



1 SCOPE

This Procedure details the procedures to be followed in order to achieve **Safety from the System** when:

- using **Insulated Tools** within the **Vicinity Zone** or the **Live Zone**, when carrying out **Tree Work** on **Live** overhead lines - up to 11 kV.
- using uninsulated tools outside the **Vicinity Zone**, when carrying out **Tree Work** on **Live** overhead lines - excluding 275kV and 400 kV - when trees are in the **Vicinity Zone** and below the level of the **Live Zone**.

All other **Tree Work** when working in proximity to the **System** shall be completed in accordance with ER G55/1 – ‘Safe Tree Working In Proximity To Overhead Electric Lines’

2 ISSUE RECORD

This is a controlled / maintained document

All copies printed via the Intranet or photocopied will be deemed uncontrolled.

Issue Date	Issue No	Author	Amendment Details
Nov 1998	A	D W Williams	Initial PSLWM Issue: : 12 Page Document
Jan 2000	B	R H Bracey	Revised PSLWM Issue: Major revision, Zones simplified. Tree categories removed. Authorisation requirements defined. Requirement for method statements included. Insulated tools defined. Permitted work in vicinity zone defined. Risk assessment format changed: : 7 Page Document
May 2001	3	Raymond Nelson	Revised and Reformatted Issue: Introduced Live Zone with change to the auto-recloser setting policy in the Vicinity Zone : : 12 Page Document.



Issue Date	Issue No	Author	Amendment Details
Dec 2002	4	Raymond Nelson	Updated format. Clarification of Scope. Definition of Working Party Re-wording of Section 10.1. 10.3.2 – clarification of Live work on insulated overhead lines. New 10.3.4 – tree cutting outside Vicinity Zone with trees within Vicinity Zone and below the Live Zone . : 15 Page Document.

3 ISSUE AUTHORITY

Author	Owner	Issue Authority
Raymond Nelson Operational Risk Manager	W Cuthbert Health, Safety & Environment Manager	W Cuthbert Health, Safety & Environment Manager <i>William Cuthbert</i>

4 REVIEW

This document will be subject to review when alterations to **Live** tree cutting procedures as required and in any case no later than three years after the date of issue.



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6 DANGERS

The main dangers to personnel are either electrical (due to proximity to or contact with **Live** conductors) or those associated with **Tree Work** (including dangers from falling branches or incorrect use of equipment).

7 DEFINITIONS

7.1 Terms printed in bold type are as defined in the Scottish Power Safety Rules Electrical and Mechanical 4th Edition.

7.2 For the purposes of this section of the PSLWM, the following additional definitions apply :-

Insulated Tools

Tools that meet the requirements of Electricity Association Technical Specification (EATS) 26-2 or equivalent (for use up to and including 11kV), are of such a design that the operator may remain outside the **Vicinity Zone** and which are subjected to periodic inspection and test. The use of ***Insulated Tools*** shall be defined in the ***Method Statement*** to be adopted. ***Insulated Tools*** shall only be used by **Persons** who are suitably trained and authorised.

Method Statement

A written procedure for ensuring **Safety from the System** when carrying out **Tree Work**. The procedure may be generic or site-specific. In all cases the procedure shall be approved by a **Company Person** who is suitably authorised and who has appropriate knowledge of **Tree Work**.

Tree Work

All silvicultural and arboricultural work associated with trees, shrubs or other vegetation including pruning, sectioning, lopping, limb removal, felling, controlled felling and timber removal

Live Zone

The **Live Zone**, equivalent to the **Safety Distance**, around exposed **Live** conductors or supporting insulators where there is **Danger** of burn or electrical shock if any part of the body or non-insulated tool they are using enters the zone.

The **Live Zone** distances, which depend on voltage, are detailed in Section A2.3 in the ScottishPower Safety Rule Handbook and Appendix 1 of this document.

