



Aurora Energy Pty Ltd

**Guideline For Work by
Customers Near Overhead
Power Lines**

No one matches our energy

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ATTACHMENT A - EXAMPLE OF THE VWD INSTALLATION ADVICE FORM

1. PURPOSE

Purpose and Process Overview

The purpose of this guideline is to help provide a safe work environment and ensure consistent practices for customers, who require access to work near or within the 'No Go Zone' of overhead power lines controlled by Aurora Energy.

This guideline provides information on the processes and forms to be used, to help ensure a safe work environment is provided and maintained for customers who work and/or use plant & equipment near overhead power lines.

This guideline must be used at all times when a customer;

1. requests written confirmation of conductor voltages & clearances, or
2. requires access to work within the 'No Go zone' of overhead powerlines.

2. REFERENCES

- *WorkCover Tasmania GB137 - 'A GUIDE to working safely near OVERHEAD POWERLINES'*
- *Electricity Industry Safety and Administration Act 1997*
- *Electricity Supply Industry Act 1995*
- *Occupational Licensing Act 2005*
- *Workplace Health & Safety Act 1995 & Regulations 1998*
- Western Power (Western Australia) Request to Work near Overhead Powerlines
- ENA NENS 04 - Guidelines "For Safe Approach Distances To Electrical Apparatus"
- ENA C (b)1 Guidelines "For Design and Maintenance Of Overhead Distribution and Transmission Lines"
- AS/NZS 4576:1995 – Guidelines for scaffolding
- AS/NZS 4836:2001 – Safe Working on low-voltage electrical installations
- AS 2550.1 - Cranes - Safe use – General Requirements
- Tasmanian Electricity Entities - Power System Safety Rules
- Work Standard ST-WS-004 Visual Warning Devices (VWDS) Installation on Power Supply Distribution Assets.
- Construction Industry: A guide to Occupational Health and Safety GB 134

3. DEFINITIONS

- APPROPRIATE EARTHING SYSTEM:** Is an approved and type tested device connected to the vehicle chassis and earth to discharge electrical energy
- AURORA:** Is Aurora Energy Pty Ltd who are the owners of the electrical power distribution system
- AUTHORISED CONTRACTOR:** For the purpose of this guideline is the contractor authorised by *Aurora* to install VWDs (Flags, *Tiger Tails*, *Covers* etc) on overhead conductors and isolation of service conductors on behalf of *Aurora*
- CSC:** Is *Aurora Energy's* Customer Service Centre.
- CUSTOMER:** A person who makes a request to *Aurora* where work to be done is in the *No Go Zone* to power lines
- CUSTOMER'S SAFETY OBSERVER:** A person appointed by the *Customer* to observe the *customer's* work activity and warn against unsafe approach.
- ESS:** Is the office of Electricity Standards and Safety who administer the *Electricity Industry Safety and Administration Act 1997* and the *Occupational Licensing Act 2005*
- HV:** Means High Voltage - voltages exceeding 1000 volts AC and 1500 volts DC
- HOARDING:** Is a physical barrier attached to the scaffold to prevent the worker reaching out and contacting electrical conductors Hoarding must extend sufficiently to prevent metal items being carried / moved inadvertently breaching the SAD to powerlines
- JOB MANAGER:** Is an *Aurora* employee nominated to liaise with the *customer* and establish the scope of work
- LV:** Means Low Voltage; a voltage up to 1000 volts AC and 1500 volts DC
- NO GO ZONE:** the prohibited area around overhead powerlines, where only authorised persons can work as directed by Aurora Energy
- POWER LINE:** In the context of this Standard, for simplicity purposes, the term Power Line has generally been used to refer to either a Distribution or a Transmission Line. Where necessary a distinction is made concerning the type of Power Line being referred to.
- RISK ASSESSMENT:** An on site assessment by the *Job Manager* or *Aurora's Authorised Contractor* and *Customer* identifying risks associated with the proposed work and the possible application of *Covers*
- SAD:** Safe Approach Distances in relation to the Tables listed in this document and the Tasmanian Electricity Entities - Power System Safety Rules
- SHALL, MUST:** Is to be interpreted as "mandatory"
- SHOULD, MAY:** Is to be interpreted as "advisory or discretionary"
- TIGER TAILS:** A pseudo industry name for conductor coverings that provide a visual warning.
- VWD:** Visual Warning Device. Such devices include Tiger Tails, flags, bird flappers etc
- VWD INSTALLATION ADVICE FORM:** A Form provided to the *Customer* advising of Safe Work Conditions. (Example Attachment A)
- WRITTEN AUTHORISATION:** A signed form issued by an authorised Aurora Energy employee or Contractor that sets out the conditions that must be implemented and maintained for work within the 'No Go Zone' of overhead powerlines
- WST:** Is Workplace Standards Tasmania who administer the *Workplace Health and Safety Act 1995*

Explanatory Note: Whilst *Covers*, *VWDs* and *Tiger Tails* (referred to in the definitions) can provide some insulation (when they are in an undamaged condition), they cannot be relied on as an electrical insulator; as they can be subjected to mechanical damage by the *customers'* activities etc. which effectively negates the electrical insulation properties.

