

TOWN PLANNING REPORT: REMOVAL OF NATIVE VEGETATION

WOOLSTHORPE WIND FARM DISTRIBUTION LINE PROJECT
DECEMBER 2019

PREPARED FOR CITIPOWER / POWERCOR AUSTRALIA

This report has been prepared by the office of Spiire
Level 6, 414 La Trobe Street PO Box 16084 **Melbourne** Victoria 8007

Acknowledgements and Recognition

Ecological Assessment Report, EcoAerial Environmental Services (November 2019)
Vegetation Clearance Assessment Report, Utility Trees (November 2019)

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1. INTRODUCTION

This report has been prepared by Spiire Australia Pty Ltd on behalf of CitiPower / Powercor Australia in support of a planning permit application for the removal of native vegetation to facilitate works associated the Woolsthorpe Wind Farm Distribution Line project.

The Woolsthorpe Wind Farm Distribution Line project will comprise approximately 17.9 kilometres of new 66kV power lines between the Koroit Substation and the Woolsthorpe Wind Farm. The works are required to connect the Wind Farm to the electricity network and will allow the renewable energy to be utilised by the public. This will result in the consequential removal of approximately 14m² of native vegetation.

Powercor is committed to providing an electricity network that is safe and reliable while minimising any impact on the environment. Powercor has undertaken numerous infrastructure projects across Victoria with minimal or no vegetation, environmental or community impact.

The purpose of this report is to:

- ▶ Provide an overview of the subject site and surrounding area;
- ▶ Outline a written description of the proposal;
- ▶ Identify the relevant planning controls, policies and decision guidelines within the Moyne Planning Scheme; and
- ▶ Provide an analysis of the proposal against all relevant planning requirements.

This report is accompanied by and should be read in conjunction with the following documents:

- ▶ Construction Plans prepared by CitiPower / Powercor Australia (PCA80 5120678) attached at Appendix A;
- ▶ Ecological Assessment Report prepared by EcoAerial Environmental Services (November 2019) attached at Appendix B; and
- ▶ Vegetation Clearance Assessment Report prepared by Utility Trees (November 2019) attached at Appendix C.

1.1 PROJECT SYNOPSIS

The following table provides an overview of the proposed development.

Table 1: Project Synopsis

Project Synopsis		
Planning Controls	Municipality	<ul style="list-style-type: none"> ▶ Moyne Shire Council ▶ Warrnambool City Council
	Zones	<ul style="list-style-type: none"> ▶ Farming Zone (FZ) ▶ Road Zone, Category 1 (RDZ1)

Project Synopsis

	Overlays	<p>Moyne Planning Scheme</p> <ul style="list-style-type: none"> ▶ Design and Development Overlay – Schedule 23 (DDO23) <p>Warrnambool Planning Scheme</p> <ul style="list-style-type: none"> ▶ Design and Development Overlay – Schedule 16 (DDO16)
	Proposal	Removal of 14m ² of native vegetation.
Planning permit triggers	Clause 52.17-1	Remove, destroy or lop native vegetation, including dead native vegetation.

1.2 PROJECT OVERVIEW

The project involves new and replacement power line works between the Koroit Substation and the Woolsthorpe Wind Farm. This proposed works will increase the carrying capacity of the existing electrical alignment and provide new infrastructure to accommodate the additional supply generated by the Woolsthorpe Wind Farm.

Planning approval is required for works associated with the removal of 14m² of native vegetation, comprising 5m² of removal for four (4) pole installations and 9m² of removal for the pruning of native Blackwood trees.

The remainder of the works associated with the project are exempt from planning permission pursuant to Clauses 62.01 and 62.02-1 of the Moyne Planning Scheme and the Warrnambool Planning Scheme.

1.3 AMENDMENT VC157 AND PERMIT EXEMPTIONS

It is acknowledged that the project is associated with an 'Energy Generation Facility' (being the Woolsthorpe Wind Farm). In accordance with Amendment VC157, which was gazetted on 15 March 2019, a planning permit is required for works to power lines associated with Energy Generation Facilities.

Pursuant to Clauses 62.01 and 62.02-1, the following exemptions apply:

- ▶ *The use of land for power lines and electrical sub-stations associated with an energy generation facility or geothermal energy extraction if a permit was issued for such use or development prior to the approval date of Amendment VC157; and*
- ▶ *Power lines and electrical sub-stations associated with an Energy generation facility or Geothermal energy extraction if a permit was issued for such use or development prior to the approval date of Amendment VC157 (construction or carrying out of works).*

The Planning Permit for the Woolsthorpe Wind Farm was issued on 17 April 2008 and preceded the approval of Amendment VC157. Accordingly, a planning permit is not required for the use or development of the land for a Utility Installation (except within the PCRZ).

It is acknowledged that the above exemptions do not apply to any vegetation removal associated with the project.

2. APPLICATION AREA

The project alignment comprises approximately 17.9 route kilometres of new and replacement works between the Koroit Substation (703 Tower Hill Road, Yangery) and the Woolsthorpe Wind Farm site (190 Slatterys Road, Woolsthorpe). The alignment extends along Conns Lane, Mailors Flat-Koroit Road, Officers Lane, McCormack Street, Depot Road, Gunns Road and Railway Road.

The alignment is predominantly located within Moyne Shire Council, with the exception of the Koroit Substation which is located within Warrnambool City Council. This application relates only to the removal of native vegetation within Moyne Shire.

The location of the project alignment is illustrated in Figure 1 (alignment shown in orange). The extent of the new and replacement works, and the location of the proposed native vegetation removal is illustrated in Figure 2.

Refer to the Construction Plans prepared by CitiPower / Powercor Australia for further details (Appendix A).

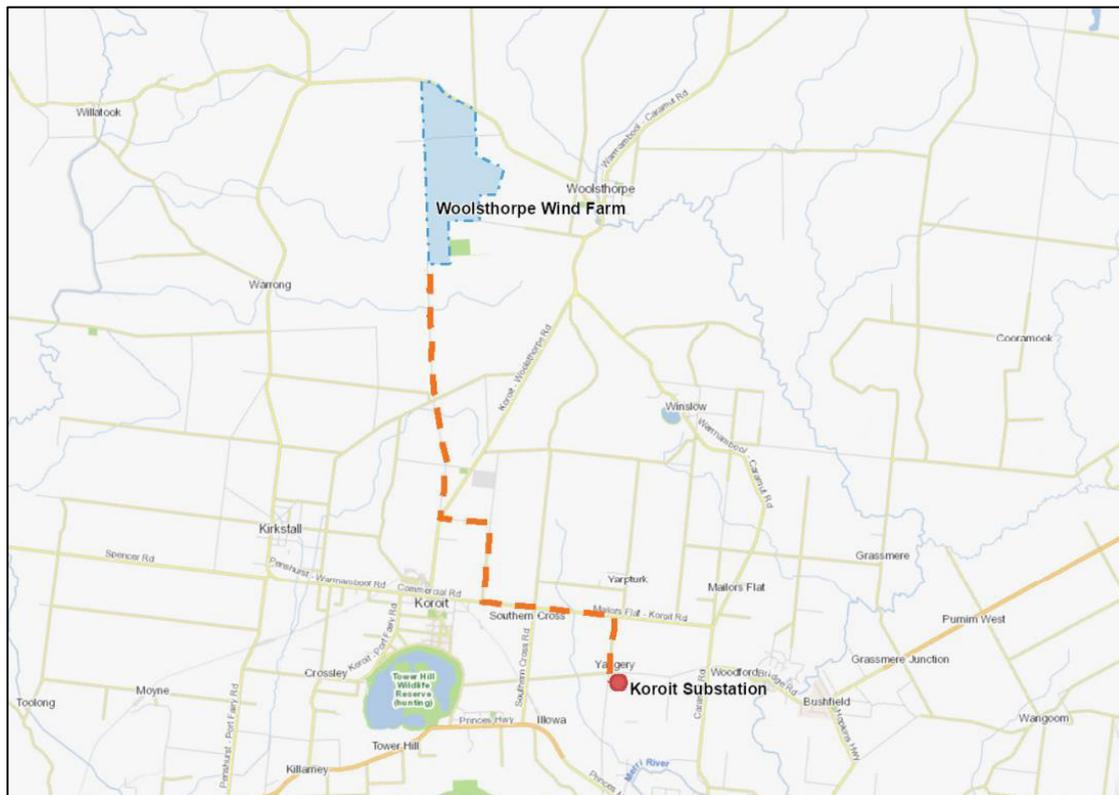


Figure 1: Locality Plan

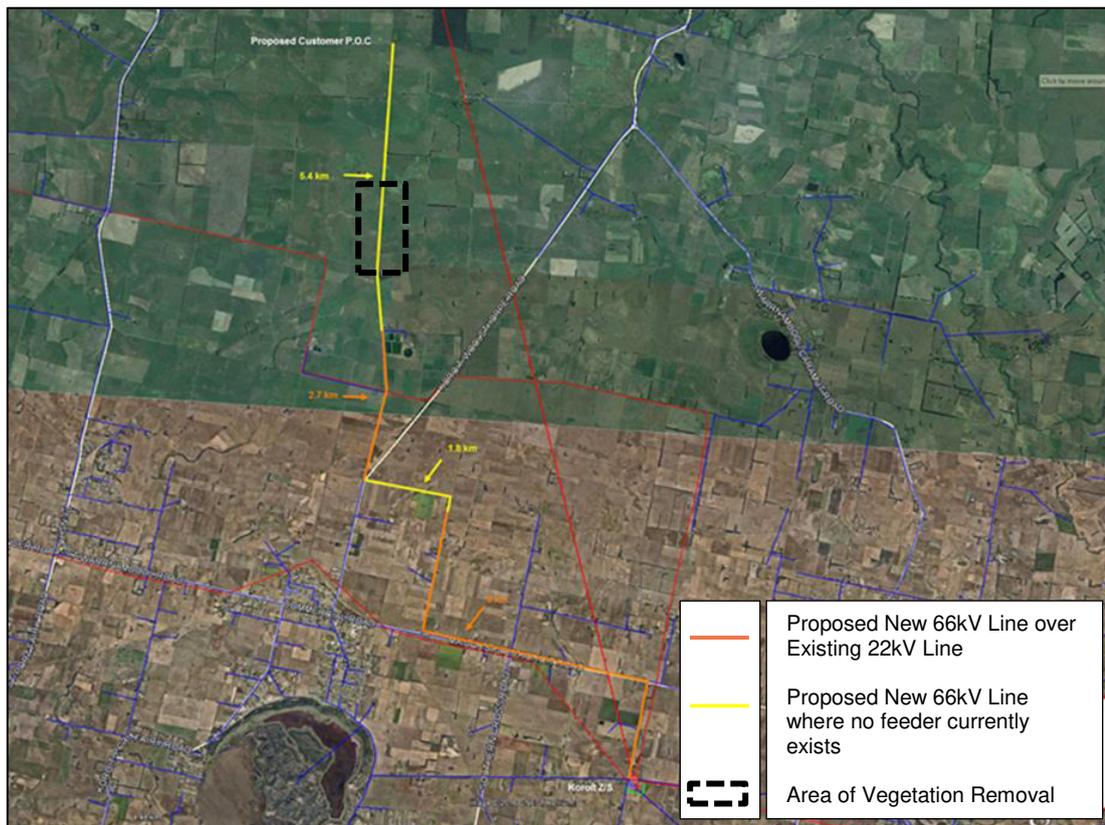


Figure 2: Project Alignment

The specific location of the vegetation impacts is illustrated in the attached Environmental Assessment Report (Appendix B) and Vegetation Clearance Assessment Report (Appendix C).

3. BACKGROUND

3.1 DESIGN PROCESS

The project alignment has been subject to the following design process:

1. The project alignment was initially designed by Powercor based on engineering requirements (e.g. distances between poles). A preliminary alignment route was determined and estimated pole locations were identified.
2. A site inspection was undertaken by Powercor's project manager and designer, EcoAerial (ecology), Utility Trees (arborist) and Spiire (planning). The entire length of the alignment was inspected by the project team, and preliminary recommendations were made to micro-site poles and avoid vegetation impacts.
3. Subsequent ecological and arborist assessments were undertaken.
4. Updated plans were prepared based on the recommendations from the ecology and arborist assessments. Poles were micro-sited and part of the alignment was proposed to be located within private property (subject to land owner agreement) to avoid a large area of vegetation within Railway Road.
5. Consultation commenced with the updated plans and comments were sought from relevant stakeholders (refer to Section 3.1).
6. Negotiations were undertaken with the private land owner adjacent to Railway Road to obtain consent for an electrical easement within their property. These negotiations were unsuccessful.
7. The alignment was required to be redesigned to be located within Railway Road. A site inspection was undertaken with Spiire, EcoAerial, Utility Trees and Landcare to determine appropriate pole locations for the new section of line. Recommendations were made to micro-site poles and avoid vegetation impacts.
8. Updated plans were prepared based on the recommendations from the additional site inspection and subsequent ecological and arborist assessments.
9. This planning permit application has been prepared based on the updated plans. The Ecological Assessment Report (Appendix B) and Vegetation Clearance Assessment Report (Appendix C) detail the consequential impacts to vegetation, which are considered unavoidable.

3.2 STAKEHOLDER ENGAGEMENT

As part of the design process, Spiire and Powercor have consulted with the following relevant stakeholders for the project:

- ▶ Department of Environment, Land, Water and Planning (DELWP) as the Responsible Authority for the application;
- ▶ Moyne Shire Council;
- ▶ Basalt to Bay Landcare;
- ▶ Regional Roads Victoria (RRV); and
- ▶ VicTrack.

A summary of the consultation process is detailed in Table 2.

Table 2: Stakeholder Engagement

Date	Stakeholder	Consultation Method	Comments
02/09/19	Council, RRV & Landcare	Meeting (Port Fairy)	Initial project meeting to discuss the proposed alignment and any potential issues or constraints.
11/09/19	DELWP	Meeting (DELWP)	Initial project meeting to discuss the proposed alignment, the planning permit process and any potential issues or constraints.
13/09/19	Council	Meeting (Moyne)	Follow-up meeting to discuss the planning permit process and opportunities for Council input into the process.
08/10/19	Landcare	Meeting (Koroit)	Follow-up meeting to discuss opportunities for Landcare input into the process.
14/11/19	Landcare	Site Inspection (Railway Road)	On-site inspection of proposed new line route along Railway Road.
22/11/19	VicTrack	Meeting (VicTrack)	Initial meeting to discuss the adjoining VicTrack land and any potential issues or constraints.

4. PROPOSAL

This planning permit application seeks approval for the removal of native vegetation to facilitate works associated with the Woolsthorpe Wind Farm Distribution Line project.

The Woolsthorpe Wind Farm Distribution Line project will comprise approximately 17.9 route kilometres of new 66kV power lines between the Koroit Substation and the Woolsthorpe Wind Farm. The works are required to connect the Wind Farm to the surrounding electricity network and will allow the renewable energy to be utilised by the public.

The works will comprise approximately 7.2 kilometres of new works (where no feeder currently exists) and 10.7 kilometres of line upgrades (where an existing 22kV power line exists). Approximately 230m of the alignment will be located underground adjacent to the Koroit Substation.

This description of the proposal should be read in conjunction with the following documents:

- ▶ Construction Plans prepared by CitiPower / Powercor Australia (Drawing Number PCA40 5120678) attached at Appendix A;
- ▶ Ecological Assessment Report prepared by EcoAerial Environmental Services (November 2019) attached at Appendix B;
- ▶ Vegetation Clearance Assessment Report prepared by Utility Trees (November 2019) attached at Appendix C.

Details of the project are as follows:

- ▶ Construction of approximately 17.9 route kilometres of 66kV power lines including new and replacement works (Utility Installation);
- ▶ Replacement of 68 poles in the same hole and the installation of 131 new poles. It is noted that these poles will be constructed of wooden material and will be approximately 15m-17m high;
- ▶ Installation of approximately 230m of new underground conduit between Pole 1 (LIS-836015) and the Koroit Substation, underneath the intersection of Conns Lane and Tower Hill Road;
- ▶ Pruning of 1 exotic tree and 54 native trees (Blackwoods and Eucalypts), and the removal of 6 exotic trees. No native trees are proposed to be removed, with the exception of the three (3) Blackwood trees described below; and
- ▶ Consequential removal of 14m² of native vegetation, comprising:
 - Removal of 5m² of native grasses associated with the Basalt Shrubby Woodland (EVC 642) for the installation for four (4) new poles (Poles 139, 142, 143 and 144); and
 - Removal of 9m² of native vegetation associated with the pruning of (3) small Blackwood trees for the installation of one (1) new pole (Pole 148). This is based on the assumption that the extent of pruning will require the removal of greater than a third of the foliage of the trees, and they would therefore be considered lost. This extent of pruning may not be required.

This planning permit application relates only to the removal of native vegetation. The remainder of the works associated with the project are exempt from planning permission pursuant to Clauses 62.01 and 62.02-1 of the Moyne Planning Scheme and the Warrnambool Planning Scheme.

A detailed design process was undertaken to avoid impacts to vegetation within the project alignment. The proposed removal of native vegetation is required for sections of the alignment where the micro-siting of poles was not possible.

A conservative approach has been taken with respect to calculating the overall vegetation impacts, and the actual impacts during construction may be less than anticipated. Mitigation strategies will be implemented to ensure the project works do not require the removal or destruction of any additional native vegetation.

A discussion of the construction technique/methodology is provided at Section 4.2 below.

4.1 DISTANCES FROM ROAD

Acknowledging that the alignment will be located within some narrow road reserves, the proposed poles have been positioned as far as practicably possible from the road carriageway, adjacent to the adjoining property boundaries. There are a number of existing trees situated between the road and the proposed alignment, and the pole locations are therefore considered appropriate within the wider landscape context.

4.2 CONSTRUCTION TECHNIQUE/METHODOLOGY

Powercor's construction technique/methodology enables works to occur with minimum disturbance to existing biodiversity. A description of the proposed methodology and examples of previous works conducted by Powercor is provided below:

- ▶ Poles will be accessed via trucks parked on the existing road easement pavement / verge or existing access tracks. The construction methodology will then involve an arm reaching from the parked truck to the pole location to auger a hole. Another arm will then put the pole into place (refer to Photographs 2, 3, 4 and 5 below which illustrate the typical construction methodology).
- ▶ Where the trucks need to get closer, or drive off the road pavement, bog mats will be used to ensure any vegetation is not impacted.
- ▶ For the minor section of underground works adjacent to the Koroit Substation, Horizontal Directional Drilling (HDD or boring) will be utilised and is considered to have minimal impact to vegetation, with the exception of the entry and exit points. Where boring is proposed, a 2m x 1m bore pit will be required every 100m to 200m (depending on ground conditions) along the alignment. Boring will be confined to within 1.5m of the road verge on either bitumen or gravel roads where practicable.

Further recommendations to minimise impacts during construction activities are contained within the Ecological Assessment Report attached at Appendix B.

Provided these construction techniques are implemented, it is considered the proposed works will have minimal impact to vegetation. The above procedures will be outlined in the Construction Environment Management Plan (CEMP) for the project to ensure compliance.



Photograph 1 – Example of a hole being augured via an arm from truck (note in this example the roadside vegetation was deemed to be non-native, hence the truck parking slightly on the verge and the other truck in the background)



Photograph 2 – Example of a hole being augured via an arm from truck (note in this example the roadside vegetation was deemed to be native in places and fencing was erected to prevent the truck from entering the road shoulder)



Photograph 3 – Example of a pole being installed via truck crane



Photograph 4 – Example of contractors working on a new or replacement installation (note the truck is still in the road carriageway)

5. PLANNING POLICY FRAMEWORK

The purpose of this section is to provide a summary of the relevant planning controls and provisions contained within the Moyne Planning Scheme and the Warrnambool Planning Scheme (as relevant).

The proposal triggers the requirement for a Planning Permit to remove, destroy or lop native vegetation, including dead native vegetation pursuant to Clause 52.17-1 of the Moyne Planning Scheme. No vegetation removal is proposed on land within Warrnambool City Council.

5.1 STATE AND LOCAL PLANNING POLICY

The following State and Local planning policies contained within the Moyne Planning Scheme are considered relevant to the proposal:

- ▶ Clause 12 – Environmental and Landscape Values
- ▶ Clause 15.02 – Sustainable Development
- ▶ Clause 15.03 – Heritage
- ▶ Clause 19 – Infrastructure
- ▶ Clause 22.02 – Environment

The components of these policies relevant to the project are summarised as follows:

- ▶ *To assist the protection and conservation of Victoria's biodiversity (Clause 12.01-1S);*
- ▶ *To ensure that there is no net loss to biodiversity as a result of the removal, destruction or lopping of native vegetation (Clause 12.01-2S);*
- ▶ *To protect and enhance significant landscapes and open spaces that contribute to character, identity and sustainable environments (Clause 12.05-2S);*
- ▶ *To encourage land use and development that is energy and resource efficient, supports a cooler environment and minimises greenhouse gas emissions (Clause 15.02-1S);*
- ▶ *To ensure the protection and conservation of places of Aboriginal cultural heritage significance (Clause 15.03-2S);*
- ▶ *To facilitate appropriate development of energy supply infrastructure (Clause 19.01-1S);*
- ▶ *To promote the provision of renewable energy in a manner that ensures appropriate siting and design considerations are met (Clause 19.01-2S).*
- ▶ *To protect and enhance flora and fauna communities throughout the Shire (Clause 22.02-8).*

5.2 ZONING

The project alignment is located within the following zones:

- ▶ Farming Zone (FZ); and
- ▶ Road Zone, Category 1 (RDZ1).

A description of each zone is outlined as follows:

5.2.1 FARMING ZONE (FZ)

The purpose of the FZ is:

- ▶ *To implement the Municipal Planning Strategy and the Planning Policy Framework.*
- ▶ *To provide for the use of land for agriculture.*
- ▶ *To encourage the retention of productive agricultural land.*
- ▶ *To ensure that non-agricultural uses, including dwellings, do not adversely affect the use of land for agriculture.*
- ▶ *To encourage the retention of employment and population to support rural communities.*
- ▶ *To encourage use and development of land based on comprehensive and sustainable land management practices and infrastructure provision.*
- ▶ *To provide for the use and development of land for the specific purposes identified in a schedule to this zone.*

Pursuant to Clause 62.01 and Clause 62.02-1 of the Moyne Planning Scheme, a planning permit is not required to use the land or construct or carry out works associated with a 'Utility Installation' within the FZ, when directly associated with an 'Energy Generation Facility' which was approved prior to the 15 March 2019.

The relevant exemption provisions are explained in further detail at Section 5.5.1 of this Report.

The works located within Warrnambool Shire Council are located within the FZ. It is noted that the same exemption provisions apply under the Warrnambool Planning Scheme.

5.2.2 ROAD ZONE CATEGORY 1 (RDZ1)

The purpose of the RDZ1 is:

- ▶ *To implement the Municipal Planning Strategy and the Planning Policy Framework.*
- ▶ *To identify significant existing roads.*
- ▶ *To identify land which has been acquired for a significant proposed road.*

Pursuant to Clause 62.01 and Clause 62.02-1 of the Moyne Planning Scheme, a planning permit is not required to use the land or construct or carry out works associated with a 'Utility Installation' within the RDZ1 (Mailors Flat-Koroit Road and Koroit-Woolsthorpe Road), where directly associated with an 'Energy Generation Facility' which was approved prior to the 15 March 2019.

The relevant exemption provisions are explained in further detail at Section 5.5.1 of this Report.

The zones affecting the project alignment are illustrated in Figure 3.

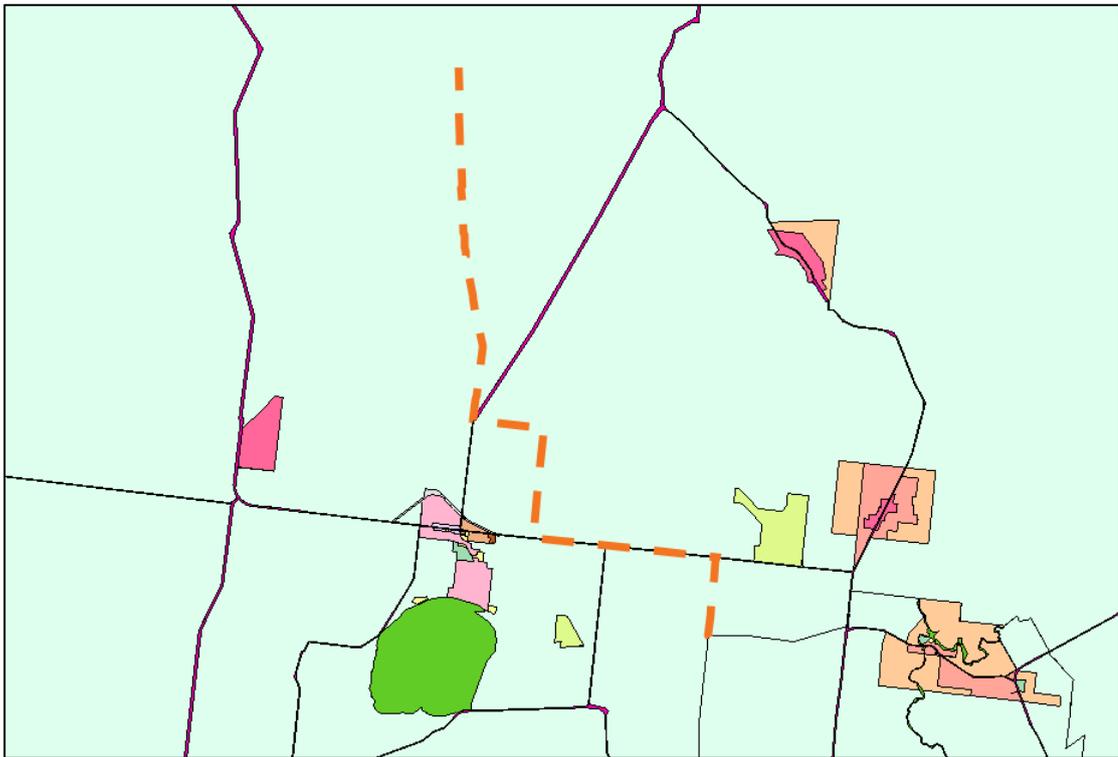


Figure 3: Zoning Map

5.3 OVERLAYS

The project alignment is affected by the following overlays:

- ▶ Design and Development Overlay – Schedule 23 (DDO23) (Moyne Shire Council); and
- ▶ Design and Development Overlay – Schedule 16 (DDO16) (Warrnambool City Council).

A description of each overlay is outlined as follows:

5.3.1 DESIGN AND DEVELOPMENT OVERLAY – SCHEDULE 23 (DDO23) (MOYNE SHIRE COUNCIL)

The purpose of the DDO is:

- ▶ *To implement the Municipal Planning Strategy and the Planning Policy Framework.*
- ▶ *To identify areas which are affected by specific requirements relating to the design and built form of new development.*

Schedule 23 specifically relates to ‘Warrnambool Regional Airport – Building Height above 7.5 metres (RL 79.0M AHD)’.

The design objectives of the DDO23 are:

- ▶ *To ensure that flight paths associated with the Warrnambool Regional Airport are protected from the encroachment of inappropriate obstacles to enable the safe and effective operation of the airport.*

- ▶ *To ensure that all buildings and works avoid creating a hazard to aircraft in the vicinity of the Warrnambool Regional Airport in order to facilitate safe aircraft operations.*

It is acknowledged that the proposed new poles will exceed 7.5 metres in height, however the proposed works are not considered likely to impact on the operation of the Warrnambool Regional Airport.

Pursuant to Clause 62.01 and Clause 62.02-1 of the Moyne Planning Scheme, a planning permit is not required to use the land or construct or carry out works associated with a 'Utility Installation' within the DDO23, where directly associated with an 'Energy Generation Facility' which was approved prior to the 15 March 2019.

The relevant exemption provisions are explained in further detail at Section 5.5.1 of this Report.

The overlays affecting the project alignment are illustrated in Figure 4.

5.3.2 DESIGN AND DEVELOPMENT OVERLAY – SCHEDULE 16 (DDO16) (WARRNAMBOOL CITY COUNCIL)

The purpose of the DDO is:

- ▶ *To implement the Municipal Planning Strategy and the Planning Policy Framework.*
- ▶ *To identify areas which are affected by specific requirements relating to the design and built form of new development.*

Schedule 16 specifically relates to 'Warrnambool Regional Airport – Building Height above 7.5 metres (RL 79.0M AHD)'.

The design objectives of the DDO16 are:

- ▶ *To ensure that flight paths associated with the Warrnambool Regional Airport are protected from the encroachment of inappropriate obstacles to enable the safe and effective operation of the airport.*
- ▶ *To ensure that all buildings and works avoid creating a hazard to aircraft in the vicinity of the Warrnambool Regional Airport in order to facilitate safe aircraft operations.*

It is acknowledged that the proposed new poles will exceed 7.5 metres in height, however the proposed works are not considered likely to impact on the operation of the Warrnambool Regional Airport.

Pursuant to Clause 62.01 and Clause 62.02-1 of the Warrnambool Planning Scheme, a planning permit is not required to use the land or construct or carry out works associated with a 'Utility Installation' within the DDO16, where directly associated with an 'Energy Generation Facility' which was approved prior to the 15 March 2019.

The relevant exemption provisions are explained in further detail at Section 5.5.1 of this Report.

The overlays affecting the project alignment are illustrated in Figure 4.

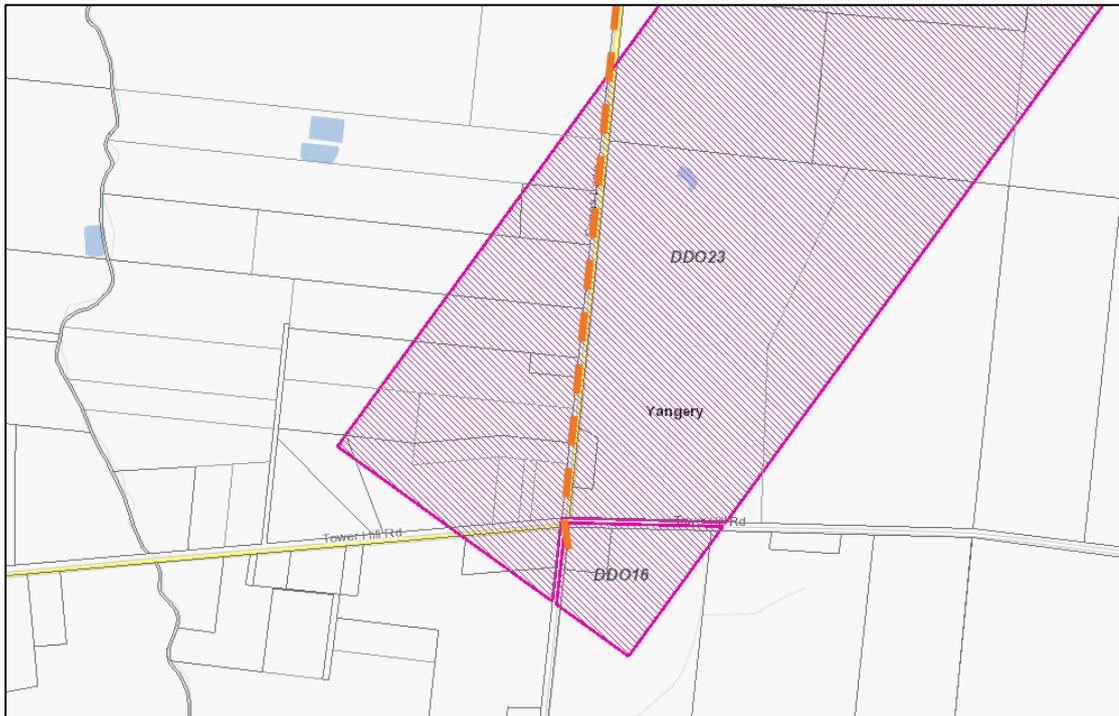


Figure 4: Overlays Map

5.4 PARTICULAR AND GENERAL PROVISIONS

5.4.1 CLAUSE 52.17 – NATIVE VEGETATION

The purpose of Clause 52.17 is:

- ▶ *To ensure that there is no net loss to biodiversity as a result of the removal, destruction or lopping of native vegetation. This is achieved by applying the following three step approach in accordance with the Guidelines for the removal, destruction or lopping of native vegetation (Department of Environment, Land, Water and Planning, 2017) (the Guidelines):*
 1. *Avoid the removal, destruction or lopping of native vegetation.*
 2. *Minimise impacts from the removal, destruction or lopping of native vegetation that cannot be avoided.*
 3. *Provide an offset to compensate for the biodiversity impact if a permit is granted to remove, destroy or lop native vegetation; and*
- ▶ *To manage the removal, destruction or lopping of native vegetation to minimise land and water degradation.*

Pursuant to Clause 52.17-1 of the Moyne Planning Scheme, a planning permit is required to remove, destroy or lop native vegetation, including dead native vegetation.

The Ecological Assessment Report prepared by EcoAerial (refer to Appendix B) confirms that the proposed works will require the removal of approximately 14m² of native vegetation.

5.5 GENERAL PROVISIONS

5.5.1 CLAUSE 62 – GENERAL EXEMPTIONS

Clause 62 sets out general exemptions for specific uses and development which does not typically require a planning permit.

Pursuant to Clause 62.01 and Clause 62.02-1 of the Moyne Planning Scheme and the Warrnambool Planning Scheme, a planning permit is not required for:

- ▶ *The use of land for power lines and electrical sub-stations associated with an energy generation facility or geothermal energy extraction if a permit was issued for such use or development prior to the approval date of Amendment VC157; and*
- ▶ *Power lines and electrical sub-stations associated with an Energy generation facility or Geothermal energy extraction if a permit was issued for such use or development prior to the approval date of Amendment VC157 (construction or carrying out of works).*

The proposed works are directly associated with an 'Energy Generation Facility' (Woolsthorpe Wind Farm) and are therefore defined as a 'Utility Installation' pursuant to Clause 73.03.

A planning permit was issued for the Woolsthorpe Wind Farm (Permit No. 2006/0220/A) on 17 April 2008, prior to the gazettal of Amendment VC157 on 15 March 2019. Accordingly, the use and development of the land for the purposes of a 'Utility Installation' can rely on the exemption provisions contained within Clause 62.01 and Clause 62.02-1.

On the above basis, this application relates only to the removal of native vegetation pursuant to Clause 52.17-1.

5.6 OPERATIONAL PROVISIONS

5.6.1 CLAUSE 72.01 – RESPONSIBLE AUTHORITY FOR THIS PLANNING SCHEME

Pursuant to Clause 72.01-1, the Minister for Planning is the responsible authority for planning permit applications relating to the use and development of the land for a:

- ▶ *Utility installation used to store, transmit or distribute electricity generated by a renewable energy facility with an installed capacity of 1 megawatt or greater.*

This application will be submitted to the Minister for Planning (via DELWP) as the relevant responsible authority.

5.7 CULTURAL HERITAGE

The project is located within an area of Aboriginal cultural heritage sensitivity (see Figure 5). Given that the project involves sections of new works which are not located within an existing lawful electrical alignment, a Cultural Heritage Management Plan (CHMP) will need to be prepared.

A CHMP is currently being prepared by Archaeology at Tardis, and will be provided to DELWP once completed.

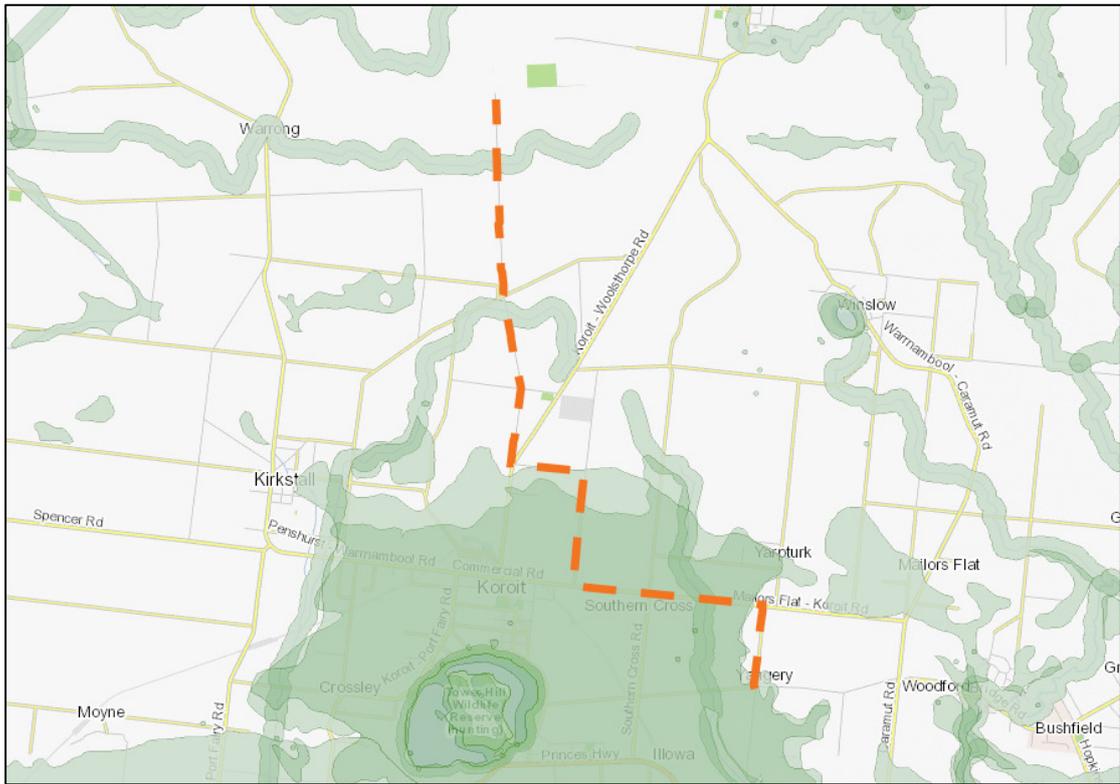


Figure 5 – Areas of Aboriginal Cultural Heritage Sensitivity

6. PLANNING ASSESSMENT

6.1 STATE AND LOCAL PLANNING POLICY

The State Planning Policy Framework (PPF) and Local Planning Policy Framework (LPPF), specifically Clauses 12, 15.02, 15.03, 19 and 22.02 identify the need to ensure the efficient provision of services and infrastructure while considering potential environmental and cultural heritage impacts.

This project will provide necessary electrical infrastructure upgrades within Moyne Shire and will directly support the renewable energy industry. Acknowledging that Moyne Shire is characterised by a growing number of renewable energy facilities, this project seeks to minimise the adverse impacts associated with distribution line infrastructure, while providing a necessary connection to the Woolsthorpe Wind Farm. This project is required to ensure the existing electricity network can accommodate the increased power supply generated by the Wind Farm, and will allow for the distribution of this power to the region. This is expected to provide a net community benefit to the surrounding community.

