REFERRAL OF A PROJECT FOR A DECISION ON THE NEED FOR ASSESSMENT UNDER THE *ENVIRONMENT EFFECTS ACT 1978*

REFERRAL FORM

The *Environment Effects Act 1978* provides that where proposed works may have a significant effect on the environment, either a proponent or a decision-maker may refer these works (or project) to the Minister for Planning for advice as to whether an Environment Effects Statement (EES) is required.

This Referral Form is designed to assist in the provision of relevant information in accordance with the *Ministerial Guidelines for assessment of environmental effects under the Environment Effects Act 1978* (Seventh Edition, 2006). Where a decision-maker is referring a project, they should complete a Referral Form to the best of their ability, recognising that further information may need to be obtained from the proponent.

It will generally be useful for a proponent to discuss the preparation of a Referral with the Impact Assessment Unit (IAU) at the Department of Environment, Land, Water and Planning (DELWP) before submitting the Referral.

If a proponent believes that effective measures to address environmental risks are available, sufficient information could be provided in the Referral to substantiate this view. In contrast, if a proponent considers that further detailed environmental studies will be needed as part of project investigations, a more general description of potential effects and possible mitigation measures in the Referral may suffice.

In completing a Referral Form, the following should occur:

- Mark relevant boxes by changing the font colour of the 'cross' to black and provide additional information and explanation where requested.
- As a minimum, a brief response should be provided for each item in the Referral Form, with a more detailed response provided where the item is of particular relevance. Cross-references to sections or pages in supporting documents should also be provided. Information need only be provided once in the Referral Form, although relevant cross-referencing should be included.
- Responses should honestly reflect the potential for adverse environmental effects. A Referral will only be accepted for processing once IAU is satisfied that it has been completed appropriately.
- Potentially significant effects should be described in sufficient detail for a reasonable conclusion to be drawn on whether the project could pose a significant risk to environmental assets. Responses should include:
    - a brief description of potential changes or risks to environmental assets resulting from the project;
    - available information on the likelihood and significance of such changes;
    - the sources and accuracy of this information, and associated uncertainties.
- Any attachments, maps and supporting reports should be provided in a secure folder with the Referral Form.
- A CD or DVD copy of all documents will be needed, especially if the size of electronic documents may cause email difficulties. **Individual documents should not exceed 2MB as they will be published on the Department's website.**

- A completed form would normally be between 15 and 30 pages in length. Responses should not be constrained by the size of the text boxes provided. Text boxes should be extended to allow for an appropriate level of detail.
- The form should be completed in MS Word and not handwritten.

The party referring a project should submit a covering letter to the Minister for Planning together with a completed Referral Form, attaching supporting reports and other information that may be relevant. This should be sent to:

Postal address

Minister for Planning
GPO Box 2392
MELBOURNE VIC 3001

Couriers

Minister for Planning
Level 20, 1 Spring Street
MELBOURNE VIC 3001

In addition to the submission of the hardcopy to the Minister, separate submission of an electronic copy of the Referral via email to ees.referrals@delwp.vic.gov.au is required. This will assist the timely processing of a referral.

PART 1 PROPONENT DETAILS, PROJECT DESCRIPTION & LOCATION

1. Information on proponent and person making Referral

Name of Proponent:	Warracknabeal Energy Park Pty Ltd (ABN 82 653 509 392)
Authorised person for proponent: **Position:** **Postal address:** **Email address:** **Phone number:** **Facsimile number:**	Tobias Geiger Director C/- WestWind Energy Level 2, Tenancy 2, 15-17 Goode Street Gisborne VIC 3437 geiger@w-wind.com.au +61 (0)419 338 112 +61 (0)3 5421 9922
Person who prepared Referral: **Position:** **Organisation:** **Postal address:** **Email address:** **Phone number:** **Facsimile number:**	Kyle Sandona Senior Development Manager WestWind Energy Level 2, Tenancy 2, 15-17 Goode Street Gisborne VIC 3437 kyles@w-wind.com.au +61 (0)401 552 780 +61 (0)3 5421 9962
Available industry & environmental expertise: (areas of 'in-house' expertise & consultancy firms engaged for project)	WestWind Energy Pty Ltd (WestWind) has extensive experience in power infrastructure planning, project development and implementation, environmental management, stakeholder management and community consultation. WestWind has developed four wind farm projects in western Victoria, including the Golden Plains Wind Farm. To supplement its extensive in-house expertise, WestWind has engaged the following suitably qualified consultants to undertake a range of expert investigations for the Warracknabeal Energy Park.

Area of Expertise	Consultant(s)
Planning	Bunjil Planning
Aviation	Aviation Projects
Ecology	Ecology and Heritage Partners
Landscape and Visual Impact	XURBAN
Cultural Heritage	Heritage Insight
Historic Heritage	Heritage Insight
Electromagnetic Interference	GHD
Surface Water and Groundwater	GHD

	Noise	Resonate
	Social and Economic Impacts	EthosUrban
	Traffic	Traffix Group

2. Project – brief outline

Project title: Warracknabeal Energy Park (WAEP)

Project location: (describe location with AMG coordinates and attach A4/A3 map(s) showing project site or investigation area, as well as its regional and local context)

Project Area Location

The Warracknabeal Energy Park (the Project) involves the establishment of a wind energy facility including wind turbine generators (WTG) and associated electrical infrastructure approximately 40km north of Horsham and 5km from Warracknabeal in the Wimmera region of north-western Victoria. The site is located within the Yarriambiack Shire and the Western Victoria Renewable Energy Zone.

The Project Area consists of two (2) project sections and two (2) easement corridors for overhead transmission lines.

Combined, the total Project Area covers approximately 26,500 hectares (ha).

1. The Northern Section (WAEP-N) is approximately 15,700 ha in area and is located 5 km north-west of Warracknabeal.
2. The Southern Section (WAEP-S) is approximately 7,200 ha in area and is located 7 km south-west of Warracknabeal.
3. The northern easement corridor, hereby referred to as the North-South Link (N-S Link) is approx. 2,700 ha in area (only a small fraction of this corridor will eventually be used as a transmission line easement).
4. The southern easement corridor hereby referred to as the South-Murra Warra Link (S-MW Link) is approx. 900 ha in area (only a small fraction of this corridor will eventually be used as a transmission line easement).

Refer to *Attachment B.1 Project Location Map*.

Project Area Description

The Project Area is located on land that is primarily used for land-based agriculture including broad acre cropping for cereals and wheat. The land has been substantially modified over time due to the industrial nature of the agricultural operations. Some remnant native vegetation occurs along roadsides and in isolated patches within private land but otherwise, the Project Area and its surrounds are predominantly clear of native vegetation. The region is dominated by large landholdings which are substantial in area to accommodate agricultural activities. Dwellings are sparsely located across the landscape with dwellings within the Project Area predominantly accommodating landowners or farm workers.

The Project Area is generally flat with no substantial changes in elevation or notable terrain features across the Project Area. The Yarriambiack Creek runs along the eastern boundary of the Northern Section of the site.

The existing 220 kilovolt (kV) Horsham to Red Cliffs high voltage electricity transmission line bisects both the Northern Section and Southern Section of the Project Area. The operational Murra Warra Wind Farm (MWWF) is located approximately 4km south of the Southern Section.

Refer to *Attachment B.2 Project Area Plan*.

Short project description (few sentences)**:**

The proposed Project comprises up to 230 WTGs with a total generation capacity of approximately 1,650 megawatts (MW). The Project proposes the following infrastructure:

- Up to 230 WTGs[1];
- Two substations, one in the Northern Section and one in the Southern Section;
- Two Battery Energy Storage Systems (BESS), co-located with the substations;
- Overhead high voltage transmission lines running between the two substations;
- Overhead high voltage transmission from the southern substation of the Project to the Murra Warra Terminal Station;
- Overhead 33kV transmission lines within the wind farm project sections, connecting groups of turbines that are furthest away from the substations;
- Transmission and grid connection infrastructure;
- Operations and maintenance facilities;
- Turbine foundations and hardstands;
- Site access points and access tracks with drainage where required;
- Underground cabling (33kV);
- Meteorological masts; and
- Business identification signage;
- Temporary concrete batching plants; and
- Temporary site compounds, equipment laydowns and storage yards.

Proposed infrastructure is detailed in Section 3 and on the maps in *Appendix B.3 Indicative Project Layout*.

Vehicle access to the Project Area during construction will require some sections of surrounding roads to be upgraded. The scope of upgrades required will be agreed with the relevant road authorities but is expected to involve stabilisation, intersection upgrades and upgrade of culverts and other structures.

Connection to the National Electricity Market (NEM) requires construction of approximately 13km of new overhead transmission lines from the substation in the Southern Section to the existing Murra Warra Terminal Station. The new transmission line will be delivered as part of the Project and is expected to run adjacent to the existing 220kV Red Cliffs to Horsham transmission line.

The Project is likely to be developed in several stages, however this referral details the Project in its entirety.

[1] Proposed WTG dimensions are shown on the drawing in *Appendix B.4.*

3. Project description

Aim/objectives of the project (what is its purpose / intended to achieve?):

The objective of the Project is to supply renewable energy to the National Electricity Market (NEM). The Project will enhance and support Victoria's electricity supply as the generation mix transitions towards renewable energy.

The Project is consistent with:

- Victoria's Renewable Energy Target (VRET) which establishes a renewable energy generation target of 40% by 2025 and 50% by 2030.
- Australia's clean energy transition target of a 43% reduction of greenhouse gas (GHG) emissions by 2030 (Climate Change Act 2022 (Cth)).
- Victoria's long-term legislated target of net zero GHG emissions by 2050 (Victorian Climate Change Act 2017).
- The Commonwealth Government's commitment to achieve its 2030 Climate Change Target which aims to reduce GHG emissions by at least 43% compared to 2005 levels by 2030.

Preliminary energy assessments indicate that the Project will:

- Generate over 5,000 GWh of electricity per annum (24% of new renewable energy generation required to meet the VRET '50% by 2030' target).
- Save 5.5 million tonnes of CO_2 emissions annually, by replacing existing coal-fired power generation with renewable energy.
- Power more than 1,000,000 Victorian homes[2].
- Provide approximately 11% of total annual Victorian electricity requirements[3].
- Have the potential to support approximately 1,950 FTE jobs during construction and 195 FTE jobs during operation[4].
- Have the potential to generate new employment opportunities for residents and diversify income streams for local farmers. These factors may contribute to retaining, and potentially expanding, population levels within these LGAs and the broader region[3].

The proponent aims to have the Project ready for construction by the time the Western Renewables Link project reaches completion in 2026, which will ensure electricity is dispatched into the Victorian transmission network before the closure of the Yallourn coal fired power station in 2028. In turn, this will temper any temporary price spikes in the wholesale electricity market, such as those that occurred when the Hazelwood power station closed in 2016.

Background/rationale of project (describe the context / basis for the proposal, e.g. for siting):

Investigations into the suitability of the land for the Project have been ongoing since 2017 over which time the Proponent has undertaken wind resource monitoring and commissioned a suite of environmental and other feasibility studies that have informed the location and design of the Project.

The studies have significantly influenced the current project's scale, location and design. The extent to which different studies have influenced individual Project elements is detailed in Section 4 of this referral. The outcomes of the studies are discussed in detail under each relevant area within Part 2 of this referral.

The proposed Project location has been selected for the following reasons.

<u>Outstanding wind resource</u>

The Project's location has been selected primarily due to its very strong and reliable wind resource that is markedly different to most existing wind farms in Victoria. The wind resource at the site is

[2] Based on average Victorian household electricity consumption of 4,615KWh pa. (https://www.aer.gov.au/system/files/Residential%20energy%20consumption%20benchmarks%20-%209%20December%202020_0.pdf)

[3] https://www.aer.gov.au/wholesale-markets/wholesale-statistics/annual-electricity-consumption-nem

[4] Appendix A.10 Social and Economic Impact Assessment

particularly significant, exhibiting higher wind speeds than the majority of the state, and a diurnal (day/night) wind speed profile that ideally complements existing solar farms in the region.

The Proponent's investigations across Victoria over a 20-year period has shown that wind speeds in the Wimmera region are consistently high year-round, unlike sites in southern Victoria where winds are stronger in winter and early-spring, but less so for the rest of the year. Consistently high wind speeds mean this Project will produce more energy per wind turbine than many other projects of a similar size.

Furthermore, the diurnal wind speed profile in Warracknabeal offers opportunities for high energy production in the early morning, late afternoon/evening and night time periods which complements energy production from rooftop solar and large-scale solar farms. Again, this diurnal profile is particularly evident at the Project site, making it an ideal location for a large wind farm.

Access to existing infrastructure

The Project's proposed site location is located in close proximity to existing supporting infrastructure, notably the Murra Warra Terminal Station and 220kV Horsham to Red Cliffs transmission line. The location provides access to the existing 220kV Red Cliffs to Horsham transmission line which has been identified for future capacity upgrade (220kV double circuit overhead line from Murra Warra to Bulgana via Horsham[5]).

The Project location also offers direct access to suitable local and regional road systems with many roads suitable for large loads given their regular use by farm machinery and equipment. Recently constructed substantial road infrastructure upgrades between Portland and Murra Warra Wind Farm can provide port access for the delivery of large components from suppliers to site with only minimal additional upgrades required.

The generally flat, accessible landscape also allows for efficient and cost-effective construction of large wind turbines.

Manageable environmental constraints

The Project site and its surrounds contain manageable environmental constraints owing largely to the reduced presence of native vegetation as a consequence of the highly altered agricultural landscape.

Strong synergies exist between the proposed and current land use (broad acre cropping), meaning that the Project can be developed, built and operated with minimal impact to the current use.

Policy context

The Project is located within the Western Victoria Renewable Energy Zone and supports the State Government's renewable energy policies.

Community support

The region has traditionally exhibited strong community support for renewable energy projects as evidenced by the Murra Warra Wind Farm, as well as smaller renewable energy projects in the region. The Project is expected to deliver regional economic benefits with respect to employment and investment, while minimising impacts on neighbouring dwellings given the low population density on-site and in surrounding areas.

Main components of the project (nature, siting & approx. dimensions; attach A4/A3 plan(s) of site layout if available):

[5] https://www.energy.vic.gov.au/__data/assets/pdf_file/0028/580618/Victorian-Renewable-energy-zones-development-plan-directions-paper.pdf, pp. 33

An indicative wind farm layout is provided in *Attachment B.3*. Refinements to the Project siting and design are likely to be required as further comprehensive project area investigations are undertaken such as complex cultural and historic heritage assessments.

Specific turbine specifications will be determined following a commercial tendering process following the finalisation of the required planning approvals. Proposed WTG specifications are based on WTGs that are currently under development and anticipated to be commercially available in the near future. These have informed the technical impact assessments of this referral.

Permanent infrastructure forming part of the Project will include:

- Up to 230 WTGs with associated foundations[6] and hardstands[7]. Proposed WTG specifications are[8]:
  - 7 to 8 MW nameplate capacity
  - Maximum tip height: Up to 280m above ground level
  - Rotor diameter: up to 200m
  - Ground level to blade clearance: Minimum 50m above ground level
- Two internal substations, one of which will also serve as a Terminal Station, providing connection into the existing Red Cliffs to Horsham 220kV transmission line.
- 300-600MWh Battery Energy Storage Systems (BESS) at each substation.
- Approximately 282km of underground electrical cables, buried at a depth of approximately 1m, connecting WTGs to the substations.
- Approximately 23km of new internal overhead powerlines (33KV) to connect groups of wind turbine generators to collector stations.
- Approximately 34km of high voltage overhead transmission lines, comprising:
  - 21 km to electrically connect the Northern and Southern Sections
  - 13 km to connect the Southern Section to Murra Warra Terminal Station and the planned Murra Warra to Bulgana transmission line upgrade[9].
- Up to eight (8) permanent hub height guyed meteorological masts.
- Two Operations and Maintenance (O&M) facilities.
- Approximately 223km of unsealed all weather access tracks.
- Access tracks will be approximately 5.5m in trafficable width with drainage as required;
- Access track construction footprint would be approximately 12m wide;
- Access track routes alignments have been designed to ensure minimal disturbance to existing farming activities, while also avoiding and minimising impacts to native vegetation on and near the site.
- Various road and intersection upgrades (see section below for details).
- Business identification signage and wayfinding signage.

Temporary infrastructure for the Project will include:

- Up to four (4) temporary concrete batching plants;
- Up to 15 construction site compounds (parking, storage, offices, staff amenities) and laydown areas to service both the wind farm and transmission sections of the Project.
- Up to eight (8) temporary guyed meteorological masts which will be used to verify WTG performance during the construction and commissioning phase.

Ancillary components of the project (e.g. upgraded access roads, new high-pressure gas pipeline; off-site resource processing):

Public Road Upgrades – Oversize Overmass (OSOM) deliveries

Construction of the Project will require some public road and intersection upgrades to facilitate the delivery of the OSOM loads (wind turbine components and transformers) to the Northern and Southern Sections of the Project Area.

[6] Turbine foundations will consist of concrete gravity foundations with a depth of 3.5–4 metres and a diameter of 20-30 metres.

[7] Hardstands are approximately 60m x 50m.

[8] Proposed WTG specifications are shown on the drawing in *Attachment B.4*

[9] https://www.energy.vic.gov.au/__data/assets/pdf_file/0028/580618/Victorian-Renewable-energy-zones-development-plan-directions-paper.pdf, pp. 33

Significant road infrastructure upgrades occurred in 2017-18 between Portland (the port location where WTG components will likely be delivered from) and the Murra Warra Wind Farm (MWWF) which is located approximately 4km south of the Project Area's Southern Section boundary. The Proponent intends to use the same primary transport routes as the MWWF as set out in the Traffic Impact Assessment (refer to *Attachment A.11*, page 18). Although some minor augmentations may be required, road and intersection upgrades already undertaken as part of the MWWF will accommodate the majority of requirements for this Project.

Some upgrades will be required between MWWF and the Project Area. These upgrades will generally involve minor vegetation clearance and road widening. Vegetation impacts at these locations have been accounted for in the Project's overall impacts. The specific nature of the upgrades will be determined in consultation with road authorities. The location of key upgrades are set out in the Traffic Impact Assessment.