4. INTRODUCTION

The general public and construction/maintenance organisations **are prohibited from working within the 'No Go Zone' of overhead powerlines**, unless they have advised Aurora Energy and received written authorisation for the work activity.

Only authorised *Aurora* employees and contractors, and persons with written authorisation for the work activities from *Aurora Energy Pty Ltd. or Aurora's contractor*, are allowed to work within a *No Go Zone*. Written Authorisation will need safe measures and controls to be implemented prior to and during the work activities which may include any or all of the following;

- De-energisation of the overhead conductors,
- Relocation or removal of the overhead conductors,
- Restricted work site entry,
- Control of work activity should the planned activities change,
- the use of safety observers,
- installation of appropriate barriers, hoarding or warning devices, etc.

This information has been developed and implemented as Aurora Energy, Workplace Standards Tasmania (WST) & Electrical Standards and Safety (ESS) due to their concern about the way the public, constructors and plant operators work in close proximity to electrical overhead conductors without understanding the;

- risks involved with work near overhead powerlines, and
- advising the Electricity Entity of the proposed work activities near overhead powerlines, as required under the Electricity Supply Industry Act 1995 s. 110, and
- obtaining written authorisation from Aurora Energy. To work within the No Go Zone of overhead powerlines.

This guideline endeavors to address the regulatory framework for all parties to apply.

5. LEGISLATIVE & REGULATORY FRAMEWORK

The legislative and regulatory framework for electricity safety in Tasmania is managed by a combination of the;

- *Electricity Industry Safety and Administration Act 1997*,
- *Occupational Licensing Act 2005* and
- *Workplace Health and Safety Act 1995*

ESS administers the *Electricity Industry Safety and Administration and Safety Act 1997* and the *Occupational Licensing Act 2005* and WST administers *Workplace Health and Safety Act 1995*.

In the first instance non compliance by the public, constructors and plant operators with any of the provisions of the Acts relating to working in the vicinity of overhead power lines will be addressed through consultation between the *customer* and *Aurora Energy Pty Ltd*, who will report this to ESS or WST; where further action may be taken. If satisfactory agreement is not reached, the matter will be referred by *Aurora Energy Pty Ltd* to the appropriate Regulatory Authority.

In addition the *Tasmanian Electricity Entities* have adopted a code "*Power System Safety Rules*" that defines clearance guidelines for work in the vicinity of power lines.

Note: The fitting and removal of any VWD can only be done by an appropriately competent and licensed electrical practitioner which is defined in the Occupational Licensing Act 2005

6. CUSTOMER MAINTAINING SAFE APPROACH DISTANCE TO POWERLINES

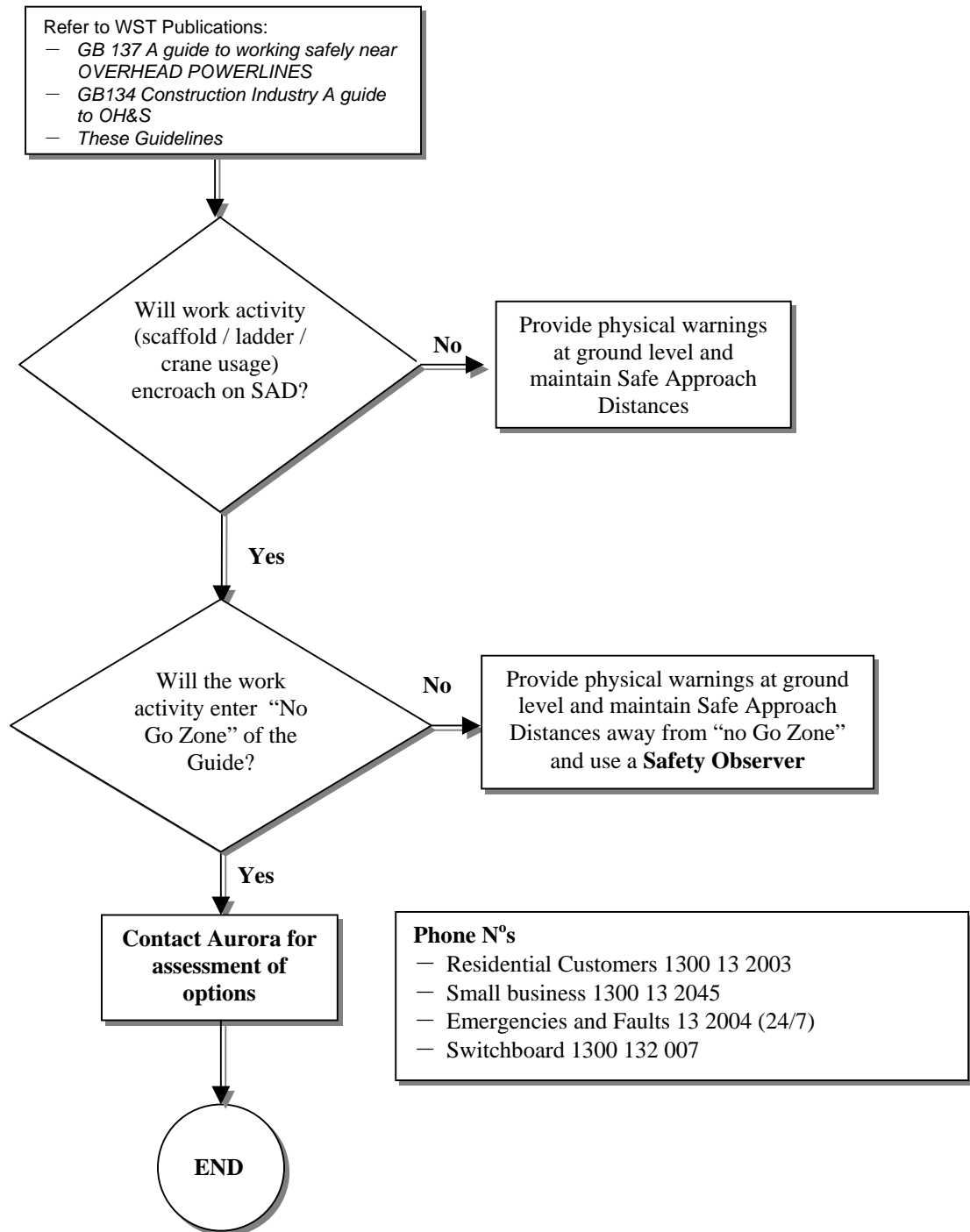
The customer must manage all work activities near overhead powerlines to ensure as a minimum that the requirements of the WorkCover Tasmania publication GB137 "A guide to working safely near OVERHEAD POWERLINES" and these Guidelines are met.

