



Australian Government

UETDRTO014 Set-up and install transmission structure stubs

Release: 1

UETDRTO014 Set-up and install transmission structure stubs

Modification History

Release 1. This is the first release of this unit of competency in the UET Transmission, Distribution and Rail Sector Training Package Release 2.0.

Application

This unit covers the utilisation of geographical maps and site surveys to set out, excavate, prepare, align and install the foundation footings of a transmission tower and establish the tower stubs to ground level for the erection of transmission towers. Survey processes and operation of survey equipment is associated with this unit.

The application of the skills and knowledge described in this unit may require a licence/registration to practice in the workplace subject to regulations for undertaking of electrical work.

Other conditions may apply under state and territory legislative and regulatory licensing requirements which must be confirmed prior to commencing this unit.

Pre-requisite Unit

UEECD0007 Apply work health and safety regulations, codes and practices in the workplace

UETDREL005 Work safely in the vicinity of live electrical apparatus

Competency Field

Transmission Overhead

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

PERFORMANCE CRITERIA

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

1 Prepare for the setting of a transmission tower stub

1.1 Work schedule, including drawings, plans, requirements, established procedures and material lists, are received,

analysed and confirmed, as necessary, by site inspection

- 1.2** Relevant requirements and established procedures for the work are communicated to all personnel and identified for all worksites
- 1.3** Work health and safety (WHS)/occupational health and safety (OHS) policies and procedures related to requirements and established procedures for construction activities are obtained and confirmed for the purposes of the work to be performed and communicated
- 1.4** Work is prioritised and sequenced following consultation with others for completion within acceptable timeframes and in accordance with established procedures
- 1.5** Hazards are identified, WHS/OHS risks assessed and control measures prioritised, implemented and monitored, including emergency exits kept clear according to established procedures
- 1.6** Resources, including personnel, equipment, tools and personal protective equipment (PPE), required for the job are obtained and confirmed in working order
- 1.7** Relevant work permits are obtained to access and perform work according to requirements and/or established procedures
- 1.8** Relevant personnel at worksite are confirmed current in first aid, rescue and other related work procedures according to requirements
- 1.9** Liaison and communication issues with others/authorised personnel, authorities, clients and landowners are resolved to carry out work where necessary
- 1.10** Site is prepared according to the work schedule and to minimise risk and damage to property, commerce and individuals in accordance with established procedures
- 1.11** Personnel participating in the work, including plant operators and contractors, are fully briefed and respective responsibilities confirmed, where applicable, in accordance with established procedures
- 1.12** Traffic management plan is identified and implemented,

where appropriate

2 Carry out the setting of a transmission tower stub

- 2.1** WHS/OHS, sustainable energy and environmental principles and practices to reduce the incidents of accidents and minimise waste are monitored and followed in accordance with requirements and/or established procedures
- 2.2** Hazard warnings and safety signs are recognised and hazards and assessed WHS/OHS risks reported to immediate authorised personnel for directions according to established procedures
- 2.3** Lifting, climbing, working in excavations and use of power tools/equipment, techniques and practices are safely followed, and currency according to requirements confirmed
- 2.4** Essential knowledge and associated skills are applied in the survey and establishment of tower stubs to ensure completion in an agreed timeframe, and to quality standards with a minimum of waste according to requirements
- 2.5** Unplanned events in the establishment of tower stubs are undertaken within the scope of established procedures
- 2.6** Known solutions to a variety of problems are applied using acquired essential knowledge and associated skills
- 2.7** Ongoing checks of quality of the work are undertaken in accordance with instructions and established procedures

3 Complete the setting up of a transmission tower stub

- 3.1** Work undertaken is checked against work schedule for conformance with requirements and anomalies reported in accordance with established procedures
- 3.2** Accidents and/or injuries are reported in accordance with requirements/established procedures, where applicable
- 3.3** Worksite is rehabilitated, cleaned up and made safe in accordance with established procedures
- 3.4** Tools, equipment and any surplus resources and materials are, where appropriate, cleaned, checked and returned to storage or disposed of in accordance with established procedures
- 3.5** Relevant work permits are signed off, where appropriate, and equipment returned to service in accordance with

requirements

- 3.6** Work completion records, reports, as installed/modified drawing and/or documentation and information are finalised and processed and appropriate personnel notified

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the UET Transmission, Distribution and Rail Sector Training Package Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to UETTDRT28 Set-up and install transmission structure stubs.