The anticipated scope of road upgrades to facilitate OSOM deliveries include:

- Vegetation lopping/removal:
  - Borung Highway / Blue Ribbon Road (Limited)
  - Borung Highway / Ailsa Road (Limited)
  - Borung Highway / Cannum School Road
  - Borung Highway / Fensomes Road (Limited)
  - Rainbow Road / Lah West Road (Limited)
  - Rainbow Road / Brim West Road (Limited)
  - Rainbow Road / Batchica West Road
- Road shoulder widening and limited vegetation lopping / removal:
  - Rainbow Road near Dunn Road
  - Rainbow Road near Gould Lane
- Use of existing road shoulder and potential improvements to shoulder:
  - Rainbow Road / Fensomes Road

<u>Public Road Upgrades – General construction traffic</u>

The Project will utilise public roads for general construction traffic movements in and around the Project Area. Roads will be upgraded to a standard suitable for construction, with details to be agreed between the Project and the relevant road authority.

The local roads that are proposed to be used by general construction traffic are:

- Couzner Road
- Fishers Road
- Brim West Road
- Rainbow Road
- Brennans Road
- Lah West Road
- Brikkle Road
- Exchange Road
- Batchica West Road
- Zanker Road
- Blue Ribbon Road
- Keam Road
- Gregson Road
- Cannum School Road
- Boundary Road
- Borung Highway
- Dogwood Road
- Hollands Road
- Ailsa Road

Roads that are proposed to be used by the Project are shown in *Attachment B.10*.

Key construction activities:

It is anticipated that the Project is likely to be constructed in several stages, over an estimated period of 4-6 years. Each stage will generally involve the following key construction activities:

Site Preparation

- Public road and intersection upgrades at project area entrances.
- Establishment of construction site compounds, staff amenities and laydown areas
- Alterations to external gateways and fencing.

Construction of internal Access tracks, WTG hardstand areas and other works areas

- Clearance of land, removal and storage of topsoil for future use.
- Sourcing and delivery of materials from nearby quarries.
- Laydown of bedding and track/hardstand surface materials and installation of culverts and drainage.
- Alterations to internal gateways and fencing.

WTG foundations

- Establishment and set up of concrete batching plants
- Clearance of land, removal and storage of topsoil for future use
- Excavation of foundations and pouring of concrete blinding
- Installation of steel reinforcement
- Pouring and curing of concrete
- Backfilling to finished ground level

Electrical works

- Clearance of land, removal and storage of topsoil for future use
- Trenching of underground cable routes
- Installation of poles/towers and wires for overhead transmission routes
- Laydown of bedding and cables
- Connection/termination of cables
- Backfilling of trenches

Substation, BESS, and operations and maintenance buildings

- Clearance of land, removal, and storage of topsoil for future use
- Installation of steel reinforcement and pouring of foundations
- Construction and fitting out of buildings
- Installation of HV equipment
- Installation and commissioning of transformers
- Connection of infrastructure to electricity grid

WTGs delivery and installation

- Delivery of components to the project area
- Installation of WTGs at each hardstand location

Commissioning

- Commissioning and testing of all electrical and mechanical systems.

Finishing

- Removal of all temporary construction infrastructure and equipment
- Site clean-up and progressive rehabilitation of the project area and landscaping

Key operational activities:

The operational life of the wind farm is anticipated to be 30 years.

Operation, maintenance, and monitoring of the wind farm will include the following activities:

- Routine inspections of all infrastructure;
- Environmental monitoring and reporting in accordance with planning permit conditions (e.g. pest control, avifauna monitoring);
- Servicing and repair of wind turbines;
- Maintenance and repair of internal access tracks; and

- Maintenance and repair of ancillary infrastructure such as electrical reticulation system, buildings and plant.

Key decommissioning activities (if applicable):

At the end of the wind farm's anticipated 30-year operational life, the wind farm operator will have the option to decommission the project or repower with new turbines (subject to any required planning approval).

Key decommissioning activities will include:

- Removal of all above-ground non-operational infrastructure, including wind turbines;
- Removal of wind turbine foundations to a depth of at least 0.5m below ground level;
- Removal of substations, unless required for the ongoing operation of the electricity network;
- Removal and rehabilitation of all storage areas, construction areas and access tracks (unless otherwise useful to the ongoing management of the land);
- Site clean-up, waste removal and revegetation of areas disturbed during decommissioning.

All requirements of any planning approval or licence will be complied with during Project decommissioning.

Is the project an element or stage in a larger project?

☒ No ☒ Yes If yes, please describe: the overall project strategy for delivery of all stages and components; the concept design for the overall project; and the intended scheduling of the design and development of project stages).

Is the project related to any other past, current or mooted proposals in the region?

☒ No ☒ Yes If yes, please identify related proposals.

What is the estimated capital expenditure for development of the project?
Approximately $3 to 4 billion

4. Project alternatives

Brief description of key alternatives considered to date (e.g. locational, scale or design alternatives. If relevant, attach A4/A3 plans):

Changes to the Project Layout

Expert technical investigations and community input has informed various changes to the project design and configuration. WestWind has undertaken extensive local engagement which has informed the proposed layouts and the configuration of the Project Area. Host landholders have also had extensive input into the proposed layouts, ensuring that the Project can co-exist alongside their current farming operations with minimal impact. For example, proposed WTG and track alignments follow existing cropping patterns to ensure machinery can continue to operate efficiently. This collaborative approach has enabled the design and location of the Project to evolve via community and landholder input.

Further to community and landholder engagement, native vegetation surveys have heavily influenced infrastructure locations to ensure that native vegetation removal is avoided or where not feasible, native vegetation removal is minimised as far as practicable.

Early Project designs proposed WTGs in the Southern Section within proximity to the Warracknabeal Aerodrome. Following consultation with the aerodrome operator (Yarriambiack Shire Council) and CASA, the WTG layout has been redesigned to locate WTGs further west to avoid the *Design and Development Overlay – Airport Environs* area to ensure the safe continuation of airfield operations.

The changes to the layout and Project design over time have been influenced by expert findings and stakeholder engagement. These changes can be summarised as:

- Number and location of WTGs:
  - Removal of turbines from within the *Design and Development Overlay – Airport Environs* affecting land near Warracknabeal Aerodrome.
  - Relocation of turbines and other infrastructure to avoid disturbance of lunette in northern section of site.
- Current WTGs models:
  - Reconfiguration of WTG layout to allow for larger turbine models by providing sufficient spacing between WTGs to enable more efficient generation of renewable energy.
- The location of access tracks and hardstands:
  - Relocation, reconfiguration and refinement of the location of access tracks and hardstands to avoid and minimise impacts on native vegetation.
  - Relocation, reconfiguration and refinement of WTG hardstands to ensure temporary works areas avoid impacting on native vegetation.
- Location and configuration of electrical infrastructure:
  - Relocation of overhead and underground cabling to avoid and minimise impacts on native vegetation.
  - Co-location of cabling and access tracks to avoid and minimise impacts on native vegetation where those impacts cannot be avoided.
- Location and configuration of temporary construction areas:
  - Relocation and reconfiguration of temporary construction areas to avoid and minimise impacts on native vegetation.
  - Reconfiguration of temporary construction areas to optimise traffic flows in and around project area.
- Traffic and transport routes:
  - Avoidance of works on roads where significant roadside vegetation is present.
  - Reconfiguration of traffic and transport routes to ensure native vegetation impacts are avoided and minimised where possible.

Section 12 of this referral includes a detailed review of the Proponent's application of the three-step (avoid, minimise, offset) approach outlined in the *Guidelines for the removal, destruction or lopping of native vegetation* (DELWP, 2017).

Quarry

Development of an on-site quarry was considered at length during the early development phase of the Project. Some small deposits of rock occur at various locations on site, but in insufficient quantities to supply the Project's requirements. In addition, the existing Murra Warra Wind Farm quarry does not hold sufficient quantities of suitable material for the Project. Given that a suitable source of material was not able to be found on site or in the immediate vicinity, the Proponent has instead investigated using nearby commercial quarries to supply the Project.

Investigations have confirmed that raw materials required for construction of the Project can be supplied by any or all of the following existing nearby commercial quarries:

- Stawell quarry
- Tuckers Hill quarry
- Charlton quarry
- Albacutya quarry

Transport routes from each of these quarries have been considered in the Traffic Impact Assessment and provide suitable access to the Project Area. Accordingly, the Project does not include the development of an on-site quarry.

Brief description of key alternatives to be further investigated (if known)**:**

Transmission Line Alignments

The Project Area includes a wide investigation corridor for the location and construction of overhead transmission line infrastructure connecting both sections of the Project with the existing Murra Warra Terminal Station.

The final alignment of the required overhead transmission lines is not yet known and will be informed by detailed environmental studies and stakeholder consultation. This submission includes the Proponent's preferred alignment (refer to Proposed 220kV Easement Route shown in Attachment B.14) which has been developed to avoid and minimise impacts on native vegetation. Adjustments to the alignment may be required as the project is further developed, and any changes will be assessed and managed so that there is no greater impact to native vegetation than indicated in this referral. The refinement and selection of the alignment will be resolved prior to the assessment and approvals process.

Aviation

Parts of the southern section of the Project are within the lateral boundaries of the Obstacle Limitation Surface (OLS) associated with the Warracknabeal Aerodrome. The OLS requires proponents of tall structures to consult with CASA in relation to the location and size of such structures.

It is noted that indicative WTGs are located outside of the land affected by the Design and Development Overlay – Airport Environs (DDO1) which affects land surrounding the Warracknabeal Aerodrome.

The Preliminary Aviation Impact Assessment (PAIA) (see Attachment A.1, page 12, item 6a) acknowledges the need for further consultation with CASA to inform the final location of WTGs, and the Proponent is currently in discussions with CASA regarding the location of the 26 WTGs that are currently proposed within the OLS.

Given the uncertainty around these WTG locations, the Project Area has been designed to allow for adequate land to accommodate the relocation of WTGs to areas outside the OLS if required by CASA. Ongoing consultation, investigations and advice will inform the final WTG locations which will be included in any future planning permit application. Regardless of the final WTG layout, the Proponent notes that the impacts outlined in this referral constitute maximum levels of impact, particularly in regard to native vegetation.

5. Proposed exclusions

Statement of reasons for the proposed exclusion of any ancillary activities or further project stages from the scope of the project for assessment:
Not applicable.

6. Project implementation

Implementing organisation (ultimately responsible for project, i.e. not contractor)**:**

Warracknabeal Energy Park Pty Ltd (the Proponent) is a special purpose vehicle established by WestWind Energy (WWE) to facilitate the development and delivery of the Project. It is expected that the Proponent will be responsible for all phases of the Project including development, permitting, construction, compliance, operation and decommissioning.

WWE was established in Victoria in 2004. WWE is located in Gisborne, Victoria and is part of the WestWind Group of companies, which has its headquarters in Kirchdorf in north-western Germany.

WWE is currently the largest developer of wind energy projects in Victoria by approved megawatts of generation and has a wealth of experience from working with Victorian regional and rural communities. WWE's permitted projects to date include the Mt Mercer Wind Farm (130MW – in operation since 2013), Lal Lal Wind Farm (228MW – in operation since 2019), Moorabool Wind Farm (320MW – in operation since 2020) and the Golden Plains Wind Farm (1,300MW – construction commenced late-2022). WWE's previous projects will contribute a total installed capacity of just under 2,000MW of renewable electricity to Victoria.

In April 2022, WWE entered into a strategic partnership with Shell Energy, resulting in Shell acquiring 49% of the WestWind development business which includes the Warracknabeal Energy Park project.

Implementation timeframe:

The proposed implementation timeframe for the project is outlined below:

- 2017 to 2019: Pre-feasibility and wind monitoring (Completed)
- 2020 to 2022: Project feasibility (Completed)
- 2022 to 2024: Environment and Planning approvals (Underway)
- 2025 to 2026: Detailed design and securing finance
- 2026 to 2056+: Construction and operations

Proposed staging (if applicable):

The project will likely be built in two or more stages, subject to the investment framework and market conditions at the time of construction. This referral details the project in its entirety.

7. Description of proposed site or area of investigation

Has a preferred site for the project been selected?

☐ No ☒ Yes If no, please describe area for investigation.
If yes, please describe the preferred site in the next items (if practicable).

General description of preferred site, (including aspects such as topography/landform, soil types/degradation, drainage/ waterways, native/exotic vegetation cover, physical features, built structures, road frontages; attach ground-level photographs of site, as well as A4/A3 aerial/satellite image(s) and/or map(s) of site & surrounds, showing project footprint):

Attachment B.5 is a Site and Context Analysis plan detailing various aspects of the proposed site. The Site Photographs in *Attachment C* provide further context relating to the site conditions.

Project Location

The Project Area is located approximately 285 km northwest of Melbourne, 40km north of Horsham and 4km north-west and 6km south-west of Warracknabeal. (Refer to *Attachment B.1*).

The Project Area covers approximately 26,500 ha in total, split across two separate wind farm sections and two easement investigation corridors.

The Northern Section of the Project Area consists of approximately 15,700 ha of land situated approximately 4km north-west of Warracknabeal. The Northern Section spans approximately 20km north-south, loosely bounded between Sturrocks Road in the north and Zanker Road / Rainbow Road / Coutts Lane in the south, and 16km east-west, between Rainbow Rd and the Yarriambiack Creek.

The Southern Section of the project consists of approximately 7,200ha of land situated 6km south-west of Warracknabeal. The Southern Section spans approximately 9km north-south, between Antwerp-Warracknabeal Road, Crow Road and Cannum Five Chain Road to the north, and Moloneys Road to the south. It spans 12km east-west, between Blue Ribbon Rd and Ailsa Wheat Rd. The site is bisected south-west to north-east by Borung Hwy.

The North-South Link easement corridor, which connects the northern and southern section is approximately 2,700 ha, whilst the South-Murra Warra Link easement corridor is approximately 900 ha. The final alignment of the transmission line infrastructure and the easement routes will be within the corridors.

The Project Area is shown in *Attachment B.2*.

Topography/Landforms

The Project Area is generally flat with no substantial changes in elevation or notable terrain features across the Project Area. Ground levels across the site are generally between 110m and 120m above sea level.

Landforms present within the Project Area include:

- Flat plains;
- Floodplains;
- Small wetlands/swamps;
- Gilgais;
- Lunettes/dunes; and
- Small north-south trending ridges

Drainage and Waterways

The Yarriambiack Creek is located along the eastern boundary of the northern section of the Project Area. The Yarriambiack Creek is a distributary of the Wimmera River and separates from the Wimmera River approximately 20 km east of Horsham. It then flows northwards through

Warracknabeal, emptying into Lake Coorong near Hopetoun. Flow in the waterway relies upon releases from the Wimmera River and is intermittent in nature.

The Wimmera River is located approximately 30 km due west of the Project Area.

Many of the formalised channels that previously provided water for irrigation have been replaced by the Wimmera Mallee pipeline. Although these channels still appear on publicly available mapping, most of the channels have been decommissioned and filled by landholders to facilitate agricultural operations on the land. The Proponent has investigated all mapped channels within the Project Area to understand which channels have been removed and which channels remain operational.

The waterways and channels on and near the Project Area are shown in *Attachment B.6*. Former channels that have been filled or otherwise removed are noted as such on the map.

Wetlands

There are no Ramsar sites on or near the Project Area. Lake Albacutya is the nearest Ramsar site and is located approximately 38km north of the Northern Section of the Project Area.

Lake Hindmarsh (28km northwest of the Project Area) and Lake Buloke (60km east of the Project Area) are both identified as Nationally Important Wetlands by The Department of Climate Change, Energy and the Environment and Water. These wetlands are not Ramsar sites.

DELWP mapping shows six (6) wetlands within the Project Area, including three temporary freshwater swamps. None of these six wetlands are named and none are Nationally Important Wetlands or Ramsar sites.

The wetlands on and near the Project Area are shown in *Attachment B.6*.

Soil types

The Project Area is located within the Murray Basin, a structurally controlled sedimentary basin which has been filled with Tertiary aged marine and non-marine sediments, and which are overlain in many locations by Quaternary aged aeolian, fluvial and lacustrine sediments. The Tertiary Loxton-Parrilla Sand is the main outcropping unit throughout the Project area.

Vertosols are the dominant type in the Project area. These cracking clay soils are widespread in farming areas in the region. Sodosols (dense sodic subsoils) are restricted to the banks of the Yarriambiack Creek.

Built Environment

Built structures are scarcely distributed throughout the Project Area and its surrounds. These comprise primarily of agricultural infrastructure such as silos, along with sheds and rural dwellings located on highly productive working farmland.

Many abandoned rural dwellings exist in the landscape which are in disrepair and are not habitable. The Project Area is dominated by large landholdings which are substantial in area to accommodate the agricultural activities.

Dwellings present within and around the Project Area are shown in *Attachment B.16.*

Native vegetation

The Project is located on predominantly flat land that has been substantially modified to accommodate industrialised agricultural purposes. The nature of the agricultural practices has seen the removal of the majority of native vegetation.

Remnant patches of native vegetation are sparsely scattered across the Project Area. The large spacing between the patches offers opportunity to design away from the patches to ensure minimal vegetation loss. Remnant native vegetation can also be found along roadsides and on crown land areas through the Project Area.

The native vegetation present within the Project Area is detailed in Section 12 of this referral.

Site area (if known):

The Project Area covers approximately 26,500 hectares.

Site coverage of the proposed development is approximately 3-4% of the total Project Area. Linear infrastructure includes:

- Approximately 210km of unsealed, all-weather access tracks with a trafficable width of 5.5-6m;
- Approximately 23km of new overhead (33kV) powerlines providing connection between wind turbines and collector stations;
- Approximately 34km of new overhead (220kV or 500kV) powerlines providing connection between the two Collector Stations and the Murra Warra Terminal Station; and
- Approximately 282km of underground cables interconnecting the wind turbines.

Current land use and development:

The Wimmera region is well known for its highly productive land-based agriculture. Land located within and surrounding the project is no exception with the vast majority of rural land used for the broad acre cropping with minimal land remaining for other land uses. Other land uses are generally ancillary to the region's agricultural uses and include farm buildings (such as silos and sheds) and dwellings for landowners and farm workers. The dominant agricultural land uses offer opportunities to accommodate complementary land uses such as wind farms.

There are 17 dwellings which are currently habitable within the Project Area. 75 distinct landholders across 37 families own land within the Project Area.

Description of local setting (e.g. adjoining land uses, road access, infrastructure, proximity to residences & urban centres):

The Project Area and its local setting are shown in *Attachment B.9*.

