

Title	Demonstrate knowledge of construction and maintenance of working surfaces at an extractive site		
Level	3	Credits	5

Purpose	People credited with this unit standard are able to, for an extractive site: evaluate the effects of existing materials and features on working surfaces; demonstrate knowledge of the layout of working surfaces; describe construction methods and equipment for working surfaces; and describe methods for maintaining working surfaces.
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Classification	Extractive Industries > Extractive Industries Management
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Available grade	Achieved
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Guidance Information

- 1 Legislation regulations and/or industry standards relevant to this unit standard include but are not limited to the:
 - Health and Safety at Work Act 2015 (HSW);
 - Health and Safety at Work (General Risk and Workplace Management) Regulations 2016;
 - Health and Safety at Work (Mining Operations and Quarrying Operations) Regulations 2022;
 - Health and Safety at Work (Worker Engagement, Participation, and Representation) Regulations 2016;
 - approved codes of practice issued pursuant to the HSW Act;
 - Resource Management Act 1991;
 - Crown Minerals Act 1991;
 - Health and Safety at Opencast Mines, Alluvial Mines and Quarries, Good Practice Guidelines 2015
 - Territorial and/or Local Authority requirements.

Any new, amended or replacement Acts, regulations, standards, codes of practice, guidelines, or authority requirements or conditions affecting this unit standard will take precedence for assessment purposes, pending review of this unit standard.

- 2 Definitions

Company procedures mean the documented methods for performing work activities and include health and safety, operational, environmental, and quality management requirements. They may refer to legislation, regulations, guidelines, standard operating procedures, manuals, codes of practice, or policy statements.

Industry good practices may be documented in management plans, control plans, company procedures, managers' rules, occupational health and safety policy, industry guidelines, codes of practice, manufacturers' instructions, and safe working and/or job procedures (or equivalent).

Working surfaces refers to comprise benches, loading areas, roads, tipping areas, stockpiles, loadout points, and drilling and blasting areas

- 3 This unit standard is intended for, but is not limited to, workplace assessment.
- 4 All evidence for assessment against this unit standard must be in accordance with industry good practices and company procedures.

Outcomes and performance criteria

Outcome 1

Evaluate the effects of existing materials and features on working surfaces at an extractive site.

Performance criteria

- 1.1 Material properties available for use on-site are evaluated in terms of their performance for working surfaces.

Range may include but is not limited to – traction and trafficability.
- 1.2 Existing geometric features are evaluated in terms of their effect on site working surfaces.

Range may include but is not limited to – gradients, potential roads, widths, elevations, alignment, edge protection and drains.
- 1.3 Existing drainage features are evaluated.

Range may include but is not limited to – natural water channels, streams, rivers, waterways, inlets, outlets, dams.

Outcome 2

Demonstrate knowledge of the layout of working surfaces for an extractive site.

Performance criteria

- 2.1 Site layout, signposting, and safety controls are explained in accordance with the site safety plans.

Range may include but is not limited to – safety barriers, speed signs, fences, suitably controlled vehicular access, principal hazard management plans (PHMPs), road intersection controls, positive communications, traffic management plans.

- 2.2 The design of stormwater runoff control is explained in accordance with resource consent conditions and site plans.
- Range may include but is not limited to – culverts, open channels, road crown, sumps, discharge, entry.
- 2.3 Specifications for type and quantity of roading materials are explained in accordance with projected vehicle loading use, type of mobile plant and equipment in use, and site safety plans.
- Range may include but is not limited to – hardfill, drainage material, sub-base, basecourse, topcourse, sand.
- 2.4 Roadway geometric layout is explained in accordance with projected usage requirements of vehicles and site safety plans.
- Range may include but is not limited to – road width, corner super elevation, gradient, crossfall, alignment edge protection, drains.

Outcome 3

Describe construction methods and equipment for working surfaces at an extractive site.

Performance criteria

- 3.1 The selection process for construction equipment is described in accordance with the site plans.
- Range may include but is not limited to – excavator, bulldozer, motor scraper, grader, trucks, front-end loader, dumper, rollers, water carts.
- 3.2 The selection process for road construction material is described in accordance with the site plans.
- Range may include but is not limited to – hardfill, sub-base, drainage material, basecourse, topcourse, sand.
- 3.3 The formation of working surfaces is described in accordance with the site plans.
- Range alignment, width, gradient, super elevation, crossfall, crown level, water table level.
- 3.4 The control of natural waterways encountered is described in accordance with resource consent conditions and site plans.
- Range may include but is not limited to – culverts, pipes, field drains, bridges, abutments.

Outcome 4

Describe methods for maintaining working surfaces at an extractive site.

Performance criteria

4.1 Maintenance of road shape and alignment are described in accordance with the site plans.

Range may include but is not limited to – crossfall, undulations, wheel tracking, slips, grader, bulldozer, basecourse material.

4.2 Maintenance and clearance of working surface stormwater runoff facilities are described in accordance with the site plans.

Range may include but is not limited to – drains, water tables, sumps, culverts, pipes.

4.3 Methods for minimising and controlling dust generation are described.

Range methods may include but is not limited to – water carts, water sprays, wetting agents, dust suppression chemical applications, vehicle speeds

Planned review date	31 December 2029
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Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	26 November 1996	31 December 2017
Revision	2	17 December 1996	31 December 2017
Revision	3	18 December 1998	31 December 2017
Revision	4	17 April 2002	31 December 2017
Review	5	27 January 2005	31 December 2017
Rollover and Revision	6	16 July 2010	31 December 2017
Rollover and Revision	7	19 September 2013	31 December 2017
Review	8	18 June 2015	31 December 2019
Review	9	1 March 2018	31 December 2026
Review	10	30 January 2025	N/A

Consent and Moderation Requirements (CMR) reference	0114
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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 Hanga-Aro-Rau Manufacturing, Engineering and Logistics Workforce Development Council qualifications@hangaarorau.nz if you wish to suggest changes to the content of this unit standard.