

# **MOORABOOL NORTH WIND FARM**

## **Electric Line Clearance Management Plan**

(Electricity Safety (Electric Line Clearance) Regulations 2020)

1 Aug 2022 to 31 July 2023

DATE: August 2022

<b>MOORABOOL</b> Wind Farm	MN-PM-PLN-0065	Version 5
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## Document Control - MN-PM-PLN-0065

Document Version	Date	Description	Approved by
Revision 0	23/11/2020	<i>Draft for comment</i>	<i>E Zorondo</i>
Revision 1	16/2/2021	<i>Update Plan for consistency with the Bushfire MP</i>	<i>D Tonkin</i>
Revision 2	23 April 21	<i>Revised Plan to address ESV's comments</i>	<i>E Zorondo</i>
Revision 3	9 June 21	<i>Revised Plan to address ESV's 2<sup>nd</sup> round of comments and changed contact detail</i>	<i>D Gallagher</i> Director of Project Management Office
Revision 4	20 July 21	<i>Minor changes</i>	<i>D Gallagher</i> Director of Project Management Office
Revision 5	31 July 2022	<i>Revised Plan and updated with minor changes as per the Regs</i>	<i>D Gallagher</i> Director of Project Management Office
Revision 6	8 Aug 2022	<i>Updated for 2022/2023</i>	<i>Talak Mohammed</i> Service Manager

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## Introduction

This Line Clearance Management Plan has been prepared in response to the Electricity Safety (Electric line clearance) Regulations 2020, Regulation 9 Preparation of a Management Plan, Part 2 Prescribed Code of Practice and Related Provisions. It covers all aspects of the regulations for a small section of 33kV electric line crossing the Moorabool River East Branch that forms part of the Moorabool Wind Farm internal collector network. This electric line is owned and operated by Moorabool Wind Farm Pty Ltd. Moorabool Wind Farm Pty Ltd is a subsidiary of Goldwind Australia Pty Ltd.

The Moorabool Wind Farm consists of two sections the north Bungeeltap section of the project known as Stage 1 and the southern Ballark section of the project Known as Stage 2. The project is located, approximately 67 km west of Melbourne, 27 km east of Ballarat, 47 km north of Geelong and 5km south of Ballan. The MWEF project area encompasses rural land holdings with a total area of approximately 5,600 hectares extending approximately 16 km from north to south and approximately 7 km from west to east.

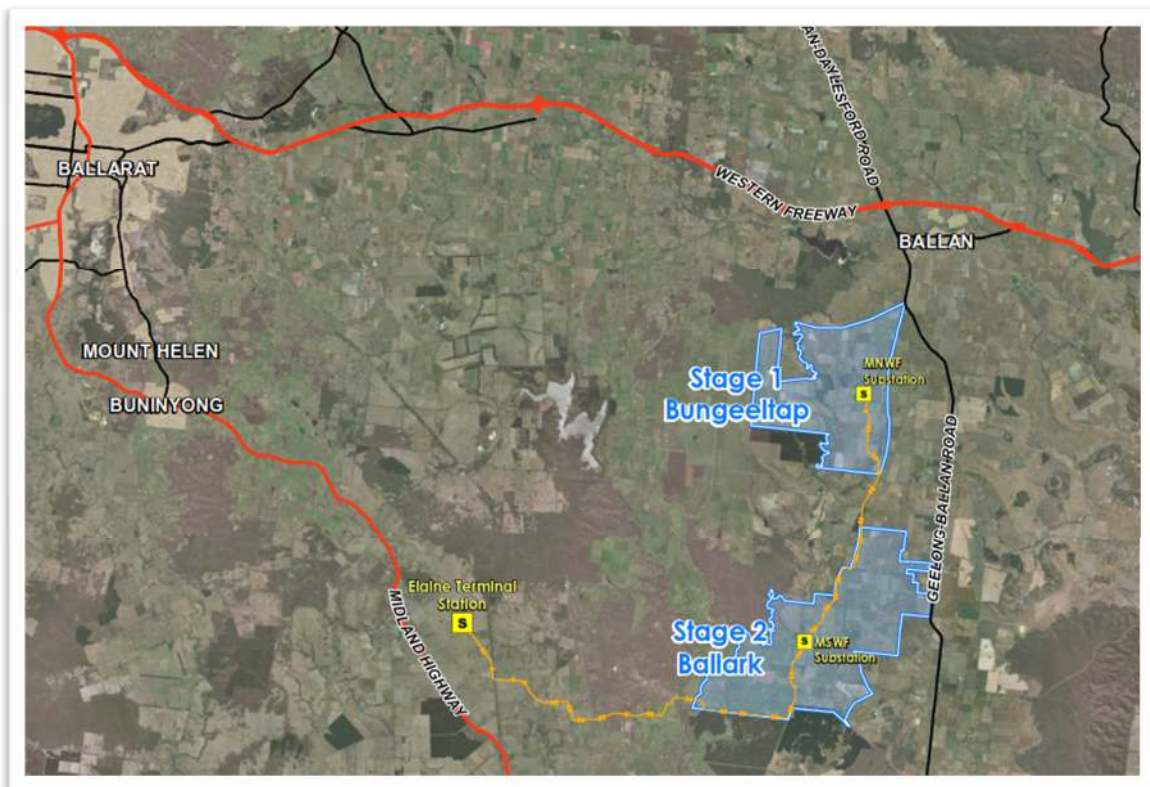


Figure 0-1 Map of the Moorabool Wind Farm



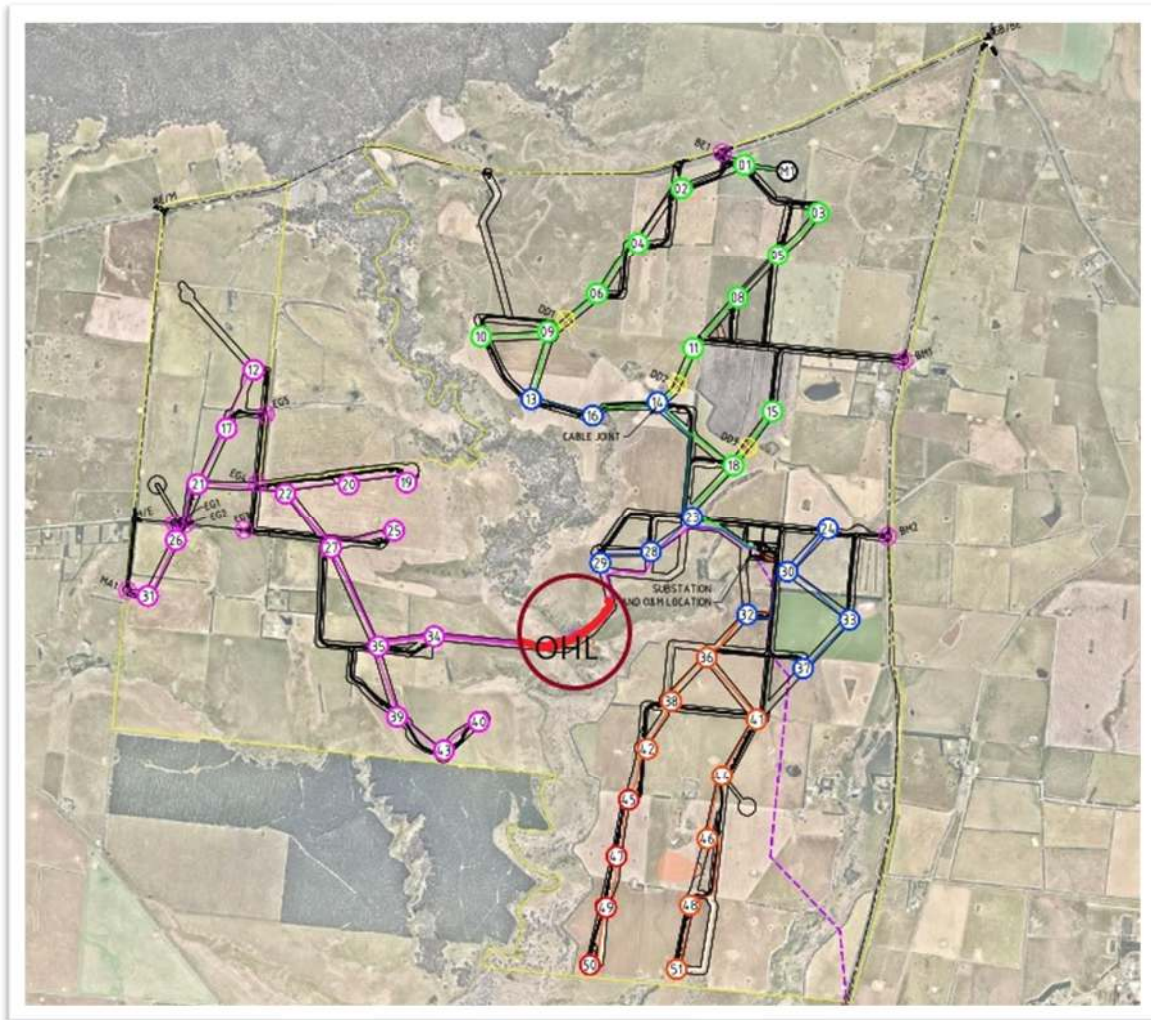


Figure 0-2 Site map of the Moorabool North Wind Farm and 33kV OHL at risk line (marked in red)

The site has been historically cleared however some isolated patches of native vegetation exists along roadsides, the Moorabool River East Brach (MREB) which intersect the northern section of the site and within the site itself. The site falls within the Victorian Volcanic Plains and supports predominantly agricultural land uses, such as grazing and cropping, with some surrounding remnant native vegetation. The northern section of the site consists of 50 turbines with four (4) internal underground 33kv collector groups that all feed from turbine locations to the site's substation as shown in Figure 1.2. To reduce cultural heritage risks it was determined that the internal collector group 4 connecting turbine BUWT29 to BUWT34 would not be buried entirely underground instead a small section (of the at-risk electric line) would span across the river. This is the only OHL assets owned by the Project throughout the site. A Powercor (TOA) 132kV Overhead Transmission Line (OHL) asset connects Stage 1 and Stage 2 to the Elaine terminal substation (as seen on Figure 1.1).

## At risk electric lines

The at-risk electric line consists of two 14-metre-high galvanized steel poles attached to guy wires, containing a single circuit 33kv overhead line measuring 429.42 metres in length above the MREB as shown in Figure 2.1 and Appendix A.



Figure 0-1 Location of the Overhead line and poles across the Moorabool River East Branch

Table 0-1 Details of OHL pole locations

Pole number	X Coordinate of pole	Y Coordinate of pole
1 (Eastern)	251170.56	5828268.7
2 (Western)	250773.99	5828103.9

Representative images of the Line, Eastern and Western Tower Structures and Span across MREB are shown in Plates 1 to 8

Clearance (Horizontal and vertical) from trees to north of mid span of line to be periodically monitored and if necessary, required minimum clearance maintained.



**33 kV Overhead Transmission line spanning MREB (T29 to T34) – Representative images**

**1. Easter Tower Structure and Span (Plates 1 to 4)**



Plate 1.– 33kV Overhead line spanning MREB, Single Tower each side of the span 23Mar2022



Plate 2 – View west from Eastern Tower showing clearance from trees 23Mar2022





Plate 3 – Eastern Tower 33kV overhead line – View to west.

23Mar2022



Plate 4 – Eastern Tower Structure - 33kV Overhead Line

23Mar2022



## 2. Western Tower Structure and Span (Plates 5 to 8)



Plate 5 – Western Tower 33kV overhead line, View from south side of line. Aviation Marker Balls on conductors  
23Mar2022



Plate 6 – View from western side of MREB, north side of line, showing clearance from trees to north  
23Mar2022





Plate 7 – Western Tower 33kV overhead line, Weeds appear to have been treated 23Mar2022



Plate 8 – Western Tower 33kV overhead line

23Mar2022



## Regulation requirements

This Plan has been prepared to ensure that the management plan addresses each requirement of the Electricity Safety (Electric Line) Clearance Regulation 2020 under Part 2 Regulation 9 (subclause 4) see below and as addressed in list in Table 3.1.

### Authorised Version

## Electricity Safety (Electric Line Clearance) Regulations 2020

S.R. No. 50/2020

### TABLE OF PROVISIONS

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Subclause 2 requires a responsible person that is not a major electricity company, before 31 March in each year, must prepare a management plan relating to compliance with the Code for the next financial year.

