



Australian Government

RIICFW301E Construct underpinning

Release: 1

RIICFW301E Construct underpinning

Modification History

Release	Comments
Release 1	This version first released with RII Resources and Infrastructure Industry Training Package Version 6.0.

Application

This unit describes the skills and knowledge required to construct underpinning in civil construction. This includes identifying underpinning requirements, sequencing and performing excavation, backfilling and constructing underpinning using both drilling and excavation techniques.

It applies to those working in operational roles. They generally work under minimal supervision to undertake a broad range of tasks in varied work contexts, using some discretion and judgement in selecting equipment, services or contingency measures.

Licensing, legislative and certification requirements that apply to this unit can vary between states, territories and industry sectors. Users must check requirements with relevant body before applying the unit.

Unit Sector

Civil construction

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Plan and prepare to construct underpinning	1.1 Obtain, interpret, clarify and confirm work instructions 1.2 Access, interpret and apply documentation required to construct underpinning and confirm work activity is compliant 1.3 Obtain and interpret emergency procedures, and identify steps required to respond to emergencies 1.4 Select and wear personal protective equipment according to site requirements 1.5 Confirm and identify requirements for complying with environmental protection, safety and traffic management signage

ELEMENT	PERFORMANCE CRITERIA
	requirements 1.6 Identify potential hazards and environmental issues, implement control measures within scope of own role and escalate where required 1.7 Select plant, tools and equipment required to carry out tasks and check for faults 1.8 Identify, confirm, and locate materials required for work application
2. Set out and prepare sections	2.1 Confirm and apply set out according to job requirements 2.2 Identify and record underpinning requirements for adjoining properties and roadways 2.3 Identify and implement sections and sequence of excavations according to job requirements 2.4 Confirm condition of existing shoring system 2.5 Set out sections for excavation according to job requirements 2.6 Identify and protect areas for excavation and surrounding working space according to job requirements 2.7 Erect barricades and signage according to job and site requirements 2.8 Position plant and equipment for excavation according to job requirements
3. Excavate and install support	3.1 Excavate sections to footing depth according to job requirements 3.2 Install trench and excavation support according to job requirements
4. Conduct sectional underpinning	4.1 Construct underpinning according to job requirements 4.2 Backfill excavated sections according to job requirements 4.3 Underpin alternate sections in sequence according to job requirements
5. Conduct clean-up activities	5.1 Clear work area and dispose of or recycle materials according to site requirements 5.2 Clean, check, perform maintenance on and store plant, tools and equipment according to manufacturer specifications and site requirements

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance but not explicit in the performance criteria.

SKILL	DESCRIPTION
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Numeracy	• Calculates basic measurements including mass and dimensions
Oral communication	• Identifies and interprets information from verbal instructions • Conveys information and instructions to others verbally
Self-management	• Monitors and minimises own exposure to worksite risks and hazards during work activities
Writing	• Communicates and documents information in written form

Unit Mapping Information

Supersedes and is equivalent to RIICFW301D Construct underpinning.

Links

Companion Volume Implementation Guide is found on VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>

Assessment Requirements for RIICFW301E Construct underpinning

Modification History

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Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including evidence of the ability to:

- construct underpinning on at least two occasions, including:
 - once using a drilling technique and;
 - once using an excavation technique to the required job specifications.

During the above, the candidate must:

- locate and apply required legislation, documentation, policies and procedures
- identify, report and record hazards and risks
- implement the requirements, procedures and techniques for constructing underpinning, including:
 - using correct drilling and excavation techniques
 - recording in writing underpinning requirements for adjoining properties and roadways from site drawing and survey of the surrounding construction
- work with others to construct underpinnings that meet required outcomes, including:
 - communicating with others to receive and clarify work instructions
 - completing written and verbal reporting requirements and procedures
 - using communication techniques and equipment, including signage to advise others of work activity and exclusion zones.

