



**Australian Government**

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

# **NWP556 Apply environmental solutions to engineering projects**

**Release: 1**

## **NWP556 Apply environmental solutions to engineering projects**

### **Modification History**

NWP556 Release 1: Primary release.

### **Unit Descriptor**

This unit of competency sets out the knowledge and skills required to undertake an environmental study for an engineering project, including pollution problems, methods used for monitoring the environment and principles used for restoration programs.

### **Application of the Unit**

This unit applies to engineering para-professionals in a civil engineering environment where environmental considerations form an integral part of an engineering solution. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

### **Licensing/Regulatory Information**

Not applicable.

### **Pre-Requisites**

Not applicable.

### **Employability Skills Information**

This unit contains employability skills.

### **Elements and Performance Criteria Pre-Content**

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the tasks you need to be able to perform, to demonstrate that you can achieve the element. Where <b><i>bold italicised</i></b> text is used, further information is detailed in the range statement. Assessment of performance is to be consistent with the evidence guide.
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## Elements and Performance Criteria

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| <b>1 Identify environmental impact</b>             | <p>1.1 Identify the <i>environmental impact</i> of the engineering project from documentation, work requests or discussions with <i>appropriate personnel</i>.</p> <p>1.2 Obtain <i>resources and equipment</i> needed for the task in accordance with <i>enterprise procedures</i> and check for correct operation and safety.</p> <p>1.3 Consult appropriate personnel to ensure the work is co-ordinated effectively with others involved at the work site.</p> |
| <b>2 Select appropriate environmental solution</b> | <p>2.1 Conduct an environmental study taking into account all legal and regulatory requirements.</p> <p>2.2 Analyse the environmental study and select the optimum outcome.</p> <p>2.3 Select methods for dealing with unexpected situations through discussions with appropriate personnel, job specifications and enterprise procedures.</p>   |
| <b>3 Integrate environmental solution</b>          | <p>3.1 Integrate environmental solution into project in discussion with appropriate personnel and according to enterprise procedures.</p> <p>3.2 Obtain required environmental permits and/or approvals.</p> <p>3.3 Prepare environmental monitoring plan for the project.</p> <p>3.4 Document and report completion of work task to appropriate personnel.</p>  |

## Required Skills and Knowledge

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

### Required skills:

- use environmental monitoring equipment
- read and understand environmental control standards
- analyse environmental studies for impact and possible engineering solutions

### Required knowledge:

- current environmental standards and requirements that apply to civil engineering
- how ecosystems work
- effects of engineering works on ecosystems
- restoration and rehabilitation techniques
- environmental pollution factors

## Evidence Guide

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.

### **Critical aspects for assessment and evidence required to demonstrate competency in this unit**

The candidate should demonstrate the ability to:

- undertake an environmental study for an engineering project on more than one occasion

### **Context of and specific resources for assessment**

Access to the workplace and resources including:

- documentation that should normally be available in a water industry organisation
- workplace specific equipment and technology
- supervision and experienced team members to provide observations, feedback and third party reports
- enterprise operating procedures and work allocation
- relevant codes, standards, and government regulations

Where applicable, physical resources should include equipment modified for people with disabilities.

Access must be provided to appropriate learning and/or assessment support when required.

Assessment processes and techniques must be culturally appropriate, and appropriate to the language and literacy capacity of the candidate and the work being performed.

Validity and sufficiency of evidence require that:

- competency will need to be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
- where the assessment is part of a structured learning experience the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice
- a decision of competence should only be made when the assessor has complete confidence in the person's competence over time and in various contexts
- all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence
- where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be authenticated and show that it represents competency demonstrated over a period of time
- assessment can be through simulated project-based

activity and must include evidence relating to each of the elements in this unit

In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge. Questioning will be undertaken in a manner appropriate to the skill levels of the candidate, any cultural issues that may affect responses to the questions, and reflecting the requirements of the competency and the work being performed.

## Range Statement

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.

***Environmental Impact*** may include:

- output emissions:
  - air borne
  - water borne
- soil contamination
- salinity
- noise
- light
- smell
- visual
- pests and noxious weeds

***Appropriate personnel*** may include:

- supervisor
- leading hand
- foreman
- manager
- site engineer
- trainer
- mentor
- teacher
- team member

***Resources and equipment*** may include:

- specifications
- manuals
- standards
- catalogues
- stationary
- calculators
- computer work station

***Enterprise procedures*** may include:

- the use of tools and equipment
- instructions, including job sheets, cutting lists, plans, drawings and designs
- reporting and communication
- manufacturers' specifications and operational procedures

## **Unit Sector(s)**

Not applicable.

## **Competency Field**

Civil Engineering.