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Gelliondale Wind Farm

Public Environment Report

Prepared for Synergy Wind Pty Ltd

August 2026

Gelliondale Wind Farm

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Synergy Wind Pty Ltd

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Executive Summary

ES1 Introduction

This Public Environment Report (PER) has been prepared for the Gelliondale Wind Farm (the Action), which is a proposed wind energy facility located in Victoria, approximately 210 kilometres (km) south-east of Melbourne, in Wellington Shire. The Action is situated along the South Gippsland Highway, approximately 7 km south-west of Yarram, 3 km west of Alberton, and 8 km east of Welshpool.

The proponent of the Action is Synergy Wind Pty Ltd. The Action comprises 13 wind turbine generators (WTGs) and associated infrastructure and will have a capacity in the order of 80 megawatts (MW).

The construction, operation and decommissioning of the Gelliondale Wind Farm has been declared a Controlled Action under the *Environmental Protection and Biodiversity Conservation Act 1997* (Cth) (EPBC Act), to be assessed through the preparation of a PER. The Department of Climate Change, Energy, the Environment and Water (DCCEEW), which administers the EPBC Act, issued Guidelines for the preparation of the PER: *Guidelines for the content of a draft public environment report – Gelliondale Wind Fram project, Gelliondale, Victoria* (the PER Guidelines) (Department of Climate Change, Energy, the Environment and Water (DCCEEW) 2024). The National Environmental Protection Agency (National EPA) has since taken over responsibility of issuing permits and licences, environmental assessments and approvals under the EPBC Act. The PER has been prepared in accordance with these Guidelines.

ES2 Description of the Action

The Action comprises:

- 13 WTGs with rotor diameters of 164 metres (m), and maximum/minimum tip heights of 210 m and 40 m above natural ground level respectively
- tubular WTG towers to be constructed of steel and/or concrete and constructed on a concrete pad footing set largely below ground
- hardstand areas adjacent to each WTG with dimensions of approximately 90 m x 60 m
- underground electrical cables totalling approximately 14 km within a 3 to 4 m wide easement linking WTGs to an on-site substation, noting that the Action is designed to utilise an existing 66 kilovolt (kV) transmission line that crosses the Action Area, avoiding the need to construct new above ground powerlines
- new and upgraded graded access tracks with a width of 5.5 to 6 m and including passing bays as required for construction and for fire response purposes
- a substation and battery energy storage system (BESS) with a capacity of approximately 40 MW/40 megawatt hours (MWh) and which will be formed of 20 isolated units comprising a containerised lithium-ion battery and step-down transformer, connected to the switch room
- the installation of two or three permanent meteorological masts which will be guyed lattice towers approximately 120 m in height and will carry anemometers, wind vanes, temperature and pressure meters, and communications equipment
- two construction compound/laydown areas one of approximately 2.75 hectares (ha) in the western portion of the Project Area, close to the proposed substation and operations and maintenance (O&M) area and the other of approximately 4.7 ha in the eastern portion of the Project Area

- two areas for O&M facilities; the first will be approximately 1.2 ha in size and located immediately south of the proposed substation location, the second area will be approximately 7 ha in size and located immediately south of the second (eastern area) construction compound
- removal of native vegetation within the Action Area comprising up to 1.244 ha of remnant patch native vegetation including two large trees within a patch. Of the 1.244 ha to be removed, 0.64 ha of that total removal area, including the two large trees, are located at road intersections as the removal is required to facilitate the transport of WTG componentry from Port Anthony to the Action
- ancillary components including minor road upgrades to enable the delivery of WTG componentry to the Action as well as ancillary signage and fire safety design requirements.

Construction of the Action is expected to occur over a 12-to-18-month period, and the Action is expected to have an estimated 35-year life span. After that time, it will either be repowered with new-generation turbines or decommissioned, subject to planning approvals and future technology.

ES3 Feasible alternatives

The Action is located broadly on the same site as the formerly proposed Alberton Wind Farm (the Approved Action), a larger wind farm that was previously approved under the EPBC Act (reference 2017/7854). The Approved Action did not proceed due to a legal technicality with approvals required under Victorian State legislation. Thus, the Action is a reformulation of the Approved Action but at a reduced scale.

The Action therefore represents a feasible alternative that has been developed following the original approval of the Approved Action pursuant to the EPBC Act. Key differences between the Approved Action and the current Gelliondale Wind Farm proposal are summarised below.

Table ES1 Alberton/Gelliondale wind farms project comparison

Metric	Alberton Wind Farm (Approved Action)	Gelliondale Wind Farm (Action)
Capacity	Up to 96 MW	80 MW
WTGs	32 (as amended due to coastal saltmarsh setback)	13
Maximum tip height	200 m	210 m
Ground clearance	Minimum 30 m	Minimum 40 m
Rotor diameter	Up to 140 m	Up to 164 m
Battery	None	40 MW BESS included
Action Area	Approximately 3,200 ha	1,625 ha
Proximity to coastal saltmarsh	WTGs allowed no closer than 1,000 m from coastal saltmarsh as condition of EPBC approval.	Deletion of WTGs in the south-east of the Alberton Wind Farm area which were closest to saltmarsh/coastal habitat. The closest WTGs to coastal saltmarsh are now set back 1,500 m from this habitat. The closest WTGs to the Corner Inlet Ramsar site boundary are now set back 1,960 m from the site.
WTGs proximate to Gelliondale State Forest	Ten WTGs along forest edge, each set back between approximately 130 and 150 m.	Four WTGs along forest edge; two are set back by approximately 200 m, and two are set back 130 m and 138 m.

Other alternatives were also considered in the development of the Action including the following scenarios:

- no action
- same Action but in different locations
- offshore wind option
- different Action but in the same location
- a higher intensity configuration alternative
- alternative energy sources – gas, nuclear and solar.

Whilst these various alternatives were investigated, the Action was considered the most appropriate. The Action responds to potential environmental impacts identified in relation to the original Alberton Wind Farm proposal and reduces the Project Area and Project Footprint, whilst still making a significant contribution to renewable energy generation in South Gippsland. It takes advantage of the significant wind resource in the area and will complement any offshore wind projects that are developed off the coastline. It also remains financially viable, where a lower intensity configuration would not be.

ES4 Description of the environment

ES4.1 General

The Action Area is in the Gippsland Basin Bioregion which is in southeastern Gippsland and covers approximately 14,636 square kilometres (km^2) of land. The bioregion includes key geographic features such as the brown coal deposits of the Latrobe Valley, Strzelecki Ranges, Gippsland Lakes and Corner Inlet (Yates G 2015).

The Gippsland Basin bioregion has a temperate climate influenced by its varied geography, elevation, and proximity to the coast. Average annual rainfall in the vicinity of the Action Area is approximately 892 millimetres (mm), with the wettest months in Winter and Spring. Low-lying areas are prone to flooding during heavy rainfall events (Yates G 2015).

From a land use perspective, most of the Action Area currently and previously has been used for farming and grazing stock, with dairy cows the predominant grazing stock. Aerial imagery between 1965 to 2024 shows that the land has undergone minimal changes during this time and that the Action Area is predominantly clear of native vegetation, with introduced grasses the dominant ground cover. The remaining Action Area that isn't farming or grazing land is made up of public road reserves (highway and local), Crown land parcels and a former railway/rail-trail corridor reserve that bisects the site into two areas.

Potential acid sulphate soils (PASS) have been identified in the floodplains of the Albert and Jack rivers and Muddy Creek to the south of the Action Area. Small areas of PASS have also been identified in the eastern section of the Action Area; however, no development is proposed in this location. One location in the Action Area has been identified as having the potential to be contaminated (the former Gelliondale Briquette Plant) however no development is proposed in this location.

The Action Area is generally flat with an elevation of approximately 10 m Australian Height Datum (AHD) with only minor variations and mounds existing. The elevation increases in the northwest of the Action Area near the Alberton State Forest where the Strzelecki Ranges reach their southern extent.

No waterways are located within the Action Area, however the Albert and Jack rivers, and Nine Mile and Muddy creeks are located around the edge of the Action Area with only minor waterways running into the Action Area. Many of the minor waterways have been dammed to create farm drains.

The Corner Inlet Ramsar site is located approximately 1.16 km south-east of the southern boundary of the Action Area at its closest point (apart from vegetation removal and minor roadworks proposed on Barry Road, near the Barry Beach Marine terminal, which have a setback of approximately 360 m). The Albert and Jack rivers, and Nine Mile and Muddy creeks all run into Corner Inlet. Water quality has been assessed as moderate to good in the rivers and creeks that run directly to into Corner Inlet. The other minor waterways nearby which also lead into the major waterways and into Corner Inlet had been assessed as having poor water quality.

The Alberton West State Forest is located directly north-west of the Action Area, and the Gelliondale State Forest is located to the south of the Action Area. Alberton West State Forest is on the foothills of the Strzelecki Ranges and includes extensive remnant forest. The Gelliondale State Forest contains heathy woodlands and other near-coastal vegetation types due to its proximity to the coastline. Both State forests support a range of EPBC Act listed flora and fauna species.

Linear patches of vegetation are located along the roadsides and rail reserves in the Action Area and broader region. The linear vegetation includes native and introduced plant species and can support habitat connectivity, migration routes and foraging habitat, especially between the two State forests and larger areas of potentially high-quality habitat within the Action Area and border region.

Following both desktop and extensive ecological survey work, a review of Matters of National Environmental Significance (MNES) that could be present within the flora and fauna search area (defined in Appendix A to this PER) was undertaken. As a result of the review the MNES deemed relevant to the Action (i.e. those that are considered to have the 'potential to occur' or are 'known to occur' in or near the Action Area) were identified and are summarised below in Table ES2 and discussed in the following sections.

Table ES2 Summary of MNES relevant to the project

MNES	VBA/Protected Matters Search Tool results	Number considered to 'potentially occur' or 'known to occur'
Ramsar Wetlands	1	1
Ecological Communities	2	0
Threatened Flora	14	8
Threatened Fauna	35	23
Migratory Species	45	25

ES4.2 Ramsar Wetlands

The Corner Inlet Ramsar site is a submerged plain covered with sand and mudflats, widespread seagrass meadows, and sizeable sand islands. A network of deep, branching channels enables effective tidal flow across the flats and between the islands and the area includes 14 distinct wetland types. Mangroves and saltmarshes line the tidal flats, bays, and creeks, while the sand islands support a mix of vegetation such as dune grasses, scrub, and woodland. The wetland ecosystems provide habitats for a rich array of flora and fauna.

The ecological character of the Corner Inlet Ramsar site comprises:

- Critical components - marine and estuarine wetland habitats and waterbird abundance and diversity
- Critical processes - waterbird breeding
- Critical services - threatened species and fisheries resources.

The combined catchments that discharge into the Corner Inlet are approximately 2,100 km^2 in size. These catchments are comprised of predominantly privately owned land and have largely been cleared of their native vegetation for agricultural purposes (dairy and grazing) and, to a lesser extent, plantation forestry. The Albert-Jack River catchment is the largest compared to the other Corner Inlet sub-catchments and is silt-dominated with the highest mean annual flow.

Rainfall and subsequent streamflow are highly variable across the Corner Inlet catchment area over time; however, high streamflow from large rainfall events are relatively infrequent and short-lived. The high streamflow events play an important role in the lifecycle of some species (e.g. fish migration).

The main rivers draining into Corner Inlet are relatively short with small contributing catchments. Therefore, the rivers respond rapidly to high rainfall events, discharging large flows with high concentrations of nutrients and sediment loads into the inlet, which in turn can impact water quality (e.g. turbidity) in the inlet. Sediment loads are predominantly contributed by river channel incision and disturbance by forestry on steep hillslopes.

A water quality assessment performed by South Gippsland Water in 2002 showed the main streams entering Corner Inlet, including the Albert River, exhibited moderate to good water quality. Smaller contributing streams, on the other hand, largely had poor water quality. However, the impact of the water quality of the inflowing streams on the water quality of the wider inlet was not quantified.

In addition, tidal exchange and flushing are high in Corner Inlet, which likely helps reduce the risk of widespread water quality degradation across the inlet. Dryland agriculture contributes the greatest nutrient loads to Corner Inlet across its entire catchment, with other nutrient sources coming from plantation forests and sewage treatment plants in the catchments. Several factors are listed as potential threats to the ecological character of the Corner Inlet Ramsar site including pollutants affecting water quality, marine invasive species, climate change, and hydrological changes.

ES4.3 Ecological communities

The *Protected Matters Search Tool* (Department of Climate Change, Energy, the Environment and Water 2025) indicated that two ecological communities listed under the EPBC Act have the potential to occur within the Flora and Fauna Search Area - Natural Damp Grassland of the Victorian Coastal Plains (Critically endangered) and Subtropical and Temperate Coastal Saltmarsh (Vulnerable). However, following further investigations within the Action Area, these communities were deemed not to occur.

ES4.4 Listed threatened flora species

Eight EPBC Act-listed flora species were considered 'likely to occur' or have the 'potential to occur', as follows:

- Clover Glycine *Glycine latrobeana* (Vulnerable)
- Dense Leek-orchid *Prasophyllum spicatum* (Vulnerable)
- Eastern Spider-orchid *Caladenia orientalis* (Endangered)
- Maroon Leek-orchid *Prasophyllum frenchii* (Endangered)
- Metallic Sun-orchid *Thelymitra epipactoides* (Endangered)
- River Swamp Wallaby-grass *Amphibromus fluitans* (Vulnerable)
- Strzelecki Gum *Eucalyptus strzeleckii* (Vulnerable)
- Thick-lip Spider-orchid *Caladenia tessellata* (Vulnerable).

However, targeted flora surveys confirmed that none of these species were within the Project Footprint.

ES4.5 Listed threatened fish species

The following two threatened fish species were identified as having the potential to occur within the Action Area:

- Australian Grayling *Prototroctes maraena* (Vulnerable)
- Dwarf Galaxias *Galaxiella pusilla* (Endangered).

ES4.6 Listed threatened mammal species

The following four threatened mammal species were identified as having the potential to occur within the Action Area:

- Grey-headed Flying-Fox *Pteropus poliocephalus* (Vulnerable)
- Long-nosed Potoroo *Potorous tridactylus trisulcatus* (Vulnerable)
- Southern Brown Bandicoot *Isoodon obesulus obesulus* (Endangered)
- Swamp Antechinus *Antechinus minimus maritimus* (Vulnerable).

ES4.7 Listed threatened bird species

The following threatened bird species were identified as having the potential to occur within the Action Area, but were also identified as being unlikely to be impacted by the Action:

- Black-tailed Godwit *Limosa limosa* (Endangered, Migratory)
- Common Greenshank *Tringa nebularia* (Endangered, Migratory)
- Curlew Sandpiper *Calidris ferruginea* (Critically Endangered, Migratory)
- Far Eastern Curlew *Numenius madagascariensis* (Critically Endangered, Migratory)
- Great Knot *Calidris tenuirostris* (Vulnerable, Migratory)
- Greater Sand Plover *Charadrius leschenaultii* (Vulnerable, Migratory)
- Grey Plover *Pluvialis squatarola* (Vulnerable, Migratory)
- Lesser Sand Plover *Charadrius mongolus* (Endangered, Migratory)
- Nunivak Bar-tailed Godwit *Limosa lapponica baueri* (Endangered)
- Red Knot *Calidris canutus* (Vulnerable, Migratory)
- Ruddy Turnstone *Arenaria interpres* (Vulnerable, Migratory)
- Terek Sandpiper *Xenus cinereus* (Vulnerable, Migratory).

The following threatened bird species were identified as having the both the potential to occur within the Action Area and having the potential to be impacted by the Action without mitigation measures being implemented:

- Blue-winged Parrot *Neophema chrysostoma* (Vulnerable)
- Gang-gang Cockatoo *Callocephalon fimbriatum* (Endangered)

- Latham's Snipe *Gallinago hardwickii* (Vulnerable, Migratory)
- Swift Parrot *Lathamus discolor* (Critically Endangered)
- White-throated Needletail *Hirundapus caudacutus* (Vulnerable, Migratory).

ES4.8 Listed migratory species (excluding those listed as both migratory and threatened)

The following listed migratory species were identified as having the potential to, or are known to occur within the Action Area:

- Common Redshank *Tringa totanus*
- Common Sandpiper *Actitis hypoleucos*
- Double-banded Plover *Charadrius bicinctus*
- Fork-tailed Swift *Apus pacificus*
- Grey-tailed Tattler *Tringa brevipes*
- Pacific Golden Plover *Pluvialis fulva*
- Red-necked Stint *Calidris ruficollis*
- Sanderling *Calidris alba*
- Whimbrel *Numenius phaeopus.*

ES5 Impact assessment

An assessment was undertaken of potential impacts of the Action during the construction, operational and decommissioning phase of the Action, discussed further at Chapter 5 and summarised below.

ES5.1 Construction

The Action was considered to have the potential to have the following impacts during the construction phase:

- Vegetation clearance and habitat loss.
- Habitat fragmentation.
- Increased bushfire risk.
- Damage to Aboriginal cultural heritage.
- Weeds and pests.
- Soil or water contamination.
- Noise, vibration, dust and light.
- Flooding, erosion and sedimentation.
- Increase in vehicle movements.

In the case of vegetation clearance, habitat loss and habitat fragmentation, potential impacts to MNES were considered to be unlikely, given the limited extent of vegetation that is to be removed and for a range of reasons relevant to the species that was being considered. A more detailed assessment of this is provided in Chapter 5 at Table 5.1 and Table 5.2.

In relation to bushfire risk, any potential for greater risk than already exists is considered unlikely subject to the implementation of appropriate mitigation measures which are outlined in Chapter 7.

The potential for damage to Aboriginal cultural heritage is expected to be managed by the cultural heritage management plan (CHMP) prepared under Victorian State legislation. Subject to implementation of the CHMP any potential impacts are considered unlikely.

The implementation of construction management and mitigation measures as outlined at Chapter 7 are proposed to prevent the spread of weeds and to also minimise any potential for soil or water contamination. In addition, subject to the appropriate implementation of the specified measures, it is not expected that the ecological character of the Corner Inlet Ramsar site or dependent-listed threatened species and listed migratory species will be impacted by the Action as a result of soil or water contamination issues.

Whilst increased noise, vibration, dust and light are expected during the construction phase of the Action any impacts will be temporary and are able to be managed through standard environmental mitigation measures.