Knowledge Evidence

The candidate must be able to demonstrate knowledge to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including knowledge of:

- legislation required to construct underpinning
- policies, procedures and documentation required to construct underpinning, including those relating to:

- hazard and risk management
- work health and safety
- emergency response
- specifications
- site and equipment safety
- environmental protection
- waste management
- communication techniques and equipment
- site isolation and traffic control responsibilities
- operational, maintenance and basic diagnostic procedures
- project quality requirements job plans and specifications
- site requirements
- manufacturer specifications for required plant and equipment
- workplace recording and reporting
- principles and techniques required to construct underpinning, including those relating to:
 - underpinning
 - water erosion
 - soil types and characteristics, including:
 - sand
 - rock
 - clay
 - shale
 - gravel
 - silt
 - foundation work
 - shoring systems
 - timber grading
 - characteristics of reinforced concrete
 - bracing and loading
 - excavation
 - backfilling
 - drilling
 - trench support
 - site drawings
 - visual surveys
 - interpreting engineering drawings
- types, characteristics, technical capabilities and limitations of plant and equipment required to construct underpinning, including:
 - compressors
 - fittings and hoses

- pneumatic picks and jack hammers
- pumps
- winches
- materials safety data sheet (SDS) compliance processes
- components of job safety analyses (JSAs), job safety environmental analyses (JSEAs), and safe work method statements (SWMs)
- civil construction terminology relating to constructing underpinning.

Assessment Conditions

Mandatory conditions for assessment of this unit are stipulated below. The assessment must:

- include access to:
 - personal protective equipment
 - equipment required to construct underpinning
- be conducted in a safe environment; and,
- be assessed in the context of this sector's work environment; and,
- be assessed in compliance with required legislation/regulation and using policies, procedures and processes directly related to the industry sector for which it is being assessed; and,
- confirm consistent performance can be applied in a range of relevant workplace circumstances.

Where personal safety or environmental damage are limiting factors, assessment may occur in a simulated work environment* provided it is realistic and sufficiently rigorous to cover all aspects of this sector's workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills.

Assessor requirements

Assessors must be able to clearly demonstrate current and relevant industry knowledge and experience to satisfy the mandatory regulatory standards as set out in the Standards for Registered Training Organisations 2015/Australian Quality Training Framework mandatory requirements for assessors current at the time of assessment and any relevant licensing and certification requirements. This includes:

- vocational competencies at least to the level being delivered and assessed
- current industry skills directly relevant to the training and assessment being provided
- current knowledge and skills in vocational training and learning that informs their training and assessment
- formal relevant qualifications in training and assessment
- having knowledge of and/or experience using the latest techniques and processes
- possessing the required level of RII training product knowledge
- having an understanding and knowledge of legislation and regulations relevant to the industry and to employment and workplaces
- demonstrating the performance evidence, and knowledge evidence outlined in this unit of competency, and

- the minimum years of current** work experience after competency has been obtained as specified below in an industry sector relevant to the outcomes of the unit.

It is also acceptable for the appropriately qualified assessor to work with an industry expert to conduct assessment together and for the industry expert to be involved in the assessment judgement. The industry expert must have current industry skills directly relevant to the training and assessment being provided. This means the industry subject matter expert must demonstrate skills and knowledge from the minimum years of current work experience after competency has been obtained as specified below, including time spent in roles related to the unit being assessed:

Industry sector	AQF indicator level***	Required assessor or industry subject matter expert experience
Drilling, Metalliferous Mining, Coal Mining, Extractive (Quarrying) and Civil Infrastructure	1	1 year
	2	2 years
Drilling, Coal Mining, Extractive (Quarrying), Metalliferous Mining and Civil Infrastructure	3-6	3 years
Other sectors	Where this unit is being assessed outside of the resources and infrastructure sectors assessor and/or industry subject matter expert experience should be in-line with industry standards for the sector in which it is being assessed and where no industry standard is specified should comply with any relevant regulation.	

*Guidance on simulated environments has been stipulated in the RII implementation guide located on VETNet.

**Assessors can demonstrate current work experience through employment within industry in a role relevant to the outcomes of the unit; or, for external assessors this can be demonstrated through exposure to industry by conducting a minimum number of site assessments as determined by the relevant industry sector, across various locations.

*** While a unit of competency does not have an AQF level, where a unit is being delivered outside of a qualification the first numeric character in the unit code should be considered as the AQF indicator level for assessment purposes.

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