Landscape

The draft Western Victoria Landscape Assessment Study prepared by Planisphere identified the area of the Project as within the Big Plains Landscape Character Type and describes it as:

> *The Big Plains (BP) is a highly productive landscape with a flat landform. There is limited remnant vegetation and boundless views are available across the plains to broad horizons that meet an even bigger sky.*

The landscape within the Project Area and immediately surrounding are large broad acre rural landscapes cleared for intensive agriculture.

Surrounding Land Uses

Land immediately surrounding the Project is a continuation of the agricultural land uses found within the Project Area.

The township of Warracknabeal is located generally to the east of the Project Area. The township includes a variety of land uses supporting the residential population of 2,359 people[10].

Murra Warra Wind Farm

The Murra Warra Wind Farm (MWWF) is located to the south of the Project Area. The MWWF site is located approximately 4 km from the southern section of the Project Area, with the closest turbine from MWWF located approximately 4.2 km from the southern section boundary.

[10] 2021 ABS Census, https://abs.gov.au/census/find-census-data/quickstats/2021/SAL22697

MWWF has been built in two stages, with two different WTG specifications:

- Stage 1:
  - 61 WTGs
  - Overall height of 211m above ground level
  - Rotor diameter of 144m.
- Stage 2:
  - 38 WTGs
  - Overall height of 220m above ground level.
  - Rotor diameter of 158m.

As of 12 January 2023, all 99 WTGs are erected and 98 WTGs are commissioned and generating electricity.[11]

Nearby Dwellings

The Project does not propose any WTGs within 1km of a dwelling, unless the dwelling owner has a contractual arrangement with the Project.

The following number of dwellings are located in proximity to the Project area:

- 32 within 1km of the boundary of the Southern Section or the Northern Section of the Project Area (4 host landholders[12], 28 neighbours);
- 27 between 1km and 2km of the boundary of the Southern Section or Northern Section of the Project Area;
- 25 between 2km and 3km of the boundary of the Southern Section or Northern Section of the Project Area;
- 71 between 3km and 4km of the boundary of the Southern Section or Northern Section of the Project Area; and
- 21 between 4km and 5km of the boundary of the Southern Section or Northern Section of the Project Area.

Road Access

The nearby, fully constructed Murra Warra Wind Farm is a testament to the quality of the local road network. Road access to the project area is well established. Characteristics of key roads inside, bounding and in the vicinity of the project area are presented within the Traffic Impact Assessment (refer to *Attachment A.11,* sections 2.2 and 2.3).

Warracknabeal Aerodrome (YWKB)

Warracknabeal Aerodrome is a regulated aerodrome with two runways. The aerodrome is operated by the Yarriambiack Shire Council and is located approximately 6km west of the Southern Section of the Project.

Runway 08/26 is a sealed runway, 1372m long and running generally east-west. The approach path for runway 08 crosses the Southern Section of the Project Area. Runway 17/35 is an unrated grass runway, 763m long and running generally north-south. Further details can be found in *Attachment A.1* (section 6.3).

Planning context (e.g. strategic planning, zoning & overlays, management plans):

Pursuant to clause 72.01-1 (Minister is the Responsible Authority) of the Yarriambiack Planning Scheme:

> *The Minister for Planning is the responsible authority for matters under Divisions 1, 1A, 2 and 3 of Part 4 of the Act, and matters required by a permit or the scheme to be endorsed,*

[11] Murra Warra Wind Farm website, http://murrawarrawindfarm.com/

[12] Host landholders are those landholders who have a contractual arrangement with the Project.

approved or done to the satisfaction of the responsible authority, in relation to the use and development of land for a:

- Energy generation facility with an installed capacity of 1 megawatt or greater.
- Utility installation used to:
  - Transmit or distribute electricity.
  - Store electricity if the installed capacity is 1 megawatt or greater.

The Victoria Planning Provisions (VPPS) include Wind Energy Facility within the nesting of Energy Generation Facility. The VPPs define Wind Energy Facility as:

Land used to generate electricity by wind force. It includes land used for:

a) any turbine, building or other structure or thing used in or in connection with the generation of electricity by wind force

b) an anemometer.

It does not include turbines principally used to supply electricity for domestic or rural use of the land.

The Victoria Planning Provisions (VPPs) define Utility Installation as:

Land used:

c) to transmit, distribute or store power;

Proposals for wind energy facilities must be assessed against the planning policy framework and other matters specified in Section 60 of the *Planning and Environment Act 1987*.

Municipal Planning Strategy

The Municipal Planning Strategy provides an overview of important local planning issues in an introductory context, sets out the vision for future use and development in the municipality and establishes strategic directions about how the municipality is expected to change through the implementation of planning policy and the planning scheme.

A responsible authority must take into account and give effect to the Municipal Planning Strategy when it makes a decision under this planning scheme.

The Municipal Planning Strategy focuses on the protection and diversification of rural agricultural land uses which is one of the main employment sectors within the Shire.

Clause 02.03-7 Economic Development states:

Agriculture

The Shire makes a significant contribution to the agricultural production of the State, especially in terms of grain, cropping, lamb and wool.

The Shire serves as the centre of grain production and handling for the Wimmera/Mallee region, making grain productivity essential for the local economy.

Strategic directions

- Protect rural areas for sustainable and productive agricultural, mining and other primary industries.
- Support industries and services that add value to agriculture.

Planning Policy Framework

The Planning Policy Framework provides a context for spatial planning and decision making by planning and responsible authorities.

The Planning Policy Framework seeks to ensure that the objectives of planning in Victoria (as set out in section 4 of the Act) are fostered through appropriate land use and development planning policies and practices that integrate relevant environmental, social and economic factors in the interests of net community benefit and sustainable development.

The specific relevant clause of the Planning Policy Framework relating to the assessment of the Project are:

- Clause 12.01-1S Protection of Biodiversity
- Clause 12.01-1R Protection of biodiversity – Wimmera Southern Mallee
- Clause 12.01-2S Native Vegetation Management
- Clause 12.03-1S River corridors, waterways, lakes and wetlands
- Clause 12.05-2S Landscapes
- Clause 12 Environmental Risks and Amenity
- Clause 13.03-1S Bushfire Planning
- Clause 13.04-3S Salinity
- Clause 13.04-3L Salinity – Yarriambiack
- Clause 13.05-1S Noise Management
- Clause 13.07-1S Land use compatibility
- Clause 14.01-1S Protection of Agricultural land
- Clause 15.03-1S Heritage conservation
- Clause 15.03-2S Aboriginal cultural heritage
- Clause 17.01-1R Diversified economy – Wimmera Southern Mallee
- Clause 19 – Infrastructure
- Clause 19.01-1S Energy Supply
- Clause 19.01-2S Renewable Energy
- Clause 19.01-2R Renewable Energy – Wimmera Southern Mallee

Zones

All the private land within the Project area is located within the Farming Zone of the Yarriambiack Planning Scheme.

The Transport Zone 2 – Principal Road Network is located on the following roads within the Project Area:

- Borung Highway
- Rainbow Road

Current zoning is shown on the maps in *Attachment B.11*.

Overlays

A number of overlays apply to land within the Project area including:

- Environmental Significance Overlay 2 – Highway Environs Protection
- Bushfire Management Overlay
- Environmental Significance Overlay 1 – Yarriambiack Creek
- Design and Development Overlay 1 – Airport Environs

Planning overlays are shown on the maps in *Attachment B.12.*

Particular Provisions

The following Particular Provisions of the Yarriambiack Planning Scheme are relevant to the Project:

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.

To manage the removal, destruction or lopping of native vegetation to minimise land and water degradation.

Pursuant to Clause 52.17 a planning permit is required to remove, destroy or lop native vegetation, including dead native vegetation.

Clause 52.29 Land Adjacent to the Principal Road Network

This clause applies to land adjacent to a Transport Zone 2, or a Public Acquisition Overlay if a transport manager (other than a municipal council) is the acquiring authority, and the purpose of the acquisition is for a road.

The purposes of Clause 52.29 are:

To ensure appropriate access to the Principal Road Network or land planned to form part of the Principal Road Network.

To ensure appropriate subdivision of land adjacent to Principal Road Network or land planned to form part of the Principal Road Network.

A Planning permit is required to:

- Create or alter access to:
- A road in a Transport Zone 2;

Clause 52.32 Wind Energy Facility

This clause applies to land used and developed or proposed to be used and developed for a Wind energy facility. The purpose of the clause is:

To facilitate the establishment and expansion of wind energy facilities, in appropriate locations, with minimal impact on the amenity of the area.

Pursuant to Clause 52.32 A permit is required to use and develop land for a wind energy facility.

Clause 65 – Decision guidelines

The responsible authority must decide whether a proposal will produce acceptable outcomes in terms of the decision guidelines of Clause 65 of the Yarriambiack Planning Scheme.

Local government area(s):

The Project is located wholly within the Yarriambiack Shire.

8. Existing environment

Overview of key environmental assets/sensitivities in project area and vicinity
(cf. general description of project site/study area under section 7)**:**

The Project area and vicinity consist primarily of highly modified agricultural land, with small remnant patches of native vegetation along roadsides and inside some paddocks. Accordingly, environmental sensitivities in the project area and vicinity are generally limited to the key matters outlined below.

Sensitive Areas

There are two key areas of environmental sensitivity in the vicinity of the project. These are:

- The Yarriambiack Creek, which runs adjacent to the eastern edge of the Northern Section of the Project Area.
- The Willenabrina I86 Bushland Reserve, which is located within the Northern Section of the Project Area. The reserve is excluded from the Project Area and no works are proposed within the reserve.

No reserves are located within the Southern Section of the Project Area. The Barrett Flora and Fauna Reserve is located approximately 4 km south of the Southern Section of the Project Area.

The nearest conservation areas are located at least 25 kilometres away from the Project Area, such as Lake Hindmarsh and Big Desert in the north-west and Little Desert in the south-west. There are no Ramsar wetlands within or near the Project Area.

Remnant native vegetation

Small patches of remnant native vegetation occur across the site and are generally limited to roadsides, scattered paddock trees and patches near old homesteads. Native vegetation has mostly been removed from the landscape, so these remnant patches generally have high conservation value.

Several of the wider road reserves in and near the Project Area contain high-quality native vegetation. The road reserves exhibiting the highest conservation value are:

- Ailsa Road;
- Moloney's Road;
- Hollands Road;
- Boundary Road;
- Hollands Road; and
- Hein Lane.

Waterways and Wetlands

The primary waterway in the vicinity of the Project is the Yarriambiack Creek, which sits adjacent to the Project Area to the east. Smaller channels once existed throughout the Project Area, but these have been decommissioned and filled since development of the Wimmera Mallee Pipeline. Several small wetlands occur across the site, although all are only periodically inundated. As a result, the Project Area does not support any permanent aquatic habitats.

Cultural Heritage

The Registered Aboriginal Party (RAP) for the Project is the Barengi Gadjin Land Council Aboriginal Corporation (BGLC).

The Preliminary Cultural Heritage Assessment (*Attachment A.5,* page 2 and section 2.2) describes at least six landforms (each with different levels of Aboriginal cultural sensitivity) which are likely to be present including:

- Floodplains;

- Lunettes/dunes;
- Lakes/swamps;
- Gilgais;
- North-south trending ridges; and
- Flat plains.

The Northern Section of the Project Area contains areas of Aboriginal heritage sensitivity along the Yarriambiack Creek, as well as a lunette. The assessment also identified one registered Aboriginal Place, VAHR 7325-0302, located on the eastern side of Yarriambiack Creek. Although the Place is within the Project Area, no works are proposed to the east of Yarriambiack Creek and therefore the Place will not be disturbed by the Project.

Section 15 of this referral provides detailed analysis of the Project's anticipated cultural heritage impacts.

9. Land availability and control

Is the proposal on, or partly on, Crown land?

☐ No ☒ Yes If yes, please provide details.

The majority of the Project Area is located on freehold land. Small areas of crown land are present across the Project Area, mainly in the form of small reserves and 'paper roads'. The location of crown land on and near the Project Area is shown on the map in *Attachment B.7*.

WTGs (including blade overhang) will be kept clear of crown land and road corridors.

Access tracks, transmission lines and underground cabling may cross crown land and the required approvals will be sought from the relevant authority when the project layout is finalised.

Current land tenure (provide plan, if practicable):

The majority of the Project Area is on privately held freehold land, with some small areas of crown land and road corridors as noted above.

Details of current land tenure are shown on the map in *Attachment B.7*.

Intended land tenure (tenure over or access to project land):

The land required for the project will be leased from each landholder via a series of commercial land leases and agreements. The Proponent holds Options to Lease over all of the land within the Northern and Southern Sections of the Project.

Easements for transmission lines for the project will be acquired from individual landholders once the easement routes have been finalised. The Proponent is in discussion with all landholders in the investigation corridor regarding easements and these discussions are expected to be resolved prior to lodgement of a planning permit application.

Following planning consent, electrical substations sites may be purchased by the network services provider. The Proponent's Options to Lease include an option to purchase the substation sites if required.

Approvals to cross crown land and roads with cabling and access tracks will be obtained from the relevant authority when the project layout is finalised. WTGs (including blade overhang) will be kept clear of crown land and roads.

Other interests in affected land (e.g. easements, native title claims):

A transmission line easement for the existing 220kV transmission line runs through the Project Area. Various other minor easements and encumbrances exist within the Project Area and the Proponent will consult the appropriate parties during development.

The Proponent has investigated native title determinations and claims in the region to understand the existence (or otherwise) of native title on and near the Project Area. Pursuant to the Wotjobaluk determination (2005), native title exists along the Yarriambiack Creek and in other isolated areas near the Project Area. Areas where native title exists are shown on the Native Title map in *Attachment B.8*. No project infrastructure or works are proposed in these areas.

10. Required approvals

State and Commonwealth approvals required for project components (if known):

Commonwealth

Environment Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) protects Matters of National Environmental Significance (MNES), including species and ecological communities, and internationally recognised wetlands. The Commonwealth Minister for the Environment is responsible for administering the EPBC Act. A referral under the EPBC Act will shortly be lodged to determine if the action requires assessment and approval under the EPBC Act.

State

Environment Effects Act 1978

Noting that matters under the *Environment Effect Act 1978* (EEA Act) are not an approval, this referral has been submitted to determine if the Project requires the preparation of an EES. If required, the EES will inform all statutory decisions. If an EES is required, the Proponent will request that the EES assessment process be accredited under the State and Commonwealth bilateral agreement.

Planning and Environment Act 1987

The *Planning and Environment Act 1987* (P&E Act) gives effect to the planning scheme which provides a framework within which decisions about the use and development of land can be made. In relation to wind energy facilities the framework under the P&E Act has been established (through the particular provisions and the guidelines) to enable the coordinated and detailed assessment of environmental risk, as outlined in section 7 of this referral.

The purpose of the Act is

> *"to establish a framework for planning the use, development and protection of land in Victoria in the present and long-term interests of all Victorians."*

The current provisions of the Yarriambiack Planning Scheme state that the project will require a planning permit for:

- the use and development of the land for a wind energy facility;
- utility installation;
- native vegetation removal; and
- access to the Transport Zone.

The *Policy and Planning Guidelines for development of Wind Energy Facilities in Victoria* and clause 52.32 of the Yarriambiack Planning Scheme establishes the information to be contained within a planning permit application. The planning permit process under Part 4 of the *Planning and Environment Act 1987* is a mature and well-established process for assessing wind energy facilities in Victoria. The Minister for Planning is the responsible authority for determining the planning permit.

Aboriginal Heritage Act 2006

Division 2 of the *Aboriginal Heritage Act 2006* (AH Act) and Regulation 7 of the *Aboriginal Heritage Regulations 2018* make provision for when a mandatory Cultural Heritage Management Plan (CHMP) is required.

The Project requires preparation of a mandatory CHMP given that:

- The proposal relates to use of land for a wind energy facility; and
- The project area is considered an area of cultural heritage sensitivity.

A CHMP is being prepared for the Project and will be evaluated by the Barengi Gadjin Land Council Aboriginal Corporation (BGLC) Registered Aboriginal Party (RAP). Section 52(1) of the AH Act

requires that the responsible authority cannot issue a planning permit until it receives a copy of the approved CHMP.

Flora and Fauna Guarantee Act 1988

The *Flora and Fauna Guarantee Act 1988* (FFG Act) deals with biodiversity, conservation and sustainable use of native flora and fauna in Victoria and applies to public land. There is a potential for threatened species and threatened ecological communities to be present along the road reserves and within the areas of Crown land included within the site. A permit to take listed species may be required under this Act for roadside vegetation.

Water Act 1989

If required, works or activities in or over designated waterways will require approval from the Wimmera Catchment Management Authority (WCMA) via an Approved Works on Waterways Permit in accordance with the WCMA's *By-law No. 2 Waterways Protection 2014*.

If water bores are required for the Project, a licence under the *Water Act 1989* will be required. GWM Water is the water authority for the Wimmera region and can impose conditions on the licence including the maximum amount of water that may be taken during certain periods and circumstances.

Road Management Act 2004

Under section 63 of the *Road Management Act 2004*, written consent is required from the road manager (Department of Transport in the case of Borung Highway and Rainbow Road, and Yarriambiack Shire Council for the remainder) for construction works within public (open) roads.

Crown Land (Reserves) Act 1978

The *Crown Land (Reserves) Act 1978* provides for the reservation of Crown Land for certain purposes by the Governor in Council and sets out the administrative and legal framework for managing reserved Crown land. Crown land can be reserved for a range of public purposes, including public parks and gardens, the beds and banks of waterways and railways.

The Project is likely to access and utilise crown land including unused government road reserves which will require State consent.

Land Act 1958

The *Land Act 1958* provides for the management of unreserved Crown land and freehold land. This Act also regulates the grants of interest in, and alienation of, unreserved Crown land.

Electricity Industry Act 2000

The Proponent will require a license to generate, distribute and sell electricity from the Project pursuant to section 16(1) of the *Electricity Industry Act 2000*. It is expected that the Proponent will apply for the relevant licence as the Project moves towards construction.

Other Acts

Other permits and authorisations may be required by the following acts:

- Catchment and Land Protection Act 1994
- Wildlife Act 1975

Have any applications for approval been lodged?

☒ No ☒ Yes If yes, please provide details.

