



Australian Government

Department of Education, Employment and Workplace Relations

AHCIRG415A Interpret and apply irrigation designs

Release: 1

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Modification History

Not applicable.

Unit Descriptor

This Unit of Competency specifies the outcomes required to interpret the irrigation design for an installation site and defines the standard required to: interpret symbols and abbreviations on plans and drawings; define the placement and function of irrigation structures; plan for construction works on the site; select and verify system components; and provide instructions to staff on the site.

Application of the Unit

This Unit applies to irrigation site supervisors and installation project managers who are responsible for interpreting irrigation designs, plans, drawings and specifications and translating them into an installation site operations plan

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 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.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1 Identify the key features on an <i>irrigation design</i>	1.1 Commonly used symbols and abbreviations on plans are identified, understood and applied 1.2 Common irrigation terms used on plans are identified, understood and applied 1.3 Key features of irrigation plans, elevations and sections are identified 1.4 Scale, elevations and sections are identified from drawings
2 Define the placement and function of the irrigation system	2.1 The proposed purpose and capacity of the irrigation system is identified 2.2 The designed system is positioned in relation to the landscape of the site 2.3 Environmental impacts of the irrigation system, and its installation, are identified from the design 2.4 The plans, drawings and specifications for an irrigation design are interpreted 2.5 'As constructed' drawings are prepared
3 Mark out structures	3.1 Boundaries of the site are marked 3.2 Existing irrigation infrastructure on the site is identified 3.3 Electricity and communications infrastructure is identified on the site plan, marked out and safety procedures developed 3.4 Remnant vegetation to be retained is marked out 3.5 Proposed pipelines identified on the plan are pegged out 3.6 Proposed irrigation structures identified on the plan are pegged out
4 Estimate earth moving requirements for construction	4.1 Levels are taken and earthworks drawings are interpreted 4.2 Earth to be relocated or removed from the site is estimated 4.3 Sequence of earthworks is established and communicated 4.4 Materials required for irrigation structures are listed and quantified 4.5 Construction requirements are verified with designer
5 Select pumps and system components	5.1 Design specifications are interpreted for water volume, pressure and delivery pattern required 5.2 Pumping system is selected to meet design specifications and site requirements 5.3 Irrigation system components are selected to meet design specifications and site requirements 5.4 Component selection is verified with designer
6 Mark out locations of all components	6.1 The sequence of operations for installation is established 6.2 The delivery and storage area for components is identified 6.3 Placement of all components is identified from the design and markings made on the site

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| 7 Develop instructions for staff | 7.1 Environmental hazards and strategies are included in instructions
7.2 Sequence of activities and work duties is documented
7.3 OHS hazards and risk controls are communicated
7.4 Construction schedule is provided to staff |
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Required Skills and Knowledge

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

Required skills include:

Ability to:

- read contour maps and interpret elevations and distances
- marking out procedures
- interpret technical drawings and site plans
- calculate pressures, flows, velocities and friction losses
- determine efficiency of the system with varying system components
- follow relevant enterprise OHS and environmental procedures
- use literacy skills to read, interpret and follow organisational policies and procedures, develop sequenced written instructions, record accurately and legibly information collected and select and apply procedures to a range of tasks
- 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 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 includes:

Knowledge of:

- interpretation of plans and general and technical specifications
- hydraulic calculations
- selection of water pumping and distribution components delivery based on specifications and requirements
- pumps and pumping system components
- erosion control and design principles
- levels and levelling
- earthmoving principles
- principles of native topsoil conservation and protection
- Occupational Health and Safety (OHS) and environmental legislation, codes of practice and enterprise procedures.

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: • interpret symbols and abbreviations on plans and drawings • define the placement and function of irrigation structures • plan for construction works on the site • select and verify system components • provide instructions to staff on the site.
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

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.	
<i>Irrigation designs</i> may include:	plans, drawings and specifications covering low volume, sprinkler, moving sprinkler, surface or irrigation drainage systems.

Unit Sector(s)

Irrigation