Where the safe approach distances to the 'No Go Zones' cannot be achieved the customer is to contact Aurora to provide advice and options to ensure work can proceed safely.

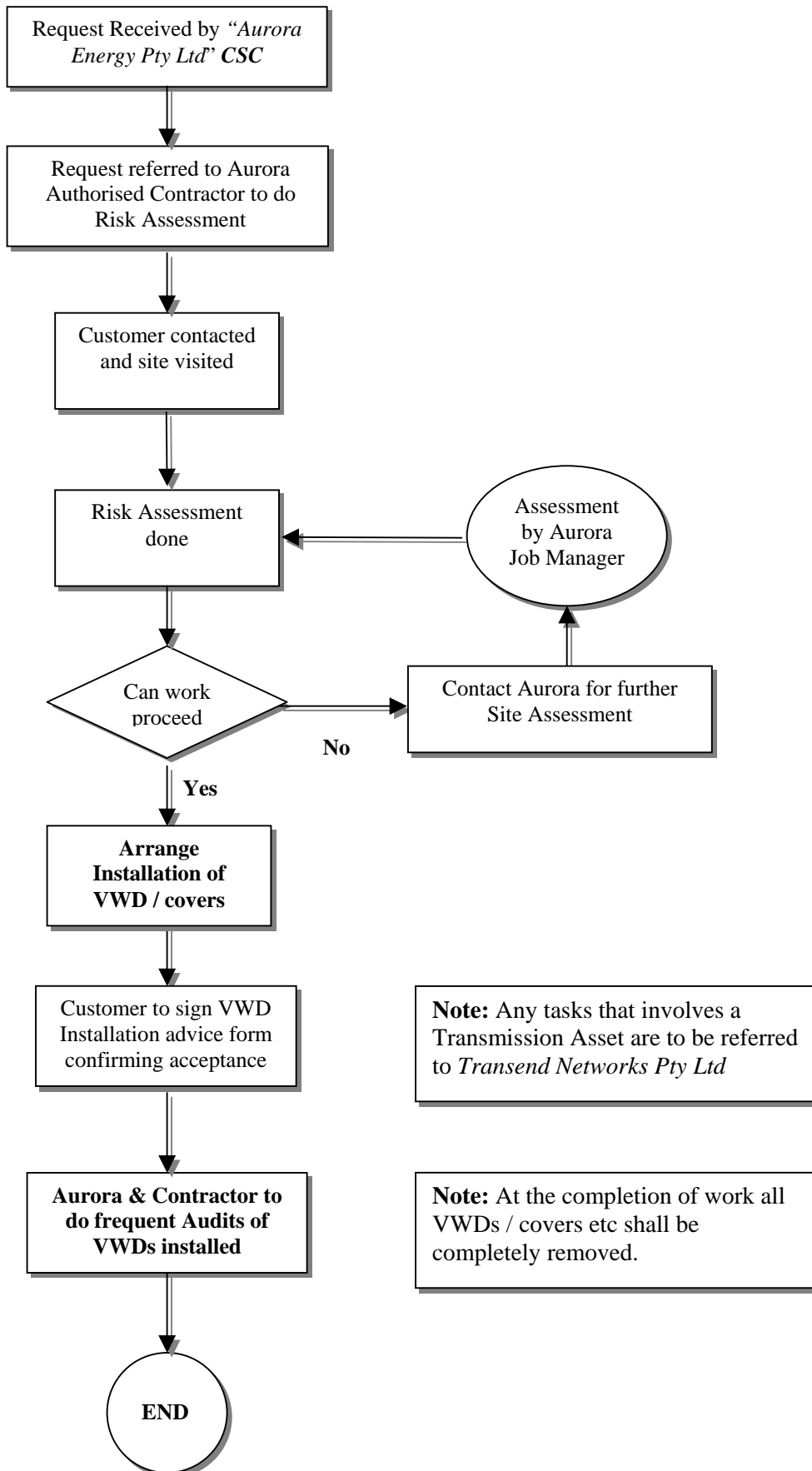
The following page provides a chart for the customer to assess work activities near powerlines