The project alignment is located within existing road reserves and will not impact on any significant flora or fauna species. A concerted effort was taken within the design process to ensure that any environmental and cultural heritage impacts have been appropriately considered and minimised through the strategic siting of the works and mitigation strategies which will be implemented during construction.

The proposed new poles will be constructed of wood and will reflect the existing infrastructure in the area. The proposed height of the poles (15m-17m) will ensure that the impacts to existing trees are minimised, with lines traversing above most native species.

Overall, it is considered that this proposal complies with the PPF and LPPF by delivering sensitively designed electrical upgrades that provide a net community benefit.

6.2 REMOVAL OF NATIVE VEGETATION

The proposal involves the removal of native vegetation to facilitate works associated with a 'Utility Installation'.

An Ecological Assessment Report has been prepared by EcoAerial (Appendix B). This assessment confirms the proposal will require the removal of 14m² of native vegetation, comprising:

- ▶ Removal of 5m² of native grasses associated with the Basalt Shrubby Woodland (EVC 642) for the installation for four (4) new poles (Poles 139, 142, 143 and 144); and
- ▶ Removal of 9m² of native vegetation associated with the pruning of (3) small Blackwood trees for the installation of one (1) new pole (Pole 148). This is based on the assumption that the extent of pruning will require the removal of greater than a third of the foliage of the trees, and they would therefore be considered lost. This extent of pruning may not be required.

The design process for the alignment included multiple site assessments with the project engineers, ecologist and arborist, to determine the most appropriate location for new poles and vehicle access to minimise the impact on the environment. During this process, recommendations were made to micro-site poles and plan construction activities to avoid areas of native vegetation. The resulting alignment has avoided and minimised impacts to vegetation where possible.

A conservative approach has been taken with respect to calculating the overall vegetation impacts, and the actual impacts during construction may be less than anticipated. Mitigation strategies will be implemented to ensure the project works do not require the removal or destruction of any additional native vegetation.

In accordance with the attached Ecological Assessment Report (Appendix B), it is considered the proposal accords with the provisions of Clause 52.17 as follows:

- ▶ The works have been designed and located to avoid and minimise impacts to native vegetation within the project area;
- ▶ The project area is predominantly located within the road reserve and is highly modified as a result of weeds, cultivation and planting of crops;
- ▶ The proposed works will minimise impacts to any threatened or protected ecological communities and flora and fauna species;
- ▶ The alignment has been designed based on the recommendations from EcoAerial and Utility Trees and there are no feasible opportunities to further avoid or minimise impacts to vegetation; and
- ▶ The proposed loss of native vegetation does not trigger the need for offsets.

In addition, it is anticipated that Powercor will comply with each recommendation made by EcoAerial within the Biodiversity Assessment as follows:

Tree Protection

- ▶ *Provisions of appropriate Tree Protection Zones (TPZs) around trees in close proximity to the proposed drilling for pole installation and lay down areas, in consultation with Utility Trees.*

Vegetation Retention and Protection

- ▶ *Install temporary bunting indicating vegetation that is to be retained (no-go zones).*
- ▶ *Brief contractors regarding the protection of vegetation and the purpose for avoidance and minimisation.*
- ▶ *Attach temporary signage identifying areas as environmentally sensitive stating that access and other disturbances are prohibited adjacent to construction zones.*
- ▶ *Select the appropriate type and size of machine so that disturbance and impact to vegetation is minimised.*

Weed and Disease Management

- ▶ *All machinery and vehicles must be free of weed propagules and/or material carrying potential diseases prior to commencement of work.*
- ▶ *If possible, begin work in areas close to native vegetation and move to areas dominated by introduced species or ensure machinery is thoroughly cleaned between sites.*
- ▶ *Where possible, avoid working at times of prolific seed set of noxious weeds to avoid their spread by machinery. This is typically spring for most noxious weeds.*

Erosion Prevention

- ▶ *Activities are undertaken during dry conditions.*
- ▶ *Limiting machinery and earthworks to construction areas only.*
- ▶ *Limiting the exposure of disturbed soil for the shortest possible time (e.g., do not clear an area prior to a weekend if rain is forecast).*

- ▶ *Diverting water away from exposed soil or loose material.*
- ▶ *Applying temporary silt trapping techniques, particularly near the dams.*
- ▶ *Retaining the natural drainage lines of the sites as much as possible.*

Fauna Protection

- ▶ *Development of a Flora and Fauna Management Plan to be included within the Construction Management Plan.*

Provided that the above recommendations are met, it is considered that the proposal will appropriately avoid and minimise any impacts to native vegetation. It is therefore considered that the proposed removal of vegetation accords with the provisions of Clause 52.17-1.

7. CONCLUSION

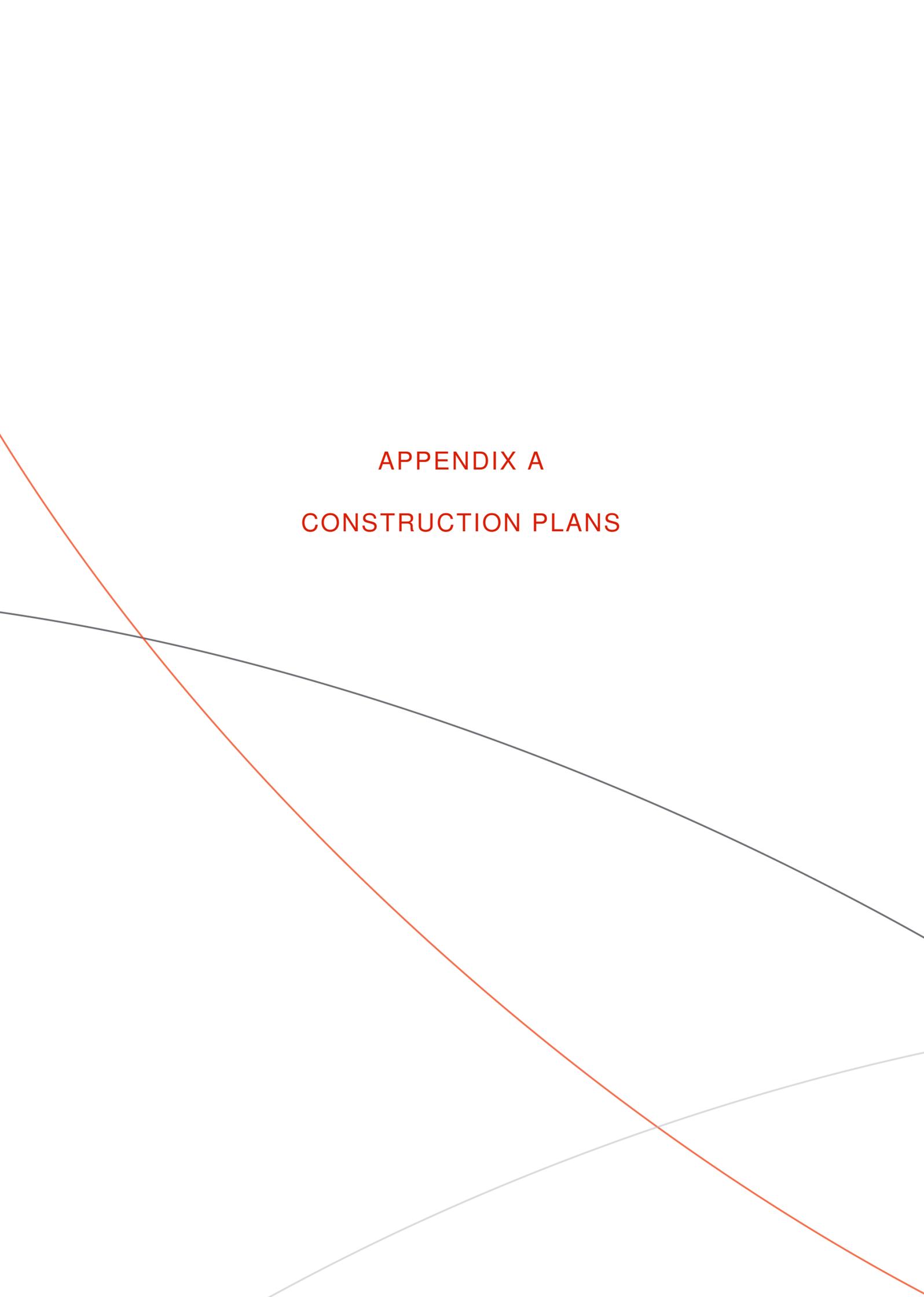
This application seeks planning approval for the removal and pruning of native vegetation to facilitate works associated with the Woolsthorpe Wind Farm Distribution Line project. The proposed works are required to connect the Woolsthorpe Wind Farm to the surrounding electricity network.

In summary, the proposal is appropriate for the following reasons:

- ▶ The proposal is consistent with the PPF and LPPF and will provide necessary electrical infrastructure upgrades to facilitate the development of the Woolsthorpe Wind Farm;
- ▶ This project will directly support the renewable energy industry within Moyne Shire and will allow for the distribution of this power to the surrounding region;
- ▶ The proposed works have been designed and located to avoid and minimise the impact on the environment and the removal of native vegetation;
- ▶ A conservative approach has been taken with respect to calculating the overall vegetation impacts, and the actual impacts may be reduced during construction;
- ▶ Powercor's construction methodology allows for minimal disturbance to biodiversity;
- ▶ Mitigation strategies will be implemented to ensure the project works do not require the removal or destruction of any additional native vegetation;
- ▶ Native vegetation offsets are not required to be obtained; and
- ▶ The proposed works have been designed and located in accordance with biodiversity, arborist and cultural heritage considerations and there are no feasible opportunities to further avoid or minimise impacts to vegetation.

Based on the details set out in this report, it is considered that a planning permit should be issued for this proposal.

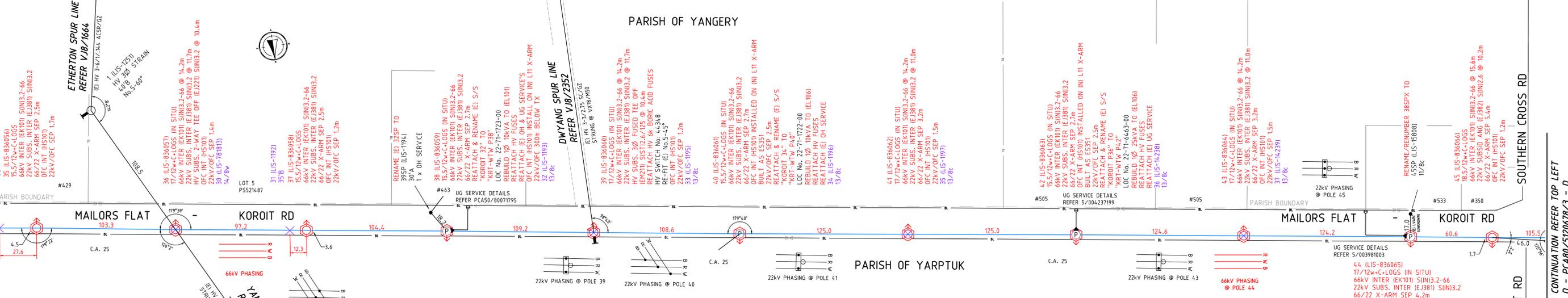
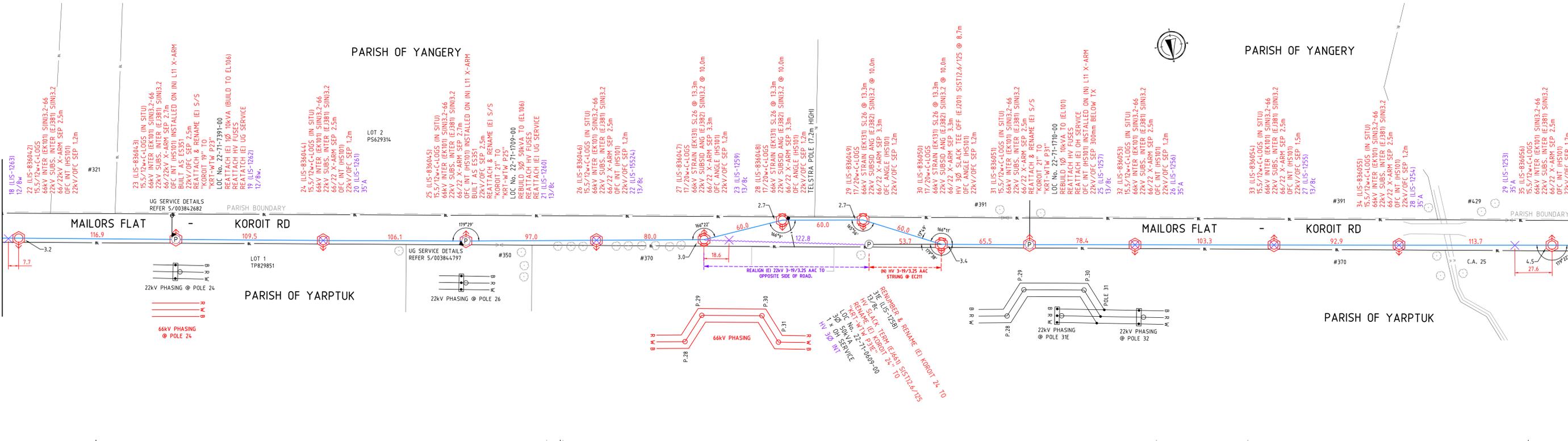
APPENDIX A
CONSTRUCTION PLANS

The page features three decorative lines: a red line starting from the top left and curving downwards towards the bottom right; a dark grey line starting from the left edge and sloping downwards towards the right; and a light grey line starting from the bottom left and curving upwards towards the right.

FOR CONTINUATION REFER MIDDLE RIGHT
B - PCA80/5120678/1 - B

FOR CONTINUATION REFER ABOVE RIGHT - C
C - FOR CONTINUATION REFER TOP LEFT
D - PCA80/5120678/3 - D

C - FOR CONTINUATION REFER BELOW LEFT - C



CONDUCTOR SCHEDULE					
66kV SERIES	CONDUCTOR	STRINGING	MES	ROUTE LENGTH	ARMOUR RODS
(N) POLE 20 (ILIS-836037) - (N) POLE 27 (ILIS-836047)	(N) 3-19/4.75 AAC	(N) EC251		691.8	NO
(N) POLE 27 (ILIS-836047) - (N) POLE 28 (ILIS-836048)	(N) 3-19/4.75 AAC	(N) EC251		60.0	NO
(N) POLE 28 (ILIS-836048) - (N) POLE 29 (ILIS-836049)	(N) 3-19/4.75 AAC	(N) EC251		60.0	NO
(N) POLE 29 (ILIS-836049) - (N) POLE 30 (ILIS-836050)	(N) 3-19/4.75 AAC	(N) EC251		60.0	NO
(N) POLE 30 (ILIS-836050) - (N) POLE 59 (ILIS-836001)	(N) 3-19/4.75 AAC	(N) EC251		3008.3	NO
22kV SERIES	CONDUCTOR	STRINGING	MES	ROUTE LENGTH	ARMOUR RODS
(N) POLE 1 (ILIS-12661) - (N) POLE 60 (ILIS-836082)	(E) 3-19/3.25 AAC	RESAG (N) EC251		4037.3	NO
OFC SERIES	CONDUCTOR	STRINGING	MES	ROUTE LENGTH	ARMOUR RODS
(N) POLE 20 (ILIS-836037) - (N) POLE 61 (ILIS-836083)	(N) 48 CORE OFC	110m 1.5%		4055.8	N/A

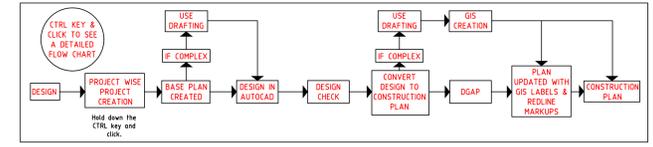
NOTE:
22kV SUBSID CENTRE PHASE ALTERNATES SIDES WHERE POSSIBLE (AS SHOWN).



DESIGN TEMPERATURES
66kV CONDUCTOR MAXIMUM OPERATING TEMPERATURE 100°C
22kV CONDUCTOR MAXIMUM OPERATING TEMPERATURE 65°C
CIRCUIT TO CIRCUIT CLEARANCES
900mm WITH 66kV @ 80°C AND 22kV @ 5°C
600mm WITH 22kV @ 40°C AND OFC @ 10°C

NOTE: ALL SEPARATION HEIGHTS ARE FROM KINGBOLT TO KINGBOLT/EYEBOLT
CONSTRUCTION NOTE:
22kV MAY HAVE EXISTING SPIRAL DAMPERS FITTED.
NO REQUIREMENT TO RETAIN THEM WHEN LINE RESAGGED TO EC251/EC381/EC271
BUT ALSO NO ISSUE IF THEY ARE LEFT FITTED.

PLAN NOT TO BE CONVERTED TO A CONSTRUCTION PLAN UNTIL DESIGN HAS BEEN CHECKED



PLAN NOT TO BE ISSUED TO CONSTRUCTION UNTIL DGAP HAS BEEN COMPLETED

ENERGY DESIGN
PLAN FOR DESIGN PURPOSES ONLY
NOT FOR CONSTRUCTION

PROJECT NUMBER	5120678
ROAD DIRECTORY	VICROADS 89 - H6
GIS MAP REF.	MAP 235 - H1
MAP PROJECTION	MGA ZONE 54
FEEDER / SWITCHING ZONE	66kV (KRT-WTV) 22kV (KRT031)
REFERENCE DRAWING	N/A
REFERENCE DRAWING	N/A
PROJECT MANAGER	BARRY THEBES

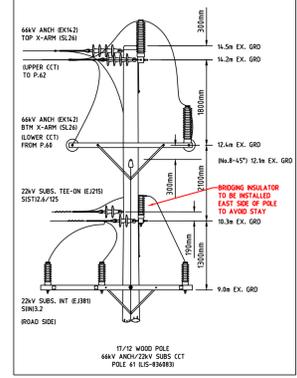
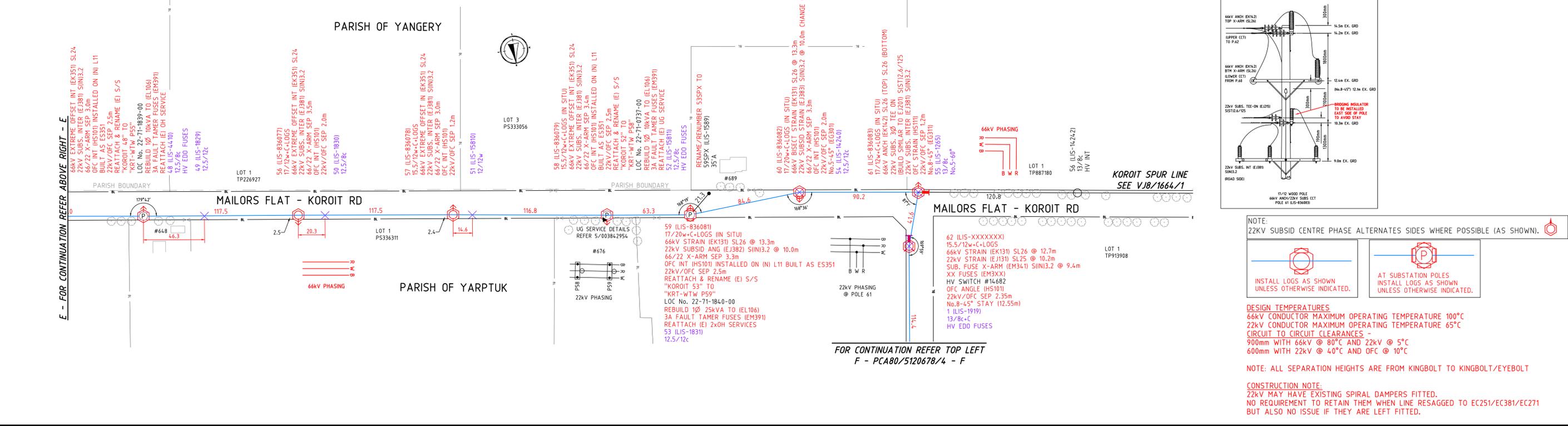
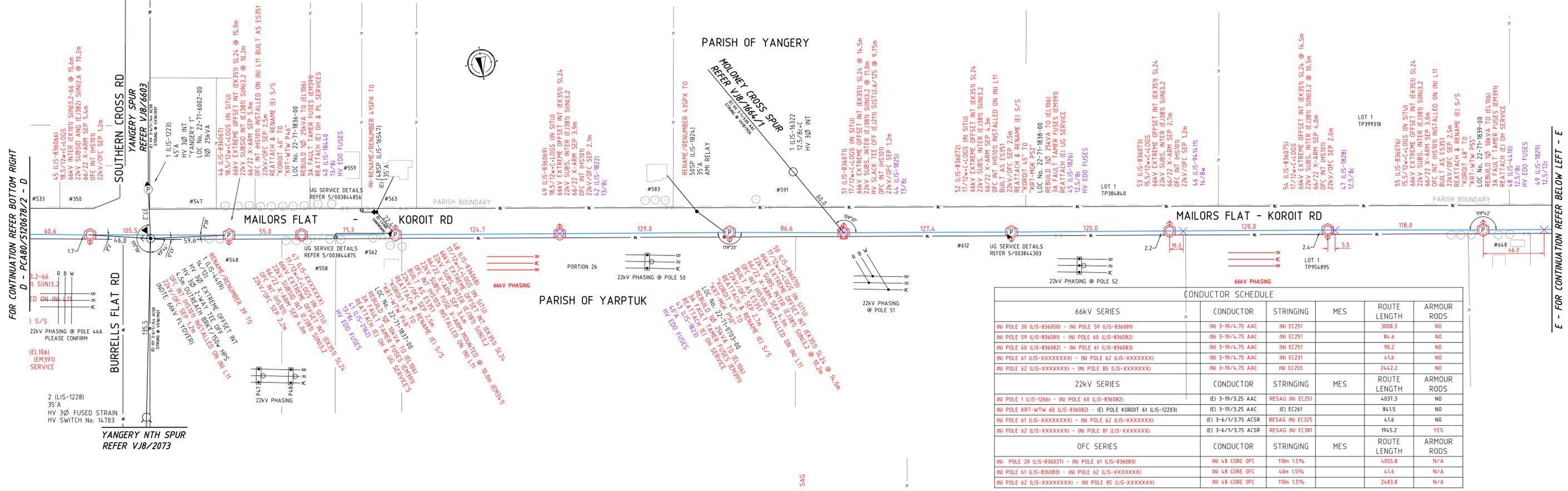
SCALE: 1:1250
LENGTHS ARE IN METRES

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REVISION				
DRAWING NUMBER	PCA80 5120678	2	SHEET 2 OF 9	
OH CONSTRUCTION PLAN PROPOSED 66kV LINE KRT-WTV				
KOROIT - WOOLSTHORPE				
DRAWN	DRAFTING CHECK	DESIGNER	DESIGN APPROVAL	PROJECT MANAGER
S.HUMM	S.HUMM	S.HUMM	S.HUMM	B.THEBES

FOR CONTINUATION REFER BOTTOM RIGHT
D - PCA80/5120678/2 - D

E - FOR CONTINUATION REFER BELOW LEFT - E



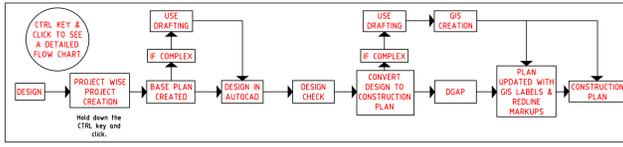
NOTE:
22kV SUBSID CENTRE PHASE ALTERNATES SIDES WHERE POSSIBLE (AS SHOWN).



DESIGN TEMPERATURES
66kV CONDUCTOR MAXIMUM OPERATING TEMPERATURE 100°C
22kV CONDUCTOR MAXIMUM OPERATING TEMPERATURE 65°C
CIRCUIT TO CIRCUIT CLEARANCES -
900mm WITH 66kV @ 80°C AND 22kV @ 5°C
600mm WITH 22kV @ 40°C AND OFC @ 10°C

NOTE: ALL SEPARATION HEIGHTS ARE FROM KINGBOLT TO KINGBOLT/EYEBOLT

PLAN NOT TO BE CONVERTED TO A CONSTRUCTION PLAN UNTIL DESIGN HAS BEEN CHECKED



PLAN NOT TO BE ISSUED TO CONSTRUCTION UNTIL DGAP HAS BEEN COMPLETED

ENERGY DESIGN
PLAN FOR DESIGN PURPOSES ONLY
NOT FOR CONSTRUCTION

PROJECT NUMBER	5120678
ROAD DIRECTORY	VICROADS 89 H6
GIS MAP REF.	MAP 235 - H1
MAP PROJECTION	MGA ZONE 54
FEEDER / SWITCHING ZONE	66kV (KRT-WTW) 22kV (KRT031)
REFERENCE DRAWING	N/A
REFERENCE DRAWING	N/A
PROJECT MANAGER	BARRY THEBES

SCALE: 1:1250

LENGTHS ARE IN METRES

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Electricity Networks
Locked Bag 14-990
Melbourne 8001
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REVISION			
DRAWING NUMBER	PCA80 5120678	3	SHEET 3 OF 9
OH CONSTRUCTION PLAN PROPOSED 66kV LINE KRT-WTW			
KOROIIT - WOOLSTHORPE			
DRAWN	DRAFTING CHECK	DESIGNER	DESIGN APPROVAL
S.HUMM	S.HUMM	S.HUMM	B.THEBES

K - FOR CONTINUATION REFER MIDDLE RIGHT - K

L - FOR CONTINUATION REFER BOTTOM LEFT - L

J - FOR CONTINUATION REFER TO J - PCA80/5120678/4 - J

M - FOR CONTINUATION REFER TO M - PCA80/5120678/6 - M



CONDUCTOR SCHEDULE					
66kV SERIES	CONDUCTOR	STRINGING	MES	ROUTE LENGTH	ARMOUR RODS
(NI) POLE 85 (ILIS-XXXXXXX) - (NI) POLE 87 (ILIS-XXXXXXX)	(NI) 3-19/4.75 AAC	(NI) EC221		84.7	NO
(NI) POLE 87 (ILIS-XXXXXXX) - (NI) POLE 99 (ILIS-XXXXXXX)	(NI) 3-19/4.75 AAC	(NI) EC255		1370.8	NO
(NI) POLE 99 (ILIS-XXXXXXX) - (NI) POLE 102 (ILIS-XXXXXXX)	(NI) 3-19/4.75 AAC	(NI) EC211		128.4	NO
(NI) POLE 102 (ILIS-XXXXXXX) - (NI) POLE 132 (ILIS-XXXXXXX)	(NI) 3-19/4.75 AAC	(NI) EC255		3577.5	NO
22kV SERIES	CONDUCTOR	STRINGING	MES	ROUTE LENGTH	ARMOUR RODS
(NI) POLE 21 (ILIS-XXXXXXX) - (NI) POLE 102 (ILIS-XXXXXXX)	(IE) 3-3/2.75 SC/GZ	RESAG (NI) EC271		105.1	NO
(NI) POLE 102 (ILIS-XXXXXXX) - (NI) POLE 112 (ILIS-XXXXXXX)	(IE) 3-3/2.75 SC/GZ	RESAG (NI) EC271		1193.8	NO
OFC SERIES	CONDUCTOR	STRINGING	MES	ROUTE LENGTH	ARMOUR RODS
(NI) POLE 85 (ILIS-XXXXXXX) - (NI) POLE 87 (ILIS-XXXXXXX)	(NI) 48 CORE OFC	4.0m 1.5%		84.7	N/A
(NI) POLE 87 (ILIS-XXXXXXX) - (NI) POLE 99 (ILIS-XXXXXXX)	(NI) 48 CORE OFC	110m 1.5%		1370.8	N/A
(NI) POLE 99 (ILIS-XXXXXXX) - (NI) POLE 102 (ILIS-XXXXXXX)	(NI) 48 CORE OFC	4.0m 1.5%		128.4	N/A
(NI) POLE 102 (ILIS-XXXXXXX) - (NI) POLE 164 (ILIS-XXXXXXX)	(NI) 48 CORE OFC	110m 1.5%		7091.3	N/A

NOTE:
22KV SUBSID CENTRE PHASE ALTERNATES SIDES WHERE POSSIBLE (AS SHOWN).

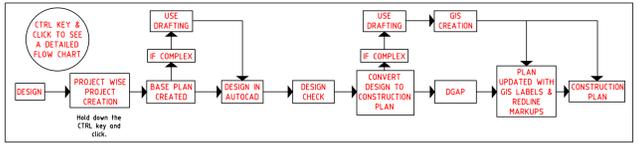


DESIGN TEMPERATURES
66kV CONDUCTOR MAXIMUM OPERATING TEMPERATURE 100°C
22kV CONDUCTOR MAXIMUM OPERATING TEMPERATURE 65°C
CIRCUIT TO CIRCUIT CLEARANCES -
900mm WITH 66kV @ 80°C AND 22kV @ 5°C
600mm WITH 22kV @ 40°C AND OFC @ 10°C

NOTE: ALL SEPARATION HEIGHTS ARE FROM KINGBOLT TO KINGBOLT/EYEBOLT

CONSTRUCTION NOTE:
22kV MAY HAVE EXISTING SPIRAL DAMPERS FITTED.
NO REQUIREMENT TO RETAIN THEM WHEN LINE RESAGGED TO EC251/EC381/EC271
BUT ALSO NO ISSUE IF THEY ARE LEFT FITTED.

PLAN NOT TO BE CONVERTED TO A CONSTRUCTION PLAN UNTIL DESIGN HAS BEEN CHECKED



PLAN NOT TO BE ISSUED TO CONSTRUCTION UNTIL DGAP HAS BEEN COMPLETED

ENERGY DESIGN
PLAN FOR DESIGN PURPOSES ONLY
NOT FOR CONSTRUCTION

PROJECT NUMBER	5120678
ROAD DIRECTORY	VICROADS 89 H6
GIS MAP REF.	MAP 235 - H1
MAP PROJECTION	MGA ZONE 54
FEEDER / SWITCHING ZONE	66kV (KRT-WTV) 22kV (KRT031)
REFERENCE DRAWING	N/A
REFERENCE DRAWING	N/A
PROJECT MANAGER	BARRY THEBES

SCALE: 1:1250

Electricity Networks
Lorick Bag 14-99
Melbourne 8001
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www.powercor.com.au

REVISION				
DRAWING NUMBER	PCA80	6032872	5	SHEET 5 OF 9
OH CONSTRUCTION PLAN PROPOSED 66kV LINE KRT-WTV				
KOROIT - WOOLSTHORPE				
DRAWN	DRAFTING CHECK	DESIGNER	DESIGN APPROVAL	PROJECT MANAGER
S.HUMM		S.HUMM		B.THEBES

FOR CONTINUATION REFER TO M - PCA80/5120678/1 SHEET 5 - M

N - FOR CONTINUATION REFER TOP RIGHT - N

N - FOR CONTINUATION REFER MIDDLE LEFT - N

O - FOR CONTINUATION REFER BOTTOM LEFT - O

P - FOR CONTINUATION REFER TO



CONDUCTOR SCHEDULE

66kV SERIES	CONDUCTOR	STRINGING	MES	ROUTE LENGTH	ARMOUR RODS
INI POLE 102 (ILIS-XXXXXXX) - INI POLE 132 (ILIS-XXXXXXX)	INI 3-19/4.75 AAC	INI EC255		3577.5	NO
22kV SERIES	CONDUCTOR	STRINGING	MES	ROUTE LENGTH	ARMOUR RODS
INI POLE 102 (ILIS-XXXXXXX) - INI POLE 112 (ILIS-XXXXXXX)	IEI 3-3/2.75 SC/GZ	RESAG INI EC271		1193.8	NO
INI POLE 112 (ILIS-XXXXXXX) - INI POLE 124 (ILIS-XXXXXXX)	IEI 3-3/2.75 SC/GZ	RESAG INI EC271		1483.3	NO
INI POLE 124 (ILIS-XXXXXXX) - IEI POLE 31 (ILIS-948501)	IEI 3-3/2.75 SC/GZ	INI EC245		4.08	NO
OFC SERIES	CONDUCTOR	STRINGING	MES	ROUTE LENGTH	ARMOUR RODS
INI POLE 102 (ILIS-XXXXXXX) - INI POLE 164 (ILIS-XXXXXXX)	INI 48 CORE OFC	110m 1.5%		7091.3	N/A

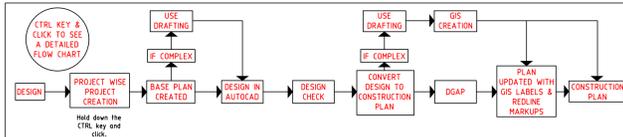
NOTE: 22kV SUBSID CENTRE PHASE ALTERNATES SIDES WHERE POSSIBLE (AS SHOWN).



DESIGN TEMPERATURES
 66kV CONDUCTOR MAXIMUM OPERATING TEMPERATURE 100°C
 22kV CONDUCTOR MAXIMUM OPERATING TEMPERATURE 65°C
 CIRCUIT TO CIRCUIT CLEARANCES:
 3700mm WITH UPPER 66kV @ 100°C AND LOWER 66kV @ 15°C (66kV O/H CROSSING)
 900mm WITH 66kV @ 80°C AND 22kV @ 5°C
 600mm WITH 22kV @ 40°C AND OFC @ 10°C
 NOTE: ALL SEPARATION HEIGHTS ARE FROM KINGBOLT TO KINGBOLT/EYEBOLT

CONSTRUCTION NOTE:
 22kV MAY HAVE EXISTING SPIRAL DAMPERS FITTED.
 NO REQUIREMENT TO RETAIN THEM WHEN LINE RESAGGED TO EC251/EC381/EC271
 BUT ALSO NO ISSUE IF THEY ARE LEFT FITTED.

PLAN NOT TO BE CONVERTED TO A CONSTRUCTION PLAN UNTIL DESIGN HAS BEEN CHECKED



PLAN NOT TO BE ISSUED TO CONSTRUCTION UNTIL DGP HAS BEEN COMPLETED

ENERGY DESIGN PLAN FOR DESIGN PURPOSES ONLY NOT FOR CONSTRUCTION

PROJECT NUMBER	5120678
ROAD DIRECTORY	VICROADS 89 H6
GIS MAP REF.	MAP 235 - H1
MAP PROJECTION	MGA ZONE 54
FEEDER / SWITCHING ZONE	66kV (KRT-WTW) 22kV (KRT031)
REFERENCE DRAWING	N/A
PROJECT MANAGER	BARRY THEBES

SCALE: 1:1250



REVISION			
DRAWING NUMBER	PCA80 5120678	6	SHEET 6 OF 9
OH CONSTRUCTION PLAN PROPOSED 66kV LINE KRT-WTW			
KOROIT - WOOLSTHORPE WINDFARM			
DRAWN	DRAFTING CHECK	DESIGNER	DESIGN APPROVAL
S.HUMM		S.HUMM	B.THEBES

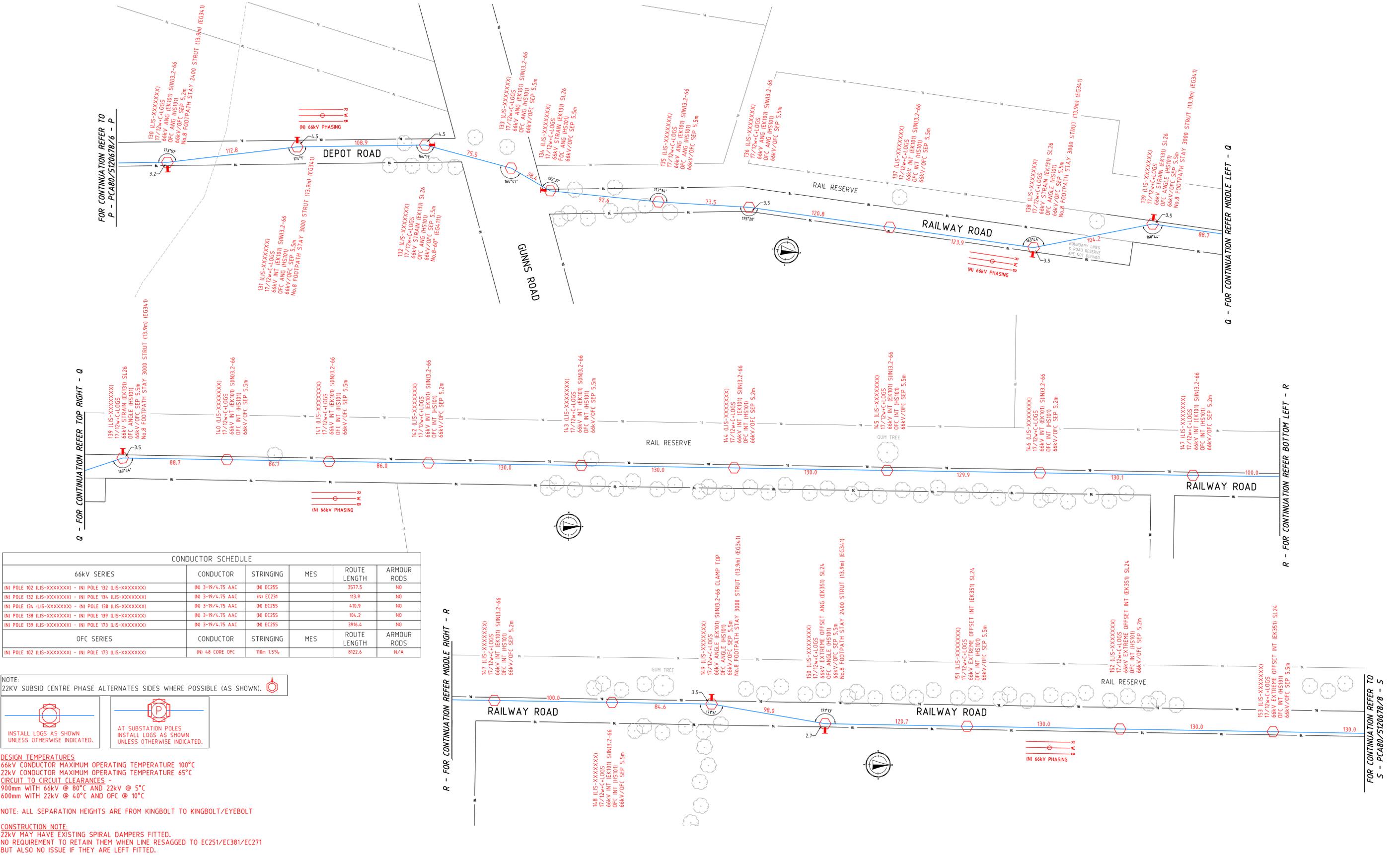
FOR CONTINUATION REFER TO
P - PCA80/5120678/6 - P

Q - FOR CONTINUATION REFER MIDDLE LEFT - Q

Q - FOR CONTINUATION REFER TOP RIGHT - Q

R - FOR CONTINUATION REFER BOTTOM LEFT - R

FOR CONTINUATION REFER TO
S - PCA80/5120678/8 - S



CONDUCTOR SCHEDULE					
66kV SERIES					
CONDUCTOR	STRINGING	MES	ROUTE LENGTH	ARMOUR RODS	
INI POLE 102 (ILIS-XXXXXXX) - INI POLE 132 (ILIS-XXXXXXX)	INI 3-19/4.75 AAC	INI EC255	3577.5	NO	
INI POLE 132 (ILIS-XXXXXXX) - INI POLE 134 (ILIS-XXXXXXX)	INI 3-19/4.75 AAC	INI EC231	113.9	NO	
INI POLE 134 (ILIS-XXXXXXX) - INI POLE 138 (ILIS-XXXXXXX)	INI 3-19/4.75 AAC	INI EC255	410.9	NO	
INI POLE 138 (ILIS-XXXXXXX) - INI POLE 139 (ILIS-XXXXXXX)	INI 3-19/4.75 AAC	INI EC255	104.2	NO	
INI POLE 139 (ILIS-XXXXXXX) - INI POLE 173 (ILIS-XXXXXXX)	INI 3-19/4.75 AAC	INI EC255	3916.4	NO	
OFC SERIES					
CONDUCTOR	STRINGING	MES	ROUTE LENGTH	ARMOUR RODS	
INI POLE 102 (ILIS-XXXXXXX) - INI POLE 173 (ILIS-XXXXXXX)	INI 48 CORE OFC	110m 1.5%	8122.6	N/A	

NOTE:
22kV SUBSID CENTRE PHASE ALTERNATES SIDES WHERE POSSIBLE (AS SHOWN).

