



Australian Government

Department of Education, Employment and Workplace Relations

TLIB2086A Apply awareness of structures fundamentals

Release: 1

TLIB2086A Apply awareness of structures fundamentals

Modification History

Not Applicable

Unit Descriptor

Unit Descriptor

This unit involves the skills and knowledge required to understand and apply awareness of structures fundamentals in accordance with approved standards, safeworking and regulatory requirements and workplace procedures. It includes identifying types of structures, structures terminology and conventions, and defect categories; and locating and identifying defects in structures. Licensing or certification requirements are not applicable to this unit.

Application of the Unit

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Persons achieving competence in this unit will need to fulfil the applicable legislated rail safety requirements including acts and regulations from each state and territory together with any nationally approved compliance codes and/or guidelines.

Work is performed under minimal supervision, generally within a team environment. It involves the application of routine operational principles and procedures to the awareness of structures fundamentals as part of workplace activities across a variety of operational contexts within the Australian rail system.

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Not Applicable

Employability Skills Information

Employability Skills 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 required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1 Identify types of bridges and structures	1.1 Principal bridge types and their purpose are identified 1.2 Other principal structure types and their purpose are identified
2 Identify structures terminology and conventions	2.1 Basic terminology for structures infrastructure is defined 2.2 Principal components of structures and their purpose are identified 2.3 Conventions for numbering structures and their components are identified
3 Identify defect categories	3.1 Types of defect are identified 3.2 Conventions for categorising defects are identified
4 Locate structures defects	4.1 Tools and equipment for visual inspection of structures are identified and selected 4.2 Defects in structures are located and identified

Required Skills and Knowledge

REQUIRED KNOWLEDGE AND SKILLS

This describes the essential knowledge and skills and their level required for this unit.

Required knowledge:

- Relevant safety, OH&S and environmental procedures and regulations
- Workplace procedures for locating defects in structures
- Problems that may occur locating defects in structures, and action that can be taken to report or resolve the problems
- Hazards that may exist when locating defects in structures, and ways of controlling the risks involved
- Structures terms and conventions
- Fundamentals of structure types
- Types of structures defects
- Structures components
- Relevant communication systems and procedures
- Authorisation/approval processes and procedures

Required skills:

- Communicate effectively with others when locating defects in structures

Required skills:

- Read and interpret instructions, procedures, information, technical data, standards and drawings relevant to locating defects in structures
- Follow operational instructions and work sequences when locating defects in structures
- Operate electronic communication equipment to required protocols
- Work collaboratively with others when locating defects in structures
- Select and use required personal protective equipment
- Select equipment used for basic structures inspection
- Locate previously identified defects

Evidence Guide**EVIDENCE GUIDE**

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required knowledge and skills, the range statement and the assessment guidelines for this Training Package.

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 and satisfy all of the requirements of the elements and performance criteria of this unit and include demonstration of applying:
 - the underpinning knowledge and skills
 - relevant legislation and workplace procedures
 - other relevant aspects of the range statement
- Assessment must include exercises which demonstrate competent performance of the following in a range of situations:
 - identifying different types of structures and components
 - undertaking basic inspection of structures
 - locating defects in structures

Context of and specific resources for assessment

- Performance is demonstrated consistently over a period of time and in a suitable range of contexts
- Resources for assessment include:
 - a range of relevant exercises, case studies and/or other simulated practical and knowledge assessment, and/or
 - access to an appropriate range of relevant operational situations in the workplace

EVIDENCE GUIDE

- In both real and simulated environments, access is required to:
 - relevant and appropriate materials and equipment, and
 - applicable documentation including workplace procedures, regulations, codes of practice and operation manuals
- Method of assessment**
 - Assessment of this unit must be undertaken by a registered training organisation
 - As a minimum, assessment of knowledge must be conducted through appropriate written/oral tests
 - Practical assessment must occur:
 - through activities in an appropriately simulated environment at the registered training organisation, and/or
 - in an appropriate range of situations in the workplace

Range Statement

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.

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|-------------------------------|--|
| Operations may be conducted: | <ul style="list-style-type: none">• by day or night• in all weather conditions |
| Work may be conducted in: | <ul style="list-style-type: none">• restricted spaces• exposed conditions• controlled or open environments |
| Work may involve exposure to: | <ul style="list-style-type: none">• chemicals• dangerous or hazardous substances• movements of equipment, materials and vehicles |
| Structures may include: | <ul style="list-style-type: none">• underbridges• overbridges• footbridges• culverts• tunnels• retaining walls• platforms• overhead wiring structures |

RANGE STATEMENT

	• signal gantries • noise barriers • service crossings • buffer stops • lighting towers • water towers • turntables • elevated roads • track slabs
Materials may include:	• timber • steel • concrete/masonry
Equipment may include:	• torch • geologists hammer • scaffolding • extension ladder • elevated work platforms (EWP) • boat or barge
Structures components may include:	• girders, corbels, headstocks • piers, abutments, trestles, piles • bolts, fasteners • protective coatings
Methods for locating defects may include:	• visual inspection
Liaison may include:	• internal/external personnel from other work areas (e.g. train controllers) • road authorities • local councils • landowners
Communication equipment systems may include:	• two-way radios • telephones/mobile phones • agreed audible or hand signals
Depending on work context, safety and personal protective equipment may include:	• high visibility clothing • hearing protection • gloves • sunscreen • sunglasses • safety glasses • insect repellent

RANGE STATEMENT

	• safety headwear • safety footwear • portable radio/mobile phones • hand lamps • flags • safety harness and ropes • breathing apparatus • safety mask • air monitors • safety devices
Depending on the type of organisation concerned and the local terminology used, workplace procedures may include:	• company procedures • enterprise procedures • organisational procedures • established procedures
Information/documents may include:	• operational instructions, policies and workplace procedures • local authority regulations and procedures • information provided by other workplace personnel • previous reports • works orders • technical instructions • manufacturers or workplace equipment operation manuals and specifications • emergency procedure manuals • two-way radio/mobile phone operation procedures • QA plans, data and document control • conditions of service, legislation and industrial agreements including workplace agreements and awards
Information may be provided:	• electronically • in writing, via forms/documents/plans • orally, via face-to-face communications • trackside signals
Applicable regulations and legislation may include:	• applicable legislated rail safety requirements including acts and regulations from each state and territory together with any nationally approved compliance codes and/or guidelines • relevant Australian Standards and related requirements including AS 4292 • relevant state/territory OH&S legislation • relevant state/territory environmental protection legislation

Unit Sector(s)

Not Applicable

Competency Field

Competency Field B - Equipment Checking and Maintenance