7. PROCESS FOR THE CUSTOMER TO ASSESS WORK

Work activities near Powerlines



8. PROCESS FLOW CHART FOR HANDLING CUSTOMER REQUESTS



9. ASSESSMENT

The assessment shall include:

- Identify the network assets involved with the intrusion,
- An understanding of the work guidelines to be employed by applicant, and how the Safe Approach Distances are to be maintained,
- Consideration of any other course of action that *may* assist the *customer* to maintain the Safe Approach Distance and visual warnings on the conductors.
- The site specific hazards and risks, associated with the work planned work activities
- That the *customer* has an understanding that in some situations work cannot proceed without isolation and removal of overhead conductors to ensure safe work by the customer and protection of electrical infrastructure.

NOTE: All requests for work that is to be carried out *near* Transmission Lines *shall* be referred to Transend Networks.

10. CLEARANCES

The *Authorised Contractor* or Aurora Energy Job Manager when making an assessment must strictly adhere to clearances and the requirements to ensure that the customer is safe from inadvertent contact with power lines.

11. TERMS OF ACCEPTANCE

Before work commences near overhead powerlines, the *customer* will:

- Approach and gain written authorisation for the work activity
- Accept terms and conditions for any cost of quotation
- Sign a customer acceptance (Authority to charge)
- Wait until installation is completed
- Sign the VWD Installation Advice Form
- Ensure any worker on site is inducted, aware of the dangers and applies the conditions of the written authorisation.

12. AUDITS

Monthly or more frequent audits shall be carried out on sites by the *Authorised Contractor* (or Aurora Energy) to ensure that covers, barriers or other devices, where fitted are still appropriate to provide visual warning and prevent inadvertent contact with overhead powerlines and associated equipment.

Audits shall be documented and a record kept for 1 year *Aurora may* from time to time Audit the *Authorised Contractor's* work for compliance.

13. CANCELLATION

Aurora or the *Authorised Contractor may* at any time revoke any authorisation granted for work activities within the 'No Go Zone' of overhead powerlines, if the *customer* fails to comply with all the conditions and safety requirements outlined in the *Written Authorisation*.

To ensure safety of the public, contractors and customers, every attempt will be made to resolve any identified non-conformance with the customer. Failure to resolve the non-compliance/s and any conflict, will firstly initiated actions to make the worksite safe and be referred to *WST* should the *customer* not comply. (See **Section 5** Legislative and Regulatory Framework.)

14. ACCEPTANCE OF CONDITIONS FOR SAFE WORK

Whilst *Aurora may* authorise *customers* to work within the *No Go Zone* surrounding overhead powerlines where written authorisation has been issued, *Aurora* or the *Authorised Contractor* cannot control the *customers* method of work. It is an expectation that the *customer* will adhere to the conditions for work and specifically the SAD as detailed the *VWD Installation Advice Form* and this guideline

15. SCAFFOLDS IN NO GO ZONES – ERECTION & DISMANTLING

Table 1

SCAFFOLDS IN NO GO ZONES – ERECTION & DISMANTLING

Voltage	Conductor	Clearance	Safety Conditions
Low Voltage up to 1000 volts AC Including: Aerial Services Aerial Switch Wires & House Service Connections (Assessment and installation by Authorised Contractor)	Bare & Insulated / ABC	Less than 4.0m	<ul style="list-style-type: none"> Shutdown
		4.0m or greater	<ul style="list-style-type: none"> <i>Customer</i> Safety Observer required after consultation with Aurora representative Comply with AS/NZS 4576 Guidelines for scaffolding
High Voltage greater than 1000 volts AC (Up to and including 66kv) (Assessment and installation by Authorised Contractor or Aurora)	Bare & insulated / ABC	Less than 5.0m	<ul style="list-style-type: none"> Shutdown
		Greater than 5.0m	<ul style="list-style-type: none"> <i>Customer</i> Safety Observer required after consultation with Aurora representative Consider fitting Bird Diverters to provide visual warning Comply with AS/NZS 4576 Guidelines for scaffolding For further information contact WST on their Help Line 1300366 322
> 66kv	Bare	To be referred to Transend Network Pty Ltd	

Bird Diverters to provide Visual Warning on HV Conductors



NOTES:

- Each situation can be and most commonly is different and an 'on-site' assessment is necessary to determine the risk.
- # Tiger Tails must be in good condition (Person applying covers must be competent and an appropriately licensed electrical practitioner and is to confirm the tiger tails condition is acceptable)
 - coupled together with plastic cable ties to prevent "gapping"
 - Danger Tag to be fitted to POA and any other likely contact points.
- Any Tiger Tails are to extend **5 metres** beyond the scaffold.