Links

Companion Volume Implementation Guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=229bace1-b7bc-4653-9300-dffb13ecfad7>

Assessment Requirements for UETDRT0014 Set-up and install transmission structure stubs

Modification History

Release 1. This is the first release of this unit of competency in the UET Transmission, Distribution and Rail Sector Training Package Release 2.0.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria on at least two separate occasions and include:

- applying relevant work health and safety (WHS) occupational health and safety (OHS) requirements, including the use of risk control measures
- applying sustainable energy principles and practices
- demonstrating all of the following:
 - survey techniques
 - setting out and pegging excavation markers
 - establishing the tower stub to ground level
- dealing with unplanned events on at least one (1) occasion.

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria and include knowledge of:

- mathematical techniques encompassing:
 - calculations involving fractions, decimals, ratios and proportions
 - calculations involving area, volume, mass and density
 - calculations involving transposition and substitution of formulae
 - calculations involving simple trigonometric problems
- engineering mechanics encompassing:
 - identification of basic concepts, principles and applications - application of velocity, acceleration, force, density, torque and pressure
 - applications of the International System of Units (SI) units
 - the relationship between work, power and energy
 - behaviour of object under force - using a block and tackle under load, concept of mechanical advantage, determination of resultant forces and determining the sag in a catenary conductor and the force applied at each end
 - fundamentals of the basic laws of fluid mechanics

- materials properties encompassing:
 - identification and classification of engineering materials material properties
 - types and applications - properties of tensile strength, effects of temperature on the expansion of metals, ductility, malleability, work hardening and annealing and the conditions that lead to corrosion and the properties of timbers
- operation of elevated work platform (EWP) encompassing:
 - standards, codes, legislation, supply authority regulations and/or enterprise requirements associated with EWP, including relevant certification and licensing - safe working clearances; safe operation procedures and the mandatory wearing of harness/attachment requirements; safety observers; inspection and testing procedures prior to use, set-up, operation and shutdown procedures for an EWP
 - emergency procedures for an EWP - escape procedures for an EWP, rescuing procedures and mechanical failure procedures
 - types of EWP insulated/uninsulated
- operation and maintenance of mobile plant, tools and equipment encompassing:
 - standards, codes, legislation, supply authority regulations and/or enterprise requirements associated with portable hydraulic equipment and portable pneumatic equipment, including relevant certification and licensing - safe working clearances, safe operation procedures and safety observers
 - inspection and testing procedures prior to use
 - set-up, operation and shutdown procedures
 - permit to work systems and isolation procedures
- requirements for the use of enterprise vehicles, such as trucks and four-wheel drive vehicles encompassing:
 - standards, codes, legislation, supply authority regulations and/or enterprise requirements associated with safe use of enterprise vehicles, including relevant certification and licensing, such as motor cars, light and heavy commercial trucks, heavy truck/trailer combination and four-wheel drive vehicles
 - compliance with regulations associated with the securing of loads prior to transportation
- requirements for the use of chainsaws, including relevant certification and licensing, encompassing:
 - safety precautions, requirements and responsibilities
 - selection and use of appropriate personal protective equipment (PPE)
 - chainsaw operation - parts and function of components and ancillary equipment, pre-operational checks, starting procedures and safe use of chainsaw under load
 - safe transporting and storage procedures
- procedure in providing store support encompassing:
 - classification and identification of equipment, components and tools
 - procedures for purchasing/ordering items, removing/dispatching items, stocktaking, security and bookkeeping/record keeping
 - material handling - warehouse/depot storage techniques, handling equipment, pallet lift trucks, forklifts and cable drum handling equipment
 - safety procedures - storage and care of safety equipment, handling hazardous materials,