In relation to flooding, erosion and sedimentation, a range of potential impacts were identified. However, it was considered that the Action is not expected to result in significant impacts, subject to the implementation of appropriate construction management and mitigation measures and taking into account the following:

- Flooding. Overall, there is generally negligible change expected in flood levels, flood extents and ponding because of the Action. Regarding the extended region, inundation is not expected at the junction between waterways and Corner Inlet as a result of the Action.
- Erosion. There are negligible changes in flow regimes, runoff volumes and inundation volumes expected as a result of construction of the Action and changes in quantity or quality of instream, riparian or wetland habitat are not expected because of the Action.
- Sedimentation. There is the potential for some localised sediment run off and subsequent transport to existing minor and then major waterways given the nature of construction works. However, the total area of freshly exposed soil that is susceptible to scour by runoff will be limited and will represent a small increase over and above that already exposed within the wider Ramsar wetland catchment. Thus, the Action is not likely to increase fine sediment depositions within the receiving environments to a level where a visible loss of stream habitat could be noticed.

Potential impacts from an increase in vehicle movements during construction as a result of the Action is also considered unlikely.

ES5.2 Operations

Potential impacts as a result of the operation of the Action include:

- collision risk and barotrauma
- noise, vibration and light
- weeds and pests
- transport impacts.

In relation to collision risk, survey results confirmed that most birds recorded in the Action Area flew below the rotor swept area (RSA) height at the impact and reference points for the surveys. The five main bird species found flying within the RSA height were unlisted species and not protected under the EPBC Act. The Blue-winged Parrot was the only protected species that was observed in the RSA during the project surveys, however, other listed species that may occur within the action area are known to fly at heights equivalent to the project RSA.

In relation to barotrauma, it is considered unlikely that the Action poses a major risk to bats, as discussed further in Chapter 5.

The Action does not require aviation obstacle lighting and therefore lighting will not cause any impacts to MNES. In addition, the noise from the WTGs is not expected to impact MNES.

In relation to pests, the operation of the Action will not introduce or attract any additional pests to the area and therefore proposed impacts from invasive pests are not anticipated.

In terms of weeds, whilst there is a risk they could be transported to the Action Area if they are present on maintenance vehicles, or on the footwear of maintenance workers, mitigation measures will be employed to prevent this occurring.

Finally, any potential impacts as a result of operational traffic will be minimal due to the limited traffic movements that will occur over the life of the operational phase.

ES5.3 Decommissioning

Any potential impacts from decommissioning will be similar to those outlined for construction but over a reduced time period and at a reduced scale. Accordingly, any impacts to MNES during the decommissioning phase is considered unlikely.

ES5.4 Cumulative Impacts

In relation to cumulative habitat loss, fragmentation and barrier effects, the Action is not expected to result in a meaningful increase in cumulative impacts. The Project Footprint is largely confined to modified landscapes, such as open paddocks, and does not require the removal or isolation of substantial areas of native vegetation. Regionally, cumulative habitat loss and fragmentation effects from the Action in combination with other wind farms are considered low, noting that the closest neighbouring wind farm is the Toora Wind Farm, approximately 16 km away, and that land- and water-based MNES typically do not have home ranges or movement distances extending that far. More mobile species, such as birds and bats, generally use broad forested and coastal movement corridors that will remain intact and undisturbed by the Action.

In relation to cumulative avifauna collision mortality in combination with three wind farms within 50 km of the Action Area (Delburn Wind Farm, Toora Wind Farm and Bald Hills Wind Farm), the risks are considered low, although difficult to quantify, because mobile bird and bat species in the area tend to move between forest patches and along the coast, rather than inland to the elevated locations of wind farms, and because there is significant separation between neighbouring wind farms. However, previous cumulative collision risk studies for the Swift Parrot, Grey-headed Flying-fox, White-throated Needletail and migratory shorebirds indicate that regional wind farm development has historically been associated with low to negligible cumulative collision risk. Accordingly, the Action is not expected to represent a step-change increase in cumulative collision risk at a regional scale.

In relation to ecosystem resilience, cumulative impacts are also assessed as low because the Action is located within a highly modified environment, having been designed to avoid the remnant vegetation, wetlands and riparian corridors that support core ecological functions, including breeding and foraging habitat, movement pathways and refuge. Cumulative impacts on the resilience of the functions and processes of the Corner Inlet Ramsar site are also expected to be limited. No cumulative impacts are expected from land, soil or water contamination and sedimentation and other water quality impacts are expected to be negligible compared with existing catchment pressures. Cumulative marine invasive species impacts are also expected to be marginal, given the low risk of Action-related marine pest introduction and the very small proportion of total marine traffic represented by Action-related shipping.

ES6 Significant impact assessment

A detailed assessment of significant impacts to MNES is included at Chapter 6 and in Appendix A. The following provides a high-level summary of the key findings of the assessment:

- The Project Footprint of the Action does not intersect with the Corner Inlet Ramsar site. As such, no direct impacts to the wetland are anticipated. The only potential pathways to impacts are through indirect impacts, such as via sedimentation. An environmental management plan that addresses both construction and operational phases will include mitigation measures and outline items that prevent indirect impacts from occurring. Accordingly, the Action is considered unlikely to cause significant impacts to the Corner Inlet Ramsar site or modify its ecological character.

- The significant impact assessment for the Action found that it is possible that the Action could cause significant impacts to the Blue-winged Parrot, without any mitigation measures. However, with the implementation of a bird and bat management plan (BAMP) as a mitigation measure any significant impact to the species is considered unlikely.

- The Clover Glycine *Glycine latrobeana* (Vulnerable), Dense Leek-orchid *Prasophyllum spicatum* (Vulnerable), Eastern Spider-orchid *Caladenia orientalis* (Endangered), Maroon Leek-orchid *Prasophyllum frenchii* (Endangered), Metallic Sun-orchid *Thelymitra epipactoides* (Endangered), River Swamp Wallaby-grass *Amphibromus fluitans* (Vulnerable), Strzelecki Gum *Eucalyptus strzeleckii* (Vulnerable) and Thick-lip Spider-orchid *Caladenia tessellata* (Vulnerable) are all listed threatened flora species that have the potential to occur or are known to occur. However, these species were not identified during field surveys and no sustainable habitat is known to occur in the Action Area. Accordingly, it is concluded that no significant impacts to all these species are expected from the Action.

- The Grey-headed Flying-fox *Pteropus poliocephalus* (Vulnerable), Long-nosed Potoroo *Potorous tridactylus trisulcatus* (Vulnerable), Southern Brown Bandicoot *Isoodon obesulus obesulus* (Endangered) and Swamp Antechinus *Antechinus minimus maritimus* (Vulnerable) are all mammal species listed under the EPBC Act and are likely to occur or have the potential to occur in the Action Area. The significant impact assessments for all these species found that the Action is unlikely to cause significant impacts.

- The Gang-gang Cockatoo *Callocephalon fimbriatum* (Endangered), Latham's Snipe *Gallinago hardwickii* (Vulnerable, Migratory), Swift Parrot *Lathamus discolor* (Critically Endangered), White-throated Needletail *Hirundapus caudacutus* (Vulnerable, Migratory), Fork-tailed Swift *Apus pacificus* (Migratory) and 22 migratory shorebirds species are all listed threatened bird species that have potential to occur or are known to occur in the Action Area. The significant impact assessments for all these species found that the Action is unlikely to cause significant impacts.

- The Australian Grayling *Prototroctes maraena* (Vulnerable) and Dwarf Galaxias *Galaxiella pusilla* (Vulnerable) are listed threatened fish species that are likely to occur or have the potential to occur onsite. The significant impact assessments for all these species found that the Action is unlikely to cause significant impacts.

ES7 Mitigation and management measures

To further reduce impacts, the technical reports prepared to support the PER have made recommendations to mitigate and manage impacts. The following mitigation and management measures will be implemented for the Action (draft versions of some of these plans have been provided with the PER):

- Environmental management plan (EMP): An EMP will address all Action phases (construction, operation, decommissioning) and will provide a framework for the management, mitigation and monitoring of relevant impacts of the Action, including any provisions for independent environmental auditing. The EMP will include a range of specific measures that have been identified in the technical reports supporting this PER and will also require additional specific subplans to be prepared. The subplans include a soil and water management plan, erosion and sediment control plan, acid sulphate soils management plan, emergency management plan and weed and pest management plan. A draft outline of the EMP is included in Appendix H.

- Monitoring and inspection plan: A monitoring and inspection plan will be developed that identifies the regular inspections that need to occur and will highlight what events will trigger when additional inspections are required. A water quality monitoring schedule will also be included in this plan.

- Bird and bat management plan: The BAMP will be used to minimise impacts on bird and bats and will include an informed understanding of the turbine collision risk, the monitoring requirements for identification of turbine collisions and methods to promote the reduction of long-term collision risk. The BAMP will also specifically address the Blue-winged Parrot, Gang-gang Cockatoo, Grey-headed Flying-Fox, Latham's Snipe, Migratory shorebird species, Swift Parrot and the White-throated Needletail. A draft BAMP is included at Appendix I.

- Bushfire control measures: A range of bushfire control measures will be implemented for the Action. The measures are consistent with Country Fire Authority (CFA) recommendations and include prescriptive requirements in relation to fuel breaks, vegetation management, water tanks and water run off contaminants and fire/smoke detection systems.

- Marine invasive species control measures: A range of measures will be implemented to mitigate and manage the risks posed by marine invasive species including consideration of biosecurity records for shipping contractors; checking and management of support vessels in terms of biosecurity; keeping of records of shopping movements; and continuation of existing monitoring for marine invasive species.

- Socio-economic control measures: A variety of measures to manage social and economic measures will be implemented addressing matters of consultation/communication, accommodation, worker behaviour, training opportunities, local business participation and community benefit sharing.

- Victoria planning approval requirements: The conditions of the Planning Permit also include a range of additional management plans that will need to be prepared for the Action.

ES8 Other approvals and conditions

The primary legislative instruments for the Action are the Commonwealth EPBC Act, for which this PER has been prepared, and the Victorian *Planning and Environment Act 1978*, under which a planning permit is required. A range of other Commonwealth and Victorian legislation was reviewed to identify what legislation is applicable to the Action, including the following:

- Commonwealth Legislation:
  - *Native Title Act 1993*
  - Civil Aviation Regulations 1988
  - *Heavy Vehicle (Adoption of National Law) Act 2013*
- Victorian Legislation:
  - *Environment Effects Act 1978*
  - *Environment Protection Act 2017*
  - *Flora and Fauna Guarantee Act 1988*
  - *National Parks Act 1975*
  - *Water Act 1989*
  - *Aboriginal Heritage Act 2006*
  - *Heritage Act 2017*
  - *Road Management Act 2004*
  - *Crown Land (Reserves) Act 1978*
  - *Wildlife Act 1975*
  - *Climate Change Act 2017.*

ES9 Social and economic impacts

The social and economic changes associated with the Action were assessed to determine both positive and negative impacts. The Assessment found that the Action will have minimal long-term economic costs while investing approximately A$388 million over the 24-month construction phase of which 15 to 30% is expected to flow directly to the regional economy. The Action is not expected to significantly impact productive agricultural land as the Project footprint is relatively small and the Action will assist farming communities to diversify their income. The Action is also expected to provide significant job creation during the construction phase and will allow for long term employment during the operation of the Action.

Potential negative impacts expected from the Action include changes in traffic conditions on local roads due to road upgrades and temporary reduction in availability of accommodation due to the Action. However, a range of industry-standard management and control measures will be implemented and so no significant residual impacts are expected. Overall, the Action will have positive social and economic impacts on the local region.

ES10 Consultation

A community engagement strategy (CES) for the Action was prepared to ensure targeted, timely and genuine engagement occurred. The CES has been revised over the lifespan of the Action to ensure the most relevant affected parties are being consulted and their views are actively addressed.

Extensive consultation commenced in 2014 when the approved Action, the Alberton Wind Farm was first proposed. During this time engagement also commenced with appointed registered Aboriginal party (RAP) Gunaikurnai Land and Waters Aboriginal Corporations (GLaWAC) while the CHMP was being prepared for the approved Action

Consultation and engagement recommenced in 2021 with the redesign of the project as the Gelliondale Wind Farm. Engagement has continued with the general public, First Nations and Government and other organisations before and after the EPBC Act referral was submitted. The PER will be placed on public display and feedback from the public will be received and responded to.

ES11 Conclusion

The Action is a reduced scale and reduced impact version of the Approved Action, the previously proposed Alberton Wind Farm which was approved in August 2019 by the (then) Department of Environment and Energy subject to conditions. The Approved Action and its conditions of approval have been taken into account in the development of the Action and are also addressed in the supporting reports where appropriate.

Subject to the implementation of management and mitigation measures outlined in this PER and as further detailed in the supporting technical assessment (which also address the conditions of the previous approval), the Action is not expected to have a significant impact on MNES. The Action represents an appropriate environmental outcome that is consistent with the objects of the EPBC Act and the principles of ecologically sustainable development.

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Glossary and abbreviations

Abbreviation/term	Meaning
Action Area	The area covered by the Project Area, plus the remaining part of all lots hosting the Gelliondale Wind Farm (1624.96 ha)
AEMO	Australian Energy Market Operator
ASS	Acid sulfate soils
the Action	Gelliondale Wind Farm (including its construction, operation and decommissioning)
the Approved Action	Formerly proposed Alberton Wind Farm
BESS	Battery Energy Storage System
BAMP	Bird and Avifauna Management Plan
CES	Community engagement strategy
CEMP	Construction Environmental Management Plan
CHMP	Cultural Heritage Management Plan
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DFP	Development Facilitation Program
DTP	Department of Transport and Planning
EES	Environment Effects Statement
EMP	Environmental Management Plan
EPBC Act	*Environmental Protection and Biodiversity Conservation Act 1997* (Cth)
Flora and Fauna Search Area	The total area encompassed by the Project Area and a buffer of 10 km around its outer edge (55,747 ha)
GLaWAC	Gunaikurnai Land and Waters Aboriginal Corporation
ha	Hectares
HZ	Habitat zone
km	Kilometres
kV	Kilovolt
MNES	Matters of National Environmental Significance
MWh	Megawatt hours
MW	Megawatts
m	Metres
mBGL	Metres below ground level
National EPA	National Environmental Protection Agency
NEM	National Electricity Market
O&M	Operations and maintenance
OD	Over-dimensional (vehicles)

Abbreviation/term	Meaning
OEMP	Operational Environmental Management Plan
OSOM	Oversize/overmass (vehicles)
P&E Act	*Planning and Environment Act 1987* (Vic)
PER	Public Environment Report
Project Area	The area covered by the Project Footprint, plus an additional 100 m buffer around each WTG and 25 m buffer around all other Project infrastructure. Native vegetation removal associated with the oversize / over mass (OSOM) transport route from Barry Beach Marine Terminal is included (as it falls within the Project Footprint) but it does not have an additional buffer around it (154.32 ha)
Project Footprint	The impact area of all development forming part of the Gelliondale Wind Farm, including native vegetation removal associated with the OSOM transport route from Barry Beach Marine Terminal (35.06 ha)
Proponent	Alberton Renewable Energy Pty Ltd (ABN 58 632 690 227, ACN 632 690 227).
RAP	Registered Aboriginal Party
REZ	Renewable Energy Zone
RSA	Rotor Swept Area (height within swept path of WTG rotors)
SPV	Special-Purpose Vehicle
Study Area	The Study Area is defined individually in each of the supporting technical reports, as the extent of it was dependent upon the nature of the assessment.
t	tonnes
TIA	Traffic Impact Assessment
VCAT	Victorian Civil and Administrative Tribunal
VRET	Victorian Renewable Energy Target
WTG	Wind Turbine Generator

1 Introduction

The Gelliondale Wind Farm (the Action) is a proposed wind energy facility located in Victoria, approximately 210 kilometres (km) south-east of Melbourne, in South Gippsland, within the Wellington Shire. The Action is situated along the South Gippsland Highway, approximately 7 km south-west of Yarram, 3 km west of Alberton, and 8 km east of Welshpool.

The Action comprises 13 wind turbine generators (WTGs) with rotor diameters of 164 metres (m), and maximum and minimum tip heights of 210 m and 40 m above natural ground level respectively. The Action also contains hardstand areas adjacent to each WTG, meteorological masts, construction compounds and operation and maintenance areas. It features approximately 14 km of unsealed tracks and underground cabling, linking the WTGs to a centralised substation, with ancillary 40-megawatt (MW) battery energy storage system (BESS) and direct link to the existing 66 kilovolt (kV) transmission line crossing the site. The Action will require minor upgrades to local roads and the clearing of 1.244 hectares (ha) of native vegetation, as well as ancillary signage and fire safety design requirements.

The construction, operation and decommissioning of the Gelliondale Wind Farm have been declared a Controlled Action under the *Environmental Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act), to be assessed through the preparation of a Public Environment Report (PER). The Department of Climate Change, Energy, the Environment and Water (DCCEEW), which administers the EPBC Act, issued Guidelines for the preparation of the PER: *Guidelines for the content of a draft public environment report – Gelliondale Wind Farm project, Gelliondale, Victoria* (the PER Guidelines) (Department of Climate Change, Energy, the Environment and Water (DCCEEW) 2024). The National Environmental Protection Agency (National EPA) have since taken over responsibility of issuing permits and licences, environmental assessments and approvals under the EPBC Act.

The works described above collectively form the 'Action' to be assessed by this PER.

1.1 Structure of this Public Environment Report

The structure of this document is broadly aligned with the order in which the various matters to be addressed by a PER are set out in Schedule 4 to the EPBC Act. The PER has been written to satisfy the requirements of this, as well as the project-specific information requirements set out in the PER Guidelines (Department of Climate Change, Energy, the Environment and Water (DCCEEW) 2024).

The PER has been prepared relying upon a range of technical reports and documents listed in Table 1.1 and which are attached as appendices. The PER should be read in conjunction with these documents.

