



**Australian Government**

**Department of Education, Employment and Workplace Relations**

# **RIIMPO320A Conduct civil construction excavator operations**

**Release: 1**

## **RIIMPO320A Conduct civil construction excavator operations**

### **Modification History**

Not applicable.

### **Unit Descriptor**

This unit covers the conduct excavator operations in the civil construction industry. It includes: planning and preparing; conducting machine pre-operational checks; operating the machine; lifting, carrying and placing materials; selecting, removing and fitting attachments; relocating the machine; carrying out machine operator maintenance; and cleaning up.

### **Application of the Unit**

This unit is appropriate for those working in mobile plant operator roles, at worksites within:

- Civil construction

Operator license issued by OHS authority may be required in some states or territories and some excavators must be registered to drive and operate on public roads.

### **Licensing/Regulatory Information**

Refer to Unit Descriptor.

### **Pre-Requisites**

Not applicable.

### **Employability Skills Information**

This unit contains employability skills.

## Elements and Performance Criteria Pre-Content

<p>Elements describe the essential outcomes of a unit of competency.</p>	<p>Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.</p>
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## Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Plan and prepare	1.1. Access, interpret and apply <b>compliance documentation</b> relevant to <b>excavator operations tasks</b> 1.2. Obtain, confirm and apply <b>work instructions</b> to the allotted task 1.3. Obtain, confirm and apply <b>safety requirements</b> to the allotted task 1.4. Obtain, identify and implement signage requirements from the project traffic management plan 1.5. Select plant, <b>tools and equipment</b> to carry out tasks that are consistent with the requirements of the job, check them for serviceability and rectify or report any faults 1.6. Identity, confirm and apply <b>environmental protection requirements</b> from the project environmental management plan, to the allotted task
2. Conduct machine preoperational checks	2.1. Carry out pre-start, start-up, park and shutdown procedures 2.2. Check excavator controls and functions, including implements or other attachments, brakes and manoeuvrability for serviceability and report or rectify any faults
3. Operate excavator	3.1. Identity site hazards associated with excavator operations and use safe operating techniques to minimise risk 3.2. Identify and apply operating techniques for excavator to achieve optimum output in accordance with design specifications while achieving specified tolerances 3.3. Operate excavator to work instructions
4. Lift, carry and place materials	4.1. Conduct <b>communication</b> practices associated with transportation and lifting of <b>materials</b> 4.2. Establish weight of load 4.3. Select, attach and use slings and lifting gear in accordance with safe working load requirements

	<p>4.4. Position machinery ensuring stability and locate to effectively shift materials according to job specifications</p> <p>4.5. Shift load safely and effectively</p> <p>4.6. Move load in accordance with conventional hand and audible signals</p>
5. Select, remove and fit attachments	<p>5.1. Select <b>attachment</b> for the task</p> <p>5.2. Remove and fit attachment according</p> <p>5.3. Test attachment to ensure correct fitting and operation</p> <p>5.4. Use attachment in accordance with recommendations and design limits</p> <p>5.5. Remove, clean and store attachments in designated location</p>
6. Relocate the excavator	<p>6.1. Move excavator safely between worksites, observing relevant codes and traffic management requirements</p> <p>6.2. Prepare excavator for relocation</p>
7. Carry out machine operator maintenance	<p>7.1. Safely park-up, shutdown and prepare the machine for <b>maintenance</b></p> <p>7.2. Conduct inspection and fault finding</p> <p>7.3. Remove and replace defective parts safely and effectively</p> <p>7.4. Carry out regular programmed maintenance tasks</p>
8. Clean up	<p>8.1. Clear work area and dispose of or recycle materials in accordance with project environmental management plan</p> <p>8.2. Clean, check, maintain and store plant, tools and equipment</p>

## Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

### Required skills

Specific skills are required to achieve the performance criteria in this unit, particularly for the application in the various circumstances in which this unit may be applied. This includes the ability to carry out the following as required to conduct excavator operations:

- apply legislative, organisation and site requirements and procedures
- apply basic principles of soil technology for civil works
- apply site and equipment safety requirements
- apply techniques for calculating safe working loads
- apply excavator and attachment operating techniques related to essential tasks
- interpret drawings and sketches
- apply operational, maintenance and basic diagnostic procedures
- apply site isolation and traffic control responsibilities and authorities
- interpret materials safety data sheets and apply materials handling methods
- apply project quality requirements
- use civil construction terminology
- apply methods of changing machine attachments
- apply safe operating techniques in all terrain
- carry out basic earthworks calculations
- apply levelling techniques
- apply JSA's/Safe work method statement