**Vicinity Zone**

The **Vicinity Zone** that extends for a distance around exposed **Live** Conductors, which if maintained will ensure that the **Danger** of burn or electric shock is prevented because the **Live Zone** is not breached.

The **Vicinity Zone** distances, which depend on voltage, are shown in Appendix 1 of this document.

Working Party

The **Persons** under the **Immediate Supervision** of an **Authorised Person** and includes an **Authorised Person** when working by himself

8 RELATED DOCUMENTS

ScottishPower Safety Rules

OPSAF-12-028 (PSLWM 8.5)

Inspection and Testing of Insulated Rods

Engineering Recommendation G55/1

Safe Tree Working In Proximity To Overhead Electric Lines

NPTC

Abrocultural Works Within The Proximity Zone Of Overhead Lines Up To And Including 400kV



9 REQUIREMENTS FOR LIVE WORK

- 9.1 The requirements of the Electricity at Work Regulations for **Live** working shall be met. An electrical risk assessment using the form and flow chart in Appendix 3 shall indicate whether **Tree Work** can be carried out with the **Apparatus Live**. The other general safety risks arising out of associated activities such as tree removal need to be considered separately.
- 9.2 All **Persons** carrying out **Tree Work** within the scope of this Procedure shall be authorised to :-
- WL-1.29 – for **LV**, and
WL-1.100 – for 11 kV.
- 9.3 A suitable plan showing the part of the **System** where **Tree Work** is to take place shall be issued to the **Authorised Person** in charge of the **Working Party**. Any known electrical safety precautions shall be indicated on the plan.
- 9.4 All **Tree Work** shall be performed in accordance with an approved **Method Statement**.
- 9.5 Any **Tree Work** within the scope of this document associated with an **HV** overhead line that cannot be completed with the overhead line **Live** shall be carried out with the **System** isolated, **Primary Earths** applied, **Permit for Work** issued and **Drain Earths** applied in accordance with PSSI 4.
- 9.6 Any **Tree Work** within the scope of this document associated with an **LV** overhead line that cannot be completed with the overhead line **Live** shall be carried out with the **System** isolated and shorting / **Earthing Devices** applied in accordance with PSSI 12.



10 WORK

10.1 Trees above both the Conductors and the Vicinity Zone

No **Tree Work** shall take place directly above the **Vicinity Zone** with the line **Live**.

The drawings in Appendix 2 give guidance.

10.2 Trees outside the Vicinity Zone

10.2.1 Trees with no potential to breach the Vicinity Zone

Trees that are outside the **Vicinity Zone** and have no potential to breach the **Vicinity Zone** may have **Tree Work** carried out on them with the line **Live**.

10.2.2 Trees with the potential to breach the Vicinity Zone

Trees that are outside the **Vicinity Zone** but which have the potential to breach the **Vicinity Zone** may have **Tree Work** carried out on them with the line **Live**, provided that the risk assessments and the control measures ensure that no trees, cut branches, etc, breach the **Vicinity Zone**. The control measures shall be detailed in the **Method Statement**.

10.3 Trees within, or which have the potential to breach, the Vicinity Zone and / or Live Zone.

Trees within, or which have the potential to breach the **Vicinity Zone** and / or the **Live Zone** present a hazard and consequent risk. The only **Tree Work** that may be carried out with the overhead line **Live** on trees that are within, or which have the potential to breach the **Vicinity Zone** and / or **Live Zone** is as follows :-

10.3.1 Twigs and small branches (not exceeding 50 mm diameter) shall be cut into small sections not exceeding 500 mm in length using **Insulated Tools** and allowed to fall with the line **Live**. The maximum length of the cut sections shall be identified during the risk assessment. When such cutting is performed adjacent to pole mounted **Apparatus** it must be ensured that cut branches cannot fall and bridge arc gaps or jam switch mechanisms.

10.3.2 On insulated overhead lines up to 11kV following a risk assessment and where an inspection confirms that there is no damage to insulation, tree cutting can be completed within the **Vicinity Zone** with the line **Live** using **Insulated Tools**.