Approval agency consultation (agencies with whom the proposal has been discussed):

The Proponent has discussed the Project with the following approval agencies:

- Department of Transport and Planning (DTP) (formerly the Department of the Environment, Land, Water and Planning) (DELWP), Impact Assessment Unit (8 August 2019, 16 November 2022, 25 January 2023)
- Department of Energy, Environment and Climate Action (DEECA) (formerly DELWP) Grampians Region (23 November 2022, 25 January 2023)
- Yarriambiack Shire Council (4 May 2022)
- Wimmera Catchment Management Authority (16 August 2022)
- Barenji Gadjin Land Council (13 September 2022, 4 April 2023)

A Draft EES Referral submission was provided to DEECA and DTP for comment on 8 December 2022. Comments received from the Departments have informed the preparation of this referral document.

Other agencies consulted:

The Proponent has also discussed the Project with the following other agencies:

- Department of Defence (7 September 2022)
- Civil Aviation Safety Authority (CASA) (14 September 2022)
- Bureau of Meteorology (5 August 2022, 19 April 2023)
- Wimmera Development Association (1 September 2022)
- Airservices Australia (7 September 2022)

PART 2 POTENTIAL ENVIRONMENTAL EFFECTS

11. Potentially significant environmental effects

Overview of potentially significant environmental effects (identify key potential effects and comment on their significance and likelihood, as well as key uncertainties):

Overview

Numerous technical environmental assessments have been prepared to inform the location and design of the Project to avoid and minimise the effects of the Project. The findings of the assessments anticipate that the Project will avoid and minimise potential significant adverse effects on the environment.

The Referral includes the following Environmental assessments:

- Aviation Impact Assessment (Aviation Projects, 28 March 2023) *(Attachment A.1)*
- Ecological Assessment (Ecology and Heritage Partners, 27 March 2023) *(Attachment A.2)*
- Preliminary Community and Stakeholder Engagement Plan (West Wind Energy, December 2022) *(Attachment A.3)*
- Preliminary Landscape and Visual Assessment (XURBAN, 22 March 2023) *(Attachment A.4)*
- Preliminary Cultural Heritage Assessment (Heritage Insight, 24 March 2023) *(Attachment A.5)*
- Preliminary Historical Heritage Assessment (Heritage Insight, 31 March 2023) *(Attachment A.6)*
- Electromagnetic Interference Assessment (GHD, 22 March 2023) *(Attachment A.7)*
- Surface Water and Groundwater Assessment (GHD, 22 March 2023) *(Attachment A.8)*
- Preliminary Environmental Noise Assessment (Resonate, 21 March 2023) *(Attachment A.9)*
- Social and Economic Impact Assessment (EthosUrban, 22 March 2023) (*Attachment A.10)*
- Traffic Impact Assessment (Traffix Group, 22 March 2023) *(Attachment A.11)*

Aviation

There are five regulated (certified) aerodromes within 30nm (56km) of the Project Area at:

- Birchip (YBIR) – 25.75nm ENE
- Hopetoun (YHPN) – 19.73nm NNE
- Horsham (YHSM) – 19.45nm SSW
- Nhill (YNHL) – 27.14nm W
- Warracknabeal (YWKB) – 3.6nm ENE

It is noted that the Proponent has made various changes to the Project layout in the southern section of the site following consultation with Yarriambiack Shire Council (the aerodrome operator) and CASA. All turbines have been located to avoid encroaching into the Design and Development Overlay – Airport Environs (DDO). The existing 220kV Horsham to Red Cliffs transmission line is within the DDO and the proposed 220kV transmission line linking the Project to the broader electricity network will also be within the DDO, meaning approval from CASA and Council will be required.

An Aviation Impact Assessment has been prepared based on the current project layout. The Aviation Impact Assessment found that the Project will not impact on the operations of the Birchip[13], Hopetoun[14], Horsham[15] or Nhill[16] aerodromes.

[13] Aviation Safety Assessment, section 6.6
[14] Ibid, section 6.7
[15] Ibid, section 6.5
[16] Ibid, section 6.4

The assessment also found that the Project will impact on the following at Warracknabeal aerodrome:

- The Runway 08 OLS approach and take off surfaces[17]
- The 25nm and 10nm Minimum Safe Altitude (MSA)[18]
- The entry and holding altitudes for the instrument approach procedures[19].

The Proponent has received feedback from Airservices Australia confirming the requirement for the operator of the aerodrome to apply to CASA to adjust the PANS-OPS surfaces as outlined above. In addition, the Proponent will seek CASA's approval for turbines which encroach into the OLS.

Mitigation of these impacts will be achieved via administrative changes to the OLS and PANS-OPS airspace around Warracknabeal Aerodrome. The proponent has undertaken extensive engagement with the operator of the aerodrome (Yarriambiack Shire Council). The operator has agreed to advocate for changes to the OLS and PANS–OPS surfaces and has commenced the amendment process with the relevant authorities.

If approved by CASA, the changes will ensure that Warracknabeal Aerodrome will align with the specifications of the Horsham aerodrome and result in the project avoiding all impacts on the Warracknabeal aerodrome.

Should CASA determine that the WTG locations are not acceptable, the Proponent will work with CASA and expert consultants to apply the following mitigation measures to ensure an acceptable outcome for all parties:

1. Relocate WTGs from within the lateral limits of the OLS to other parts of the site; and/or
2. Restrict the overall height of WTGs to below the OLS; and/or
3. Remove the infringing WTGs altogether.

Through either CASA approval or application of the above mitigations, the Project's proposed infrastructure will be clear of prescribed airspace and the Project's impact on aviation will therefore be negligible.

Ecology

Various ecological assessments have been undertaken by Ecology and Heritage Partners (EHP) to establish the extent and condition of existing native vegetation communities and flora and fauna habitat in and around the Project area. The key findings are summarised below. A detailed breakdown of these assessments can be found in Section 12 or alternatively the full report can be found in *Attachment A.2*.

Referral criteria under *Environment Effects Act 1978*

The ecological assessment reviewed the Project's anticipated impacts against the referral criteria under the *Environment Effects Act 1978* and found that:

- None of the thresholds relating to any of the individual ecological criteria are likely to be exceeded; and
- None of the thresholds relating to the combination of ecological criteria are likely to be exceeded.

Refer to Table 27 in *Attachment A.2* for further detail.

[17] Ibid, pp. 40
[18] Ibid, sections 6.3.1 and 6.3.2
[19] Ibid, section 6.3.3

Native Vegetation and Significant Ecological Communities

As discussed in Section 12 of this form, a total of approximately 349 hectares of native vegetation was recorded within the survey area, representative of five EVCs, three EPBC Act listed ecological communities and one FFG Act listed ecological community.

The project's infrastructure layout has been heavily influenced by the findings of the ecological assessments, particularly in avoiding areas of native vegetation. Initial designs would have resulted in approximately 45 hectares of native vegetation impact, but careful application of the avoid and minimise principles to the Project's design has reduced the Project's anticipated native vegetation impacts to a maximum of 9.41 ha, with the current layout impacting 8.41 ha (comprising 6.63 ha of native vegetation in patches, 49 large trees in patches and 35 scattered trees (20 large and 15 small trees, equivalent to 1.15 ha)). An additional anticipated impact of 1.0 ha has been included in proposed impacts to account for future design changes, taking the project's maximum anticipated impacts to 9.41 ha. Refer to detailed commentary in Section 12 of this referral.

A detailed account of the Proponent's design review process and application of avoid and minimise principles is included in Section 12 of this referral.

Specific impacts on EVCs and ecological communities are detailed in Section 12 of this referral.

Fauna

Golden Sun Moth

Seven Golden Sun Moth (GSM) individuals were recorded in 0.975 ha of confirmed habitat on Moloney's Road, on the southern boundary of the Project area. The ecological assessment identified approximately 0.14 ha of overlap between the Project's works footprint and this area of confirmed habitat, however the works proposed in this area consist of overhead transmission lines that will span across the GSM habitat, meaning all impacts will be avoided.

Birds

63 bird species were recorded across 3,846 individual sightings during the bird utilisation surveys. 95.8% of birds were recorded on the ground or flying below rotor swept area. A further 3.6% did not have a height recorded as they were obscured from vision.

The 0.6% of birds observed at rotor swept area height included:

- Australian Magpie;
- Australian Raven;
- Brown Falcon;
- Brown Songlark;
- Cockatiel;
- Common Starling;
- Eurasian Skylark;
- Nankeen Kestrel;
- Spotted Harrier;
- Wedge-tailed Eagle; and
- Whistling Kite.

All species observed within the rotor swept area were locally common birds and not nationally or State significant.

Given the low proportion of bird flights within the RSA, the abundance of those species most likely to fly within this area, the high level of avoidance behaviour exhibited by many species of birds, buffers around the limited areas of high-quality habitat and the predominantly low quality habitat that comprises the rest of the study area it is unlikely that the Project will have a significant impact on the avifauna of the region.

Bats

As detailed in Section 12 of this referral, up to 10 species of native bat were detected in and around the Project Area. With the exception of the Inland Broad-nosed Bat, all bat species detected on site

have a moderate to high risk of collision with wind turbines given their typical behaviours, however all have stable populations and widespread distributions and are not significant species at either a Commonwealth or State level. Therefore, the Project is not expected to have a significant impact on bats.

Community and Stakeholder Engagement

A Preliminary Community and Stakeholder Engagement Plan has been prepared with the purpose of obtaining a social licence within the local community for the Project to proceed. A copy of the Plan is at *Attachment A.3*. The objectives of the plan are:

- To identify all relevant community members and stakeholders to engage;
- To identify a variety of engagement mechanisms to ensure meaningful and collaborative community and stakeholder engagement;
- To engage regularly with identified communities and stakeholders in relation to the project and the planning and environmental processes;
- To record, consider and respond to outcomes of engagement;
- To seek out and encourage opportunities for local community and stakeholder participation; and
- Build on previous consultation to involve communities and stakeholders in project development.

The plan outlines the forward methodology for a future engagement framework and provides a valuable summary of the engagement and feedback to date. Engagement to date has directly informed the location and design of the Project with current engagement to continue to inform the planning and environmental processes.

Landscape and Visual Impact

A Preliminary Landscape and Visual Assessment has been undertaken by Xurban (refer to *Attachment A.4*). The assessment includes:

- Visual Assessment methodology
- Viewshed Analysis
- Review of planning controls in relation to sensitive landscapes;
- Landscape character types and their sensitivity to change
- Cumulative landscape and visual impact of the Project to the area in the Wimmera.

The assessment has identified that:

> *The Warracknabeal Energy Park is situated in a landscape that has a low sensitivity to change. The Landscape Assessment Study refers to this landscape character type as 'Big Plains' and this is illustrative of its character. The flat topography and the extensive clearing has created a large landscape, a landscape which can accommodate the 280 m high wind turbines that are proposed.*[20]

Surrounding sensitive landscapes were assessed including:

- the Little Desert National Park;
- the Grampians and Arapiles; and
- Lake Hindmarsh.

Overall the assessment found that the Project would have no visual impact on sensitive landscapes[21] or areas that are protected by planning overlays[22].

The visual impact on publicly accessible locations such as highways, roads and reserves was assessed as low. That is, *"visual impacts that are noticeable but will not cause any significant adverse impacts."*

[20] Preliminary Landscape and Visual Assessment, pp. vi
[21] Ibid, pp. 49
[22] Ibid, section 5

The cumulative impact of the Project brought about by the presence of other wind farms was assessed as negligible/low[23].

Landscape and visual impacts are further discussed further in Section 14 of this referral.

Cultural Heritage

The Registered Aboriginal Party (RAP) for the Project is the Barengi Gadjin Land Council Aboriginal Corporation (BGLC). The BGLC will be the statutory authority with responsibility for evaluating the future CHMP.

The preparation of the preliminary Cultural Heritage Assessment has directly informed the location of the Project's layout ensuring that areas of aboriginal cultural heritage sensitivity are avoided.

The proponent has engaged a heritage consultant to manage the preparation of a cultural heritage management plan (CHMP Plan ID: 19414) which will be assessed by the BGLC, and on-site investigations are scheduled to commence in May 2023.

The project's impacts on cultural heritage are expected to be minimal given the scope to avoid impacts to sensitive landforms and cultural heritage places by relocation infrastructure where required.

A detailed assessment of the project's likely impacts follows in Section 15 of this referral.

Historic heritage

Heritage Insight has prepared a Preliminary Historical Heritage Assessment with a purpose to:

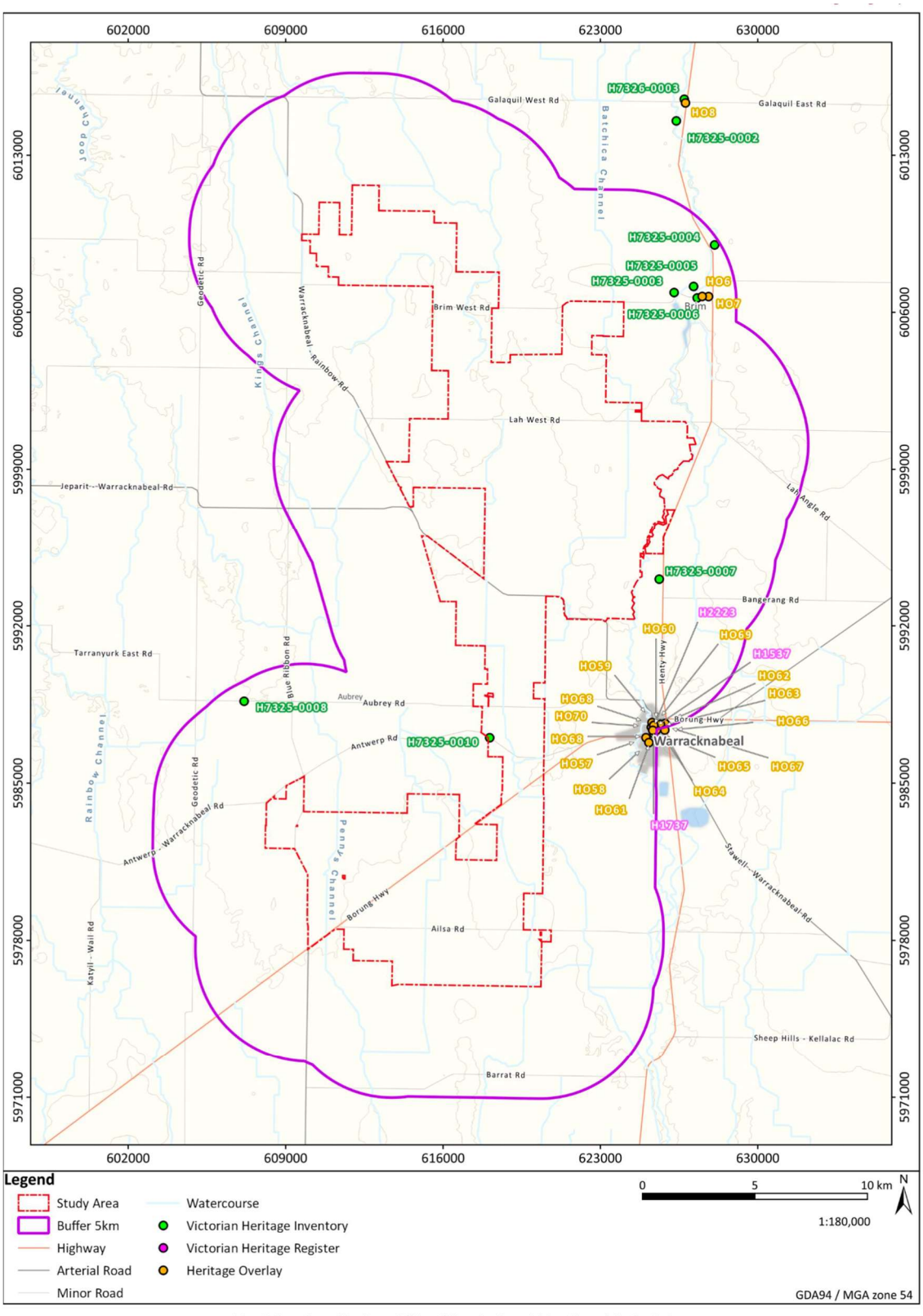
- identify any registered/listed historic (non-Aboriginal) sites or places located within the study area;
- identify the potential location of any previously unidentified historic heritage sites/places that may be located within study area; and
- determine the implications that the presence of any identified historic (non-Aboriginal) heritage located within the study area have for the proposed activity.

The assessment identified one historic heritage site within the Project Area, which is currently listed on the Victorian Heritage Inventory (VHI) as H7325-0010 (Cannum 1 Survey Marker). The preparation of the assessment and its findings have directly informed the location of the Projects layout ensuring that the location of the heritage site is avoided by all works.

The location of the site on the Victorian Heritage Inventory is located in close proximity to the Project Area boundary and is shown on the following figure and in *Attachment B.17*.

[23] Ibid, section 11.

Figure 1 (below): VHI, VHR and Heritage Overlays within study area



Electromagnetic Interference

The EMI Assessment undertaken by GHD found that the proposed wind farm is unlikely to impact the majority of the radiocommunication services (refer to *Attachment A.7*, page i). Some television and radio broadcasting services might find their services degraded by the turbines but the signal currently propagating across the Project Area is already negligible and not likely usable for

receptors in its current state, meaning the effect of any further degradation is negligible (refer to *Attachment A.7*, page i)

The Project is located in an area where coverage is available for mobile telephone and broadband from several operators. Consultation with all operators has been undertaken as part of the assessment process. All carriers except Vodafone have confirmed that their coverage in the region will not be affected by the Project. Vodafone does not currently have coverage in the region.

The proposed wind farm is expected to impact the Bureau of Meteorology radar, specifically the Rainbow weather radar which provides the services around the project area. The Proponent has met with the Bureau of Meteorology and will provide funding for construction of a supplementary weather radar in the region to ensure the Project does not impact on overall radar coverage in the region.

Surface water and groundwater

A Surface Water and Groundwater Assessment was undertaken by GHD and can be found in *Attachment A.8*. The key findings are summarised below.

Surface water

- Surface water risks associated with the Project are generally low.
- Direct interfaces with the closest significant waterbody, Yarriambiack Creek, will be avoided by observing a minimum 100m setback for all project infrastructure.
- Main project infrastructure is located outside the 1 in 100-year flood extent.
- Other surface water risks, such as discharge of stormwater, can be appropriately managed through standard construction management measures such as bunding, spill control and sediment and erosion controls.

