



Australian Government

Department of Education, Employment and Workplace Relations

RTD3205A Construct conservation earthworks

Release: 1

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Modification History

Not applicable.

Unit Descriptor

This competency standard covers the process of constructing conservation earthworks on rural land. The work reflects erosion control principles requiring the application of specialised earthmoving techniques completed to fine tolerances. Construction is often carried out using a single earthmoving machine in varied conditions and terrains that requires the plant operator to develop skills that are unique to this sector. This competency standard requires the ability to prepare for construction, carry out planned earthworks, and apply final finish techniques. Constructing conservation earthworks requires knowledge of relevant legislation, erosion and sediment control standards and principles, erosion control and design principles, natural area protection (particularly topsoil) and rehabilitation principles, soils and soil formation, levels and levelling, earthmoving principles, machinery operation, and managing peak water flows.

Application of the Unit

Not applicable.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Not applicable.

Elements and Performance Criteria Pre-Content

Not applicable.

Elements and Performance Criteria

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Element	Performance Criteria
1 Prepare for construction	1.1 Equipment and attachments are matched to terrain and programmed tasks scheduled on site. 1.2 Work readiness of selected equipment is verified in line with contractor policy. 1.3 Construction details and sequence are confirmed from supervisor. 1.4 Survey pegs and site indicators are identified and located on work site. 1.5 Compliance with relevant regulatory planning and environmental legislation are confirmed.
2 Carry out planned earthworks	2.1 Industry endorsed earthworks methods and patterns for specific machines are utilised during construction. 2.2 Optimum machine loads are monitored and maintained to suit prevailing conditions. 2.3 Safe machine operating techniques and procedures are deployed to match terrain, site conditions and other operators or workers. 2.4 Excavation, transport, dumping and compaction of material is completed in line with job sequence and endorsed industry practices.
3 Apply final finish techniques	3.1 Endorsed industry methods are utilised to finish batters and surfaces to achieve job requirements. 3.2 Site features and vegetation are retained in line with works plan/schedule. 3.3 Site is cleared and debris removed in line with contractor policy. 3.4 Topsoiling of disturbed areas and surfaces is completed in line with industry standards and project plans.

Required Skills and Knowledge

Not applicable.

Evidence Guide

What evidence is required to demonstrate competence for this standard as a whole?

Competence in constructing conservation earthworks requires evidence that earthworks have been appropriately constructed according to enterprise guidelines, relevant legislation and industry best practice. The skills and knowledge required to construct conservation earthworks must be **transferable** to a range of work environments and contexts. For example, this could include different earthwork structures, soil types and topography.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts and to deal with unplanned events. The knowledge requirements for this unit are listed below:

Clean Water Act.

Erosion and sediment control standards and principles.

Provisions of the relevant wild life, environmental, planning, groundwater Acts.

Erosion control and design principles.

Natural area protection (particularly topsoil) and rehabilitation principles.

Soils and soil formation.

Levels and levelling.

Earthmoving principles.

Principles for machine operation.

Total catchment issues.

Legal issues.

Environmental issues.

Country code.

Managing peak water flows.

Subsurface and surface drainage principles and systems.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, some complementary skills are required. These skills include the ability to:

Prepare for construction.

Carry out planned earthworks.

Effect minimal damage to natural areas.

Apply final finish techniques.

What processes should be applied to this competency standard?

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the **key competencies**, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

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| 1. How can communication of ideas and information (1) be applied? | By discussing verbally conservation earthworks construction with supervisors or clients. |
| 2. How can information be collected, analysed and organised (1)? | Constructing conservation earthworks will require basic information about the site and job to be gathered and organised accordingly. |
| 3. How are activities planned and organised (1)? | Constructing conservation earthworks requires detailed planning with client and organising of resources. |
| 4. How can team work (1) be applied? | Constructing conservation earthworks may require participation with others in a team. |
| 5. How can the use of mathematical ideas and techniques (1) be applied? | Basic mathematical techniques relating to planning and estimating scope of works could be applied. |
| 6. How can problem-solving skills (1) be applied? | During construction of conservation earthworks, technical problems may arise requiring simple solutions. |
| 7. How can the use of technology (1) be applied? | Machinery and equipment will be required to construct conservation earthworks. |

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

For information about **assessing this competency standard for consistent performance** and **where and how it may be assessed**, refer to the Assessment Guidelines for this Training Package.

Range Statement

Range of Variables

The Range of Variables defines the different contexts, work environments and parameters governing the performance of this competency standard. The variables chosen in training and assessment will need to reflect local industry and regional contexts

What equipment may be used?	Hydraulic excavators, wheel loaders, crawler dozers, crawler loaders, motor graders and scrapers, dump trucks, backhoes, log skidders.
Which earthworks may be included?	Earth dam construction, gully fill and shaping, waterway construction, contour bank construction, reshaping sand dunes, constructing gully sills, site preparation for flume, chute or gabion, reclamation of rangelands/scalds, constructing gully stops, constructing roadside drainage, subsurface and surface drainage systems, drain construction.
Which earthworks are not included?	Land clearing, seismic lines, access track construction and maintenance and fire breaks.
Which site indicators may be included?	Survey pegs, surveyor marks, cut and fill tapes and paper.
Which optimum machine loads may be included?	Bowl fill, blade load.
What types of dam construction may be included?	Gully embankment, hillside, excavated, ring, turkey nest, spread bank.
What types of bank construction may be included?	Graded, diversion, trainer, back push, absorption, water spreading, water ponding.
What types of waterways may be included?	Natural grass, grassed waterway banked, grassed waterway excavated.
Which contractor policies may be included?	Safety code of practice, safety equipment, personal safety equipment, machine condition, relevant loading and working legislation, licensing, Workcover, specific site regulations, machine records, job log.
Which additional materials may be included?	Pipes, concrete, steel reinforcement, ameliorants, plastic lining.

Which **construction schedules** may be included?

Job and plan specification, sequence of works, materials specifications, materials placements, stage budgets, topsoil placement consistent with efficient re-topsoiling, retained site features, revegetation, identified environmental and erosion sensitive areas.

For more information on contexts, environment and variables for training and assessment refer to the Sector Booklet.

Unit Sector(s)

Not applicable.