16. SCAFFOLDS IN NO GO ZONES – ERECTED

Table 2

SCAFFOLDS IN NO GO ZONES - ERECTED

Voltage	Conductor	Clearance	Safety Conditions
Low Voltage up to 1000 volts AC Including: Aerial Services Aerial Switch Wires & House Service Connections	Bare	Less than 1.0m	<ul style="list-style-type: none"> Conductor relocation / isolation
	insulated / ABC	Less than 1.0m	<ul style="list-style-type: none"> Hoarding and #Tiger Tails on conductors + covers on insulators, fuses & Lv loops+ Danger Tag or shutdown
	Bare & insulated / ABC	1.0m to 4.0m	<ul style="list-style-type: none"> Hoarding or #Tiger Tails on conductors + covers on insulators, fuses & Lv loops+ Danger Tag or shutdown
		Greater than 4.0m	<ul style="list-style-type: none"> No requirement Comply with AS/NZS 4576 Guidelines for scaffolding
High Voltage greater than 1000 volts AC (Up to and including 66kv) (Isolation / installation by Aurora)	Bare & Insulated / ABC	Less than 4.0m	Conductor relocation / isolation
		Greater than 4.0m	<ul style="list-style-type: none"> Bird Diverters to provide visual warning+<i>Hoarding</i> <i>Safety Observer required</i> For further information contact WST on their Help Line 1300366 322
> 66kv	Bare	To be referred to Transend Network Pty Ltd	

NOTES:

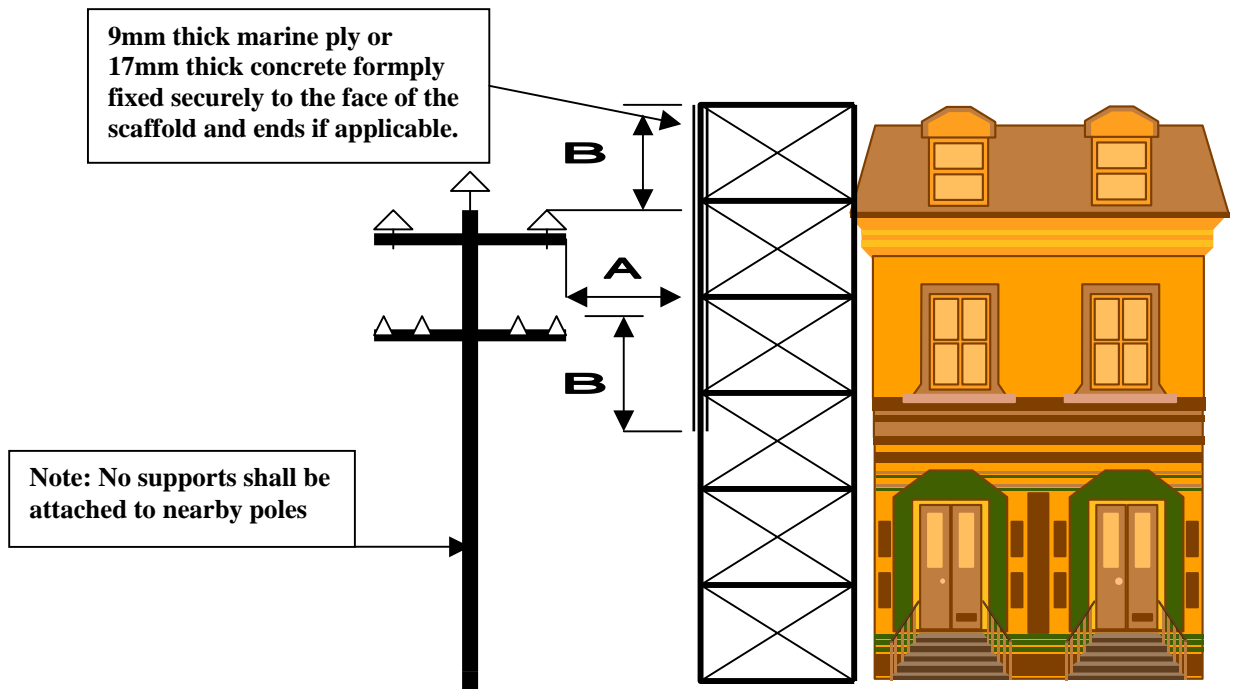
- 1) Each situation can be different and an ‘on-site’ assessment is necessary to determine the risk. Other mitigation may need to be used for LV conductors following the risk assessment.
- 2) # Tiger Tails must be in good condition (Person applying covers must be competent and an appropriately licensed electrical practitioner and is to confirm the tiger tails condition is acceptable)
 - a) coupled together with plastic cable ties to prevent “gapping”
 - b) Danger Tag to be fitted to the building Point of Attachment and any other likely contact points.
- 3) Where *hoarding* is not used on the scaffold, Tiger tails and insulator covers are required on all Low-voltage conductors
- 4) Tiger Tails are to extend **5 metres** beyond the scaffold.