Table 0-1 Prescribed particulars for the bushfire mitigation plans – specified operator

Regulation 9	Requirement	Section found in this plan
4a	the name, address and telephone number of the responsible person;	Section 4.2
4b	the name, position, address and telephone number of the individual who was responsible for the preparation of the management plan	Section 4.2
4c	the name, position, address and telephone number of the persons who are responsible for carrying out the management plan	Section 4.2
4d	the telephone number of a person who can be contacted in an emergency that requires clearance of a tree from an electric line that the responsible person is required to keep clear of trees	Section 4.2
4e	the objectives of the management plan	Section 4.3
4f	the land to which the management plan applies (as indicated on a map);	Section 4.4
4g	any hazardous bushfire risk areas and low bushfire risk areas in the land referred to in paragraph (f) (as indicated on the map);	Section 4.5
4h	each area that the responsible person knows contains a tree that the responsible person may need to cut or remove to ensure compliance with the Code and that is— (i) indigenous to Victoria; or (ii) listed in a planning scheme to be of ecological, historical or aesthetic significance; or (iii) a tree of cultural or environmental significance;	Section 4.6
4i	the means which the responsible person is required to use to identify a tree of a kind specified in paragraph (h)(i), (ii) or (iii);	Section 4.7
4 (j)	the management procedures that the responsible person is required to adopt to ensure compliance with the Code, which must: (i) include details of the methods to be adopted for managing trees and maintaining a minimum clearance space as required by the Code; and (ii) for the purposes of determining a minimum clearance space in accordance with Division 1 of	Section 4.8

Regulation 9	Requirement	Section found in this plan
	Part 3 of the Code— must specify the method for determining an additional distance that allows for conductor sag and sway; and (B) may provide for different additional distances to be determined for different parts of an electric line span;	
4k	the procedures to be adopted if it is not practicable to comply with the requirements of AS 4373 while cutting a tree in accordance with the Code;	Section 4.9
4l	a description of each alternative compliance mechanism in respect of which the responsible person has applied, or proposes to apply, for approval under clause 31 of the Code;	Section 4.10
4m	the details of each approval for an alternative compliance mechanism that— (i) the responsible person holds; and (ii) is in effect;	Section 4.11
4n	a description of the measures that must be used to assess the performance of the responsible person under the management plan;	Section 4.12
4o	details of the audit processes that must be used to determine the responsible person's compliance with the Code;	Section 4.13
4p	the qualifications and experience that the responsible person must require of the persons who are to carry out the inspection, cutting or removal of trees in accordance with the Code and the Electricity Safety (General) Regulations 2019;	Section 4.14
4p	notification and consultation procedures, including the form of the notice to be given in accordance with Division 3 of Part 2 of the Code	Section 4.15
4r	a procedure for the independent resolution of disputes relating to electric line clearance;	Section 4.16
4s	if Energy Safe Victoria has granted an exemption under regulation 11 relating to a requirement of the Code, details of the exemption or a copy of the exemption.	Section 4.17
10 (6)	Obligations relating to management plan to be published on Project's Internet Site	Section 4.18

## Mitigation Response

The following information is provided in response to the provision requirements of Part 2 Regulations 9 of the Electricity Safety (Electric Line Clearance) Regulations 2020.

### 1.1 Reg 9 (2) Preparation of management plan

Before the 31st of March of each year, this plan will be reviewed and prepared for the next financial year to comply with the Code during the Project's operational life and be submitted to ESV within 14 days of a request as per Regulation 10(2). The review process will be conducted annually by the Site Manager and will consider the currency of all relevant regulations and standards and any deficiencies in the plan or its processes. A copy of the current management plan will be published on the Project's internet website.

### 1.2 Reg 9 (4) A responsible person must ensure that a management plan specifies

(a) the name, address and telephone number of the responsible person;

Name: Navneet Sharma Asset Manager
Address: Level 4, 485 La Trobe Street MELBOURNE VIC 3000
Telephone Number: +61 413 363 532

(b) the name, position, address and telephone number of the individual who was responsible for the preparation of the management plan;

Name: Peta Evans
Position: HSEQ Manager - Service
Address: Level 4, 485 La Trobe Street MELBOURNE VIC 3000
Mobile: +61 436 802 247

- (c) **the name, position, address and telephone number of the persons who are responsible for carrying out the management plan;**

Name: Glenn Shillito
Position: Site Manager
Address: Moorabool Wind Farm 2801 Ballan Meredith Road, Ballan VIC 3342
Mobile: +61 418 105 650

- (d) **the telephone number of a person who can be contacted in an emergency that requires clearance of a tree from an electric line that the responsible person is required to keep clear of trees;**

In case of an emergency the following person should be contacted in the first instance. This contact phone number is accessible 24 hours 7 days a week.

Name: Glenn Shillito
Position: Site Manager
Address: Moorabool Wind Farm 2801 Ballan Meredith Road, Ballan VIC 3342
Mobile: +61 418 105 650

### **1.3 Reg 9 (4 e) Management plan objectives**

The objectives of this management plan is to demonstrate:

- Compliance with the current regulations and Code of Practice;
- Electrical Safety;
- Reliability of supply;
- Public safety;
- Workplace safety;
- Reduced risk to the environment and its amenity.

The Plan will identify roles and procedures to ensure the electric line maintains a suitable vegetation clearance distances to avoid creating a fire risk to the site, the public, and the environment in compliance with the Regulation and Code of Practice.

To this end the plan will allow for vegetation inspections, a program for the removal or cutting of vegetation, notification procedures and an auditing program in accordance within Part 2 of the Code under clause 3.

#### 1.4 Reg 9 (4 f) the land to which the management plan applies (as indicated on a map);

This Management Plan is applicable to three land parcels (as indicated in the plan below) where the OHL crosses the Project site:

- Lot 4\PS404971(Vol/ Fol 10310/251) (pole 1 and line);
- CA 2002\PP3939 (Vol/ Fol 11786/571) (line); and
- Lot 75\PP2275 (Vol/ Fol 04383/582) (pole 2 and line).



Figure 0-1. Site locality of the line

#### 1.5 Reg 9 (4 g) any hazardous bushfire risk areas and low bushfire risk areas in the land referred to in paragraph (f) (as indicated on the map);

All land referred to in paragraph (f) (as indicated on the map above) has been assigned by the fire authority as a "high" fire hazard rating under section 80 of the Act. Annual consultation with the CFA will be required during the Plan's review process to ensure HBRA/LBRA boundary information is accurate.

#### 1.6 Reg 9 (4 h) area containing specified tree that the responsible person may need to cut or remove to ensure compliance mentioned in paragraph (h)(i), (ii) or (iii);

The responsible person will ensure vegetation inspections are carried out by a qualified and experienced person at least annually to identify a tree as specified in paragraph (g)(i), (ii) or (iii) of the regulations which may need to be cut or removed to ensure compliance (see Appendix C for recent assessment). The inspections will be filed and produced during annual audits to ensure compliance with the Code. This includes a specified tree that has been assessed by a suitably qualified arborist as likely to fall or contact with the electric line. *A person cutting or removing a specified tree as far as is*



*practicable, must not cut the tree more than is necessary to either—*

- (a) ensure compliance with Division 1; or*
- (b) make an unsafe situation safe.*

The following kinds of tree are considered specified trees:

- (i) trees that are indigenous to Victoria;*
- (ii) trees listed in a planning scheme to be of ecological, historical or aesthetic significance;*
- (iii) trees of cultural or environmental significance.*

**Schedule 1 Part 2 Division 1 of the Code- 9 Responsible person may cut or remove hazard tree**

And includes a hazard tree (as defined under Part 2, Division 3, 8 (2) of the Code) which the responsible person may cut or remove a tree for which the person has clearance responsibilities if a suitably qualified arborist has:

- (a) assessed the tree having regard to foreseeable local conditions; and*
- (b) advised the responsible person that the tree, or any part of the tree, is likely to fall onto or otherwise come into contact with an electric line.*

This is irrelevant that the tree is not within, and is not likely to grow into, the minimum clearance space for an electric line span.

A responsible person cutting a tree under Division 1 must, as far as practicable, cut the tree in accordance with AS 4373 as published or amended from time to time.

The services of a suitably qualified arborist will be requested through the specialised service provider to establish the above. Under the Code a *suitably qualified arborist means an arborist who has—*

- (a) as a minimum, the qualification of National Certificate III in Arboriculture including the "Perform a ground-based tree defect evaluation" unit of competency, or an equivalent qualification; and*
- (b) at least 3 years of field experience in assessing trees;*

Similar to Urgent tree cutting/removal written notification to affected persons in the form in Appendix D, depending on the location of the tree, as soon as practicable after completing the cutting or removal.

The urgent work must ensure:

- 1- Trees are not cut further than 1 meter from the minimum clearance space for a span of an electric line, or*
- 2- Trees are not removed unless;*
  - a. The tree has fallen or become damaged and is to be removed to keep the minimum clearance space for a span of an electric line free of trees; or*
  - b. a suitably qualified arborist has*
    - i. assessed the tree having regard to foreseeable local conditions; and*
    - ii. advised the responsible person that the tree is likely to imminently fall onto or otherwise come into contact with an electric line.*

**1.7 Reg 9 (4i) the means which the responsible person is required to use to identify a tree of a kind specified in paragraph (g)(i), (ii) or (iii);**

The Site Manager or his delegate will be responsible for conducting a review of council planning scheme overlays for historical, cultural, environmental or aesthetic significance at least annually to comply with the Code when carrying out a vegetation inspection of the line. This will include:

- A review of significant trees Register (<https://trusttrees.org.au>).
- A review of Heritage Register (<http://vhd.heritagecouncil.vic.gov.au>) within the meaning of the Heritage Act 1995;
- A review of Aboriginal Cultural Heritage Register and Information System (ACHRIS - <https://achris.vic.gov.au>) established under section 144 of the Aboriginal Heritage Act 2006;
- A review of Threatened Flora List in accordance with section 10 of the Flora and Fauna Guarantee Act 1988 (<https://www.environment.vic.gov.au/conserving-threatened-species/threatened-list>);

Spatial data of any trees of a kind specified in paragraph (g)(i), (ii) or (iii) will be provided to the ELC personnel to be made aware of the location of those trees.

A tree that is considered habitat for threatened fauna must not be cut or remove during the breeding season for the threatened fauna unless:

- (a) *it is necessary to cut or remove the tree to make an unsafe situation safe; or*
- (b) *it is not practicable to undertake cutting or removal of that tree outside the breeding season.*

If it is not practicable to undertake cutting or removal of that tree outside the breeding season, the fauna must be translocated before the cutting or removal is undertaken, if practicable to do so. An ecologist will be engaged to identifying the threatened invertebrate/vertebrate fauna and the breeding season for the threatened species.

**Schedule 1 Part 2 Division 2 of the Code- 11 Cutting or removal of indigenous trees**

*The responsible person cutting, under Division 1, a tree of a kind specified in subclause (3), must as far as is practicable, not cut the tree more than is necessary to either:*

- (a) *ensure compliance with Division 1; or*
- (b) *make an unsafe situation safe.*

*(2) A responsible person must not remove, under Division 1, a tree of a kind specified in subclause (3) unless—*

- (a) *it is necessary to remove the tree to either—*
  - (i) *ensure compliance with Division 1; or*
  - (ii) *make an unsafe situation safe; or*
- (b) *a suitably qualified arborist has—*
  - (i) *inspected the tree; and*
  - (ii) *advised the responsible person that cutting the tree in accordance with subclause (1) would make the tree unhealthy or unviable.*

**1.8 Reg 9.4 (j) (i-ii) Management procedures to ensure compliance with the code**

- i) For the purposes of determining a minimum clearance space in accordance with Division

1 of Part 3 of the Code Schedule 2 of the Regs state the following must be considered for uninsulated high voltage electric line in a hazardous bushfire risk area.

