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| <b>Title</b> | <b>Describe soil strength tests in a civil engineering laboratory</b> |                |          |
| <b>Level</b> | <b>4</b>  | <b>Credits</b> | <b>8</b> |

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| <b>Purpose</b> | People credited with this unit standard are able to describe, in a civil engineering laboratory: soil strength test methods; and the reporting requirements, meaning, and applicability of soil strength test results. |
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| <b>Classification</b> | Infrastructure Civil Engineering > Infrastructure Laboratory |
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| <b>Available grade</b> | Achieved |
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### Guidance Information

- 1 Evidence presented for assessment against this unit standard must be consistent with safe working practices and be in accordance with applicable organisational and legislative requirements.
- 2 Applicable legislation, regulations, rules, standards and codes include but are not limited to the: Health and Safety at Work Act 2015, Hazardous Substances and New Organisms Act 1996, and their associated regulations and subsequent amendments; ISO/IEC 17025:2018 *General requirements for the competence of testing and calibration laboratories*, available from <https://www.iso.org/store.html>; NZS 4402:1986 *Methods of testing soils for civil engineering purposes - Preliminary and general*, available from <https://www.standards.govt.nz/>.
- 3 Evidence is required for a minimum of two soil strength tests used in a civil engineering laboratory which may include but are not limited to – California Bearing Ratio - remoulded, California Bearing Ratio - undisturbed, unconfined compressive strength - standard, unconfined compressive strength - autographic, laboratory shear vane, point load.
- 4 Definitions  
*Describe* refers to stating the individual components of the test sequentially in terms of the relevant test method and organisational requirements. Components will vary between the tests and include but are not limited to – the sample specifications, equipment requirements, environmental requirements, units of measurement, purpose, and scope of the test. *Describe* does not include the explanation of results, the interaction between tests or their scientific basis.  
*Organisational requirements* refer to instructions to staff on policy and procedures which are formally documented or generally accepted at the worksite. This may include legislation; industry standards and methods; national and international standards and methods; standard operating procedures; specifications; manuals; and manufacturer's information.

*Samples* may include but are not limited to – prepared materials and test materials such as standards and reagents.

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## Outcomes and performance criteria

### Outcome 1

Describe soil strength test methods in a civil engineering laboratory.

#### Performance criteria

- 1.1 The test is described in terms of scope, sample requirements, equipment, processes involved, and results.
- Range may include but is not limited to – equipment, apparatus, samples, technique, calibration, environment.
- 1.2 The factors that influence the outcomes of the test are described.
- Range may include but is not limited to – temperature, humidity, environment, condition of sample, size of sample.
- 1.3 The quality assurance of the test is described.
- Range may include but is not limited to – test method, recording requirements, checking.

### Outcome 2

Describe the reporting requirements, meaning, and applicability of soil strength test results in a civil engineering laboratory.

#### Performance criteria

- 2.1 The reporting requirements for test results are described.
- Range may include but is not limited to – equipment, apparatus, samples, technique, calibration, environment, rounding, remarks.
- 2.2 The meaning and applicability of test results are described.
- Range may include but is not limited to – uncertainty of measurement, specification reliability, limitations.

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| <b>Planned review date</b> | 31 December 2025 |
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**Status information and last date for assessment for superseded versions**

| Process               | Version | Date             | Last Date for Assessment |
|-----------------------|---------|------------------|--------------------------|
| Registration          | 1       | 21 January 2011  | 31 December 2016         |
| Review                | 2       | 19 February 2015 | 31 December 2021         |
| Review                | 3       | 23 January 2020  | N/A                      |
| Rollover and Revision | 4       | 24 October 2024  | N/A                      |

**Consent and Moderation Requirements (CMR) reference**

0101

This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.

**Comments on this unit standard**

Please contact Waihanga Ara Rau Construction and Infrastructure Workforce Development Council at [qualifications@waihangaararau.nz](mailto:qualifications@waihangaararau.nz) if you wish to suggest changes to the content of this unit standard.