Groundwater

- The water table in the region is relatively deep (more than 20m), so any direct interaction between the Project works and groundwater is considered unlikely.
- Given the small footprint relative to the intake zone for the aquifer, the Project is not likely to affect groundwater recharge.

Further detail is provided in Sections 13 and 14 below.

Noise

A preliminary environmental noise assessment was prepared by Resonate and can be found in *Attachment A.9*. The assessment concludes that the wind farm will be able to achieve compliance with the applicable noise limits derived from the *Environment Protection Regulations* and *NZS 6808:2010* without a need for further noise control mechanisms[24].

Cumulative impacts from the nearby Murra Warra Wind Farm were also considered. The assessment found that compliance will be achieved, even when considering cumulative noise impacts from both the Project and the Murra Warra Wind Farm[25].

Further noise assessments will be required as part of any future planning permit application.

Social and Economic Impact

EthosUrban prepared an assessment of the Project's likely social and economic impacts which is attached at *Attachment A.10.*

The assessment found that the Project will provide substantial economic benefit to the region and will offer job opportunities for the region, with approximately $375-450 million of construction investment expected to be retained in the region. The Project will generate approximately 495 regional jobs during construction and 70 ongoing regional jobs during operations.

[24] Preliminary Environmental Noise Assessment, pp. 19
[25] Ibid, section 4.2.4

The assessment also found that while some negative social impacts such as visual impacts could occur, on balance the majority of long-term social impacts can be managed or mitigated via legislated requirements, appropriate construction management and effective engagement. On balance, the assessment found that any residual negative impacts will be offset by the social benefits of the Project.

Traffic and Transport

A Traffic Impact Assessment has been prepared by Traffix Group and is attached at *Attachment A.11*.

The assessment provides a detailed traffic engineering assessment of the anticipated construction traffic and likely transport impacts of the Project including:

- An existing conditions survey of public roads in the vicinity of the site that may be used for site access and internal vehicle circulation;
- The anticipated traffic volumes generated during the wind farm construction;
- The impact of the wind farm construction traffic volumes on the surrounding arterial and local road network;
- The identification of required road network improvement measures to accommodate the anticipated wind farm construction traffic;
- An assessment of appropriate construction and transport vehicle routes to the site;
- The identification of appropriate vehicle access points to the site from the surrounding road network.

The assessment outlines the estimated number of construction vehicle trips during construction of the project over a 45-month period and determines that the increase in traffic volumes will not exceed their theoretical capacity or generate an unreasonable traffic impact.

Furthermore, the Project's requirement to modify and/or upgrade road infrastructure for the delivery of WTG components will be minimal with the report finding:

> *Recent upgrades undertaken for the Murra Warra Wind Farm will significantly reduce the extent and number of upgrades required to facilitate delivery of large components from Portland to the site*[26]*.*

[26] Traffic Impact Assessment, pp. 25

12. Native vegetation, flora and fauna

Native vegetation

Is any native vegetation likely to be cleared or otherwise affected by the project?

☒ NYD ☒ No ☒ Yes If yes, answer the following questions and attach details.

What investigation of native vegetation in the project area has been done? (briefly describe)

Overview

Ecology and Heritage Partners Pty Ltd (EHP) was commissioned to undertake a suite of Ecological Assessments to determine the ecological values present in the Project Area. The ecological field assessment program commenced in July 2020 and was completed in August 2022. Field surveys were undertaken across areas within or adjacent to potential infrastructure layouts. Native vegetation, scattered trees and large trees within 25m of the proposed works area were assessed and mapped to ensure all direct and indirect impacts of the project could be fully understood.

The field assessments sought primarily to assess the extent and condition of native vegetation communities and potential flora and fauna habitat, with consideration given to significant ecological communities and species of conservation concern, such as threatened and migratory species. The survey program was designed to optimise the survey timing, methods and frequency to enable sampling of those flora and fauna species which occur seasonally.

Specific native vegetation surveys and dates are outlined below:

Survey Type	Survey Dates
Native Vegetation Mapping	
Baseline vegetation mapping (High-level vegetation assessment to gain initial understanding of vegetation extent and condition)	30 July 2020 to 2 August 2020
Habitat hectare assessments and Large Tree assessments (Detailed mapping of vegetation in and near project footprint)	28 February 2022 to 4 March 2022 4 April 2022 to 8 April 2022 16 May 2022 to 18 May 2022

Targeted surveys for the nationally significant Wimmera Rice-flower *Pimelea spinescens* subsp. *Pubiflora*, Floodplain Rustyhood *Pterostylis cheraphila,* Slender Darling-pea *Swainsona murrayana* and Turnip Copperburr *Sclerolaena napiformis* were undertaken in areas of potential habitat within and adjacent to the infrastructure footprint. These targeted surveys are discussed in detail in subsequent sections of this referral.

Results of investigations

A total of approximately 349 hectares of native vegetation was recorded within the surveyed area, representative of five Ecological Vegetation Classes (EVCs):

EVC	Conservation Status	Extent	Large trees in patches
Ridged Plains Mallee (EVC 96)	Endangered	213.3 ha	1,503
Plains Savannah (EVC 826)	Endangered	71.2 ha	70
Low Rises Woodland (EVC 66)	Endangered	58.5 ha	137
Plains Woodland (EVC 803)	Endangered	1.9 ha	6
Riverine Chenopod Woodland (EVC 103_61)	Endangered	3.9 ha	31
Total		**348.8 ha**	**1,747**

In addition, the surveys found 785 scattered trees, which consisted of 436 Large and 349 Small scattered trees.

Three (3) nationally significant ecological communities were mapped within the Project Area:

Nationally Significant Ecological Community	Listing Status	Total extent within Assessment Area
Plains Mallee Box Woodlands of the Murray Darling Depression, Riverina and Naracoorte Coastal Plain Bioregions	Critically Endangered	164 ha
Natural Grasslands of the Murray Valley Plains	Critically Endangered	9.2 ha
Buloke Woodlands of the Riverina and Murray Darling Depression Bioregions	Endangered	31 ha

One (1) State significant ecological community was present:

- Semi-arid Northwest Plains Buloke Grassy Woodland community.

Additional areas requiring investigation

Recent minor changes to the Project layout have resulted in some works being proposed in areas where road reserves have not yet been surveyed (refer to Attachment B.14, section 2.8.1). These unsurveyed areas mainly comprise cable crossings on road reserves and total approximately 0.6 ha.

In preparing this referral, the Proponent has taken a precautionary approach and assumed that these unsurveyed areas contain native vegetation. DEECA's modelled vegetation scores have been applied to these areas to understand the Project's likely impacts in these areas (refer to section 2.8.1 of the Ecological Assessment for further detail). These areas will be surveyed prior to the submission of any planning permit application for the Project.

If the proposed works area changes at a later date, any new works areas will be surveyed to understand the biodiversity values of the works area(s).

Areas of proposed native vegetation removal are shown on the maps at Attachment B.15.

Allowance for future design changes

In light of the uncertainties around WTG locations within the Aviation OLS (refer to earlier discussion), the proponent has allowed for an additional 1.0 ha of native vegetation impacts to allow for reconfiguration of parts of the Project layout if required by CASA.

What is the maximum area of native vegetation that may need to be cleared?

☒ NYD

The Project is expected to impact up to 9.41 hectares of native vegetation.

The Project's indicative layout is expected to impact approximately 8.41 ha of native vegetation but, as noted previously, the outcome of discussions with CASA may require alterations to the layout which may result in further impacts of up to 1.0 ha. Regardless of any layout changes, the Proponent is committed to ensuring the Project impacts on no more than 9.41 ha of native vegetation.

How much of this clearing would be authorised under a Forest Management Plan or Fire Protection Plan?

☒ N/A …….. (if applicable)

Which Ecological Vegetation Classes may be affected? (if not authorised as above)

☒ NYD ☒ Preliminary/detailed assessment completed. If assessed, please list.

A total of 6.63 hectares of native vegetation patches are proposed to be impacted, comprising:

EVC	Bioregional Conservation Status	Impacted area (Total)	Impacted area (Very High conservation significance)
Ridged Plains Mallee (EVC 96)	Endangered	4.606 ha	3.258 ha
Plains Savannah (EVC 826)	Endangered	1.075 ha	0.435 ha
Low Rises Woodland (EVC 66)	Endangered	0.801 ha	0.453 ha
Plains Woodland (EVC 803)	Endangered	0.089 ha	0.054 ha
Riverine Chenopod Woodland (EVC 103_61)	Endangered	0.052 ha	Nil

It is noted that these impacts are based on the current indicative layout, and as noted above minor increases may occur as a result of future alterations associated with aviation discussions.

Have potential vegetation offsets been identified as yet?

☒ NYD ☒ Yes If yes, please briefly describe.

There are four (4) offset sites in the Wimmera CMA or Yarriambiack region that could satisfy the offset requirements of the Project. Details are included in section 4.4 of the ecological assessment.

Other information/comments? (e.g. accuracy of information)

Project works footprint

The Project's works footprint is defined as the extent of all works that are required for the Project. The Proponent has worked closely with construction contractors and expert consultants to define appropriate work areas and corridors that provide adequate space for all construction activities. The resulting indicative specifications for works are outlined below:

- WTG foundations and hardstands: footprints developed for the Project provide sufficient space for permanent infrastructure as well as crane operations, temporary ground disturbance, stockpiling of excavated materials, material storage, and wind turbine component delivery and assembly.
- Access tracks: Corridor widths of 15m have been applied to all access tracks required for the Project, which is sufficient for a 5.5-6m trafficable width, together with drainage, earthworks and any ancillary works.
- Underground cabling: Although trenches for underground cabling are typically <1m wide, the Proponent has allowed for a 20m wide works corridor for underground cabling, which is sufficient for movement and operation of all plant and machinery that may be used during construction.
- Overhead transmission lines: The transmission line routes have been designed to minimise impacts on native vegetation and include suitable hardstand areas to be used during construction of each pole or tower.
- Substations, Operations & Maintenance facilities, Battery Energy Storage Systems: The footprint of all permanent infrastructure includes all areas required for construction and operation of the Project.

- Temporary construction areas: The location and footprint of all temporary works will provide sufficient space for all proposed works including site compounds, equipment storage and temporary concrete batching plants.
- Public road upgrades: Sufficient space has been allocated for upgrades of public roads, including intersection upgrades where required. These upgrades have been informed by swept path analysis undertaken as part of the *Traffic Impact Assessment*.

Additional buffers

As noted above, all ecological surveys included a further 25m buffer around the works footprint to ensure all sensitive flora and fauna in or adjacent to the works footprint is surveyed and properly understood.

Limitations

General ecological limitations associated with the ecological investigations include:

- The assessment of likelihood of occurrence is based on survey effort and results, background information and previous records compiled;
- Non-vascular flora (i.e. mosses, liverworts) were not recorded, although their presence is noted as part of the cover of native species in the definition of a patch of native vegetation;
- Ecological features identified during field assessments were recorded using a differential GPS (dGPS) with sub-metre accuracy, or a hand-held tablet or GPS with an accuracy of between +/- 3 metres. This level of accuracy is considered adequate to provide an accurate assessment of the ecological features present within the Project Area; however, this data should not be used for detailed surveying purposes; and,
- For cryptic and less abundant species that are known to, or that have the potential to use habitat resources within the survey area as a resident or a visitor on a regular or infrequent basis, the precautionary principle has been applied when determining the likelihood of occurrence (i.e. the absence of a species during targeted surveys is not used as a reason for assuming the species is not present, or may use habitats within the Assessment Area, particularly where the species was/is known to occur within the locality, and the Assessment Area supports suitable habitats).

Application of three-step approach (avoid, minimise, offset)

The initial Project layout was informed by the Proponent's site inspections and use of aerial photography to avoid obvious patches of native vegetation and other key constraints around the site. This preliminary layout informed the location of initial ecological surveys undertaken by EHP, the results of which informed continuous improvement and refinement of the Project layout.

In refining the Project layout, the Proponent has carefully applied the three-step approach detailed in the *Guidelines for the removal, destruction or lopping of native vegetation* (DELWP 2017). Key design iterations and changes, together with anticipated impacts for each iteration are detailed below.

Layout Version	**Impact by EVC (ha)**					**Native Vegetation Impacts**		
	RPM*	LRW*	PW*	PS*	RCW*	*Patches*	*Scattered Trees***	*Total*
V08-02 (Initial version)	26.29	4.31	0.83	5.51	0	36.937 ha	102 large 48 small (8.63 ha)	45.56 ha
Design refined between layout version V08-02 and V08-03. Summary of changes: • Amended turbine component delivery routes from port to site. • Amended hardstand & site compound footprint and locations. • Amended internal access track routes.								
V08-03	21.59	2.33	0.34	5.98	0	30.233 ha	102 large 48 small (8.63 ha)	38.86 ha

Design further refined between layout version V08-03 and V08-04. Summary of changes: • Amended hardstand footprint and locations. • Amended vehicle access routes around site, including entry points from public roads.								
V08-04	13.98	1.8	0.07	3.85	0	19.7 ha	79 large 42 small (6.83 ha)	26.53 ha
Design further refined between layout version V08-04 and V08-05. Summary of changes: • Changes to internal access track routes including entry points from public roads. • Turbine & hardstand relocation. • Changes to component delivery routes. • Changes to transmission line easement route.								
V08-05	7.06	0.89	0.14	1.07	0.0002	9.16 ha	87 large 44 small (7.46 ha)	16.61 ha
Design further refined between layout version V08-05 and V08-06. Summary of changes: • Changes to transmission line easement route • Optimisation of internal access track routes and geometry • Changes to underground cabling routes • Co-location of cabling and access tracks where infrastructure crosses native vegetation								
V08-06	4.92	0.81	0.073	1.10	0.055	6.96 ha	50 large 22 small (4.18 ha)	11.14 ha
Design further refined between layout version V08-06 and V08-07. Summary of changes: • Realignment of infrastructure to avoid scattered trees where possible • Refinement of internal access track routes and geometry • Refinement of underground cabling routes • Refinement of public road upgrade requirements and relocation of some road widening to areas where native vegetation is not present • Reconfiguration of temporary construction areas around some turbines and hardstands								
V08-07	4.95	0.81	0.073	1.10	0.055	6.98 ha	12 large 12 small (1.15 ha)***	8.14 ha
Detailed assessment of tree impacts undertaken to understand impacts on tree protection zones. Tree impacts recalculated to include trees where works are to occur in >10% of tree protection zone area. Design further refined between layout version V08-07 and V08-08. Summary of changes: • Realignment of infrastructure to avoid tree protection zones where possible. • Optimisation of layout to reduce some impacts on native vegetation patches, particularly impacts on *Plains Mallee Box Woodlands*. Impact on *Plains Mallee Box Woodlands* reduced from approx. 2 ha to 1.86 ha.								
V08-08 (Current layout)	**4.61**	**0.80**	**0.09**	**1.08**	**0.052**	**6.63 ha**	**20 large 15 small (1.78 ha)**	**8.41 ha**

* RPM: Ridged Plains Mallee (EVC 96), LRW: Low Rises Woodland (EVC 66), PW: Plains Woodland (EVC 803), PS: Plains Savannah (EVC 826), RCW: Riverine Chenopod Woodland (EVC 103)

** Scattered tree impacts for layouts V08-02 to V08-06 were converted to hectares to allow calculation of overall impacts. (Large trees = 0.07 ha, small trees = 0.031 ha.) Scattered tree impacts for V08-07 and V08-08 are taken from the Ensym reports from DEECA.

*** Tree impacts for layouts V08-02 to V08-07 comprise direct impacts only. Tree impacts for layout V08-08 includes direct impacts as well as tree protection zone impacts.

As noted previously, the Project may require future design changes which may result in additional impacts of up to 1.0 ha, resulting in an overall impact of up to 9.41 ha. Regardless of any layout changes, the Proponent is committed to ensuring the Project impacts on no more than 9.41 ha of native vegetation.

NYD = not yet determined

Flora and fauna

What investigations of flora and fauna in the project area have been done?
(provide overview here and attach details of method and results of any surveys for the project & describe their accuracy)

Overview

In addition to the native vegetation surveys discussed above, the entire project footprint and immediate surrounds have been subject to detailed field investigations. The field assessments sought primarily to assess the extent and condition of potential flora and fauna habitat, with particular consideration given to significant ecological communities and species of conservation concern, such as threatened and migratory species. The survey program was designed to optimise the survey timing, methods and frequency to enable sampling of those flora and fauna species which occur seasonally.

The following detailed investigations of flora and fauna informed the Proponent's understanding of the Project area.

Survey Type	Survey Dates
Targeted Surveys for Significant Flora	
Slender Darling-pea surveys, Turnip Copperburr surveys	8 November 2021 to 16 November 2021
Floodplain Rustyhood surveys, Wimmera Rice-flower surveys, Spiny Rice-flower surveys	25 August 2021 to 28 August 2021 26 July 2022 to 29 July 2022 15 August 2022 to 17 August 2022
Targeted Surveys for Significant Fauna	
Golden Sun Moth surveys	30 November 2021 1 December 2021 6-7 December 2021 13 December 2021 19-20 December 2021
Bird and Bat Surveys	
Bird Utilisation Surveys	31 March 2020 to 3 April 2020 3-8 August 2020 17-20 November 2020 30 November 2020 to 3 December 2021 21-24 March 2022
Targeted Bat Surveys	April 2020 November 2021

All surveys were undertaken in accordance with the relevant survey guidelines by appropriately qualified and experienced staff from Ecology and Heritage Partners. All fieldwork was carried out under the appropriate licences, including a Research Permit (1008283) and Scientific Procedures Fieldwork Licence (SPFL20005) issued by DELWP under the *Wildlife Act 1975*, and an Animal Research permit issued by the Wildlife and Small Institutions Animal Ethics Committee (05.17).

Further detail on the methodology used is provided in Sections 2.4, 2.5 and 2.6 of the Ecological Assessment (refer to *Attachment A.2*).

Flora

Targeted Flora Surveys

Targeted surveys for the following flora species were undertaken in areas of potentially suitable habitat:

- Slender Darling-pea;
- Turnip Copperburr;
- Floodplain Rustyhood;
- Wimmera Rice-flower; and
- Spiny Rice-flower.

The field assessments were undertaken over multiple seasons between 2020 and 2022 to maximise the likelihood of detection of significant flora and fauna species. As such, it is considered that sufficient effort has been employed to determine the likelihood of significant species occurring within the Project Area, and to accurately characterise the flora values present.