The formula by which the applicable distance for the middle 2 thirds of an electric line span to which clause 28 applies is calculated as follows:

For  $0 < SD \leq 45$ ,  $AD = 1500$  mm

For  $45 < SD \leq 500$ ,  $AD = 1500 + ((SD - 45) \times (500 \div 303))$

For  $500 < SD$ ,  $AD = 2250$  mm

Where:

SD = Span Distance

AD = Applicable Distance

*Figure 0-2 Graph 5 formulae as provided by Electricity Safety (Electric Line Clearance) Regulations 2020 – Schedule 2*

Since the span distance is greater than 45 metres and less than or equal to 500 metres, the applicable clearance distance is calculated in accordance with the above formula. For the OHL span distance of 429.42, this is calculated as

$$AD = 1500 + ((429.42 - 45) \times (500 / 303)) \text{ mm}$$

$$AD = 2134.356 \text{ mm or } 2.134 \text{ m}$$

The following methods will be adopted for managing trees and maintaining a minimum clearance space as required by the Code:

The Moorabool North Wind Farm's site team is to ensure a vegetation inspection of the line occurs each year before the declared fire danger period (DFDP) commences to ensure the minimum vegetation clearance distance is maintained. Any cutting or removal work is to be carried out prior to 1st December or DFDP, whichever is earlier, by suitability qualified personnel so that vegetation is kept outside **the minimum vertical clearance space of the overhead lines being 27.134m** for the middle 2/3 of the line when considering the applicable distance (AD) of 2.134 AD (as shown the calculations below) (see Figure 4.3 below). For the remaining 1/6 of the span, the AD is 1.5m giving the minimum vertical space clearance of 26.5m (25m plus 1.5m). As the maximum sway from the centreline is 0.716m (1.432/2m), **the minimum horizontal clearance space required is 2.85m (0.716+2.134(AD)) from the centreline of the OHL** when considering the applicable distance (see Figure below).

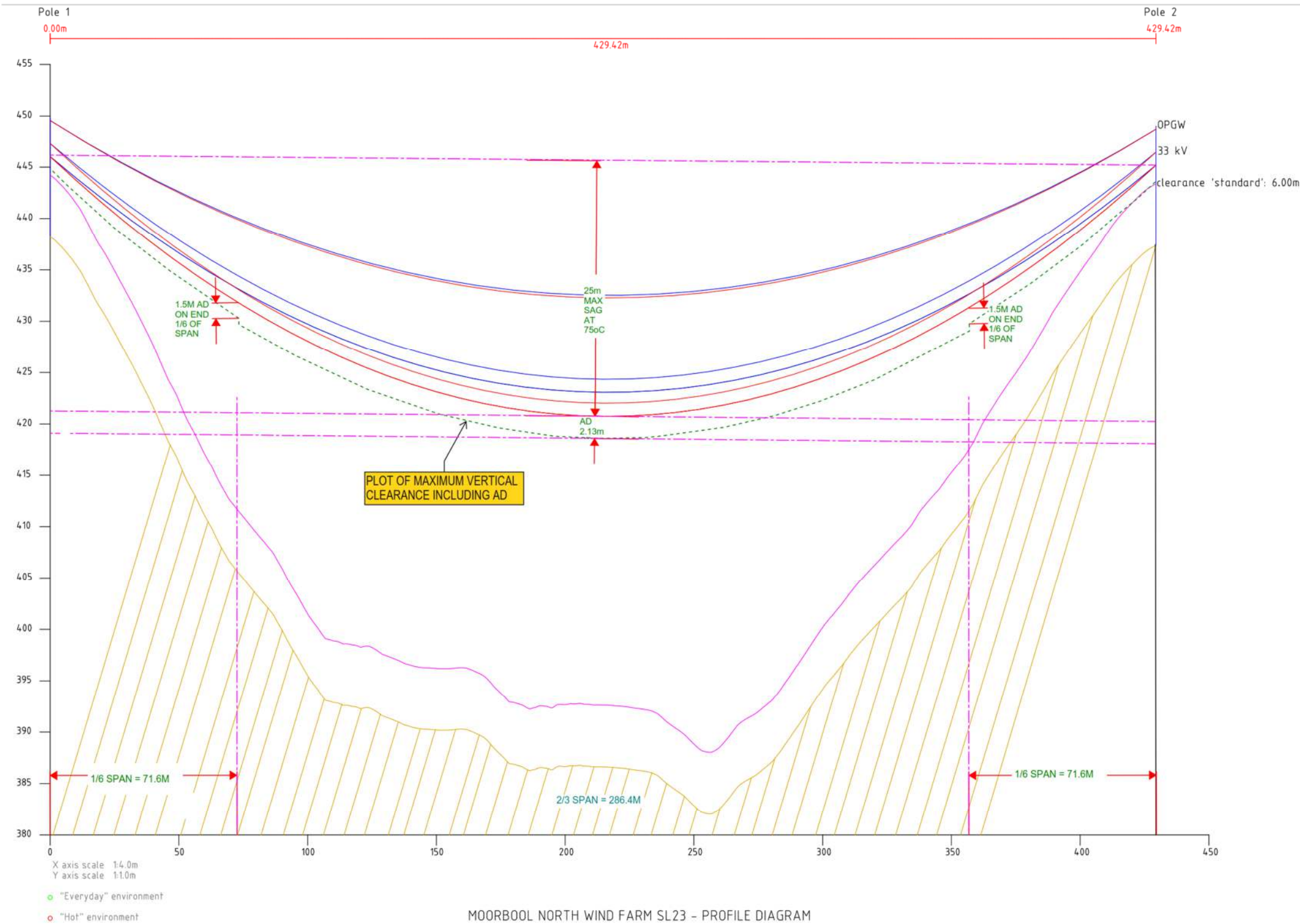


Figure 0-3. Vertical clearance space required for MNWF internal OHL

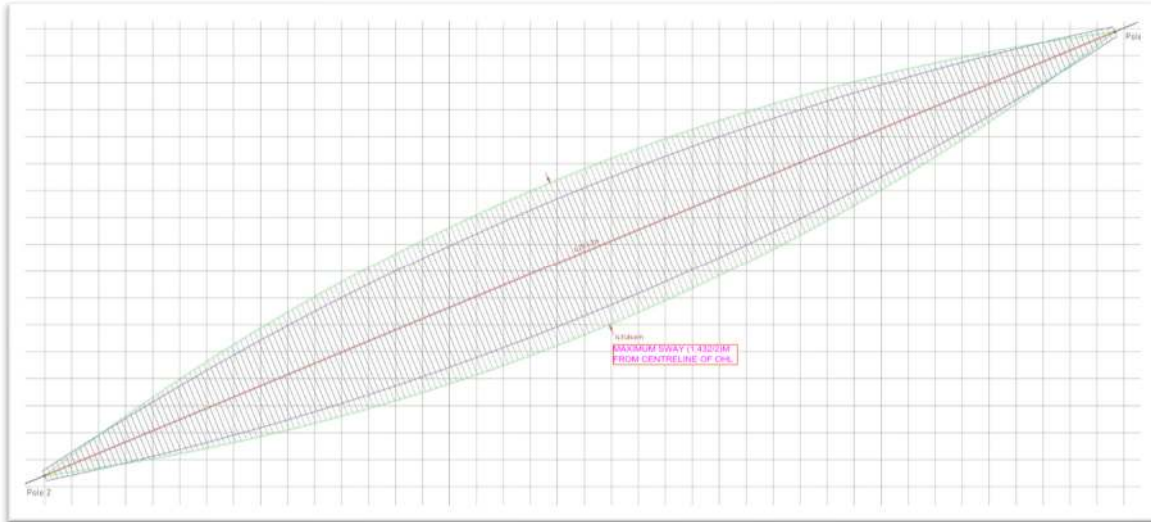


Figure 0-4. The maximum sway from the centreline is 0.716 (1.432/2)m, giving the minimum horizontal clearance space of 2.85m (0.716+2.134(AD)) from the centreline of the OHL when considering the applicable distance

#### 1.9 Regulation 9 (4 k) the procedures to be adopted if it is not practicable to comply with the requirements of AS 4373 while cutting a tree in accordance with the Code

Electric line clearance will be made aware of the obligations under the Code to comply with the requirements of AS 4373 while cutting a tree where reasonably practicable. *Reasonably practicable means that which is, or was at a particular time, reasonably able to be done to ensure health and safety, taking into account and weighing up all relevant matters including:*

- i) the likelihood of the hazard or the risk concerned occurring; and
- ii) the degree of harm that might result from the hazard or the risk; and
- iii) what the person concerned knows, or ought reasonably to know, about the hazard or risk, and about the ways of eliminating or minimising the risk; and
- iv) the availability and suitability of ways to eliminate or minimise the risk; and
- v) after assessing the extent of the risk and the available ways of eliminating or minimising the risk, the cost associated with available ways of eliminating or minimising the risk, including whether the cost is grossly disproportionate to the risk,

To ensure compliance with the AS 4373 for any tree works a suitably qualified arborist familiar with the AS 4373 and the use of appropriate plant and equipment will be engaged under the GWA-HSE-PRC-0021 Contractors and Consultants Prequalification Procedure to undertake the works.

Prior to works being undertaken the following documentation will be reviewed to ensure the correct selection of plant and equipment is used:

- Line vegetation inspection report;
- AS 4373;
- Affected stakeholders;



- Cultural Heritage Management Plan 14372 and shapefiles;
- Safe Work Method Statement.

#### **1.10 Regulation 9 (4 l) a description of each alternative compliance mechanism**

Not Applicable.

#### **1.11 Regulation 9 (4 m) the details of each approval for an alternative compliance mechanism**

Not Applicable.

#### **1.12 Regulation (4 n) a description of the measures that must be used to assess the performance of the responsible person under the management plan;**

The following measure will be used to assess performance:

- Annual vegetation inspection prior to DFDP by a suitability qualified and experience person, where vegetation removal is required, or any follow up action is required, the works be managed in accordance with the measures found within this Plan;
- Annual electric line inspection in accordance with the Act and applicable regulations;
- Annual audit of the Plan's implementation and inspections, with performance findings against the measures reviewed and elevated for continual improvement.

#### **1.13 Reg 9 (4 o) details of the audit processes that must be used to determine the responsible person's compliance with the Code;**

An annual audit will be undertaken to determine compliance with the code, to this effect the audit will consider:

- the qualifications and experience of personnel performing the vegetations inspection and clearance works;
- the content, recommendations and timing of the vegetation inspections;
- the content, recommendation, timing and follow up works for the line inspection;
- any works carried out in accordance with the vegetation inspection report;
- Any deficiencies or recommendations required for the Plan's ongoing performance and implementation.



**1.14 Reg 9 (4 p) the qualifications and experience that the responsible person must require of the persons who are to carry out the inspection, cutting or removal of trees in accordance with the Code;**

The qualifications and experience of the person selected to inspect trees around the overhead line will include:

- (a) the National Certificate Level IV in Horticulture and Arboriculture, including the "Assess Trees" module, or an equivalent qualification; and*
- (b) at least 3 years of field experience in assessing trees in accordance with the Code.*

To comply with section 616 of the Regs

*(2) A qualified person carrying out vegetation management work in the vicinity of a protected aerial line must comply with—*

- a) the vegetation management rules; and*
- b) the Blue Book when working on or near high voltage electrical equipment.*

The Regs stipulate:

*(3) "qualified person" means a person who holds a current certificate that is approved by Energy Safe Victoria being a Certificate II ESI Powerline Vegetation Control specifying satisfactory completion of a training course in tree clearing and follows requirements of The Blue Book (The Code of Practice on Electrical Safety for Work On or Near High Voltage Electrical Apparatus), and hold all appropriate training and certification specified below:*

- UET20319 - Certificate II ESI Powerline Vegetation Control; and
- Core Competency Standard Units such as:
  1. UEENEEE101A- Apply Occupational Health Safety regulations, codes and practices in the workplace; and
  2. UETTDREL13 - Comply with sustainability. Environmental and incidental response policies and procedures; and
  3. Working safely near live electrical apparatus as a non-electrical works; and
  4. AHCMOM213 - Operate and maintain chainsaws; and
  5. UETTDRCVC23 - Plan the removal of vegetation up to vegetation exclusion zone near live electrical apparatus; and
  6. UETTDRCVC27 - Monitor safety compliance of vegetation control work in an ESI environment.

An EWP worker must also hold a High-Risk Work Licence - Boom-Type Elevating Work Platform (WP).

The elective units for Certificate II ESI Powerline Vegetation Control that are mandatory for ELC work roles of elevating work platform (EWP) operator and Tree climber are listed below.