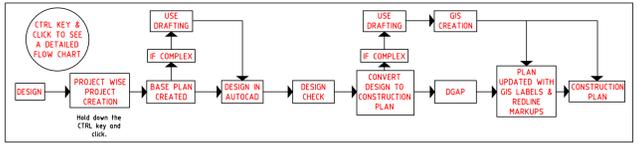


DESIGN TEMPERATURES
66kV CONDUCTOR MAXIMUM OPERATING TEMPERATURE 100°C
22kV CONDUCTOR MAXIMUM OPERATING TEMPERATURE 65°C
CIRCUIT TO CIRCUIT CLEARANCES
900mm WITH 66kV @ 80°C AND 22kV @ 5°C
600mm WITH 22kV @ 40°C AND OFC @ 10°C

NOTE: ALL SEPARATION HEIGHTS ARE FROM KINGBOLT TO KINGBOLT/EYEBOLT

CONSTRUCTION NOTE:
22kV MAY HAVE EXISTING SPIRAL DAMPERS FITTED.
NO REQUIREMENT TO RETAIN THEM WHEN LINE RESAGGED TO EC251/EC381/EC271
BUT ALSO NO ISSUE IF THEY ARE LEFT FITTED.

PLAN NOT TO BE CONVERTED TO A CONSTRUCTION PLAN UNTIL DESIGN HAS BEEN CHECKED



PLAN NOT TO BE ISSUED TO CONSTRUCTION UNTIL DGAP HAS BEEN COMPLETED

ENERGY DESIGN
PLAN FOR DESIGN PURPOSES ONLY
NOT FOR CONSTRUCTION

PROJECT NUMBER	5120678
ROAD DIRECTORY	VICROADS 89 H6
GIS MAP REF.	MAP 235 - H1
MAP PROJECTION	MGA ZONE 54
FEEDER / SWITCHING ZONE	66kV (KRT-WT) 22kV (KRT031)
REFERENCE DRAWING	N/A
REFERENCE DRAWING	N/A
PROJECT MANAGER	BARRY THEBES

SCALE: 1:1250
LENGTHS ARE IN METRES



REVISION			
DRAWING NUMBER	PCA80 5120678	7	SHEET 7 OF 9
OH CONSTRUCTION PLAN PROPOSED 66kV LINE KRT-WT			
KOROIT - WOOLSTHORPE			
DRAWN	DRAFTING CHECK	DESIGNER	DESIGN APPROVAL
S.HUMM		S.HUMM	B.THEBES

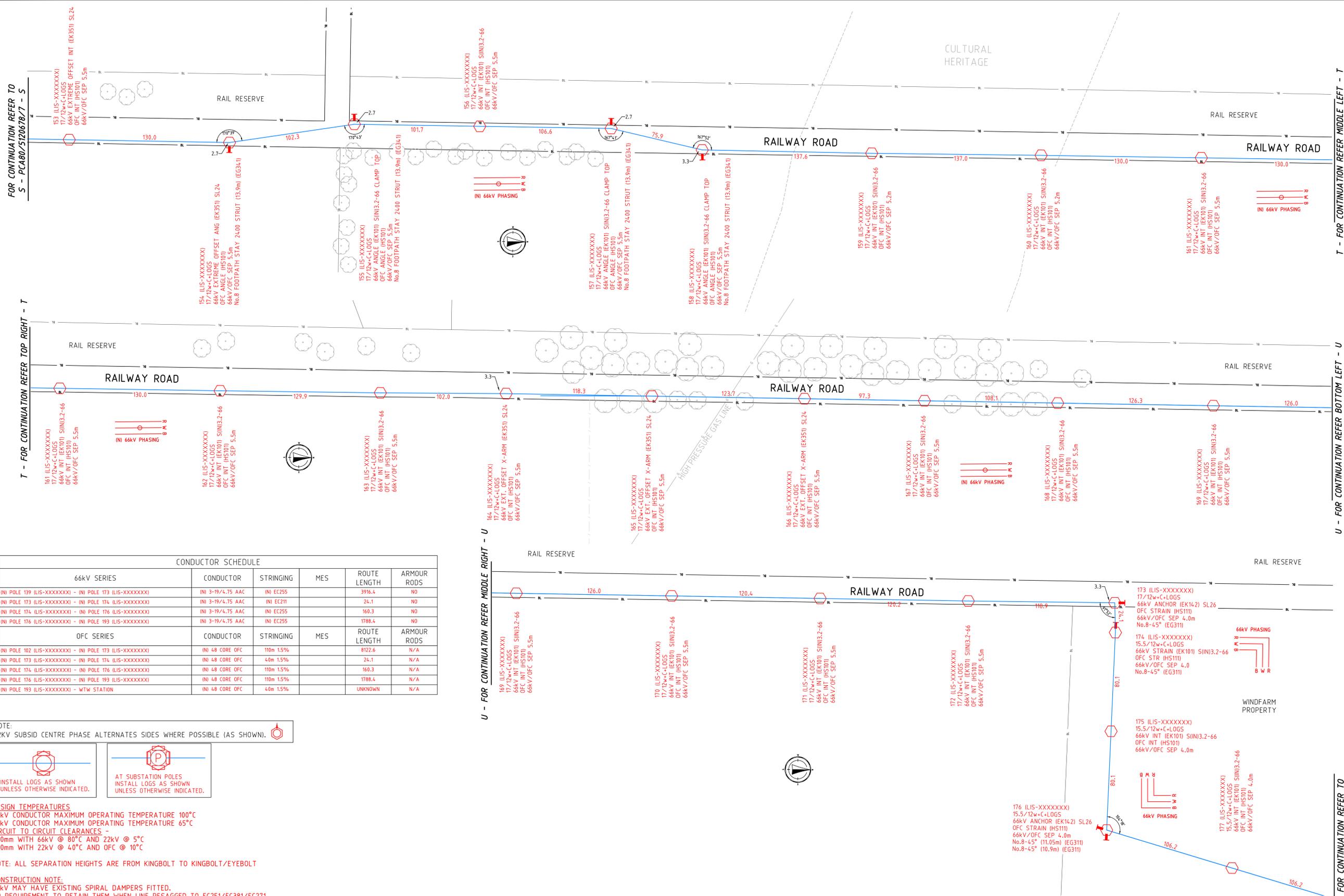
FOR CONTINUATION REFER TO
S - PCA80/5120678/7 - S

T - FOR CONTINUATION REFER TOP RIGHT - T

T - FOR CONTINUATION REFER MIDDLE LEFT - T

U - FOR CONTINUATION REFER BOTTOM LEFT - U

FOR CONTINUATION REFER TO
V - PCA80/5120678/9 - V



CONDUCTOR SCHEDULE

66kV SERIES	CONDUCTOR	STRINGING	MES	ROUTE LENGTH	ARMOUR RODS
(NI) POLE 139 (LIS-XXXXXXX) - (NI) POLE 173 (LIS-XXXXXXX)	(NI) 3-19/4.75 AAC	(NI) EC255		3916.4	NO
(NI) POLE 173 (LIS-XXXXXXX) - (NI) POLE 174 (LIS-XXXXXXX)	(NI) 3-19/4.75 AAC	(NI) EC211		24.1	NO
(NI) POLE 174 (LIS-XXXXXXX) - (NI) POLE 176 (LIS-XXXXXXX)	(NI) 3-19/4.75 AAC	(NI) EC255		160.3	NO
(NI) POLE 176 (LIS-XXXXXXX) - (NI) POLE 193 (LIS-XXXXXXX)	(NI) 3-19/4.75 AAC	(NI) EC255		1788.4	NO
OFC SERIES	CONDUCTOR	STRINGING	MES	ROUTE LENGTH	ARMOUR RODS
(NI) POLE 102 (LIS-XXXXXXX) - (NI) POLE 173 (LIS-XXXXXXX)	(NI) 4B CORE OFC	110m 1.5%		8122.6	N/A
(NI) POLE 173 (LIS-XXXXXXX) - (NI) POLE 174 (LIS-XXXXXXX)	(NI) 4B CORE OFC	4.0m 1.5%		24.1	N/A
(NI) POLE 174 (LIS-XXXXXXX) - (NI) POLE 176 (LIS-XXXXXXX)	(NI) 4B CORE OFC	110m 1.5%		160.3	N/A
(NI) POLE 176 (LIS-XXXXXXX) - (NI) POLE 193 (LIS-XXXXXXX)	(NI) 4B CORE OFC	110m 1.5%		1788.4	N/A
(NI) POLE 193 (LIS-XXXXXXX) - WTW STATION	(NI) 4B CORE OFC	4.0m 1.5%		UNKNOWN	N/A

NOTE:
22kV SUBSID CENTRE PHASE ALTERNATES SIDES WHERE POSSIBLE (AS SHOWN).

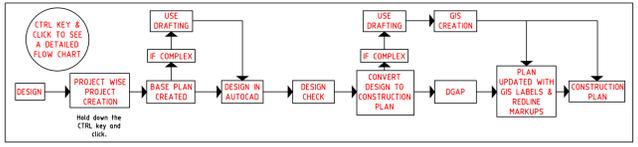


DESIGN TEMPERATURES
66kV CONDUCTOR MAXIMUM OPERATING TEMPERATURE 100°C
22kV CONDUCTOR MAXIMUM OPERATING TEMPERATURE 65°C
CIRCUIT TO CIRCUIT CLEARANCES -
900mm WITH 66kV @ 80°C AND 22kV @ 5°C
600mm WITH 22kV @ 40°C AND OFC @ 10°C

NOTE: ALL SEPARATION HEIGHTS ARE FROM KINGBOLT TO KINGBOLT/EYEBOLT

CONSTRUCTION NOTE:
22kV MAY HAVE EXISTING SPIRAL DAMPERS FITTED.
NO REQUIREMENT TO RETAIN THEM WHEN LINE RESAGGED TO EC251/EC381/EC271
BUT ALSO NO ISSUE IF THEY ARE LEFT FITTED.

PLAN NOT TO BE CONVERTED TO A CONSTRUCTION PLAN UNTIL DESIGN HAS BEEN CHECKED



PLAN NOT TO BE ISSUED TO CONSTRUCTION UNTIL DGAP HAS BEEN COMPLETED

ENERGY DESIGN
PLAN FOR DESIGN PURPOSES ONLY
NOT FOR CONSTRUCTION

PROJECT NUMBER	5120678
ROAD DIRECTORY	VICROADS 89 H6
GIS MAP REF.	MAP 235 - H1
MAP PROJECTION	MGA ZONE 54
FEEDER / SWITCHING ZONE	66kV (KRT-WTW) 22kV (KRT031)
REFERENCE DRAWING	N/A
REFERENCE DRAWING	N/A
PROJECT MANAGER	BARRY THEBES

SCALE: 1:1250
LENGTHS ARE IN METRES



REVISION				
DRAWING NUMBER	PCA80 5120678	8	SHEET 8 OF 9	
OH CONSTRUCTION PLAN PROPOSED 66kV LINE KRT-WTW				
KOROIT - WOOLSTHORPE				
DRAWN	DRAFTING CHECK	DESIGNER	DESIGN APPROVAL	PROJECT MANAGER
S.HUMM		S.HUMM		B.THEBES



WINDFARM PROPERTY

NOTE:
22KV SUBSID CENTRE PHASE ALTERNATES SIDES WHERE POSSIBLE (AS SHOWN).

INSTALL LOGS AS SHOWN UNLESS OTHERWISE INDICATED.

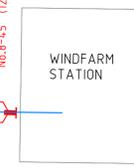
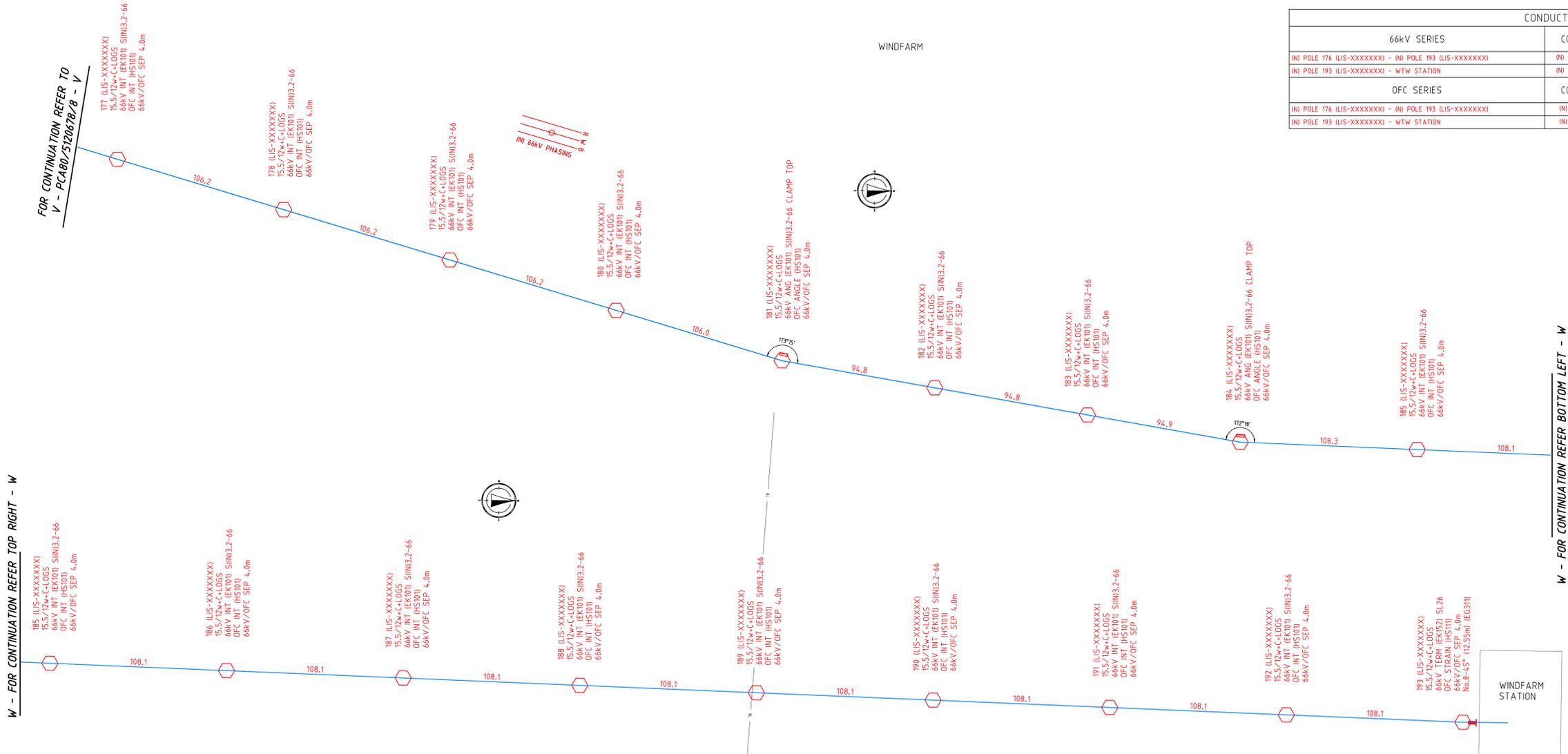
AT SUBSTATION POLES INSTALL LOGS AS SHOWN UNLESS OTHERWISE INDICATED.

DESIGN TEMPERATURES
 66kV CONDUCTOR MAXIMUM OPERATING TEMPERATURE 100°C
 22kV CONDUCTOR MAXIMUM OPERATING TEMPERATURE 65°C
CIRCUIT TO CIRCUIT CLEARANCES -
 900mm WITH 66kV @ 80°C AND 22kV @ 5°C
 600mm WITH 22kV @ 40°C AND OFC @ 10°C

NOTE: ALL SEPARATION HEIGHTS ARE FROM KINGBOLT TO KINGBOLT/EYEBOLT

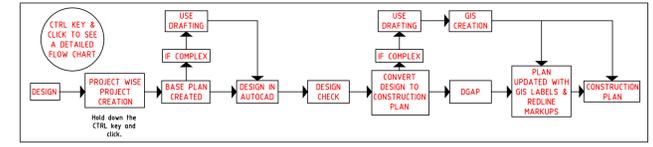
CONSTRUCTION NOTE:
 22kV MAY HAVE EXISTING SPIRAL DAMPERS FITTED.
 NO REQUIREMENT TO RETAIN THEM WHEN LINE RESAGGED TO EC251/EC381/EC271
 BUT ALSO NO ISSUE IF THEY ARE LEFT FITTED.

CONDUCTOR SCHEDULE					
66kV SERIES	CONDUCTOR	STRINGING	MES	ROUTE LENGTH	ARMOUR RODS
(N) POLE 176 (LIS-XXXXXXX) - (N) POLE 193 (LIS-XXXXXXX)	(N) 3-19/4.75 AAC	(N) EC255		1788.4	NO
(N) POLE 193 (LIS-XXXXXXX) - WTW STATION	(N) 3-19/4.75 AAC	SLACK		UNKNOWN	NO
OFC SERIES	CONDUCTOR	STRINGING	MES	ROUTE LENGTH	ARMOUR RODS
(N) POLE 176 (LIS-XXXXXXX) - (N) POLE 193 (LIS-XXXXXXX)	(N) 48 CORE OFC	110m 15%		1788.4	N/A
(N) POLE 193 (LIS-XXXXXXX) - WTW STATION	(N) 48 CORE OFC	40m 15%		UNKNOWN	N/A



ENERGY DESIGN PLAN FOR DESIGN PURPOSES ONLY NOT FOR CONSTRUCTION

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PLAN NOT TO BE ISSUED TO CONSTRUCTION UNTIL DGAP HAS BEEN COMPLETED

ENERGY DESIGN PLAN FOR DESIGN PURPOSES ONLY NOT FOR CONSTRUCTION

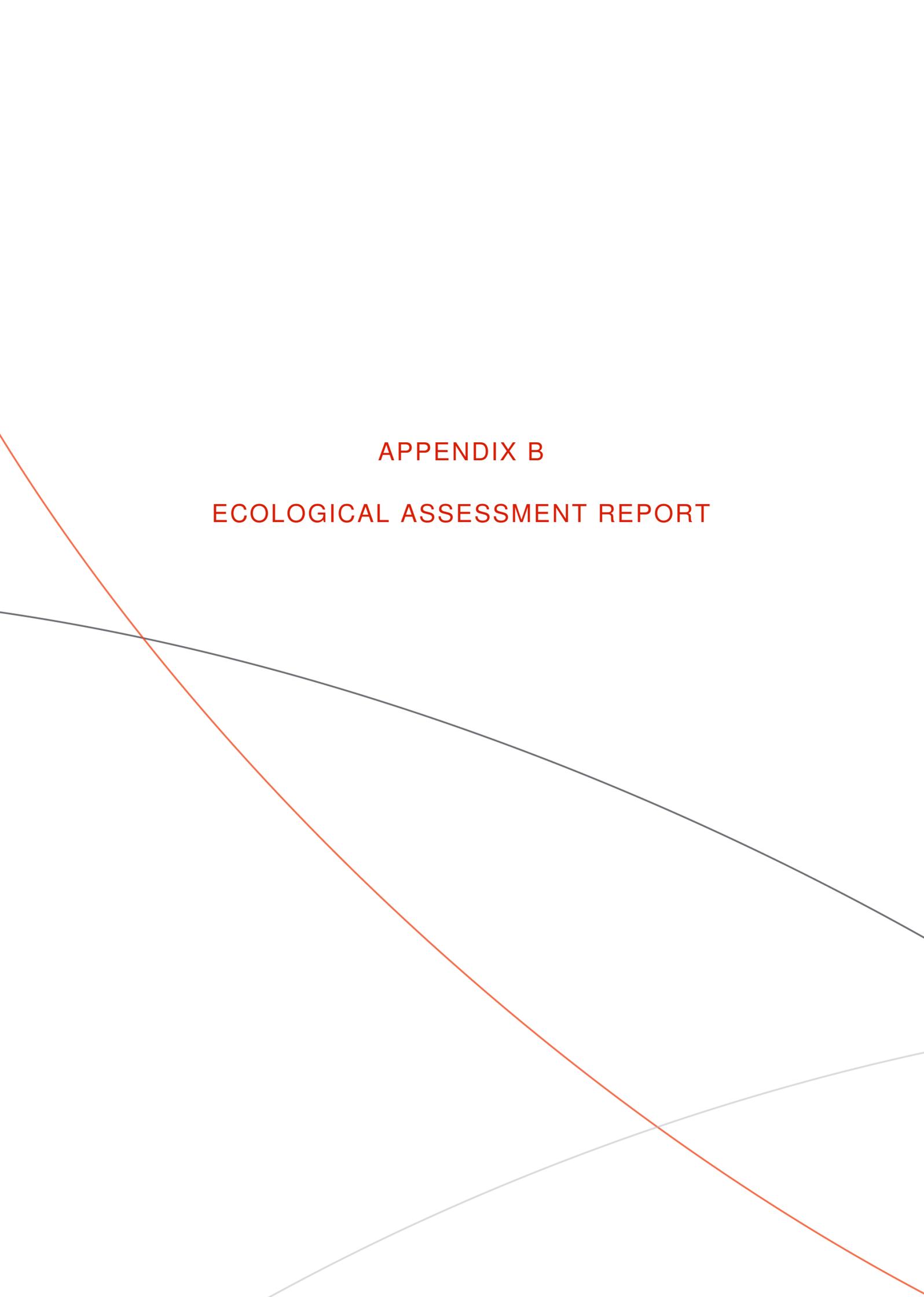
PROJECT NUMBER	5120678
ROAD DIRECTORY	VICROADS 89 H6
GIS MAP REF.	MAP 235 - H1
MAP PROJECTION	MGA ZONE 54
FEEDER / SWITCHING ZONE	66kV (KRT-WTW) 22kV (KRT031)
REFERENCE DRAWING	N/A
REFERENCE DRAWING	N/A
PROJECT MANAGER	BARRY THEBES

SCALE: 1:1250

LENGTHS ARE IN METRES

Electricity Networks
 Locked Bag 14-090
 Melbourne 8001
 www.citipower.com.au
 www.powercor.com.au

REVISION			
DRAWING NUMBER	PCA80 6032872	9	SHEET 9 OF 9
O/H CONSTRUCTION PLAN PROPOSED 66kV LINE KRT-WTW			
KOROIT - WOOLSTHORPE			
DRAWN	DRAFTING CHECK	DESIGNER	DESIGN APPROVAL
S.HUMM		S.HUMM	B.THEBES



APPENDIX B
ECOLOGICAL ASSESSMENT REPORT

Powercor Australia

Woolsthorpe Wind Farm

Ecological Assessment FINAL Report



EcoAerial
PO Box 1088
Newport
Vic 3015

Phone: 03 9315 4749
Mobile: 0414 689 853
Email: rob@ecoaerial.com.au

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Version	Draft A	Draft B	Final	Approved By:	Report No
Author	30/08/2019	7/10/2019			Woolsthorpe WF Environmental Assessment Draft 00206-1
Rob Gration			26/11/2019		Woolsthorpe WF Environmental Assessment FINAL 00206-2
Powercor Reviewer	30/08/2019		27/11/2019		Woolsthorpe WF Environmental Assessment Draft 00206-1
Barry Thebes			28/11/2019	<i>Barry Thebes</i>	Woolsthorpe WF Environmental Assessment FINAL 00206-2
Spiire Reviewer	30/08/2019	7/10/2019			Woolsthorpe WF Environmental Assessment Draft 00206-1
Glennie Nottle			27/08/2019		Woolsthorpe WF Environmental Assessment FINAL 00206-2

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Executive Summary

EcoAerial was engaged to undertake an ecological site assessment for works proposed for the Woolsthorpe Wind Farm Feeder Project.

The works start at the Koroit power sub-station and terminates at the Woolsthorpe Wind Farm and involves approximately 7.2 kilometres of new works and approximately 10.7 kilometres of line upgrades.

The project site is within Moyne Shire, approximately 254km south-west of Melbourne and 25km north-west of Warrnambool, Victoria.

A four-day site investigation of the alignment was undertaken on 8 & 9 August, 2 September and 14 November 2019 to ground truth the; modelled vegetation communities, habitat and assess the potential impact of the project on biodiversity values. The potential for the presence of threatened species was determined through previous records and a habitat assessment. A survey for Maroon-leek orchid at site where it was previously recorded was undertaken during the known flowering season. Maroon-leek orchid was not present however the similar looking introduced orchid; African weed-orchid was present.

There has been an emphasis on ensuring that impacts are kept to their absolute minimum in respect to native vegetation and fauna habitat by looking at alternative alignment routes and, micro-siting of poles.

Most of the project area has limited significant biodiversity values with few *Environment Protection and Biodiversity Conservation Act 1999* and *Flora and Fauna Guarantee Act 1988* listed species recorded near the alignment. Native vegetation patches are confined to the intersection of Depot Rd and Gunns Rd and, Railway Rd and the adjoining railway easement.

A total of 57 vascular plant species were recorded along the alignment, of which 19 were native, 1 non-locally endemic Australian species and 37 introduced species. No significant flora was recorded during field assessment.

The study area supports four EVCs; two of which were confirmed by ground truthing:

1. Basalt Shrubby Woodland; EVC_642- Endangered
2. Mosaic of Basalt Shrubby Woodland & Plains Swampy Woodland.

The entirety of the study area is located within the Victorian Volcanic Plains Bioregion, from which the Conservation Status of vegetation communities has been derived.

The extent of the Basalt Shrubby Woodland is not consistent with the modelled data and is confined to the understorey and ground flora component. The extent of Basalt Shrubby Woodland is greater than indicated in NatureKit Interactive Map.

A total of 19 species of fauna were recorded within the study area. This was confined to 17 native birds and two introduced birds. Note that the fauna assessment was based on incidental observations, no fauna trapping, or detailed bird surveys were undertaken. No significant fauna was recorded during field assessment.

Project Impacts

Where possible poles and the pole alignment were re-sited to avoid impacts to native vegetation.

The extent of the project impacts is confined to the removal / destroying of approx. 5²/m of native grasses associated with the Basalt Shrubby Woodland EVC_642. This impact occurs where 4 poles (139,142,143 &144) on Railway Road cannot be micro-sited. Notwithstanding that 3 small Blackwood trees at Pole 148 will require pruning only (Utility Trees 12019a), we have considered the pruning may require the removal of more than a third of the foliage and therefore considered them as removed. The removal of these Blackwood trees was deemed to be a patch of Basalt Shrubby Woodland EVC_642, notwithstanding there were no canopy trees present. This will entail the removal of approx. 9²/m. The combined total of 14²/m does not trigger the requirement for offsets in the Native Vegetation Information Management tool.

The report herewith provides the steps undertaken to avoid, minimise and mitigate ecological impacts. Following the steps as outlined in this report will negate the need for offsets required under the *Permitted Clearing of Native Vegetation: Biodiversity Assessment Guidelines* (DEPI 2017a).

There are no implications that trigger a referral under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

1 Introduction

EcoAerial was engaged by Spiire on behalf of Powercor to undertake an ecological assessment for works proposed for the Woolsthorpe Wind Farm Feeder Project.

Powercor is proposing to install a new 66kV overhead line as part of the Woolsthorpe Wind Farm Distribution Line Project. The project involves approximately 7.2 kilometres of new works (where no feeder currently exists) and approximately 10.7 kilometres of line upgrades where an existing 22kV Line exists.

EcoAerials role was to conduct a field assessment to identify potential ecological impacts/constraints including the potential requirement for a planning permit for removal of native vegetation, Net Gain assessment, and / or referral under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act 1999) or *Flora and Fauna Guarantee Act 1988* (FFG Act 1988). The assessment entailed the following:

- A visual assessment of on-ground conditions
- observations of flora and fauna
- identify the areas of least impact
- provide advice to Powercor designers on the route for the construction plans.

Please note the site assessment did not include an assessment within the boundaries of the Woolsthorpe Wind Farm. Relevant assessments have been completed and planning permits have been approved for the on-site infrastructure, including power distribution.

1.1 Study Area

The study area is in the Moyne Shire Council Local Government Area. The Shire is in south-west Victoria located 250km from Melbourne. It is estimated that the population of Moyne Shire is approximately 17,000 within the following communities; Hexham, Kirkstall, Koroit, Macarthur, Mortlake, Nullawarre, Orford, Panmure, Peterborough, Port Fairy, Purnim, Winslow, Woolsthorpe, Woorndoo and Yambuk (Moyne Shire Council, 2019a). Warrnambool City Council is located centrally within the Moyne municipality.

The regions primary economic activities are the dairy industry, sheep and beef production crops; fishing and aquaculture, quarrying, micro-brewing and \$7 billion of renewable energy projects (Moyne Shire Council, 2019b).

This report details the ecological values along the alignment starting at the Koroit Power Sub-station to the Woolsthorpe Wind Farm (refer to Figure 1).

1.2 Key Actions

To meet the project objectives, the following actions were undertaken:

- a drive-over of the alignment with the Powercor Project Manager, Powercor Designer and Arborist to determine alignment which will cause least environmental impact
- field assessment to identify potential ecological impacts/constraints
- visual assessment of ground conditions
- observations of flora and fauna

- identify the areas of least impact for access to work / laydown areas
- preparation of an ecological report suitable for submission with the planning permit application
- consultation with Moyne shire council and Basalt to Bay Landcare Group representative; Lisette Mill
- on-site meeting with Lisette Mill.

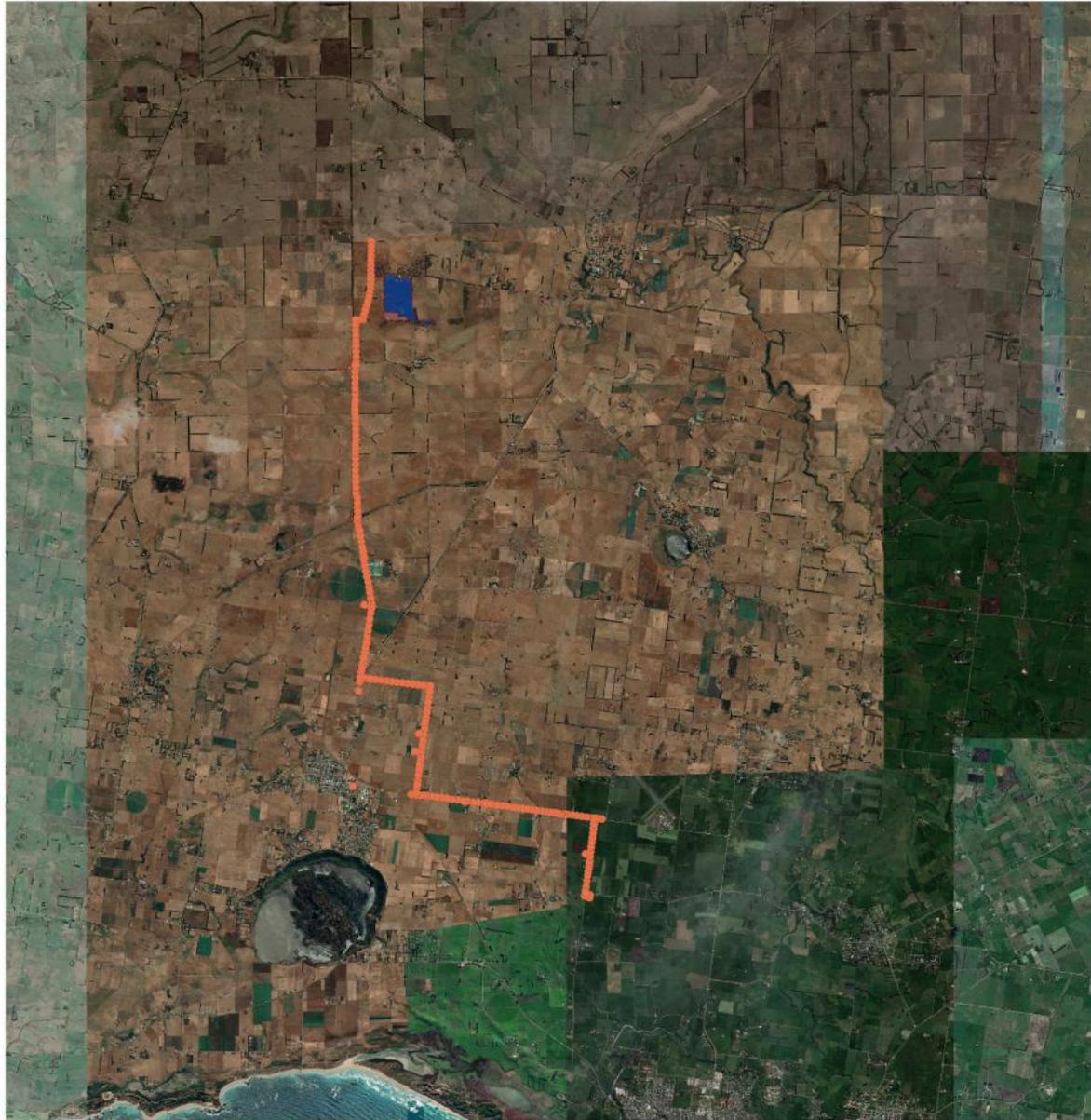


Figure 1: Proposed Powerline Alignment

0 1 2 km



LEGEND

- Poles final
- 2005 Individual EVC Attributes
 - Basalt Shrubby Woodland
 - Plains Grassland
 - Plains Grassy Woodland
 - Plains Swampy Woodland



Drawn By: R Gratton
 Date: 21/08/2019
 Drawing No: 00206-1

2 Methods

2.1 Methodology

The ecological values and constraints outlined in this report are based on verifying the relevant databases in conjunction with a field assessment. The objective was to assess the potential to re-align the powerline and / or microsite poles to avoid or minimise the need to remove, destroy or lop native vegetation.

The following literature and databases were reviewed:

- The Department of Environment, Land Water and Planning (DELWP's) Naturekit Interactive Map.
- Data from the DELWP's Victorian Biodiversity Atlas.
- The Department of Environment, Land Water and Planning (DELWP's) Native Vegetation Information Management System.
- *Environment Protection and Biodiversity Conservation Act 1999* Protected Matters Search Tool.
- Atlas of Living Australia
- Aerial photograph interpretation to determine habitat extents.
- Relevant legislation, government policy and strategies.

2.1.1 Terminology

Common and scientific names of vascular plants and vertebrate fauna follow the Victorian Biodiversity Atlas. Acronyms and terminology are provided in Attachment A.

2.1.2 Field Assessment

Site investigations were undertaken over 4-days; 8 & 9 August, 2 September and 14 November 2019. The purpose of the investigations was to determine the nature and extent of native vegetation and, the likely impact of the project on biodiversity values. The following techniques were utilised during the site inspection:

- Field validation of vegetation communities – the extent of mapped Ecological Vegetation Class (EVCs).
- Habitat – flora and fauna habitats were assessed by examining characteristics such as the structure and floristics of the canopy, understorey / ground vegetation and, other habitat attributes important for feeding, roosting and breeding.
- Any other incidental observations or evidence of flora or fauna.

2.1.3 Categorising Vegetation within the Study Area

Field validation (i.e. ground-truthing) of the DELWP modelled vegetation was undertaken to determine the site-specific classification of the vegetation and extent.

Under the Permitted Clearing of native vegetation: biodiversity assessment guidelines (DEPI 2013b), a remnant patch of native vegetation is either:

- An area of vegetation where at least 25 per cent of the total perennial understory plant cover is native
- Any area with three or more native canopy trees where the canopy foliage cover is at least 20 per cent of the area
- A scattered tree is:
 - A canopy tree that is greater than 3 meters in height and is normally found in the upper layer of the relevant vegetation type.

Tree Retention Zones (TRZ) is a specific area above and below the ground, with a radius 12 x the Diameter at Breast Height (DBH) and should be no less than 2 m or greater than 15 m. If the activities impact on >10% of the total area of the TRZ, the tree is considered 'lost' and require an offset unless a qualified arborist confirms that specific works will not significantly damage the tree.

Tree Retention Zones (TRZs) were assessed by Utility Trees (2019a&b) as per the relevant guidelines (DSE 2011). The works proposed near patches of native vegetation with trees has taken into consideration the installation method and; how to minimise any impact that may affect the root zone.

2.1.4 Likelihood Assessments

As with most biological assessments, the presence or absence of a species over time cannot be definitively determined without a site assessment. EcoAerial has developed a method to assess the likelihood of the presence of national and state listed threatened species within a site. This method identifies the habitat requirements of species of conservation significance with the potential to occur and VBA records. Based on the outcomes of the site assessment and VBA records, EcoAerial then examines whether the site is likely to contain any suitable habitat for individual species and assesses the likelihood of species occurrence.

