Australian Government

Department of Education, Employment and Workplace Relations

AHCIRG504A Develop an irrigation and drainage management plan

Release: 1

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Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit covers the process of compiling information on a property, and using this information to develop an Irrigation and Drainage Management Plan (IDMP) with specifications for a new or up-graded irrigation and drainage system where this is needed and defines the standard required to: compile and analyse information on property background, infrastructure, topography and natural resources, and land use; compile details of current irrigation and drainage system design and performance; determine performance requirements for distribution, treatment and drainage systems; incorporate specifications for a new or up-graded irrigation and drainage system into the; irrigation and drainage management plan.

Application of the Unit

Application of the unit	This unit applies to irrigation managers including farmers and applies to the process of compiling information on a property, and using this information to develop an IDMP with specifications for a new or up-graded irrigation and drainage system where this is needed.

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Not Applicable

Elements and Performance Criteria

ELEMENT	**PERFORMANCE CRITERIA**

ELEMENT	PERFORMANCE CRITERIA
1. Compile property background information	1.1. Ownership details are described. 1.2. Irrigation history is described. 1.3. Locality and property details are described. 1.4. Agreements and easements with surrounding properties are identified. 1.5. Property maps are developed to illustrate locality and property boundaries.
2. Compile information on infrastructure and topography	2.1. Significant topographical and infrastructure features are described. 2.2. Opportunities and strengths of the property are identified. 2.3. Limitations and weaknesses of the property are identified. 2.4. Local planning issues that may affect the irrigation development are identified. 2.5. Map overlay to illustrate topography and infrastructure is developed.
3. Compile information on natural resources	3.1. Soil survey information is described. 3.2. Strategies to minimise and reduce soil erosion, and physical and chemical soil deterioration are identified. 3.3. Water sources availability and qualities are described. 3.4. Ground water depth and salinity issues are identified. 3.5. Climatic characteristics are described. 3.6. Map overlay to illustrate natural resource features is developed.
4. Compile information on enterprise cropping and planting	4.1. Suitability of soils and water quality for enterprise crops/plans is described. 4.2. Special irrigation requirements of crops/plants are identified. 4.3. Monthly and annual water budgets for each crop/plant program are developed. 4.4. Current yields are identified and compared with benchmark crop yields. 4.5. Targets are established with consideration for any factors which would limit optimum production. 4.6. Intended crop rotations are described. 4.7. Map overlay to illustrate crop and plant details is developed.

ELEMENT	PERFORMANCE CRITERIA
5. Compile information on existing irrigation and drainage system where used	5.1. Evaluation of current system performance is described. 5.2. Current system performance is compared to benchmark performance parameters. 5.3. Scheduling procedures are described. 5.4. Drainage management performance is described including environmental authority compliance issues. 5.5. Areas for improvement in system management and/or structure are identified. 5.6. Map overlay to illustrate irrigation system layout is developed.
6. Develop an irrigation and drainage management plan with specifications for new or up-graded irrigation and drainage system	6.1. Performance requirements for distribution, treatment and drainage systems are summarised. 6.2. New or replacement components are listed. 6.3. Development timetable is developed. 6.4. Proposed scheduling system is described. 6.5. Performance monitoring procedures and Occupational Health and Safety (OHS) requirements are described. 6.6. Drainage management processes are described. 6.7. Map overlay is developed to illustrate proposed irrigation and drainage development.

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- compile and analyse complex information
- interpret statistical data and measurements
- identify adverse environmental impacts of irrigation system activities and recommend appropriate remedial action
- develop plans and reports
- use a range of irrigation and information management software
- develop and implement relevant enterprise OHS and environmental procedures
- use literacy skills to fulfil job roles as required by the organisation. The level of skill may range from reading and understanding documentation to completion of

REQUIRED SKILLS AND KNOWLEDGE
written reports • use oral communication skills/language competence to fulfil the job role as specified by the organisation including questioning, active listening, asking for clarification, negotiating solutions and responding to a range of views • use numeracy skills to estimate, calculate and record complex workplace measures • use interpersonal skills to work with others and relate to people from a range of cultural, social and religious backgrounds and with a range of physical and mental abilities.
Required knowledge
• measuring and monitoring procedures • soil/plant/water relationships • readily available water • water table and salinity • methods and techniques of irrigation • irrigation system options • computerised irrigation systems • environmental impacts of irrigation systems using water from any ground or underground source • enterprise policies and procedures • relevant enterprise OHS procedures.

Evidence Guide

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.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	The evidence required to demonstrate competency in this unit must be relevant to workplace operations and satisfy holistically all of the requirements of the performance criteria and required skills and knowledge and include achievement of the following: • compile and analyse information on property background, infrastructure, topography and natural resources, and land use • compile details of current irrigation and drainage system design and performance • determine performance requirements for distribution, treatment and drainage systems • incorporate specifications for a new or up-graded irrigation and drainage system into the • irrigation and drainage management plan.
Context of and specific resources for assessment	Competency requires the application of work practices under work conditions. Selection and use of resources for some worksites may differ due to the regional or enterprise circumstances.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole.	
Irrigation distribution systems may include:	• micro-irrigation systems • spray irrigation systems • surface irrigation systems • basin irrigation.
Irrigation systems may range from:	• manual operation and monitoring to fully automated with computer control and monitoring.

Unit Sector(s)

Unit sector	Irrigation

Co-requisite units

Co-requisite units		

Competency field

Competency field	