EWP Operator and EWP Safety Observer:

- UETTDRCVC33 - Apply pruning techniques to vegetation control near live electrical apparatus
- UETTDRCVC25 – Use the elevated platform to cut vegetation above ground level near live electrical apparatus
- TLILIC0005 – Licence to operate a boom-type elevating work platform (EWP licence)

Tree Climber and Climber Safety Observer:

- UETTDRC21 - Use climbing techniques to cut vegetation above ground near live electrical apparatus;
- UETTDRC33 - Apply pruning techniques to vegetation control near live electrical apparatus;
- UETTDRC34 - Undertake release and rescue from a tree near live electrical apparatus;
- AHCARB204 - Undertake standard climbing techniques.

These requirements will be reviewed each year by the Site Manager to ensure no additional mandatory units apply.

The Site Manager will ensure only suitably trained and qualified persons carry out any vegetation management works by seeking evidence of qualifications and training delivered from Registered Training Organisations<sup>1</sup> prior to engagement from any service providers. Only candidates that meet the requirements specified in subsections 2 and 3 of Regulation 616 and hold all appropriate training and certification will be considered by the hiring manager. All persons attending site must first undertake a site induction, with attendance recorded. Site inductions attendees' records will be kept on file along with details of training, qualifications and certificates. These will be provided during audits to demonstrate compliance. Evidence of refresher training will be sought during the induction process and include the following yearly refreshers.

For a Cutter working from EWP Operator:

- HLTAID009-Provide cardiopulmonary resuscitation; and
- UETTDRCF10-Provide First Aid in an ESI environment; and
- UETTDRCF08-Perform EWP controlled descent escape; and
- UETTDRCF03- Perform EWP rescue
- UETTDRCF10-Provide First Aid in an ESI environment
- Safe approach distances – Vegetation Work

For a Tree Climber:

- HLTAID009-Provide cardiopulmonary resuscitation; and
- UETTDRCF10-Provide First Aid in an ESI environment; and
- Safe approach distances – Vegetation Work; and
- UETTDRC34- Undertake release and rescue from a tree near live electrical apparatus.

Both roles are required to undertake the following refresher unit every three years:

- Manual handling.

As training and refresher units can change regularly, these should be reviewed annually to ensure compliance.

<sup>1</sup> [training.gov.au](http://training.gov.au) - Organisation / RTO search

Non-compliance with these requirements is considered a breach of the Regulation and attracts a penalty.

All persons attending site must sign in and out of the Site attendance Register each day in accordance with Site management procedures.

A breach of employment conditions will occur as a result of any staff/contractors found on site without appropriate training or qualification. Where this occurs the service contract will be terminated immediately by the Site Manager.

*The vegetation management rules state:*

*Vegetation management work means the pruning, cutting, trimming or felling of, or application of herbicides to, vegetation and assisting to prune, cut, trim or fell, or apply herbicides to, vegetation, where:*

- *any part of the vegetation being pruned or cleared may come within 2 metres of live overhead powerlines, or*
- *the work requires any person, tool, equipment or vehicle to come closer to live overhead powerlines than the following relevant minimum distances:*
  - a) *100 mm for insulated low voltage conductors*
  - b) *1500 mm for bare or covered low voltage conductors*
  - c) *2000 mm for high voltage conductor with a nominal voltage not exceeding 66kV.*

*Vegetation management worker means a person:*

- *whose qualifications, experience and training and assessment ensure competency in the performance of vegetation management work; and*
- *who has completed a training course approved by ESV; and*
- *who has technical knowledge or sufficient experience to perform the duty concerned; and*
- *who has been endorsed in writing by an organisation (e.g. the employer) to perform the work.*

*A qualified person carrying out vegetation management work must comply with the safe approach distances and notes set out in the Vegetation Management Rules. Tables 1 and 2 of the Rules is included below for Non-Electrical Workers.*

Table 1: Safe Approach Distances (mm) for Vegetation Management Work Near OH lines when working from an insulated EWP

	Insulated LV	Bare or covered LV			HV up to, and including, 22kV			Greater than 22kV up to, and including, 66kV		
	All directions	Under conductor	Beside conductor	Over conductor	Under conductor	Beside conductor	Over conductor	Under conductor	Beside conductor	Over conductor
Worker's Body Clearance	No Contact	300	300	300	1000	1000	Work not permitted	2000	2000	Work not permitted
Uninsulated tool/Equipment	200	300	300	300	1000	1000	Work not permitted	2000	2000	Work not permitted
Insulated tool & Equipment	200	300	300	300	1000	1000	Work not permitted	2000	2000	Work not permitted
Uninsulated Part of EWP	200	1000	1000	1000	2000	2000	Work not permitted	3000	3000	Work not permitted
Insulated Part of EWP	No Contact	No Contact	No Contact	No Contact	1000	1000	Work not permitted	2000	2000	Work not permitted
Vegetation Clearances	No clearance required <sup>1</sup>	No clearance required <sup>1</sup>	No clearance required <sup>1</sup>	1000 <sup>1</sup>	300	700	Work not permitted	400	900	Work not permitted

Note:

1. Vegetation which is located at least 1000mm above bare LV conductor can be cleared subject to the following conditions: (a) A risk assessment is carried out with appropriate control measure put in place and; (b) Effective control measures are used to prevent the cut vegetation from contacting the conductor or encroaching into the vegetation clearance space. (c) a safety observer is posted.
2. Conductor sag and sway exclusion: The safe approach distances and vegetation clearances detailed in the Electrical Safety Rules make no provision for conductor movement due to wind or change in conductor temperature. Unexpected conductor movement may occur under moderate wind, network faults or changes in conductor heating or cooling factors. Conductor movement of several metres may result in long span/s of electric lines. Appropriate allowance for sway and sag changes must be applied in accordance with advice sought from the electrical asset owner.
3. Where the safe approach distances cannot be maintained, an access authority must be obtained from the owner of the electrical asset.
4. Vegetation contacting live LV conductors may be cut only after a risk assessment has been performed and precautionary actions are taken to control hazards to ensure that the work can be performed safely

Source: *Electrical Safety Rules for Vegetation Management Work Near Overhead Powerlines*

Table 2: Safe Approach Distances (mm) for Vegetation Management Work by Ground Worker and Climber working near Overhead Powerlines

	Insulated LV	Bare or covered LV			HV up to, and including, 22kV			Greater than 22kV up to, and including, 66kV		
	All directions	Under conductor	Beside conductor	Over conductor	Under conductor	Beside conductor	Over conductor	Under conductor	Beside conductor	Over conductor
Worker's Body Clearance	200	1000	1000	Work not permitted	1200	1200	Work not permitted	2000	2000	Work not permitted
Uninsulated tool/Equipment	200	300	300	Work not permitted	1000	1000	Work not permitted	2000	2000	Work not permitted
Insulated tool & Equipment	200	300	300	Work not permitted	1000	1000	Work not permitted	2000	2000	Work not permitted
Vegetation Clearances	No clearance required <sup>1</sup>	No clearance required <sup>1</sup>	No clearance required <sup>1</sup>	3000 <sup>1</sup>	700	700	Work not permitted	900	900	Work not permitted

Note:

1. Vegetation which is located at least 3000mm above bare LV conductor, can be cleared subject to the following conditions: (a) A risk assessment is carried out with appropriate control measure put in place and; (b) Effective control measures are used to prevent the cut vegetation from contacting the conductor or encroaching into the vegetation clearance space (c) a safety observer is posted.
2. Conductor sag and sway exclusion: The safe approach distances and vegetation clearances detailed in the Electrical Safety Rules make no provision for conductor movement due to wind or change in conductor temperature. Unexpected conductor movement may occur under moderate wind, network faults or changes in conductor heating or cooling factors. Conductor movement of several metres may result in long span/s of electric lines. Appropriate allowance for sway and sag changes must be applied in accordance with advice sought from the electrical asset owner.
3. Where the safe approach distances cannot be maintained, an access authority must be obtained from the owner of the electrical asset.
4. Vegetation contacting live LV conductors may be cut only after a risk assessment has been performed and precautionary actions are taken to control hazards to ensure that the work can be performed safely.

Source: *Electrical Safety Rules for Vegetation Management Work Near Overhead Powerlines*

The Site Manager will ensure a safe distance is maintained by providing and signing off on a 'Vicinity Access Permit' to perform the works prior to works been undertaken in accordance with the Rules.

The Vicinity Access Permit will clearly state the required safe distance to be maintained.

The Permit will be filed and kept for auditing purposes.

Before undertaking vegetation management work, a risk assessment will be conducted to assist in the identification and control of hazards to ensure that the work can be performed safely in accordance with the Vegetation Management Rules.

Only insulated mobile plant (insulated elevating work platforms) shall be used when working in accordance with the Vegetation Management Rules. Uninsulated mobile plant (uninsulated elevating work platforms) must comply with No Go Zone Rules. No Go Zone rules are available at:

ESV [www.esv.vic.gov.au/no-go-zones](http://www.esv.vic.gov.au/no-go-zones)

Worksafe [www.worksafe.vic.gov.au/resources/no-go-zones-overhead-electrical-power-lines](http://www.worksafe.vic.gov.au/resources/no-go-zones-overhead-electrical-power-lines)

Mobile plant must only be used in the vicinity of live conductors and/or electrical apparatus after precautions appropriate to the particular circumstances have been considered and action is taken to control the associated hazards and risks.

**1.15 Reg 9 (4 q) notification and consultation procedures, including the form of the notice to be given in accordance with Division 3 of Part 2 of the Code;**

In accordance with Division 3 Part 2 of the Code, the site Manager will provide written notification to affected landowners and publish a notice on the Projects website before cutting or removing certain trees as detailed in clause 16 and 17 of the Code if the works are on public land (as per the template letter found in Appendix E). The notice will in adhere to the timing specified under the code and include:

- (a) *a description of the cutting or removal that the responsible person intends to undertake; and*
- (b) *specify one or more days on which, or a period during which, the responsible person intends that the intended cutting or removal will commence.*

The responsible person will consult with occupier or owner of private property before cutting or removing certain trees in accordance with the Clause 18 of the Code and will keep records of any urgent cutting or removals as described under clause 19 of the Code and will give notice of the completed works to owner or occupier of the property or Council/DELWP if applicable. The written notice will specify:

- (a) *where and when the cutting or removal was undertaken; and*
- (b) *why the cutting or removal was required; and*
- (c) *the date of the last inspection of the span of the electric line in relation to which the cutting or removal was required before it was identified that the urgent cutting or removal was required.*

The completion of works must occur within 14-60 day from the date of notice. If the works fall outside of the 14–60-day period for any reason other than it becoming 'Urgent' or a 'Hazard' then notification will be issued and the clearance works re-scheduled. Follow up discussion in relation to the delay will be sought by the Site Manager.

The responsible person will keep a record of the written notice for at least 5 years.

**1.16 Reg 9 (4 r) a procedure for the independent resolution of disputes relating to electric line clearance;**

Any complaints will be handled in accordance with the Project's Complaint handling Management Plan. All complaints are registered, investigated and considered closed when a complainant advises that they consider the complaint resolved. Alternatively, if no response is received from the complainant within ten working days, the complaint will be considered closed. We aim to communicate the results of investigations and proposed resolution measures within 5 working days. In the event that agreement cannot be reached between the project team and complainant, as to resolution of a specific complaint, then it may be necessary to seek involvement of an independent impartial third party to facilitate mediation of the matter, such as the Energy and Water Ombudsman Victoria on 1800 500 509, or ESV on (03) 9203 9700 or email [complaints@energysafe.vic.gov.au](mailto:complaints@energysafe.vic.gov.au). The details of the process and facilitator will depend on the scope of the complaint, issues involved and appropriateness of the facilitator for the matter to be resolved. MWF will aim to constructively participate in any required mediation process.

The complaint handling process is available on the Project's website. <https://mooraboolwindfarm.com/wp-content/uploads/2019/06/Moorabool-Wind-Farm-Complaints-Handling-Process.pdf>

**1.17 Reg 9 4( s) if Energy Safe Victoria has granted an exemption under regulation 11 .**

This is not applicable.

**1.18 Reg 10 (6) The responsible person must ensure that a copy of the current management plan is published on the responsible person's Internet site.**

A copy of the current Management Plan will be published on the Project's website

<https://mooraboolwindfarm.com/>

The site manager will be responsible for publishing the new ELCMP on the Project's internet site (link above) by 1 July each year and remove the superseded ELCMP from the internet site.

