Australian Standard®

Methods of testing soils for engineering purposes

Method 6.3.3: Soil strength and consolidation tests—Determination of the penetration resistance of a soil—Perth sand penetrometer test

1 SCOPE This method sets out the procedure for determining the resistance of a soil to penetration by a flat ended rod of 16 ±0.2 mm diameter driven with a 9 kg mass, dropping 600 mm. Use of the method is limited to granular soils with a maximum particle size not exceeding 2 mm, and a layer thickness of at least of 450 mm. This Standard may involve hazardous materials, operations, and equipment. This Standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this Standard to establish appropriate safety and health practices, and determine the applicability of regulatory limitations prior to use.

2 REFERENCED DOCUMENT The following document is referred to in this Standard:

AS	
1289	Methods of testing soils for engineering purposes
1289.6.3.2	Method 6.3.2: Soil strength and consolidation tests—Determination of the penetration resistance of a soil—9 kg dynamic cone penetrometer test

3 APPARATUS The required apparatus is a Perth sand penetrometer, conforming to the dimensions and masses given in Figure 1.

4 PROCEDURE The procedure shall be as follows:

(a) Excavate to the level to be tested (see Note 1). Remove material such as crushed rock or gravel, which will be too hard to penetrate with the penetrometer or could damage the equipment.

Measure the depth from the surface level to the upper surface of the layer to be tested, to the nearest 10 mm, and record.

(b) Hold the penetrometer vertical with the tip on the surface of the layer to be tested and tap the hammer on the anvil until a penetration of 150 mm is achieved.

(c) Raise the hammer to the stop and allow it to fall freely onto the anvil. Count the number of blows required to drive the penetrometer a distance of 300 mm (total penetration 450 mm) (see Note 2).

5 CALCULATIONS The penetration resistance (N_p) shall be calculated by totalling the number of blows to produce 300 mm further penetration after the initial penetration of 150 mm.