Table 1.1 Supporting reports

Appendix	Name	Author	Version	Date
Appendix A	Matters of National Environmental Significance (MNES) Assessment	Nature Advisory	1.4	July 2026
Appendix B	Flood, Erosion and Sediment Run-Off Impact Assessment	Alluvium Consulting Australia Pty Ltd	4	30/07/2025
Appendix C	Public Environment Report Response (Bushfire Assessment)	Fire Risk Consultants	1.1	05/08/2025
Appendix D	Marine Invasive Species Risk Assessment	Fathom Pacific Pty Ltd	4	24/07/2025
Appendix E	Socio-economic Assessment	Accent Environmental	4	30/07/2025
Appendix F	Contamination Assessment	Accent Environmental	5	22/04/2026

Appendix	Name	Author	Version	Date
Appendix G	Traffic Impact Assessment	Stantec Australia Pty Ltd	F03 (revision table States F02)	27/05/2025
Appendix H	Outline of a draft Environmental Management Plan	Accent Environmental	5	29/04/2026
Appendix I	Draft Bird and Avifauna Management Plan	Nature Advisory	1.3	July 2026
Appendix J	Wind turbine generator coordinates	EMM	N/A	13/5/2026

A secondary set of technical reports was prepared for the project to support the planning permit application under the *Planning and Environment Act 1987* (P&E Act). These reports have not been attached to the PER apart from the Traffic Impact Assessment (TIA).

1.2 Title of the Action

The title of the Action is the Gelliondale Wind Farm, as defined in the Glossary on page vi, and described in Chapter 2.

1.3 The Proponent

The Proponent is the person proposing to undertake the Action, which in this case is Alberton Renewable Energy Pty Ltd (ABN 58 632 690 227, ACN 632 690 227).

Contact details for the Proponent are:

Mr Adam Gray
Director/Secretary
Alberton Renewable Energy Pty Ltd
PO Box 146
Ballarat VIC 3353

Alberton Renewable Energy Pty Ltd is the special-purpose vehicle (SPV) company established to hold the rights to any permits or licences pertaining to the development and construction of a wind energy facility at the site of the Gelliondale Wind Farm. Synergy Wind Pty Ltd (Synergy) is the parent company and 100% shareholder in Alberton Renewable Energy Pty Ltd.

Synergy is a small Australian development company that identifies and develops viable renewable energy projects. Founded in 2004, it is funded by a group of private investors from Germany with extensive experience in the sector.

1.4 Objectives of the Action

The objective of the Action is to develop a renewable energy facility of approximately 80 MW capacity in South Gippsland that:

- minimises environmental impact
- makes a significant contribution to the transition to renewable energy required to meet Australia's commitments under the Paris Agreement and the Victorian Renewable Energy Target (VRET) (which aims to achieve 65% renewable energy generation by 2030, and 95% by 2035).

The National Electricity Market (NEM) must rapidly increase its capacity for renewable energy generation to transition away from reliance on fossil fuels. Once developed, the Action is expected to export 300 gigawatt hours (GWh) of electricity annually, addressing this gap and supporting the broader Statewide and National energy transition. The Action will play a vital role in meeting the anticipated energy supply shortfalls as Gippsland's older coal-fired power plants, such as the Yallourn power station, are retired in coming years. Additionally, it supports the Australian Energy Market Operator's (AEMO) Integrated System Plan by providing consistent, renewable energy from a strategically located site with strong wind resources and existing transmission capacity.

The Action is expected to provide significant economic benefits to the region, creating approximately 50 jobs during construction and approximately 10 ongoing positions during its operational life. The Action will also generate direct community benefits through payments to local landholders and contributions to community organisations, including between $160,000 and $240,000 annually through a Community Benefit Program and voluntary neighbour agreements.

The Action involves the construction, operation, and ultimately the decommissioning of the 13 WTGs, the underground cabling, access tracks, a substation, and the BESS. It includes refinements from earlier proposals to optimise environmental and operational performance while maintaining the strategic objectives of increasing renewable energy supply and enhancing energy grid stability.

A detailed description of the Action is provided in Chapter 2.

Construction of the Action is expected to be undertaken between early 2027 and late 2028.

1.5 Location of the Action

As previously noted, the Action is located approximately 210 km south-east of Melbourne in South Gippsland, within the Wellington Shire. It is situated along the South Gippsland Highway, approximately 7 km south-west of Yarram, 3 km west of Alberton, and 8 km east of Welshpool.

The Action is also located:

- within an area identified by the AEMO in its 2024 *Integrated System Plan* (ISP) (AEMO 2024) as a key development location for wind farms within the central Gippsland region
- to the south of the proposed Gippsland Renewable Energy Zone (REZ) defined in the Victorian Transmission Plan released in August 2025.

The Action is aimed at supporting achievement of Victoria's renewable energy targets and transitioning to a low-carbon energy system. Further information on other major development within the local region is provided in Section 1.8.

The land proposed to be occupied by the Action is referred to in this report as the Action Area, depicted in Figure 1.1, and described in Section 1.5.

1.5.1 Formal land description

The Action Area comprises the following land:

i Wind energy facility land

Birds Road South, Hedley 3967

- Crown Allotments 1 Section A, 23A Section A and 23B Section A, Parish of Alberton West
- Lot 1 on Title Plan 578219F

6970 South Gippsland Highway, Hedley 3967

- Crown Allotments 24B Section A, 55A and 78C, Parish of Alberton West
- Lot 1 on Title Plan 110485V
- Lot 1 on Title Plan 754717H
- Lots 1 and 2 on Title Plan 865659A
- Lot 2 on Plan of Subdivision 092727
- Lot 1 on Title Plan 578908F
- Lot 1 on Plan of Subdivision 506513A

7085 South Gippsland Highway, Hedley 3967

- Crown Allotments 62 and 62A Parish of Alberton West

South Gippsland Highway, Hedley 3967

- Crown Allotments 53, 54, 59 and 60 Parish of Alberton West

South Gippsland Highway, Hedley Vic 3967

- Crown Allotment 49B Parish of Alberton West
- Lot 2 on Plan of Subdivision 404524N

7618 South Gippsland Highway, Gelliondale 3971

- Lots 1, 2 and 3 on Title Plan 943340C
- Plan of Consolidation 362145

7776 South Gippsland Highway, Gelliondale 3971

- Crown Allotment 12A Parish of Alberton West
- Lot 1 on Title Plan 109933C
- Lot 1 on Title Plan 221442V

7802 South Gippsland Highway, Gelliondale 3971

- Lot 1 on Title Plan 004297P
- Lot 1 on Title Plan 221443T

Old Alberton West Road, Alberton 3971

- Lot 1 on Plan of Subdivision 714292D
- Lot 7 on Plan of Subdivision 004703
- Lot 2 on Plan of Subdivision 617385M

Old Alberton West Road, Alberton 3971

- Lot 1 on Title Plan 864748G
- Lot 1 on Title Plan 128952Q
- Lot 1 on Title Plan 222737U

7913 South Gippsland Highway, Alberton 3971

- Lots 3 and 5 on Plan of Subdivision 004703
- Lot 2 on Plan of Subdivision 714292D

South Gippsland Rail Trail (Crown land)

Various unformed paper roads on unalienated Crown land

Coal Mine Road, Gelliondale/Hedley (unalienated Crown land)

Old Alberton West Road, Alberton/Gelliondale (unalienated Crown land)

South Gippsland Highway, Gelliondale and Hedley (unalienated Crown land)

ii Vegetation removal for oversize/over mass deliveries transport route

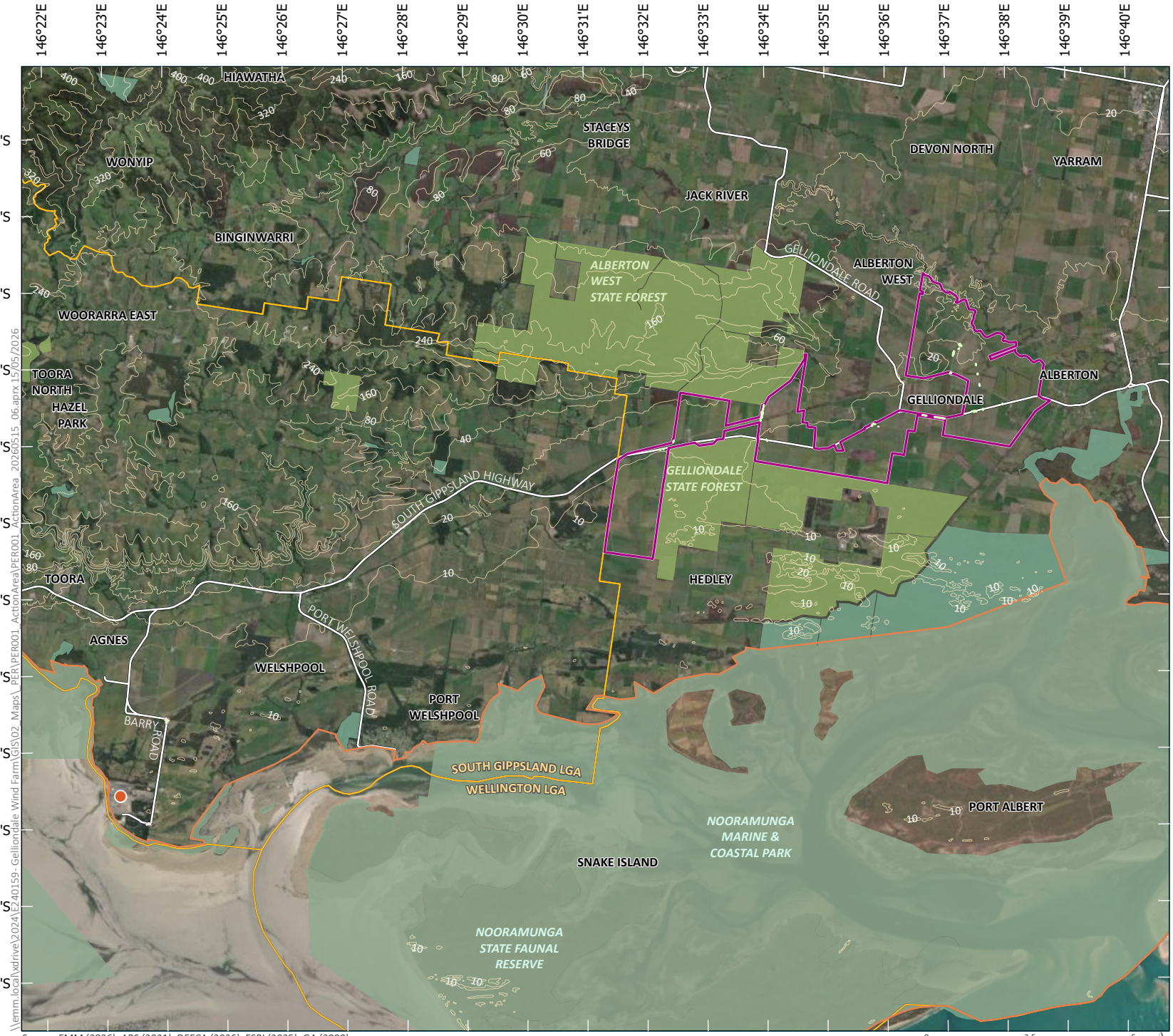
367 Barry Road, Welshpool 3966

- Lot 1 on Lodged Plan 116644

614 Barry Road, Agnes 3962

- Lot 1 on Plan of Subdivision 501722

Barry Road, Agnes 3962 and Welshpool 3966
(unalienated Crown land)



Source: EMM (2026); ABS (2021); DEECA (2026); ESRI (2025); GA (2009)

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Action area

Gelliondale Wind Farm
Public Environment Report
Figure 1.1

EMM
creating opportunities

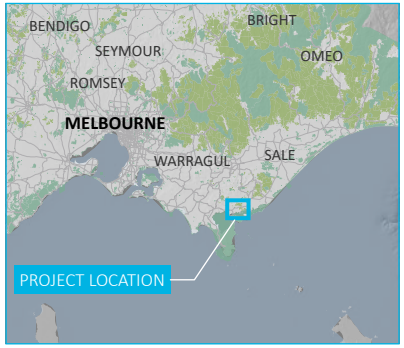
1.6 Background to the Action

The Action is located broadly on the same site as the formerly proposed Alberton Wind Farm (the Approved Action), a larger wind farm that was previously approved under the EPBC Act (reference 2017/7854). The approved Action's State planning approval was ruled invalid by the Victorian Civil and Administrative Tribunal (VCAT) in October 2020 on a legal technicality, following the process of securing environmental approval under State and Commonwealth law.

The Action is a reformulation of the Approved Action at a reduced scale, in partnership with a number of the original Alberton Wind Farm landowners. A comparison of the two projects is provided in Table 1.2, with a description of the approval history of the two projects provided in the following sections.

Table 1.2 Alberton/Gelliondale wind farms project comparison

Metric	Alberton Wind Farm (Approved Action)	Gelliondale Wind Farm (the Action)
Capacity	Up to 96 MW	80 MW
WTGs	32 (as amended due to coastal saltmarsh setback)	13
Maximum tip height	200 m	210 m
Ground clearance	Minimum 30 m	Minimum 40 m
Rotor diameter	Up to 140 m	Up to 164 m
Battery	None	40 MW BESS included
Action Area	Approximately 3,200 ha	1,625 ha
Proximity to coastal saltmarsh	WTGs allowed no closer than 1,000 m from coastal saltmarsh as condition of EPBC approval.	Deletion of WTGs in south-east of Alberton Wind Farm area which were closest to saltmarsh/coastal habitat. The closest WTGs to coastal saltmarsh are now set back 1,500 m from this habitat. The closest WTGs to the Corner Inlet Ramsar site boundary are now set back 1,960 m from the site.
WTGs proximate to Gelliondale State Forest	Ten WTGs along forest edge, each set back between approximately 130 and 150 m.	Four WTGs along forest edge; two are set back by approximately 200 m, and two are set back 130 m and 138 m.
EPBC Act referral no.	2017/7854	2023/09577
EPBC Act assessment method	Bilateral, undertaken by the State of Victoria through a planning permit application process.	Public Environment Report
Environmental Effect Statement (EES) determination	No EES required	No EES required



KEY

- Action area
- Gelliondale project footprint
- Alberton wind farm boundary
- Corner Inlet Ramsar site
- Barry Beach Marine Terminal
- Alberton WTG
- Gelliondale WTG

Existing environment

- Major road
- National park/reserve
- State forest

INSET KEY

- Major road
- State forest
- National park/reserve

Source: EMM (2025); ABS (2021); DEECA (2023); ESRI (2025); GA (2009)

0 2.5 5 km

GDA2020 MGA Zone 55

N

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Comparison between approved action and proposed action

Gelliondale Wind Farm
Public Environment Report
Figure 1.2

EMM
creating opportunities

1.6.1 Environmental Approvals for the Alberton Wind Farm

The former Alberton Wind Farm project (the Approved Action) was planned between 2014 and 2017, and regulatory approvals sought between 2017 and 2020.

In 2017, the Alberton Wind Farm was determined to be a "controlled action" by the Commonwealth Minister for the Environment due to potential impacts on MNES. In the same year, the project was referred to the Victorian Minister for Planning under the *Environment Effects Act 1978* to determine if an environmental effects statement (EES) was required for the Approved Action.

The Victorian Minister for Planning determined that an EES was not required, as it was considered that potential environmental impacts could be adequately assessed and managed under other legislation, including the P&E Act.

Accordingly, the project was assessed by the *Victorian Assessment Bilateral Agreement – October 2014,* via a planning permit application pursuant to the P&E Act.

A planning permit application was lodged for the Approved Action in August 2018, and planning permit PA1700284 was granted by the Victorian Minister for Planning in December 2019.

The Commonwealth Minister for the Environment approved the Approved Action under the EPBC Act in August 2019 following receipt of the Victorian Minister's assessment, subject to conditions including the imposition of a mandatory 1,000 m setback from coastal saltmarsh, effectively resulting in a loss of two WTGs from the referred design.

The planning permit was appealed to the VCAT. In October 2020, VCAT set aside the decision to grant a permit due to non-compliance with mandatory application requirements relating to WTG setbacks from dwellings.

1.6.2 Consultation on the Alberton Wind Farm

Consultation for the Approved Action was undertaken through direct contact and written correspondence with neighbouring residents, while information sessions were held on two occasions, in 2014 and 2018. A 'community day' was convened in August 2017 to share project information and garner feedback from the wider community. A site tour of the Bald Hills Wind Farm was provided for interested neighbours in 2018.

Some engagement took place with the Wellington Shire Council and the Latrobe Valley Authority during the course of the development phase, and direct engagement and collaboration with the Gunaikurnai Land and Waters Aboriginal Corporation (GLaWAC) was undertaken in the development of the approved cultural heritage management plan (CHMP).

The formal notification of the application was extended to 698 residents within 5 km of the project site and 150 objections were received to the planning permit application, discussed further in Chapter 9.

1.6.3 Environmental Approvals for the Gelliondale Wind Farm

Following the VCAT decision, Synergy reassessed the Approved Action. Landholder consultations, changes in land ownership, and opportunities for enhancement led to significant revisions to the proposal.

WTGs in areas close to sensitive environments, such as saltmarshes and coastal habitat, were removed, as was the footprint north of the Jack and Albert rivers, yielding a reduced number of 16 WTGs. The Action was renamed Gelliondale Wind Farm, reflecting its new geographic centre around the locality of Gelliondale.

Planning for development of the Action occurred between 2021 and 2022 to revise the previous environmental reporting to address the new layout, which was eventually revised down to 13 WTGs, further reducing potential environmental impacts and to ensure comfortable compliance with all regulatory requirements.

i Environment Effects Act 1978

The Proponent referred the new project to the Victorian Minister for Planning for a determination on the requirement for an EES. The Minister determined that no new significant impacts were identified compared to the Alberton Wind Farm, and therefore, an EES was not required for the Gelliondale Wind Farm.

ii EPBC Act

Due to the significant reduction in WTG numbers and project footprint, a new referral to the Commonwealth Minister for the Environment was required to determine whether the Gelliondale Wind Farm is a controlled action.

The Minister's delegate determined that the Action is a controlled action due to its potential to significantly impact MNES, including:

- the ecological character of a declared Ramsar wetland (section 16 and section 17B)
- listed threatened species and communities (section 18 and section 18A)
- listed migratory species (section 20 and section 20A).

Consequently, the Minister's delegate determined that the Action will be assessed by a PER under the EPBC Act in October 2023.

EMM Consulting Pty Ltd (EMM) was appointed by the Proponent to write the PER for the Action, which is intended to enable interested stakeholders and the Minister for the Environment and Water to understand the anticipated environmental consequences of the Action, particularly in relation to MNES.

iii *Planning and Environment Act 1987*

A planning permit application for the Action was lodged on 16 July 2025 with the Department of Transport and Planning (DTP) and placed on public exhibition in December 2025. Planning permit PA2503835, granting State planning approval for the Action, was issued on 7 May 2026.