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- 10.3.3 On insulated overhead lines where there is damage, or signs of damage, to the insulation, the overhead line shall must be regarded as uninsulated and dealt with in accordance with section 9.5 or section 9.6.
- 10.3.4 Trees in the **Vicinity Zone** and below the level of the **Live Zone**, may be felled, sectioned or pruned from outside the **Vicinity Zone** using uninsulated tools with the line **Live** if adequate control measures are taken to prevent the trees, cut branches etc. coming into the **Live Zone**. This method must not be used for 275kV and 400kV overhead lines.

11 EXECUTION OF WORK

- 11.1 It is essential to first assess the hazards and then introduce adequate control measures in order to eliminate or reduce any risk to either persons carrying out **Tree Work** or anyone else effected by their actions. The risk assessment form shown in Appendix 3 shall be completed at each **Location** and the control measures indicated by the risk assessment shall be adhered to.
- 11.2 Any **Tree Work** to be carried out adjacent to overhead lines shall be planned and carried out in such a manner as to ensure that no mechanical damage is caused to the line during the progress of this work.
- 11.3 Measurement of the clearances between the conductor and the trees shall only be carried out using **Approved Insulated Tools** up to 11 kV or alternatively suitable optical measuring devices. Metal measuring tapes shall not be used in any circumstances for this purpose.
- 11.4 Persons carrying out **Tree Work** adjacent to **Live** overhead lines shall ensure that no part of their body or any tools or equipment (other than **Approved Insulated Tools** – up to 11kV) enters the **Vicinity Zone**.
- 11.5 Before any **Tree Work** adjacent to **Live HV** overhead lines commences, where the tree breaches or has the potential to breach the **Live Zone**, the auto-reclose feature applied to that circuit at the point of work shall, where practicable, and with the **Consent** of the **Control Person**, be rendered inoperative. The method of achieving this shall ensure one shot to lock out operation in the event of a fault / incident
- 11.6 Where it is not practicable to remove auto-reclose operation on the circuit breaker closest to the point of work, the **Control Person** shall be notified.
- 11.7 Before commencing any work, the **Person** in charge of the **Working Party** shall notify the **Control Person** of the **Location** and the working times.



- 11.8 All **Persons** working adjacent to the **System** shall be aware of the procedure for immediately contacting the **Control Person**, in the event of an incident.
- 11.9 All **Persons** working adjacent to the **System** shall be aware of the effect that auto-reclose facilities can have on the energised line in the work area, how it can affect the safety of the people on site and whether or not it has been inhibited.
- 11.10 On completion of the work the **Person** in charge of the **Working Party** shall notify the **Control Person** when all members of the working party are clear of the site.



12 PROCEDURE WL1.29 - TREE CUTTING AND LIMBING (LV)

- 1 Obtain plans of the area where **Tree Work** is to be carried out.
- 2 Carry out a written on-site risk assessment in order to decide appropriate **Safety from the System** control measures.
- 3 Advise the Troublecall Despatcher of the area of work.
- 4 Carry out **Tree Work** using **Insulated Tools**.
- 5 Notify the Troublecall Despatcher that work is complete.