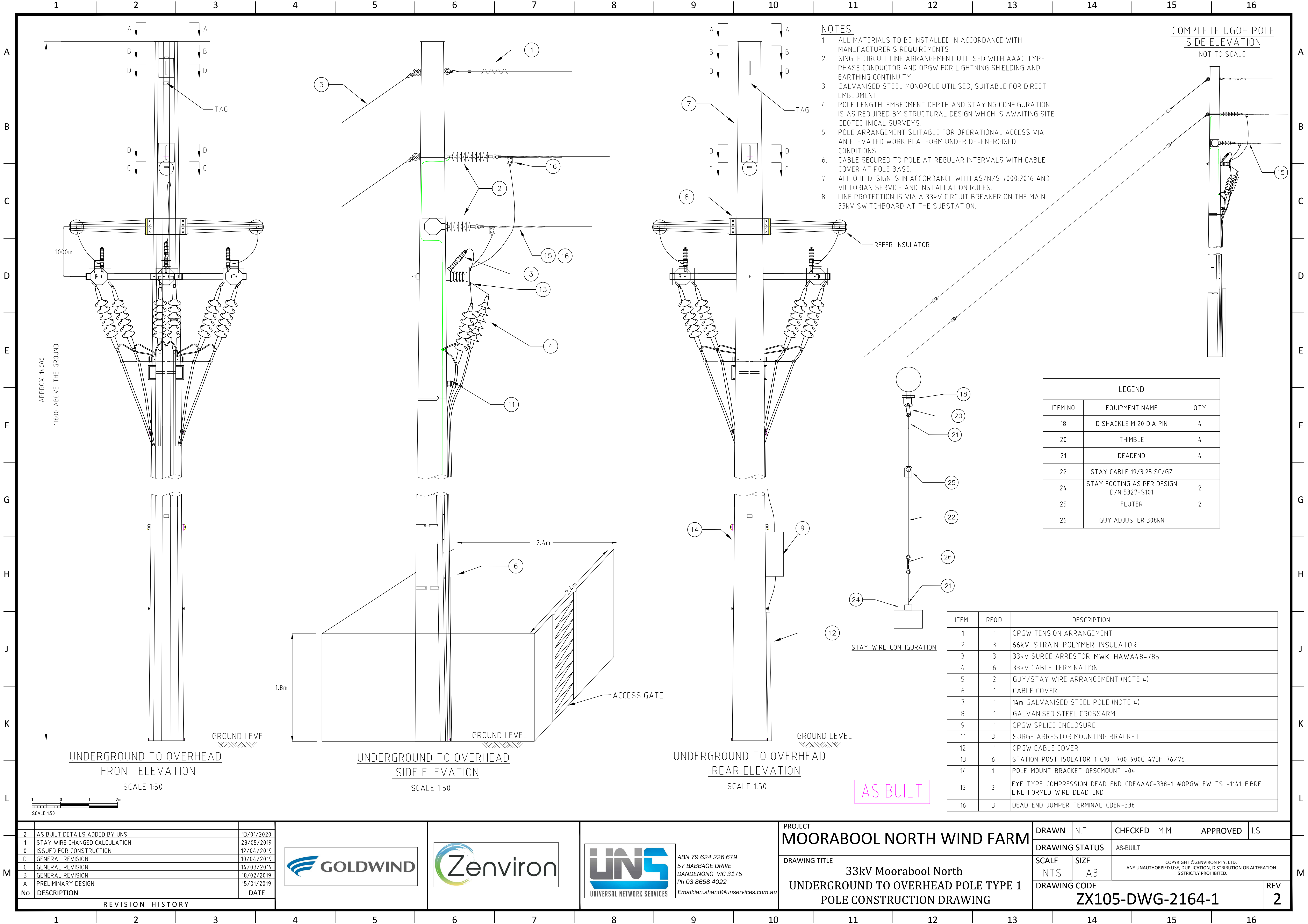


<b>MOORABOOL</b> Wind Farm	MN-PM-PLN-0065	Version 5
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# Appendices

<b>MOORABOOL</b> Wind Farm	MN-PM-PLN-0065	Version 5
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Appendix A- 33kV OHL profile drawing



NOTES:

- 1. ALL MATERIALS TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS.
- 2. SINGLE CIRCUIT LINE ARRANGEMENT UTILISED WITH AAAC TYPE PHASE CONDUCTOR AND OPGW FOR LIGHTNING SHIELDING AND EARTHING CONTINUITY.
- 3. GALVANISED STEEL MONOPOLE UTILISED, SUITABLE FOR DIRECT EMBEDMENT.
- 4. POLE LENGTH, EMBEDMENT DEPTH AND STAYING CONFIGURATION IS AS REQUIRED BY STRUCTURAL DESIGN WHICH IS AWAITING SITE GEOTECHNICAL SURVEYS.
- 5. POLE ARRANGEMENT SUITABLE FOR OPERATIONAL ACCESS VIA AN ELEVATED WORK PLATFORM UNDER DE-ENERGISED CONDITIONS.
- 6. CABLE SECURED TO POLE AT REGULAR INTERVALS WITH CABLE COVER AT POLE BASE.
- 7. ALL OHL DESIGN IS IN ACCORDANCE WITH AS/NZS 7000:2016 AND VICTORIAN SERVICE AND INSTALLATION RULES.
- 8. LINE PROTECTION IS VIA A 33kV CIRCUIT BREAKER ON THE MAIN 33kV SWITCHBOARD AT THE SUBSTATION.

COMPLETE UGOH POLE  
SIDE ELEVATION  
NOT TO SCALE

LEGEND		
ITEM NO	EQUIPMENT NAME	QTY
18	D SHACKLE M 20 DIA PIN	4
20	THIMBLE	4
21	DEADEND	4
22	STAY CABLE 19/3.25 SC/GZ	
24	STAY FOOTING AS PER DESIGN D/N 5327-S101	2
25	FLUTER	2
26	GUY ADJUSTER 308kN	

ITEM	REQD	DESCRIPTION
1	1	OPGW TENSION ARRANGEMENT
2	3	66kV STRAIN POLYMER INSULATOR
3	3	33kV SURGE ARRESTOR MWK HAWA48-785
4	6	33kV CABLE TERMINATION
5	2	GUY/STAY WIRE ARRANGEMENT (NOTE 4)
6	1	CABLE COVER
7	1	14m GALVANISED STEEL POLE (NOTE 4)
8	1	GALVANISED STEEL CROSSARM
9	1	OPGW SPLICE ENCLOSURE
11	3	SURGE ARRESTOR MOUNTING BRACKET
12	1	OPGW CABLE COVER
13	6	STATION POST ISOLATOR 1-C10 -700-900C 475H 76/76
14	1	POLE MOUNT BRACKET OFSCMOUNT -04
15	3	EYE TYPE COMPRESSION DEAD END CDEAAAC-338-1 #OPGW FW TS -1141 FIBRE LINE FORMED WIRE DEAD END
16	3	DEAD END JUMPER TERMINAL CDEP-338

AS BUILT

No	DESCRIPTION	DATE
2	AS BUILT DETAILS ADDED BY UNS	13/01/2020
1	STAY WIRE CHANGED CALCULATION	23/05/2019
0	ISSUED FOR CONSTRUCTION	12/04/2019
D	GENERAL REVISION	10/04/2019
C	GENERAL REVISION	14/03/2019
B	GENERAL REVISION	18/02/2019
A	PRELIMINARY DESIGN	15/01/2019
REVISION HISTORY		



ABN 79 624 226 679  
57 BABBAGE DRIVE  
DANDENONG VIC 3175  
Ph 03 8658 4022  
Email:ian.shand@unservices.com.au

PROJECT	MOORABOOL NORTH WIND FARM
DRAWING TITLE	33kV Moorabool North UNDERGROUND TO OVERHEAD POLE TYPE 1 POLE CONSTRUCTION DRAWING

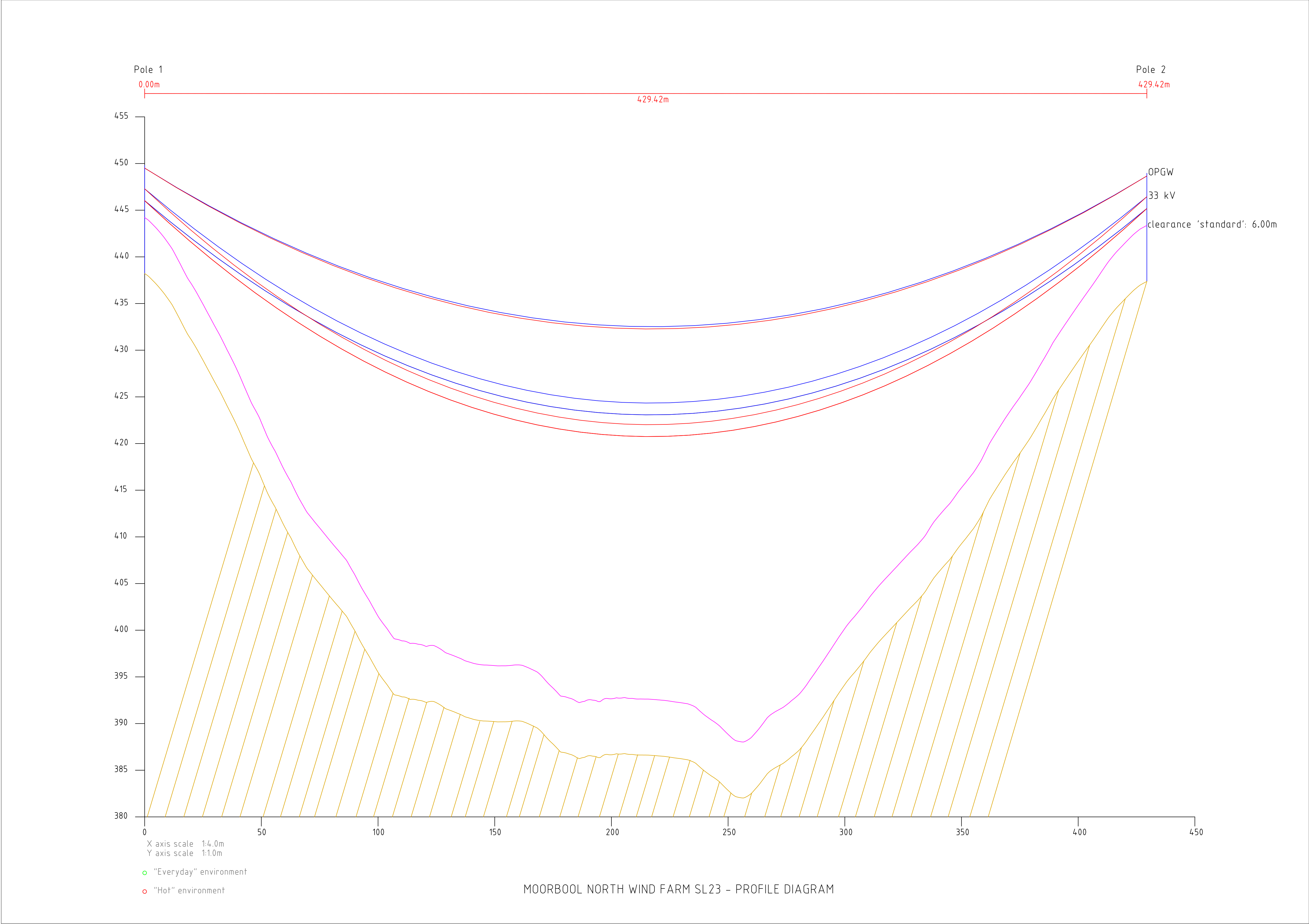
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DRAWING STATUS		AS-BUILT			
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ZX105-DWG-2164-1					2



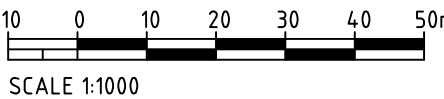


<b>MOORABOOL</b> Wind Farm	MN-PM-PLN-0065	Version 5
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Appendix B- Sag and Swag drawing of the electric line



AS BUILT



2	AS BUILT DETAILS ADDED BY UNS	13/01/2020
1	STAY WIRE CHANGED CALCULATION	23/05/2019
0	ISSUED FOR CONSTRUCTION	12/04/2019
D	GENERAL REVISION	10/04/2019
C	GENERAL REVISION	14/03/2019
B	GENERAL REVISION	18/02/2019
A	PRELIMINARY DESIGN	15/01/2019
No	DESCRIPTION	DATE
REVISION HISTORY		