The likelihood of occurrence column in the tables below provides the outcomes of an assessment of suitable habitat within the alignments (with 3km buffers applied) for EPBC and FFG Act listed flora and fauna species. The likelihood assessment was based on the following criteria:

1. VERY HIGH: Vegetation has usually changed very little over time and displays resilience to weed invasion due to intact ground cover, shrub and canopy layers. Recent records (1-5 years) within proximity to the study site.
2. HIGH: Vegetation generally still retains its structural integrity but has been disturbed and has lost some component of its original species complement. Weed invasion is minor in such remnants. Historical records (last 6-10 years) within close proximity to the study site.
3. MEDIUM: Vegetation generally still retains its structural integrity but has been disturbed and has lost some component of its original species complement. Weed invasion can be minor in such remnants. Historical records (last 11- 20 years) within close proximity to the study site.
4. LOW: Vegetation that has lost most of its species and is significantly modified structurally. Often such areas now have a discontinuous vegetation cover, very

few shrubs and exotic species such as introduced pasture grasses or weeds, dominating indigenous ground cover. Environmental weeds are often co-dominant with the original indigenous species. Provides little in the way of fauna habitat for species. No records (last > 20 years) within close proximity to the study site.

This process is to be used as a guide and is NOT to be used as indicating species presence or absence.

2.1.5 Limitations

No targeted or seasonal botanical or fauna surveys were undertaken during the assessment, and therefore the likelihood of detecting threatened species, was reduced. The conclusions in this report are based on information obtained from the desk-based assessment and site assessment undertaken in late winter, which is not the optimum time for all flora species and fauna species.

The likely presence of threatened species was determined through habitat assessment which is a more conservative approach likely to include species that are difficult to detect if suitable habitat was observed in the study area, and if that species was known to occur locally.

3 Results

3.1 Desktop Review

A review of the available literature and databases indicate the study area has limited significant flora and fauna values. The best flora and fauna values are confined to Gunns Road and Railway Road at the north of the alignment.

3.1.1 *Environment Protection and Biodiversity Conservation Act 1999*

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) Protected Matters Search Tool was reviewed (Attachment B). This tool provides a broad overview of those species, species habitat and vegetation communities that may occur, or are likely to occur within the study area. A 1km buffer outside of the study areas was applied. A summary of the results is provided below.

The following Matters of National Environmental significance (MNES) were identified as having the potential to occur:

- 32 threatened species:
 - 22 fauna
 - 11 flora
- 14 migratory species
- 24 marine species
- 2 threatened ecological communities:
 - Grassy Eucalypt Woodland of the Victorian Volcanic Plain-Critically Endangered
 - Natural Temperate Grassland of the Victorian Volcanic Plains-Critically Endangered.

3.1.2 *Victorian Biodiversity Atlas - EPBC and FFG Act Listed Flora and Fauna*

DELWP's Victorian Biodiversity Atlas (VBA) was reviewed to obtain records of threatened flora and fauna. The review covered a 3km buffer and includes species listed under both the EPBC Act and *Flora and Fauna Guarantee Act 1988* (FFG Act).

There has been a total of 13 threatened EPBC and FFG Act listed species recorded within a 3km buffer of the proposed powerline alignment. Of the threatened species recorded, there are 5 fauna and 2 flora listed EPBC Act species and 11 fauna and 2 flora species listed under the FFG Act.

Table 1 provides the details of species previously recorded and their likelihood of occurrence within the alignments. Please note that species referred to in the likelihood of occurrence includes only those species recorded in the VBA or stated as known to occur in the EPBC Act Protected Matters Report.

Table 1: EPBC & FFG Act Listed Species (3km buffer)

Scientific Name	Common Name	Date	EPBC	FFG	Likelihood of Occurrence	Potential Impact
Fauna						
<i>Botaurus poiciloptilus</i>	Australasian Bittern	4/01/1995	EN	L	Low	Not Applicable
<i>Ninox connivens</i>	Barking Owl	27/05/1993		L	Low	Not Applicable
<i>Oxyura australis</i>	Blue-billed Duck	4/01/1995		L	Low	Not Applicable
<i>Miniopterus schreibersii bassanii</i>	Common Bent-wing Bat (southern ssp.)	1/01/2002	CR	L	High	Not Applicable
<i>Calidris ferruginea</i>	Curlew Sandpiper	6/12/1982	CR / rokamba	L	Low	Not Applicable
<i>Ardea alba modesta</i>	Eastern Great Egret	1/11/1976	jamba	L	Low	Not Applicable
<i>Accipiter novaehollandiae</i>	Grey Goshawk	3/12/1997		L	Low	Not Applicable
<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	8/05/1973	VU	L	Low	Not Applicable
<i>Litoria raniformis</i>	Growling Grass Frog	01/01/1788	VU	L	Low	Not Applicable
<i>Egretta garzetta</i>	Little Egret	5/02/1988		L	Low	Not Applicable
<i>Anseranas semipalmata</i>	Magpie Goose	14/11/1983		L	Low	Not Applicable
Flora						
<i>Prasophyllum frenchii</i>	Maroon Leek-orchid	13/11/2005	EN	L	Medium	Not Applicable
<i>Senecio psilocarpus</i>	Swamp Fireweed	3/09/1995	VU		Low	Not Applicable

Legend: EPBC ACT: CR=Critically endangered; EN=Endangered; VU= Vulnerable. FFG Act: L= Listed. International Treaties: rokamba= Republic of Korea–Australia Migratory Bird Agreement; jamba=Japanese-Australia Migratory Bird Agreement.

Species listed under the Advisory List of Rare or Threatened Plants in Victoria and, Advisory List of Rare or Threatened Fauna in Victoria are not included in the table above. There are no direct legal requirements that flow from inclusion of a species in the advisory list. Species assessed as rare, vulnerable or endangered in this list are considered through native vegetation planning permit approval and offset processes under Victoria’s Native Vegetation Regulations (DELWP 2013).

3.1.3 Birddata– Bird Records

The live Birddata tool (Birdlife) was accessed to provide an overview of the bird species diversity in the wider study area. The results indicated that 71 species of bird, including one threatened species of which was not recorded in the VBA. Brolga has been recorded across the wider study area. Attachment C provides detailed records for bird species recorded in Birddata in 2019.

3.1.4 Atlas of Living Australia

The Atlas of Living Australia (ALA) details records for 28 mammals, 5 of which are introduced; 149 birds, 5 of which are introduced, 12 reptiles and 3 invertebrates. The ALA details records of 152 flora of which 36 are introduced species. Table 2 provides records of threatened species records.

It should be noted that the 3 records highlighted in red are unverified records. Unlike the VBA where a review is undertaken by subject matter experts of all threatened species submitted to the database, public submitted records in the VBA are not verified for their

identification accuracy. A further limitation is the accuracy for the records varies from 10m to 28km, notwithstanding a buffer of 5km was applied. Attachment D provides detailed records for species recorded in ALA.

Table 2: Atlas of Living Australia Records (5km buffer)

Scientific Name	Common name	Status
MAMMALS		EPBC / FFG
<i>Sminthopsis leucopus</i> #	White-footed Dunnart	- / L
BIRDS		
<i>Oxyura australis</i>	Blue-billed Duck	- / L
<i>Ardea modesta</i>	Eastern Great Egret	- / L
<i>Stictonetta naevosa</i>	Freckled Duck	- / L
<i>Thinornis rubricollis</i>	Hooded Plover	- / L
<i>Anseranas semipalmata</i>	Magpie Goose	- / L
FLORA		
<i>Prasophyllum frenchii</i>	Maroon leek-orchid	EN / L
<i>Senecio psilocarpus</i>	Swamp fireweed	VU / -

Red = Unverified records and / or location outside 5km buffer

3.1.5 Ecological Vegetation Classes

The presence and distribution of modelled Ecological Vegetation Classes (EVCs) were assessed using DELWP's online Naturekit Interactive Map. The study area is in the Victorian Volcanic Plains bioregion and within the Glenelg Hopkins Catchment area.

The review of the Biodiversity Interactive Map indicates that 4 EVC's have been modelled as occurring on-site and / or close to the proposed alignment. Table 3 provides details of the EVC's modelled as present, their conservation status and proximity to the alignment.

Table 4 provides the conservation description for the threatened EVC's. A map of the modelled EVC's on Depot Road, Gunns Road and Railway Road are provided below (refer to Figures 2.1~2.4).

Table 3: EVC's Modelled as Present

EVC No	Ecological Vegetation Class	Bioregion	Status	Roads / Reserves	Comments
55	Plains Grassy Woodland	Victorian Volcanic Plains	E	Not applicable	Not present within the study area.
132	Plains Grassland	Victorian Volcanic Plains	E	Wickham Park and wind farm site.	Modelled as present in Wickham Park and adjacent agricultural properties. Vegetation is consistent with Basalt Shrubby Woodland and <u>not</u> Plains Grassland. Potentially present within railway reserve however is more likely to be the understorey component of Basalt Shrubby Woodland.

642	Basalt Shrubby Woodland	Victorian Volcanic Plains	E	McCormack's Rd, Depot Rd, Gunns Rd and Railway Rd and railway reserve.	Ground truthing confirmed presence of understorey and / or ground flora component of this EVC.
651	Plains Swampy Woodland	Victorian Volcanic Plains	E	Railway Rd	Ground truthing confirmed mosaic of EVC_651 and EVC_642 in low lying sections near Blackwood Creek.

Table 4: Conservation Status Description

Endangered	E	<p>Contracted to less than 10% of former range; OR Less than 10% pre-European extent remains; OR</p> <p>Combination of depletion, degradation, current threats and rarity is comparable overall to the above:</p> <ul style="list-style-type: none"> • 10 to 30% pre-European extent remains and severely degraded over a majority of this area; or • naturally restricted EVC reduced to 30% or less of former range and moderately degraded over a majority of this area; or • rare EVC cleared and/or moderately degraded over a majority of former area.
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0 250 500 m

Figure 2.1: Modelled Ecological Vegetation Classes



LEGEND

- Poles final
- Modelled EVC Attributes
 - Basalt Shrubby Woodland
 - Plains Grassland
 - Plains Grassy Woodland
 - Plains Swampy Woodland



Drawn By: R Gratton
 Date: 26/11/2019
 Drawing No: 00206-2



0 250 500 m

Figure 2.2: Modelled Ecological Vegetation Classes



LEGEND

- Poles final
- Modelled EVC Attributes
 - Basalt Shrubby Woodland
 - Plains Grassland
 - Plains Grassy Woodland
 - Plains Swampy Woodland



Drawn By: R Gratton
Date: 26/11/2019
Drawing No: 00206-2



0 250 500 m

Figure 2.3: Modelled Ecological Vegetation Classes



LEGEND

- Poles final
- Modelled EVC Attributes
 - Basalt Shrubby Woodland
 - Plains Grassland
 - Plains Grassy Woodland
 - Plains Swampy Woodland



Drawn By: R Gratton
 Date: 26/11/2019
 Drawing No: 00206-2



Figure 2.4: Modelled Ecological Vegetation Classes

0 250 500 m



LEGEND

Poles final

Modelled EVC Attributes

- Basalt Shrubby Woodland
- Plains Grassland
- Plains Grassy Woodland
- Plains Swampy Woodland



Drawn By: R. Gratton
Date: 26/11/2019
Drawing No: 00206-2

3.2 Site Assessment

3.2.1 Flora

A total of 57 vascular plant species were recorded along the alignment, of which 19 were native, 1 non-locally endemic Australian species and 37 introduced species. These are listed in Attachment E.

No significant species were identified during the surveys, however the EPBC Act listed Maroon Leek-orchid has been previously recorded adjacent to the proposed alignment on Gunns Rd.

Maroon Leek-orchid occurs in grassland and grassy woodland habitats, on sandy to black clay loams that are typically damp but well drained. Some sites are seasonally waterlogged and include seasonally damp transition zone on the margins of shallow freshwater marshlands (Duncan, 2010). It is known to flower in south-west Victoria from November to December.

Identifying suitable habitat was based on the VBA record of Maroon Leek-orchid (refer to Figure 3) on Gunns Rd i.e. Basalt Shrubby Woodland and Plains Swampy Woodland. A site assessment undertaken on the 14 November 2019 and the introduced species: African weed-orchid was present at the location of the previous record. Notwithstanding the orchid is an introduced species, each pole location in Railway Rd was assessed for the presence of Maroon leek-orchid. No orchids, native or non-native were observed.

3.2.2 Vegetation

An Ecological Vegetation Class (EVC) is a unit of vegetation displaying broadly similar characteristics (Oates and Taranto 2001). The study area supports four EVCs; two of which were confirmed by ground truthing:

1. Basalt Shrubby Woodland; EVC_642
2. A mosaic of Basalt Shrubby Woodland EVC_642 / Plains Swampy Woodland EVC_651.

The entirety of the study area is located within the Victorian Volcanic Plains Bioregion.

The extent of the Basalt Shrubby Woodland is for the main part confined to the understorey and ground flora component.

The extent is greater than indicated in NatureKit Interactive Map. The road and railway reserves adjoining Railway Road has more native vegetation than shown in the modelled data. A large area of Wickham Park is also incorrectly modelled as Plains Grassland and not Basalt Shrubby Woodland.

The largest tracks of remnant vegetation, (Basalt Shrubby Woodland), containing the overstorey component is confined to Officers Road to the north of Railway Road and, Wickham Park.

Attachment F provides maps indicative of the ground-truthed extent of EVC's within Gunn Road and Railway Road. Other sections of the alignment have not been included due to the limited extent of native vegetation.

The extent of the project impacts is confined to the removal of 5²/m of native grasses associated with the Basalt Shrubby Woodland EVC_642. This impact occurs where 4 poles (139,142,143 &144) on Railway Road cannot be micro-sited. Notwithstanding that 3 small Blackwood trees at Pole 148 will require pruning only (Utility Trees 12019a), we have considered the pruning may require the removal of more than a third of the foliage and therefore considered them as removed. The Blackwood trees were deemed to be a patch of Basalt Shrubby Woodland EVC_642, notwithstanding there were no canopy trees present. This will entail the removal of approx. 9²/m. The combined total of 14²/m does not trigger the requirement for offsets in the Native Vegetation Information Management tool (refer to Attachment G).



0 250 500 m

Figure 3: Victorian Biodiversity Atlas Threatened Species Records



LEGEND

- Poles final
- ▲ VBA Records
- 2005 Individual EVC Attributes
- Basalt Shrubby Woodland



Drawn By: R. Gratton
 Date: 27/08/2019
 Drawing No: 00206-2

3.2.3 Scattered trees

The recording of scattered trees was considered not necessary as no scattered trees are to be impacted by the proposed works. A patch is defined by DELWP (2017) as:

- an area where 3 or more native canopy trees where the dripline of each tree touches the drip line of a least one other trees, forming a continuous canopy, or
- an area of vegetation where at least 25% of the total perennial understorey plant cover is native (refer to photographs in Tables 6~11).

Please note: No scattered trees are present within the proposed alignment. Two Western Australian trees of one species; Yate (*Eucalyptus cormuta*) are present adjacent to the proposed alignment on Railway Road. There are no implications under Policy 52.17 for these 2 trees. These 2 trees are to be retained for fauna habitat; however, pruning is to be undertaken to meet the line clearance requirements (Utility Trees, 2019a).

3.2.4 Fauna

A total of 19 species of fauna were recorded within the study area (refer to Table 5 below). This was confined to 17 native birds and two introduced birds. Note that the fauna assessment was based on incidental observations, no fauna trapping, or detailed bird surveys were undertaken.

Table 5: Fauna recorded during the site assessment

Common Name	Scientific Name
Australian Magpie	<i>Gymnorhina tibicen</i>
Australian Shelduck	<i>Tadorna tadornoides</i>
Black-shouldered Kite	<i>Elanus axillaris</i>
Brown Thornbill	<i>Acanthiza pusilla</i>
Common Starling *	<i>Sturnus vulgaris</i>
Crimson Rosella	<i>Platycercus elegans</i>
Eurasian Skylark *	<i>Alauda arvensis</i>
Galah	<i>Eolophus roseicapilla</i>
Grey Shrike-thrush	<i>Colluricincla harmonica</i>
Magpie-lark	<i>Grallina cyanoleuca</i>
Masked Lapwing	<i>Vanellus miles</i>
Raven sp	<i>Corvus sp</i>
Red Wattlebird	<i>Anthochaera carunculata</i>
Sulphur-crested Cockatoo	<i>Cacatua galerita</i>
Superb Fairy-wren	<i>Malurus cyaneus</i>
Wedge-tailed Eagle	<i>Aquila audax</i>
Welcome Swallow	<i>Hirundo neoxena</i>
White-plumed Honeyeater	<i>Ptilotula penicillata</i>

LEGEND: * = Introduced species

3.2.5 Fauna habitats

The study area is largely cleared of native vegetation. Areas with more extensive and connected fauna habitats occur on the intersection of Gunn and Railway Road and; the road and railway reserve on the western side of Railway Road. The largest tract of intact

vegetation is Wickham Park, also referred to as Woolsthorpe Nature Conservation Reserve. Except for the two planted Yate trees, there is a distinct lack of canopy trees along the alignment. The Yate trees have hollows suitable for hollow dependant fauna such as parrots, rosellas, lorikeets and microbats.

The shrub / ground layer is limited along most of the alignment. Gunns Rd and Railway Rd are best examples areas proving fauna habitat on the alignment.

3.2.6 Alignment Photographs

The following section provides a visual view of the proposed alignment and vegetation present.

Table 6: Alignment Photographs

Conns Lane- 1.7km. Overbuild including extra poles		
ID	Site Photograph	Comments
IMG_20190909_0610		<p>Start of alignment at the Koroit Sub-station at intersection of Conns Lane and Tower Hill Rd looking north.</p> <p>Option A</p> <p>Boring to be undertaken from sub-station to western side of Conns Lane to the northern side of Tower hill Rd</p> <p>No vegetation issues, roadside vegetation consisting of weeds e.g. annual veldt grass, phalaris, paspalum, kikuyu etc</p>
IMG_20190909_0609		<p>Boring to be undertaken to western side of Conns Lane to the northern side of Tower hill Rd</p> <p>No vegetation issues.</p>

<p>IMG_20190909_0611</p>		<p>Start of alignment at the Koroit Sub-station at intersection of Conns Lane and Tower Hill Rd looking north.</p> <p>Option B</p> <p>Boring to be undertaken from northern boundary of sub-station to western side of Conns Lane then northern side of Tower hill Rd</p> <p>No vegetation issues, roadside vegetation consisting of weeds.</p>
<p>IMG_20190808_174858</p>		<p>Approx. 280m from Tower Hill Rd looking south.</p> <p>No vegetation issues, roadside vegetation consisting of weeds.</p>
<p>IMG_20190808_174754</p>		<p>Approx. 920m from Mailors Flat - Koroit Rd looking south.</p> <p>No vegetation issues, roadside vegetation consisting of weeds.</p>

<p>IMG_20190808_174659</p>		<p>Approx. 920m from Mailors Flat - Koroit Rd looking south.</p> <p>No vegetation issues, roadside vegetation consisting of weeds.</p>
<p>IMG_20190808_174502</p>		<p>Approx. 290m from Mailors Flat - Koroit Rd looking south.</p> <p>No vegetation issues, roadside vegetation consisting of weeds.</p>
<p>IMG_20190808_174408</p>		<p>Intersection of Conns Ln and Mailors Flat - Koroit Rd looking south.</p> <p>No vegetation issues, roadside vegetation consisting of weeds.</p>

Table 7: Alignment Photographs

Mailors Flat-Koroit Rd- 4.0km. Overbuild including extra poles

ID	Site Photograph	Comments
IMG_20190808_174258		<p>Approx. 490m from Conns Ln looking east. No vegetation issues, roadside vegetation consisting of weeds.</p> <p>Planted exotic shrubs and trees (cypress pines) can be seen on property boundary on left of photograph.</p>
IMG_20190808_174134		<p>Approx. 825m from Conns Ln looking east. Powerline crosses to southern side for approx. 150m to avoid obstruction to hardstand area.</p> <p>No vegetation issues, roadside vegetation consisting of weeds.</p>
IMG_20190808_173928		<p>Approx. 1.8km from Conns Ln looking east. No vegetation issues, consisting of weeds; phalaris, kikuyu, sow thistle etc.</p>

<p>IMG_20190808_173800</p>		<p>Approx. 130m from Burrells Flat Rd looking east.</p> <p>No vegetation issues, slashed roadside vegetation consisting of weeds.</p>
<p>IMG_20190808_173600</p>		<p>Approx. 1km from Burrells Flat Rd looking east.</p> <p>No vegetation issues, roadside vegetation consisting of weeds.</p>
<p>IMG_20190808_173449</p>		<p>Approx. 170m from Officers Ln looking east.</p> <p>No vegetation issues, roadside vegetation consisting of weeds and driveway entrances.</p>

Table 8: Alignment Photographs

Officers Lane – 2.5km. Overbuild including extra poles		
ID	Site Photograph	Comments
IMG_20190808_173326		<p>Approx. 65m from Officers Ln and Mailors Flat-Koroit Rd intersection looking south.</p> <p>No vegetation issues, roadside vegetation consisting of weeds.</p>
IMG_20190808_173208		<p>Approx. 730m from Mailors Flat-Koroit Rd looking south.</p> <p>No vegetation issues, roadside vegetation consisting of weeds.</p>
IMG_20190808_173044		<p>Approx. 1.3km from d Mailors Flat-Koroit Rd looking south.</p> <p>No vegetation issues, roadside vegetation consisting of weeds.</p>

<p>IMG_20190808_172931</p>		<p>Approx. 1.8km from Mailors Flat-Koroit Rd looking south.</p> <p>No vegetation issues, roadside vegetation consisting of weed.</p> <p>Planted natives on adjoining property will not be impacted.</p>
<p>IMG_20190808_172755</p>		<p>Approx. 480m from McCormack St looking south.</p> <p>No vegetation issues, roadside vegetation consisting of weeds.</p>
<p>IMG_20190808_172641</p>		<p>Intersection of Officers Ln and McCormack St looking south.</p> <p>No vegetation issues, roadside vegetation consisting of weeds.</p>

Table 9: Alignment Photographs

McCormack Street- 1.5km. New installation of poles		
ID	Site Photograph	Comments
IMG_20190808_172300		<p>McCormack St looking west approx.440m from Officers Ln.</p> <p>No vegetation issues, roadside vegetation consisting of weeds.</p> <p>Black Wattle on fenceline will not be impacted.</p>
IMG_20190808_172144		<p>McCormack St looking west approx.915m from Officers Ln.</p> <p>No vegetation issues, roadside vegetation consisting of roadside weeds.</p>
IMG_20190808_172029		<p>McCormack St looking east approx. 230m from Koroit-Woolsthorpe Rd.</p> <p>Typical roadside weeds, prunus species and Blackwood and Black Wattle consistent with Basalt Shrubby Woodland EVC on northern side.</p> <p>Pole alignment is proposed for southern side, where the few wattles present are small.</p>

<p>IMG_20190808_171926</p>		<p>McCormack St looking east from intersection of McCormack St and Koroit-Woolsthorpe Rd.</p> <p>Proposed alignment crosses to northern side prior to Cypress Pines.</p> <p>Typical roadside weeds and prunus species present.</p>
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Table 10: Alignment Photographs

Depot Rd- 3.6km. Overbuild including extra poles to water treatment plant. Installation of new poles for remainder of Depot Rd.

ID	Site Photograph	Comments
<p>IMG_20190808_171323</p>		<p>Depot Rd looking south approx.330m from Koroit-Woolsthorpe Rd.</p> <p>No vegetation issues, roadside vegetation consisting of roadside weeds.</p>
<p>IMG_20190808_171134</p>		<p>Depot Rd looking south approx.330m from Koroit-Woolsthorpe Rd.</p> <p>No vegetation issues, roadside vegetation consisting of roadside weeds.</p>

<p>IMG_20190808_170750</p>		<p>Intersection of Kells Rd and Deport Rd looking south.</p> <p>No vegetation issues, roadside vegetation consisting of roadside weeds.</p>
<p>IMG_20190808_170619</p>		<p>Entrance to water treatment plant approx. 700m from Kells Rd looking south.</p> <p>No vegetation issues, roadside vegetation consisting of roadside weeds.</p> <p>Alignment to cross to western side of road to avoid planted natives on water treatment plant boundary.</p>
<p>IMG_20190808_170519</p>		<p>Approx. 170m from treatment plant entrance looking south</p> <p>No vegetation issues, vegetation consisting of typical roadside weeds.</p>

<p>IMG_20190808_170423</p>		<p>Approx. 170m from treatment plant entrance looking south</p> <p>Alignment crosses back to eastern side prior to Black Wattle seen on right of image.</p> <p>No vegetation issues, vegetation consisting of typical roadside weeds.</p>
<p>IMG_20190808_170239</p>		<p>Approx. 550m from treatment plant entrance looking south.</p> <p>Proposed alignment is on the eastern side (left) of road.</p> <p>The two wattles on the left of the image will not be impacted by the installation of poles.</p> <p>Roadside vegetation consisting of typical weeds.</p>
<p>IMG_20190808_170128</p>		<p>Approx. 320m from Gunns Rd looking south</p> <p>Scattered Blackwood's will not be impacted by pole installation.</p> <p>Vegetation consisting of typical roadside weeds.</p>

Table 11: Alignment Photographs

Gunns Road/ Railway Road- 4.5km. Installation of new poles		
ID	Site Photographs	Comments
IMG_20190808_165955		<p>Intersection of Gunns Rd and Depot Rd looking south on Depot Rd.</p> <p>Alignment crosses to western side of road to avoid planted eucalypts on adjoining private property.</p> <p>Scattered Blackwood's western side of road will not be impacted by pole installation.</p>
IMG_20190809_103056		<p>Southern side of Gunns Rd looking north at intersection of Gunns Rd, and Depot Rd.</p> <p>Vegetation modelled as Basalt Shrubby Woodland EVC_642 confirmed as present.</p> <p>EPBC listed Marron leek-orchid recorded on Gunns Rd believed to be within this patch.</p> <p>Pole relocated further east to avoid this patch.</p>
IMG_20190809_103313		<p>Southern side of Gunns Rd looking north-east at intersection of Gunns Rd, and Railway Rd.</p> <p>Relocated pole location approx.10m to the west of the patch of Basalt Shrubby Woodland EVC_642.</p> <p>Roadside vegetation consisting of weeds, dominated by phalaris.</p>

<p>IMG_20190809_103432</p>		<p>Eastern side of Railway Rd looking north from Gunns Rd.</p> <p>Alignment re-routed to eastern side to avoid Blackwood's and native ground flora consistent with Basalt Shrubby Woodland on western side.</p> <p>Vegetation dominated by phalaris with occasional kangaroo grass (native).</p> <p>Poles micro-sited to avoid kangaroo grass.</p>
<p>IMG_20190809_104455</p>		<p>Eastern side of Railway Rd looking north approx. 130m of Gunns Rd.</p> <p>Roadside vegetation consisting of roadside weeds, dominated by phalaris with occasional kangaroo grass (native).</p> <p>Poles micro-sited to avoid kangaroo grass.</p>
<p>IMG_20190809_104938</p>		<p>Eastern side of Railway Rd looking north approx. 380m of Gunns Rd.</p> <p>Roadside vegetation consisting of roadside weeds, dominated by phalaris with occasional kangaroo grass (native).</p> <p>Poles micro-sited to avoid kangaroo grass.</p>

<p>IMG_20190809_105127</p>		<p>Eastern side of Railway Rd looking north approx. 580m of Gunns Rd.</p> <p>Alignment crosses to western side.</p> <p>Roadside vegetation consisting of typical roadside weeds, dominated by phalaris with occasional kangaroo grass (native).</p> <p>Poles micro-sited to avoid kangaroo grass.</p>
<p>IMG_20190809_105404</p>		<p>Western side of Railway Rd looking north approx. 1km of Gunns Rd.</p> <p>Roadside vegetation consisting of typical roadside weeds, dominated by phalaris with patches of kangaroo grass (native).</p> <p>Poles micro-sited to avoid kangaroo grass.</p>
<p>IMG_20190809_105545</p>		<p>Western side of Railway Rd looking north approx. 670m of Gunns Rd.</p> <p>Roadside vegetation consisting of typical roadside weeds, dominated by phalaris with cypress pine on road reserve.</p>

<p>IMG_20190809_105855</p>		<p>Western side of Railway Rd looking north approx. 790m of Gunns Rd.</p> <p>Roadside vegetation dominated by native grasses e.g. tussock and kangaroo grass.</p> <p>Micro-site pole 8m to north if possible, to avoid removal of 0.125² metres of native grasses.</p>
<p>IMG_20190809_110915</p>		<p>Western side of Railway Rd looking north approx. 940m of Gunns Rd.</p> <p>Blackwood tree and spoon drain dominated by native grass e.g. tussock grass and, juncus sp where pole is located.</p> <p>No option for micro-siting pole resulting in the removal of 0.125² metres of native grasses.</p>
<p>IMG_20190809_111524</p>		<p>Western side of Railway Rd looking north approx. 1km of Gunns Rd.</p> <p>Blackwood tree and spoon drain dominated by native grass e.g. tussock grass and, juncus sp where pole is located.</p> <p>No option for micro-siting pole resulting in the removal of 0.125² metres of native grasses.</p>

<p>IMG_20190809_111642</p>		<p>Western side of Railway Rd looking north approx. 1.2km of Gunns Rd.</p> <p>Spoon drain dominated by native grasses e.g. kangaroo grass and tussock grass and where pole is located.</p> <p>No option for micro-siting pole resulting in the removal of 0.125² metres of native grasses.</p>
<p>IMG_20190809_112137</p>		<p>Western side of Railway Rd looking north approx. 1.32km of Gunns Rd.</p> <p>Roadside vegetation consisting of weeds and native grasses and bracken.</p> <p>Pole micro-sited to avoid native grasses.</p>
<p>IMG_20190809_112550</p>		<p>Western side of Railway Rd looking north approx. 1.4km of Gunns Rd.</p> <p>Roadside vegetation consisting of typical roadside weeds, dominated by phalaris, cocksfoot and kikuyu.</p>

<p>IMG_20190809_112907</p>		<p>Pole 148.</p> <p>Western side of Railway Rd looking north approx. 1.53km of Gunns Rd.</p> <p>Patch of Blackwood's with 3 requiring removal.</p>
<p>IMG_20190809_113338</p>		<p>Western side of Railway Rd looking north approx. 1.63km of Gunns Rd.</p> <p>Roadside vegetation dominated by weeds and some native grasses.</p> <p>Introduced WA eucalypt (Yate) can be seen in top left of image. There are no implications with pruning of this tree.</p> <p>Pole micro-sited to avoid native grasses and juncus.</p>
<p>IMG_20190902_111356</p>		<p>One of two introduced WA eucalypt (Yate) can be seen in top left of image. There are no implications with pruning of this tree.</p>

<p>IMG_20190809_113833</p>		<p>Alignment crosses to the eastern side of road.</p> <p>Eastern side of Railway Rd looking north approx. 1.7km of Gunns Rd.</p> <p>Blackwood tree not impacted by pole installation with roadside vegetation consisting of roadside weeds, dominated by phalaris.</p>
<p>IMG_20190809_114028</p>		<p>Eastern side of Railway Rd looking north approx. 1.8km of Gunns Rd</p> <p>Roadside vegetation consisting of roadside weeds, dominated by phalaris with occasional native tussock grass and juncus sp.</p> <p>Pole micro-sited to avoid native vegetation.</p>
<p>IMG_20190809_114516</p>		<p>Eastern side of Railway Rd looking north approx. 1.92km of Gunns Rd</p> <p>Roadside vegetation consisting of roadside weeds, dominated by phalaris with occasional native tussock grass and juncus sp.</p> <p>Pole micro-sited to avoid native vegetation.</p>

<p>IMG_20190809_114736</p>		<p>Eastern side of Railway Rd looking north approx. 2km of Gunns Rd</p> <p>Roadside vegetation consisting of roadside weeds, dominated by phalaris with occasional native tussock grass and juncus sp.</p> <p>Pole micro-sited to avoid native vegetation.</p>
<p>IMG_20190809_114914</p>		<p>Eastern side of Railway Rd looking north approx. 2.2km of Gunns Rd.</p> <p>Wattle not impacted by pole installation with vegetation consisting of roadside weeds, dominated by phalaris.</p>
<p>IMG_20190809_115255</p>		<p>Western side of Railway Rd looking north approx. 2.3km of Gunns Rd.</p> <p>Vegetation consisting of roadside weeds, dominated by phalaris.</p>

<p>IMG_20190809_115425</p>		<p>Eastern side of Railway Rd looking north approx. 2.45km of Gunns Rd.</p> <p>Vegetation consisting of roadside weeds, dominated by phalaris from the road shoulder to approx. 4m into reserve. Native grasses dominant thereafter.</p> <p>Pole location avoids bracken and native grasses.</p>
<p>IMG_20190809_115636</p>		<p>Eastern side of Railway Rd looking north approx. 2.54km of Gunns Rd.</p> <p>Vegetation consisting of roadside weeds, dominated by phalaris from the road shoulder to approx. 4m into reserve. Native grasses dominant thereafter.</p>
<p>IMG_20190809_115821</p>		<p>Alignment crosses to the eastern side of road.</p> <p>Eastern side of Railway Rd looking north approx. 2.64km of Gunns Rd.</p> <p>Blackwood not impacted by pole installation with vegetation consisting of roadside weeds, dominated by phalaris.</p>

<p>IMG_20190809_120004</p>		<p>Eastern side of Railway Rd looking north approx. 2.75km of Gunns Rd. Blackwood Creek crosses alignment.</p> <p>Vegetation consisting of roadside weeds, dominated by phalaris with occasional juncus and sedge.</p> <p>Pole micro-sited to avoid native vegetation.</p>
<p>IMG_20190809_120253</p>		<p>Eastern side of Railway Rd looking north approx. 2.95km of Gunns Rd.</p> <p>Vegetation consisting of roadside weeds, dominated by phalaris with occasional juncus and sedge.</p> <p>Pole micro-sited to avoid native vegetation.</p>
<p>IMG_20190809_120724</p>		<p>Eastern side of Railway Rd looking north approx. 3.2km of Gunns Rd.</p> <p>Vegetation consisting of roadside weeds, dominated by phalaris.</p>

<p>IMG_20190902_113654</p>		<p>Eastern side of Railway Rd looking north approx. 3.3km of Gunns Rd.</p> <p>Vegetation consisting of roadside weeds, dominated by phalaris.</p>
<p>IMG_20191114_101449</p>		<p>Location of Pole 165 on the eastern side of Railway Rd looking north approx. 3.5km of Gunns Rd.</p> <p>Vegetation consisting of Cyprus pines on property boundary and roadside weeds, dominated by phalaris and annual veldt grass.</p>
<p>IMG_20191114_110719</p>		<p>Location of Pole 166</p> <p>Vegetation consisting of roadside weeds, dominated by phalaris annual veldt grass.</p>
<p>IMG_20191114_111828</p>		<p>Location of Pole 167</p> <p>Vegetation consisting of roadside weeds, dominated by phalaris annual veldt grass.</p> <p>Pole micro-sited to avoid removal of native vegetation.</p>

<p>IMG_20191114_112019</p>		<p>Location of Pole 168 Vegetation consisting of roadside weeds, dominated by phalaris annual veldt grass.</p> <p>Pole micro-sited to avoid removal of native vegetation.</p>
<p>IMG_20191114_112306</p>		<p>Location of Pole 169</p> <p>Vegetation consisting of roadside weeds, dominated by Yorkshire fog and annual veldt grass.</p>
<p>IMG_20191114_112645</p>		<p>Location of Pole 170</p> <p>Vegetation consisting of roadside weeds, dominated by phalaris annual veldt grass.</p> <p>Pole micro-sited to avoid removal of native vegetation.</p>
<p>IMG_20191114_112958</p>		<p>Location of Pole 170</p> <p>Vegetation consisting of a number of small occasional of blackwood's and roadside weeds.</p> <p>Pole micro-sited to avoid removal of native vegetation.</p>

IMG_20191114_113514



Location of Poles
170~173

Vegetation consisting of
roadside weeds,
dominated by phalaris
annual veldt grass.

4 Relevant Policy and Legislation

The following section summarises the policy and legislation that is relevant to the Woolsthorpe Wind Farm Feeder Project.

4.1 Commonwealth

4.1.1 *Environment Protection and Biodiversity Conservation (EPBC) Act 1999*

One of the main aims of the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) is to provide for the conservation of biodiversity and the protection of the environment, those aspects are Matters of National Environmental Significance (MNES).

Amendments to the EPBC Act became law on 22 June 2013 to include water resources as a MNES in relation to coal seam gas and large coal mining development. Prior to this amendment there were 8 MNES. The current nine MNES are:

1. world heritage properties
2. national heritage places
3. wetlands of international importance (often called 'Ramsar' wetlands after the international treaty under the wetlands are listed)
4. nationally threatened species and ecological communities
5. migratory species
6. commonwealth marine areas
7. the Great Barrier Reef Marine Park
8. nuclear actions (including uranium mining)
9. a water resource, in relation to coal seam gas development and large coal mining development.

Under the Act, actions that are likely to have a significant impact upon MNES require approval from the Environment Minister to undertake those actions. An action includes any project, development, undertaking, activity or series of activities.

There are no implications for a significant impact to occur to MNES.

4.1.2 *Ramsar - The Convention on Wetlands of International Importance 1971*

The Convention on Wetlands is an intergovernmental treaty that provides the framework for national action and international cooperation for the conservation and appropriate use of wetlands and their resources. The Convention uses a broad definition of the types of wetlands covered in its mission, including swamps and marshes, lakes and rivers, wet grasslands and peat lands, oases, estuaries, deltas and tidal flats, near-shore marine areas, mangroves and coral reefs, and human-made sites such as fish ponds, rice paddies, reservoirs, and salt pans.

This is not relevant to the project.

4.2 State

4.2.1 Planning and Environment Act 1987

The *Planning and Environment Act 1997* established the framework for the use, development and protection of land in Victoria. The Act provides for the preparation of standard provisions for planning schemes which are administered by local government.

Permitted Clearing of Native Vegetation – Biodiversity Assessment Guidelines

In Victoria, a planning permit is usually required to remove, destroy or lop native vegetation. Landholders / managers must apply for a planning permit from their local council. If a permit is granted, a native vegetation offset must be obtained before the native vegetation is removed, to compensate for the impact of the removal on biodiversity.

The Guidelines for the removal, destruction or lopping of native vegetation (2017) are incorporated into the Victoria Planning Provisions and all planning schemes in Victoria. The Guidelines replace the previous incorporated document titled Permitted clearing of native vegetation – Biodiversity assessment guidelines (Department of Environment and Primary Industries, September 2013).

There are three assessment pathways for an application to remove native vegetation: Basic, Intermediate and Detailed. The assessment pathway reflects the potential impact the removal has on biodiversity. These pathways are determined by:

- amount of native vegetation (in hectares)
- whether any large trees are to be removed, and
- location of the native vegetation.

