

Title	Demonstrate knowledge of hazards and safety requirements for tree work near electrical supply lines		
Level	3	Credits	5

Purpose	People credited with this unit standard are able to demonstrate knowledge of hazards involved and safety requirements for tree work near electrical lines and equipment.
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Classification	Horticulture > Arboriculture
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Available grade	Achieved
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Guidance Information

- Legislation, standards, and references relevant to this unit standard include but are not limited to:
 - Health and Safety at Work Act 2015;
 - Local Government Act 2002;
 - Resource Management Act 1991;
 - BS 3998:2010, *Tree work. Recommendations*, available from www.britishstandard.org.uk;
 - ANSI A300, *Standards for Tree Care Operations* (Parts 1 – 7) and their subsequent amendments, available from www.isa-arbor.com;
 - WorkSafe New Zealand, *Approved Code of Practice Safety and Health in Arboriculture* (2012), available from www.worksafe.govt.nz/worksafe;
 - WorkSafe New Zealand, *Approved Code of Practice for Safety and Health in Tree Work Part 2: Maintenance of trees around power lines* (1996), available from www.worksafe.govt.nz/worksafe;
 - WorkSafe New Zealand, *Manual Elevating Work Platforms* (2014) available from www.worksafe.govt.nz/worksafe;
 - New Zealand Arboricultural Association Inc. (NZ Arb), *Best Practice Guide (BPG) for Safety Requirements in New Zealand Arboricultural Operations* (2017), available from www.nzarb.org.nz;
 - WorkSafe New Zealand, *Guide for Safety with Underground Services* (2002), available from www.worksafe.govt.nz/worksafe; and any subsequent amendments.
- Definition

Workplace procedures – the policies and procedures on safety and operation set down by the employer or organisation, which should reflect industry best practice, the BPG, equipment manufacturer’s requirements, and current legislation.

3 For the purposes of assessment:

- evidence for the practical components of this unit standard must be presented in accordance with workplace procedures.

Outcomes and performance criteria

Outcome 1

Demonstrate knowledge of hazards involved in tree work near electrical lines and equipment.

Performance criteria

- 1.1 Describe the features of electricity in terms of their possible hazardous effects on tree work.

Range amperage, current, heating and electromagnetic effects, Ohms law, resistance, voltage.

- 1.2 Describe insulators and conductors in terms of their possible hazardous effects on tree work.

- 1.3 Describe potential hazards in terms of how injury could be caused.

Range arcing, direct and indirect contact, earth potential, flashover, inadvertent contact by personnel and plant, phase to earth contact, phase to phase contact, short circuits, step and touch potential, weather conditions.

- 1.4 Describe transmission and distribution of electricity in terms of systems, voltages, and hardware.

- 1.5 Identify networks in terms of the voltages they carry.

Range transmission – 220,000 volts, 110,000 volts, 66,000 volts, 50,000 volts; distribution – 33,000 volts, 11,000 volts, 400 volts.

- 1.6 Identify transmission and distribution networks in terms of functions of the hardware used.

Range transmission hardware – structures and towers.
distribution hardware – air brake switches, auto reclosers, circuit breakers, conductors, dominion drop-out fuses, guy wires, insulators, oil filled circuit breakers, sectionalisers, service lines, spur lines, structures, substations, transformers.

Outcome 2

Demonstrate knowledge of safety requirements for tree work near electrical lines and equipment.

Performance criteria

- 2.1 Describe features of relevant legislation and standards in terms of their application to safety requirements.

Range definitions, training, general safety, equipment, hazard identification, operational considerations, methodology, minimum approach distances, limitations of network provider requirements.

- 2.2 Identify safe working distances and minimum approach distances for plant and personnel in accordance with relevant legislation.

- 2.3 Identify network provider requirements for tree work for a supply system.

Range must include but is not limited to – accident and emergency procedures, approved methodology, circuit and voltage identification, communication with network, logging on and logging off, network operational procedures, permit to use mechanical plant within 4 metres of lines, shut down procedures.

- 2.4 Identify hazards and manage risks for a specific site.

- 2.5 Describe first aid procedures appropriate to electrical incidents.

Range burns, electrocution, fall due to electrocution.

Planned review date	31 December 2025
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Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	23 November 1999	31 December 2019
Revision	2	13 February 2002	31 December 2019
Revision	3	24 February 2006	31 December 2019
Review	4	11 December 2009	31 December 2019
Review	5	26 April 2018	31 December 2024
Review	6	25 March 2021	N/A
Revision	7	27 January 2022	N/A

Consent and Moderation Requirements (CMR) reference	0032
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This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.

Comments on this unit standard

Please contact Muka Tangata - People, Food and Fibre Workforce Development Council qualifications@mukatangata.nz if you wish to suggest changes to the content of this unit standard.