affect the engineering performance of any structure in contact with this soil.

1.3.7 Relative compaction For cohesionless soils, the density index determined in accordance with AS 1289.E6.1 and for cohesive soils, the dry density ratio determined in accordance with AS 1289.E4.1, or the Hilf density ratio determined in accordance with AS 1289.E7.1.

1.3.8 Rockfill—fill composed almost exclusively of fragments of broken rock. It generally consists of a large portion of gravel and larger sized fragments. Such fill may contain large open voids.

1.3.9 Structural filling—any filling, which will, or may, be required to support structures or pavements, or for which it is intended time dependent settlement will be restricted.

1.3.10 Topsoil—a surficial soil containing some organic matter, usually darker than the underlying soils.

1.4 DESIGNATION OF PERSONNEL For the purpose of this Standard the following terms are relevant:

(a) The Owner, sometimes called the Proprietor or the Principal.

(b) The Designer.

(c) The Superintendent, sometimes called the Engineer or the Architect.

(d) The Constructor, sometimes called the Contractor or the Builder.

(e) The Geotechnical Testing Authority.

NOTE: Suitable arrangements for the coordination of geotechnical testing are given in Appendix B.