Extent of native vegetation	Location category		
	Location 1	Location 2	Location 3
Less than 0.5 hectares and not including any large trees	Basic	Intermediate	Detailed
Less than 0.5 hectares and including one or more large trees	Intermediate	Intermediate	Detailed
0.5 hectares or more	Detailed	Detailed	Detailed

Proponents can refer to the online-tool Native Vegetation Information Management to understand which risk-pathway the application will be assessed under. The biodiversity report produced by NVIM can be used as part of an application under a Basic and Intermediate risk pathway, whereas a site assessment by an accredited quality vegetation assessor is required as part of an application under the Detailed-risk pathway.

The extent of vegetation loss does not trigger an offset due to the limited amount of vegetation loss. Notwithstanding this, a planning permit may be required for the removal of approximately of 14²/m of native vegetation (refer to Attachment G).

4.2.2 *Flora and Fauna Guarantee Act 1988*

The Victorian *Flora and Fauna Guarantee Act 1988* (FFG Act) was established to provide a legal framework for enabling and promoting the conservation of all Victoria's native flora and fauna, and to enable management of potentially threatening processes. One of the main features of the Act is the listing process, whereby native species and communities of flora and fauna, and the processes that threaten native flora and fauna are listed in the schedules of the Act. This assists in identifying those species and communities that require management to survive, and identifies the processes that require management to minimise the threat to native flora and fauna species and communities within Victoria.

A permit from DELWP is required to 'take' listed flora species that are listed communities or protected flora from public land. A permit is not required under the FFG Act for private land, unless listed species are present, and the land is declared 'critical habitat' for the species.

Although there are two FFG Act species within the proximity to the alignment, it is not envisaged that the proposed works will impact directly or indirectly on these species due to the implementation of a flora and fauna management plan.

In the scenario it is considered an FFG listed species is to be impacted, a permit from DELWP would be required.

4.2.3 *Environment Effects Act 1978*

Under Victoria's Environmental Effects Act 1978 (EEA), projects that could have a 'significant effect' on Victoria's environment can potentially require an Environmental Effect Statement (EES). This Act applies to any public works 'reasonably considered to have or be capable of having a significant effect on the environment'. The Minister for Planning and Environment is the responsible person for assessing whether this Act applies.

Before commencing any public works to which this Act applies, the proponent must initiate an EES to be prepared and submit it to the Minister for the Minister's assessment of the environmental effects of the works.

The criteria for the types of potential effects on the environment that might be of significance and therefore warrant referral of a project include:

- potential clearing of 10 ha or more of native vegetation
- matters listed under the *Flora and Fauna Guarantee Act 1988*:
 - potential loss of a significant area of a listed ecological community; or
 - potential loss of a genetically important population of an endangered or threatened species (listed or nominated for listing), including as a result of loss or fragmentation of habitats; or
 - potential loss of critical habitat; or
 - potential significant effects on habitat values of a wetland supporting migratory bird species
- potential extensive or major effects on land stability, acid sulphate soils or highly erodible soils over the short or long term

- potential extensive or major effects on beneficial uses of waterbodies over the long term due to changes in water quality, stream flows or regional groundwater levels.

An EES is not required as there is not a 'trigger' of any referral criterion.

4.2.4 Catchment and Land Protection Act 1994

The *Catchment and Land Protection Act 1994* (CaLP Act) is the principle legislation relating to the management of pest plants and animals in Victoria. Under this Act, landowners have a responsibility to avoid causing or contributing to land degradation, including taking all reasonable steps to conserve soil, protect water resources, eradicate regionally prohibited weeds, prevent the growth and spread of regionally controlled weeds and where possible, eradicate established pest animals, as declared under the Act.

The requirements of the CaLP Act can be addressed in a Construction Environmental Management Plan (CEMP).

4.2.5 Wildlife Act 1975

The *Wildlife Act 1975* forms the procedural, administrative and operational basis for the protection and conservation of native wildlife within Victoria. This Act often sits as the default reference for other associated legislation and is the basis for Wildlife permits / licensing requirements within the state. In accordance with this Act, any wildlife located within vegetation proposed for clearing may require salvage and translocation. In the scenario an impact occurs, DELWP will require salvage and translocation management plans to be prepared.

It is not envisaged that any fauna will be impacted. Notwithstanding this, a flora and fauna plan will be developed for inclusion with the construction management plan to address the steps required if native fauna is encountered.

5 Conclusion & Mitigation Strategies

Most of the project area has limited significant biodiversity values with few EPBC Act, FFG Act listed species recorded adjacent to the alignment. Native vegetation patches are confined to the intersection of Depot Rd and Gunns Rd and, Railway Rd and the adjoining railway easement.

The extent of the project impacts is confined to the removal of approx. 4²/m of native grasses associated with the Basalt Shrubby Woodland EVC_642. This impact occurs where 4 poles (139,142,143 &144) on Railway Road cannot be micro-sited.

Three small Blackwood's (*Acacia melanoxyton*) considered to form the understorey component of Basalt Shrubby Woodland; EVC_642 may require removal if the Pole 148 cannot be micro-sited. In the scenario the 3 Blackwood's are removed, (refer to Table 11, Image; IMG_20190809_112907), the removal of native vegetation is based on the canopy cover estimated to be approx. 9²/m.

The Native vegetation report produced in the NVIM tool based on the above loss of native vegetation does not trigger the need for offsets (refer Attachment G), however a planning permit for native vegetation removal will be required.

Tip pruning of the remainder of native trees as detailed in the arborists report (Utility Trees, 2019a and 2019b) will not meet the threshold to trigger 52.17.

There has been an emphasis on ensuring that impacts are kept to their absolute minimum in respect to native vegetation and fauna habitat. This was achieved by undertaking the following tasks:

- Realigning sections of the route on the intersection of Depot Rd and Gunns Rd. Completed on the 8 August 2019.
- Realigning sections of the route on Railway Rd. Completed on the 8 August 2019.
- Discussions with relevant stakeholders. 2 September ~14 November 2019.
- Micro-sting of poles as per Table 11. Completed on 14 November 2019.
- Development of a flora and fauna management plan to be included with construction management plan. Scheduled to be completed prior to commencement of works.

Further to the above tasks, the following strategies are provided to mitigate environmental impacts during the proposed works.

5.1 Minimising damage to trees

To prevent detrimental impacts to street trees, the Australian Standard for protection of trees on development sites (AS4970-2009) (Standards Australia 2009) and the Australian Standard for pruning of amenity trees (AS4373-2007) should be followed during construction. Appropriate Tree Protection Zones (TPZs) should be set up around trees close to the proposed drilling for pole installation and laydown areas in consultation with the arborist (i.e. Utility Trees & site ecologist). The TPZ must be no less than 2m in radius around the tree to be protected.

Vegetation retention and protection

Construction areas should be clearly demarcated to avoid any inadvertent damage to areas identified as 'no-go' zones. Vegetation to be retained surrounding the construction areas should be clearly defined.

EVC patches have been identified in the maps provided in Appendix E.

To ensure that any vegetation in areas adjacent to the areas are not impacted during the proposed works, the following steps should be taken into consideration:

- Install temporary bunting indicating vegetation that is to be retained (no-go zones).
- Brief contractors regarding the protection of vegetation and the purpose for avoidance and minimisation.
- Attach temporary signage identifying areas as environmentally sensitive stating that access and other disturbances are prohibited adjacent to construction zones.
- Select the appropriate type and size of machine so that disturbance and impact to vegetation is minimised.

These recommendations should be included in a Construction Environmental Management Plan (CEMP), developed prior to construction taking place.

5.2 Weed and disease management

One of the most common forms of introduction is from mud containing weed seeds on vehicle tyres being deposited into disturbed areas. Without effective weed management, this can include a suite of new weeds that were not present prior to construction.

To ensure weeds and diseases are not brought onto work sites, or existing weeds and diseases (if they occur) are not spread to other sites, the following steps should be taken into consideration:

- All machinery and vehicles must be free of weed propagules and/or material carrying potential diseases prior to commencement of work.
- If possible, begin work in areas close to native vegetation and move to areas dominated by introduced species or ensure machinery is thoroughly cleaned between sites.
- Where possible, avoid working at times of prolific seed set of noxious weeds to avoid their spread by machinery. This is typically spring for most noxious weeds.

These recommendations should be included in a CEMP, prior to construction commencing.

5.3 Erosion prevention

Areas of exposed and destabilized soil may be created during the construction process. Erosion mitigation measures will need to be applied to prevent the movement of soil off the proposed construction area. This includes the wetlands, dams and drainage lines in the study area; sediment-laden run-off should be minimized in these areas. While vegetation provides the most effective form of erosion control, there may be the need for

interim measures. A wide variety of soil erosion techniques can be applied using a range of materials.

Throughout the study area, the principles below should be applied in order to avoid erosion. These include:

- Activities are undertaken during dry conditions.
- Limiting machinery and earthworks to construction areas only.
- Limiting the exposure of disturbed soil for the shortest possible time (e.g., do not clear an area prior to a weekend if rain is forecast).
- Diverting water away from exposed soil or loose material.
- Applying temporary silt trapping techniques, particularly near the dams.
- Retaining the natural drainage lines of the sites as much as possible.

These recommendations should be included in a CEMP, prior to construction taking place.

5.4 *Fauna monitoring during construction*

Terrestrial fauna could potentially occur within the proposed construction area and flee their roost, den and nests during construction activities, in areas where suitable habitat exist:

- Northern end of Depot Rd
- Gunns Road
- Railway Road and adjoining railway reserve.

Inductions should include relevant information about the ecological sensitivities of the site and appropriate management measures. The following guidelines should be followed to minimise harm to fauna during construction:

- Fauna needed to be relocated are to be moved to the nearest location outside of the construction zone to similar habitat from which they were found.

Recommendations should be included in the Flora and Fauna Management Plan and distributed to on-site staff prior to construction.

6 References and Bibliography

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Attachment A - Acronyms and Terminology

Acronym	Synonym
CS	Conservation Status
CaLP Act	<i>Catchment and Land Protection Act 1994</i>
CMA	Catchment Management Authority
DoEE	Department of Environment and Energy (formerly DEWPC)
DELWP	Department of Environment, Land, Water and Planning (formerly DEPI)
EEA	<i>Environmental Effects Act 1978</i>
EPA	Environment Protection Authority
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
ESO	Environmental Significance Overlay
EVC	Ecological Vegetation Class
FFG Act	<i>Flora and Fauna Guarantee Act 1988</i>
MNES	Matters of National Environmental Significance
VBA	Victorian Biodiversity Atlas
WONS	Weeds of National Significance

Term	Definition
Biodiversity	The variety of all life-forms, the different plants, animals and micro-organisms, the genes they contain, and the ecosystems of which they form a part.
Bioregion	A landscape-scale approach to classifying the environment using a range of attributes such as climate, geomorphology, geology, soils and vegetation. There are 28 bioregions identified within Victoria.
Bioregional Conservation Status	An assessment of the conservation status of the native vegetation type (EVC) in the context of a particular bioregion, taking account of how commonly it originally occurred, the current level of depletion and the level of degradation of condition typical of remaining stands.
Canopy tree	A mature tree (i.e. it is able to flower) that is greater than 3 metres in height and is normally found in the upper layer of the relevant vegetation type.
Ecological Vegetation Class	A type of native vegetation classification that is described through a combination of its floristics, life form and ecological characteristics, and through an inferred fidelity to particular environment attributes. Each EVC includes a collection of floristic communities that occurs across a biogeographic range, and although differing in species, have similar habitat and ecological processes operating.
Exotic Vegetation	Any vegetation that is not native to Australia or its States and Territories. This can sometimes include non-indigenous vegetation.
High Threat Weed	Introduced species (including non-indigenous 'natives') with the ability to out-compete and substantially reduce one or more indigenous life forms in the longer term assuming on-going current site characteristics and disturbance regime.
Indigenous Vegetation	Indigenous vegetation includes vegetation that is native to Australia as well as being native to a specific geographic region.
Large tree	A native canopy tree with a Diameter at Breast Height (DBH) greater than or equal to the large tree benchmark for the relevant bioregional EVC. A large tree can be either a large scattered tree or a large tree contained within a patch.
Native Vegetation	Native vegetation includes all vegetation that is native to Australia, and its States and Territories.
Non-indigenous Vegetation	Vegetation that is native to Australia, but not to the geographic region to which a site is located.
Native Vegetation Offset	A native vegetation offset is any works of other actions to make reparation for the loss of native vegetation arising from the removal of native vegetation. This may include an area of existing remnant vegetation that is protected and

Term	Definition
	managed, an area that is revegetated and protected, an area that is set aside for regeneration or restoration, or any combination of these. The relative size of an offset is graded according to its conservation significance.
Remnant Patch	<p>Patch – A patch of native vegetation is:</p> <ul style="list-style-type: none"> • an area of vegetation where at least 25 per cent of the total perennial understorey plant cover is native, or • any area with three or more native canopy trees where the drip line of each tree touches the drip line of at least one other tree, forming a continuous canopy, or • any mapped wetland included in the Current wetlands map, available in DELWP systems and tools.
Scattered Tree	A native canopy tree that does not form part of a patch.

Attachment B- Protected Matters Search Tool



EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

Information is available about [Environment Assessments](#) and the EPBC Act including significance guidelines, forms and application process details.

Report created: 14/10/18 22:46:07

[Summary](#)

[Details](#)

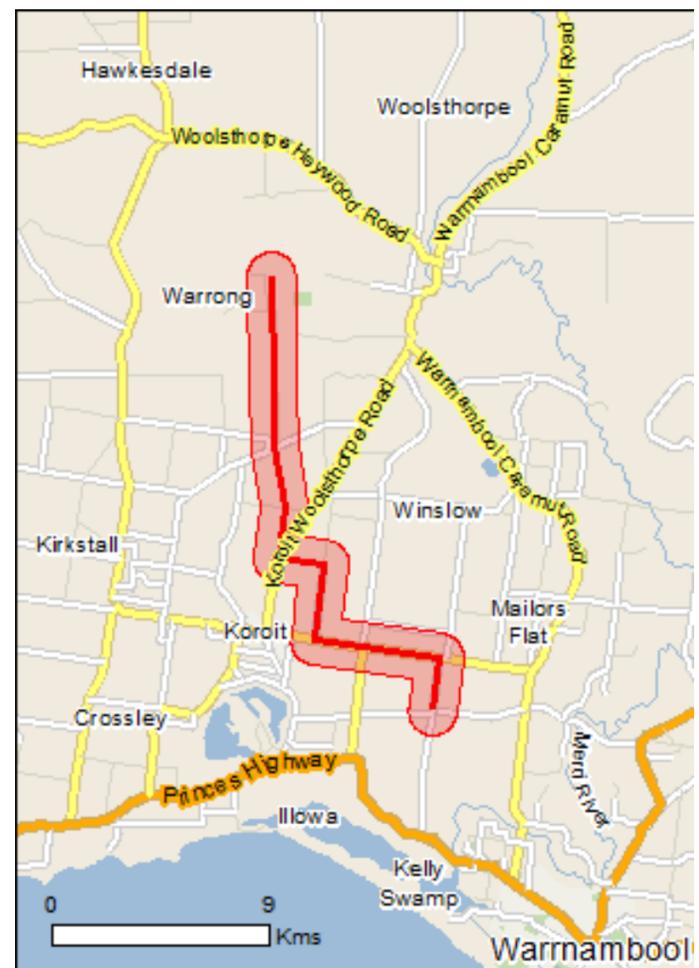
[Matters of NES](#)

[Other Matters Protected by the EPBC Act](#)

[Extra Information](#)

[Caveat](#)

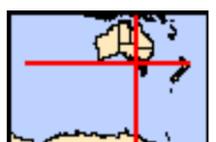
[Acknowledgements](#)



This map may contain data which are ©Commonwealth of Australia (Geoscience Australia), ©PSMA 2010

[Coordinates](#)

Buffer: 1.0Km



Summary

Matters of National Environmental Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the [Administrative Guidelines on Significance](#).

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance:	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	2
Listed Threatened Species:	28
Listed Migratory Species:	14

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at <http://www.environment.gov.au/heritage>

A [permit](#) may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Land:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	23
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have nominated.

State and Territory Reserves:	1
Regional Forest Agreements:	1
Invasive Species:	28
Nationally Important Wetlands:	None
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Listed Threatened Ecological Communities

[[Resource Information](#)]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Name	Status	Type of Presence
Grassy Eucalypt Woodland of the Victorian Volcanic Plain	Critically Endangered	Community known to occur within area
Natural Temperate Grassland of the Victorian Volcanic Plain	Critically Endangered	Community likely to occur within area

Listed Threatened Species

[[Resource Information](#)]

Name	Status	Type of Presence
Birds		
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat known to occur within area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat may occur within area
Neophema chrysogaster Orange-bellied Parrot [747]	Critically Endangered	Species or species habitat likely to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Pedionomus torquatus Plains-wanderer [906]	Critically Endangered	Species or species habitat likely to occur within area
Rostratula australis Australian Painted-snipe, Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area
Crustaceans		
Euastacus bispinosus Glenelg Spiny Freshwater Crayfish, Pricklyback [81552]	Endangered	Species or species habitat may occur within area
Fish		
Galaxiella pusilla Eastern Dwarf Galaxias, Dwarf Galaxias [56790]	Vulnerable	Species or species

Name	Status	Type of Presence
Prototroctes maraena Australian Grayling [26179]	Vulnerable	habitat likely to occur within area Species or species habitat may occur within area
Frogs		
Litoria raniformis Growling Grass Frog, Southern Bell Frog, Green and Golden Frog, Warty Swamp Frog [1828]	Vulnerable	Species or species habitat known to occur within area
Insects		
Synemon plana Golden Sun Moth [25234]	Critically Endangered	Species or species habitat may occur within area
Mammals		
Antechinus minimus maritimus Swamp Antechinus (mainland) [83086]	Vulnerable	Species or species habitat likely to occur within area
Dasyurus maculatus maculatus (SE mainland population) Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat may occur within area
Isoodon obesulus obesulus Southern Brown Bandicoot (eastern), Southern Brown Bandicoot (south-eastern) [68050]	Endangered	Species or species habitat likely to occur within area
Miniopterus orianae bassanii Southern Bent-wing Bat [87645]	Critically Endangered	Species or species habitat likely to occur within area
Potorous tridactylus tridactylus Long-nosed Potoroo (SE mainland) [66645]	Vulnerable	Species or species habitat likely to occur within area
Pteropus poliocephalus Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Plants		
Amphibromus fluitans River Swamp Wallaby-grass, Floating Swamp Wallaby-grass [19215]	Vulnerable	Species or species habitat may occur within area
Glycine latrobeana Clover Glycine, Purple Clover [13910]	Vulnerable	Species or species habitat likely to occur within area
Prasophyllum frenchii Maroon Leek-orchid, Slaty Leek-orchid, Stout Leek-orchid, French's Leek-orchid, Swamp Leek-orchid [9704]	Endangered	Species or species habitat likely to occur within area
Pterostylis chlorogramma Green-striped Greenhood [56510]	Vulnerable	Species or species habitat likely to occur within area
Pterostylis cucullata Leafy Greenhood [15459]	Vulnerable	Species or species habitat may occur within area
Taraxacum cygnorum Coast Dandelion [2508]	Vulnerable	Species or species habitat likely to occur within area
Thelymitra epipactoides Metallic Sun-orchid [11896]	Endangered	Species or species habitat may occur within area
Xerochrysum palustre Swamp Everlasting, Swamp Paper Daisy [76215]	Vulnerable	Species or species habitat likely to occur

Name	Status	Type of Presence within area
Reptiles		
Delma impar Striped Legless Lizard [1649]	Vulnerable	Species or species habitat may occur within area
Listed Migratory Species		
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
[Resource Information]		
Name	Threatened	Type of Presence
Migratory Marine Birds		
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Migratory Terrestrial Species		
Hirundapus caudacutus White-throated Needletail [682]		Species or species habitat likely to occur within area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Breeding known to occur within area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat likely to occur within area
Migratory Wetlands Species		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Pandion haliaetus Osprey [952]		Species or species habitat may occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area

Other Matters Protected by the EPBC Act

Listed Marine Species [[Resource Information](#)]

* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
Birds		
Actitis hypoleucos		
Common Sandpiper [59309]		Species or species habitat may occur within area
Anseranas semipalmata		
Magpie Goose [978]		Species or species habitat may occur within area
Apus pacificus		
Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea alba		
Great Egret, White Egret [59541]		Species or species habitat likely to occur within area
Ardea ibis		
Cattle Egret [59542]		Species or species habitat may occur within area
Calidris acuminata		
Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
Calidris canutus		
Red Knot, Knot [855]	Endangered	Species or species habitat may occur within area
Calidris ferruginea		
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos		
Pectoral Sandpiper [858]		Species or species habitat may occur within area
Chrysococcyx osculans		
Black-eared Cuckoo [705]		Species or species habitat likely to occur within area
Gallinago hardwickii		
Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
Haliaeetus leucogaster		
White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area
Hirundapus caudacutus		
White-throated Needletail [682]		Species or species habitat likely to occur within area
Lathamus discolor		
Swift Parrot [744]	Critically Endangered	Species or species habitat may occur within area
Merops ornatus		
Rainbow Bee-eater [670]		Species or species habitat may occur within area
Motacilla flava		
Yellow Wagtail [644]		Species or species habitat may occur within

Name	Threatened	Type of Presence area
Myiagra cyanoleuca Satin Flycatcher [612]		Breeding known to occur within area
Neophema chrysogaster Orange-bellied Parrot [747]	Critically Endangered	Species or species habitat likely to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Pandion haliaetus Osprey [952]		Species or species habitat may occur within area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat likely to occur within area
Rostratula benghalensis (sensu lato) Painted Snipe [889]	Endangered*	Species or species habitat may occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area

Extra Information

State and Territory Reserves [\[Resource Information \]](#)

Name	State
Woolsthorpe N.C.R.	VIC

Regional Forest Agreements [\[Resource Information \]](#)

Note that all areas with completed RFAs have been included.

Name	State
West Victoria RFA	Victoria

Invasive Species [\[Resource Information \]](#)

Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resources Audit, 2001.

Name	Status	Type of Presence
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Birds

Acridotheres tristis Common Myna, Indian Myna [387]		Species or species habitat likely to occur within area
Alauda arvensis Skylark [656]		Species or species habitat likely to occur within area
Anas platyrhynchos Mallard [974]		Species or species habitat likely to occur within area
Carduelis carduelis European Goldfinch [403]		Species or species

Name	Status	Type of Presence
Carduelis chloris European Greenfinch [404]		habitat likely to occur within area Species or species habitat likely to occur within area
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Passer domesticus House Sparrow [405]		Species or species habitat likely to occur within area
Streptopelia chinensis Spotted Turtle-Dove [780]		Species or species habitat likely to occur within area
Sturnus vulgaris Common Starling [389]		Species or species habitat likely to occur within area
Turdus merula Common Blackbird, Eurasian Blackbird [596]		Species or species habitat likely to occur within area
Mammals		
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Lepus capensis Brown Hare [127]		Species or species habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Rattus norvegicus Brown Rat, Norway Rat [83]		Species or species habitat likely to occur within area
Rattus rattus Black Rat, Ship Rat [84]		Species or species habitat likely to occur within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur within area
Plants		
Asparagus asparagoides Bridal Creeper, Bridal Veil Creeper, Smilax, Florist's Smilax, Smilax Asparagus [22473]		Species or species habitat likely to occur within area
Cenchrus ciliaris Buffel-grass, Black Buffel-grass [20213]		Species or species habitat may occur within area
Chrysanthemoides monilifera Bitou Bush, Boneseed [18983]		Species or species habitat may occur within area

Name	Status	Type of Presence
Chrysanthemoides monilifera subsp. monilifera Boneseed [16905]		Species or species habitat likely to occur within area
Genista monspessulana Montpellier Broom, Cape Broom, Canary Broom, Common Broom, French Broom, Soft Broom [20126]		Species or species habitat likely to occur within area
Lycium ferocissimum African Boxthorn, Boxthorn [19235]		Species or species habitat likely to occur within area
Nassella neesiana Chilean Needle grass [67699]		Species or species habitat likely to occur within area
Rubus fruticosus aggregate Blackberry, European Blackberry [68406]		Species or species habitat likely to occur within area
Salix spp. except S.babylonica, S.x calodendron & S.x reichardtii Willows except Weeping Willow, Pussy Willow and Sterile Pussy Willow [68497]		Species or species habitat likely to occur within area
Ulex europaeus Gorse, Furze [7693]		Species or species habitat likely to occur within area

Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World and National Heritage properties, Wetlands of International and National Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species distributions have been derived through a variety of methods. Where distributions are well known and if time permits, maps are derived using either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc) together with point locations and described habitat; or environmental modelling (MAXENT or BIOCLIM habitat modelling) using point locations and environmental data layers.

Where very little information is available for species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc). In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More reliable distribution mapping methods are used to update these distributions as time permits.

Only selected species covered by the following provisions of the EPBC Act have been mapped:

- migratory and
- marine

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers

The following groups have been mapped, but may not cover the complete distribution of the species:

- non-threatened seabirds which have only been mapped for recorded breeding sites
- seals which have only been mapped for breeding sites near the Australian continent

Such breeding sites may be important for the protection of the Commonwealth Marine environment.

Coordinates

-38.189065 142.369383,-38.221372 142.369898,-38.237958 142.37067,-38.255888 142.374275,-38.270243 142.3717,-38.272197 142.389124,-38.294093 142.385519,-38.299078 142.43161,-38.314434 142.429121

Acknowledgements

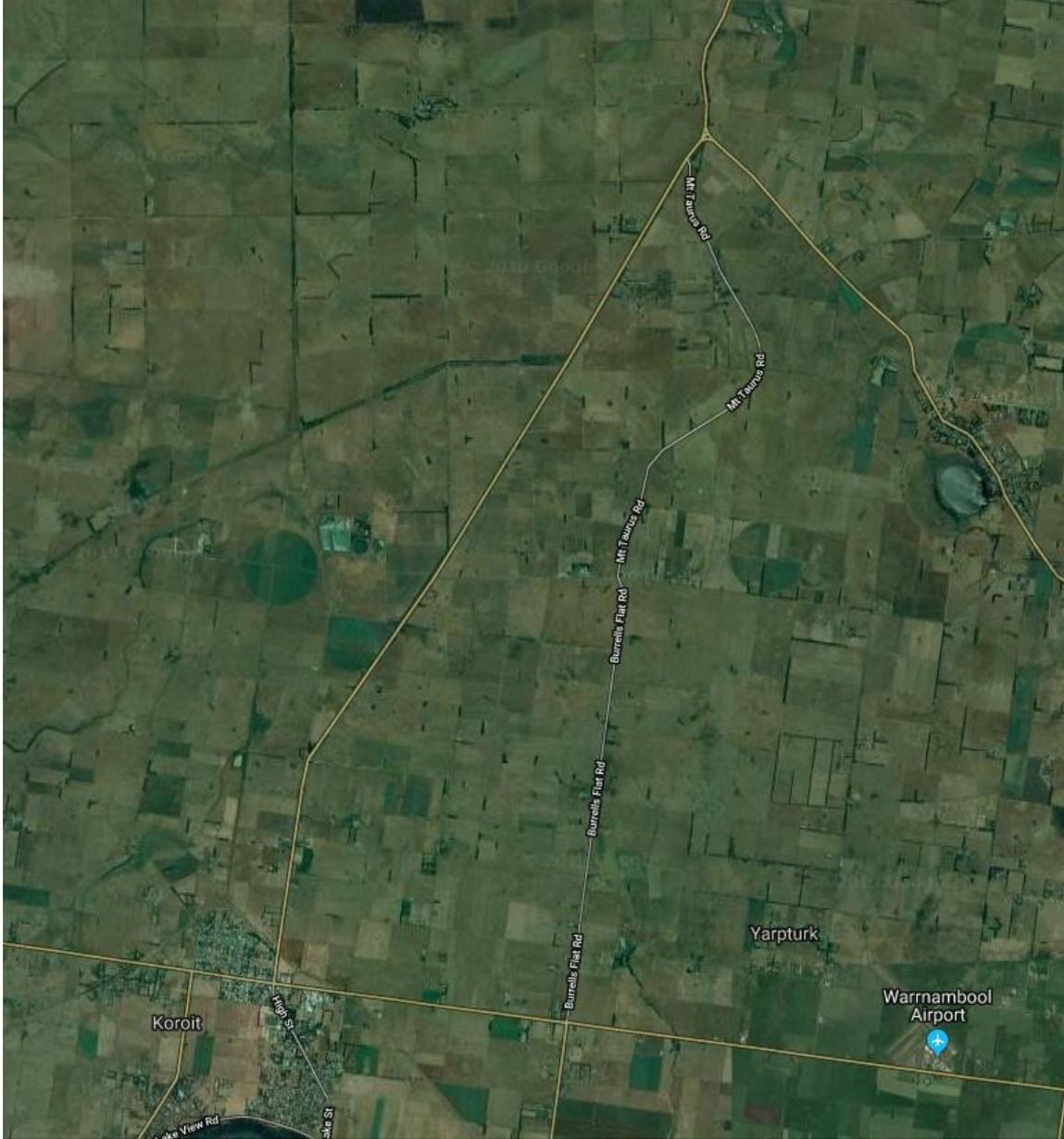
This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

- [-Office of Environment and Heritage, New South Wales](#)
- [-Department of Environment and Primary Industries, Victoria](#)
- [-Department of Primary Industries, Parks, Water and Environment, Tasmania](#)
- [-Department of Environment, Water and Natural Resources, South Australia](#)
- [-Department of Land and Resource Management, Northern Territory](#)
- [-Department of Environmental and Heritage Protection, Queensland](#)
- [-Department of Parks and Wildlife, Western Australia](#)
- [-Environment and Planning Directorate, ACT](#)
- [-Birdlife Australia](#)
- [-Australian Bird and Bat Banding Scheme](#)
- [-Australian National Wildlife Collection](#)
- [-Natural history museums of Australia](#)
- [-Museum Victoria](#)
- [-Australian Museum](#)
- [-South Australian Museum](#)
- [-Queensland Museum](#)
- [-Online Zoological Collections of Australian Museums](#)
- [-Queensland Herbarium](#)
- [-National Herbarium of NSW](#)
- [-Royal Botanic Gardens and National Herbarium of Victoria](#)
- [-Tasmanian Herbarium](#)
- [-State Herbarium of South Australia](#)
- [-Northern Territory Herbarium](#)
- [-Western Australian Herbarium](#)
- [-Australian National Herbarium, Canberra](#)
- [-University of New England](#)
- [-Ocean Biogeographic Information System](#)
- [-Australian Government, Department of Defence Forestry Corporation, NSW](#)
- [-Geoscience Australia](#)
- [-CSIRO](#)
- [-Australian Tropical Herbarium, Cairns](#)
- [-eBird Australia](#)
- [-Australian Government – Australian Antarctic Data Centre](#)
- [-Museum and Art Gallery of the Northern Territory](#)
- [-Australian Government National Environmental Science Program](#)
- [-Australian Institute of Marine Science](#)
- [-Reef Life Survey Australia](#)
- [-American Museum of Natural History](#)
- [-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania](#)
- [-Tasmanian Museum and Art Gallery, Hobart, Tasmania](#)
- [-Other groups and individuals](#)

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the [Contact Us](#) page.

Attachment C - Birdata Records



Birdata Report Area

Birdata Records

Common Name	Scientific Name	Count	Reporting Rate
Australasian Gannet	<i>Morus serrator</i>	2	18.18%
Australasian Pipit	<i>Anthus novaeseelandiae</i>	1	9.09%
Australasian Shoveler	<i>Spatula rhynchotis</i>	1	9.09%
Australian Hobby	<i>Falco longipennis</i>	1	9.09%
Australian Magpie	<i>Gymnorhina tibicen</i>	3	27.27%
Australian Pelican	<i>Pelecanus conspicillatus</i>	3	27.27%
Australian Pied Oystercatcher	<i>Haematopus longirostris</i>	3	27.27%
Australian Shelduck	<i>Tadorna tadornoides</i>	1	9.09%
Australian White Ibis	<i>Threskiornis moluccus</i>	2	18.18%
Black Swan	<i>Cygnus atratus</i>	6	54.55%
Black-faced Cormorant	<i>Phalacrocorax fuscescens</i>	1	9.09%
Black-fronted Dotterel	<i>Elseyornis melanops</i>	1	9.09%
Black-winged Stilt	<i>Himantopus leucocephalus</i>	1	9.09%
Brown Falcon	<i>Falco berigora</i>	2	18.18%
Brown Goshawk	<i>Accipiter fasciatus</i>	1	9.09%
Brown Thornbill	<i>Acanthiza pusilla</i>	1	9.09%
Caspian Tern	<i>Hydroprogne caspia</i>	2	18.18%
Cattle Egret	<i>Bubulcus ibis</i>	2	18.18%
Chestnut Teal	<i>Anas castanea</i>	1	9.09%
Common Blackbird	<i>Turdus merula</i>	1	9.09%
Common Greenfinch	<i>Chloris chloris</i>	2	18.18%
Common Starling	<i>Sturnus vulgaris</i>	2	18.18%
Crimson Rosella	<i>Platycercus elegans</i>	1	9.09%
Double-banded Plover	<i>Charadrius bicinctus</i>	2	18.18%
Dusky Moorhen	<i>Gallinula tenebrosa</i>	1	9.09%
Eurasian Coot	<i>Fulica atra</i>	1	9.09%
Eurasian Skylark	<i>Alauda arvensis</i>	1	9.09%
European Goldfinch	<i>Carduelis carduelis</i>	2	18.18%
Golden-headed Cisticola	<i>Cisticola exilis</i>	2	18.18%
Great Cormorant	<i>Phalacrocorax carbo</i>	6	54.55%
Great Egret	<i>Ardea alba</i>	2	18.18%
Grey Shrike-thrush	<i>Colluricincla harmonica</i>	1	9.09%
Grey Teal	<i>Anas gracilis</i>	1	9.09%

Hardhead	<i>Aythya australis</i>	1	9.09%
Hoary-headed Grebe	<i>Poliiocephalus poliocephalus</i>	4	36.36%
Hooded Plover	<i>Thinornis cucullatus</i>	3	27.27%
House Sparrow	<i>Passer domesticus</i>	2	18.18%
Kelp Gull	<i>Larus dominicanus</i>	1	9.09%
Little Black Cormorant	<i>Phalacrocorax sulcirostris</i>	3	27.27%
Little Egret	<i>Egretta garzetta</i>	1	9.09%
Little Grassbird	<i>Poodytes gramineus</i>	1	9.09%
Little Pied Cormorant	<i>Microcarbo melanoleucos</i>	3	27.27%
Little Raven	<i>Corvus mellori</i>	3	27.27%
Magpie-lark	<i>Grallina cyanoleuca</i>	1	9.09%
Masked Lapwing	<i>Vanellus miles</i>	5	45.45%
Musk Duck	<i>Biziura lobata</i>	2	18.18%
Nankeen Kestrel	<i>Falco cenchroides</i>	3	27.27%
New Holland Honeyeater	<i>Phylidonyris novaehollandiae</i>	1	9.09%
Pacific Black Duck	<i>Anas superciliosa</i>	4	36.36%
Pied Cormorant	<i>Phalacrocorax varius</i>	1	9.09%
Purple Swamphen	<i>Porphyrio porphyrio</i>	3	27.27%
Red-browed Finch	<i>Neochmia temporalis</i>	1	9.09%
Red-capped Plover	<i>Charadrius ruficapillus</i>	5	45.45%
Red-kneed Dotterel	<i>Erythronyis cinctus</i>	1	9.09%
Red-necked Stint	<i>Calidris ruficollis</i>	1	9.09%
Ruddy Turnstone	<i>Arenaria interpres</i>	2	18.18%
Silver Gull	<i>Chroicocephalus novaehollandiae</i>	4	36.36%
Singing Honeyeater	<i>Gavicalis virescens</i>	1	9.09%
Sooty Oystercatcher	<i>Haematopus fuliginosus</i>	2	18.18%
Spotless Crake	<i>Zapornia tabuensis</i>	1	9.09%
Straw-necked Ibis	<i>Threskiornis spinicollis</i>	1	9.09%
Striated Fieldwren	<i>Calamanthus fuliginosus</i>	2	18.18%
Superb Fairy-wren	<i>Malurus cyaneus</i>	1	9.09%
Swamp Harrier	<i>Circus approximans</i>	4	36.36%
Welcome Swallow	<i>Hirundo neoxena</i>	2	18.18%
Whiskered Tern	<i>Chlidonias hybrida</i>	1	9.09%
White-browed Scrubwren	<i>Sericornis frontalis</i>	1	9.09%
White-faced Heron	<i>Egretta novaehollandiae</i>	3	27.27%
White-fronted Chat	<i>Epthianura albifrons</i>	6	54.55%

Willie Wagtail	<i>Rhipidura leucophrys</i>	1	9.09%
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Reporting rate is based on the percentage of surveys a species was recorded.