Seven flora species listed as threatened under the *Flora and Fauna Guarantee Act 1987* (FFG Act) were recorded within the Project Area during the targeted surveys and ecological assessments, including:

- Umbrella Wattle (*Acacia oswaldii*);
- Weeping Myall (*Acacia pendula*);
- Long Eryngium (*Eryngium paludosum*);
- Hairy Tails (*Ptilotus erubescens*);
- Swainsona-pea (*Swainsona sp*.);
- Buloke (*Allocasuarina luehmannii*); and
- Buloke Mistletoe (*Amyema linophylla subsp. Orientalis*).

Several flora species listed as 'protected' under the FFG Act were also found in the Project Area. These species are in family/genera Acacia, Asteraceae and Fabaceae.

One state significant ecological community, Semi-arid Northwest Plains Buloke Grassy Woodlands Community, was recorded within the Project Area.

Fauna

Targeted Golden Sun Moth surveys

Four areas of potential Golden Sun Moth (GSM) habitat were identified within the project area during the flora surveys. Targeted surveys for GSM were undertaken within these areas of potential habitat during late-2021. The surveys were undertaken in accordance with the procedures outlined in the *Significant Impact Guidelines for the Critically Endangered Golden Sun Moth* (DEWHA 2009).

Seven (7) individuals of GSM were located in one area of potential habitat within the road reserve of Moloney's Road, near the intersection of Pullens Road in the southern section of the Project Area. The project layout does not propose any works within or adjacent to this area of suitable habitat. EHP's assessment confirms that this area of confirmed GSM habitat is disconnected from other areas of suitable habitat around the Project Area and it is therefore unlikely that GSM will move between different areas on site.

Bird Utilisation Surveys

A total of five (5) bird utilisation survey events were undertaken at 12 fixed point count locations across the Project Area. The surveys were designed to comply with the guidelines described in *AusWEA – Wind Farms and Birds: Interim Standards for Risk Assessment (2005)*. The locations chosen provided coverage of the entire Project Area and were representative of the range of habitat types that occur across the site. Further detail on the methodology for bird utilisation surveys is outlined in section 2.6.2 of the Ecological Assessment at *Attachment A.2.*

The Bird Utilisation Surveys identified 63 bird species, consisting of 3,846 individual sightings. Approximately 0.6% of birds were observed flying at rotor swept area height and all species observed at this height were locally common birds and not nationally or State significant.

Species richness analysis of the survey results indicates that the surveys were sufficient to cover the required range of conditions and seasons.

Bat Surveys

No significant bat species have been previously documented within the VBA (DELWP 2021) within of in close proximity to the project area.

Bat surveys were undertaken in accordance with the *Survey guidelines for Australia's threatened bats* (DEWHA 2010). Two rounds (approx. 21 days each) of targeted bat surveys were undertaken to understand the diversity of bat species that may be present within the Project area. Survey locations were chosen based on geography and habitat type to capture a representative sample of the project area. Sound recorders were used to record bat calls before call analysis by Rob Gration of EcoAerial Consulting Services, a recognised expert in bat call analysis.

Native bat species confirmed on site were:

- Southern Free-tailed Bat (*Ozimops planiceps*)
- White-striped Freetail Bat (*Tadairida australis*)
- Inland Broad-nosed Bat (*Scotorepens balstoni*)
- Gould's Wattled Bat (*Chalinolobus gouldi*)
- Chocolate Wattled Bat (*Chalinolobus m*orio)
- Little Forest Bat (*Vespadelus vultumus*).

Several other calls detected during surveys could not be identified to species level and were assigned to one of two call complexes:

- Forest Bat spp. *V. Regulus / V. vulturnus*;
- Nyctophilus spp. *Nyctophilus geoffroyi / Nyctophilus gouldi*.

With the exception of the Inland Broad-nosed Bat, all species identified on site have a moderate to high risk of collision, however all have stable populations and widespread distributions and are not significant species at either a Commonwealth or State level. Inland Broad-nosed Bat has a low risk of collision given it rarely flies above 15m or tree canopy level.

Detailed results from the bat surveys are included in section 3.4.2 of the Ecological Assessment at *Attachment A.2*.

Have any threatened or migratory species or listed communities been recorded from the local area?

☒ NYD ☒ No ☒ Yes If yes, please:

- List species/communities recorded in recent surveys and/or past observations.
- Indicate which of these have been recorded from the project site or nearby.

The following species and listed communities were recorded within the Project area during flora and fauna surveys.

Name	Status
Listed Ecological Communities (Commonwealth)	
Plains Mallee Box Woodlands of the Murray-Darling Depression, Riverina and Naracoorte Coast Plains Bioregions	EPBC Act: Critically endangered
Natural Grasslands of the Murray Valley Plains	EPBC Act: Critically endangered
Buloke Woodlands of the Riverina and Murray-Darling Depression Bioregions	EPBC Act: Endangered
Listed Ecological Communities (State)	
Semi-arid Northwest Plains Buloke Grassy Woodlands Community	FFG Act: Threatened
Migratory Species	

No migratory species recorded during surveys. See below for further detail.	
Significant Flora Species	
Umbrella Wattle (Acacia oswaldii)	FFG Act: Threatened
Weeping Myall (Acacia pendula)	FFG Act: Threatened
Long Eryngium (Eryngium paludosum)	FFG Act: Threatened
Hairy Tails (Ptilotus erubescens)	FFG Act: Threatened
Swainsona-pea (Swainsona sp.)	FFG Act: Threatened
Buloke (Allocasuarina luehmannii)	FFG Act: Threatened
Buloke Mistletoe (Amyema linophylla subsp. Orientalis)	FFG Act: Threatened
Significant Fauna Species	
Golden Sun Moth (Synemon plana)	EPBC Act: Critically endangered FFG Act: Vulnerable

Although no migratory species were recorded during surveys, the White-throated Needletail (Hirundapus caudacutus) has been historically recorded within the region indicating that can be an occasional visitor during migration.

If known, what threatening processes affecting these species or communities may be exacerbated by the project? (e.g. loss or fragmentation of habitats) Please describe briefly.

The following threatening processes have the potential to be exacerbated by the Project if suitable mitigation measures are not implemented.

Threat	Risk without mitigation measures
EPBC Act: Listed Key Threatening Processes	
Land clearance	Remnant native vegetation and ecological communities in the region are highly fragmented owing primarily to historic clearing for cropping and grazing. Patches of remnant vegetation and ecological communities are therefore susceptible to significant losses from relatively small areas of impact.
FFG Act: List of Potentially Threatening Processes	
Habitat fragmentation as a threatening process for fauna in Victoria	Habitat for native fauna is already highly fragmented in the region and further fragmentation or loss could have a significant impact.
Invasion of native vegetation by 'environmental weeds'	There is potential for construction vehicles to introduce weeds to be introduced to areas of native vegetation.
The spread of Phytophthora cinnamomi from infected sites into parks and reserves, including roadsides, under the control of a state or local government authority.	There is potential for construction vehicles to introduce Phytophtora cinnamomi to areas of native vegetation.
Use of Phytophthora-infected gravel in construction of roads, bridges and reservoirs.	There is potential for construction vehicles to introduce Phytophtora cinnamomi to areas of native vegetation.

All of the threatening processes outlined above can be appropriately managed and mitigated to ensure they are not exacerbated by the Project. Selective siting of infrastructure has minimised the Project's impacts on native vegetation and fauna habitat, and construction controls such as vehicle wash-down procedures will prevent the spread of weeds and Phytophtora cinnamomi.

Are any threatened or migratory species, other species of conservation significance or listed communities potentially affected by the project?

☒ NYD ☒ No ☒ Yes If yes, please:

- List these species/communities:
- Indicate which species or communities could be subject to a major or extensive impact (including the loss of a genetically important population of a species listed or nominated for listing) Comment on likelihood of effects and associated uncertainties, if practicable.

Flora species

One dense stand of Weeping Myall was identified on Hein Lane and impacts to this species will be avoided given the limited natural occurrence of remnant Weeping Myall within Victoria.

Impacts to native vegetation will include removal of habitat for common flora species and significant species including Buloke. Buloke was recorded as scattered around the Project site, mainly in patches of Plains Savannah.

Due to the minimal extent of native vegetation removal, impacts to threatened flora species are expected to be nil to minor.

Listed ecological communities

Due to the minor extent of native vegetation to be removed, impacts to ecological communities are expected to be negligible to minor. Specific impacts are:

- Plains Mallee Box Woodlands of the Murray-Darling Depression, Riverina and Naracoorte Coast Plains Bioregions: 1.864 ha
- Natural Grasslands of the Murray Valley Plains: 0.108 ha
- Buloke Woodlands of the Riverina and Murray-Darling Depression Bioregions / Semi-arid Northwest Plains Buloke Grassy Woodlands Community: 0.069 ha

Fauna species – Golden Sun Moth

As noted above, the Project layout intersects with approximately 0.14 ha of confirmed GSM habitat along Moloney's Road. The works proposed in this area are limited to overhead transmission lines which will span the confirmed habitat without requiring works at ground level. Impacts to GSM are therefore considered highly unlikely.

Migratory Species

The Project area is not classed as important habitat for migratory species as defined by the *EPBC Act Policy Statement 1.1 Principal Significant Impact Guidelines* (DoE 2013) and is not located between, or in close proximity to, either migratory bird feeding areas, or important, regularly used, feeding and roosting sites. Therefore, the likelihood of migratory birds moving through the project area is low. Furthermore, shorebirds typically fly at 500m to 6km above ground level during migration, meaning any interaction with the proposed turbines is unlikely. Further detail is provided in section 3.5.2 of the Ecological Assessment at *Attachment A.2*.

Is mitigation of potential effects on indigenous flora and fauna proposed?

☒ NYD ☒ No ☒ Yes If yes, please briefly describe.

The Project layout has been designed to avoid and minimise impacts on native vegetation, flora and fauna. The layout will continue to be refined throughout the development process, with a view to further reducing the Project's impacts.

Additional mitigation measures will be applied during the construction period, including but not limited to:

- Physical protection (fencing and/or flagging) of native vegetation to be retained, scattered trees and areas of environmental sensitivity;

- Implementation of sediment and erosion controls; and
- Wash-down of vehicles, plant and equipment to prevent spread of weeds and Phytophtora cinnamomi to areas of native vegetation.

Construction-phase mitigation measures will be documented in the Project's Construction Environment Management Plan.

Other information/comments? (e.g. accuracy of information)

Data and information held within the ecological databases and mapping programs reviewed in the desktop assessment (i.e. VBA, PMST, Nature Kit Maps etc.) are unlikely to represent all flora and fauna observations within, and surrounding the Project Area. It is therefore important to acknowledge that a lack of documented records does not necessarily indicate that a species or community is absent. Furthermore, a documented record may indicate a species' presence in an area at a given point in time, but it generally does not offer information about how a species is making use of an area (e.g. foraging, nesting, dispersing). This can be important information when determining the potential impact of a proposed action on a threatened species.

The 'snap shot' nature of an ecological assessment meant that migratory, transitory or uncommon fauna species may have been absent from typically occupied habitats at the time of the field assessment. In addition, annual or cryptic flora species such as those that persist via underground tubers may also be absent.

In light of this information, terrestrial flora and fauna data collected during the field assessment was supplemented by information obtained from relevant desktop sources and provides an accurate assessment of the ecological values present within the Assessment Area.

13. Water environments

Will the project require significant volumes of fresh water (e.g. > 1 Gl/yr)?

☐ NYD ☒ No ☐ Yes If yes, indicate approximate volume and likely source.

The primary uses of water for the Project will be for dust suppression and concrete production during construction.

The Project is expected to use approximately 0.15 Gl/year for dust suppression during the construction phase, and approximately 0.06 Gl in total for concrete production.

During the operations phase, water use will be limited to staff amenities and minor track repairs.

Will the project discharge waste water or runoff to water environments?

☐ NYD ☒ No ☐ Yes If yes, specify types of discharges and which environments.

Very low volumes of wastewater and runoff will be generated during construction and there is minimal risk of wastewater or runoff entering nearby water environments. Furthermore, the site is relatively flat with generally pervious soils meaning significant erosion is unlikely. Dewatering of excavations is unlikely to be required given the water table is >20m deep in the area, further reducing wastewater discharge from the project.

Many former channels and watercourses through the site have been filled over time, but a 100m buffer from the Yarriambiack Creek and other remaining waterways will ensure water environments are not impacted by the Project.

Standard construction controls outlined in a Construction Environment Management Plan will be appropriate to manage any residual risks to water environments.

Are any waterways, wetlands, estuaries or marine environments likely to be affected?

☐ NYD ☒ No ☐ Yes If yes, specify which water environments, answer the following questions and attach any relevant details.

The direct interface of any works with Yarriambiack Creek will be avoided by keeping all works and infrastructure at least 100m from the bank of the creek. The risk assessment included in the Surface Water and Groundwater Assessment determined the level of risk that any waterways are likely to be affected by the project as “Low”.

Are any of these water environments likely to support threatened or migratory species?

☐ NYD ☒ No ☐ Yes If yes, specify which water environments.

Yarriambiack Creek and other water environments around the Project area are unlikely to support threatened or migratory species. There are no records of threatened or migratory species listed on the Victorian Biodiversity Atlas. Furthermore, flows in the Yarriambiack Creek are highly irregular and infrequent, with vast sections of the creek remaining dry for many years, meaning it is unlikely to support threatened or migratory species.

Are any potentially affected wetlands listed under the Ramsar Convention or in ‘A Directory of Important Wetlands in Australia’?

☐ NYD ☒ No ☐ Yes If yes, please specify.

The nearest Ramsar site is Lake Albacutya which lies approximately 38 km to the northwest of the Project area. Lake Hindmarsh, approximately 28 km to the west, is listed in *A Directory of Important Wetlands in Australia*.

Neither wetland will be affected by the Project.

Could the project affect streamflows?

☐ NYD ☒ No ☐ Yes If yes, briefly describe implications for streamflows.

The Project will not generate significant run off or alter stream flows. Other than the turbine footing (a 25-30m diameter concrete pad), all infrastructure will be permeable and designed not to

significantly alter surface water flows. Furthermore, all turbines will be kept more than 100m from streams.

Could regional groundwater resources be affected by the project?

☐ NYD ☒ No ☐ Yes If yes, describe in what way.

Although construction activities generally have the potential to generate groundwater quality impacts, the implementation of appropriate controls on site such as spill controls, bunding and appropriate handling protocols for hazardous materials will ensure the likelihood of any such event is minimised. In the unlikely event that an incident does occur, hazardous substances need sufficient time and a pathway to infiltrate groundwater, and appropriate incident response procedures will reduce the severity and consequence of such an incident. It is therefore highly unlikely that the Project will impact on regional groundwater resources.

Could environmental values (beneficial uses) of water environments be affected?

☐ NYD ☒ No ☐ Yes If yes, identify waterways/water bodies and beneficial uses (as recognised by State Environment Protection Policies)

Given the Project's small infrastructure footprint relative to the overall Project Area, it will not affect groundwater recharge or beneficial uses of groundwater.

Could aquatic, estuarine or marine ecosystems be affected by the project?

☐ NYD ☒ No ☐ Yes If yes, describe in what way.

Is there a potential for extensive or major effects on the health or biodiversity of aquatic, estuarine or marine ecosystems over the long-term?

☒ No ☐ Yes If yes, please describe. Comment on likelihood of effects and associated uncertainties, if practicable.

Is mitigation of potential effects on water environments proposed?

☐ NYD ☐ No ☒ Yes If yes, please briefly describe.

Despite the low likelihood of the Project affecting water environments, the Proponent will implement mitigation measures to further reduce such risks. Mitigation measures such as selective siting, observing buffers around waterways, water quality monitoring, erosion monitoring, sediment control and bunding/spill management measures will all be implemented via a Construction Environment Management Plan.

Other information/comments? (e.g. accuracy of information)

Not applicable.

14. Landscape and soils

Landscape

Has a preliminary landscape assessment been prepared?

☐ No ☒ Yes If yes, please attach.

A Preliminary Landscape and Visual Impact Assessment (LVIA) has been prepared by XURBAN. Refer to *Attachment A.4*.

The Preliminary LVIA found that the greatest overall visual impact from publicly accessible locations (highways, local roads and recreation reserves) was low. Low impact was defined in the LIVA as *'visual impacts that are noticeable but will not cause any significant adverse impacts.'* This level is typical of the impact of wind turbines in the Wimmera landscape.

Existing landscape

The Preliminary LVIA notes that the Project is located in a landscape that is characterised as 'Big Plains'. The landscape has low sensitivity to change, owing largely to its flat topography and dominant agricultural land uses, meaning it has the ability to accommodate the Project.

Residential Viewpoints

Visual impacts from residential properties were not assessed as part of the Preliminary LVIA. It is expected that assessments of residential viewpoints will be included in a subsequent LVIA and the location of residences to be assessed will be informed by the Proponent's ongoing community engagement activities.

In addition to detailed assessments, landscape mitigation measures will be offered to affected residential properties within 6.4 km of a WTG, with a view to screening views to WTGs if such is the desire of the property owner.

Townships and urban areas

The assessment outlines that at 16 km a WTG will at most be 'Potentially noticeable but will not dominate the landscape'. The assessment considers the following townships within 16km of the Project area:

- Warracknabeal
- Beulah
- Brim
- Antwerp
- Lah
- Kellalac
- Kewell

Photomontages have been prepared from viewpoints around the Project Area. Photomontage locations are shown in *Attachment B.13* and the photomontages are included in *Attachment A.4*.

Horsham, the largest town in the Wimmera is 40km from the Project well outside of the 32km viewshed[27] boundary.

Warracknabeal Township

The Warracknabeal Township is located 6km from the Northern Section and 9km from the Southern Section of WTGs.

[27] The assessment defines the viewshed boundary as an area where a WTG will take up more than 5% (or 0.5°) of the vertical field of view. This corresponds to a distance of 32km for 280m high WTGs.