Typical House Service Connections



General Guidance 1

Minimum Dimensions Between Erected Scaffolding & a Power Line when an Insulated Hoarding is used to Achieve – HORIZONTAL SAFETY CLEARANCES

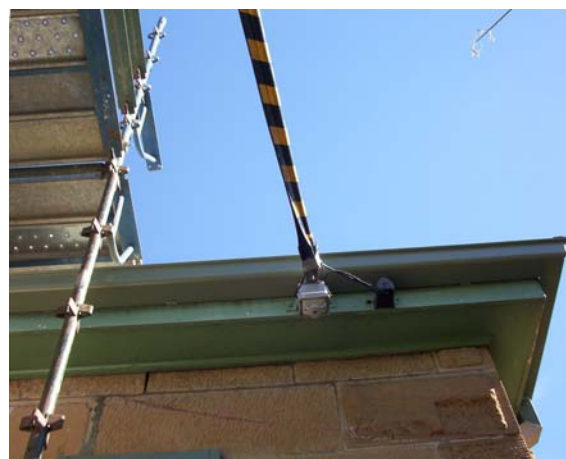


Minimum Dimensions for "A"		Minimum Dimensions for "B"	
LV Covered (tiger tails)	1.0m	LV Insulated	1.0m
LV ABC	1.0m	LV ABC	1.0m
LV Bare	1.0m	LV Bare	2.0m
HV 11 – 22kv ABC	1.0m	HV 11 – 22kv ABC	2.0m
HV 11 – 66kv Bare	1.5m	HV 11 – 66kv Bare	2.4m

NOTE:

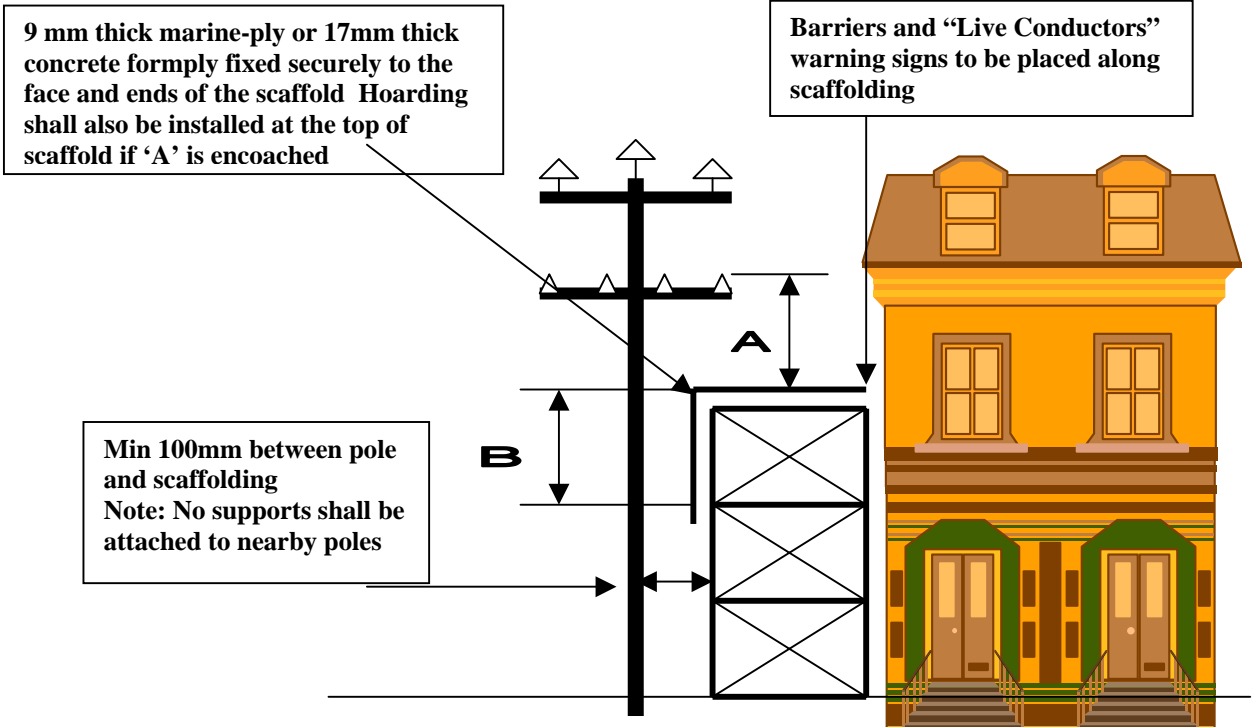
1. Gaps between fitted sheets of approved plywood hoarding shall not exceed 3mm
2. No exposed cut or drilled holes are permitted in the sheets of plywood hoarding
3. The fitting of 'Hoarding' should be done at the time the scaffold is erected as it is likely the supply will need to be disconnected
4. Scaffold Installer is responsible for attaching plywood hoarding to the scaffold, and ensuring that the arrangement can sustain an appropriate wind load
5. Other mitigation may need to be used following a risk assessment for LV conductors.