Attachment D- Atlas of Living Australia Records

Origin	Scientific Name	Common name	Status	Event Date
	MAMMALS		EPBC / FFG	
	<i>Antechinus agilis</i>	Agile Antechinus		25/10/2015
*	<i>Rattus rattus</i>	Black Rat		10/02/2016
	<i>Chalinolobus morio</i>	Chocolate Wattled Bat		6/02/2007
	<i>Trichosurus vulpecula</i>	Common Brushtail Possum		18/03/2015
	<i>Pseudocheirus peregrinus</i>	Common Ringtail Possum		12/03/2015
	<i>Falsistrellus tasmaniensis</i>	Eastern False Pipistrelle		6/02/2007
*	<i>Lepus europeus</i>	European Hare		12/02/2003
*	<i>Oryctolagus cuniculus</i>	European Rabbit		12/02/2003
	<i>Mormopterus sp2/4</i>	Free-tailed Bats		6/02/2007
	<i>Chalinolobus gouldii</i>	Gould's Wattled Bat		6/02/2007
	<i>Vespadelus darlingtoni</i>	Large Forest Bat		6/02/2007
	<i>Nyctophilus geoffroyi</i>	Lesser Long-eared Bat		6/02/2007
	<i>Vespadelus vulturnus</i>	Little Forest Bat		6/02/2007
	<i>Macropus rufogriseus</i>	Red-necked Wallaby		23/11/2015
	<i>Tachyglossus aculeatus</i>	Short-beaked echidna		25/09/2015
*	<i>Mus musculus</i>	House Mouse		1/01/1982
	<i>Phascolarctos cinereus</i>	Koala		23/10/2016
*	<i>Vulpes vulpes</i>	Red Fox		25/06/2003
	<i>Vespadelus regulus</i>	Southern Forest Bat		6/02/2007
	<i>Rattus lutreolus</i>	Swamp Rat		25/06/2003
	<i>Wallabia bicolor</i>	Swamp Wallaby		20/10/2015
	<i>Sminthopsis leucopus #</i>	White-footed Dunnart	- / L	23/09/2015
	BIRDS			
	<i>Tachybaptus novaehollandiae</i>	Australasian Grebe		
	<i>Anthus novaeseelandiae</i>	Australasian Pipit		
	<i>Anas rhynchos</i>	Australasian Shoveler		
	<i>Falco longipennis</i>	Australian Hobby		
	<i>Ixobrychus dubius</i>	Australian Little Bittern		
	<i>Cracticus tibicen</i>	Australian Magpie		17/10/1979
	<i>Corvus coronoides</i>	Australian Raven		
	<i>Acrocephalus australis</i>	Australian Reed-Warbler		
	<i>Tadorna tadornoides</i>	Australian Shelduck		
	<i>Porzana fluminea</i>	Australian Spotted Crake		
	<i>Threskiornis molucca</i>	Australian White Ibis		
	<i>Chenonetta jubata</i>	Australian Wood Duck		
	<i>Ceyx azureus</i>	Azure Kingfisher		
	<i>Porzana pusilla</i>	Baillon's Crake		
	<i>Falco subniger</i>	Black Falcon		
	<i>Cygnus atratus</i>	Black Swan		
	<i>Coracina novaehollandiae</i>	Black-faced Cuckoo-shrike		
	<i>Elanus axillaris</i>	Black-shouldered Kite		

	<i>Tribonyx ventralis</i>	Black-tailed Native-hen		24/09/2003
	<i>Oxyura australis</i>	Blue-billed Duck	- / L	
	<i>Neophema chrysostoma</i>	Blue-winged Parrot		
	<i>Falco (Ieracidea) berigora</i>	Brown Falcon		17/08/2016
	<i>Accipiter fasciatus</i>	Brown Goshawk		
	<i>Coturnix ypsilophora</i>	Brown Quail		
	<i>Acanthiza pusilla</i>	Brown Thornbill		
	<i>Melithreptus brevirostris</i>	Brown-headed Honeyeater		
	<i>Phaps elegans</i>	Brush Bronzewing		
	<i>Gallirallus philippensis</i>	Buff-banded Rail		
	<i>Acanthiza reguloides</i>	Buff-rumped Thornbill		
	<i>Cereopsis novaehollandiae</i>	Cape Barren Goose		
	<i>Ardea ibis</i>	Cattle Egret		
	<i>Anas castanea</i>	Chestnut Teal		
	<i>Accipiter cirrocephalus</i>	Collared Sparrowhawk		
	<i>Turdus merula</i>	Common Blackbird		
	<i>Chloris chloris</i>	Common Greenfinch		
	<i>Tringa nebularia</i>	Common Greenshank		
*	<i>Sturnus vulgaris</i>	Common Starling		
	<i>Phylidonyris pyrrhopterus</i>	Crescent Honeyeater		
	<i>Ocyphaps lophotes</i>	Crested Pigeon		26/07/2018
	<i>Platycercus elegans</i>	Crimson Rosella		
	<i>Geopelia cuneata</i>	Diamond Dove		
	<i>Eurystomus orientalis</i>	Dollarbird		
	<i>Gallinula tenebrosa</i>	Dusky Moorhen		
	<i>Tyto javanica</i>	Eastern Barn Owl		
	<i>Ardea modesta</i>	Eastern Great Egret	- / L	
	<i>Platycercus eximius</i>	Eastern Rosella		
	<i>Acanthorhynchus tenuirostris</i>	Eastern Spinebill		
	<i>Dromaius novaehollandiae</i>	Emu		
	<i>Fulica atra</i>	Eurasian Coot		
*	<i>Alauda arvensis</i>	Eurasian Skylark		
*	<i>Carduelis carduelis</i>	European Goldfinch		
*	<i>Alauda arvensis</i>	European Skylark		30/10/1999
	<i>Petrochelidon ariel</i>	Fairy Martin		
	<i>Cacomantis flabelliformis</i>	Fan-tailed Cuckoo		
	<i>Petroica phoenicea</i>	Flame Robin		
	<i>Stictonetta naevosa</i>	Freckled Duck	- / L	
	<i>Eolophus roseicapillus</i>	Galah		
	<i>Callocephalon fimbriatum</i>	Gang-gang Cockatoo		
	<i>Plegadis falcinellus</i>	Glossy Ibis		
	<i>Pachycephala pectoralis</i>	Golden Whistler		
	<i>Cisticola exilis</i>	Golden-headed Cisticola		
	<i>Podiceps cristatus</i>	Great Crested Grebe		

	<i>Strepera versicolor</i>	Grey Currawong		
	<i>Rhipidura albiscapa</i>	Grey Fantail		
	<i>Accipiter novaehollandiae</i>	Grey Goshawk		
	<i>Colluricincla harmonica</i>	Grey Shrike-thrush		
	<i>Anas gracilis</i>	Grey Teal		
	<i>Aythya australis</i>	Hardhead		
	<i>Thinornis rubricollis</i>	Hooded Plover	- / L	
	<i>Chalcites basalus</i>	Horsfield's Bronze-Cuckoo		
	<i>Mirafra javanica</i>	Horsfields Bushlark		17/11/2000
*	<i>Passer domesticus</i>	House Sparrow		
	<i>Microeca fascians</i>	Jacky Winter		
	<i>Gallinago hardwickii</i>	Latham's Snipe		
	<i>Dacelo novaeguineae</i>	Laughing Kookaburra		21/04/2001
	<i>Elanus scriptus</i>	Letter-winged Kite		
	<i>Lewinia pectoralis</i>	Lewin's Rail		
	<i>Hieraaetus morphnoides</i>	Little Eagle		
	<i>Megalurus gramineus</i>	Little Grassbird		
	<i>Corvus mellori</i>	Little Raven		
	<i>Anseranas semipalmata</i>	Magpie Goose	- / L	
	<i>Grallina cyanoleuca</i>	Magpie-lark		
	<i>Anepischtos maccoyi</i>	McCoy's Skink		25/06/2003
	<i>Dicaeum hirundinaceum</i>	Mistletoebird		
	<i>Biziura lobata</i>	Musk Duck		
	<i>Falco cenchroides</i>	Nankeen Kestrel		
	<i>Nycticorax caledonicus</i>	Nankeen Night-Heron		
	<i>Phylidonyris novaehollandiae</i>	New Holland Honeyeater		
	<i>Manorina melanocephala</i>	Noisy Miner		25/06/2003
	<i>Oriolus sagittatus</i>	Olive-backed Oriole		
	<i>Anas superciliosa</i>	Pacific Black Duck		
	<i>Cacomantis pallidus</i>	Pallid Cuckoo		
	<i>Falco peregrinus</i>	Peregrine Falcon		
	<i>Petroica rodinogaster</i>	Pink Robin		
	<i>Malacorhynchus membranaceus</i>	Pink-eared Duck		
	<i>Dendrocygna eytoni</i>	Plumed Whistling-Duck		
	<i>Porphyrio porphyrio</i>	Purple Swamphen		1/09/1988
	<i>Glossopsitta porphyrocephala</i>	Purple-crowned Lorikeet		
	<i>Trichoglossus haematodus</i>	Rainbow Lorikeet		
	<i>Anthochaera carunculata</i>	Red Wattlebird		
	<i>Neochmia temporalis</i>	Red-browed Finch		
	<i>Psephotus haematonotus</i>	Red-rumped Parrot		
	<i>Myiagra inquieta</i>	Restless Flycatcher		
	<i>Columba livia</i>	Rock Dove		
	<i>Arenaria interpres</i>	Ruddy turnstone		29/11/2016
	<i>Rhipidura rufifrons</i>	Rufous Fantail		

	<i>Todiramphus sanctus</i>	Sacred Kingfisher		
	<i>Myiagra cyanoleuca</i>	Satin Flycatcher		
	<i>Petroica boodang</i>	Scarlet Robin		
	<i>Chalcites lucidus</i>	Shining Bronze-Cuckoo		
	<i>Zosterops lateralis</i>	Silvereye		
	<i>Lichenostomus virescens</i>	Singing Honeyeater		
	<i>Ninox novaeseelandiae</i>	Southern Boobook		
	<i>Porzana tabuensis</i>	Spotless Crake		
	<i>Circus assimilis</i>	Spotted Harrier		
	<i>Pardalotus punctatus</i>	Spotted Pardalote		
	<i>Threskiornis spinicollis</i>	Straw-necked Ibis		
	<i>Calamanthus fuliginosus</i>	Striated Fieldwren		
	<i>Acanthiza lineata</i>	Striated Thornbill		
	<i>Cacatua galerita</i>	Sulphur-crested Cockatoo		
	<i>Malurus cyaneus</i>	Superb Fairy-wren		
	<i>Circus approximans</i>	Swamp Harrier		
	<i>Glyciphila melanops</i>	Tawny-crowned Honeyeater		
	<i>Petrochelidon nigricans</i>	Tree Martin		8/11/2017
	<i>Aquila audax</i>	Wedge-tailed Eagle		
	<i>Smicronis brevirostris</i>	Weebill		
	<i>Hirundo neoxena</i>	Welcome Swallow		
	<i>Anthochaera lunulata</i>	Western Wattlebird		
	<i>Numenius phaeopus</i>	Whimbrel		
	<i>Chlidonias hybrida</i>	Whiskered Tern		
	<i>Haliastur sphenurus</i>	Whistling Kite		
	<i>Sericornis frontalis</i>	White-browed Scrubwren		
	<i>Artamus superciliosus</i>	White-browed Woodswallow		
	<i>Lichenostomus leucotis</i>	White-eared Honeyeater		
	<i>Egretta novaehollandiae</i>	White-faced Heron		
	<i>Epthianura albifrons</i>	White-fronted Chat		
	<i>Melithreptus lunatus</i>	White-naped Honeyeater		
	<i>Ardea pacifica</i>	White-necked Heron		
	<i>Lichenostomus penicillatus</i>	White-plumed Honeyeater		
	<i>Hirundapus caudacutus</i>	White-throated Needletail		
	<i>Cormobates leucophaea</i>	White-throated Treecreeper		
	<i>Rhipidura leucophrys</i>	Willie Wagtail		
	<i>Lichenostomus chrysops</i>	Yellow-faced Honeyeater		
	<i>Acanthiza chrysorrhoa</i>	Yellow-rumped Thornbill		
	<i>Calyptorhynchus funereus</i>	Yellow-tailed Black-Cockatoo		
	REPTILES			
	<i>Crinia signifera</i>	Common Froglet		24/09/2003
	<i>Glossy Grass Skink</i>	Glossy Grass Skink		
	<i>Nannoscincus maccoyi</i>	Highlands Forest Skink		25/06/2003
	<i>Lampropholis guichenoti</i>	Pale-flecked Garden Sunskink		18/02/2016

	<i>Litoria ewingii</i>	Southern Brown Tree Frog		24/09/2003
	<i>Pseudemoia entrecasteauxii</i>	Southern Grass Skink		24/09/2003
	<i>Geocrinia laevis</i>	Southern Smooth Froglet		25/06/2003
	<i>Eulamprus tympanum tympanum</i>	Southern Water Skink		24/09/2003
	<i>Limnodynastes tasmaniensis</i>	Spotted Marsh Frog (race unknown)		25/06/2003
	<i>Pseudemoia entrecasteauxii</i>	Tussock Cool skink		25/06/2003
	<i>Pseudemoia pagenstecheri</i>	Tussock Skink		
	<i>Egernia whitii</i> (Lacepède, 1804)	White's Skink		19/12/1986
	INVERTEBRATES			
	<i>Nephila</i>	Golden silk orb spider		24/02/2015
	<i>Phonognatha graeffei</i>	Orb spider		18/02/2016
	<i>Argiope</i>	Orb spider		9/02/2016

Red = unverified record. Species record outside acknowledged distribution or known habitat is not present.
Record has not undergone peer review.

* = Introduced species

Origin	Scientific Name	Common Name	Status	Event Date
	Flora		EPBC / FFG	
	<i>Euchiton sphaericus</i>	Annual Cudweed		17/05/2011
*	<i>Ehrharta longiflora</i>	Annual Veldt-grass		21/11/2011
	<i>Acrotriche serrulata</i>	Ant's Delight		18/02/2016
	<i>Pteridium esculentum</i>	Austral Bracken		20/08/2003
	<i>Ranunculus lappaceus</i>	Australian Buttercup		29/09/2018
	<i>Isolepis hystrix</i>	Awned Club-sedge		2/11/2007
	<i>Galium spp.</i>	Bedstraw		20/08/2003
	<i>Deyeuxia spp.</i>	Bent Grass		17/12/1996
	<i>Agrostis s.l. spp.</i>	Bent/Blown Grass		19/12/1997
	<i>Acaena novae-zelandiae</i>	Bidgee-widgee		17/05/2011
	<i>Acacia mearnsii</i>	Black Wattle		20/08/2003
	<i>Acacia melanoxylon</i>	Blackwood		20/08/2003
	<i>Dianella revoluta var. revoluta</i>	Blue Flax lily		25/02/2015
	<i>Brunonia australis</i>	Blue Pincusion		20/12/2016
	<i>Schoenus spp.</i>	Bog Sedge		19/12/1997
	<i>Isolepis cernua var. platycarpa</i>	Broad-fruit Club-sedge		21/11/2011
	<i>Juncus planifolius</i>	Broad-leaf Rush		21/11/2011
	<i>Opercularia ovata</i>	Broad-leaf Stinkweed		20/08/2003
	<i>Opercularia ovata</i>	Broadleaf stinkwort		29/09/2018
	<i>Agrostis capillaris</i>	Brown-top Bent		17/05/2011
	<i>Ranunculus ?inundatus</i>	Buttercup		17/12/1996
	<i>Coronidium scorpioides</i>	Button Everlasting		3/02/2016
	<i>Euphorbia lathyris</i>	Caper Spurge		19/11/2015
*	<i>Centaureum spp.</i>	Centaury		21/11/2011
	<i>Exocarpos cupressiformis</i>	Cherry Ballart		1/02/2012
	<i>Arthropodium strictum s.l.</i>	Chocolate Lily		17/12/1996
	<i>Geastrum triplex</i>	Collared Earthstar		24/06/2010

	<i>Lachnagrostis filiformis s.l.</i>	Common Blown-grass		19/12/1997
	<i>Schoenus apogon</i>	Common Bog-sedge		2/11/2007
	<i>Lagenophora stipitata</i>	Common Bottle-daisy		1/02/2012
*	<i>Centaurium erythraea</i>	Common Centaury		1/02/2012
	<i>Euchiton involucratus s.l.</i>	Common Cudweed		17/12/1996
	<i>Carex breviculmis</i>	Common Grass-sedge		20/08/2003
	<i>Microtis unifolia</i>	Common Onion-orchid		2/11/2007
	<i>Dichelachne rara</i>	Common Plume-grass		17/12/1996
	<i>Gonocarpus tetragynus</i>	Common Raspwort		17/12/1996
	<i>Poa labillardierei</i>	Common Tussock-grass		20/08/2003
	<i>Anthosachne scabra s.l.</i>	Common Wheat-grass		19/12/1997
	<i>Asperula conferta</i>	Common Woodruff		17/05/2011
	<i>Senecio quadridentatus</i>	Cotton fireweed		14/09/2018
	<i>Astroloma humifusum</i>	Cranberry Heath		11/05/2016
	<i>Geranium spp.</i>	Crane's Bill		21/11/2011
	<i>Bossiaea prostrata</i>	Creeping Bossiaea		17/12/1996
	<i>Geranium dissectum</i>	Cut-leaf Crane's-bill		17/05/2011
*	<i>Lamium spp.</i>	Dead Nettle		17/12/1996
	<i>Aira elegantissima</i>	Delicate Hair-grass		17/12/1996
	<i>Lomandra nana</i>	Dwarf Mat-rush		2/11/2007
	<i>Leptostigma reptans</i>	Dwarf Nertera		17/12/1996
	<i>Ptilotus macrocephalus</i>	Feather Heads		9/02/2016
	<i>Juncus subsecundus</i>	Finger Rush		21/11/2011
	<i>Pentapogon quadrifidus var. quadrifidus</i>	Five-awned Spear-grass		17/12/1996
*	<i>Hypochaeris radicata</i>	Flatweed		20/08/2003
	<i>Dianella spp.</i>	Flax Lily		20/08/2003
*	<i>Gaudinia fragilis</i>	Fragile Oat		21/11/2011
	<i>Amanita xanthocephala</i>	Fungi		7/07/1999
	<i>Cordyceps gunnii</i>	Fungi		7/07/1999
	<i>Rhodocollybia butyracea</i>	Fungi		24/06/2010
	<i>Amanita xanthocephala</i>	Fungi		24/06/2010
	<i>Marasmius affixus</i>	Fungi		24/06/2010
	<i>Oudemansiella radicata</i>	Fungi		24/06/2010
	<i>Tubaria rufofulva</i>	Fungi		24/06/2010
	<i>Laetiporus portentosus</i>	Fungus		26/04/2016
	<i>Geranium potentilloides var. potentilloides</i>	Geranium		26/04/2016
	<i>Gratiola pubescens</i>	Glandular Brooklime		17/12/1996
	<i>Juncus flavidus</i>	Gold Rush		17/05/2011
*	<i>Ulex europaeus</i>	Gorse		1/06/1999
	<i>Oxalis perennans</i>	Grassland Wood-sorrel		20/08/2003
	<i>Juncus caespiticus</i>	Grassy Rush		2/11/2007
	<i>Poa sieberiana</i>	Grey Tussock-grass		20/08/2003
	<i>Senecio spp.</i>	Groundsel		17/12/1996
*	<i>Leontodon saxatilis subsp. saxatilis</i>	Hairy Hawkbit		17/12/1996

*	<i>Acaena agnipila</i>	Hairy Sheep's Burr		21/11/2011
*	<i>Crepis spp.</i>	Hawksbeard		17/12/1996
	<i>Juncus amabilis</i>	Hollow Rush		17/05/2011
*	<i>Trifolium campestre var. campestre</i>	Hop Clover		21/11/2011
*	<i>Lythrum hyssopifolia</i>	Hyssop Loosestrife		24/02/2015
	<i>Viola hederacea sensu Willis (1972)</i>	Ivy-leaf Violet		19/12/1997
	<i>Juncus holoschoenus</i>	Joint-leaf Rush		21/11/2011
	<i>Themeda triandra</i>	Kangaroo Grass		21/11/2011
	<i>Dichondra repens</i>	Kidney-weed		20/08/2003
	<i>Solanum laciniatum</i>	Large Kangaroo Apple		17/12/1996
	<i>Lachnagrostis aemula s.l.</i>	Leafy Blown-grass		17/12/1996
	<i>Alternanthera denticulata s.l.</i>	Lesser Joyweed		17/05/2011
	<i>Briza minor</i>	Lesser Quaking-grass		21/11/2011
	<i>Senecio glomeratus subsp. longifructus</i>	longfruit purple fireweed		6/04/2016
	<i>Dichelachne crinita</i>	Long-hair Plume-grass		17/12/1996
	<i>Amphibromus macrorrhinus</i>	Long-nosed Swamp Wallaby-grass		17/05/2011
	<i>Eucalyptus viminalis</i>	Manna Gum		17/12/1996
	<i>Prasophyllum frenchii A</i>	Maroon leek-orchid	EN/ L	13/11/2005
	<i>Lobelia pedunculata s.l.</i>	Matted Pratia		17/12/1996
	<i>Burchardia umbellata</i>	Milkmaids		2/11/2007
*	<i>Genista monspessulana</i>	Montpellier Broom		21/11/2011
	<i>Notelaea ligustrina</i>	Native Olive		9/02/2016
	<i>Viola hederacea</i>	Native violet		3/11/2016
	<i>Wurmbea uniflora</i>	One-flower Early Nancy		2/11/2007
*	<i>Romulea rosea</i>	Onion Grass		2/11/2007
	<i>Dianella longifolia s.l.</i>	Pale Flax-lily		21/11/2011
	<i>Juncus pallidus</i>	Pale Rush		17/05/2011
	<i>Drosera peltata subsp. peltata spp. agg.</i>	Pale Sundew		21/11/2011
	<i>Helichrysum aff. rutidolepis</i>	Pale Swamp everlasting		26/04/2016
*	<i>Paspalum dilatatum</i>	Paspalum		20/08/2003
*	<i>Lachnagrostis perennis spp. agg.</i>	Perennial Blown-grass		17/05/2011
*	<i>Lysimachia arvensis</i>	Pimpernel		17/12/1996
*	<i>Hypnum spp.</i>	Plait Moss		19/12/1997
	<i>Prasophyllum anticum</i>	Pretty Leek-orchid		30/06/2002
	<i>Eryngium vesiculosum</i>	Prickfoot		26/04/2016
	<i>Acacia verticillata</i>	Prickly Moses		17/12/1996
	<i>Leptospermum continentale</i>	Prickly Tea-tree		1/02/2012
	<i>Asperula scoparia subsp. scoparia</i>	Prickly Woodruff		26/04/2016
*	<i>Parentucellia latifolia</i>	Red Bartsia		2/11/2007
	<i>Myriophyllum verrucosum</i>	Red Water-milfoil		17/05/2011
	<i>Deyeuxia quadriseta</i>	Reed Bent-grass		17/12/1996
*	<i>Plantago lanceolata</i>	Ribwort		20/08/2003
	<i>Ranunculus inundatus</i>	River Buttercup		17/05/2011
	<i>Xerula radicata</i>	Rooting Shank		24/06/2010

*	<i>Sonchus asper s.s.</i>	Rough Sow-thistle		17/12/1996
	<i>Villarsia reniformis</i>	Running marsh flower		3/11/2016
	<i>Kennedia prostrata</i>	Running Postman		17/12/1996
	<i>Juncus spp.</i>	Rush		20/08/2003
*	<i>Centaurium maritimum</i>	Sea Centaury		2/11/2007
	<i>Sebaea spp.</i>	Sebaea		21/11/2011
	<i>Carex spp.</i>	Sedge		19/12/1997
	<i>Oxalis exilis</i>	Shade Wood-sorrel		19/12/1997
	<i>Ranunculus muricatus</i>	Sharp Buttercup		29/09/2018
	<i>Acaena echinata</i>	Sheep's Burr		20/08/2003
	<i>Hydrocotyle sibthorpioides</i>	Shining Pennywort		17/05/2011
*	<i>Centaurium tenuiflorum</i>	Slender Centaury		17/12/1996
	<i>Rumex brownii</i>	Slender Dock		21/11/2011
	<i>Senecio tenuiflorus s.l.</i>	Slender Fireweed		17/12/1996
	<i>Mentha diemenica</i>	Slender mint		20/12/2016
	<i>Veronica gracilis</i>	Slender Speedwell		2/11/2007
	<i>Poa tenera</i>	Slender Tussock-grass		1/02/2012
	<i>Rytidosperma racemosum var. racemosum</i>	Slender Wallaby-grass		1/02/2012
#	<i>Lythrum hyssopifolia</i>	Small Loosestrife		17/05/2011
	<i>Poranthera microphylla s.l.</i>	Small Poranthera		17/12/1996
	<i>Hypericum gramineum s.l.</i>	Small St John's Wort		17/12/1996
	<i>Rubus parvifolius</i>	Small-leaf Bramble		17/12/1996
*	<i>Hypochaeris glabra</i>	Smooth Cat's-ear		20/08/2003
	<i>Rytidosperma laeve</i>	Smooth Wallaby-grass		17/12/1996
	<i>Schoenus tesquorum</i>	Soft Bog-sedge		21/11/2011
	<i>Geranium potentilloides</i>	Soft Crane's-bill		19/12/1997
	<i>Poa morrisii</i>	Soft Tussock-grass		19/12/1997
*	<i>Disa bracteata</i>	South African orchid		14/11/2017
	<i>Austrostipa spp.</i>	Spear Grass		1/02/2012
	<i>Cirsium vulgare</i>	Spear Thistle		20/08/2003
	<i>Juncus oxycarpus</i>	Spiny-fruit Rush		2/11/2007
	<i>Lomandra longifolia</i>	Spiny-headed Mat-rush		17/12/1996
	<i>Wahlenbergia gracilis</i>	Sprawling Bluebell		19/12/1997
*	<i>Vulpia bromoides</i>	Squirrel-tail Fescue		19/12/1997
	<i>Tricoryne elatior</i>	Star Lily		25/02/2015
*	<i>Sisyrinchium iridifolium</i>	Striped Rush-leaf		2/11/2007
*	<i>Trifolium subterraneum</i>	Subterranean Clover		17/05/2011
*	<i>Trifolium dubium</i>	Suckling Clover		21/11/2011
	<i>Senecio psilocarpus</i>	Swamp fireweed	VU / -	3/09/1995
	<i>Eucalyptus ovata</i>	Swamp Gum		19/12/1997
	<i>Ottelia ovalifolia subsp. ovalifolia</i>	Swamp lily		1899-11-01
*	<i>Rosa rubiginosa</i>	Sweet Briar		21/11/2011
	<i>Bursaria spinosa subsp. spinosa</i>	Sweet Bursaria		9/02/2016
*	<i>Anthoxanthum odoratum</i>	Sweet Vernal-grass		17/05/2011

	<i>Wahlenbergia stricta subsp. stricta</i>	Tall Bluebell		17/12/1996
	<i>Juncus procerus</i>	Tall Rush		21/11/2011
	<i>Carex appressa</i>	Tall Sedge		19/12/1997
	<i>Austrostipa pubinodis</i>	Tall Spear-grass		21/11/2011
	<i>Drosera auriculata</i>	Tall Sundew		17/12/1996
	<i>Lepidosperma elatius</i>	Tall Sword-sedge		17/12/1996
*	<i>Isolepis levynsiana</i>	Tiny Flat-sedge		21/11/2011
*	<i>Juncus bufonius</i>	Toad Rush		2/11/2007
	<i>Phalaris aquatica</i>	Toowoomba Canary-grass		20/08/2003
	<i>Baumea spp.</i>	Twig Sedge		20/08/2003
	<i>Lepidosperma laterale</i>	Variable Sword-sedge		17/05/2011
	<i>Epilobium billardierianum</i>	Variable Willow-herb		17/05/2011
	<i>Epilobium billardierianum subsp. intermedium</i>	Variable Willow-herb		17/12/1996
	<i>Haloragis heterophylla</i>	Varied Raspwort		21/11/2011
	<i>Rytidosperma pilosum</i>	Velvet Wallaby-grass		17/12/1996
	<i>Rytidosperma spp.</i>	Wallaby Grass		20/08/2003
	<i>Alisma plantago-aquatica</i>	Water Plantain		17/05/2011
	<i>Asperula subsimplex</i>	Water Woodruff		24/02/2015
	<i>Lomandra filiformis subsp. filiformis</i>	Wattle Mat-rush		19/12/1997
	<i>Microlaena stipoides var. stipoides</i>	Weeping Grass		1/02/2012
	<i>Rytidosperma penicillatum</i>	Weeping Wallaby-grass		19/12/1997
	<i>Thuidium spp.</i>	Weft Moss		19/12/1997
	<i>Rytidosperma semiannulare</i>	Wetland Wallaby-grass		17/12/1996
	<i>Leptorhynchos tenuifolius</i>	Wiry Buttons		2/11/2007
	<i>Oxalis spp.</i>	Wood Sorrel		2/11/2007
*	<i>Parentucellia viscosa</i>	Yellow Bartsia		19/12/1997
	<i>Tricoryne elatior</i>	Yellow Rush-lily		21/11/2011
	<i>Sebaea ovata</i>	Yellow Sebaea		2/11/2007
*	<i>Hypoxis vaginata var. vaginata</i>	Yellow Star		2/11/2007
*	<i>Holcus lanatus</i>	Yorkshire Fog		20/08/2003

* = Introduced species

Attachment E- Site Assessment Flora

Flora

Origin	Scientific Name	Common Name
*	<i>Disa bracteata</i>	African weed-orchid
*	<i>Ehrharta longiflora</i>	Annual Veldt-grass
	<i>Pteridium esculentum</i>	Austral Bracken
*	<i>Hordeum leporinum</i>	Barley Grass
	<i>Acaena novae-zelandia</i>	Bidgee widgee
	<i>Convolvulus arvensis L</i>	Bindweed
*	<i>Solanum nigrum</i>	Black nightshade
	<i>Acacia mearnsii</i>	Black Wattle
	<i>Acacia melanoxylon</i>	Blackwood
*	<i>Plantago coronopus</i>	Bucks Horn Plantain
*	<i>Medicago spp.</i>	Burr Medic
*	<i>Delairea ordorta</i>	Cape ivy
*	<i>Arctotheca calendula</i>	Cape Weed
*	<i>Hypochoeris radicata</i>	Cats Ear
*	<i>Centaurium sp</i>	Centaury
*	<i>Dactylis glomerata</i>	Cocksfoot
	<i>Cassinia aculeata</i>	Common Cassinia
*	<i>Lepidium africanum</i>	Common Peppergrass
	<i>Phragmites australis</i>	Common Reed
*	<i>Cynodon dactylon</i>	Couch
*	<i>Rumex crispus</i>	Curled Dock
*	<i>Cupressus macrocarpa</i>	Cypress pine
*	<i>Cyperus eragrostis</i>	Drain Flat- sedge
*	<i>Conyza bonariensis</i>	Flaxleaf Fleabane
	<i>Dianella sp</i>	Flax-lily
*	<i>Crataegus monogyna</i>	Hawthorn
*	<i>Marrubium vulgare</i>	Horehound
	<i>Themeda triandra</i>	Kangaroo Grass
*	<i>Pennisetum clandestinum</i>	Kikuyu
	<i>Lomandra spp.</i>	Mat-rush
*	<i>Genista monspessulana</i>	Montpellier Broom
*	<i>Brassica sp</i>	Mustard
*	<i>Rommulea rosea</i>	Onion Grass
*	<i>Helminthotheca echioides</i>	Oxe-tongue
*	<i>Ehrharta erecta var. erecta</i>	Panic Veldt-grass
*	<i>Paspalum dilatatum</i>	Paspalum
*	<i>Bromus sp</i>	Prairie Grass
	<i>Acacia verticillata</i>	Prickly Moses
*	<i>Prunus spp.</i>	Stone fruit
*	<i>Pinus radiata</i>	Radiata Pine
*	<i>Plantago lanceolata</i>	Ribwort
	<i>Juncus spp.</i>	Rush
	<i>Ghania sp</i>	Saw-sedge

	<i>Acaena echinata</i>	Sheep's Burr
*	<i>Malva parviflora</i>	Small-flowered mallow
*	<i>Oxalis pes-caprae</i>	Soursob
*	<i>Rosa rubiginosa</i>	Sweet Briar
*	<i>Anthoxanthum odoratum</i>	Sweet vernal grass
*	<i>Phalaris aquatica</i>	Toowoomba Canary-grass
	<i>Poa spp.</i>	Tussock Grass
	<i>Epilobium billardierianum</i>	Variable willow-herb
	<i>Microlaena stipoides</i>	Weeping Grass
*	<i>Avena fatua</i>	Wild Oat
	<i>Chloris truncata</i>	Windmill grass
#	<i>Eucalyptus cornuta</i>	Yate
*	<i>Holcus lanatus</i>	Yorkshire Fog

LEGEND: * = introduced species. # = Introduced native; Western Australia.

Attachment F- EVC Ground Truthing

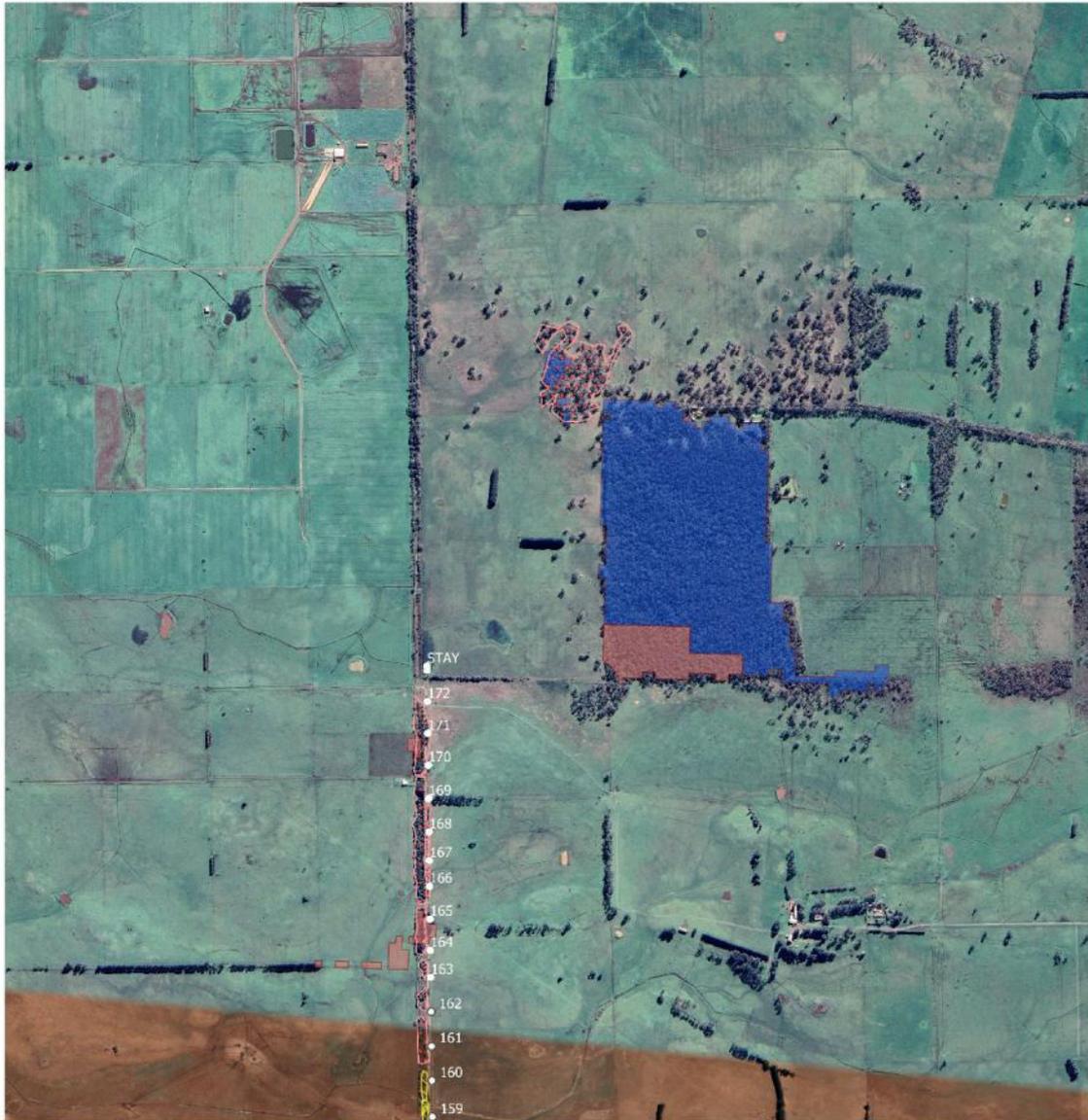
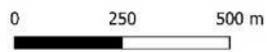


Figure 4.1: Ground Truthed EVC's



LEGEND

- Poles final
 - Ground-truth Basalt Shrubby Woodland
 - Ground-truth EVC 651-642 mosaic
- Modelled EVC Attributes
 - Basalt Shrubby Woodland
 - Plains Grassland



Drawn by: R. Gratton
Date: 26/11/2019
Drawing No: 00206-2



Figure 4.2: Ground Truthed EVC's

0 250 500 m



LEGEND

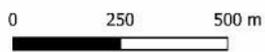
- Poles final
- Ground-truth EVC 651-642 mosaic
- Growth-truth Basalt Shrubby Woodland
- Modelled EVC Attributes
- Basalt Shrubby Woodland
- Plains Grassland



Drawn by: R. Gratton
 Date: 26/11/2019
 Drawing No: 00206-2



Figure 4.3: Ground Truthed EVC's



LEGEND

- Poles final
- Ground-truth EVC 651-642 mosaic
- Growth-truth Basalt Shrubby Woodland
- Modelled EVC Attributes
 - Basalt Shrubby Woodland
 - Plains Grassland



Drawn by: R. Gratton
 Date: 26/11/2019
 Drawing No: 00206-2



Figure 4.4: Ground Truthed EVC's

0 250 500 m



LEGEND

Poles final

Ground-truth EVC 651-642 mosaic

Grouth-truth Basalt Shrubby Woodland

Modelled EVC Attributes

Basalt Shrubby Woodland

Plains Grassland



Drawn by: R. Gratton
Date: 26/11/2019
Drawing No: 00206-2

Attachment G- NVIM Report

Native vegetation removal report

A report to support an application to remove, destroy or lop native vegetation in the **Intermediate Assessment Pathway** using the modelled condition score

This report provides information to support an application to remove native vegetation in accordance with the *Guidelines for the removal, destruction or lopping of native vegetation*. The report is not an assessment by DELWP or local council of the proposed native vegetation removal. Biodiversity information and offset requirements have been calculated using modelled condition scores contained in the *Native vegetation condition map*.

Date and time: 14 October 2019 13:29 PM

Lat./Long.: -38.2238945599201,142.370066856782

Native vegetation report ID:

Address: Address unknown

354-20191014-010

Assessment pathway

The assessment pathway and reason for the assessment pathway

Assessment pathway	Intermediate Assessment Pathway
Extent of past plus proposed native vegetation removal	0.002 hectares
No. large trees	0 large tree(s)
Location category	Location 2 The native vegetation is in an area mapped as an Endangered Ecological Vegetation Class. Removal of less than 0.5 hectares of native vegetation will not have a significant impact on any habitat for a rare or threatened species.

Offset requirement

The offset requirement that will apply if the native vegetation is approved to be removed

Offset type	General offset
Offset amount	0.000 general habitat units
Offset attributes	
Vicinity	Glenelg Hopkins Catchment Management Authority (CMA) or Moyne Shire Council
Minimum strategic biodiversity value score	0.320
Large trees	0 large tree(s)

Biodiversity information about the native vegetation

Description of any past native vegetation removal

Any native vegetation that was approved to be removed, or was removed without the required approvals, on the same property or on contiguous land in the same ownership, in the five year period before the application to remove native vegetation is lodged is detailed below.

Permit/PIN number	Extent of native vegetation (hectares)
None entered	0 hectares

Description of the native vegetation proposed to be removed

Extent of all mapped native vegetation	0.002 hectares
Condition score of all mapped native vegetation	0.200
Strategic biodiversity value score of all mapped native vegetation	0.400
Extent of patches native vegetation	0.002 hectares
1	0.002 hectares
Extent of scattered trees	0 hectares
No. large trees within patches	0 large tree(s)
No. large scattered trees	0 large tree(s)
No. small scattered trees	0 small tree(s)

Additional information about trees to be removed, shown in Figure 1

Tree ID	Tree circumference (cm)	Benchmark circumference (cm)	Scattered / Patch	Tree size
N/A				

Other information

Applications to remove, destroy or lop native vegetation must include all the below information. If an appropriate response has not been provided the application is not complete.