13 PROCEDURE WL1.100 - TREE CUTTING AND LIMBING (HV)

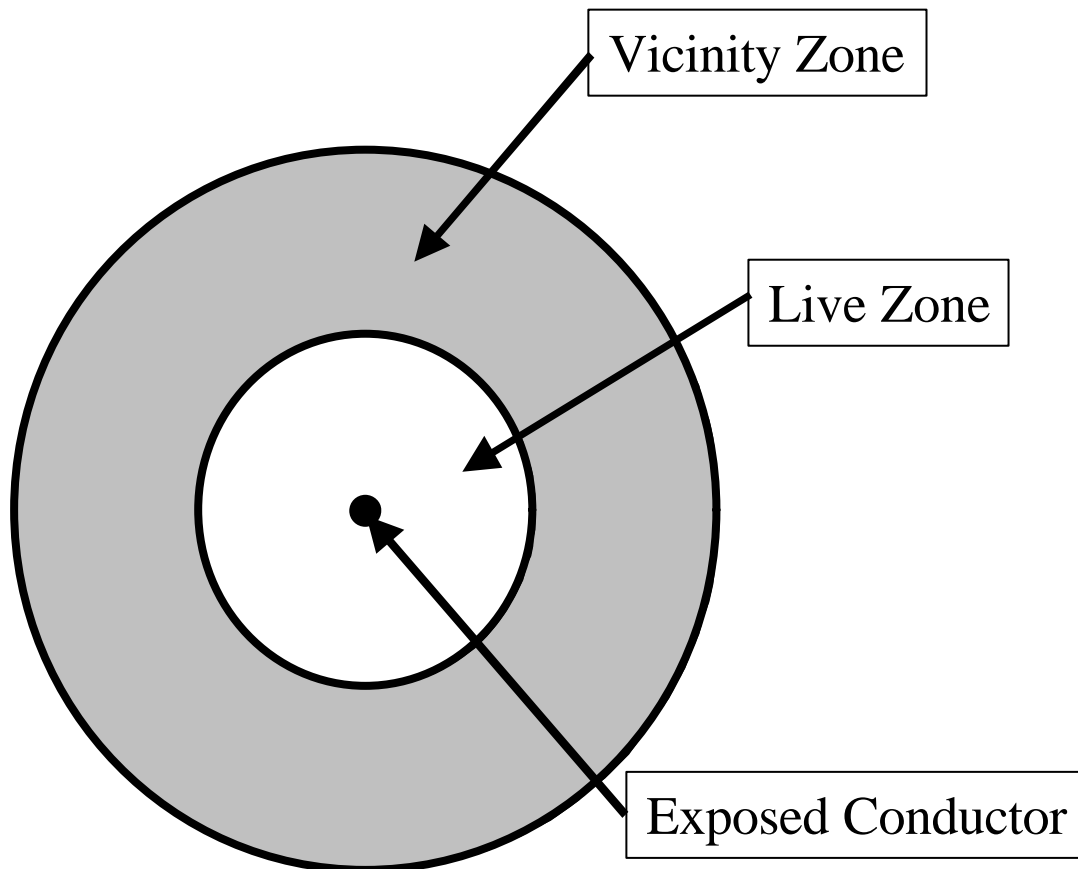
- 1 Obtain plans of the area where **Tree Work** is to be carried out.
- 2 Carry out a written on-site risk assessment in order to decide appropriate **Safety from the System** control measures.
- 3 Advise the **Control Person** of the area of work and request his consent to proceed.
- 4 Carry out **Tree Work** using **Insulated Tools**.
- 5 Notify the **Control Person** that work is complete.