### Required knowledge

Specific knowledge is required to achieve the Performance Criteria of this unit, particularly its application in a variety of circumstances in which the unit may be used. This includes knowledge of the following, as required to conduct excavator operations:

- excavator types, characteristics, technical capabilities and limitations
- basic principles of soil technology for civil works
- site and equipment safety requirements
- techniques for calculating safe working loads
- excavator and attachment operating techniques related to essential tasks
- processes for interpreting drawings and sketches
- operational, maintenance and basic diagnostic procedures
- site isolation and traffic control responsibilities and authorities
- materials safety data sheets and materials handling methods
- project quality requirements
- civil construction terminology
- methods of changing machine attachments

- safe operating techniques in all terrain
- basic earthworks calculations
- civil construction activity sequences of road construction, earthworks and drainage
- levelling techniques
- JSA's/Safe work method statement

## Evidence Guide

<p>The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.</p>	
<p><b>Overview of assessment</b></p>	
<p><b>Critical aspects for assessment and evidence required to demonstrate competency in this unit</b></p>	<p>The evidence required to demonstrate competency in this unit must be relevant to worksite operations and satisfy all of the requirements of the performance criteria, required skills and knowledge and the range statement of this unit and include evidence of the following:</p> <ul style="list-style-type: none"> <li>• knowledge of the requirements, procedures and instructions for conducting excavator operations</li> <li>• implementation of requirements, procedures and techniques for the safe, effective and efficient completion of excavator operations, including:             <ul style="list-style-type: none"> <li>• in a minimum of two different soil types; and</li> <li>• to include the mandatory tasks of loading, bulk excavation, backfilling, trench excavation, stockpiling, battering and benching</li> </ul> </li> <li>• working with others to undertake and complete excavator operations that meet all of the required outcomes</li> <li>• consistent timely completion of excavator operations that safely, effectively and efficiently meet the required outcomes</li> <li>• laser guidance or ATS are not to be used to assist in control of the machine during assessment</li> </ul>
<p><b>Context of and specific resources for assessment</b></p>	<ul style="list-style-type: none"> <li>• This unit must be assessed in the context of the work environment. Where personal safety or environmental damage are limiting factors, assessment may occur in a simulated environment provided it is realistic and sufficiently rigorous to cover all aspects of workplace performance, including task skills, task management skills, contingency management skills and job role environment skills.</li> </ul>



	<ul style="list-style-type: none"> <li>• The assessment environment should not disadvantage the participant. For example, language, literacy and numeracy demands of assessment should not be greater than those required on the job.</li> <li>• Customisation of assessment and delivery environment to sensitively accommodate cultural diversity.</li> <li>• Aboriginal people and other people from a non English speaking background may have second language issues.</li> <li>• Assessment of this competency requires typical resources normally used in the work environment. Selection and use of resources for particular worksites may differ due to site circumstances.</li> <li>• Where applicable, physical resources should include equipment modified for people with disabilities.</li> <li>• Access must be provided to appropriate learning and/or assessment support when required.</li> </ul>
<p><b>Method of assessment</b></p>	<p>This unit may be assessed in a holistic way with other units of competency. The assessment strategy for this unit must verify required knowledge and skill and practical application using more than one of the following assessment methods:</p> <ul style="list-style-type: none"> <li>• written and/or oral assessment of the candidate's required knowledge</li> <li>• observed, documented and/or first hand testimonial evidence of the candidate's: <ul style="list-style-type: none"> <li>• implementation of appropriate requirement, procedures and techniques for the safe, effective and efficient achievement of required outcomes, including: <ul style="list-style-type: none"> <li>• in a minimum of two different soil types; and</li> <li>• to include the mandatory tasks of loading, bulk excavation, backfilling, trench excavation, stockpiling, battering and benching</li> </ul> </li> <li>• consistently achieving the required outcomes</li> </ul> </li> <li>• first hand testimonial evidence of the</li> </ul>

	candidate's: <ul style="list-style-type: none"><li>• working with others to undertake and complete excavator operations</li></ul>
<b>Guidance information for assessment</b>	Consult the SkillsDMC User Guide for further information on assessment including access and equity issues.

