



Australian Government

Department of Education, Employment and Workplace Relations

TLIS3026B Implement track maintenance and construction

Release: 1

TLIS3026B Implement track maintenance and construction

Modification History

Not applicable.

Unit Descriptor

This unit involves the skills and knowledge required to implement track maintenance and construction activities in accordance with approved standards, safeworking and regulatory requirements and workplace procedures. It includes planning work, implementing construction or maintenance activities, dealing with maintenance and construction problems, and completing required documentation.

Licensing or certification requirements are not applicable to this unit. Persons achieving competence in this unit will need to fulfil legislated rail safety requirements, including acts and regulations from each applicable state and territory, together with any nationally approved compliance codes and/or guidelines.

Application of the Unit

Work is performed generally in a team environment. It involves the application of routine operational principles and procedures to the implementation of track maintenance and/or construction 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 Plan work	1.1 Scope of work is confirmed 1.2 Operational constraints are identified 1.3 Information requirements are identified and accessed 1.4 Method of work is selected and general operating sequence is determined 1.5 Resources required for the work are arranged as required
2 Implement construction or maintenance activities	2.1 Competent personnel are allocated tasks in accordance with the work sequence 2.2 Tasks are assessed as being in accordance with the predetermined sequence and appropriate for the work 2.3 Work procedures are monitored and evaluated as being appropriate and in accordance with standards and procedures 2.4 Human and other resources are assessed as being adequate for the work
3 Deal with maintenance and construction problems	3.1 Causes and effects of system faults and failures within the worksite are diagnosed 3.2 Impact of work on track system integrity is assessed 3.3 Appropriate action is taken to ensure track system integrity 3.4 Scope of work is modified to include related tasks and/or interfaces 3.5 Related faults and/or failures beyond the authorised scope of work are reported
4 Complete documentation	4.1 Documentation on work undertaken is completed in accordance with workplace requirements

Required Skills and Knowledge

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
- Fundamentals of all rail infrastructure
- Track infrastructure and the interaction of all interfaces
- Track defects
- Range of track maintenance and/or construction techniques and work processes
- Range of competencies required to carry out track maintenance and/or construction
- Relevant engineering standards, specifications and codes of practice
- Problems that may occur when maintaining and/or constructing track, and action that can be taken to report or resolve them
- Hazards that may exist when maintaining and/or constructing track, and ways of controlling the risks involved
- Relevant communication systems and procedures
- Authorisation and/or approval processes and procedures
- Documentation and record-keeping requirements

Required skills:

- Communicate effectively with others when implementing track maintenance and construction
- Read and interpret technical data, drawings, instructions and manuals relating to maintaining and/or constructing track
- Interpret and follow operational instructions and prioritise work
- Select appropriate equipment
- Select appropriate work techniques
- Monitor, sequence and implement work activities in terms of planned schedule and appropriateness, in conformance with standards and procedures
- Complete documentation
- Operate communication equipment to required protocol
- Work collaboratively with others when implementing track maintenance and construction
- Diagnose causes and effects of system faults and failures resulting from the work activities
- Assess impact of work on track system integrity
- Report and rectify within limits of own role problems, faults and malfunctions that may occur when implementing track maintenance and construction in accordance with regulatory requirements and workplace procedures

- Implement contingency plans for unexpected events when implementing track maintenance and construction
- Apply precautions and required action to minimise, control or eliminate potential hazards during work activities
- Modify activities depending on differing operational contingencies, risk situations and environments
- Work systematically with required attention to detail without injury to self or others, or damage to equipment
- Operate and adapt to differences in equipment in accordance with standard operating procedures
- Select and use required personal protective equipment (PPE)
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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 for all types of work must include exercises that demonstrate competent performance of the following in a range of situations:
 - planning work
 - supervising maintenance activities
 - dealing with maintenance and construction problems
 - completing documentation
- Assessment must also include exercises which demonstrate competent performance in supervising the **specified activity** plus any four from the **designated activities** listed. The designated activities should be selected so as to provide evidence of supervision of related activities such as track construction, track maintenance or track surfacing.
 - specified activity:

- maintaining track geometry
- designated activities (any 4):
 - rail adjustment
 - guard and check rails installation
 - points and crossings maintenance
 - flashbutt welding of rail
 - aluminothermic welding of rail
 - ballasting
 - sleeper installation or replacement
 - rail replacement
 - rail earthworks
 - track drainage installation
 - constructing and/or installing points and crossings
 - on-track machine operation
 - installing rail joints
 - maintaining rail joints
 - maintaining points and crossings
 - grinding rails and/or switches and crossings
 - installing and maintaining rail fastening and anchoring systems
 - maintaining track drainage
 - track examination
 - measuring and recording track geometry

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
- 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

- 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, 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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| Scope of work may include: | <ul style="list-style-type: none"> • identifying deficiencies • identifying preparatory or ancillary work required |
| Work may involve: | <ul style="list-style-type: none"> • exposure to chemicals, and dangerous or hazardous substances • movement of equipment, goods and vehicles |
| Track maintenance and construction activities may include: | <ul style="list-style-type: none"> • removing track components • installing track components • correcting track geometry • adjusting track components • repairing track components |
| Track components may include: | <ul style="list-style-type: none"> • rail, rail joints and welds • points and crossings • sleepers, sleeper plates and sleeper fastenings • bearers, turnout plates and fastenings • lubricators • signs • ballast • track formation |
| Work methods may vary according to: | <ul style="list-style-type: none"> • location (geography and geometry) • rail type and length • sleeper and fastening type • ballast type and condition • climatic conditions • track availability |
| Extent of activity may vary according to: | <ul style="list-style-type: none"> • complexity of task • track availability • scope of work, including: <ul style="list-style-type: none"> • length of track being worked on • type of maintenance and construction activities being undertaken • types of track components |
| Track availability may include working: | <ul style="list-style-type: none"> • during breaks in traffic • on limited track possession • during extended track possession • on non-operational track or track under construction |

Equipment may include:

- mechanical handling and lifting equipment
- track machines
- hand tools, including impact wrenches, grinders, tension wrenches, friction rail saws, rail borers, tie tampers, gauges, track jacks, spiking hammers and bars
- rail tensors
- cutting and boring equipment
- fastening equipment
- on-track equipment, including sleeper spacers
- rail heaters
- welding equipment

Communication systems may include:

- two-way radios
- telephones, including mobile phones
- agreed audible or hand signals

Depending on work context, safety and PPE may include:

- high visibility clothing
- hearing protection
- gloves
- sunscreen
- sunglasses
- safety glasses
- insect repellent
- safety headwear
- safety footwear
- portable radios and mobile phones
- hand lamps
- flags
- 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 and documents may include:

- operational instructions, policies and workplace procedures
- local authority regulations and procedures
- information provided by other workplace personnel
- track inspections and reports
- work orders
- technical instructions
- manufacturer or workplace equipment instructions and operation manuals
- emergency procedure manuals

Applicable procedures and codes may include:

- two-way radio or mobile telephone operation procedures
- quality assurance (QA) plans, data and document control
- conditions of service, legislation and industrial agreements, including workplace agreements and awards
- legislated rail safety requirements, including acts and regulations from each applicable state and territory, together with any nationally approved compliance codes and/or guidelines
- relevant Australian standards (AS) and related requirements, including AS 4292
- relevant state and territory legislation relating to:
 - environmental protection
 - OH&S

Unit Sector(s)

Not Applicable

Competency Field

Competency Field

S - Construction and Installation