APPENDIX 1

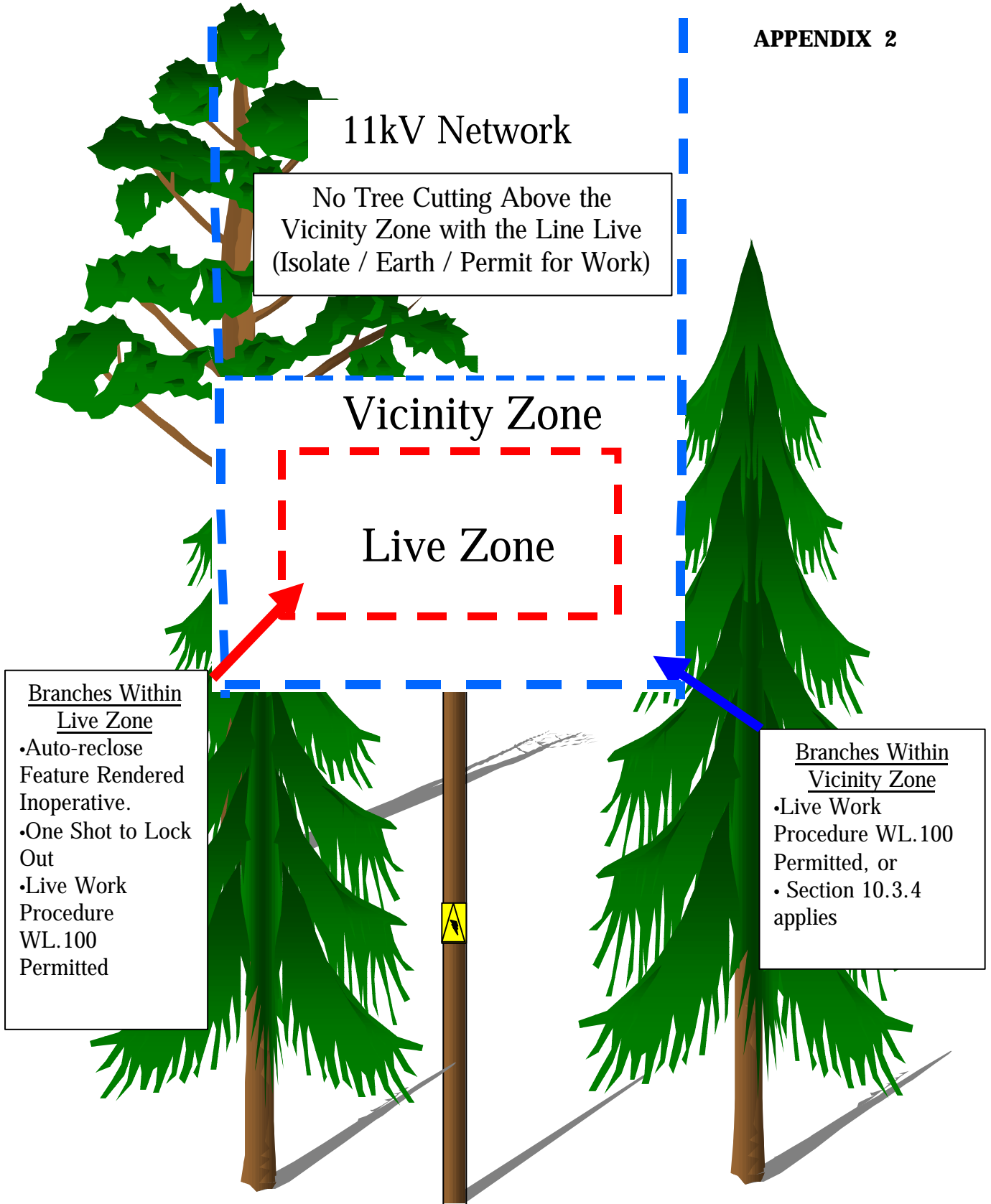
TABLE – LIVE ZONE & VICINITY ZONE DISTANCES

Line Voltage	Live Zone Distance or Safety Distance (metres)	Vicinity Zone Distance (metres)
Not exceeding 1kV	0.8	1.0
Exceeding 1kV but not exceeding 11kV	0.8	2.0
Exceeding 11kV but not exceeding 33kV	0.8	2.5
Exceeding 33kV but not exceeding 66kV	1.0	3.0
Exceeding 66kV but not exceeding 132kV	1.4	3.5
Exceeding 132kV but not exceeding 275kV	2.4	4.0
Exceeding 275kV but not exceeding 400kV	3.1	5.0