The conditions of the permit are currently being reviewed by the Proponent. Development of the Action will be undertaken consistently with the provisions of planning permit PA2503835.

1.7 Identification of affected parties and consultation

It is recognised that genuine, broad and early community consultation on the development of the Action is essential to the project's success, particularly in managing amenity issues to neighbours proximate to the Action Area and maximising the benefits of the Action's positive impacts.

The identification of potentially affected parties, consultation carried out to date, and proposed future consultation, is detailed in Chapter 9.

1.8 Other projects within the Gippsland Region

The Gippsland Region has historically been a hub for Victorian coal-fired electricity generation. New projects are in planning and development across the region to make use of existing transmission infrastructure and facilitate the transition to renewable energy.

As discussed in Section 1.5 the Action Area's spatial relationship to REZs and regions earmarked for renewable energy development varies in different State and Federal government policies. The Victorian Transmission Plan, released in August 2025, provides the most recent and most specifically-defined REZ regions. The closest REZs to the Action Area are:

- the Gippsland REZ, limited to the Latrobe Valley
- a proposed Gippsland Shoreline REZ, proposed to contain on-shore infrastructure to allow the connection of offshore renewable development to land-based electricity transmission
- a proposed offshore wind transmission study area, for the planning of transmission infrastructure to connect these two REZs.

A number of renewable energy generation and transmission projects are planned or under development within the Gippsland area, as summarised in Table 1.3 (excluding generation projects below 40 MW).

Table 1.3 Renewable energy and transmission projects within Gippsland

Proposed project	EPBC referral	State approval	Assessment status
Renewable electricity generation			
Delburn Wind Farm	2020/8688	PA2001063, PA2001064, PA2001065, PA2001066	Determined to not be a controlled action under EPBC Act. Has State planning approval, construction yet to commence.
Alberton Wind Farm	2017/7854	PA1700284 (permit cancelled by VCAT)	Determined to be a controlled action under EPBC Act, assessed and approved under Victorian bilateral agreement. State planning approval cancelled by VCAT. Not constructed.
Hazelwood North Solar Farm	Not referred	PA2302383	Has State planning approval, construction yet to commence.
Morwell Solar Farm	Not referred	PA2101310	Has State planning approval, construction yet to commence.
Shady Creek Solar Farm	Not referred	PA2302026	Has State planning approval, construction yet to commence.
Fraser Solar Farm	Not referred	PA1900723	Has State planning approval, construction yet to commence.
Fulham Solar Farm	Not referred	PA2101365	Has State planning approval, construction yet to commence.
Perry Bridge Solar Farm	Not referred	PA2000959	Has State planning approval, construction yet to commence.
BESS			
Loy Yang A BESS	2021/8989	PA2101200	Determined to not be a controlled action under EPBC Act. Has State planning approval, construction yet to commence.
Loy Yang B BESS	Not referred	PA2402944	Has State planning approval, construction yet to commence.
Latrobe Valley BESS	Not referred	PA2101132-2	Has State planning approval, under construction.
Wooreen BESS	Not referred	PA2201792	Has State planning approval, construction yet to commence.
Bennetts Creek BESS	Not referred	PA2302133	Has State planning approval, construction yet to commence.

Proposed project	EPBC referral	State approval	Assessment status
Transmission infrastructure			
Marinus Link	2021/9053	Approved	Determined to be a controlled action needing assessment under Environmental Impact Statement. DCCEEW approved the project subject to conditions. State-level EES has been assessed and supported by the Victorian Minister for Planning.
Gippsland REZ transmission project	2022/09346	Not yet approved	Under assessment under Victorian bilateral agreement. AusNet, the project developer, has discontinued work on the project due to the Victorian Government's announcement of the Gippsland Offshore Wind Transmission 2 GW project
Gippsland Offshore Wind Transmission 2 GW project	2024/09980	Not yet approved	Determined to be a controlled action under EPBC Act, to be assessed and approved under Victorian bilateral agreement.

1.9 Gippsland declared offshore wind area

In December 2022, the Commonwealth Government established the "Gippsland declared offshore wind area" in the Bass Strait off the coast of central Gippsland as the country's first offshore wind zone. The Commonwealth has now granted feasibility licences to 12 projects which are now in various stages of early investigations, and the planning and approvals process. Of relevance to the Action, the development of these projects will also entail the construction of onshore transmission infrastructure, and the Barry Beach Marine Terminal may be used as a staging point for associated construction and servicing vessels.

Projects referred under the EPBC Act are listed in Table 1.4.

Table 1.4 Gippsland declared offshore wind area projects and EPBC status

Proposed Project	EPBC referral no.	Assessment status
Navigator North Offshore Wind Farm – Early Marine Survey Investigations	2024/10093	Determined to not be a controlled action if undertaken in a particular manner.
Gippsland Dawn Offshore Wind Project Geophysical and Geotechnical Investigations	2024/10030	Project Withdrawn.
Gippsland Skies Offshore Wind Project marine surveys (investigations)	2024/09991	Determined to not be a controlled action if taken in a particular manner.
Greater Gippsland Offshore Wind (Aurora Green) Project (preliminary surveys)	2024/09968	Determined to not be a controlled action if taken in a particular manner.
Blue Mackerel North Offshore Wind Farm Marine Surveys	2024/09934	Determined to not be a controlled action if taken in a particular manner.
Preliminary Site Investigations for Great Eastern Offshore Wind Project	2024/09890	Determined to not be a controlled action if taken in a particular manner.
Gippsland Offshore Wind Farm (marine survey investigations)	2023/09682	Determined to not be a controlled action if taken in a particular manner.
Greater Gippsland Offshore Wind (Aurora Green) Project (initial marine field investigations)	2022/09374	Determined to not be a controlled action if taken in a particular manner.
Greater Gippsland Offshore Wind (Aurora Green) Project	2022/09379	Project Withdrawn.

Proposed Project	EPBC referral no.	Assessment status
Star of the South Offshore Wind Farm Project	2020/8650	Determined to be a controlled action needing assessment under Environmental Impact Statement. Direction to Publish Draft Environmental Impact Statement Issued.
Star of the South Offshore Surveys	2019/8525	Determined to not be a controlled action if taken in a particular manner.

1.10 Consequences of not proceeding with the Action

The Action is an integral part of Victoria's transition towards a low-emissions electricity sector, supporting the achievement of the Victorian Government's renewable energy targets and broader National commitments under the Paris Agreement.

If the Action does not proceed, it would result in the loss of the beneficial impacts outlined in Chapter 11 However, the potential negative impacts described in this PER would also not occur.

Alternatives to the Action described in Chapter 3 would have their own consequential positive and negative impacts and are described briefly under those sections.

1.11 Approach to impact assessment in this PER

The *Matters of National Environmental Significance: Significant Impact Guidelines 1.1* (Department of the Environment, Water, Heritage and the Arts 2013) provided guidance for the technical reports that have been undertaken to inform and support this PER. This is particularly the case for the MNES report prepared by Nature Advisory included at Appendix A. The Significant Impact Guidelines are discussed further in Chapter 6.

In addition, where relevant to do so, the technical reports have adopted the risk evaluation framework outlined in the Environmental Management Plan (EMP) Guidelines issued by the Department of Climate Change, Energy, the Environment and Water (Department of Climate Change, Energy, The Environment and Water 2024). This framework applies a qualitative methodology to assess environmental risks by considering the likelihood and consequences of potential impacts.

The degrees of likelihood and consequences, as characterised in Tables 1 and 2 of the EMP Guidelines, are reproduced below as Table 1.5 and Table 1.6 respectively. These assessments are then combined into a risk rating matrix (that prioritises risks as Low, Medium, High or Severe (Table 3 of the DCCEEW EMP Guidelines)), reproduced below as Table 1.7. This approach ensured that high priority risks receive proportionately greater attention in management measures, including mitigation actions, monitoring programs, and performance targets.

Table 1.5 Likelihood descriptors – Table 1, DCCEEW EMP Guidelines

Qualitative measure of likelihood	How likely is it that this event/issue will occur
Highly likely	Is expected to occur in most circumstances
Likely	Will probably occur during the life of the project
Possible	Might occur during the life of the project
Unlikely	Could occur but considered unlikely or doubtful
Rare	May occur in exceptional circumstances

Table 1.6 Consequence descriptors - Table 2, DCCEEW EMP Guidelines

Qualitative measure of consequences	What will be the consequence/result if this issue does occur rating
Minor	Minor incident of environmental damage that can be reversed
Moderate	Isolated but substantial instances of environmental damage that could be reversed with intensive efforts
High	Substantial instances of environmental damage that could be reversed with intensive efforts
Major	Major loss of environmental amenity and real danger of continuing
Critical	Severe widespread loss of environmental amenity and irrecoverable environmental damage

Table 1.7 Risk Rating - Table 3, DCCEEW EMP Guidelines

Likelihood	Consequence				
	Minor	Moderate	High	Major	Critical
Highly Likely	Medium	High	High	Severe	Severe
Likely	Low	Medium	High	High	Severe
Possible	Low	Medium	Medium	High	Severe
Unlikely	Low	Low	Medium	High	High
Rare	Low	Low	Low	Medium	High

2 Description of the Action

This chapter provides an overview of the key elements that make up the Action and describes its different phases throughout its life cycle. This chapter responds to section 4 of the PER Guidelines (Department of Climate Change, Energy, the Environment and Water 2024).

2.1 Development comprising the Action

The Action comprises the construction, operation and decommissioning of the Gelliondale Wind Farm. An overview of the extent of the Action Area is shown in Appendix A and the Action layout is shown in Figure 2.1.

The following sections summarise the elements comprising the Action.

2.1.1 Wind turbine generators

The Action features 13 WTGs, each comprising a tower, a nacelle (containing the generator), a rotor consisting of three blades, and a central hub. The WTGs will have maximum blade tip height of 210 m above natural ground level, a minimum ground-to-blade-tip clearance of 40 m, and a rotor diameter of up to 164 m. The exact turbine model is to be determined following approval, based on which supplier and model is chosen during the procurement stage of the Action's development. All modelling and assessment for the proposal has been based on either the Vestas V162-6.x and/or GE Cypress 6.x-164 wind turbine models, which have a rotor diameter of 162 m and 164 m respectively.

The tubular towers will be of steel and/or concrete construction and constructed on a concrete pad footing set largely below ground. The WTGs are arranged in an arcing line covering an area of 8.5 km east-west, and 6 km north-south, with the structures themselves occupying a very small footprint within this area (less than 0.1% of the land area). Locations and relative positions of the WTGs are shown on the layout plans in Figure 2.1.

The WTG coordinate positions are included in Appendix J**.**

2.1.2 Hardstands

A compacted hardstand (approximately 90 m × 60 m) will be constructed adjacent to each WTG, to facilitate its construction by crane. Hardstand areas are typically lightly excavated, and a working surface is formed from imported material. The hardstands will also be used for the laydown of various components prior to assembly. Once construction of the wind farm is complete, the hardstand areas can be covered with the excavated topsoil and remediated as pasture. The impacted surface can remain in situ for any future maintenance requirements of the turbine if required.

2.1.3 Underground electrical cables

Underground cables totalling approximately 14 km will be established within a 3 to 4 m easement linking WTGs to the substation. Cabling will be shielded by a mechanical protection layer and installed at a depth of approximately 1.5 m below natural ground level, dependent upon detailed investigations and design of the laying method, which could be by open trenching or directional drilling. The underground cabling will cross the South Gippsland Highway in three locations, and the former South Gippsland Railway reservation (now a rail trail) in two locations, both being Crown land reserves.

2.1.4 New and upgraded gravel access tracks

Tracks will provide all-weather access to the individual WTGs from the existing public road network. It is proposed that these tracks have a width of 5.5 to 6 m and include passing bays as required for construction and for fire response purposes. Tracks generally follow the course of the underground cabling but are less direct, to stay at the edges of cropped fields. Construction of new access points from the existing road network has been kept to a minimum, with the Action including 13 access points in total.

2.1.5 Substation and battery energy storage system

An existing 66 kV transmission line crosses the Indicative Wind Farm Footprint, with the Action designed to connect to the transmission line at Coal Mine Road, avoiding the need to construct new powerlines. An indicative design of the internal substation layout has been prepared that is sufficiently sized to accommodate any ancillary componentry required following detailed design. A proposed BESS with a capacity of approximately 40 MW and 40 MWh and a duration estimated to be 1.5 hours is located adjacent to the substation. The BESS will be formed of 20 isolated units comprising a containerised lithium-ion battery and step-down transformer, connected to the switchroom. In addition to providing power to the local grid in the event of a network outage, the BESS will provide frequency control and other ancillary services to the grid operator, enhancing the reliability of the local power supply. The relevant fire safety measures and design requirements have been incorporated into the design of the substation and BESS area, as depicted in Figure 2.1.

2.1.6 Construction compound/laydown areas

Two construction compound and laydown areas are proposed: one of approximately 2.75 ha in area (western area, close to the proposed substation and operations and maintenance (O&M) area), and the other of approximately 4.7 ha (eastern area, with good access from South Gippsland Highway and adjacent to a proposed alternative O&M area). These areas will facilitate the construction of the wind turbines, with both nominated to provide flexibility during the construction phase.

2.1.7 Operations and maintenance facilities

Two areas are proposed to be made available for O&M facilities. The first is approximately 1.2 ha in size and located immediately adjacent to (south of) the proposed substation location. The second area is approximately 7 ha in size and is immediately adjacent to and south of the second (eastern area) construction compound. O&M facilities are proposed to contain control and maintenance buildings necessary for the efficient day-to-day operation of the wind farm. Two areas have been nominated to provide optionality and flexibility during construction and operation.

2.1.8 Meteorological monitoring mast(s)

During detailed design, and to inform the installation and commissioning processes, meteorological and power performance testing will be undertaken at carefully chosen locations. This will require the installation of two or three permanent meteorological masts. The masts will be guyed lattice towers approximately 120 m in height and will carry anemometers, wind vanes, temperature and pressure meters, and communications equipment. These masts will be installed in accordance with building regulations and reported to the Department of Defence and Airservices Australia as required under standard reporting protocols for tall structures.

2.1.9 Road transport route between Port Anthony and the Action Area

A number of over-dimensional (OD) and oversize/over-mass (OSOM) deliveries are required to be made to the Action Area to facilitate development of the Gelliondale Wind Farm, principally WTG components and large electrical components such as transformers. It is proposed to transport these for a distance of approximately 25 km from the Barry Beach Marine Terminal at Port Anthony to the Action Area along the following public roads:

- Barry Road (from Port Anthony to South Gippsland Highway).
- South Gippsland Highway (from Barry Road to the Gelliondale Wind Farm site).
- Within the Action Area OD and over size over mass (OSOM) vehicle movements will continue along Old Alberton Road West and Coal Mine Road.
- Minor road upgrades and associated vegetation removal are required to enable the delivery of the OD and OSOM componentry, as summarised in the Traffic Impact Assessment (Appendix G). These comprise:
    - removal of 0.65 ha of native vegetation along Barry Road and adjacent freehold land
    - infill of new road surface in six locations
    - temporary removal of gates and/or fences in three locations
    - temporary removal of traffic signage in three locations
    - replacement of culvert drains in two locations.

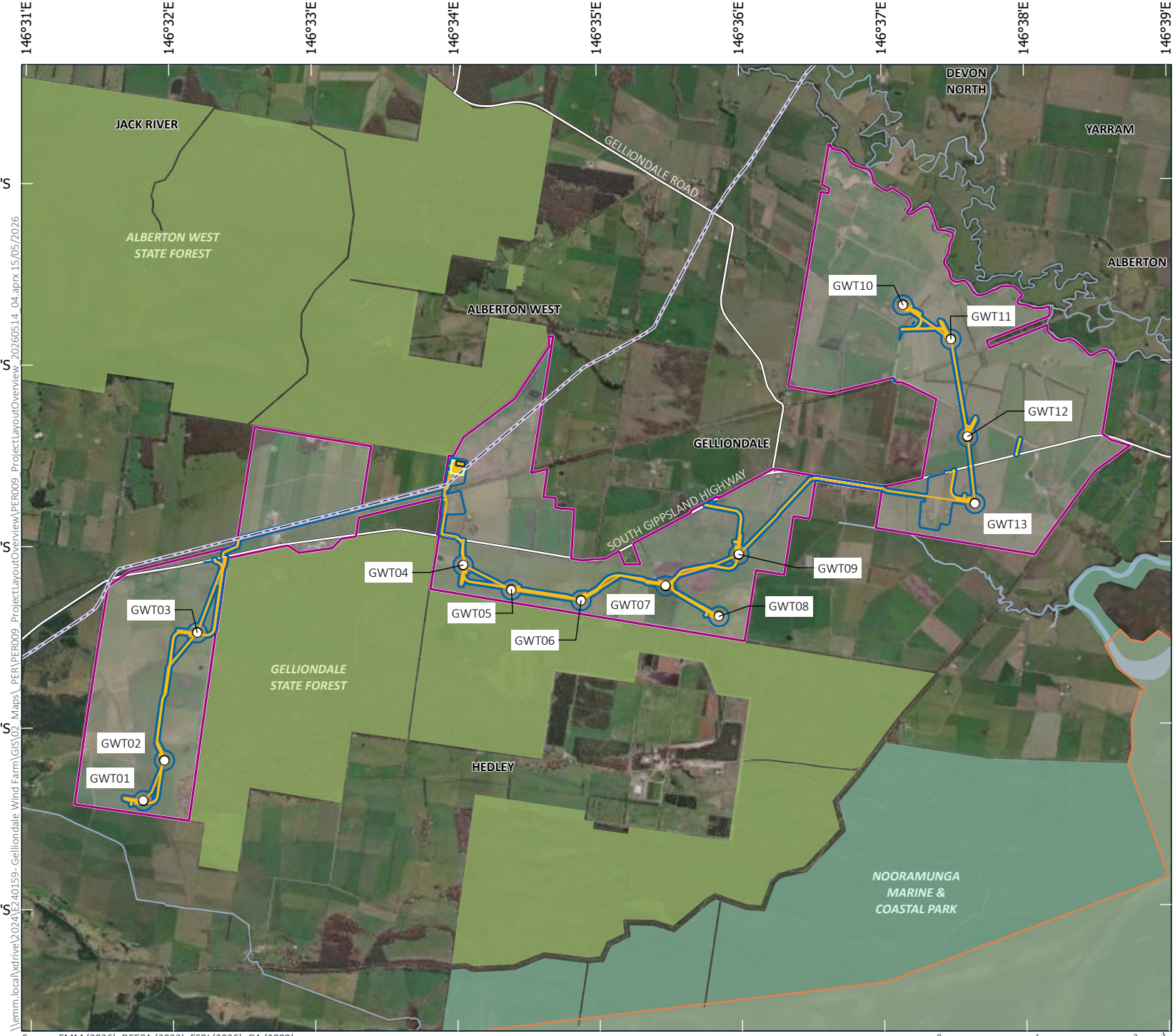
2.1.10 Native vegetation removal

The Action requires the removal of 1.244 ha of remnant patch native vegetation, including two large trees. The vegetation to be removed is located in areas with wind farm infrastructure as well as areas along the transport route from Port Anthony.