Photographs of the native vegetation to be removed

Recent, dated photographs of the native vegetation to be removed must be provided with the application. All photographs must be clear, show whether the vegetation is a patch of native vegetation or scattered trees, and identify any large trees. If the area of native vegetation to be removed is large, provide photos that are indicative of the native vegetation.

Ensure photographs are attached to the application. If appropriate photographs have not been provided the application is not complete.

Topographical and land information

Description of the topographic and land information relating to the native vegetation to be removed, including any ridges, crests and hilltops, wetlands and waterways, slopes of more than 20 percent, drainage lines, low lying areas, saline discharge areas, and areas of existing erosion, as appropriate. This may be represented in a map or plan. **This is an application requirement and your application will be incomplete without it.**

The location is on a roadside reserve to be used for the placement of power distribution poles. A railway reserve abuts the road reserve and spoon drains are present in section of the road reserve.

Avoid and minimise statement

This statement describes what has been done to avoid the removal of, and minimise impacts on the biodiversity and other values of native vegetation. **This is an application requirement and your application will be incomplete without it.**

A site assessment based on concept plans was undertaken by Powercor design staff and project manger, ecologist and arborist to assess the best route to minimise impacts to native vegetation. The route alignment was adjusted by alternating on either side of the road. This confined removal to 5 pole locations. The vegetation to be removed is approx. 3sq metres of native grass and 3 small blackwood's, (worst case scenario), with approx 9sq metres canopy cover. The option for micro-siting of the 5 poles is limited due to the between pole span limitations. Please note that the extent of vegetation removal entered into the NVIM tool is greater than the expected loss due to the difficulty of drawing such a small area for removal. The area in this report also includes the 4 poles where native grass is to be removed as it is not possible to map an area of 0.75 sq/metres per pole.

Defendable space statement

Where the removal of native vegetation is to create defendable space, a written statement explaining why the removal of native vegetation is necessary. This statement must have regard to other available bushfire risk mitigation measures. This statement is not required if your application also includes an application under the Bushfire Management Overlay.

Not applicable

Offset statement

An offset statement that demonstrates that an offset is available and describes how the required offset will be secured. **This is an application requirement and your application will be incomplete without it.**

Based on calculation of the NVIM report, an offset is not required.

Next steps

Applications to remove, destroy or lop native vegetation must address all the application requirements specified in *Guidelines for the removal, destruction or lopping of native vegetation*. If you wish to remove the mapped native vegetation you are required to apply for a permit from your local council. This *Native vegetation removal report* must be submitted with your application and meets most of the application requirements. The following needs to be added as applicable.

Property Vegetation Plan

Landowners can manage native vegetation on their property in the longer term by developing a Property Vegetation Plan (PVP) and entering into an agreement with DELWP.

If an approved PVP applies to the land, ensure the PVP is attached to the application.

Applications under Clause 52.16

An application to remove, destroy or lop native vegetation is under Clause 52.16 if a Native Vegetation Precinct Plan (NVPP) applies to the land, and the proposed native vegetation removal is not in accordance with the relevant NVPP. If this is the case, a statement that explains how the proposal responds to the NVPP considerations must be provided.

If the application is under Clause 52.16, ensure a statement that explains how the proposal responds to the NVPP considerations is attached to the application.

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Authorised by the Victorian Government, 8 Nicholson Street, East Melbourne.

For more information contact the DELWP Customer Service Centre 136 186

www.delwp.vic.gov.au

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Obtaining this publication does not guarantee that an application will meet the requirements of Clauses 52.16 or 52.17 of planning schemes in Victoria or that a permit to remove native vegetation will be granted.

Notwithstanding anything else contained in this publication, you must ensure that you comply with all relevant laws, legislation, awards or orders and that you obtain and comply with all permits, approvals and the like that affect, are applicable or are necessary to undertake any action to remove, lop or destroy or otherwise deal with any native vegetation or that apply to matters within the scope of Clauses 52.16 or 52.17 of planning schemes in Victoria.

Figure 1 – Map of native vegetation to be removed, destroyed or lopped

Mapped native vegetation to be removed, lopped or destroyed



Legend

-  Mapped native vegetation
-  Property boundary

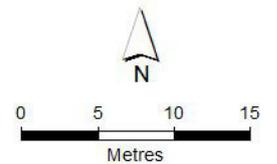


Figure 2 – Map of property in context

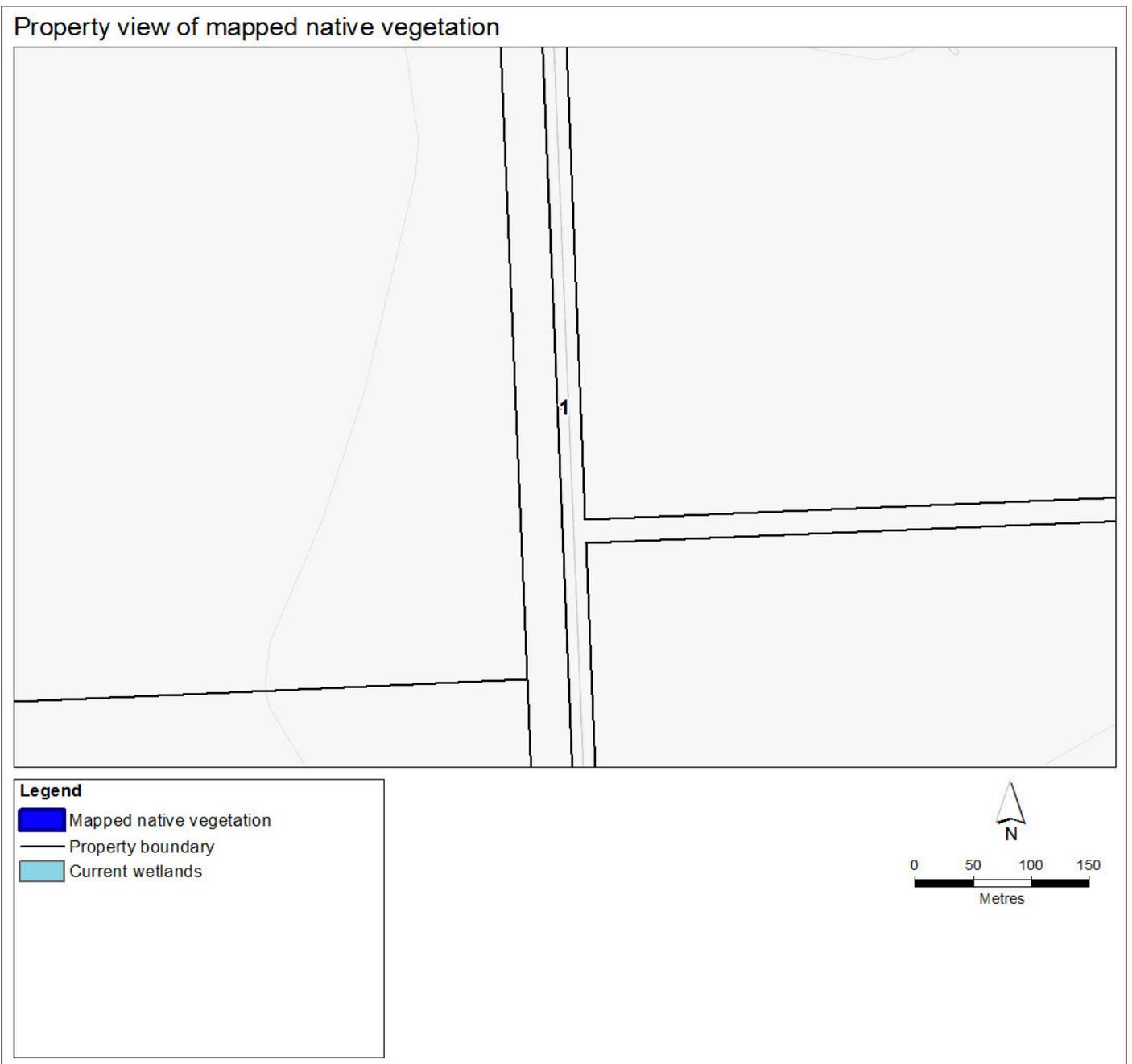
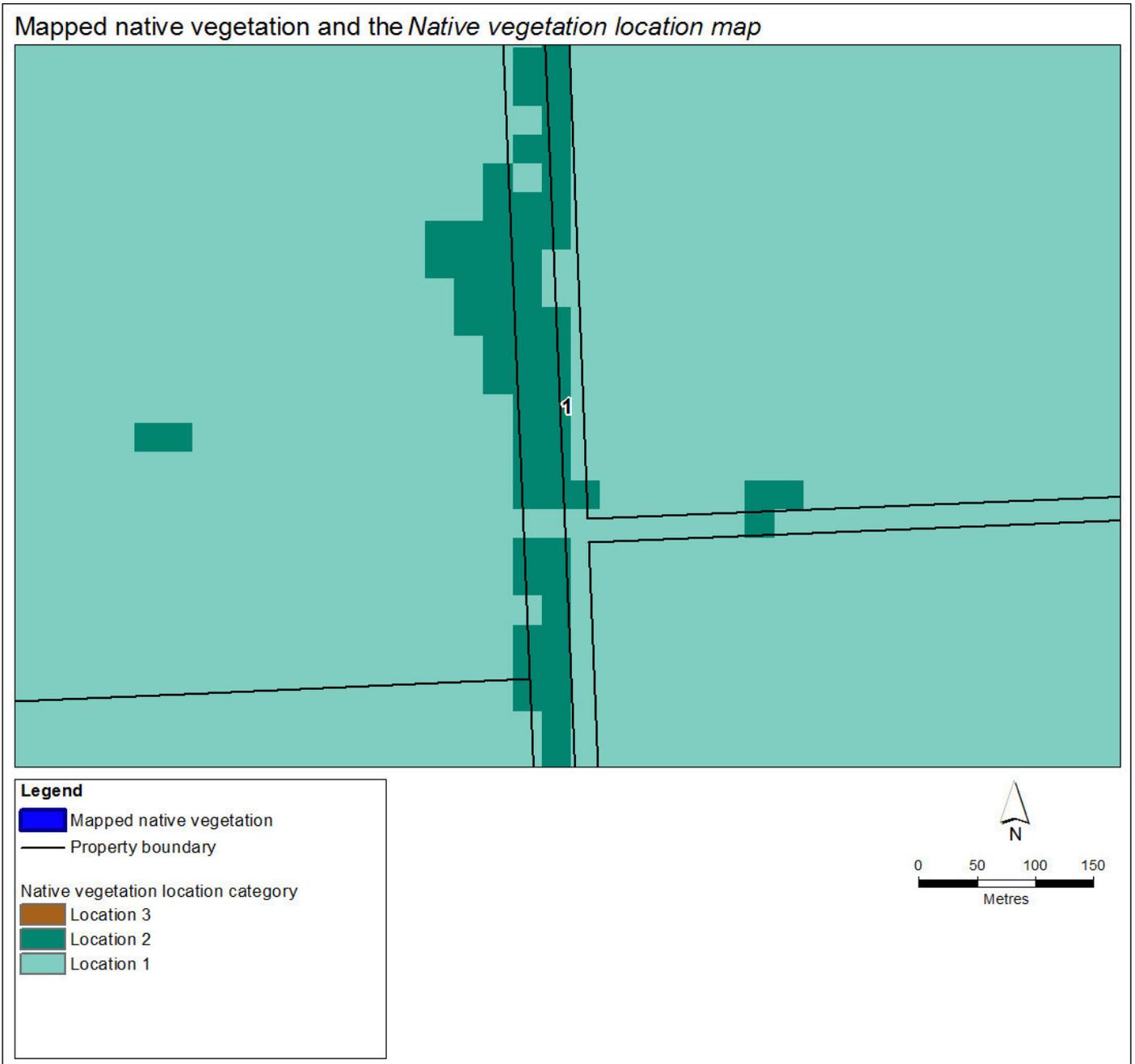
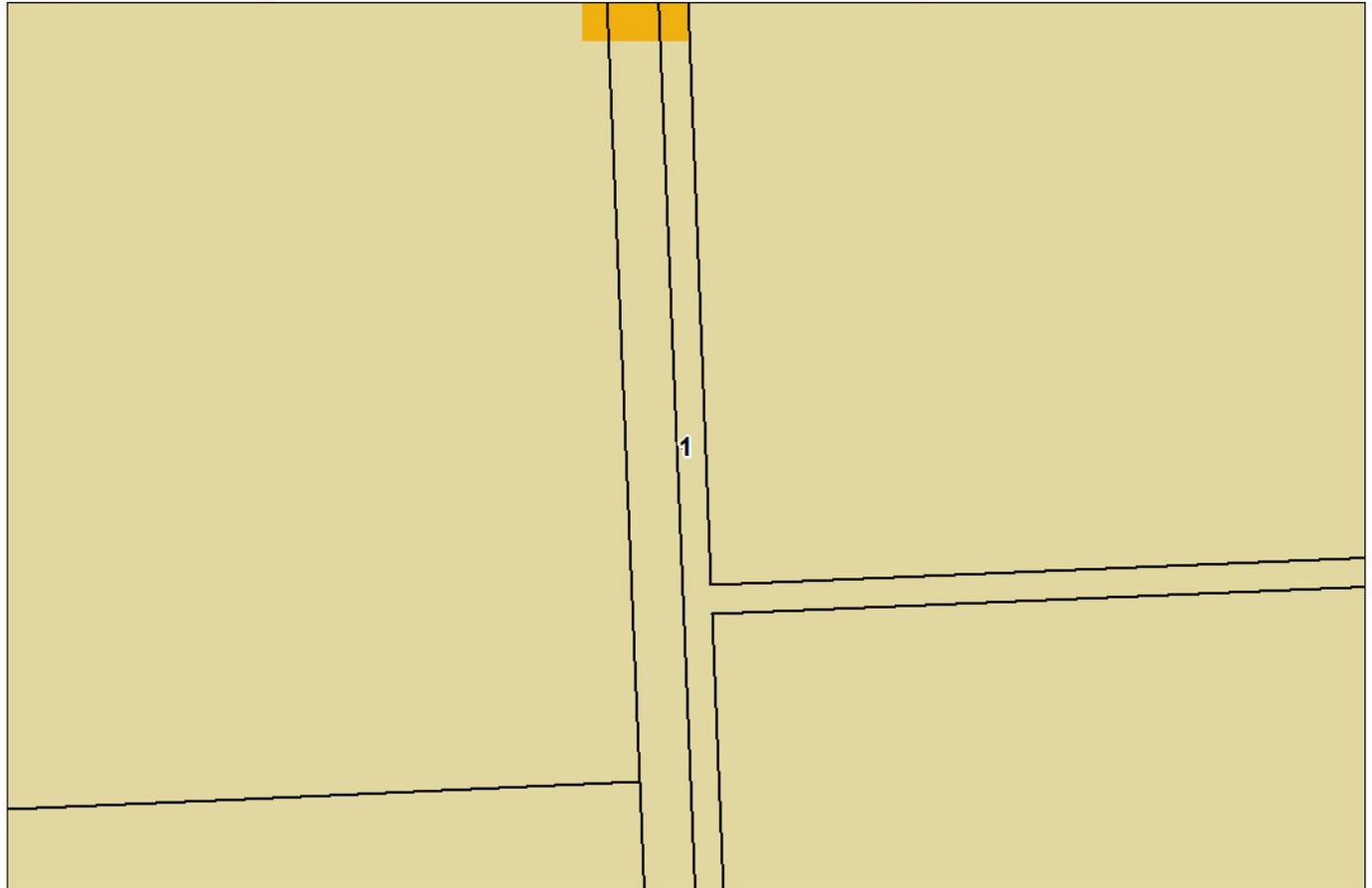


Figure 3 – Biodiversity information maps



Mapped native vegetation and the *Native vegetation condition map*



Legend

 Mapped native vegetation

 Property boundary

Native vegetation condition*

 0.81 - 1.00

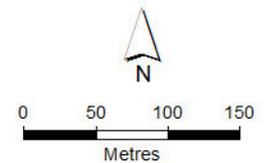
 0.61 - 0.80

 0.41 - 0.60

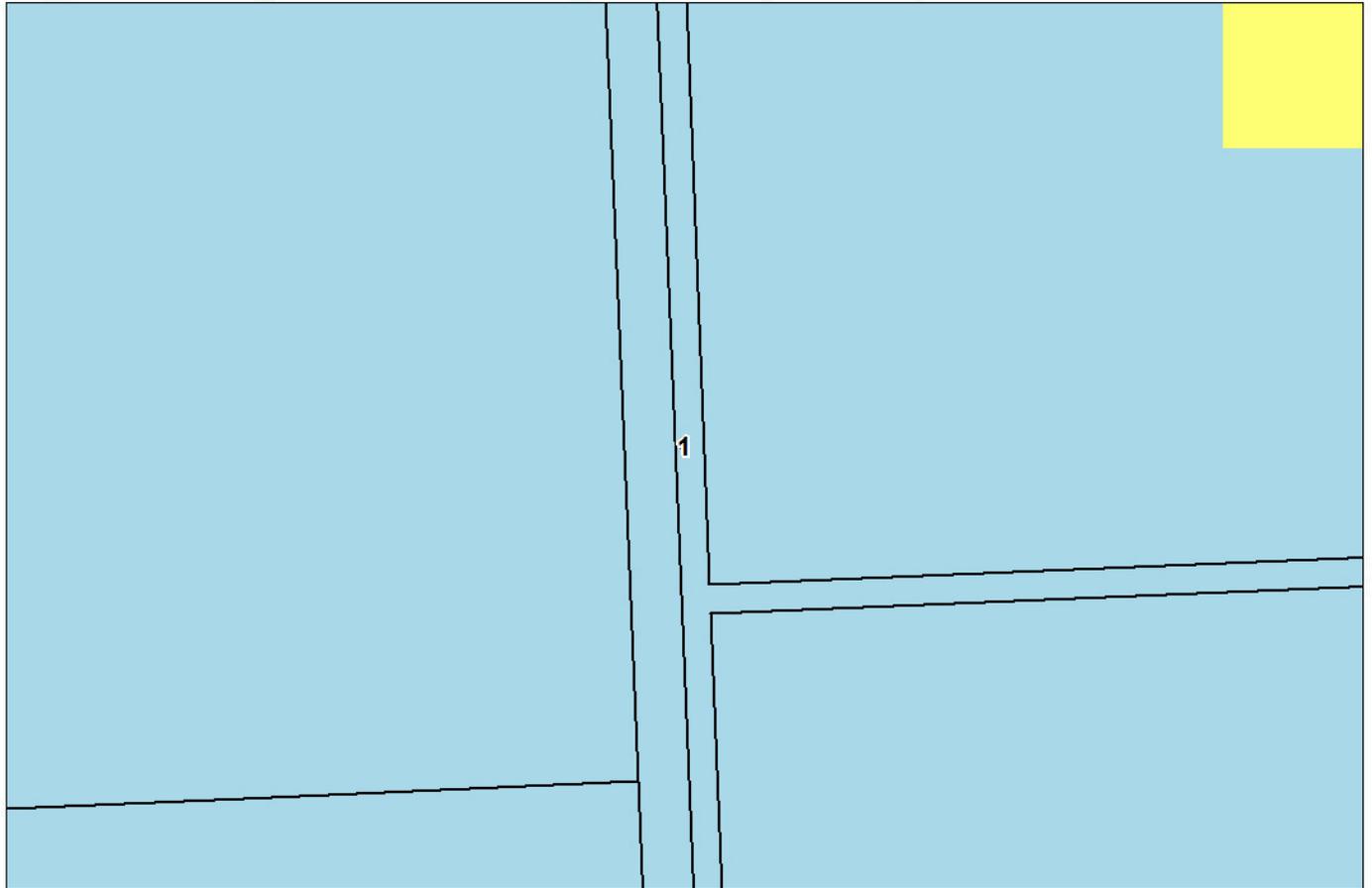
 0.21 - 0.40

 0.00 - 0.20

* These classes are for display purposes only



Mapped native vegetation and the *Strategic biodiversity value map*



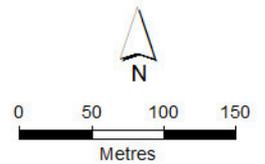
Legend

-  Mapped native vegetation
-  Property boundary

Strategic biodiversity value*

-  0.81 - 1.00
-  0.61 - 0.80
-  0.41 - 0.60
-  0.21 - 0.40
-  0.00 - 0.20

* These classes are for display purposes only



Appendix 1 - Details of offset requirements

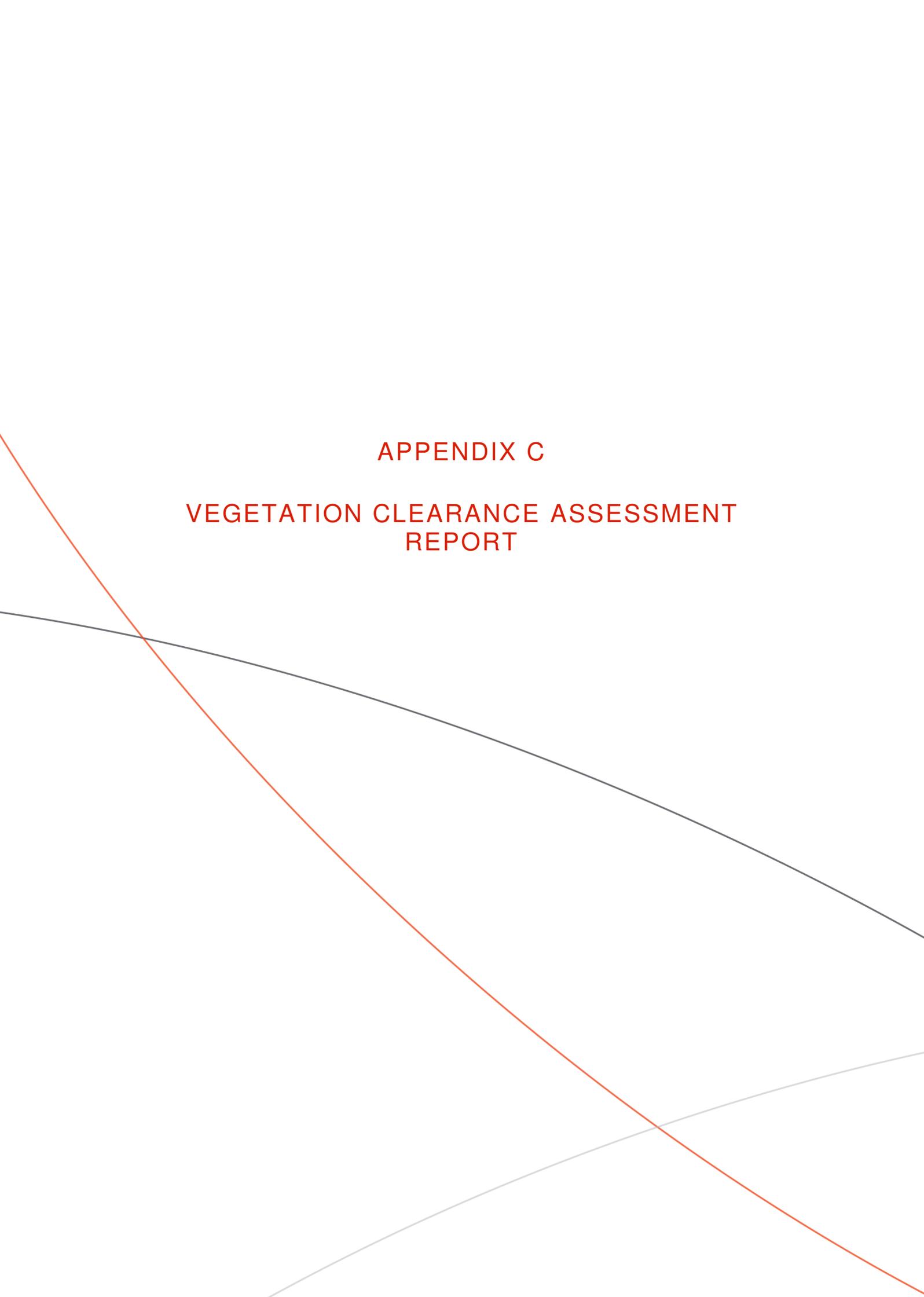
Native vegetation to be removed

Extent of all mapped native vegetation (for calculating habitat hectares)	0.002	The area of land covered by a patch of native vegetation and/or a scattered tree, measured in hectares. Where the mapped native vegetation includes scattered trees, each tree is assigned a standard extent and converted to hectares. A small scattered tree is assigned a standard extent defined by a circle with a 10 metre radius and a large scattered tree a circle with a 15 metre radius. The extent of all mapped native vegetation is an input to calculating the habitat hectares.
Condition score*	0.200	The condition score of native vegetation is a site-based measure that describes how close native vegetation is to its mature natural state. The condition score is the weighted average condition score of the mapped native vegetation calculated using the <i>Native vegetation condition map</i> .
Habitat hectares	0.000	Habitat hectares is a site-based measure that combines extent and condition of native vegetation. It is calculated by multiplying the extent of native vegetation by the condition score: <i>Habitat hectares = extent x condition score</i>
Strategic biodiversity value score	0.400	The strategic biodiversity value score represents the complementary contribution to Victoria's biodiversity of a location, relative to other locations across the state. This score is the weighted average strategic biodiversity value score of the mapped native vegetation calculated using the <i>Strategic biodiversity value map</i> .
General landscape factor	0.700	The general landscape factor is an adjusted strategic biodiversity value score. It has been adjusted to reduce the influence of landscape scale information on the general habitat score.
General habitat score	0.000	The general habitat score combines site-based and landscape scale information to obtain an overall measure of the biodiversity value of the native vegetation. The general habitat score is calculated as follows: <i>General habitat score = habitat hectares x general landscape factor</i>

* **Offset requirements for partial removal:** If your proposal is to remove parts of the native vegetation in a patch (for example only understorey plants) the condition score must be adjusted. This will require manual editing of the condition score and an update to the calculations that the native vegetation removal tool has provided: habitat hectares, general habitat score and offset amount.

Offset requirements

Offset type	General offset	A general offset is required when the removal of native vegetation does not have a significant impact on any habitat for rare or threatened species. All proposals in the Basic and Intermediate assessment pathways will only require a general offset.
Offset multiplier	1.5	This multiplier is used to address the risk that the predicted outcomes for gain will not be achieved, and therefore will not adequately compensate the biodiversity loss from the removal of native vegetation.
Offset amount (general habitat units)	0.000	The general habitat units are the amount of offset that must be secured if the application is approved. This offset requirement will be a condition to any permit or approval for the removal of native vegetation. <i>General habitat units required = general habitat score x 1.5</i>
Minimum strategic biodiversity value score	0.320	The offset site must have a strategic biodiversity value score of at least 80 per cent of the strategic biodiversity value score of the native vegetation to be removed. This is to ensure offsets are located in areas with a strategic biodiversity value that is comparable to the native vegetation to be removed.
Vicinity	Glenelg Hopkins CMA or Moyne Shire Council	The offset site must be located within the same Catchment Management Authority boundary or municipal district as the native vegetation to be removed.
Large trees	0 large tree (s)	The offset site must protect at least one large tree for every large tree removed. A large tree is a native canopy tree with a Diameter at Breast Height greater than or equal to the large tree benchmark for the local Ecological Vegetation Class. A large tree can be either a large scattered tree or a large patch tree.



APPENDIX C

VEGETATION CLEARANCE ASSESSMENT
REPORT



Woolsthorpe
Greenfields 66kV
Project Vegetation
Clearance
Assessment Report
for



For: Barry Thebes
Project Manager
CitiPower Powercor

By: Peta Knight
Project Officer
Utility Trees

November 2019
V.2.2



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DISCLAIMER

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Due to the nature of trees and the practical limitations in accurately assessing the structural integrity of all parts of a tree it is not possible to make a completely accurate assessment of the condition of a tree. The recommendations in this report are based on visual assessments and external indicators and there is also some degree of subjectivity. This report is intended to be used as a tool to assist in the risk management of trees growing in the vicinity of infrastructure. It should be noted that any tree near any structure or property or person(s) poses a risk.

To this extent, neither Utility Trees nor any of its employees or directors or advisers gives any warranty as to the reliability or accuracy of the information nor accepts any responsibility arising in any other way (including by reason of negligence) for errors or omissions herein nor accepts liability for any loss or damage suffered by any person or any other persons placing any reliance on, acting on the basis of, the contents hereof. No party shall be entitled to raise any claim or suit of action based on the contents of this report.

1. CLIENT BRIEF

- 1.1 Assess the proposed new line section of the Woolsthorpe Greenfields 66kV construction Project, North of proposed Replacement Pole 120 in Depot Road and into Railway Road Koroit. Determine what, if any, Vegetation clearance impact the new line in the Construction Project would have on the existing vegetation to Powerline clearance requirements and provide clearance recommendations.

2. SCOPE

- 2.1 Review the proposed new Powerline construction as per plan PCA80_5120678. Inspect and estimate what the clearance the existing vegetation will have to the proposed new conductors based on a line of sight assessment from the ground.
- 2.2 Determine, through theoretical estimation, if any trees will need to be cleared to obtain the distance from the vegetation to the proposed Powerline as per the measurements within Powercor's 2018-19 Electric Line Clearance (Vegetation) Management Plan and provide vegetation clearance recommendations.

3. EXECUTIVE SUMMARY

- 3.1 This Vegetation assessment report is related to a section of line, as part of a large 66kV construction Project, in Depot and Railway Road Koroit. The current design includes changing the side of the road and using tall poles to avoid tree clearing. The project Arborist noted that the existing plan has obviously considered the existing vegetation. and is considered optimal for minimizing vegetation impacts. No alterations to the plan have been recommended.
- 3.2 There were 73 trees assessed at 20 sites. The recommendations include the removal of 12 exotic Pine trees. There are 54 Blackwoods and Eucalypts recommended to be pruned. Council will need to be consulted in regard to a permit before any work is carried out.
- 3.3 This general region of Victoria is known for its significant grasslands and it is recommended the Council and Basalt to Bay Landcare Group is consulted to ensure compliance with the EPBC Act.
- 3.4 This section of the project is within the Hazardous Bushfire Risk Area and within the Moyne Shire. The area is not in the Declared Area and the Shire will not be responsible for tree clearing on this section of line.

4. METHODOLOGY

- 4.1 The proposed plan was provided by Powercor. The proposed new conductors and pole configurations were assessed against the existing trees. The project was reviewed to determine what the compliance requirements would be on the proposed works.

- 4.2 The vegetation status provided in this report was derived from the field by a visual assessment from the ground. These trees were plotted in the field using the GPS within the tablet.
- 4.3 The clearance and regrowth allowances are based on the requirements in the Clearance charts within Powercor's 2018 to 2019 Electric Line Clearance (Vegetation) Management Plan. The standard regrowth calculation from this plan are shown in Appendix 1. A reduction in the allowance for the regrowth may be considered for slow growing, mature or senescent trees. Utility Trees recommends Pre-summer assessments to be carried out.

5. OBSERVATIONS

- 5.1 The trees were individually assessed for estimated vigour, height and location compared to the proposed line. The detail and photos of these assessments located in section 9 and summarised in the data tables in section 7. The tree locations were recorded in the field and mapped as shown in section 8.
- 5.2 The proposed Powerline to be constructed in this new section of line is designed with 17m poles supporting 3-19/4.75 AAC conductors.
- 5.3 There are 20 tree sites and 73 trees assessed within this report. There are 3 trees grouped together within site 9 due to them being the same species and their similar size and form. The total trees by species identified on site are summarised in table 1 below.

Table 1

Species	Total Sites	Total Trees
Blackwood (<i>Acacia melanoxylon</i>)	13	41
Cypresses macrocarpa, Blackwood (<i>Acacia melanoxylon</i>)	1	3
Yate (<i>Eucalyptus cornuta</i>)	3	6
Yate (<i>Eucalyptus cornuta</i>), Blackwood (<i>Acacia melanoxylon</i>)	1	5
Pinus radiata	2	18
Grand Total	20	73

- 5.4 It was apparent from field observations that the proposed line was designed to reduce the impact on the existing vegetation.
- 5.5 This assessment is carried out to ensure compliance is achieved with the Electricity Safety (Electric Line Clearance) Regulations 2015 and an allowance for regrowth, sag and sway as specified within Powercor's Electric Line clearance Management Plan.

6. RECOMMENDATIONS

- 6.1 The project is within the Moyne Shire Council area. There are 54 Native trees recommended to be pruned. There are 12 exotics recommended for removal and 7 to be pruned. We recommend the Council is consulted in regard to Permit requirements. The section of line is not affected by Moyne Shires Vegetation Protection Overlay or Environment Significance overlay.
- 6.2 The table in Section 7 contains the spans where vegetation would need to be cleared to obtain the required clearance from the proposed Powerline. A summary of the recommendations is shown in Table 2.

Table 2

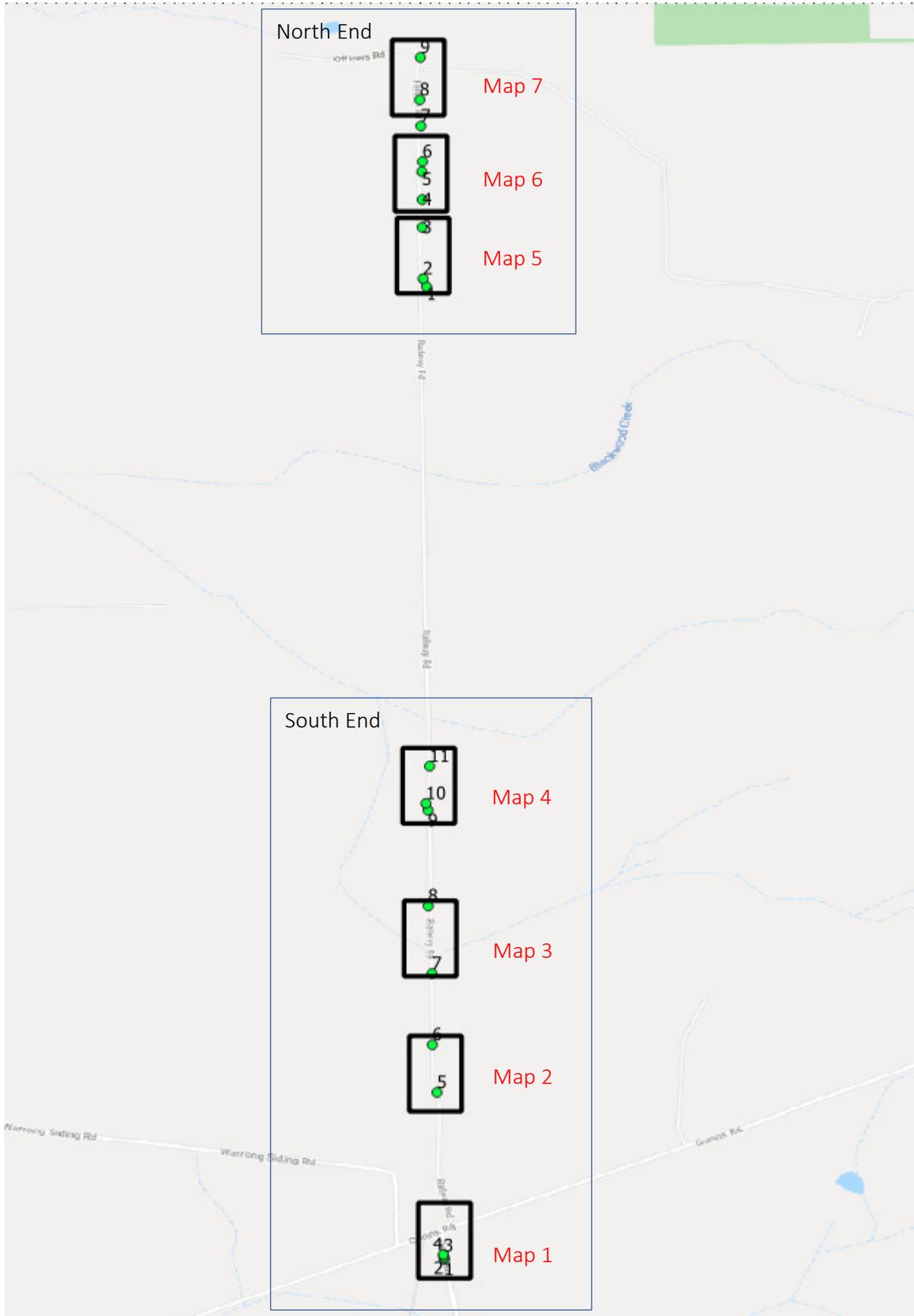
Species	Native Trim	Native Removal	Exotic Removal	Exotic Trim
Blackwood (<i>Acacia melanoxylon</i>)	41			
Cypresses macrocarpa, Blackwood (<i>Acacia melanoxylon</i>)	2			1
Mixed Eucs	6			
Yate (<i>Eucalyptus cornuta</i>), Blackwood (<i>Acacia melanoxylon</i>)	5			
Pinus radiata			12	6
Grand Total	54	0	12	7

- 6.3 This region of Victoria is known for its significant grasslands and it is recommended the Council and Basalt to Bay Landcare Group is consulted to ensure compliance with the EPBC Act.
- 6.4 The current project was considered by the Project Arborist to be an optimal design to avoid, where possible the existing vegetation and no alterations to the design are recommended.
- 6.5 A best estimation was made, including the consideration of the height of the poles and sag. As this is in the HBRA, it is highly recommended that this line be reassessed, audited post construction to ensure compliance has been achieved and will maintain clearance to the next cycle.

