



Designation: D6598 – 19

## Standard Guide for Installing and Operating Settlement Points for Monitoring Vertical Deformations<sup>1</sup>

This standard is issued under the fixed designation D6598; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

### 1. Scope\*

1.1 This guide provides recommended designs and procedures for the fabrication, installation, operation, and reading of settlement point(s) to determine the magnitude and rate of foundation, fill settlements, or both generally under a fill or embankment load. Two types of settlement points are described – those being monitored by elevation surveys from an external bench mark and those that include an internal reference system supported on unyielding soil or rock beneath the compressible layer(s) of interest.

1.2 *Units*—The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.3 *This guide offers an organized collection of information or a series of options and does not recommend a specific course of action. This document cannot replace education or experience and should be used in conjunction with professional judgement. Not all aspects of this guide may be applicable in all circumstances. This ASTM standard is not intended to represent or replace the standard of care by which the adequacy of a given professional service must be judged, nor should this document be applied without consideration of a project's many unique aspects. The word "standard" in the title of this document means only that the document has been approved through the ASTM consensus process.*

1.4 *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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.5 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

<sup>1</sup> This guide is under the jurisdiction of ASTM Committee D18 on Soil and Rock and is the direct responsibility of Subcommittee D18.23 on Field Instrumentation.

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### 2. Referenced Documents

#### 2.1 *ASTM Standards:*<sup>2</sup>

D653 Terminology Relating to Soil, Rock, and Contained Fluids

D3740 Practice for Minimum Requirements for Agencies Engaged in Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction

D5092 Practice for Design and Installation of Groundwater Monitoring Wells

D5782 Guide for Use of Direct Air-Rotary Drilling for Geoenvironmental Exploration and the Installation of Subsurface Water-Quality Monitoring Devices

D5872 Guide for Use of Casing Advancement Drilling Methods for Geoenvironmental Exploration and Installation of Subsurface Water Quality Monitoring Devices

D5876 Guide for Use of Direct Rotary Wireline Casing Advancement Drilling Methods for Geoenvironmental Exploration and Installation of Subsurface Water-Quality Monitoring Devices

D6914 Practice for Sonic Drilling for Site Characterization and the Installation of Subsurface Monitoring Devices

### 3. Terminology

#### 3.1 *Definitions:*

3.1.1 For definitions of common technical terms in this standard, refer to Terminology D653.

#### 3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *anchor, n*—a device that holds the settlement point system in place and serves as a fixed reference point at the base of a settlement point system.

3.2.2 *extendible riser, n*—a metal shaft or pipe that can be incrementally lengthened using sections of the same material and appropriate couplings as fill is placed and compacted to ensure that the top of the riser remains above the level of the surrounding ground surface.

<sup>2</sup> For referenced ASTM standards, visit the ASTM website, [www.astm.org](http://www.astm.org), or contact ASTM Customer Service at [service@astm.org](mailto:service@astm.org). For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

\*A Summary of Changes section appears at the end of this standard