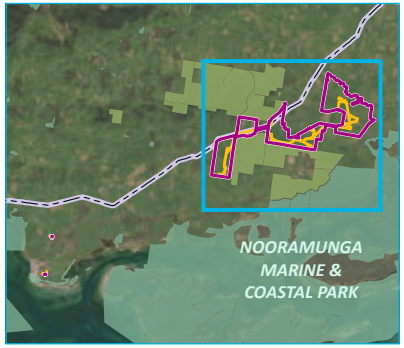
2.1.11 Ancillary components

Further development is required to facilitate the Action, including signage at access points for information and safety purposes and large tanks of standing water will be provided at key access points and adjacent to the BESS for firefighting purposes.

No quarry or concrete batching facility is expected to be needed as part of the Action due to the availability of stone and concrete from offsite suppliers.



Source: EMM (2026); DEECA (2023); ESRI (2026); GA (2009)



KEY

- Action area
- Project area
- Gelliondale project footprint
- Corner Inlet Ramsar site
- Battery energy storage system
- Substation
- Existing HV transmission line
- Proposed WTG

Existing environment

- Major road
- Named watercourse
- Waterbody
- National park/reserve
- State forest

Project layout

Gelliondale Wind Farm
Public Environment Report
Figure 2.1

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2.2 Shipping route between the Port of Geelong and Port Anthony

It is proposed to ship OD and OSOM components of the Action to the Action Area from the Port of Geelong.

Vessels will transport wind farm components from the Port of Geelong to the Barry Beach Marine Terminal at Port Anthony via the 'tug and barge' method, involving a total of 13 voyages into Corner Inlet.

The Barry Beach Marine Terminal is an existing port facility. Future upgrades are proposed in connection with the emerging offshore wind industry and regional trade; however, no development is required to facilitate the Action.

No other development along the shipping route between the Port of Geelong and Port Anthony is required to facilitate the proposed shipping movements for the Action.

2.3 Land areas occupied by the Action

The Action Area includes the wind farm development footprint and offsite works development footprint. Table 2.1 and Figure 2.2 provide an overview of key terms used in this PER in relation to relevant areas.

Table 2.1 Key terms used in this PER

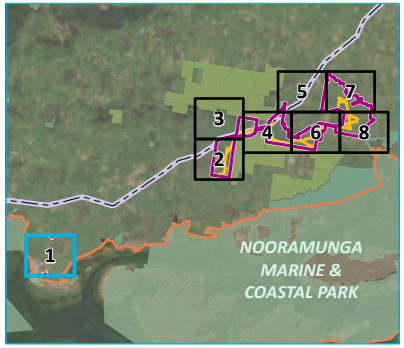
Land area term	Land area description	Total area (ha)
Flora and Fauna Search Area	The total area encompassed by the Project Area and a buffer of 10 km around its outer edge.	55,747
Study Area	The Study Area is defined individually in each of the supporting technical reports, as the extent of it was dependent upon the nature of the assessment.	N/A
Action Area	The area covered by the Project Area, plus the remaining part of all lots hosting the Gelliondale Wind Farm.	1,625
Project Area	The area covered by the Project Footprint, plus an additional 100 m buffer around each WTG and 25 m buffer around all other Project infrastructure. Native vegetation removal associated with the OSOM transport route from Barry Beach Marine Terminal is included (as it falls within the Project Footprint) but it does not have an additional buffer around it.	154
Project Footprint	The impact area of all development forming part of the Gelliondale Wind Farm, including native vegetation removal associated with the OSOM transport route from Barry Beach Marine Terminal.	35

146°23'E

146°24'E

146°25'E

38°42'S



KEY

- Action area
- Project area
- Gelliondale project footprint
- Corner Inlet Ramsar site
- Existing 66kV distribution line
- Barry Beach Marine Terminal

Existing environment

- Major road
- Minor road
- Access track
- National park/reserve
- State forest

Source: EMM (2025); DEECA (2023); ESRI (2025); GA (2009)

0 250 500 m

GDA2020 MGA Zone 55

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Land areas occupied by the proposed action

Map 1 of 8

Gelliondale Wind Farm
Public Environment Report
Figure 2.2

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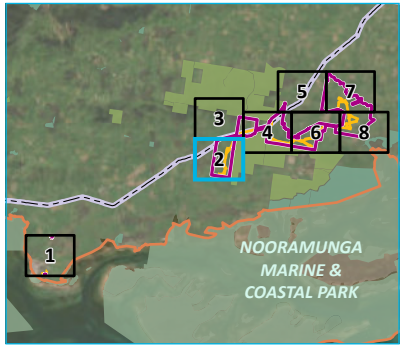

KEY

- Action area
- Project area
- Gelliondale project footprint
- Corner Inlet Ramsar site
- Trenched underground power cable
- Existing 66kV distribution line
- Access track within project area
- Proposed WTG

Existing environment

- Major road
- Minor road
- Access track
- Named watercourse
- Waterbody
- National park/reserve
- State forest

Source: EMM (2025); DEECA (2023); ESRI (2025); GA (2009)

0 250 500 m

GDA2020 MGA Zone 55

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Land areas occupied by the proposed action

Map 2 of 8

Gelliondale Wind Farm
Public Environment Report
Figure 2.2

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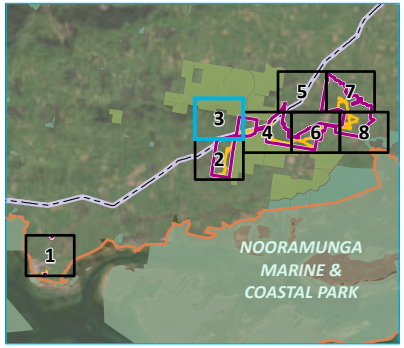

KEY

- Action area
- Project area
- Gelliondale project footprint
- Corner Inlet Ramsar site
- Trenched underground power cable
- Existing 66kV distribution line
- Access track within project area

Existing environment

- Major road
- Minor road
- Access track
- National park/reserve
- State forest

Source: EMM (2025); DEECA (2023); ESRI (2025); GA (2009)

0 250 500 m

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Land areas occupied by the proposed action

Map 3 of 8

Gelliondale Wind Farm
Public Environment Report
Figure 2.2

EMM
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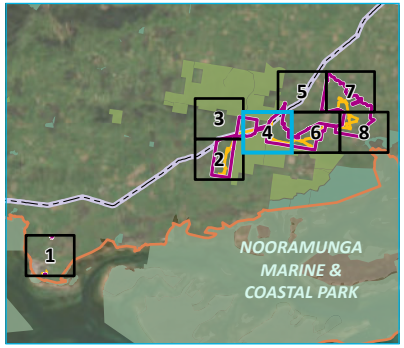

KEY

- Action area
- Project area
- Gelliondale project footprint
- Corner Inlet Ramsar site
- Battery energy storage system
- Substation
- Trenched underground power cable
- Existing 66kV distribution line
- Access track within project area
- Proposed WTG

Existing environment

- Major road
- Minor road
- Access track
- National park/reserve
- State forest

Source: EMM (2025); DEECA (2023); ESRI (2025); GA (2009)

0 250 500 m

GDA2020 MGA Zone 55

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Land areas occupied by the proposed action

Map 4 of 8

Gelliondale Wind Farm
Public Environment Report
Figure 2.2

EMM
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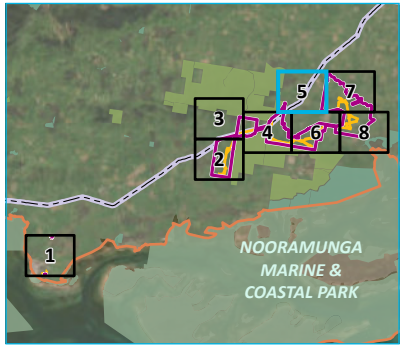

KEY

- Action area
- Corner Inlet Ramsar site
- Existing 66kV distribution line

Existing environment

- Major road
- Minor road
- Access track
- National park/reserve
- State forest

Source: EMM (2025); DEECA (2023); ESRI (2025); GA (2009)

0 250 500 m

GDA2020 MGA Zone 55

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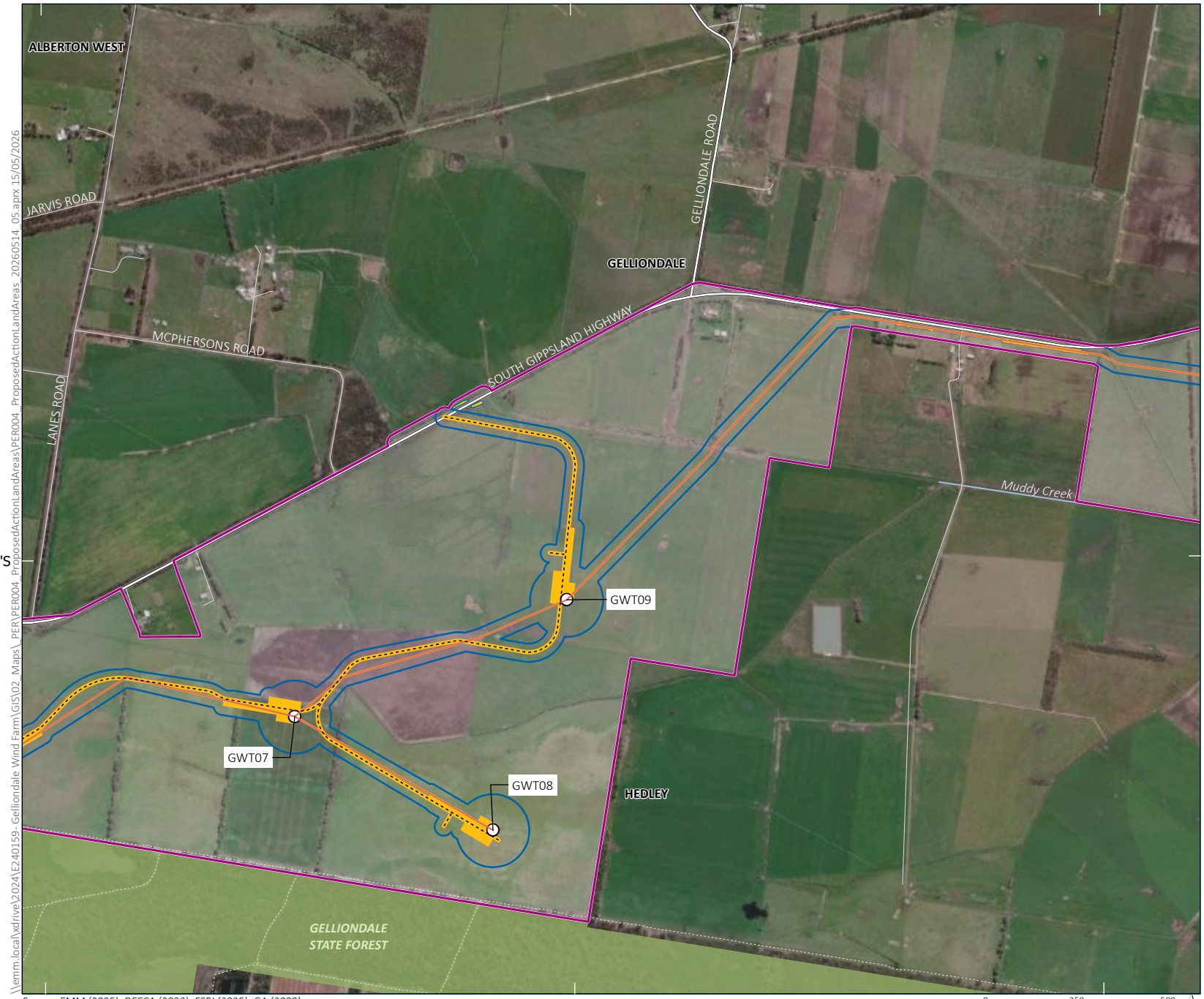
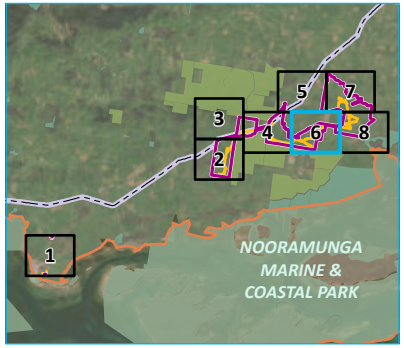
Land areas occupied by the proposed action

Map 5 of 8

Gelliondale Wind Farm
Public Environment Report
Figure 2.2

EMM creating opportunities





KEY

- Action area
- Project area
- Gelliondale project footprint
- Corner Inlet Ramsar site
- Trenched underground power cable
- Existing 66kV distribution line
- Access track within project area
- Proposed WTG

Existing environment

- Major road
- Minor road
- Access track
- Named watercourse
- National park/reserve
- State forest

Source: EMM (2025); DEECA (2023); ESRI (2025); GA (2009)

0 250 500 m

GDA2020 MGA Zone 55

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Land areas occupied by the proposed action

Map 6 of 8

Gelliondale Wind Farm
Public Environment Report
Figure 2.2

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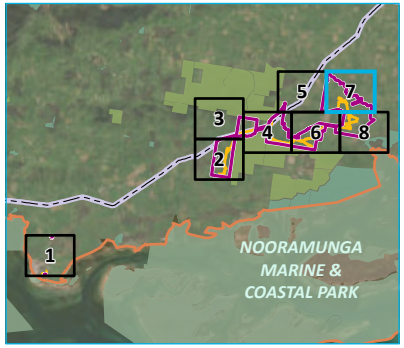

KEY

- Action area
- Project area
- Gelliondale project footprint
- Corner Inlet Ramsar site
- Trenched underground power cable
- Existing 66kV distribution line
- Access track within project area
- Proposed WTG

Existing environment

- Minor road
- Named watercourse
- Waterbody
- National park/reserve
- State forest

Source: EMM (2025); DEECA (2023); ESRI (2025); GA (2009)

0 250 500 m

GDA2020 MGA Zone 55

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Land areas occupied by the proposed action

Map 7 of 8

Gelliondale Wind Farm
Public Environment Report
Figure 2.2

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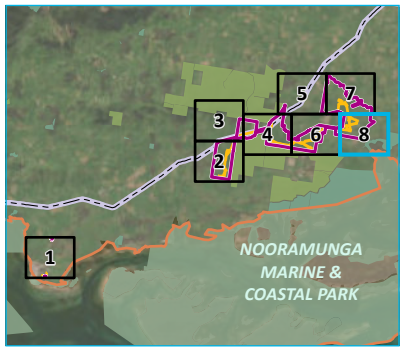

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GDA2020 MGA Zone 55

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Land areas occupied by the proposed action

Map 8 of 8

Gelliondale Wind Farm
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Figure 2.2

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2.4 Project phases

Each of the project phases are discussed in the sections following.

2.4.1 Construction

The construction phase will comprise pre-construction and then main construction phases. This section outlines indicative construction activities that will be refined following engagement of the construction contractors.

Construction activities are expected to occur over a period of 12 to 18 months, currently scheduled for early 2027 to late 2028 subject to all the required approvals being obtained. Construction activities will generally be undertaken in accordance with the standard hours of EPA Victoria's *Civil construction, building and demolition guide (publication 1834-1)* (EPA Victoria 2023), being:

- Weekdays – 7:00 am to 6:00 pm
- Saturday – 7:00 am to 1:00 pm.

However, during peak construction periods and during critical activities (for example, crane lifts, commissioning processes, safety related requirements), limited construction activities may take place outside these standard hours.

i Pre-construction

Prior to the commencement of construction (and thus prior to the commencement of the Action) some pre-construction, preparatory works may be undertaken. These works will have no adverse impact on MNES and could include the following:

- Conducting surveys to confirm and refine construction planning and confirm cadastral boundaries.
- Mobilising staff, equipment, materials, and machinery, excluding OSOM deliveries.
- Meteorological monitoring, such as the installation or maintenance of temporary meteorological masts.
- Installing fencing and signage for demarcation of no-go areas (e.g. for vegetation or cultural heritage protection and safety).
- Performing building and road dilapidation surveys to record existing conditions.
- Conducting geotechnical investigations, including drilling and soil testing.
- Undertaking surface artefact collection or salvage operations in line with heritage permits.
- Establishing construction compound/laydown areas and O&M facilities.
- Setting up environmental management controls for sediment laden runoff, erosion prevention, and management of other potential construction impacts.
- Carrying out road repairs or upgrades in coordination with local councils and Transport Victoria.
- Preparing access point areas in readiness for vehicular access and establishment of firefighting water reserves at select access points.
- Establishing and upgrading access tracks for construction preparation.

ii Main construction

The following works are included in the main construction phase of the Action and will be undertaken simultaneously where possible:

- Clearing of native vegetation.
- Compaction of hardstand laydown areas adjacent to WTGs.
- Construction of reinforced concrete WTG foundations in situ.
- Trenching and/or directional drilling of underground electrical cabling.
- Mobilisation, assembly and installation of WTG, BESS and substation/switchyard componentry, including construction of 66 kV line cut-in (includes OSOM deliveries of major project electrical equipment).
- Electrical testing of project componentry and grid output.

2.4.2 Operation

During the Action's estimated 35-year lifespan, it will support approximately 10 full-time jobs. Key operational activities will include regular inspection and scheduled maintenance of WTGs, internal access roads, substations and associated infrastructure. Maintenance of wind turbines may from time to time require the use of cranes and heavy vehicles for larger components or unscheduled repairs. Site control rooms and operations and maintenance facilities will be used throughout the operational period, and periodic access will be required to inspect and maintain the Action's electrical transmission infrastructure.