- storage of hazardous substances and dangerous goods, and depot safety procedures
- manufacturer and supplier information, including material safety data sheets (MSDS)
- filtering and sampling of insulating oil encompassing:
 - standards, codes, legislation, supply authority regulations and/or enterprise requirements associated with filtering and sampling - safe handling procedures; personal hygiene; storage and disposal procedures; WHS/OHS hazards and precautions, including use of appropriate PPE; environmental procedures and effects of contaminants
 - properties of insulating oil - dielectric strength, moisture content, acidity and sludge
 - locations where insulating oil is used - transformer, switchgear and oil-filled cable
 - filtering equipment – types, cleaning procedures and method of use
 - techniques in filtering and sampling insulating oil - methods of sampling, methods of filtering, testing procedures on site and analysing oil effectiveness
 - frequency of testing
- powerline safety practices encompassing:
 - protective apparatus and apparel for linework - responsibilities for the selection, use, maintenance and storage of protective apparatus and apparel and the types of protective apparatus and apparel used for the line worker
 - requirements for the use of ladders - carrying, erecting, collapsing and lowering different types of extension ladder against a standing pole; maintenance checks on different types of ladders; renewal of extension ropes and the safety issues relating to clearances from overhead conductors
 - requirements for climbing and working aloft - methods used to identify a pole is safe to climb; methods used to inspect a line worker's body belt; application of knots and hitches appropriate to the requirements of a line worker; height safety principles, including personal fall protection, prevention and related requirements; and the practical procedure of climbing an overhead structure and fitting a pole chair
 - traffic management - purpose of traffic management and a line worker's responsibilities in accordance with relevant statutory requirements and electricity supply industry (ESI) requirements, procedures used to provide an effective traffic management scheme and the use of a two-way radio
 - control of small fires - identification, selection and operation of the appropriate extinguishing mediums for various types of fires; general fire prevention methods and the precautions for personal protection when fighting small fires
 - rescue victims from heights and confined spaces - planning and identifying procedures; establishing responses; developing techniques, involvement of external emergency services; and practical demonstration/rehearsals of rescuing a person from heights and from confined spaces and emergency procedures for the rescue of an electric shock victim, including cardiopulmonary resuscitation (CPR)
 - requirements for aerial linework - planning, establishing and implementing relevant aviation authority clearances; determining system requirements; aircrew familiarisation with network operations and equipment and requirements for effective communications operations for aerial work
- environmental fundamentals encompassing:
 - environmental standards, codes, environmental legislation, supply authority regulations

and/or enterprise requirements applicable to the control of environment associated with the worksite - relevant federal legislation, relevant state/territory legislation, relevant local government by-laws, relevant government or quasi government policies and regulations, and relevant community planning and development agreements (including land care agreements)

- employer and employee responsibilities
- methods of obtaining information on environmental issues and updates
- methods of identifying environmental impacts from work-related activities
- meaning of environmental terms - identification, assessment and control of risks, compliance, best practice and sustainable energy
- procedures in implementing management plans to ensure compliance
- material handling and the environment encompassing:
 - methods of obtaining updated environmental information and data sheets on the proper use and handling of equipment and materials
 - environmental standards, codes, environmental legislation, WHS/OHS legislation, hazardous substances/dangerous goods regulations, supply authority regulations and/or enterprise requirements; and applicable environmental care when handling materials, including provision of manufacturer and supplier information, such as MSDS
 - types and application of PPE used for hazards substances and dangerous goods
 - techniques in handling equipment to eliminate/reduce risks to the environment from spillages of oils, herbicides, pesticides and chemicals from equipment such as vehicle loading crane, chainsaws, enterprise vehicles and explosive power tools
 - procedures for handling and control of spillages of herbicides
 - methods of disposing and storage of herbicides, pesticides and chemicals
 - methods of cleaning mobile plant, equipment and tools
 - recording of data
- principles of surveying encompassing:
 - standards, codes, legislation, supply authority regulations and/or enterprise requirements applicable to surveying in the ESI
 - survey principles and measurement of ground levels, deviation angles and compass bearings
 - basic survey of short distribution line extension.

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated conditions involving realistic

and authentic activities that replicate operational workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- a range of relevant exercises, case studies and/or other simulations
- relevant and appropriate materials, tools, facilities, equipment and PPE currently used in industry
- applicable documentation, including workplace procedures, relevant industry standards, equipment specifications, regulations, codes of practice and operation manuals.

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