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Email:ian.shand@unservices.com.au

PROJECT	MOORABOOL NORTH WIND FARM			
DRAWING TITLE	33kV Moorabool North Overhead Line POLE PROFILE			

DRAWN	N.F	CHECKED	M.M	APPROVED	I.S
DRAWING STATUS		AS-BUILT			
SCALE	SIZE	COPYRIGHT © ZENVIRON PTY. LTD. ANY UNAUTHORISED USE, DUPLICATION, DISTRIBUTION OR ALTERATION IS STRICTLY PROHIBITED.			
NTS	A3				
DRAWING CODE					REV
ZX105-DWG-2162-2					2



SAG CHART

							-5.0degC			0.0degC			5.0degC			10.0degC			15.0degC			20.0degC			25.0degC			30.0degC			35.0degC			40.0degC			45.0degC			50.0degC		
Conductor Name	Type	Tension (kN)	Tension (% CBL)	Span Length (m)	Start Pole	End Pole	Tension (kN)	Sag (m)	Time (s)	Tension (kN)	Sag (m)	Time (s)	Tension (kN)	Sag (m)	Time (s)	Tension (kN)	Sag (m)	Time (s)	Tension (kN)	Sag (m)	Time (s)	Tension (kN)	Sag (m)	Time (s)	Tension (kN)	Sag (m)	Time (s)	Tension (kN)	Sag (m)	Time (s)	Tension (kN)	Sag (m)	Time (s)	Tension (kN)	Sag (m)	Time (s)						
33kV	SULPHUR AAAC	18.85	13	429.42	Pole 2	Pole 1	19.15	22.19	25.36	19	22.36	25.46	18.86	22.54	25.56	18.72	22.71	25.66	18.58	22.88	25.75	18.45	23.05	25.85	18.32	23.22	25.94	18.19	23.39	26.04	18.06	23.55	26.13	17.94	23.72	26.22	17.82	23.88	26.31	17.7	24.05	26.4
OPGW	OPGW 48 FIBRE OPGW	8.46	8	429.42	Pole 2	Pole 1	5.74	17.35	22.42	5.70	17.48	22.51	5.60	17.62	22.60	5.62	17.75	22.68	5.58	17.88	22.77	5.54	18.01	22.85	5.50	18.14	22.93	5.46	18.27	23.01	5.42	18.40	23.09	5.38	18.53	23.17	5.35	18.66	23.25	5.31	18.78	23.35

MID SPAN CLEARANCE

Pole 1	Pole 2	Conductor 1	Conductor 2	Cable 1	Cable 2	Span Clearance	Midspan Clearance	Throughspan Clearance	Phase angle difference
Pole 2	Pole 1	33kV	33kV	1	2	PASS	PASS	N/A	120
Pole 2	Pole 1	33kV	33kV	1	3	PASS	PASS	N/A	120
Pole 2	Pole 1	33kV	OPGW	1	1	PASS	PASS	PASS	180
Pole 2	Pole 1	33kV	33kV	2	3	PASS	PASS	N/A	120
Pole 2	Pole 1	33kV	OPGW	2	1	PASS	PASS	PASS	180
Pole 2	Pole 1	33kV	OPGW	3	1	PASS	PASS	PASS	180

Pole2

POLE 02

14m STEEL & CONCRETE

12.6m AGH ,14m 1G

E18297A

33kV TERM

33kV UG CABLE HEAD

OPGW TERM

STAY 1 30° 0.6m FROM TOP OF POLE

2 x 19/3.25 GAL STEEL CABLE

STAY 2 30° 2.3m FROM TOP OF POLE

2 x 19/3.25 GAL STEEL CABLE

429.42m

Pole1

POLE 01

14m STEEL & CONCRETE

12.6m AGH ,14m 1G

E18297A

33kV TERM

33kVUG CABLE HEAD

OPGW TERM

STAY 1 30° 0.6m FROM TOP OF POLE

2 x 19/3.25 GAL STEEL CABLE

STAY 2 30° 2.3m FROM TOP OF POLE

2 x 19/3.25 GAL STEEL CABLE

AS BUILT

2

AS BUILT DETAILS ADDED BY UNS

13/01/2020

1

STAY WIRE CHANGE/OPGW 48 FIBRE UPDATE

23/05/2019

0

ISSUED FOR CONSTRUCTION

12/04/2019

D

GENERAL REVISION

10/04/2019

C

GENERAL REVISION

14/03/2019

B

GENERAL REVISION

18/02/2019

A

PRELIMINARY DESIGN

15/01/2019

No

DESCRIPTION

DATE

REVISION HISTORY

GOLDWIND

Zenviron

UNS

UNIVERSAL NETWORK SERVICES

ABN 79 624 226 679

57 BABBAGE DRIVE

DANDENONG VIC 3175

Ph 03 8658 4022

Email:ian.shand@unservices.com.au

PROJECT

MOORABOOL NORTH WIND FARM

DRAWING TITLE

33kV Moorabool North

Overhead Line

POLE SCHEMATIC

DRAWN

N.F

CHECKED

M.M

APPROVED

I.S

DRAWING STATUS

AS-BUILT

SCALE

NTS

SIZE

A3

DRAWING CODE

ZX105-DWG-2168-3

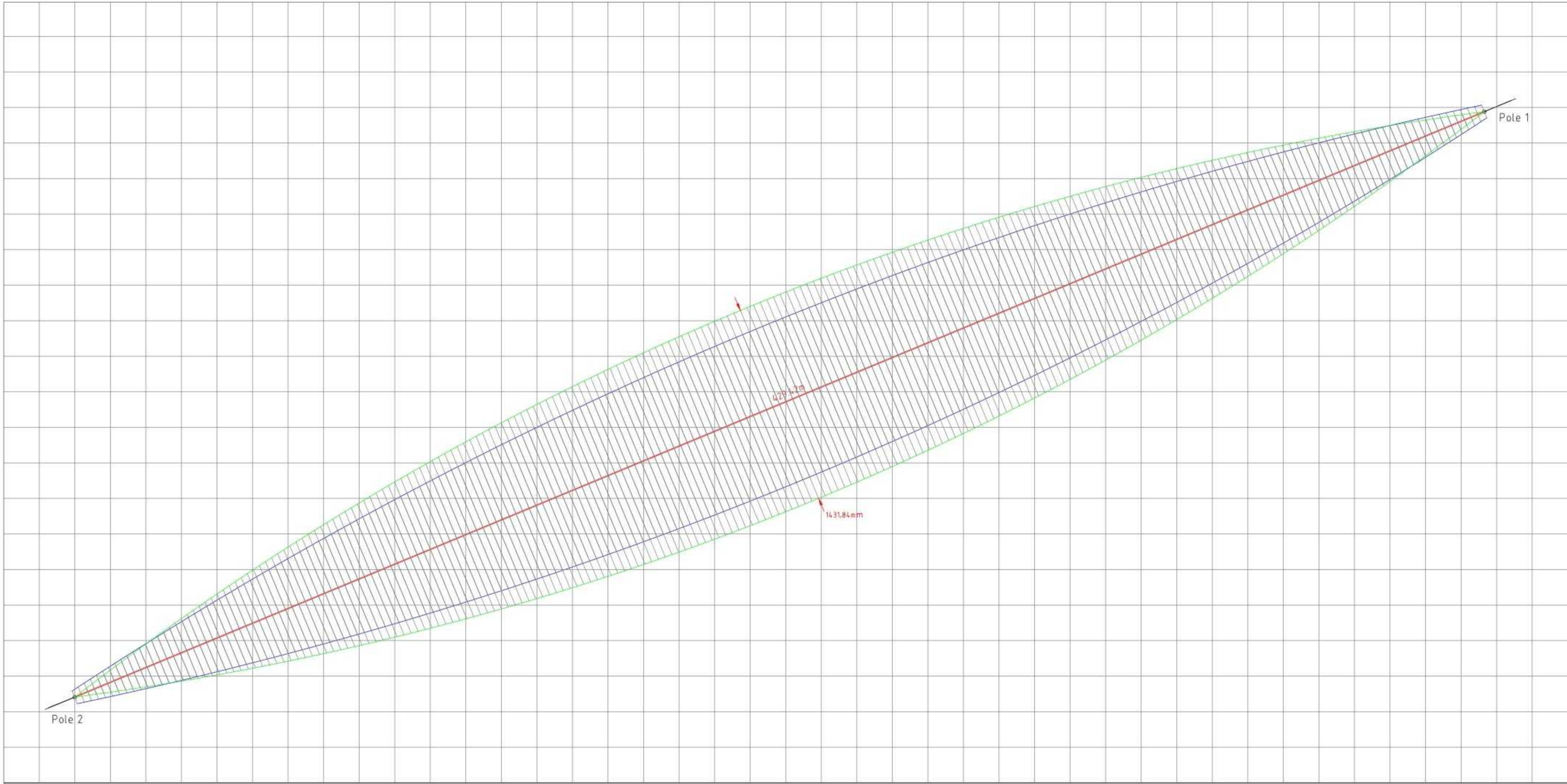
REV

2

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LEGEND

HOT 75 °C

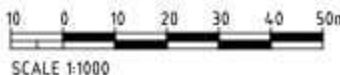
COLD (-5)

NOMINAL 5° C

BLOW OUT 33kW

BLOW OUT OPGW

AS BUILT



REVISION HISTORY		
No	DESCRIPTION	DATE
2	AS BUILT DETAILS ADDED BY UNS	13/01/2020
1	STAY WIRE CHANGED CALCULATION	23/05/2019
0	ISSUED FOR CONSTRUCTION	12/04/2019
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ABN 79 624 226 679  
57 BABBAGE DRIVE  
DANDENONG VIC 3175  
Ph 03 8658 4022  
Email:ian.shand@unservices.com.au

PROJECT  
**MOORABOOL NORTH WIND FARM**

DRAWING TITLE  
**33kV Moorabool North  
Overhead Line**

DRAWN	N.F	CHECKED	M.M	APPROVED	I.S
DRAWING STATUS		AS-BUILT			
SCALE	SIZE	COPYRIGHT © ZENVIRON PTY. LTD. ANY UNAUTHORISED USE, DUPLICATION, DISTRIBUTION OR ALTERATION IS STRICTLY PROHIBITED.			
NTS	A3				
DRAWING CODE					REV
<b>ZX105-DWG-2162-3</b>					<b>2</b>

## Appendix C- Nature Advisory 2020, Native vegetation Impact assessment for the OHL.



23<sup>rd</sup> November 2020

Goldwind Australia Pty Ltd  
Level 4, 485 La Trobe Street  
Melbourne VIC 3000

**Attention: Elizabeth Zorondo (Senior Environmental Planner)**  
By email – elizabethzorondo@goldwindaustralia.com (phone 9912 7808)

Dear Liz,

**RE: MOORABOOL WIND FARM – OHL CROSSING OF MOORABOOL RIVER EAST BRANCH  
NATIVE VEGETATION IMPACT ASSESSMENT  
NATURE ADVISORY REPORT NO. 16115 (17.0)**

### *Introduction and scope of works*

Thank you for engaging Nature Advisory Pty Ltd to undertake a Native Vegetation Impact Assessment on a small section of the 33KV Over-head (Power) line (OHL) that crosses over the Moorabool River East Branch, connecting Moorabool North Wind Farm turbines BUWT29 to 34. The internal network line has a span distance of 429.42 metres (Figure 1).

The Native Vegetation Impact Assessment involved an assessment of the vegetation beneath and within the vicinity of the existing as constructed powerline to determine the likelihood of the vegetation entering into the clearance space of the powerline.

This assessment is required to inform preparation of a Bushfire Mitigation Plan and Line Clearance Management Plan. The 429.42m internal network line will need to satisfy the requirements of Regulations 6 of the *Electricity Safety (Bushfire Mitigation) Regulations 2013* and Regulation 9 of the *Electricity Safety (Electric Line) Clearance Regulation 2020*. One of the requirements is for the specified operator to know which native or significant trees will be required to be removed to ensure compliance with the Act.

