



Australian Government

Department of Education, Employment and Workplace Relations

AHCIRG424A Construct and install an irrigation drainage system

Release: 1

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Modification History

Not applicable.

Unit Descriptor

This Unit covers the process of constructing and installing an irrigation drainage system and defines the standard required to: establish the requirements of the drainage system; implement operational procedures for the project; establish and organise resources; supervise on-site construction; commission the drainage system; and rehabilitate the site.

Application of the Unit

This Unit applies to irrigation site supervisors and installation project managers who are responsible for the construction and installation of irrigation drainage systems.

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 Develop and implement construction procedures	1.1 Employment procedures and contract management procedures are developed 1.2 Procedures for controlling and recording site deliveries are established 1.3 Procedures for recording the hire of plant and equipment are determined 1.4 OHS procedures are established, including risk assessment 1.5 Client, authorities and agencies are notified of the schedule of works 1.6 Procedures for dealing with environmental issues associated with construction work are determined
2 Organise resource requirements	2.1 Tasks and timelines are nominated with resources required for each 2.2 Labour requirements are organised 2.3 Parts and equipment are delivered to the site and checked 2.4 Equipment and machinery is selected and maintained 2.5 Jobs and tasks are allocated to the work team 2.6 Safety induction is carried out for the task and site
3 Interpret the <i>irrigation drainage system</i> design for the site	3.1 The purpose, scale and required output of the irrigation drainage system is established from the drainage plan 3.2 The landscape of the site is assessed 3.3 Construction requirements are determined and verified with the designer 3.4 Components are selected to meet design specifications and site requirements
4 Carry out preparatory work	4.1 The site is cleaned and marked out 4.2 Drainage structures are pegged out 4.3 Levels are taken and earth works planned
5 Supervise construction of the drainage system	5.1 Trenches are excavated to specification 5.2 Earth works are carried out 5.3 Drainage structures are constructed 5.4 Pipes are laid and joined 5.5 Fittings and valves are fitted and adjusted to the requirements of the installation plan, and all joints are secured according to enterprise guidelines. 5.6 Pumping system is installed and tested
6 Commission the irrigation drainage system	6.1 The system is started up 6.2 Operating faults are identified and corrective actions taken to meet design specifications 6.3 Testing/monitoring equipment is used to monitor system efficiency 6.4 Adjustments are made as required

- 7 Rehabilitate the works area
 - 7.1 Earthworks are resurfaced and sealed
 - 7.2 Vegetation areas are planted and maintained
 - 7.3 Waste and surplus materials are disposed of in an environmentally sound manner

Required Skills and Knowledge

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

Required skills include:

Ability to:

- interpret irrigation designs
- develop operational procedures
- implement employment procedures
- conduct OHS risk assessment
- supervise workers in:
 - earth moving and construction procedures
 - power and pumping plant installation
 - pump and gated pipe installation
 - construction of canals, channels, head ditches, beds, check structures, tailwater holding ponds
- estimate quantities and volumes of soil to be moved
- document requirements for structures
- 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:

- measuring and monitoring procedures for factors contributing to drainage system performance
- positive and negative environmental impacts of drainage systems
- water table and salinity measures
- water quality monitoring methods and techniques
- soil moisture measurement procedures
- water authority standards and procedures
- drainage appliances/fixtures/fittings and related
- level and align site
- types and operational parameters of drains
- components used in drainage systems
- isolation processes and procedures
- levelling and alignment processes

- regulatory requirements, codes of practice and relevant enterprise service standards relating to blockage removal, disconnection and reconnection activities
- enterprise policies and procedures
- environmental role of drainage systems
- environmental impacts of drainage systems.

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>	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this Unit	<p>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:</p> <ul style="list-style-type: none"> • establish the requirements of the drainage system • implement operational procedures for the projec; • establish and organise resources • supervise on-site construction • commission the drainage system • rehabilitate the site.
Context of and specific resources for assessment	<p>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.</p>

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.

Irrigation drainage systems may include:

both surface and sub-surface drainage installed to handle water which is excess to plant requirements in an irrigated area.

Unit Sector(s)

Irrigation