

<b>Title</b>	<b>Demonstrate knowledge of earthworks</b>		
<b>Level</b>	<b>3</b>	<b>Credits</b>	<b>10</b>

<b>Purpose</b>	People credited with this unit standard are able to: describe the nature of different soil types; demonstrate knowledge of bulk excavation; describe placement of earthwork materials; and describe dust, erosion, and run-off control on earthworks.
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<b>Classification</b>	Infrastructure Works > Infrastructure Civil Works
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<b>Available grade</b>	Achieved
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### Guidance Information

- Evidence presented for assessment against this unit standard must be consistent with safe working practices and be in accordance with relevant legislative and industry requirements.
- Legislation relevant to this unit standard includes: Health and Safety at Work Act 2015; and all subsequent amendments and replacements.
- Definitions  
*Batter* means earthworks cut or a wall with a sloping face.  
*Bench* means an earthwork ledge.  
*Industry requirements* refer to relevant policies, processes, methodologies, industry codes of practice, site specific health and safety plans, standard operating procedures, site safety plans, quality plans, work plans, traffic management plans, contract work programmes, job safety analysis, safe work method statements, job instructions, manufacturer's requirements, contract specifications, manuals, procedural documents.  
*Undercutting* means excavating below formation level.

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### Outcomes and performance criteria

#### Outcome 1

Describe the nature of different soil types.

Range soil types include – clay, silt, sand, gravel.

#### Performance criteria

- 1.1 Soils are described in terms of their cohesive or non-cohesive structure.
- 1.2 Soils are described in terms of the effect of moisture content.

1.3 Description identifies methods of drying soils to achieve specified strength.

1.4 Description identifies methods of wetting soils to achieve specified strength.

## **Outcome 2**

Demonstrate knowledge of bulk excavation.

### **Performance criteria**

2.1 Types of excavation operations are explained in terms of purpose.

Range excavation operations include – cut-to-waste, cut-to-fill, cut-to-stockpile, strip-to-stockpile, borrow-to-fill.

2.2 Principles of undercutting are described.

## **Outcome 3**

Describe placement of earthwork materials.

### **Performance criteria**

3.1 Operations of spreading and layering are described in relation to soil type.

Range operations include – thickness of layers, optimum moisture content and compaction.

3.2 Fill area shaping is described in relation to shape and drainage.

Range shaping includes – during construction, at completion of earthworks.

## **Outcome 4**

Describe dust, erosion, and run-off control on earthworks.

### **Performance criteria**

4.1 Means of controlling water erosion and site run-off on earthworks are described in terms of purpose.

Range means include – bench, batter, drainage, silt fences.

4.2 Means of controlling surface run-off on earthworks are described in terms of purpose.

Range means include – silt retention ponds, coffer dams, cut off drains, earth bunds, settlement ponds.

- 4.3 Shaping and revegetating earthworks are described in relation to slope of terrain, availability of topsoil, regrassing methods, and rolling.
- 4.4 Means of controlling dust on earthworks are described in terms of when they are used.

Range means include – ceasing operations, watering.

<b>Planned review date</b>	31 December 2026
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#### Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	30 May 2000	31 December 2014
Review	2	25 September 2006	31 December 2016
Review	3	19 February 2015	31 December 2023
Review	4	30 September 2021	N/A

<b>Consent and Moderation Requirements (CMR) reference</b>	0101
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This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.

#### Comments on this unit standard

Please contact Connexis - Infrastructure Industry Training Organisation [qualifications@connexis.org.nz](mailto:qualifications@connexis.org.nz) if you wish to suggest changes to the content of this unit standard.