House Service protected



General Guideline 2

Minimum Dimensions Between Erected Scaffolding & a Power Line when an Insulated Hoarding is used to Achieve – VERTICAL SAFETY CLEARANCES



Minimum Dimensions for "A"		Minimum Dimensions for "B"	
LV Covered (tiger tails)	1.0m	LV Insulated	1.0m
LV ABC / Insulated	1.0m	LV ABC	1.0m
LV Bare	1.0m	LV Bare	2.0m
HV 11 – 22kv ABC	1.5m	HV 11 – 22kv ABC	2.0m
HV 11 - 66kv Bare	2.4m	HV 11 – 66kv Bare	2.4m

NOTE:

1. Gaps between fitted sheets of approved plywood hoarding shall not exceed 3mm
2. No exposed cut or drilled holes are permitted in the sheets of plywood hoarding
3. Installer is responsible for attaching plywood hoarding to the scaffold, and ensuring that the arrangement can sustain an appropriate wind load
4. Dimension "A" is to the conductor
5. Other mitigation may need to be used following a risk assessment for LV conductors.

17. WORKING OR OPERATING MOBILE PLANT NEAR OVERHEAD POWERLINES

Mobile Plant – additional requirements

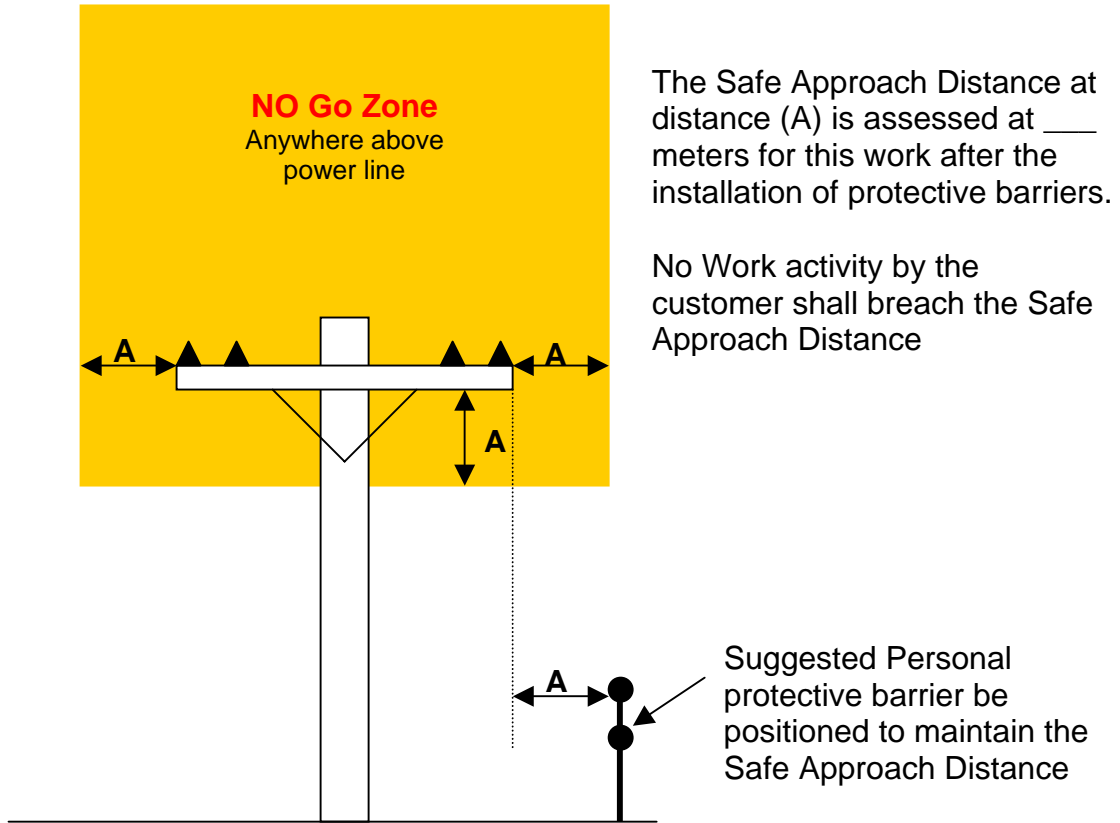
When operating mobile plant/equipment in close proximity to overhead conductors, the operator and any persons working with the mobile equipment must observe the following precautions and separation criteria:

- Consider all overhead wires to be live unless it is positively known that they have been de-energised and isolated
- **Work above any overhead powerline/conductor is PROHIBITED**
- Mobile equipment, ancillary parts of equipment and loads must remain outside the 'No Go Zone' to overhead powerlines which at least 3 meters clear of low voltage conductors and service wires and 6.4 metres of high voltage conductors unless the conductors are isolated, or other mitigation measures are implemented **and written authority is provided.**
- Consider the effects of wind and temperature on aerial conductor movement, especially near the centre of long spans. High temperatures could cause the line to sag. High winds could cause the powerline to swing horizontally, make allowances when approaching.
- Use only dry, non-conducting taglines to control suspended loads.
- Do not allow any person, other than the driver/operator, to be in contact with any part of the mobile equipment or load (except with a dry, non-conducting tagline) once a lift has commenced.
- Use an earthing system from the mobile plant to provide an alternative path to earth to minimize the risk of electric shock, should the safe approach distances be breached.

Table 3

SAFE APPROACH DISTANCES AND CONDITIONS FOR CUSTOMERS WORKING OR OPERATING MOBILE PLANT / EQUIPMENT NEAR OVERHEAD POWER LINES

Voltage	Conductor	Clearance	Safety Conditions
Low Voltage Including Aerial Switch Wires	Bare & Insulated / ABC	Less than 3.0m either side	Conductor relocation / isolation (Consultation with Aurora or the Authorised Contractor may identify other mitigation measures that could be used)
		'No Go Zone' overhead	
		3.0m to 6.4m either side and below	Tiger Tails on conductors + covers on insulators, fuses & Lv loops + Safety Observer or shutdown
		More than 6.4m either side and below	No requirement specified - Adhere to GB137 <i>Guide to working safely near OVERHEAD POWERLINES</i>
High Voltage (Up to and including 66kv)	Bare &Insulated / ABC	Less than 3.0m either side and any extension overhead	Conductor relocation / isolation
		3.0m to 6.4m either side and below	VWD (Flags or Bird Diverters) + covers on insulators, fuses & Lv loops + Safety Observer or shutdown
		More than 6.4m either side and below	No requirement specified - Adhere to <i>Guide to working safely near OVERHEAD POWERLINES</i>
>66kv	Bare	To be referred to Transend Network Pty Ltd	



WORK SITE LOCATION:.....

Aurora Representative / Contractor:.....

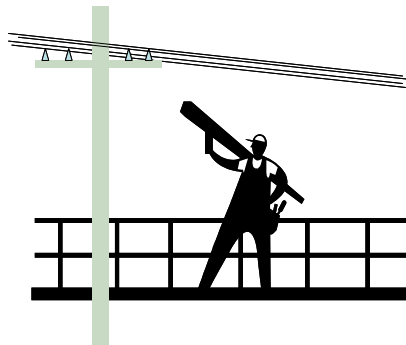
Site Recipient in charge of work site:.....

Where an assessment is done the Aurora representative must provide a written Authorisation called - **VWD Installation Advice Form**

Caution

No body part shall breach the Safe Approach Distances.

Persons are to ensure that items carried / moved, do not form an extension of the body that may breach the Safe Approach Distance



Tiger tails and covers are not guaranteed protection against electrocution or electric shock.

Attachment A



VWD INSTALLATION ADVICE FORM

No. _____

GENERAL

Location / Address: _____

TYPE OF WORK TO BE EXECUTED IN VICINITY OF VISUAL WARNING DEVICES

Details of Work to be performed: _____

STATUS OF OVERHEAD CONDUCTORS

High Voltage : _____

Low Voltage: _____

Extremities of Visual Warning Device Installation: _____

ADDITIONAL HAZARDS / DANGER POINTS

The following additional Hazards/ Danger points have been identified. _____

WARNING

Visual Warning Devices do not protect people from the risk of electrocution or electric shock, they are only to provide a visual warning to people working in the area of powerlines and Safe Approach Distances Apply.

ISSUE

1. As the Authorised Person of [company name] _____ I have advised the Authorised Officer of the status of overhead conductors, extremities of Visual Warning Device and additional hazard / danger points as listed above..

	Print Name	Signature	Contact No.	Time	Date
Authorised Person					

RECEIPT

- As an Authorised Officer of [company name] _____ I have been advised by Authorised Person of the above status of apparatus and hazard / danger points.
- I understand and agree with the above status of overhead conductors, extremities of Visual Warning Device and additional hazard / danger points and shall advise the work party
- I understand the Visual Warning Device shall not be altered until this statement has been cancelled

	Print Name	Signature	Contact No.	Time	Date
Authorised Officer					

SURRENDER

- All members of the work party have completed work and I have advised them that this Visual Warning Device Interface Statement no longer applies.
- I understand that this Visual Warning Device Interface Statement no longer applies.

I have advised the Authorised Person that this Apparatus Interface Statement is now surrendered.

	Print Name	Signature	Time	Date
Authorised Officer				

CANCELLATION

- Visual Warning Device Interface Statement has been signed by the Authorised Officer to indicate that it is surrendered. This Visual Warning Device Interface Statement is now cancelled.

	Print Name	Signature	Time	Date
Authorised Person				