## Range Statement

<p>The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.</p>	
<p><b>Relevant compliance documentation</b> may include:</p>	<ul style="list-style-type: none"> <li>• legislative, organisation and site requirements and procedures</li> <li>• manufacturer's guidelines and specifications</li> <li>• Australian standards</li> <li>• codes of practice</li> <li>• Employment and workplace relations legislation</li> <li>• Equal Employment Opportunity and Disability Discrimination legislation</li> </ul>
<p>An <b>excavator</b> is:</p>	<ul style="list-style-type: none"> <li>• a self-propelled crawler or wheeled machine with an upper structure capable of a minimum of 360 degree rotation which excavates, elevates, swings and discharges material by the action of a bucket fitted to the boom and arm or telescoping boom, without moving the chassis or undercarriage during any part of the working cycle of the machine</li> <li>• are to include tracked and may include wheeled excavators</li> </ul>
<p><b>Excavator operations tasks</b> are to include:</p>	<ul style="list-style-type: none"> <li>• loading, bulk excavation, backfilling, trench excavation, stockpiling, battering and benching</li> </ul>
<p><b>Excavator operations tasks</b> may include:</p>	<ul style="list-style-type: none"> <li>• compacting materials, demolition, rock breaking, removal of trees and ripping, lifting materials, cutting/boxing, laying pipes, cut and fill, mixing materials, stripping/spreading topsoil and materials</li> </ul>
<p><b>Work instructions</b> may include:</p>	<ul style="list-style-type: none"> <li>• plans, specifications, quality requirements and operational details</li> <li>• quality requirements may include but not be limited to dimensions, tolerances, standards of work and material standards as detailed in the project drawings, specifications and project documentation to meet client satisfaction</li> </ul>
<p><b>Safety requirements</b> are to be:</p>	<ul style="list-style-type: none"> <li>• in accordance with state or territory legislation and regulations, organisational safety policies and procedures, and project safety plan</li> </ul>

<p><b>Safety requirements</b> may include:</p>	<ul style="list-style-type: none"> <li>• protective clothing and equipment, use of tools and equipment, workplace environment and safety, handling of materials, use of fire fighting equipment, use of First Aid equipment, hazard control and hazardous materials and substances</li> <li>• personal protective equipment is to include that prescribed under legislation, regulation and workplace policies and practices</li> <li>• safe operating procedures which are to include but not be limited to recognising and preventing hazards associated with underground and overhead services, other machines, personnel, restricted access barriers, traffic control, working at heights, working in proximity to others, worksite visitors and the public</li> <li>• safe parking practices which is to include but not be limited to ensuring access ways are clear, equipment/ machinery is away from overhangs and refuelling sites, safe distance from excavations, and secured from unauthorised access or movement</li> <li>• hazards and risks may include but not be limited to uneven/unstable terrain, trees, fires, overhead and underground services, bridges, buildings, excavations, traffic, embankments, cuttings, structures and hazardous materials</li> <li>• emergency procedures related to this unit are to include but may not be limited to emergency shutdown and stopping, extinguishing fires, organisational First Aid requirements and evacuation</li> </ul>
<p><b>Tools and equipment</b> are to include:</p>	<ul style="list-style-type: none"> <li>• hand tools and maintenance equipment relevant to the particular loader</li> </ul>
<p><b>Environmental</b> requirements are to include:</p>	<ul style="list-style-type: none"> <li>• organisational/project environmental management plan, waste management, water quality protection, noise, vibration, dust and clean-up management</li> </ul>
<p><b>Communications practices</b> are to include:</p>	<ul style="list-style-type: none"> <li>• verbal instructions and fault reporting and may include 2-way radio, hand signals, mobile phone, site specific instructions, written instructions or instructions related to job/task</li> <li>• on site meeting processes may include notification/ scheduling (time, place, purpose),</li> </ul>

	task discussions and local coordination of procedural and operational issues
<b>Materials</b> may include:	<ul style="list-style-type: none"> <li>clays, silts, stone, gravel, mud, rock, sand, topsoil, blended materials, organic materials, typical construction site materials/waste and bituminous mixes</li> <li>rock types may include metamorphic, igneous and sedimentary</li> </ul>
<b>Attachments</b> may include:	<ul style="list-style-type: none"> <li>ripper/tyne, auger, tilt bucket, rock breaker, buckets, lifting device, vibrating compaction plate and compaction wheel</li> </ul>
Operator <b>maintenance</b> is to include:	<ul style="list-style-type: none"> <li>cleaning, authorised servicing and the monitoring, recording and reporting of faults. It may also include the conduct of authorised minor replacements and the provision of assistance to maintenance personnel during maintenance and repair activities</li> </ul>

## Unit Sector(s)

Mobile Plant Operations

## Competency field

Refer to Unit Sector(s).

## Co-requisite units

Not applicable.