2.4.3 Decommissioning

At the end of the Action's operational life, it will either be repowered with new-generation turbines or decommissioned, subject to planning approvals and future technology. Decommissioning is the responsibility of the Proponent, and landowner agreements stipulate that the Proponent is responsible for this and generally returning the site to its original condition prior to development of the Action.

Decommissioning is expected to take approximately 12 months and be carried out similarly to, but in reverse order of construction, with wind turbines dismantled and removed, and the site rehabilitated to enable a return to agricultural use. Foundations will be cut back to at least 0.5 m below ground level and backfilled. Cabling greater than 0.5 m below ground level may be left in situ. The process will be planned in consultation with landowners, with access tracks or other infrastructure retained where agreed.

Overall, in comparison to construction, decommissioning will require:

- a smaller workforce
- far fewer vehicle movements (e.g. 50% to 75% fewer truck movements) overall
- broadly the same number of over dimensioned or OSOM truck movements, to remove WTGs and other major components.

Most wind turbine materials, including steel, copper and aluminium, are expected to be recycled, and the wind energy industry is continuing to improve reuse and recycling methods for components such as fibreglass blades. At the time of decommissioning, the Action will adopt best available practices to minimise waste and maximise resource recovery.

3 Feasible alternatives

This chapter outlines the feasible alternatives that were considered for the Action, highlighting that it is already an alternative to the previous Approved Action. It responds to section 5 of the PER Guidelines (Department of Climate Change, Energy, the Environment and Water (DCCEEW) 2024).

3.1 No Action

The "No Action" alternative refers to the development of the Action not proceeding, and the Action Area being retained for its current use – primarily agricultural activities, including grazing. In this scenario, the Gelliondale Wind Farm would not be developed within the Action Area, and the land would continue to operate under existing rural land use patterns into the foreseeable future.

Under this alternative, the environmental characteristics of the Action Area as described in Chapter 4 would remain on their current trajectory. Similarly, any potential impacts of the Action, as described in (Chapter 5 and Chapter 6), would be avoided.

However, not proceeding with the Action would result in a lost opportunity to contribute approximately 300 GWh of renewable energy annually to Victoria's electricity network. This would equate to a lost offset of greenhouse gas emissions that the Action is expected to avoid annually through the displacement of fossil fuel-based energy sources, estimated as an annual saving of 320,000 tonnes (t) of CO_2.

The "No Action" alternative would also represent a significant loss of social, environmental and economic benefits, including the following "lost" opportunities:

- Harnessing of a strong local wind resource that has been assessed as economically and technically viable, on the fringes of the Gippsland REZ.
- Utilisation of the existing grid infrastructure and capacity near the Action Area, specifically the 66 kV distribution powerline managed by AusNet Services.
- Direct economic benefits to participating landholders through land access and hosting agreements.
- Job creation during both the construction (estimated at more than 50 full-time equivalent jobs) and operational phases (approximately 10 full-time equivalent jobs).
- Community investment via a proposed Community Benefit Fund to support local initiatives and infrastructure.
- Support for Victoria's legislated renewable energy targets (that is, 65% renewable electricity by 2030) and broader climate change commitments.
- Displacement of more expensive and polluting energy sources in the electricity grid, and contribution to the implementation of the Integrated System Plan 2024 (Australian Energy Market Operator (AEMO) 2024).
- Contribution towards Australia's international commitments under agreements such as the Paris Agreement.

It is also likely that demand for renewable energy generation in the region would persist, resulting in the need to identify other potential wind farm sites, which may not be as well suited from a land use compatibility, biodiversity, or transmission connection perspective. In this way, the "No Action" alternative could simply displace development pressure to other locations, potentially with higher environmental or amenity impacts, as described in Section 3.2.

3.2 Alternative configuration or location

A range of alternatives have been considered, as outlined below.

3.2.1 Same Action in different locations

No alternative locations were specifically considered for the Action in its present form. The Action evolved from the Alberton Wind Farm, and benefits from the deep understanding of the Action Area that has been researched and developed over the past decade in association with the development of that former proposal.

Prior to pursuing the Alberton project, the Proponent had assessed multiple sites in the broader area, including a site near Devon North. However, the Alberton site was preferred for further investigation, due to more favourable wind conditions and improved separation distances from neighbouring residences.

3.2.2 Offshore wind

The planned development of offshore wind projects in the Gippsland declared offshore wind area does not reduce the need for onshore wind developments such as the Action. Offshore wind remains at an earlier stage of development in Victoria, and will take until at least 2030 to deliver power to the grid. Onshore wind can be constructed faster and at a lower cost, which is crucial to address the predicted shortfall in power generation due to the closure of ageing coal-fired generators. According to the CSIRO (Graham et al. 2025), onshore wind remains one of the most cost-effective sources of new generation in Australia, with a projected levelised cost of $70 to $116 per megawatt hour, compared to $135 to $175 per megawatt hour for offshore wind. Onshore wind also provides geographic diversity that complements offshore generation (i.e. when wind is not strong in one location, it is likely to be stronger elsewhere) meaning that even in the longer term both technologies will be needed to ensure an adequate and consistent supply of renewable energy.

3.2.3 Different Action in same location

i The Alberton Wind Farm alternative

As described in Chapter 1, the Action is a refined evolution of the earlier Alberton Wind Farm proposal, which comprised 32 WTGs based on 2 to 3 MW WTGs (up to 96 MW total capacity). The Action retains a similar power output due to the use of 62% fewer, but slightly taller, WTGs.

The 62% reduction in turbine numbers is expected to reduce collision risk by decreasing the number of turbines that birds may encounter within the landscape. Fewer turbines correspond to a lower density of potential collision hazards, thereby reducing the overall likelihood of bird-turbine interactions. This risk reduction would apply to all species, including all the assessed listed and migratory birds and bats.

In addition to the reduced physical footprint, the spatial arrangement of turbines has also improved to the previously approved Alberton Wind Farm. The original design included turbines located in close proximity to, and between, the Alberton and Gelliondale State forests, as well as within 1 km of the Corner Inlet Ramsar site. This configuration presented a higher potential risk to biodiversity values, including species utilising the Ramsar wetland and those moving between the State forests (such as the White-throated Needletail).

Thus the revised layout that is now proposed as part of the Action, increases separation distances from both the Ramsar site and the State forests, thereby further reducing the likelihood of disturbance to key habitats and movement corridors and lowering the overall risk of bird and bat collision.

The revised layout also results in a smaller overall impact on native vegetation. In this regard, the Alberton Wind Farm was estimated to result in the removal of approximately 1.317 ha of native vegetation, including 16 trees. In contrast, the Action proposes 13 turbines, reducing the extent of native vegetation removal to approximately 1.244 ha and only two trees.

Overall, the GWF layout represents a clear improvement in terms of minimising ecological risk and impact when compared to the original AWF design.

Figure 1.2 shows the layout changes between the Action and the earlier Alberton Wind Farm proposal.

ii The higher intensity configuration alternative

The Gelliondale Wind Farm was initially conceived with a configuration of 16 WTGs. Although the Project Area is physically capable of accommodating this number, the Proponent later reduced this number to 13 WTGs to provide a greater margin of compliance with noise and shadow flicker regulations, and to accommodate a new dwelling that had been constructed on an adjacent property.

iii The lower intensity configuration alternative

A lower-intensity alternative, comprising fewer than 13 WTGs (e.g. 10 or fewer), was considered during scoping. However, unlike projects in Western Victoria, which benefit from pre-established supply chains and established transport routes due to the many wind energy projects already developed there, Central Gippsland is a less advantageous development context. This makes undersized developments susceptible to poor cost-efficiency and commercial challenges.

iv Alternative shipping methodology

A logistics investigation undertaken for the Action identified three potential shipping routes for the delivery of WTG componentry to the Action Area:

- **Option 1**: Delivery from an international port to the Port of Geelong, followed by transport via tug and barge to the Port Anthony–Barry Beach Marine Terminal.
- **Option 2**: Delivery from an international port to another regionally advantageous Victorian or Tasmanian port, followed by transfer to Port Anthony–Barry Beach Marine Terminal.
- **Option 3**: Direct delivery from an international port to Port Anthony–Barry Beach Marine Terminal.

Options 2 and 3 were discounted due to economic and logistical considerations, including infrastructure capacity and commercial arrangements.

Further options, involving delivery to a port other than Port Anthony–Barry Beach Marine Terminal, and subsequently requiring extensive on-road OSOM movements to the Project Area, were discounted on logistical grounds. Negative impacts due to traffic disruption and the need to relocate or remove services and roadside native vegetation also discounted these options.

Option 1, the selected shipping route, presents a slightly elevated marine pest risk, given the established presence of marine pests at the Port of Geelong. However, the risk has been assessed and mitigation measures proposed to ensure potential impacts are minimised (discussed further in Chapter 5).

3.3 Alternative energy sources

A range of alternative energy sources have also been considered, as outlined below.

3.3.1 Solar

Solar energy generation is not considered a standalone alternative to the Action, but rather, a complementary technology. Wind and solar generation have different generation profiles, making them complementary sources that together allow efficient use of transmission infrastructure, which has a fixed energy-carrying capacity. While many sites featuring large areas of flat, cleared land may be suitable for solar generation, the Action Area has been specifically identified for wind energy due to its strong coastal wind resource. Solar is also not compatible with the current dairy cattle operations and would totally occupy the Action Area. The existing use of the land can continue in conjunction with the Action and is therefore strategically supported. The solar energy resource in the Action Area is inferior to that available in many other parts of Victoria.

3.3.2 Gas

Gas fired power stations are not considered a viable alternative to the Action. While several gas "peaking" plants are currently in planning in Victoria, these projects are not intended to compete with renewable energy for the supply of continuous or baseload power. Rather, they are designed to provide short bursts of electricity during periods of peak demand. According to the CSIRO (Graham et al. 2025), gas-fired generation is not cost-competitive with renewables, with projected costs of $128 to $342 per megawatt hour at grid wholesale prices (the upper part of this range is associated with "peaking" generation) significantly higher than onshore wind ($70 to $116) and solar ($43 to $73). Gas also remains a fossil fuel source with significant carbon emissions, undermining State and National efforts to reduce greenhouse gas emissions in line with greenhouse gas reduction targets.

3.3.3 Nuclear

Nuclear energy is not considered a viable alternative to the Action. Despite recent political debate about a potential future nuclear power station in the Gippsland REZ, both the Victorian and Australian governments currently maintain legislative bans on nuclear power generation, making its development legally prohibited in the near term. Even if these bans were lifted, establishing a nuclear power station—particularly in the Latrobe Valley—would take well over a decade to plan, approve, construct and commission. Therefore, it would not negate the need for renewable projects like this one, which are urgently required to address the predicted shortfall in power generation due to the closure of ageing coal-fired generators.

According to the CSIRO (Graham et al. 2025), nuclear energy is modelled as one of the most expensive forms of potential new energy generation in Australia, with large-scale nuclear estimated to cost $155 to $252 per megawatt hour at grid wholesale prices. This is significantly higher than the cost of new wind or solar generation with storage. Development of new nuclear plants would take at least a decade if commenced today and therefore would not deliver the urgent emissions reductions required in accordance with the Paris Agreement. Furthermore, the broader environmental impacts of uranium mining, nuclear waste management and associated greenhouse gas emissions make it a less sustainable option compared to wind energy.

4 Description of the environment

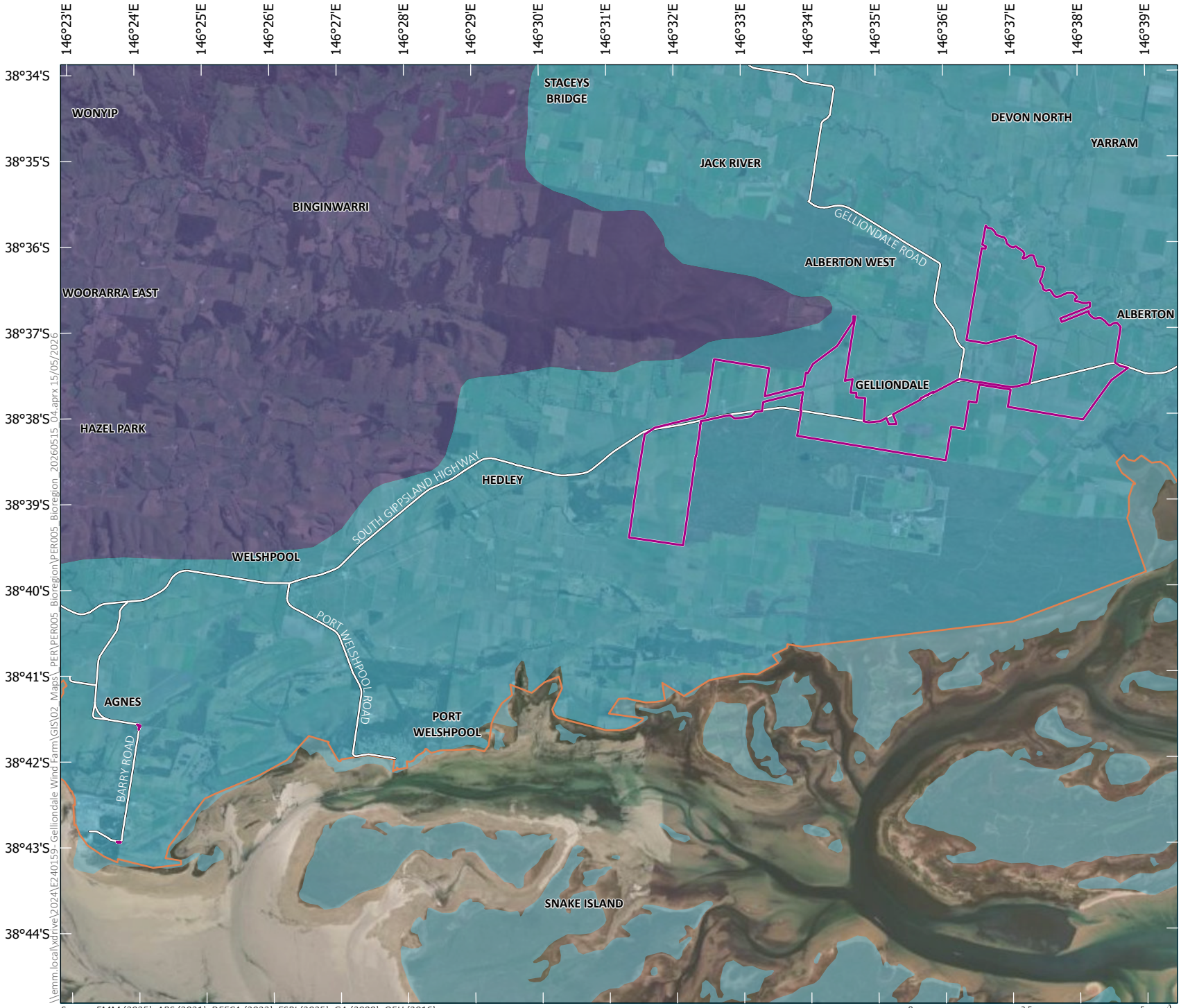
This chapter provides an overview of the environment within the Action Area and surrounding landscape including the Corner Inlet Ramsar site, before describing relevant MNES. This chapter responds to section 6 and section 7 of the PER Guidelines (Department of Climate Change, Energy, the Environment and Water (DCCEEW) 2024).

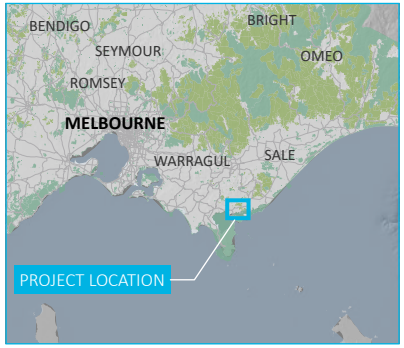
4.1 General description of the Action Area environment

The following section provides a general description of the environment within and surrounding the Action Area.

4.1.1 Bioregion

The Action Area is located in the Gippsland Basin Bioregion. This bioregion is located in south-eastern Gippsland in Victoria and covers approximately 14,636 km² of land. The bioregion includes key geographic features such as the brown coal deposits of the Latrobe Valley, Strzelecki Ranges, Gippsland Lakes and Corner Inlet (Yates G et al. 2015). The Gippsland Basin Bioregion does not contain any formal sub-bioregions however does contain numerous structural elements (Yates G et al. 2015).





KEY

- Action area
- Corner Inlet Ramsar site

IBRA subregion

- Gippsland Plain
- Strzelecki Ranges

Existing environment

- Major road

INSET KEY

- Major road
- State forest
- National park/reserve

Source: EMM (2025); ABS (2021); DEECA (2023); ESRI (2025); GA (2009); OEH (2016)

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Bioregion

Gelliondale Wind Farm
Public Environment Report
Figure 4.1

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4.1.2 Climate

The Gippsland Basin bioregion has a temperate climate influenced by its varied geography, elevation, and proximity to the coast. Average annual rainfall in the vicinity of the Action Area is approximately 892 millimetres (mm), with the wettest months in Winter and Spring. Low-lying areas are prone to flooding during heavy rainfall events (Yates G et al. 2015).

The bioregion experiences mild to warm summers, with average maximum temperatures around 24°C and minimums of 13°C, while winters are cooler, ranging from 5°C to 14°C. Temperatures in the Action Area are moderated by the proximity of the sea (Yates G et al. 2015).

Climate change projections suggest that with 1°C to 2°C of warming, the South Gippsland basin (within which the Action Area is sited) will see reduced rainfall and runoff, particularly under drier modelled scenarios. Historically, average annual runoff in this basin has been 155 mm. Table 4.1 summarises predicted climate change impacts to rainfall and runoff in the South Gippsland Basin.

Table 4.1 Predicted climate change impacts for South Gippsland Basin (Post et al. 2012)

Scenario	Rainfall change (%)	Runoff change (%)
1 °C Dry Extreme	–7%	–20%
1 °C Median	–4%	–13%
1 °C Wet Extreme	–2%	–6%
2 °C Dry Extreme	–14%	–36%
2 °C Median	–9%	–24%
2 °C Wet Extreme	–3%	–10%

4.1.3 Current and historical land use

Most of the Action Area currently and previously has been used for farming and grazing stock, with dairy cattle the predominant grazing stock. Aerial imagery between 1965 to 2024 shows that the land has undergone minimal changes during this time. The Action Area is predominantly clear of native vegetation and introduced grasses are the dominant ground cover.