Photomontages have been prepared from viewpoints within the town centre and the outskirts of the township to understand the potential for visual impacts from the WTGs. The assessment found:

> *Although township areas are considered sensitive locations and the duration for many locations would be considerable, the screening of the turbines by built form and vegetation will mean that the overall visual impact from the township of Warracknabeal is assessed as negligible to nil.*

Sensitive Landscapes

Figure 12 in the Preliminary LVIA provides a map of the location of surrounding sensitive landscapes and their location relative to the Project. The assessment has identified the following surrounding sensitive landscapes in proximity to the Project found the following:

Sensitive Landscape	Distance to Project	Assessment Finding
Little Desert National Park	25 km	The Little Desert National Park is approximately 25 km to the south west. This landscape will not be impacted by the proposed wind farm.
Grampians National Park and Mount Arapiles	55 km and 57 km	The northern edge of the Grampians is approximately 55 km to the south and the Mount Arapiles is approximately 57 km to the south west. Neither of these landscapes will be impacted by the proposed wind farm.
Lake Hindmarsh	28 km	Lake Hindmarsh is also just inside the viewshed for the Project, however, given the distance to the nearest wind turbine and the slightly dished topography of the lake there would be no visual impact.

Cumulative Impacts

The study identified two approved wind farms within 50 km of the Project, being Murra Warra Wind Farm (MWWF) (with approval for up to 116 WTGs) and the Kiata Wind Farm (9 WTGs). The assessment considered the cumulative visual impact in terms of:

- Sequential views to multiple wind farms; and
- Simultaneous views to wind turbines from publicly accessible viewpoints or from private viewing locations.

Either sequential of simultaneous views to multiple wind farms may change a community's or visitor's perception of a region.

Sequential Visual Impacts

With regard to sequential visual impact, the assessment notes that:

> *The development of wind farms may lead to a change in people's perception of a region and will be evident as they travel through the road network. Alteration to the perception of a landscape will occur when a visitor is able to view two or more wind farms.*

The sequential visual impact was assessed from the Western Highway, Henty Highway and the Borung Highway in addition to the local and regional roads.

The assessment found that when utilising the Western Highway, the Project would be behind the MWWF and would have a negligible impact on the sequential views from the Highway. Furthermore, when considering the impact from the viewshed from the Wimmera Highway the assessment states:

> *It would not be possible to see the Kiata Wind Farm from the Wimmera Highway and the Murra Warra (turbines) may just be visible. The addition of the wind turbines in the (Warracknabeal Energy Park) would have no additional visual impact.*

The main sequential visual impact was considered to be on the views from the Henty and Borung Highways where sequential views of MWWF and the Project would be possible, however, Kiata would not be visible. In conclusion, the assessment found:

> *The expansiveness of this Wimmera landscape mitigates the sequential impact and the sequential visual impact would be assessed as low.*

In considering the sequential view to the Project and Kiata Wind Farm and MWWF from local and regional roads the assessment found there was low to negligible sequential visual impacts. The assessment concluded that:

> *The cumulative visual impact brought about by sequential views to wind farms from these local roads is assessed as negligible.*

Simultaneous Visual Impacts

Simultaneous visual impact was also considered by the assessment to understand the effect of the viewsheds of two or more windfarms overlapping. Overlaps between the Project and MWWF viewsheds occur on the Henty Highway, Borung Highway and some short lengths of a limited number of local roads. Photomontages were prepared to understand the impact at these locations (refer to VP24 photomontage in *Attachment A.4*).

The assessment concluded that in these sections of overlap the visual impacts would be low and the simultaneous visual impact is negligible.

Is the project to be located either within or near an area that is:

- **Subject to a Landscape Significance Overlay or Environmental Significance Overlay?**
  ☐ NYD ☐ No ☒ Yes If yes, provide plan showing footprint relative to overlay.

There are no Significant Landscape Overlays (SLO) located within the Project Area or within the viewshed of the Project. The nearest land affected by a SLO is land within the Little Desert National Park and the Grampians. The preliminary Landscape and Visual Assessment states that neither of these landscapes will be impacted by the Project.

Two Environmental Significance Overlays (ESOs) are found within the Project Area:

- Environmental Significance Overlay 1 – Yarriambiack Creek (ESO1)
- Environmental Significance Overlay 2 – Highway Environs Protection (ESO2)

The location of the ESOs are shown on the Planning Overlays map in *Attachment B.12*.

ESO1 covers the Yarriambiack Creek and its immediate surrounds. The majority of this land is located outside of the Project Area with only small areas located on the periphery of the Project Area. The Project does not propose any works within the ESO1.

ESO2 is located on public land along the roads:

- Jeparit – Warracknabeal Road;
- Henty Highway;
- Rainbow Road; and
- Borung Highway;

Works within the ESO2 will be limited to creation of access points into the Project site and works will be sited to minimise impacts to native vegetation and trees. The Preliminary LVIA found that there are no identified scenic views along these roads and the presence of wind turbines would not be a disconcerting element in the landscape.

- **Identified as of regional or State significance in a reputable study of landscape values?**
  ☐ NYD ☒ No ☐ Yes If yes, please specify.

- **Within or adjoining land reserved under the *National Parks Act 1975* ?**
  ☐ NYD ☒ No ☐ Yes If yes, please specify.

The nearest National Park is Little Desert National Park which is approximately 25 km south-west of the Project Area.

- **Within or adjoining other public land used for conservation or recreational purposes ?**

  ☐ NYD ☐ No ☒ Yes If yes, please specify.

One conservation reserve is located within the northern section of the Project Area, Willenabrina I86 Bushland Reserve. The reserve is primarily for conservation purposes. No works are proposed within the reserve.

In addition, the Yarriambiack Creek and its immediate surrounds are used for recreation purposes. No works are proposed in or within 100m of the creek.

No reserves are located within the southern section of the Project Area.

Is any clearing vegetation or alteration of landforms likely to affect landscape values?

☐ NYD ☒ No ☐ Yes If yes, please briefly describe.

Although small areas of native vegetation clearance are required for the Project, the minor and dispersed nature of the clearance means it is unlikely to affect landscape values.

Is there a potential for effects on landscape values of regional or State importance?

☐ NYD ☒ No ☐ Yes Please briefly explain response.

Is mitigation of potential landscape effects proposed?

☐ NYD ☐ No ☒ Yes If yes, please briefly describe.

As noted previously, landscape screening will be offered to all residential dwellings that are within 6.4 km of a WTG and that have views to a WTG.

If required by a planning permit or other approval, landscape screening could be provided around substations and battery energy storage systems.

Other information/comments? (e.g. accuracy of information)

Not applicable.

Note: A preliminary landscape assessment is a specific requirement for a referral of a wind energy facility. This should provide a description of:

- The landscape character of the site and surrounding areas including landform, vegetation types and coverage, water features, any other notable features and current land use;
- The location of nearby dwellings, townships, recreation areas, major roads, above-ground utilities, tourist routes and walking tracks;
- Views to the site and to the proposed location of wind turbines from key vantage points (including views showing existing nearby dwellings and views from major roads, walking tracks and tourist routes) sufficient to give a sense of the overall site in its setting.

Soils

Is there a potential for effects on land stability, acid sulphate soils or highly erodible soils?

☐ NYD ☒ No ☐ Yes If yes, please briefly describe.

The Project is located within a flat farmland landscape. Although the infrastructure footprint will be disturbed during the construction period, such disturbance will be temporary in nature and will only occur on 3-4% of the land in total. During construction, dust suppression measures such as water

spraying of tracks and covering of stockpiles will ensure dust is kept to a minimum. Following construction, revegetation of disturbed areas will ensure risks to soil from wind erosion are no greater than the risks that already exist in the region.

No works are proposed in areas where regular water flows occur, and accordingly any risk associated with erosion from water flows is minimal.

Risks associated with land stability are anticipated to be very low, and will be further mitigated by geotechnical investigations during the detailed design phase of the Project.

The Project Area and surrounds are in an area of extremely low probability of acid sulphate soils occurring[28].

Are there geotechnical hazards that may either affect the project or be affected by it?

☐ NYD ☒ No ☐ Yes If yes, please briefly describe.

Other information/comments? (e.g. accuracy of information)

The overall potential of the Project to affect or be affected by land stability, acid sulphate soils or highly erodible soils is very low. Any risks can be appropriately mitigated through the implementation of a Construction Environmental Management Plan.

[28]Surface Water and Groundwater Assessment, pp. 39

15. Social environments

Is the project likely to generate significant volumes of road traffic, during construction or operation?

☐ NYD ☐ No ☒ Yes If yes, provide estimate of traffic volume(s) if practicable.

A Traffic Impact Assessment (TIA) has been prepared to provide a detailed traffic engineering assessment of the anticipated construction traffic and likely transport impacts of the Project.

The TIA is informed by the expected construction timeframe of approximately 45 months for the Northern Section and approximately 15 months for the Southern Section. The timeframe projection includes approximately 20 and 7.5 months respectively for the northern and southern sections for the delivery of WTG components.

Existing Road Network

The Project Area is well serviced with an arterial road network including:

- Borung Highway;
- Jeparit – Warracknabeal Road; and
- Rainbow Road.

These arterial roads have all been assessed by the TIA as 'Fair' condition with a visual inspection of the road surfaces of sealed roads as 'generally in good condition'. Visual inspections of the majority but not all of the unsealed roads were observed to be on 'poor' condition.

Vehicle Access and Delivery of Project Components

The Project is well positioned to utilise and connect to the surrounding existing road infrastructure particularly the arterial road network.

The delivery of WTG componentry from the shipping port of Portland, Victoria to the Project Area will require the use of large over dimensional design vehicles with a total length of up to 105m to transport the largest components of the WTG blades. The TIA has undertaken a swept path assessment of key intersections which indicates that there will be a small number of instances where over dimensional vehicles will extend beyond the available road width and will require alterations.

The TIA has prepared a VicRoads Class 1 pre-approved Oversized and Over Mass (OSOM) Annual Scheme Permit network map outlining the proposed delivery route to the Project. Importantly, the routes proposed aside from the finals turns into the site from the Borung Highway are consistent with the routes understood to have been utilised for the construction of the Murra Warra Wind Farm. Significant road upgrades undertaken by the Murra Warra Wind Farm to facilitate the delivery of WTG components or similar size to the Project will significantly reduce the roads upgrades for the Project and avoid construction impacts on the broader road network.

Traffic Generation

The TIA provides an estimation of the number of vehicle trips required by particular vehicle types and projects that 322,997 vehicle trips are required to facilitate construction of the Project.

Vehicle Type	Vehicle Trips
Over dimensional	3,384 trips
Heavy vehicle	103,398 trips
Personnel (light vehicle)	216,000 trips
Total	*322,782 trips*

Noting these vehicle trips to the Project Area will require a second movement to exit the site following the delivery of materials, therefore, the overall traffic generation will be in the order of

645,564 movements. To understand the impacts associated with the number of vehicle trips on the existing road network The TIA provides an analysis of the anticipated construction traffic volumes.

The calculated construction traffic volumes indicate that all roads are anticipated to operate within their theoretical capacity during construction.

Road	Daily Traffic Volumes			
	Existing (vpd*)	Additional (vpd)	Total during construction (vpd)	Theoretical Road Capacity (vpd)
Borung Hwy (Between Dimboola Rd and Blue Ribbon Rd)	600 vpd	+299 vpd	899 vpd	2,500-6,000 vpd
Jeparit-Warracknabeal Rd	100 vpd	+299 vpd	399 vpd	2,500-6,000 vpd
Rainbow Rd (south of Jeparit-Warracknabeal Rd)	250 vpd	+299 vpd	549 vpd	2,500-6,000 vpd
Rainbow Rd (north of Jeparit-Warracknabeal Rd)	100 vpd	+299 vpd	399 vpd	2,500-6,000 vpd

* vpd denotes vehicles per day

As shown in the table above, total traffic volumes during construction are expected to be well below the Theoretical Road Capacity (TRC) of each road. If turbine numbers increase from the assessed 211 up to the maximum of 230, traffic volumes will remain well within the TRC of each road.

The anticipated traffic volumes include accounting for sourcing rock and quarry materials from nearby external queries from the likely locations of:

Quarry Locations	Distance to Project Area (approx.)	Size of Extraction
Stawell Quarry	80km	Large
Tuckers Hill Quarry	110km	Large
Albacutya Quarry	52km	Large
Charlton Quarry	98km	Large

The TIA concluded that traffic movements from the quarries to the Project Area are confined to major arterial roads which are designed to accommodate such loads.

The overall conclusions of the TIA (see *Attachment A.11,* page 25) found:

- (The) assessment undertook analysis of proposed traffic movements to, from and around the Project Area. Traffix Group understands the proponent will most likely utilise nearby commercial quarries as material sources instead of developing an on-site quarry. This assessment has considered these commercial quarries as the sources of material for the project. Traffic movements from the quarries to the site are confined to major arterial roads which are designed to accommodate such loads.
- The windfarm proposal is estimated to generate 322,782 total construction vehicle trips over a 45-month period. Assuming 24 working days per month this equates to 299 daily both entry and exit trips, that being a total of 598 road network movements per day.
- The increase in traffic volumes on key surrounding roads will not exceed their theoretical capacity and we are satisfied that there will be no unreasonable traffic impact generated by this proposal.
- Swept path diagrams of the largest over-dimensional vehicle (carrying a blade length of up to 100m) suggest that there will be some instances where the over-dimensional vehicle will extend beyond the available road width.

- Recent upgrades undertaken for the Murra Warra Wind Farm will significantly reduce the extent and number of upgrades required to facilitate delivery of large components from Portland to the site.
- In order to accommodate the wind blade trucks and the traffic associated with the construction, the following mitigating road works are recommended:
- Temporary removal of street signs and furniture and trimming of vegetation within the swept path extents (including the wind blade rear overhang).
- Additional pavement widening at key intersections, as outlined within this report.
- Potential upgrading of various road segments as outlined in Table 9.

Traffic Management

The Proponent commits to the preparation of a Traffic Management Plan (TMP) to outline the key traffic considerations. The TMP will be prepared following the finalisation of the project layout and WTG locations and specifications.

Is there a potential for significant effects on the amenity of residents, due to emissions of dust or odours or changes in visual, noise or traffic conditions?

☒ NYD ☒ No ☒ Yes If yes, briefly describe the nature of the changes in amenity conditions and the possible areas affected.

Noise (Associated with the construction of the Project)

The construction works required for the Project will include inherently noisy activities such as use of heavy machinery. Noise effects during the construction period will be managed through compliance with the EPA guidelines for major project construction, which include measures to manage impacts on nearby dwellings. These measures include:

- Selective siting: ensuring noisy activities (such as concrete batching) are separated from sensitive land uses (such as dwellings); and
- Constraining work hours on site to regular working hours where possible.

By implementing the measures above as part of the Project's Construction Environment Management Plan, construction noise can be appropriately managed to ensure significant effects on residents do not occur.

Noise (Associated with the operation of the Project)

The preliminary environmental noise assessment *(Attachment A.9*, page 19) concludes that the wind farm will be able to achieve compliance with the applicable noise limits derived from the *Environment Protection Regulations* and *NZS 6808:2010* without a need for further noise control mechanisms.

In general, and given the relatively large extent of land available, it is expected that ancillary infrastructure will be able to be installed to reduce noise levels so far as reasonably practicable and to achieve compliance with the applicable requirements from the Environment Protection Regulations and Noise Protocol. A noise assessment will be conducted to confirm that the predicted noise levels can achieve compliance with the requirements.

In accordance with the *Environment Protection Regulations*, the Project will require a Noise Management Plan (NMP) which will set out a testing, compliance and reporting regime to ensure the Project operates within the bounds of the Regulations and NZS 6808:2010. When prepared, the Project's NMP will include measures to investigate and address complaints from neighbours regarding noise.

Significant effects from noise associated with operation of the Project are therefore unlikely.

Emissions, dust and/or odours

Significant effects from emissions and/or odours are unlikely given the nature of works to be undertaken as part of the Project do not inherently generate significant emissions and/or odours.

Construction activities do, however, have the potential to generate dust which, if not managed appropriately, could affect nearby residents. Dust suppression measures such as covering of

stockpiles, revegetation of disturbed areas and watering of access tracks will significantly reduce dust generation from the Project and therefore significant effects from dust are unlikely.

Visual conditions

Changes to visual conditions in and around the Project area are unlikely to have a significant effect on amenity. As noted in the Preliminary Landscape and Visual Impact Assessment, the region has a low sensitivity to change and can accommodate the Project with minimal impact.

Individual residences that may experience an impact will be offered landscape mitigation measures to screen views towards the Project, if such is the desire of the owner.

Traffic conditions

As noted in the Traffic Impact Assessment, the road network in and around the Project site has the capacity to adequately accommodate all traffic movements required for construction and operation of the Project. Any impacts can be appropriately managed through working hours and implementation of a Traffic Management Plan. The Project will upgrade several nearby roads to an improved standard, resulting in an improvement to traffic conditions for residents.

Shadow Flicker

The final project layout will meet shadow flicker requirements as stated in Clause 5.1.2 of the *Policy and Planning Guidelines for Development of Wind Energy Facilities in Victoria*. A detailed Shadow Flicker Assessment will be included with the project's planning permit application.

Is there a potential for exposure of a human community to health or safety hazards, due to emissions to air or water or noise or chemical hazards or associated transport?

☐ NYD ☒ No ☐ Yes If yes, briefly describe the hazards and possible implications.

Is there a potential for displacement of residences or severance of residential access to community resources due to the proposed development?

☐ NYD ☒ No ☐ Yes If yes, briefly describe potential effects.

Are non-residential land use activities likely to be displaced as a result of the project?

☐ NYD ☐ No ☒ Yes If yes, briefly describe the likely effects.

Minor disturbance to agricultural activities is expected as part of the Project given the Project infrastructure will occupy 3-4% of the Project area. The Proponent has developed the Project layout in close collaboration with landholders to ensure disturbance to their farming practices is minimised. All landholders are supportive of the proposed project layout.

Do any expected changes in non-residential land use activities have a potential to cause adverse effects on local residents/communities, social groups or industries?

☐ NYD ☒ No ☐ Yes If yes, briefly describe the potential effects.

Is mitigation of potential social effects proposed?

☐ NYD ☐ No ☒ Yes If yes, please briefly describe.

The Proponent is developing a suite of measures to mitigate the potential negative social impacts of the Project.

The suite of mitigation measures currently include:

Community Benefit Scheme (CBS)

- A CBS will be developed to share the social and economic benefits of the Project with communities in Warracknabeal, Brim, Lah and surrounding areas.

- A minimum of $2,000 per WTG (up to $440,000) per annum will be allocated to community initiatives.
- The CBS will be developed through community consultation to ensure a broad range of initiatives are being funded with a key aim of the CBS being to ensure as many community members as possible benefit from the Project in some way.