Identification of vegetation that may need removal or lopping to ensure compliance with the *Electricity Safety (Electric Line Clearance) Regulations 2020* was made, including vegetation that is likely to fall into the clearance space. Further, any vegetation that is native, listed in a planning scheme to be of ecological, historical or aesthetic significance, or is of cultural or environmental significance, was identified.

This report contains the details of any vegetation that is currently within the clearance space, as well as vegetation that is likely to enter the clearance space and will require annual monitoring.

### *Methods and findings*

The OHL crossing was assessed on the 25<sup>th</sup> March 2020. During this assessment, vegetation underneath and within the vicinity of the powerline was assessed from the top of the eastern escarpment of the Moorabool River East Branch by the eastern power pole (Pole 1). This

assessment was limited by the lack of accessibility to the valley, so that all vegetation was inspected from afar, with the assistance of binoculars.

Mapping was undertaken using aerial imagery from NearMap. NearMap was also used to determine the elevation of vegetation on the escarpment so that this could be corresponded with the OHL profile diagram provided by Goldwind Australia (Figure 1). Tree height was estimated on site and maximum expected tree heights for the tree species observed to be present were obtained from the Royal Botanic Gardens Victoria's online Flora of Victoria.

The applicable clearance distance for the middle two thirds of the span is calculated to be 2.134m. The sag and swag allowances once added to this distance provide the required minimum vertical and horizontal clearance distances. As such, Goldwind Australia advise that:

- A maximum vertical sag of 25m and a maximum horizontal sway of 0.716 m from the centreline of the line has been determined; and
- The minimum vertical clearance space required is therefore 27.134m (defined by the maximum sag and applicable distance) and the minimum horizontal clearance required space from the centreline required is 2.85m.

Most of the vegetation underneath and within the vicinity of the powerline was identified as native. However, this vegetation was dominated in most parts by native grasses that will not encroach into the clearance space of the powerline. One treed area was identified.

This treed area was mapped as Valley Grassy Forest (EVC 47) and is shown in Figure 2. This EVC has a conservation status of Vulnerable. Approximately 25 trees were present in this area which consisted of native *Eucalyptus* and wattle species, predominantly Narrow-leaf Peppermint, as well as occasional Blackwood. These trees were estimated to be at a maximum height of 14 metres to 20 metres at the time of the assessment.

The powerline sag is estimated to be at an elevation of 422 metres at its lowest point. The trees underneath the powerline were on the escarpment at elevations between 385 and 395 metres, making the elevation of the tree canopy at a maximum of between 405 and 415 metres. This provides a current clearance space of between 17 and 7 metres between the powerline and the tree canopies. As the elevation of powerline sag increases progressively towards the poles, it must be noted that this is a conservative estimate of the clearance space, as it is based on the elevation of powerline sag at its lowest point only.

Currently, the trees under the OHL are not within the clearance space of the powerline, and do not require removal or lopping. However, these trees can reach heights of up to 40 metres and could encroach into the clearance space at a later time. It is therefore necessary that the trees beneath and within the vicinity of the powerline are inspected on an annual basis.

Inspections must be carried out by a person who has satisfactorily completed a training course approved by Energy Safe Victoria and is competent to carry out such inspections. Inspections must be undertaken annually and recorded, and records are to be kept for 5 years.

If vegetation is deemed to be within the clearance space of the powerline during these annual inspections, it must be lopped or removed to achieve the required clearance space. This must be done by a contracted arborist, and consideration is to be given to the health, longevity and habit of the trees. Trees must also be inspected for their fauna habitat value and any fauna is to be salvaged before any lopping or removal operations take place. Any removal of native





vegetation, unless an exemption applies, will require a permit under the Victorian *Guidelines for the removal, destruction or lopping of native vegetation*.

Photographs of the vegetation in the assessment area are provided as an attachment.

No trees within this area were listed in the Moorabool Planning Scheme to be of ecological, historical or aesthetic significance, or cultural or environmental significance.

If you have any questions regarding the foregoing information, please do not hesitate to contact me.

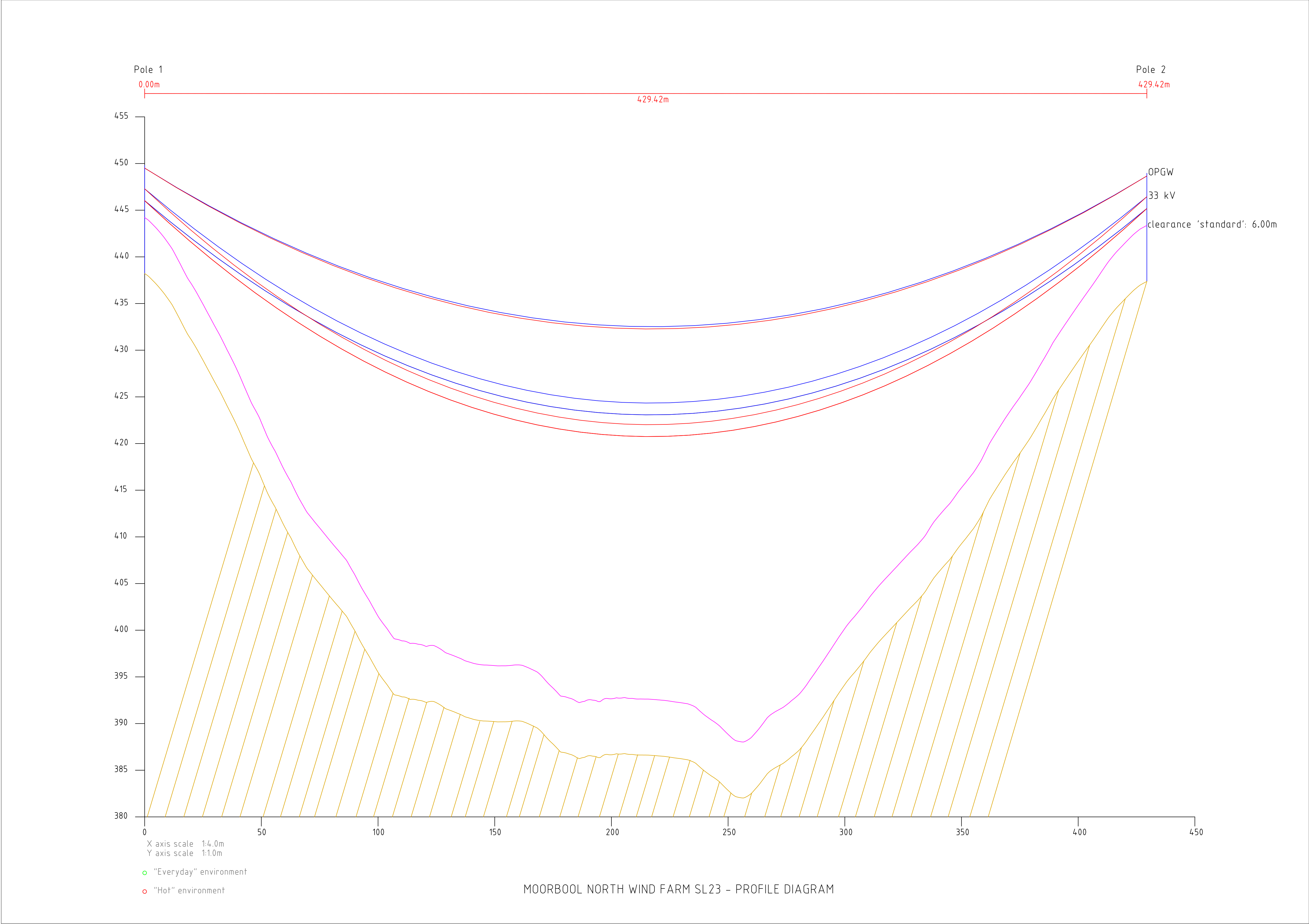
Yours sincerely,

**Alan Brennan**

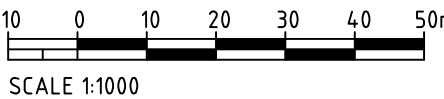
**Director  
Nature Advisory Pty Ltd**

(03) 9815 2111 | [alan@natureadvisory.com.au](mailto:alan@natureadvisory.com.au)

Figure 1: 33kV Moorabool North OHL Pole Profile



AS BUILT



2	AS BUILT DETAILS ADDED BY UNS	13/01/2020
1	STAY WIRE CHANGED CALCULATION	23/05/2019
0	ISSUED FOR CONSTRUCTION	12/04/2019
D	GENERAL REVISION	10/04/2019
C	GENERAL REVISION	14/03/2019
B	GENERAL REVISION	18/02/2019
A	PRELIMINARY DESIGN	15/01/2019
No	DESCRIPTION	DATE
REVISION HISTORY		



ABN 79 624 226 679  
57 BABBAGE DRIVE  
DANDENONG VIC 3175  
Ph 03 8658 4022  
Email:ian.shand@unservices.com.au

PROJECT	MOORABOOL NORTH WIND FARM		
DRAWING TITLE	33kV Moorabool North Overhead Line POLE PROFILE		

DRAWN	N.F	CHECKED	M.M	APPROVED	I.S
DRAWING STATUS		AS-BUILT			
SCALE	SIZE	COPYRIGHT © ZENVIRON PTY. LTD. ANY UNAUTHORISED USE, DUPLICATION, DISTRIBUTION OR ALTERATION IS STRICTLY PROHIBITED.			
NTS	A3				
DRAWING CODE					REV
ZX105-DWG-2162-2					2

Figure 2: Study area, native vegetation and clearance space





**Figure 2:** Study area, native vegetation and clearance space

**Project:** Moorabool Wind Farm - OHL  
XING Moorabool River  
**Client:** Goldwind Australia Pty Ltd  
**Date:** 29/04/2020

- ▮ Study area
- ▮ Asbuilt powerline
- ▮ Valley Grassy Forest (EVC 47)
- ▮ Clearance space



Metres  
0 30



PO Box 337, Camberwell, VIC 3124, Australia  
[www.natureadvisory.com.au](http://www.natureadvisory.com.au)  
03 9815 2111 - [info@natureadvisory.com.au](mailto:info@natureadvisory.com.au)



## Photographs of the study area



## Appendix D – GWA-HSE-PRC-0021 Contractors and Consultants Prequalification Procedure to engage a third party

	GWA-HSE-PRC-0021 Contractors and Consultants Prequalification Procedure	Ver 3.2	Effective Date: 02/11/15
			Review Date: 18/07/21

## Goldwind Australia

# GWA-HSE-PRC-0021 Contractors and Consultants Prequalification Procedure

### Document Version History

Version	Date	Reason for Issue	Author	Checked	Approved
1.0	05/05/11	First Published	J Simmonds	JG	
2.0	29/04/13	Updated Procedure format and new Category D	J Simmonds	TF & JG	JG
3.0	19/10/15	Updated to reflect CM3	J Simmonds	JG & RB	JG & RB
3.1	02/11/15	Updated to reflect Cm3 site modifications	J Simmonds	-	-
3.2	18/07/18	Updated to reflected CM3 new requirements	G Cameron	-	-



	GWA-HSE-PRC-0021 Contractors and Consultants Prequalification Procedure	Ver 3.2	Effective Date: 02/11/15
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## 1 Purpose and intended outcomes

This procedure documents the formal process for evaluating the capabilities of potential contractors and consultants, and their ability to assist Goldwind Australia (GWA) to meet its own HSEQ commitments.

Prequalification aims to:

- Review HSEQ systems that support site plans and SWMS
- Create a list of contractors whose capabilities have been assessed to facilitate a swift engagement

## 2 Scope and coverage

This procedure does not cover how to use the Cm3 online software as this is defined in the [Cm3 Client User Manual - Full Function All Client](#)

### 2.1 When does prequalification apply?

This procedure applies to the prequalification of contractors and consultants across GWA premises and sites. Prequalification applies to all work undertaken except as defined below

- Work undertaken by monopoly service providers where the provider refuses to comply with GWA prequalification requirements
- Work undertaken in the corporate offices – such as cleaners and catering services
- Works on site under the direct supervision of GWA employees or direct hire contractors
- Emergency works where swift mobilisation to site is required – such as trades required to fix essential services to prevent further damage
- Off-site manufacturing, servicing or repair of materials, parts, plant or equipment
- Freight, transport, warehousing and delivery services where the service is primarily performed off site – such as TNT, DHL and FedEx
- Works of a low-risk nature where the responsible Department Manager grants an exception to prequalification

## 3 Definitions and Abbreviations

Contractor	For the purpose of this document the term contractor includes consultant
Cm3	Online software Powered by Noel Arnold & Associates Pty Ltd, a Greencap Ltd company

## 4 Procedure

Prequalification of contractors is a continuous process of review including:

1. **Initial Pre-Qualification Assessment** (refer to 4.1), relating to the contractor/consultant's capabilities. This is conducted using Cm3.
2. **Pre-Work Review** (refer to 4.2). Steps to take immediately before engaging the contractor.
3. **Contractor's Performance Assessment** (refer to 4.3). Completed during and or at the completion of a contract.
4. **Annual Renewal** (refer to 4.4). Conducted by Cm3 annually.