The remaining Action Area is made up of public road reserves (highway and local), Crown land parcels and a former railway/rail-trail corridor reserve that bisects the site into two areas.

Farming practices could have led to site contamination; however, there is no visual evidence of practices or infrastructure that might lead to site contamination. Contamination arising from farming is considered likely to be relatively minor in nature and localised in extent.

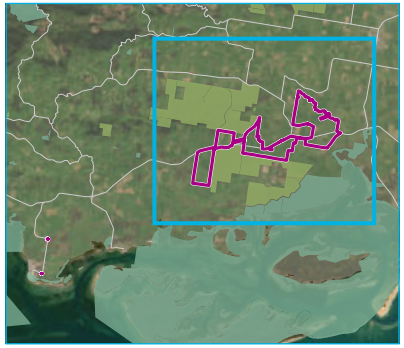
The former Gelliondale Briquette Plant is located within the Action Area and has the potential to have contaminated the area around it. The Gelliondale Briquette Plant consists of former open coal pits (now filled with water), mullock heaps and remnants of structures. However, there is no evidence of current contaminating activities. The former Gelliondale Briquette Plant is greater than 100 m from the nearest disturbance footprint associated with the Action, thus even if any contamination is present, it is unlikely to be disturbed by the construction, operation or decommissioning of the Action.

No other known or potential onsite sources of contamination have been identified.

The following sites within 3 km of the Action Area were identified as having potential to be contaminated:

- Alberton West Fire Station
- Alberton Timber and Treatment Plant
- Endeavour Alberton Petrol Station
- Alberton Marine
- Hedley Fire Station
- Alberton West Landfill – closed landfill site.

These potentially contaminated sites all have the potential to impact soil and groundwater if disturbed; however, the closest site is over 1 km from the action area and over 2.5 km from any Action infrastructure. Due to the distance from the Action Area, it is unlikely contamination from these sites will contribute to on-site contamination of land, waterways and groundwater. The Action therefore poses no danger of disturbing any contaminated land at these sites. Refer to Appendix F for further information.



KEY

- Action area
- Corner Inlet Ramsar site
- Native vegetation removal
- Potential contamination source

Existing environment

- Major road
- State forest
- National park/reserve

INSET KEY

- Action area
- Major road
- State forest
- National park/reserve

Potential contamination sources

Gelliondale Wind Farm
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Figure 4.2

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Source: EMM (2025); DEECA (2023); ESRI (2025); GA (2009); EPA (2025);

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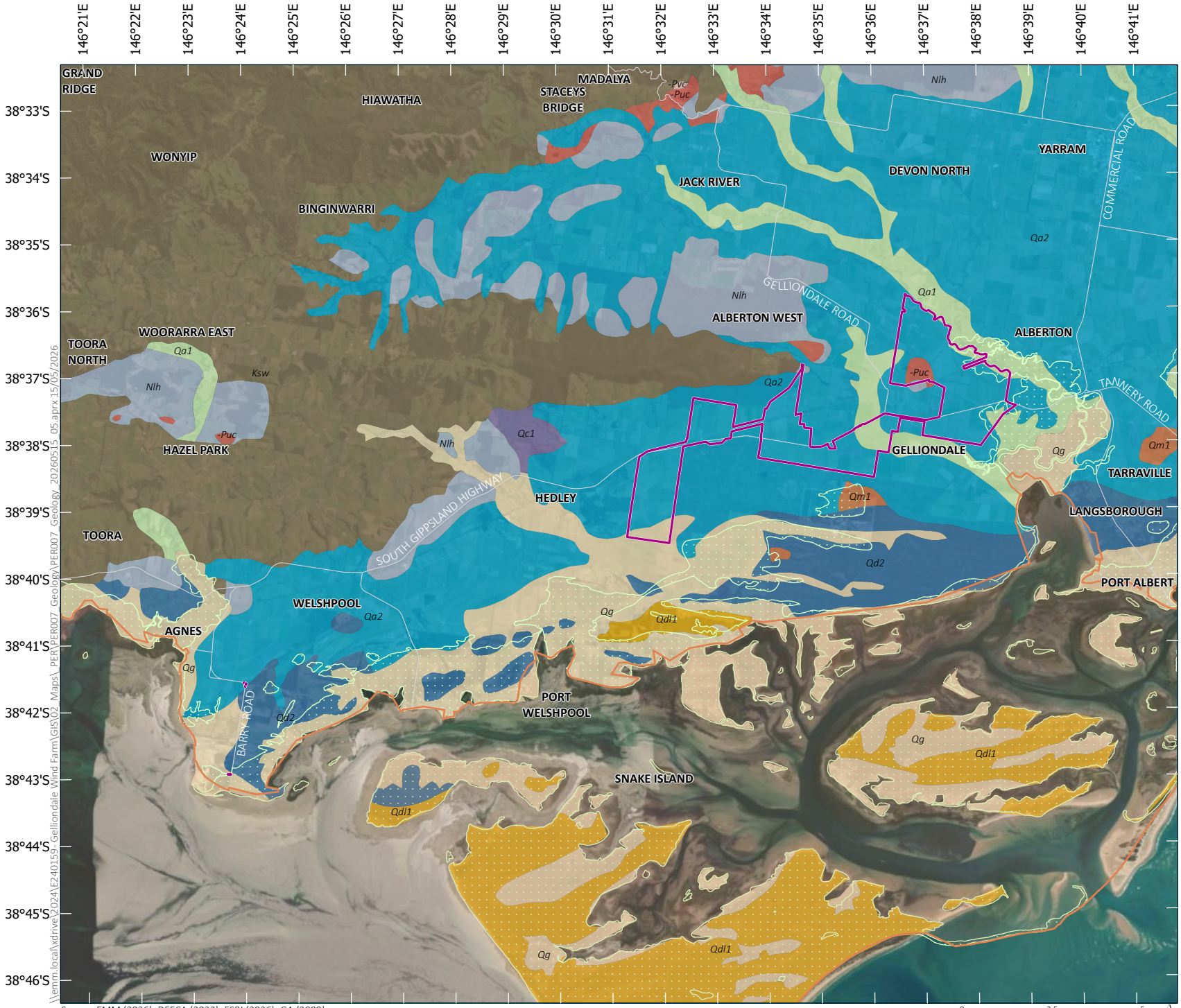
4.1.4 Topography and geology

The Action Area is generally flat with an elevation of approximately 10 m Australian Height Datum (AHD) with only minor variations and mounds existing. The elevation increases in the north-west of the Action Area near the Alberton State Forest where the Strzelecki Ranges reach their southern extent.

The Action Area has a combination of Vertosol, Sodosol, Rudosol, Hydrosol, Dermosol and Podosol soil types, with most of the site (55%) being Vertosols. The majority of the Action Area has geology of modern fluvial and coastal sediments with minor areas of older formations also in the Action Area.

Potential acid sulfate soils (PASS) have been identified in the floodplains of the Albert and Jack rivers and Muddy Creek to the south of the Action Area. Small areas of PASS have been identified in the eastern section of the Action Area; however, no development is proposed in this location. Soil sampling was completed and it is considered likely there is a presence of acid sulfate soils in the soils from 0 to 2.0 metres below ground level (mBGL) in the Action Area.



Source: EMM (2026); DEECA (2023); ESRI (2026); GA (2009)

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Geology

Gelliondale Wind Farm
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Figure 4.3

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4.1.5 Hydrology

The Albert and Jack rivers, and Nine Mile and Muddy creeks are located around the edge of the Action Area, with only minor waterways running into the Action Area. Many of the minor waterways within the Action Area have been altered to create farm drains. The Albert and Jack rivers, and Nine Mile and Muddy creeks all run into the Corner Inlet Ramsar site, located 1.16 km south-east of the nearest edge of the Action Area (excluding vegetation removal and minor roadworks proposed on Barry Road, which have a setback of approximately 360 m). Water quality has been assessed as moderate to good for the rivers and creeks that enter Corner Inlet. Minor tributaries to major waterways and into Corner Inlet have been assessed as having poor water quality.

Water quality data were retrieved and analysed from Victoria's Water Measurement Information System (WMIS) (Department of Energy, Environment and Climate Action 2026). The WMIS hosts monthly water quality data from a monitoring location on the Albert River (site ID 227258) located 5 km upstream from the Action Area. The data includes almost 20 years to date of monthly pH, dissolved oxygen (field), salinity, turbidity and temperature measurements and almost nine years (2006 to 2015) of nitrogen, phosphorous and total suspended sediment measurements.

The WMIS data is considered representative of the Albert River (and likely other local watercourses) as it passes the Action Area and enters Corner Inlet. The data confirms that water in the Albert River is generally good quality and provides a baseline for future assessment of impacts. The majority of the Action is located within the Albert River catchment.

The general design principle in laying out the Action was to site WTGs at least 100 m from natural watercourses; the minimum setback distance in fact exceeds 500 m. No part of the Action intersects with natural watercourses; however, cables and access tracks do cross modified drainage features.

Albert River is located approximately 550 m from WTG GWT10 and 525 m from GWT11, while Muddy Creek is 660 m from GWT13. WTGs GWT01 and GWT02 are less than 100 m from an artificial drain network that flows south-east to Nine Mile Creek and then into Corner Inlet near Little Dog Island and Bullock Island. The upper reach of a modified drain network that flows east to Muddy Creek is located 111 m away from GWT07, 260 m from GWT08, 150 m from GWT13 and 280 m from GWT09.

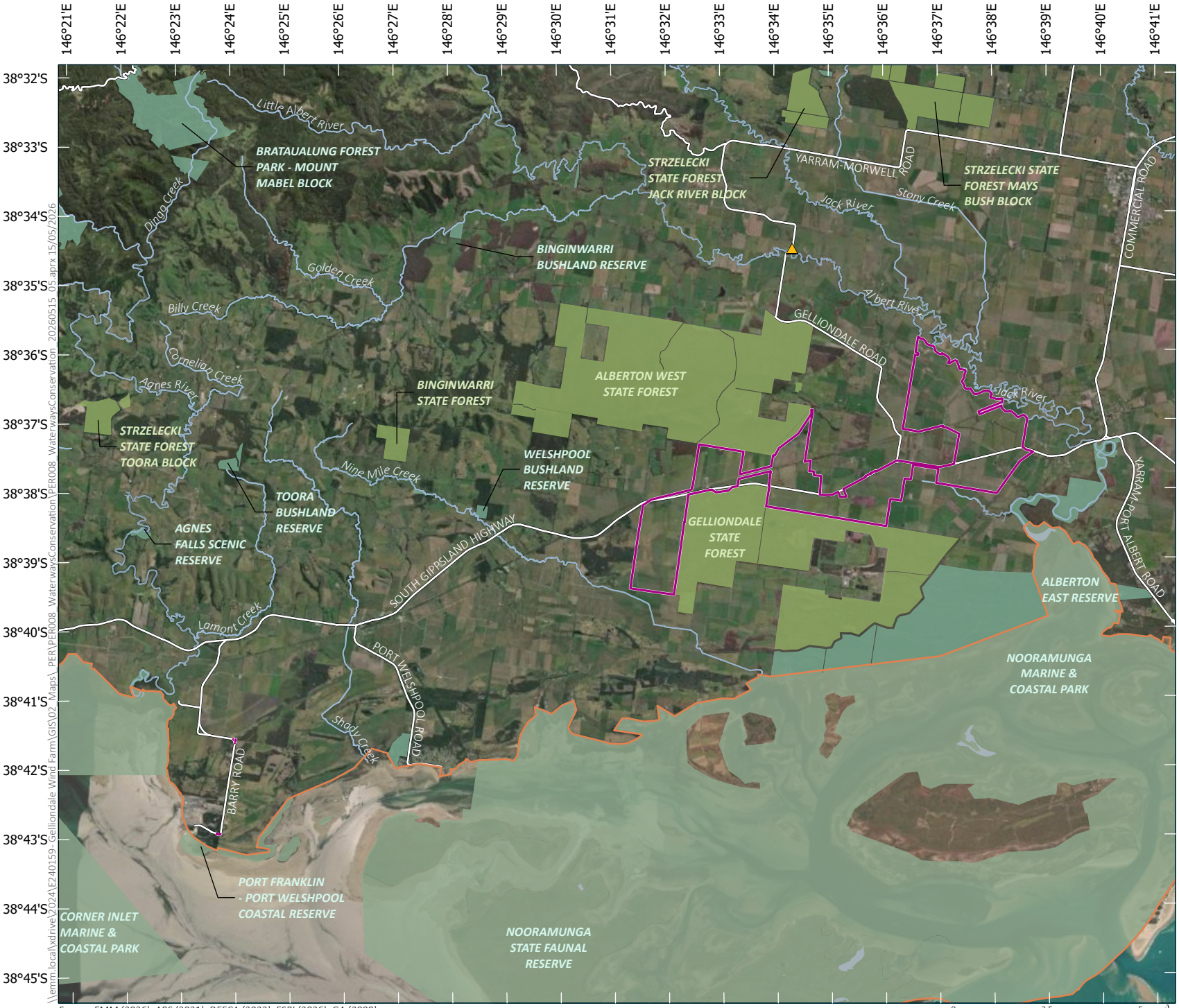
The hydrology of the Action Area and surrounds in the context of the Corner Inlet Ramsar site is discussed further at Section 4.3.1i.

4.1.6 Conservation areas

The Alberton West State Forest is located directly north-west of the Action Area and Gelliondale State Forest located to the south of the Action Area. Alberton West State Forest is on the foothills of the Strzelecki Ranges and includes extensive remnant forest. The Gelliondale State Forest contains heathy woodlands and other near-coastal vegetation types due to its proximity to the coastline. Both State forests support a range of EPBC Act listed flora and fauna species including the following species that were identified during the desktop assessment:

- Eastern Spider-orchid (*Caladenia orientalis)* (Endangered)
- Thick-lip Spider-orchid (*Caladenia tessellata)* (Vulnerable)
- Clover Glycine (*Glycine latrobeana)* (Vulnerable)
- Maroon Leek-orchid (*Prasophyllum frenchii)* (Endangered)
- Dense Leek-orchid (*Prasophyllum spicatum)* (Vulnerable)
- Metallic Sun-orchid (*Thelymitra epipactoides)* (Endangered)

- Gang-gang Cockatoo (*Callocephalon fimbriatum)* (Endangered)
- Pilotbird (*Pycnoptilus floccosus)* (Vulnerable)
- Swamp Skink (*Lissolepis coventryi)* (Endangered).



Source: EMM (2026); ABS (2021); DEECA (2023); ESRI (2026); GA (2009)

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Waterways and conservation areas

Gelliondale Wind Farm
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Figure 4.4

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creating opportunities

4.1.7 Habitat connectivity

As discussed above, the Alberton and Gelliondale State forests are located on either side of the Action Area and both act as key habitat for flora and fauna.

Linear patches of vegetation are located along the roadsides and rail reserves in the Action Area and broader region. The linear vegetation includes native and introduced plant species and can support habitat connectivity, migration routes and foraging habitat, especially between the two State forests and larger areas of potentially high-quality habitat within the Action Area and border region.

Habitat connectivity is described in relation to different species as summarised below:

- Long-nosed Potoroo: No connectivity exists between the Action Area and the important population located in Wilsons Promontory. However, some of the habitat patches in the Action Area (refer to Appendix A for details of the specific patches) have some level of connectivity to the larger areas of potentially high-quality habitat for the Long-nosed Potoroo.
- Southern Brown Bandicoot: The habitat along Coal Mine Road and Lanes Road links the Great Southern Rail Trail and Alberton State Forest for this species. No habitat connectivity is considered to exist between the Alberton and Gelliondale State Forests for the Southern Brown Bandicoot.
- Swamp Antechinus: The habitat along Coal Mine Road links the Great Southern Rail Trail and Alberton State Forest for this species.

Connectivity between the habitats present at the Action Area and Corner Inlet Ramsar site is discussed at Section 4.3.1. Connectivity for birds and bats between the Project Area and the Corner Inlet Ramsar site is likely to be limited, with flight paths most likely linking suitable habitats along the coast rather than inland. Some degree of aerial connectivity may occur for highly mobile species, including migratory birds that traverse the broader landscape between inland and coastal habitats. Potential collision risk to migratory shorebirds associated with the Ramsar site is addressed in Chapter 6. For other waterbirds, interaction with the Project Area is expected to be minimal due to the absence of wetland habitat and the lack of contiguous habitat features linking the Action Area to the Ramsar site.

4.2 Investigation methodologies

This section describes the investigations completed by the technical specialists who were engaged to prepare reports to support the PER, and which are included as appendices. The following specialists completed investigations:

- Ecology: Nature Advisory
- Contaminated land: Accent Environmental Pty Ltd and Land Insights
- Flood, erosion and sediment: Alluvium Consulting Pty Ltd
- Bushfire: Fire Risk Consultants Pty Ltd
- Traffic: Stantec Pty Ltd
- Socio-economic: Accent Environmental.

A combination of literature reviews, desktop assessments, site inspections and modelling were completed by the technical specialists, as outlined in their reports. Further details have been provided in Section 4.2.1 on the ecology investigations completed.

4.2.1 Ecology

A desktop assessment was initially undertaken by Nature Advisory that included database searches for the entirety of the Flora and Fauna Search Area. The following sources of information were reviewed when completing the desktop assessment:

- Wellington Planning Scheme.
- Victorian Biodiversity Atlas.
- Commonwealth EPBC Act Protected Matters Search Tool (PMST).
- NatureKit.
- Birdata database.
- BirdLife Australia Shorebirds database.
- Atlas of Living Australia.
- Corner Inlet Ramsar site Ecological Character Description.
- Pre-1750 (pre-European settlement) vegetation mapping administered by DEECA was reviewed to determine the type of native vegetation likely to occur in the Flora and Fauna Search Area. Information on ecological vegetation classes (EVCs) was obtained from published EVC benchmarks.
- Relevant EVC benchmarks for the Gippsland Plain bioregion.

Following the desktop assessment, extensive ecological surveys were undertaken. Table 4.2 provides an overview of the ecology surveys that were completed during the development of the Action and to support the PER. The surveys were completed based on the relevant species-specific guidelines. The most recent surveys were undertaken specifically to support this PER and followed consultation with DCCEEW about the methodologies proposed for the surveys to ensure the scope, location and timing was acceptable to DCCEEW. An overview of the surveys is provided below, and further information including limitations and mapping of the surveys is in Appendix A.