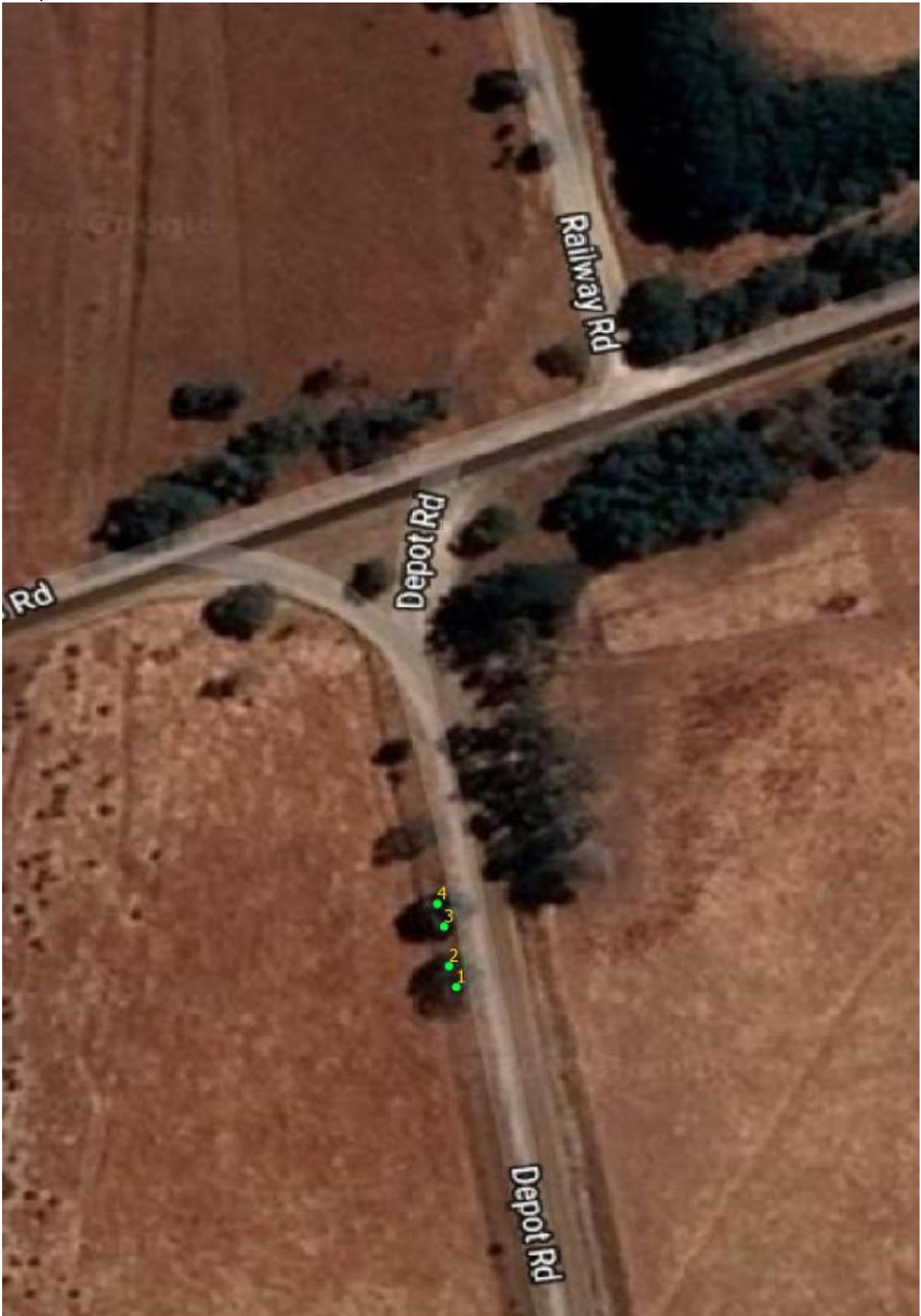
7. DATA SUMMARY

Tree ID	Street	Pole No.	Voltage	Landowner	Trims	Removals	Species	Equip	Longitude	Latitude	Comments
South											
1	Depot Road	132	HV	Council	1		Acacia	EWP	142.370595709	-38.2387669338	Blackwood
2	Depot Road	132	66kV	Council	1		Acacia	0%	142.370552626	-38.2387896907	Blackwood
3	Depot Road	132	66kV	Council	1		Acacia	EWP	142.370542316	-38.2387051173	Blackwood
4	Depot Road	132	66kV	Council	1		Acacia	EWP	142.370500323	-38.2386737271	Blackwood
5	Railway Road	139	66kV	Council	1		Acacia		142.370288093	-38.233237518	Blackwood
6	Railway Road	141	66kV	Council		1	Pine	Ground Crew	142.370131938	-38.2316300366	Remove Pine
7	Railway Road	144	66kV	Council	1		Acacia	EWP	142.370120622	-38.2292277413	Blackwood
8	Railway Road	145	66kV	Vline	1		Euc	EWP	142.369993972	-38.2269515936	Yate Major trim retains habitat value birds nest present
9	Railway Road	148	66kV	Council	3		Acacia	Ground Crew	142.369989697	-38.2237260696	Prune 3 Blackwood for pole installation DBH 16, 14, 21
10	Railway Road	149	66kV	Vline	1		Euc	EWP	142.369918283	-38.2234961121	Yate, major trim required
11	Railway Road	150	66kV	Council	1		Acacia	EWP	142.370059434	-38.2222220209	Blackwood
North											
1	Railway Road	165	66kV	Private, Council	6	11	Pine	EWP, Ground Crew	142.369937117	-38.2060701685	Remove Pines
2	Railway Road	166	66kV	Council	5		Euc, Acacia	EWP, Ground Crew	142.369822478	-38.2058067341	"Native eucs will need to prune. May need to Prune tops of Blackwood
3	Railway Road	167	66kV	Council	4		Acacia	EWP	142.369793052	-38.2040760184	Blackwoods Prune tops
4	Railway Road	168	66kV	Council	7		Acacia	EWP	142.369794307	-38.2031376267	Prune tops of blackwoods
5	Railway Road	169	66kV	Council	15		Acacia		142.369783086	-38.2021957511	Blackwood and Silver Wattles
6	Railway Road	170	66kV	Council	3		Cyp, Acacia	EWP	142.369804126	-38.201857969	2 cypress 1 wattle
7	Railway Road	171	66kV	Council	2		Acacia	EWP	142.369748047	-38.2006584434	Pines should keep clearance check after construction
8	Railway Road	172	66kV	Council	3		Acacia	EWP	142.369713773	-38.1997728415	Prune tops of Blackwood and wattle
9	Railway Road y	173	66kV	Private	4		Mixed Eucs	Ground Crew	142.369731444	-38.1983462797	Mixed euc plantation Prune

8. MAPS



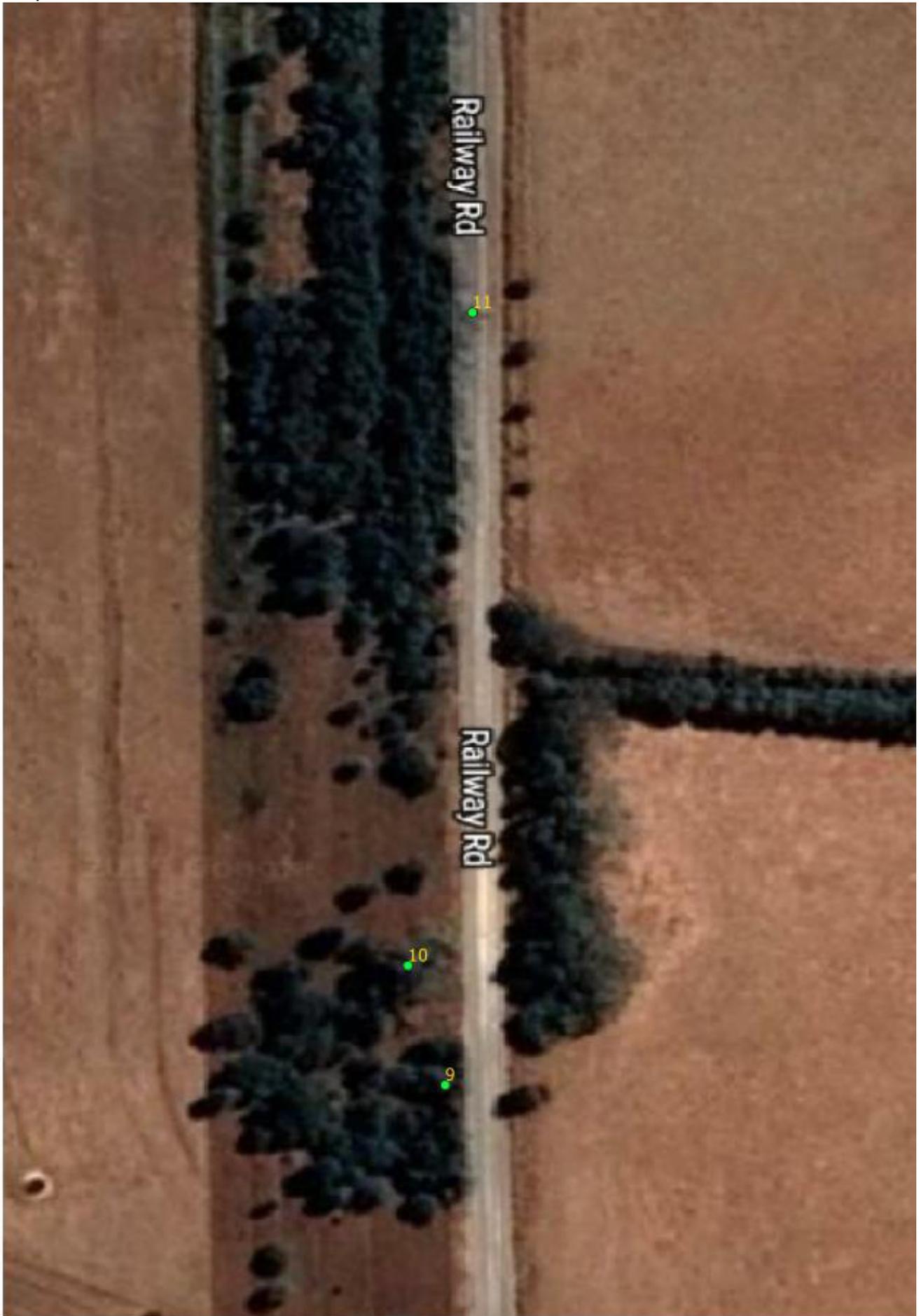
Map 1



Map 2



Map 3



Map 4



Map 5



Map 6



9. TREE DETAIL (South)

Greenfields Section Tree 1	
Street	Depot Road
House Number	
Pole Number	132
LIS #	
Voltage	66kV
Landowner	Council
 <p>Appendix 1</p>	
Work	
Trims	1
Removals	0
Species	Blackwood (<i>Acacia melanoxylon</i>)
Equipment Required	EWP
Comments	

Greenfields Section Tree 2	
Street	Depot
House Number	
Pole Number	132
LIS #	
Voltage	66kV
Landowner	Council
 <p>Appendix 2</p>	
Work	
Trims	1
Removals	0
Species	Blackwood (<i>Acacia melanoxylon</i>)
Equipment Required	EWP
Comments	

Greenfields Section Tree 3	
Street	Depot
House Number	
Pole Number	132
LIS #	
Voltage	66kV
Landowner	Council
 <p>Appendix 3</p>	
Work	
Trims	1
Removals	0
Species	Blackwood (<i>Acacia melanoxylon</i>)
Equipment Required	EWP
Comments	

Greenfields Section Tree 4	
Street	Depot
House Number	
Pole Number	132
LIS #	
Voltage	66kV
Landowner	Council
 <p>Appendix 4</p>	
Work	
Trims	1
Removals	0
Species	Blackwood (<i>Acacia melanoxylon</i>)
Equipment Required	EWP
Comments	

Greenfields Section Tree 5	
Street	Railway
House Number	
Pole Number	139
LIS #	
Voltage	66kV
Landowner	Council
 <p>4/10/19, 11:01 am</p> <p>Appendix 5</p>	
Work	
Trims	1
Removals	0
Species	Blackwood (<i>Acacia melanoxylon</i>)
Equipment Required	EWP
Comments	

Greenfields Section Tree 6	
Street	Railway
House Number	
Pole Number	141
LIS #	
Voltage	66kV
Landowner	Council
 <p>Appendix 6</p>	
Work	
Trims	0
Removals	1
Species	Pine (<i>Pinus radiata</i>)
Equipment Required	Ground Crew
Comments	Remove Pine

Greenfields Section Tree 7	
Street	Railway
House Number	
Pole Number	144
LIS #	
Voltage	66kV
Landowner	Council
 <p>Appendix 7</p>	
Work	
Trims	1
Removals	
Species	Blackwood (<i>Acacia melanoxylon</i>)
Equipment Required	EWP
Comments	

Greenfields Section Tree 8	
Street	Railway
House Number	
Pole Number	145
LIS #	
Voltage	66kV
Landowner	Vline
 <p>Appendix 8</p>	
Work	
Trims	1
Removals	0
Species	Yate (<i>Eucalyptus cornuta</i>)
Equipment Required	EWP
Comments	Indigenous to Western Australia do a major trim to retain habitat value birds nest present

Greenfields Section Tree 9	
Street	Railway
House Number	
Pole Number	148
LIS #	
Voltage	66kV
Landowner	Council
 <p>Appendix 9</p>	
Work	
Trims	3
Removals	0
Species	Blackwood (<i>Acacia melanoxylon</i>)
Equipment Required	Ground Crew
Comments	Prune 3 Blackwood for pole installation DBH 16 14 21

Greenfields Section Tree 10	
Street	Railway
House Number	
Pole Number	149
LIS #	
Voltage	66kV
Landowner	Vline
 <p>Appendix 10</p>	
Work	
Trims	1
Removals	
Species	Yate (<i>Eucalyptus cornuta</i>)
Equipment Required	EWP
Comments	Indigenous to Western Australia, a major trim required

Greenfields Section Tree 11	
Street	Railway Road
House Number	
Pole Number	150
LIS #	
Voltage	66kV
Landowner	Council
 <p>Appendix 11</p>	
Work	
Trims	1
Removals	0
Species	Blackwood (<i>Acacia melanoxylon</i>)
Equipment Required	EWP
Comments	

Media



Appendix 1



Appendix 2



Appendix 3



Appendix 5

Appendix 4



Appendix 6



Appendix 7



Appendix 8



Appendix 9



Appendix 10



Appendix 11

10. TREE DETAIL (North)

Span 164-165	
Street	Railway
Pole Number	165
Voltage	66kV
Land Owner	Private, Council
 <p>Appendix 1</p>	
Trims	6
Removals	11
Species	Pine
Equipment Required	EWP, Ground Crew
Comments	Remove Pines

Span 165-166	
Street	Railway
Pole Number	166
Voltage	66
Landowner	Council
 <p>Appendix 2 Appendix 3</p>	
Trims	5
Species	Euc, Acacia
Equipment Required	EWP, Ground Crew
Comments	Conductors should be high enough to trim native swamp gums. Prune tops out of Blackwood

Span 166-167

Street	Railway
Pole Number	167
Voltage	66kV
Land Owner	Council



Appendix 4

Trims	4
Species	Acacia
Equipment Required	EWP
Comments	Blackwoods Prune tops

Span 167-168

Street	Railway
Pole Number	168
Voltage	66kV
Land Owner	Council



Appendix 5

Trims	7
Species	Acacia
Equipment Required	EWP
Comments	Prune tops of blackwoods

Span 168-169	
Street	Railway
Pole Number	169
Voltage	66kV
Land Owner	Council
 <p>Appendix 6</p>	
Trims	10
Species	Acacia
Comments	Blackwood and silver wattles

Span 169-170	
Street	Railway
Pole Number	170
Voltage	66kV
Land Owner	Council
 <p>Appendix 7</p>	
Trims	3
Species	Acacia, Cyp
Equipment Required	EWP
Comments	2 cypress 1 wattle

Span 170-171	
Street	Railway Road
Pole Number	171
Voltage	66kV
Land Owner	Council
 <p>Appendix 8</p>	
Trims	2
Species	Acacia
Equipment Required	EWP
Comments	Pines should keep clearance check after construction

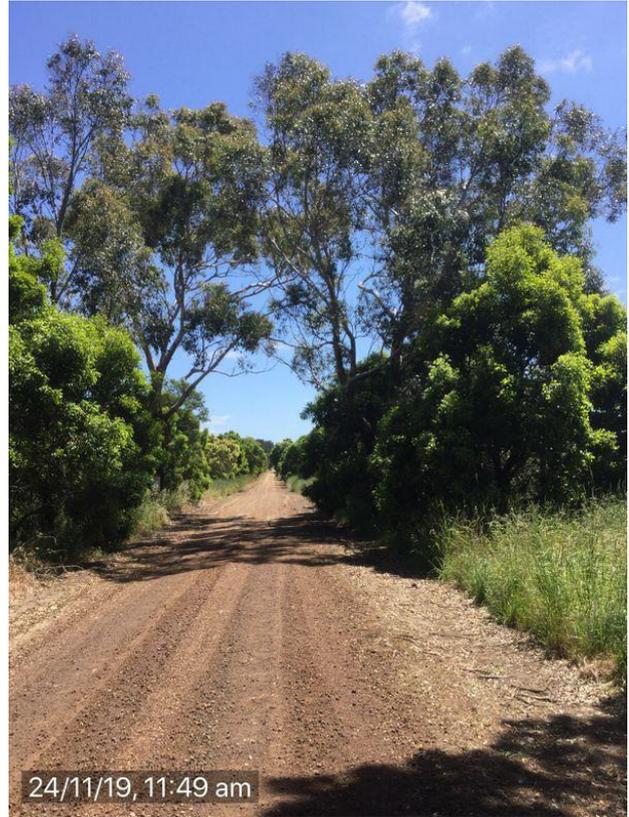
Span 171-172	
Street	Railway
Pole Number	172
Voltage	66kV
Land Owner	Council
 <p>Appendix 9</p>	
Trims	3
Species	Acacia
Equipment Required	EWP
Comments	Prune tops of Blackwood and wattle

Span 172-173	
Street	Railway
Pole Number	173
Voltage	66kV
Land Owner	Private
 <p>Appendix 10</p>	
Trims	4
Species	Euc
Equipment Required	Ground Crew
Comments	Mixed euc plantation Prune

Media



Appendix 1



Appendix 2



Appendix 3



Appendix 4



Appendix 5



Appendix 6



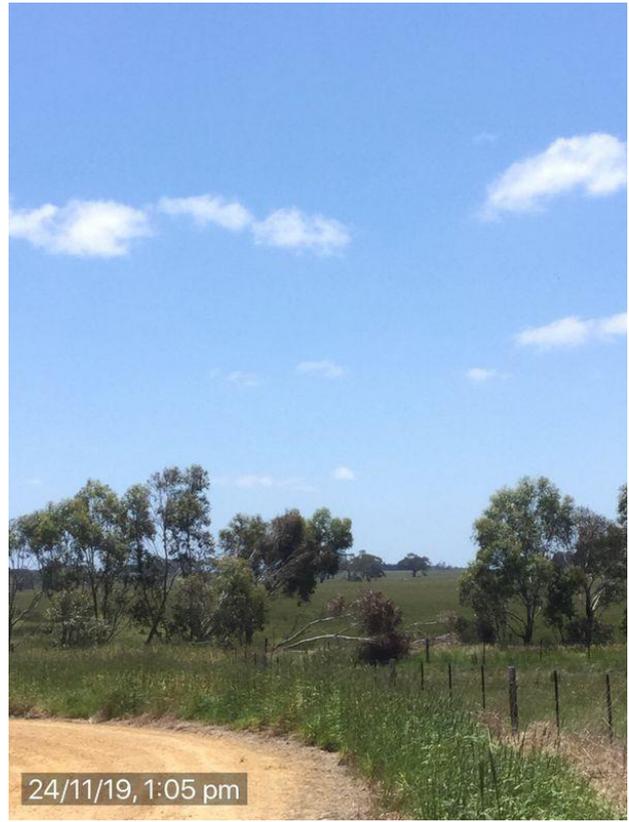
Appendix 7



Appendix 8



Appendix 9

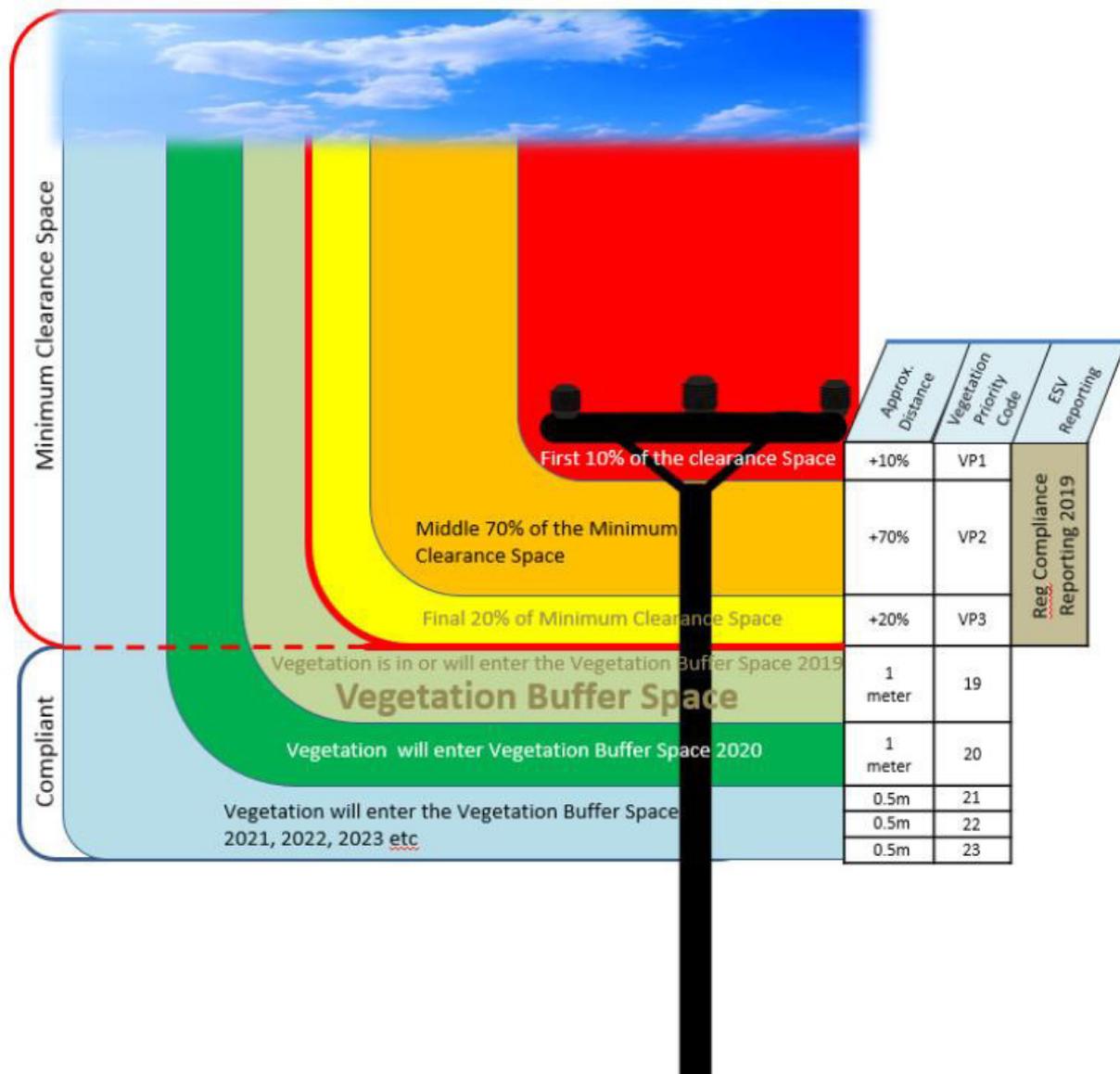


Appendix 10

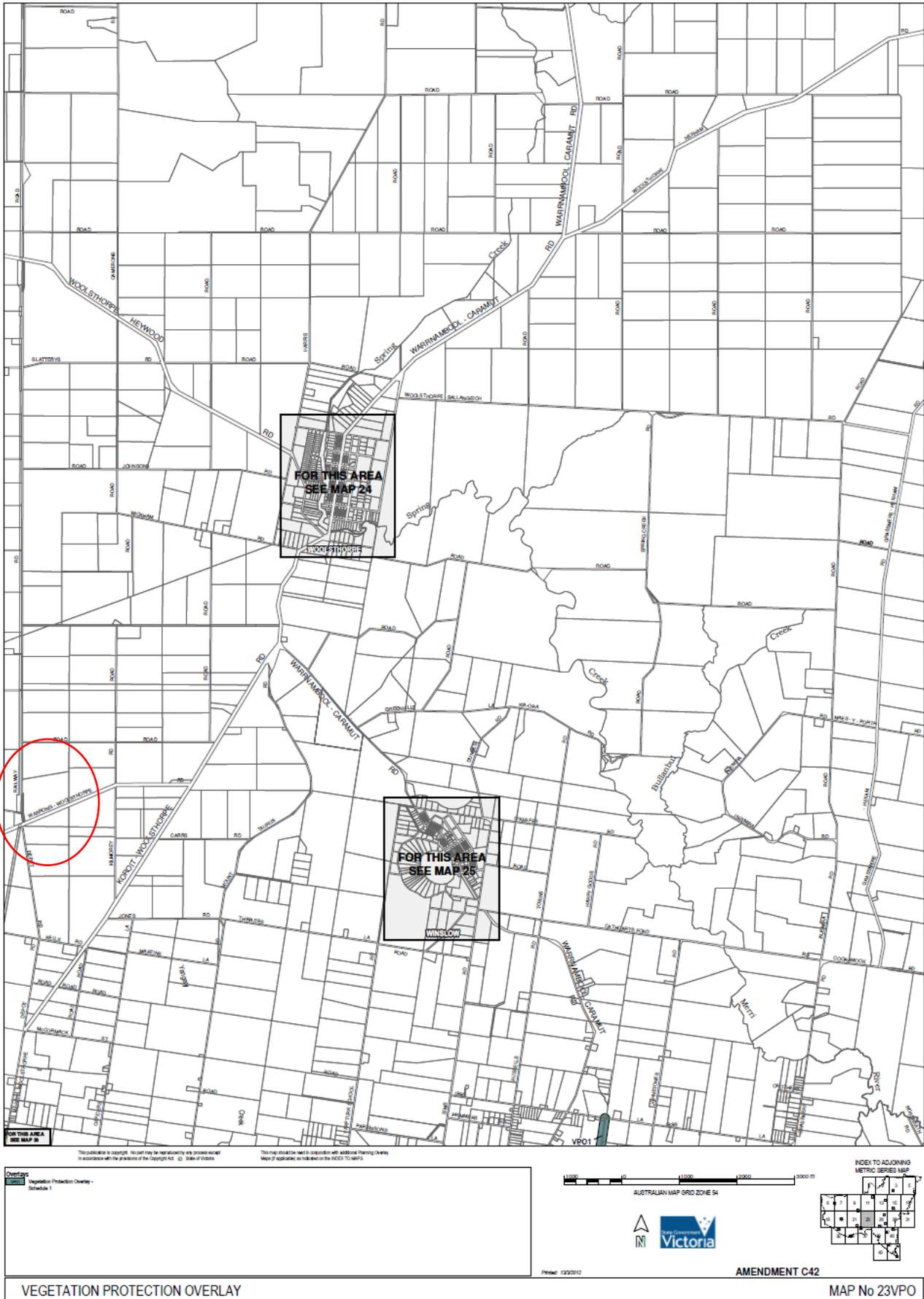
11. Appendix 1 Allowance for regrowth

- 12.1 The allowance for regrowth is based on the Powercor Electric Line Clearance Management Plan. The diagram below displays the codes and calculations for 2018-19. An extra year needs to be added to the codes in 2019 to allow for the year code anniversary. Effectively the Minimum Clearance Space requires an extra 2.5m added to the minimum required clearance to allow for 3 years regrowth.

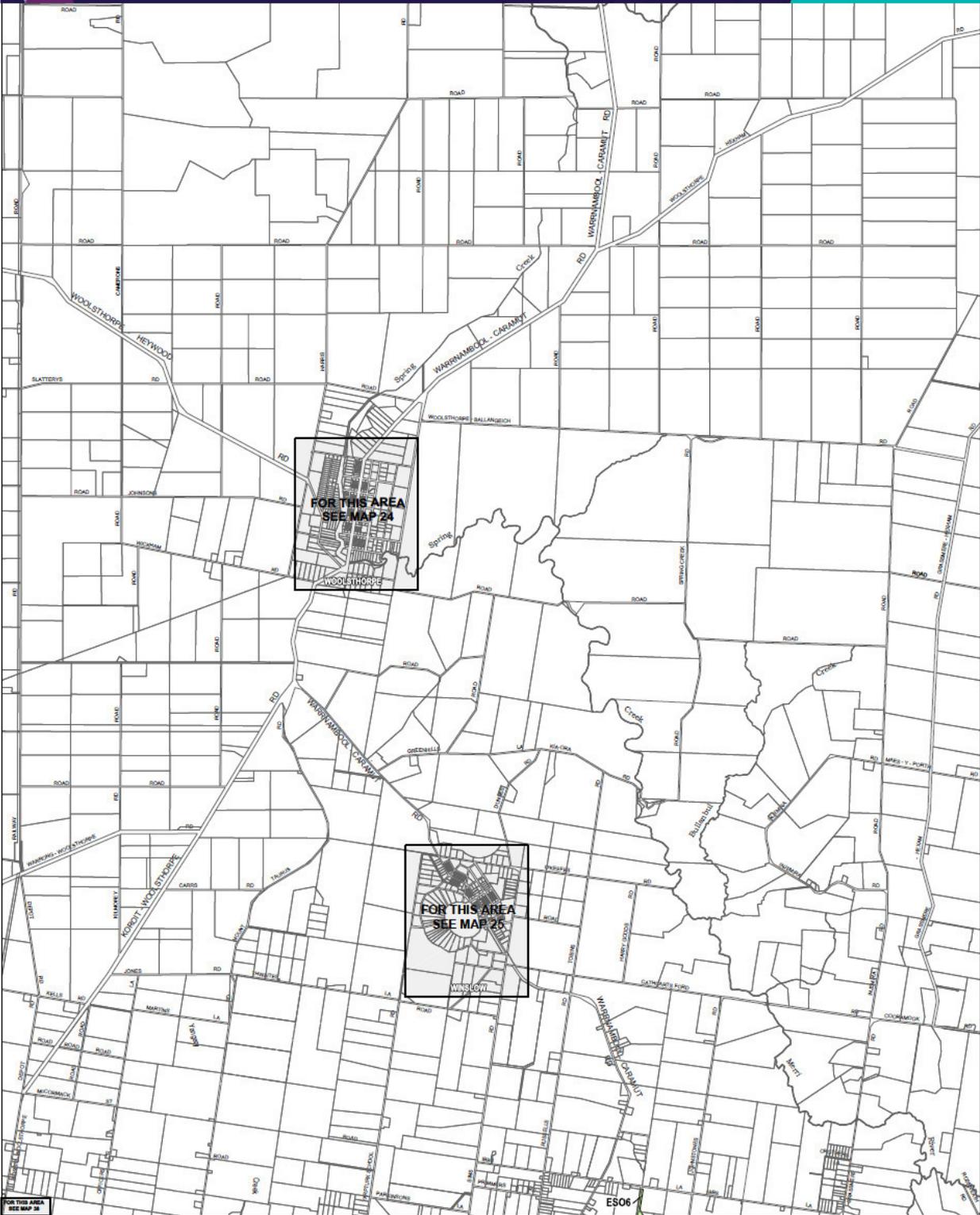
Figure 11: Vegetation buffer zone Clearance Spaces



12. Appendix 2 Moyne Shire Vegetation and ESO Protection Overlay MOYNE PLANNING SCHEME - LOCAL PROVISION



MOYNE PLANNING SCHEME - LOCAL PROVISION



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This map should be read in conjunction with additional Planning Overlay Maps if applicable as indicated on the MCO. TO WAPPS.

Legend:
E Environmental Significance Overlay - Schedule 1
 Municipal Boundary (if shown)

AUSTRALIAN MAP GRID ZONE 64
 PREPARED BY: Planning Mapping Services
VICTORIA State Government
 Environment, Land, Water and Planning

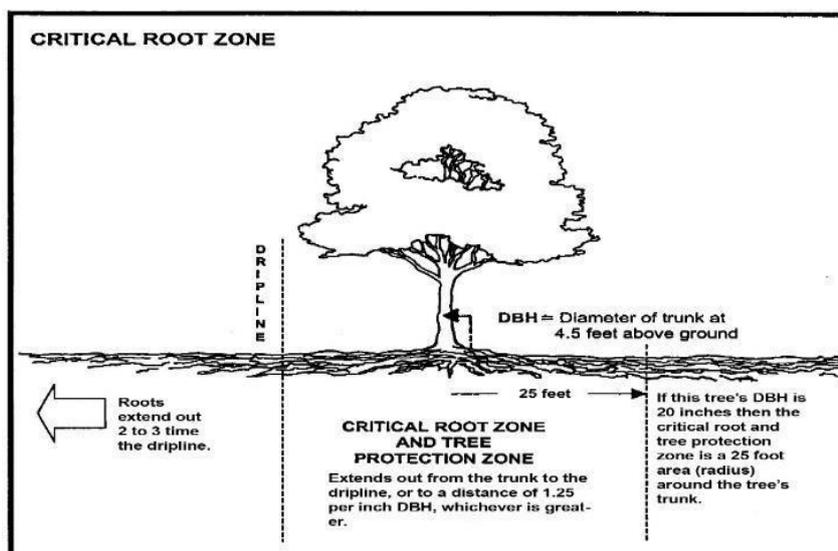
ENVIRONMENTAL SIGNIFICANCE OVERLAY

INDEX TO ADJOINING

MAP No 23ESO

13. Glossary of Arboriculture Terms

- **Bifurcation:** To divide into two parts or branches. Also referred to as Co-dominant stems where two stems or trunks of equal size that develop from 2 apical buds at the tip of the same stem. Each co-dominant stem is a direct extension of the stem below its origin. There are no branch collars or truck collars at the base of co-dominant stems. Also, there is no 'built in' protection zone at the base of each co-dominant stem as there is at the base of branches. When a pathogen spreads downwards in a co-dominant stem, there are no natural protection boundaries to resist its spread, A stem bark ridge separates the 2 stems from each other. The 2 stems may have a strong union and the ridge of the stem will point upwards. If included bark separates the 2 stems, a very weak union develops, and the stem bark ridge turns inwards or invaginated. This leads to structural failure and branch splitting. (Shigo 1986)
- **Buttress Zone;** The region at the base of a tree where the major lateral roots join the stem.
- **Cambium;** Layer of dividing cells producing xylem (woody) tissue internally and phloem (bark) tissue externally
- **Co-dominant stem;** two or more main stems (or "leaders") that are about the same diameter and emerge from the same location on the main trunk.
- **Compartmentalization of decay in Trees (CODIT):** A model leading to the modern concept of tree decay in which when trees are wounded (or pruned, a form of wounding) in which fungi and other organisms infect wood causing trees to respond to this infection with both physical and chemical changes which seek to limit the spread of the infection through compartmentalizing of the wound. This is achieved through wounded cells undergoing changes to form 'walls' around the wound creating a physical barrier and chemical barrier, to prevent decay spread
- **Coppice Growth;** Growth Shoots from the previously cut stump or roots.
- **Critical Root Zone**



- **Diameter at breast height (DBH)** The nominal trunk diameter at 1.4 m above ground level determined by the circumference of the trunk divided by pi (!). $2 \times 2 \frac{1}{2}$ For trees with multiple trunks Total DBHT = (DBH1 + DBH2 + DBH3)
- **Epicormic Shoot;** A shoot having developed from a dormant or adventitious bud and not having developed from a first-year shoot.
- **Included bark;** Is bark embedded between opposing branches, a branch and a main stem or two co-dominant stems creating a structurally weak point in the tree.

- **Retention Value:** A measure of the retention or preservation value of a particular tree. The tree may be significant on account of its size, species, contribution to the landscape, and rarity or maybe a worthwhile specimen in terms of its health, structure and form. Further it may be a significant tree for historical reasons, or as a valuable habitat tree for birds and wildlife. Local councils often deem a tree significant based on its size, usually as a measure of trunk diameter. Other authorities such as the National Trust will deem a tree significant based on the other criteria already listed. Categories: High, Medium, Low
- **Root Plate;** Is the primary structural roots extending out from the trunk.
- **Senescence:** The of the tree lifecycle where the tree has its resources degraded leading to decreased physiological activity. This occurs as the tree approaches the end of its life whether due to age or damage and disturbance through changes to its environment.
- **Shape/Form:** Refers to the shape of the tree, whether the trunk has a lean, whether it has single or multiple trunks and whether the growth of the tree is balanced and symmetrical in nature; Categories: Very Good, Good, Fair, Poor.
- **Structural Root Zone (SRZ):** The area around the base of a tree required for the tree's stability in the ground. The woody root growth and soil cohesion in this area are necessary to hold the tree upright. The SRZ is nominally circular with the trunk at its centre and is expressed by its radius in meters. This zone considers a tree's structural stability only, not the root zone required for a tree's vigour and long-term viability, which will usually be a much larger area. It is calculated as :- $0.42 \text{ SRZ radius} = (D \times 50) \times 0.64$ where D = trunk diameter in m, measured above the root buttress (AS 4970:2009) The SRZ for trees with trunk diameters less than 0.15 will be 1.5 m
- **Tree Health & Vigour:** Is used to describe the overall health of the tree, and considers growth rates, fullness of the canopy, the presence of any pest and disease, an assessment of any branch dieback, and the level of deadwood in the tree Categories: Very Good, Good, Fair, Poor, Dead.
- **Tree Protection Zone (TPZ):** A specified area above and below the ground and at a given distance from the trunk set aside for the protection of a trees roots and crown to provide for the viability and stability of a tree to be retained where it is potentially subject to damage by development. As per the Australian Standard AS 4970:2009 It is calculated as $12 \times \text{DBH}$ of the tree trunk.
- **Tree Structure:** Refers to the trunk form and branch structure. It refers to the arrangement of scaffold branches, the degree of trunk taper, the symmetry of the canopy, whether the tree has any decay present in the branches, trunk or roots, or other structural problems such as included bark in the union of co-dominant stems. It covers tree stability and branch points of attachment. It also pertains to the root system which may or may not have been disturbed through earthworks, or other structural root problems such root girdling which may affect a trees stability Categories: Very Good, Good, Fair , Poor
- **U.L.E – Useful Life Expectancy:** That age at which a tree is sufficiently healthy and free of problems which can cause the tree to be hazardous. If the tree has structural or other health anomaly's the tree may be managed through arboricultural inputs that are not excessive and justify the trees ongoing management and preservation. Once a tree undergoes senescence the tree will have usually entered the end of its U.L.E **'Included' Trunk or branch Unions:** where the branch bark ridge turns inward creating a structurally flawed union. It typically occurs with co – dominant stems that originate from the same position often growing to a similar diameter as the stem

diameter increases the stems or trunks push against one another and may cause cracks below the stems which are prone to failure under moderate loading.

14. References.

- Native Vegetation Technical Infrastructure Sheet 2011
- AS 4970 – 2009 – Protection of Trees on development sites
- Dicke S.G 2006. 'Tree Protection Standards in Construction Sites' Publication #FO468 of the Forest and Wildlife
- Research Center, Mississippi State University Matheny, N and Clarke, J. 1998. Trees and Development – A Technical Guide to Preservation of Trees During Land Development. International Society of Arboriculture. Champaign, USA. 183pp.