### 4.1 Initial Pre-Qualification Assessment

Due to the effort and cost required by a contractor to complete Cm3 prequalification, the following considerations must be made before sending a contractor an invitation:

- The number of existing prequalified contractors who can supply the same services
- Unique advantages relating to the new contractor such as:
  - The location of branches, warehouses, offices near to a project site
  - Fees and charges
  - Variations in services

- Training and qualifications of workers
- Is it reasonably foreseeable that the contractor will be engaged for work in the near future

Refer to Process Flowchart Annexure A

#### 4.1.1 Contractor Categories

Category assessment is based on risks associated with the work undertaken (determined by Activity Classification).

Categories include:

CM3 Category	No. of Questions	Level of risk
Category 1	40 to 60 questions	<b>High risk</b> contractor – usually conducts high risk work and engages subcontractors
Category 2	30 to 40 questions	<b>Medium risk</b> contractor – usually conducts high risk work OR engages subcontractors
Category 3	7 to 10 questions	<b>Low risk</b> contractors – usually does not conduct high risk work and does not engage subcontractors
Category 4	20 to 30 questions	These contractors have an <b>externally JAS ANZ or Work Safe/Cover accredited</b> safety system, such as AS4801 or National Safety Self-insured system

#### 4.2 Pre-work Review

The Department Manager must ensure that:

- A contractor's prequalification status is checked prior to engaging a contractor, to ensure that their status has not changed since last use.
- The need for insurances specific to the planned works such as increased limits of liability for standard insurances or insurance for plant and equipment, marine transport, contract works, business interruption or professional indemnity.
- Consider previous contractor performance to identify any areas of risk and to determine an inspection and auditing schedule

#### 4.3 Contractors Performance Assessment

For contracts where the value of work performed exceeds \$20 million AUD in any calendar year, or as directed by the Department Manager or Project Manager, then these contractors are classified as a 'Major Contractors' and as such performance shall be assessed annually or at the end of engagement through the completion of the **GWA-PM-FRM-0003 Contractor Performance Report**.

When completed the report must be stored in CM3 for review prior to future engagements.

It is important for contractors to be involved in this process so that:

- They are aware of the consequences of providing good or bad quality products and services
- It provides the contractor with valuable feedback to improve their systems
- Validation of any areas of concern during and at the end of the project

#### 4.4 Review of Prequalification

Unless circumstances warrant an earlier review, a contractor's or consultant's prequalification status will remain valid for a period of 12 months in CM3 from the 'Active' date. Annual reviews are conducted automatically by CM3.

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## 4.5 Suspension and Withdrawn Status and Re-Categorisation,

### 4.5.1 Re-categorisation

Re-categorisation may occur as a result of a contractor changing their Services for any client in Cm3. Contractors must notify Cm3 and may be required to recomplete the Activity questions. Cm3 will assess WHS and insurance requirements and increase the category accordingly. The respective Department Manager must ensure that the Quality, Suitability and Capability survey remains appropriate to any change to GWA defined services.

### 4.5.2 Suspension

A Department Manager may decide to change the status of a contractor to 'Suspended'.

Suspension status means that there is sufficient evidence to warrant an immediate suspension to prevent service affecting GWA business.

GWA may, in its absolute discretion, review and reclassify, suspend or deregister contractors or consultants who, at any time, are considered to have:

- Performed in an unsatisfactory manner
- Breached any of the prequalification conditions.
- Changed financial or technical capacity significantly

Before such action is taken the company or individual will be given details of the matters prompting the decision and will have an opportunity to show cause why Active status should not be changes.

Where prequalification is suspended, the contractor or consultant may be entitled to apply for reinstatement. A contractor will be required to demonstrate that any matters that led to suspension have been rectified and processes implemented to prevent a reoccurrence.

GWA will not be liable for any costs or damages incurred in the exercise of such discretion.

## 4.6 Update Prequalification Details

Prequalified contractors and consultants are required to notify GWA promptly of anything that might affect prequalification including changes to:

- Company or business structure, ownership or holding
- Technical capabilities
- Financial capacity
- Key personnel

This is communicated to each contractor during the registration process, via GWA Prequalification Terms and Conditions that must be accepted before completing registration.

The respective Department Manager should consider if there has been a significant change in the above areas that was originally used as a basis for granting 'Active' status. Changes in the quality of products and services may be significant enough to withdraw prequalification status.

Proposals for withdrawing prequalification are to be discussed in the quarterly HSEQ meetings with consensus required from the Senior Management Team.

## 4.7 Cm3 Permissions

- **User** this is the default role and users are only permitted to view information in Cm3 and cannot make changes.
- **Manager** access gives the user permission to edit contractor information i.e. Active to pending or inactive etc.



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- **Administration** in addition to Manager functions, Administration access gives the user permission to change employees and client information i.e. to edit passwords etc. (*NB: Please tick both Manager and Administration roles to active*)
- **Setup** access gives the user overall 'Client' site set up permission. This access allows the user to attach "Contractor Resources", permission to input "contractor contacts", set up "Business Units" within the organisation etc.

## 5 Responsibilities

### Department Manager:

- Ensure that contractors are invited to prequalify using CM3
- Review and approve exceptions to the standard insurance amount for Public Liability and Professional Indemnity, when receiving email notification
- Control the status of contractors used for activities in the respective Department, such as authorising or withdrawing 'Active' status (refer to 4.6)
- Communicate with other relevant Department Managers any Cm3 matters relating to contractors that provide services across multiple Departments
- Define permissions for respective employees

Any Hiring Manager engaging a contractor to perform work in accordance with this procedure

- Using Cm3 review contractor standard insurances
- Using Cm3, check the status of contractor and their 'Service Categories/Areas' and 'Service Description', to ensure that the services/activities listed match your planned activities:
- Notify the contractor of additional insurances relating to specific works and ensure they upload them in CM3 with the expiry date:
- Review previous GWA-PM-FRM-0003 Contractor Performance Report in CM3 prior to engagement
- Where required, complete a GWA-PM-FRM-0003 Contractor Performance Report post engagement and upload the record in CM3

## 6 Related Information/Document Links

GWA-PM-FRM-0003 Contractor Performance Report

Cm3 Client User Manual - Full Function All Client

GWA-QA-FRM-0001 Contractor Referee Evaluation Form

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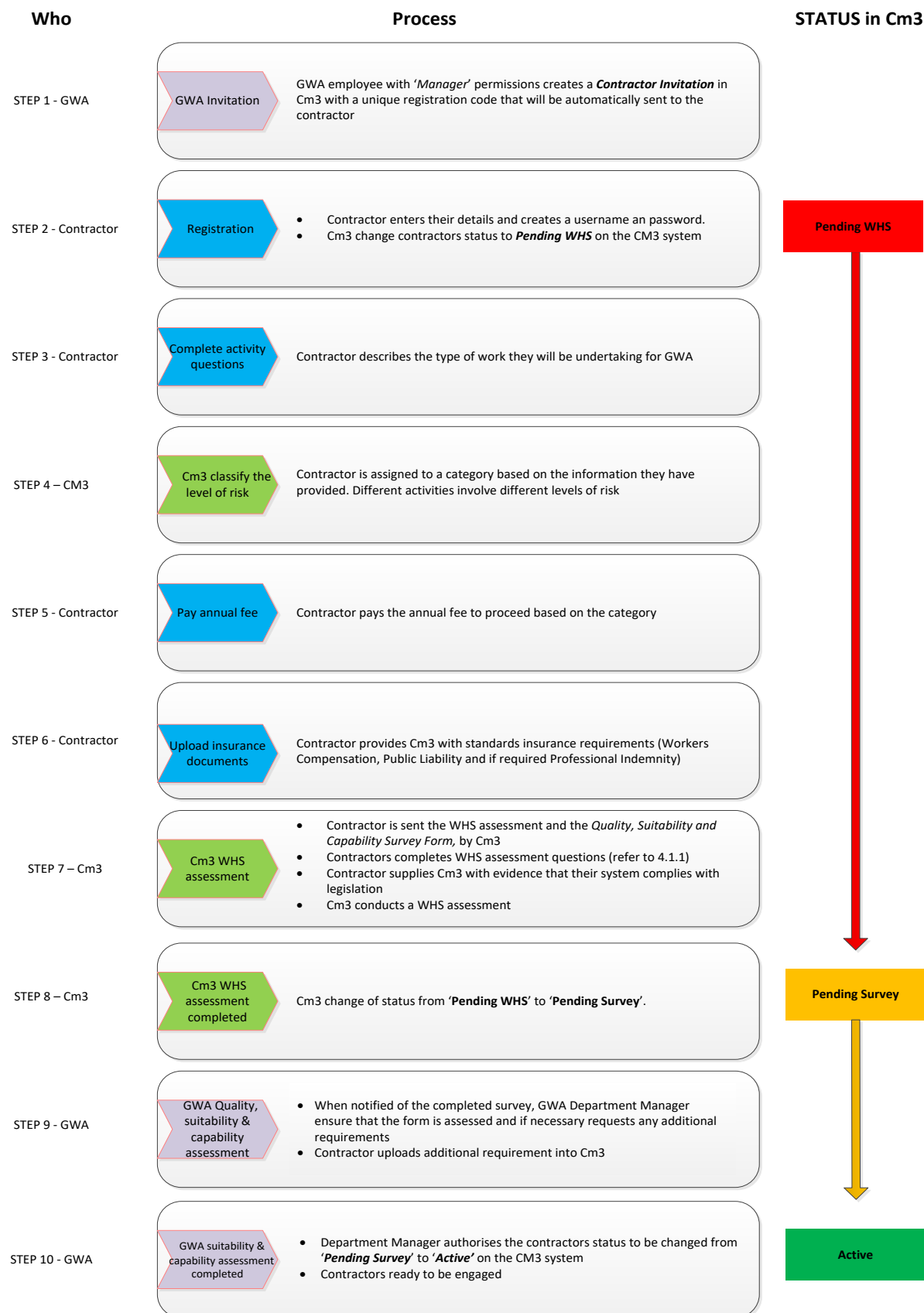
### Have your Say!



The GWA Management System aims to continually improve and as such we welcome your feedback, ideas, suggestions and constructive comments.

Have your say by emailing: [hse.support@goldwindaustralia.com](mailto:hse.support@goldwindaustralia.com)

## Annexure A – CM3 Contractor Process



## Appendix E – Copy of Notice to landowner of tree pruning/removal works



Date

Landowner address

**Subject: Notice to landowner of tree pruning/removal works**

Dear landowner,

Regularly inspection of the Moorabool Wind Farm low voltage powerline is required to ensure compliance with the Electric Safety (Electric Line Clearance) Regulations 2020 and our approved plan under the Regulation. As a result of these inspections a tree/s within your property will need to be pruned or removed as it does not meet the clearances space required from the line.

The work is scheduled to occur at the location no earlier than 14 days and no later than 60 days from the date of this notice. If, for any reason, the cutting and/or removal works becomes 'Urgent' (as defined in the Code) during the first 14 days then the schedule will be brought forward and affected persons notified as soon as practicable.

Any complaints will be handled in accordance with the Project's Complaint handling Management Plan. All complaints are registered, investigated and considered closed when a complainant advises that they consider the complaint resolved.

The complaint handling process is available on the Project's website.  
<https://mooraboolwindfarm.com/wp-content/uploads/2019/06/Moorabool-Wind-Farm-Complaints-Handling-Process.pdf>

Please feel free to contact me should you require any further clarity on this matter.

Sincerely,

Glenn Shillito  
Site Manager  
**Moorabool Wind Farm Pty Ltd**  
Mobile: +61 418 105650  
Email: glennshillito@goldwindaustralia.com