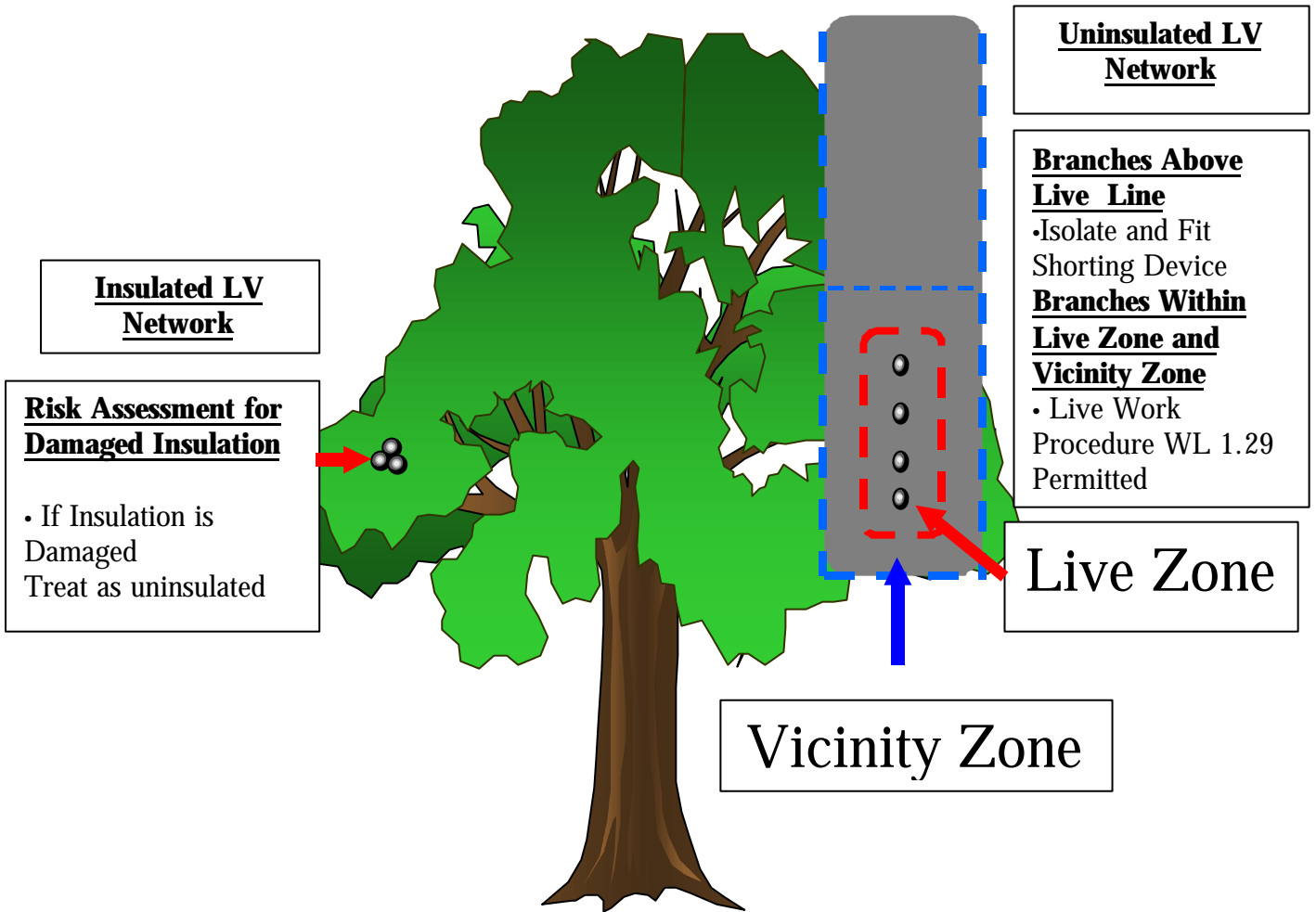


APPENDIX 2





APPENDIX 2





APPENDIX 3

ELECTRICAL RISK ASSESSMENT

**NOTE: AN ADDITIONAL ASSESSMENT OF NON-ELECTRICAL RISKS
MUST ALSO BE COMPLETED BEFORE COMMENCING WORK**

Site location details	
Date assessed	
Assessed by	
Site assessment	
Control measures	
Work method	



APPENDIX 4