Neighbour Benefit Sharing Scheme

- Direct financial payments will be offered to the Project's near neighbours (within 6 km of a WTG) with a view to sharing the economic benefits of the Project throughout its operational life.
- The payments are purely a benefit sharing initiative and do not require neighbours to waive any rights or accept reduced amenity levels from those set out in the Wind Farm Guidelines and other relevant regulations. Neighbours will not be asked to forego any rights or amenity in exchange for the payments.

Landscaping Programs

- As noted in previous sections, landscape screening will be offered to near neighbours whose dwellings have a view towards WTGs.
- Landscape screening will be developed to minimise the visual impact of WTGs at residential dwellings.

Workforce Accommodation Strategy

- A Workforce Accommodation Strategy will be developed to ensure the Project does not place undue pressure on the local housing market.

The measures will continue to be developed over time and will be informed by community consultation.

Other information/comments? (e.g. accuracy of information)

Not applicable.

Cultural heritage

Have relevant Indigenous organisations been consulted on the occurrence of Aboriginal cultural heritage within the project area?

☐ No If no, list any organisations that it is proposed to consult.
☒ Yes If yes, list the organisations so far consulted.

Consultation with the traditional owners of the land and the local Registered Aboriginal Party (RAP) the Barengi Gadjin Land Council Aboriginal Corporation (BGLC) commenced in September 2022 and is ongoing as part of the design and development of the Project.

Engagement and collaboration with the traditional owners of the land will inform an understanding of the intangible impacts of the Projects. The Preliminary Cultural Heritage Assessment states:

> *The study area and wider region likely retains considerable intangible significance to the traditional custodians, however commentary on this can only be provided by the BGLC.*

The assessment further states:

> *During the project inception meeting, the BGLC will be invited to provide any oral history that they would like included within the CHMP, including any intangible heritage related to the study area. A CHMP of this scale is likely to require multiple consultation sessions with the BGLC. As such, there will be many opportunities for the importance of and impact on intangible cultural heritage to be included.*

The Preliminary Community and Stakeholder Engagement Plan further outlines the Project commitments:

> *WWE recognise that cultural heritage is not exclusively the physical environment and collection of objects. It also includes the traditions and living expressions inherited and*

passed on through generations of Traditional Owners, such as oral traditions, social practices, rituals, and knowledge…

… WWE will apply dedicated engagement and Project Management resources will support a continual and open dialogue, provide a single point of contact for communications, and facilitate appropriate and respectful engagement.

What investigations of cultural heritage in the project area have been done?
(attach details of method and results of any surveys for the project & describe their accuracy)

Heritage Insight has prepared a Preliminary Cultural Heritage Assessment (*Attachment A.5*) which consists of a desktop cultural heritage assessment. This has enabled a broad site prediction model to get an indication of the types of archaeological sites that may occur.

The purpose of the Assessment is to:

- Identify the relevant Registered Aboriginal Parties;
- Identify any previously registered Aboriginal Places within the study area;
- Identify areas/landforms of potential sensitivity; and
- Provide a list of subsequent steps to be followed towards an approved CHMP.

The preparation of the Cultural Heritage Management Plan (CHMP) will commence following a determination from the Minister on whether an EES is required.

Is any Aboriginal cultural heritage known from the project area?

☒ NYD ☒ No ☒ Yes If yes, briefly describe:

- Any sites listed on the AAV Site Register
- Sites or areas of sensitivity recorded in recent surveys from the project site or nearby
- Sites or areas of sensitivity identified by representatives of Indigenous organisations

The Preliminary Cultural Heritage Assessment has identified known cultural heritage places and areas of sensitivity within the Project Area and surrounding area.

<u>Project Area</u>

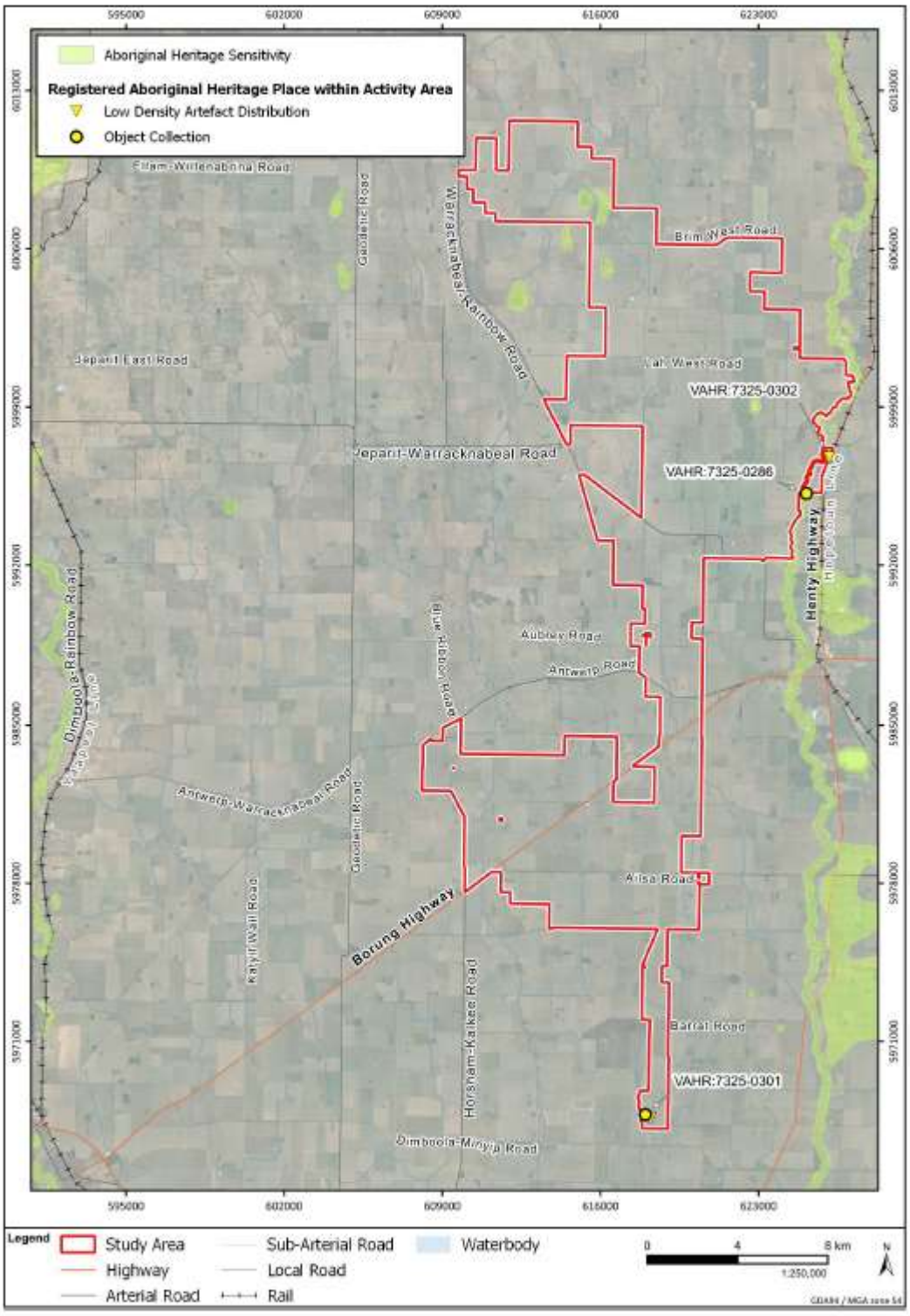
The Northern Section of the Project Area contains areas of Aboriginal heritage sensitivity including a lunette. The following figure shows the locations of the areas of sensitivity:

Map 6: Detail of lake and lunette feature located in the north west of the study area

The Project layout has been designed so that no works will occur within the mapped lunette.

The assessment identified one registered Aboriginal Place, (VAHR 7325-0302), located on the eastern side of the Yarriambiack Creek. Whilst this location is within the Project Area, no infrastructure or works are proposed east of the Yarriambiack Creek and the Project will not affect the registered place.

The following figure maps the areas of cultural heritage sensitivity within the Project Area and the broader study area of the assessment.



Map 2: Areas of cultural heritage sensitivity within the study area

Surrounding Location

A search of the larger geographic region, which encompasses the entire Yarriambiack LGA as well as Lakes Tyrell and Hindmarsh, has found a total of 1273 Places comprising 1481 components. These are largely dominated by scarred trees (n=913), followed by artefact scatters (n=327), low density artefact distribution (n=100), and earth features (n=93). These Places are located throughout the geographic region, however most are concentrated on Yarriambiack and Dunmunkle Creek; Wimmera River; Lakes Hindmarsh, Tyrrell, and Brim. There are eleven Aboriginal ancestral remains registered within the geographic region. Further details reveal that these are frequently found in association with sandy soils, in particular lunettes and source bordering dunes, and in proximity to creeks where sediments are deep enough for burial to occur.

There were 34 Aboriginal Historic References in the geographic region, largely concentrated on the Yarriambiack Creek and Wimmera River. These were related to Spiritual places (n=4), living camps away from towns and properties (n=3), Places of recreation (n=3), and lower levels of other Reference Places from pre- and post-contact times.

Are there any cultural heritage places listed on the Heritage Register or the Archaeological Inventory under the *Heritage Act 1995* within the project area?

☐ NYD ☐ No ☒ Yes If yes, please list.

The Victorian Aboriginal Heritage Register (VAHR), accessed through Aboriginal Cultural Heritage Register and Information System (ACHRIS), was searched to identify any registered Aboriginal Places within the Project Area, the assessed study area and surrounds. The search was conducted on May 17, 2022.

The search of the VAHR identified one registered Aboriginal Place within the study area, VAHR 7325-0302. VAHR 7325-0302 sits well outside of the project's infrastructure footprint, on the opposite side of the Yarriambiack Creek and will not be affected by the Project.

Is mitigation of potential cultural heritage effects proposed?

☐ NYD ☐ No ☒ Yes If yes, please briefly describe.

Division 2 of the *Aboriginal Heritage Act 2006* and Regulation 7 of the *Aboriginal Heritage Regulations 2018* make provision for when a mandatory Cultural Heritage Management Plan is required:

A cultural heritage management plan is required for an activity if—

(a) all or part of the activity area for the activity is an area of cultural heritage sensitivity; and

(b) all or part of the activity is a high impact activity.

The project area is considered an area of cultural heritage sensitivity due to containing a registered cultural heritage place, a lunette, being part of the Koo Wee Rup Plain, and containing a named waterway.

The construction of a wind energy facility is a high impact activity set out under Regulation 46 of the *Aboriginal Heritage Act 2006* and the *Aboriginal Heritage Regulations 2018.*

The Project therefore requires preparation of a mandatory CHMP as it is located within an area of cultural sensitivity and is a high impact activity.

A CHMP (No. 19414) will be prepared in consultation with the local RAP, the Barengi Gadjin Land Council Aboriginal Corporation (BGLC). It will outline mitigation measures for potential cultural heritage effects.

Further to the preparation of a CHMP, mitigation of anticipated impacts on cultural heritage matters will include:

- Selective siting of infrastructure and works:
  - 100m infrastructure exclusion zone around Yarriambiack Creek; and
  - Avoidance of areas of heritage sensitivity, including lunettes.
- Ongoing formal and informal consultation with BGLC to inform project development and design.

Other information/comments? (e.g. accuracy of information)

As noted in the Project's Community and Stakeholder Engagement Plan (*Attachment A.3,* section 4 and page 39), the Proponent is committed to working with the Barengi Gadjin Land Council Aboriginal Corporation (BGLC) throughout the development of the Project. Engagement has already commenced with two meetings between BGLC's representatives and the Proponent being held in late-2022. The Proponent is committed to working with BGLC throughout 2023 and beyond to develop and evaluate the Project's CHMP.

16. Energy, wastes & greenhouse gas emissions

What are the main sources of energy that the project facility would consume/generate?

- ☒ Electricity network. If possible, estimate power requirement/output …….
- ☒ Natural gas network. If possible, estimate gas requirement/output ……...
- ☒ Generated on-site. If possible, estimate power capacity/output …….
- ☒ Other. Please describe.

Please add any relevant additional information.

The Project is estimated to produce approximately 5,000 GWh of electricity per annum, equivalent to the consumption of >1,000,000 average Victorian households[29].

What are the main forms of waste that would be generated by the project facility?

- ☒ Wastewater. Describe briefly.
- ☒ Solid chemical wastes. Describe briefly.
- ☒ Excavated material. Describe briefly.
- ☒ Other. Describe briefly.

Please provide relevant further information, including proposed management of wastes.

The main form of waste material generated by the project will be excavated material during the construction phase. Most of this material will be re-used as fill or the construction of access tracks. Any remaining excavated material will be removed and transported to a licenced landfill facility.

The small quantities of general refuse and wastewater generated by construction activities will be managed by the Construction Environment Management Plan.

No significant volumes of waste are expected during the operation of the proposed project.

What level of greenhouse gas emissions is expected to result directly from operation of the project facility?

- ☒ Less than 50,000 tonnes of CO_2 equivalent per annum
- ☒ Between 50,000 and 100,000 tonnes of CO_2 equivalent per annum
- ☒ Between 100,000 and 200,000 tonnes of CO_2 equivalent per annum
- ☒ More than 200,000 tonnes of CO_2 equivalent per annum

Please add any relevant additional information, including any identified mitigation options.

CO_2 generated during the operation of the project is negligible and will be substantially offset by the anticipated 5.5 million tons of CO_2 per annum savings generated by the wind energy facility.

[29] Based on average Victorian household electricity consumption of 4,615KWh pa. (https://www.aer.gov.au/system/files/Residential%20energy%20consumption%20benchmarks%20-%209%20December%202020_0.pdf)

17. Other environmental issues

Are there any other environmental issues arising from the proposed project?

☒ No ☐ Yes If yes, briefly describe.

All of the Project's anticipated environmental effects have been outlined in this referral.

18. Environmental management

What measures are currently proposed to avoid, minimise or manage the main potential adverse environmental effects? (if not already described above)

- ☒ Siting: Please describe briefly
- ☒ Design: Please describe briefly
- ☒ Environmental management: Please describe briefly.
- ☐ Other: Please describe briefly

Siting

The Wimmera region is ideal for large-scale renewable energy projects, owing largely to two factors:

1. The region's excellent wind and solar resource; and
2. The highly modified nature of the region's landscape, meaning large projects can be developed with minimal environmental impacts.

Infrastructure for the Warracknabeal Energy Park project has been sited to avoid the most environmentally sensitive parts of the Project area, with impacts further avoided and minimised through careful design of the Project's layout.

Design

As described in previous sections, the Project has been designed to minimise environmental impacts. The Project layout has been constantly refined and optimised to ensure environmental impacts are avoided where possible, and minimised where they cannot be avoided.

Initially, the Project layout was developed using publicly available ecological data and aerial photography. Detailed surveys of the initial Project layout identified impacts to approximately 37 hectares of native vegetation. Refinement of the layout in consultation with Ecology and Heritage Partners has led to significant reductions in impact, with the current layout impacting approximately 9.6 ha of native vegetation.

Further refinement of the layout through the detailed design process is likely to further reduce the Project's environmental impacts.

Environmental Management

Environmental Management Plans required by the planning scheme, guidelines, or project planning approvals will be developed and implemented to ensure all activities in the Project area are appropriately managed to avoid and minimise environmental impacts. The EMPs will include monitoring and control measures to actively manage risks to the environment throughout the construction, operation and decommissioning phases of the Project.

19. Other activities

Are there any other activities in the vicinity of the proposed project that have a potential for cumulative effects?

☐ NYD ☐ No ☒ Yes If yes, briefly describe.

Murra Warra Wind Farm is located approximately 9km from the Project site and there is potential for the proposed Project to contribute to cumulative effects. All studies relating to areas of potential cumulative effects have considered the effect of the Murra Warra Wind Farm in their assessments.

20. Investigation program

Study program

Have any environmental studies not referred to above been conducted for the project?

☒ No ☐ Yes If yes, please list here and attach if relevant.

Has a program for future environmental studies been developed?

☒ No ☐ Yes If yes, briefly describe.

The following additional assessments will be submitted with the project's planning permit application:

- A detailed Landscape and Visual Impact Assessment including assessments from residential locations;
- A Shadow Flicker and Blade Glint Assessment; and
  A further Environmental Noise Assessment based on future project layout, together with an audit report from an EPA-accredited auditor.

If changes to the Project layout are required through the planning and development process, environmental studies will also be updated to ensure the entire works footprint has been surveyed.

Consultation program

Has a consultation program conducted to date for the project?

☐ No ☒ Yes If yes, outline the consultation activities and the stakeholder groups or organisations consulted.

The following stakeholder groups and organisations have been consulted in preparation of this referral:

- DEECA (formerly DELWP) Impact Assessment Unit
- DTP (formerly DELWP) Development Approvals, Design and Renewables
- DEECA (formerly DELWP) Grampians Region
- Yarriambiack Shire Council
- Barengi Gadjin Land Council Aboriginal Corporation
- CASA
- Airservices Australia
- Department of Defence
- Bureau of Meteorology
- Wimmera Catchment Management Authority
- Wimmera Development Association
- Warracknabeal Action Group
- Project near neighbours
- Members of the general public

Refer to Community and Stakeholder Engagement Plan at *Attachment A.3 (section 10.2)* for further detail.

Has a program for future consultation been developed?

☐ NYD ☐ No ☒ Yes If yes, briefly describe.

In addition to the groups and organisations listed above, ongoing consultation will occur with the following stakeholder groups and organisations:

- VicRoads/Department of Transport
- Aboriginal Victoria
- Country Fire Authority
- Federal and State Members of Parliament
- Yarriambiack Shire councillors

- Brim Active Group
- Australian Energy Market Operator (AEMO)
- Victorian Minister for Climate Action, Energy and Resources and the SEC

A detailed program for future consultation is included in section 10.2 of the Community and Stakeholder Engagement Plan at *Attachment A.3*.

Authorised person for proponent:

I, *Tobias Geiger* (full name), *Director* (position), confirm that the information contained in this form is, to my knowledge, true and not misleading.

Signature: 

Date: 8 May 2023

Person who prepared this referral:

I, *Kyle Sandona* (full name), *Senior Development Manager* (position), confirm that the information contained in this form is, to my knowledge, true and not misleading.

Signature: 

Date: 8 May 2023