Table 4.2 Ecology surveys

Investigations	Dates	Locations	Summary of the investigations
Overview assessment	2015, 2016	The Flora and Fauna Search Area was reviewed from this overview assessment.	The overview assessment included broad-scale mapping and high-level characterisation of existing flora and fauna habitats. An initial fauna survey was completed using: • incidental searches for mammal scats, tracks and signs • turning over logs/rocks and other ground debris for reptiles, frogs and mammals including using frog calls in seasonally wet areas • general searches for bat and bird habitat. Other tasks completed during this assessment included: • habitat connectivity which was reviewed to identify linkages to other habitats in the region • determining the likelihood of occurrence of fauna listed under the Commonwealth EPBC Act and Victorian *Flora and Fauna Guarantee Act 1988*
Native vegetation assessments	21 and 23 September 2016 20–23 September 2021 16–18 September 2024	The Flora and Fauna Search Area was surveyed by vehicle and on foot survey and mapping was completed for areas that supported native vegetation.	Detailed habitat hectare assessments were completed in 2016 and 2021 and in 2024 further field work was completed to refresh the validity of lapsed habitat hectare assessments. The condition of the native vegetation was assessed using the habitat hectare and assessed against the relevant EVC benchmark.
Targeted flora and ecological communities	2–4 November 2016 16–18 September 2024 (ecological communities only)	Botanists visually searched along transects spaced approximately 5 m apart. This spacing was considered appropriate for detecting all seven targeted species. The Flora and Fauna Search Area was assessed against published descriptions of relevant listed ecological communities modelled to potentially occur in the Flora and Fauna Search Area.	Targeted flora surveys were undertaken for the following flora species: • River Swamp Wallaby-grass (*Amphibromus fluitans*) (Vulnerable) • Eastern Spider-orchid (*Caladenia orientalis*) (Endangered) • Thick-lip Spider-orchid (*Caladenia tessellata*) (Vulnerable) • Strzelecki Gum (*Eucalyptus strzeleckii*) (Vulnerable) • Clover Glycine (*Glycine latrobeana*) (Vulnerable) • Maroon Leek-orchid (*Prasophyllum frenchii*) (Endangered) • Dense Leek-orchid (*Prasophyllum spicatum*) (Vulnerable) • Metallic Sun-orchid (*Thelymitra epipactoides*) (Endangered). The timing of the surveys and the condition of the vegetation was considered appropriate to determine the presence or absence of these species.

Investigations	Dates	Locations	Summary of the investigations
Bird utilisation	Spring 2023 (13–16 November 2023) Summer 2024 (12–19 February 2024) Autumn 2024 (13–18 April 2024) Winter 2024 (7–12 August 2024) Spring 2024 (12–16 November 2024) Summer 2025 (3–6 February 2025) Autumn 2025 (24–28 March 2025) Winter 2025 (2–8 June 2025)	Visual surveys were completed across 11 survey sites including one reference site located within the Gelliondale State Forest. Survey sites were located on ridges or vantage points with at least 180-degree views of the surrounding landscape. Survey sites were spread across the site as evenly as possible and within habitats representative of those across the Action Area.	Bird utilisation surveys were undertaken in accordance with the following guidelines: • *Wind Farms and Birds - Interim Standards for Risk Assessment* (Australian Wind Energy Association 2005) • *Onshore Wind Farm Guidance - best practice approaches when seeking approval under Australia's National environment law* (DCCEEW in preparation). The fixed-point method was used for the survey where the surveyor stands at the survey sites for 20 minutes and counts all bird species and individual birds recorded.
Bat utilisation	Summer 2015 (26 February to 11 March) Spring/Summer 2023 (8–10 November to 11–12 December) Summer/Autumn 2024 (20–21 February to 2–4 April) Winter/Spring 2024 (5–6 August to 9–10 September) Spring/Summer 2024 (11–12 November to 18–19 December) Summer/Autumn 2025 (5–6 February to 12–13 March) – call analysis in progress Autumn/Winter 2025 (28 March to 8 June) – call analysis in progress	Ultrasonic bat detectors were installed close to the proposed turbine sites and at reference sites between 0.5–2 m above the ground to record bat calls	The bat surveys were completed in accordance with *Survey Guidelines for Australia's threatened bats* (Department of the Environment, Water, Heritage and the Arts 2010), and consistent with methods completed at many wind farms in eastern Australia over the last 20 years. The recordings were analysed to understand the presence and absence for all common species and the number of calls was analysed for all threatened species and species complexes containing threatened bat species. The total number of detector nights for each survey season were: Spring/Summer 868 nights, Summer 85 nights, Summer/Autumn 844 nights, Winter/Spring 514 nights, with Autumn/Winter and Winter nights pending. the survey effort was considered sufficient to obtain a baseline level of bat activity. a total of seven bat utilisation surveys were conducted in the Action Area over two years between 2023 and 2025.
Swift Parrot and Gang-Gang Cockatoo	28 April – 2 May 2020 (incl. habitat assessment) 12−14 April 2021 3−5, 24−26 May 2021 22−24 June 2021 21−23 July 2021 2−5, 15−17 April 2024 27−29 May 2024 11−13 June 2024 10−12 July 2024	Surveys were completed within 5 km of the turbines to identify potential habitat.	The surveys were completed in accordance with EPBC *Survey Guidelines for Australia's Threatened Birds* (Department of the Environment, Water, Heritage and the Arts 2017). Suitable habitat was examined for up to half an hour during the survey to identify presence. The 2020 and 2021 Swift Parrot targeted surveys were undertaken in matters raised as a condition of Approved Action planning permit.

Investigations	Dates	Locations	Summary of the investigations
White-throated Needletail	7–11 December 2020 22–26 March 2021 25–29 April 2021 26–29 February 2024 1–8 and 18–22 March 2024	Ten survey sites were selected based on good visual coverage within the Action Area. Survey sites were chosen to represent a variety of habitats: pasture paddocks, planted cypress and eucalyptus, and small sections of State forests and plantations.	The surveys were completed in accordance with the migratory swifts in the Referral guideline for 14 birds listed as migratory species under the EPBC Act (Department of the Environment 2015). The fixed-point bird count method was used to record all birds within range of 10x binoculars. The 2020 and 2021 White-throated Needletail targeted surveys were undertaken in matters raised as a condition of Approved Action planning permit.
Migratory shorebirds	25–27 February 2015 (exploratory survey) 17–19 December 2024 (Summer, Spring tide) 20–22 January 2025 (Summer, transitioning tide) 3–5 February 2025 (Summer, neap tide) 19–20 February 2025 (Summer, Spring tide) 18–19 June 2025 (Winter, Spring tide)	Twenty-three sites were surveyed based on suitable habitat at nearshore/inner island locations.	Birdlife Australia has completed shorebird counts from 1980 to 2024, and the results were analysed for the sites in Corner Inlet East. Initial investigations were conducted at low tide to identify potential shorebird foraging areas on intertidal sandflats and mudflats, using car, foot, and boat access. The formal surveys used the method detailed in *Industry guidelines for avoiding, assessing and mitigating impacts on EPBC Act listed migratory shorebird species* (Department of the Environment and Energy 2017). Twenty-three sites were surveyed at high and low tide.
Grey-headed Flying Fox	20–23 January 2025 12–13 May 2025	The survey and inspections were completed at known colonies including inspection at the camps.	Dusk and daytime surveys were completed to understand presence and visual inspections of the sky were completed during dusk for flight activity.

4.3 Matters of National Environmental Significance

A review of MNES that could be present within the Flora and Fauna Search Area was undertaken to determine whether the Action has the potential to cause impacts. A high-level summary of the MNES review is presented in Table 4.3.

Table 4.3 High-level summary of MNES controlling provisions

Controlling provision	Potentially impacted?
World heritage	No, there are no World Heritage-listed sites within or near the study area.
National heritage	No, there are no National Heritage-listed sites within or near the study area.
Ramsar wetland	**Yes, the nearest Ramsar site is <7 km away from the study area. See Section 4.3.1**
Threatened species and ecological communities	**Yes, see Sections 4.3.2**
Migratory species	**Yes, see Section 4.3.8**
Nuclear	No, the Action is not a nuclear action.
Commonwealth Marine Area	No, the Action is not within a Commonwealth Marine Area.
Great Barrier Reef	No, the Action is not within or near the Great Barrier Reef.
Water resources in relation to large coal mining or coal seam gas developments	No, the Action is not a coal mine or coal seam gas development.
Commonwealth land	No, the Action Area does not contain any Commonwealth land.
Commonwealth heritage places overseas	No, the Action is not located within a Commonwealth heritage place overseas.
Commonwealth or Commonwealth agency	No, the Action is not being taken by the Commonwealth or a Commonwealth Agency.

As a result of the detailed investigations undertaken, the numbers of MNES deemed relevant to the Action (i.e. those that are considered to have the 'potential to occur' or are 'known to occur' in or near the Action Area) are summarised in Table 4.4. Refer to Appendix A for further details.

Table 4.4 Summary of MNES relevant to the Action

MNES	VBA/PMST results	Number considered to 'potentially occur' or 'known to occur'
Ramsar Wetlands	1	1
Ecological Communities	2	0
Threatened Flora	14	8
Threatened Fauna	35	23
Migratory Species	45	25

The following sections describe the identified MNES, providing a detailed description of those relevant to the Action.

4.3.1 Corner Inlet Ramsar site

The Corner Inlet Ramsar site is a 67,071 ha tide-driven coastal bay located in the West Gippsland catchment and the Southeast Integrated Marine Coastal Region of Australia Transition Provincial Bioregion. The site was first listed as meeting the Ramsar criteria in 1999.

Whilst the Corner Inlet Ramsar site is experiencing long-term, incremental changes driven by climate change, surrounding land-use changes, and historical agricultural impacts, the site is still considered to be in near-natural condition.

i Ecological character and connectivity

The Corner Inlet Ramsar site's ecological character comprises a submerged plain covered with sand and mudflats, widespread seagrass meadows, and sizeable sand islands. It contains a network of deep, branching channels which enables effective tidal flow across the flats and between the islands. The area includes 14 distinct wetlands that provide habitats for a rich array of flora and fauna. This habitat is markedly different from that present in the Action Area, and accordingly there is limited direct ecological connectivity between habitats within the Project Area and those of the Corner Inlet Ramsar site. The primary linkage occurs via downstream hydrological connections, particularly through the Albert and Jack rivers, which discharge into the Corner Inlet estuary. These estuarine waters are a distinct and highly productive wetland habitat type, supporting fish nurseries, invertebrates, and key foraging habitat for migratory shorebirds and other waterbirds.

The Action's shipping transport route crosses Corner Inlet Ramsar site to the west along Toora Channel, traversing water channels deeper than 10 m, which are not captured as important habitat types in the Ramsar wetland classification. There are no expected interactions between the shipping route and inland wetland habitats.

ii Critical components, processes, and services

The site's ecological character is maintained by the critical components, processes, and services that are listed below:

- Critical components:
  - Marine and Estuarine Wetland Habitats – supports important habitats including seagrass beds, salt marsh, mangroves, shallow marine waters, and intertidal flats.
  - Waterbird abundance and diversity – hosts 95 bird species, including migratory shorebirds with an average peak abundance of 36,000 birds.
- Critical processes:
  - Waterbird breeding – supports several beach-nesting species.
- Critical services:
  - Threatened species – supports habitat for several listed species, including listed migratory species.
  - Fisheries resources – vital habitats (feeding, spawning, dispersal, and migratory routes) for numerous fish species important to commercial and recreational fisheries.

iii Catchments feeding Corner Inlet Ramsar Wetland

The combined catchments that discharge into Corner Inlet are approximately 2,100 km^2 in size. These catchments comprise predominantly privately owned land and have largely been cleared of their native vegetation for agricultural purposes (dairying and grazing) and, to a lesser extent, plantation forestry. The Albert-Jack River catchment is the largest compared to the other Corner Inlet sub-catchments and is silt-dominated with the highest mean annual flow. Rainfall and subsequent streamflow can be highly variable across the Corner Inlet catchment area over time; however, high streamflows from large rainfall events are relatively infrequent and short-lived. These high streamflow events can lead to large sediment and nutrient being delivered to the inlet and play an important role in the lifecycle of some species.

The main rivers draining into Corner Inlet are relatively short with small contributing catchments. Therefore, the rivers respond rapidly to high rainfall events, discharging large flows with high concentrations of nutrients and sediment loads into the inlet, which in turn can impact water quality to the Corner Inlet.

A water quality assessment performed by South Gippsland Water in 2002 showed the main streams entering Corner Inlet, including the Albert River, exhibited moderate to good water quality and the smaller contributing streams had poor water quality.

Tidal exchange and flushing are high in Corner Inlet, which likely helps reduce the risk of widespread water quality degradation across the inlet. Dryland agriculture contributes the greatest nutrient loads to the Corner Inlet across its entire catchment along with plantation forests and sewage treatment plants.

A geomorphic assessment conducted by Alluvium in 2008 found that approximately 10% of the Albert-Jack River catchment was used for forestry, and because the forestry plantations were located in the steep headwaters of the upper catchments with limited vegetated buffers, they had a high likelihood of producing significant volumes of hillslope runoff.

An estimated 600,000 m^3 of fine-grained sediments have been generated by the Albert-Jack River catchment from channel incision, much of which is expected to have reached Corner Inlet. The largest risk for future fine-grained sediment sources in the Albert-Jack River catchment is from potential future avulsion (channel abandonment and new channel formation) of the Jack River in the lower catchment.

Modelling conducted by Water Technology in 2008 showed that the main streams discharging into Corner Inlet, including the Albert River, produce nutrient loads that are significant enough to influence nearby seagrass beds at their outlets in the inlet. However, direct linkages between fluvial water quality inputs and species impacts are unknown due to limited quantitative data in the inlet.

Refer to Appendix B for further information on catchments feeding the Corner Inlet Ramsar site.

iv Threats to Corner Inlet Ramsar site

The 2015 management plan, contained within the West Gippsland Waterway Strategy (West Gippsland Catchment Management Authority 2026) lists the following four high-risk threats to the Corner Inlet Ramsar site:

- *Pollutants affecting water quality* - Rising levels of sediment and nutrient runoff from the surrounding catchment area (including from urban wastewater, livestock farming and forestry operations) that threaten the health and distribution of seagrass and reduce the productivity of mudflats, which can disrupt the ecosystems that depend on these habitats. Disturbance of contaminated material could also negatively affect water quality.

- *Marine invasive species* – Three major invasive marine species pose a risk to the Ramsar site including the Northern Pacific Sea-star, the European Shore Crab, and the Mediterranean Fanworm.

- *Climate change* – Sea level rise of 17 to 50 centimetres (cm) is projected for Gippsland's southern coastline by 2070 that could cause coastal erosion, especially affecting island areas. Changing water levels may alter the size and distribution of key habitats, with particular concern for salt marsh and mangrove communities. These ecosystems face long-term risks due to barriers such as levees, seawalls, and other infrastructure that prevent their inland migration. More frequent storm surges could also further damage coastal environments.

- *Hydrological changes* – Shifts in the amount, timing, frequency, and duration of freshwater flows influence water conditions in Corner Inlet's estuaries and bays. These hydrological changes can affect the ecological functions and biodiversity that rely on stable water regimes.

The site's Ramsar Information Sheet, (Department of Climate Change, Energy, the Environment and Water 2025) further lists recreational activities (e.g. impacts from recreational boat users such as anchor damage, tourism infrastructure development) as an additional threat.

4.3.2 Threatened ecological communities

The Protected Matters Search Tool indicated that two ecological communities listed under the EPBC Act have the potential to occur within the Flora and Fauna Search Area. Following further investigations within the Action Area, these communities were deemed not to occur within the Action Area.

i Natural Damp Grassland of the Victorian Coastal Plains (Critically endangered)

No grassland habitat was identified within the development footprint, and targeted surveys confirmed that this community is not present in the Project Area. Accordingly, this community does not occur within the Action Area.

ii Subtropical and Temperate Coastal Saltmarsh (Vulnerable)

Areas of habitat suitable for this community occur exclusively outside the proposed development footprint in the nearby Ramsar wetland; this community does not occur within the Project Area.

4.3.3 Listed threatened flora species

The EPBC Protected Matters Search Tool and the Victorian Biodiversity Atlas contained records of, or potentially suitable habitat for, 14 flora species listed under the EPBC Act within the Flora and Fauna Search Area.

Species are 'likely to occur' if they have numerous records in the search region and suitable habitat in the Flora and Fauna Search Area. Species are considered to have the 'potential to occur' if suitable habitat exists without recent records.

This analysis indicates that eight EPBC Act-listed flora species are considered 'likely to occur' or have the 'potential to occur':

- Clover Glycine (*Glycine latrobeana)* (Vulnerable)

- Dense Leek-orchid (*Prasophyllum spicatum)* (Vulnerable)

- Eastern Spider-orchid (*Caladenia orientalis)* (Endangered)

- Maroon Leek-orchid (*Prasophyllum frenchii)* (Endangered)

- Metallic Sun-orchid (*Thelymitra epipactoides)* (Endangered)

- River Swamp Wallaby-grass (*Amphibromus fluitans)* (Vulnerable)

- Strzelecki Gum (*Eucalyptus strzeleckii)* (Vulnerable)

- Thick-lip Spider-orchid (*Caladenia tessellata)* (Vulnerable).

Targeted flora surveys determined that none of these species were within the Project Footprint. A detailed assessment on the likelihood of occurrence of the 14 species is provided in Appendix A.

i Listed threatened flora species considered unlikely to occur within Action Area

Although there are recorded sightings in the Flora and Fauna Search Area for some of these flora species included on the PER Guidelines for the Action, they have been deemed unlikely to occur within the Action Area, for the reasons provided below:

- Austral Toad-flax (*Thesium australe)* (Vulnerable) – no records exist for this species within the Flora and Fauna Search Area. It grows in damp habitats of grasslands, woodlands and herb fields, but is thought to be extinct across much of its former range, with all recent collections from the highlands near Wulgulmerang. As the Action Area does not contain known occurrences or the specific habitat conditions of the Wulgulmerang highlands, the species is considered unlikely to occur there.

- Green-striped Greenhood (*Pterostylis chlorogramma)* (Vulnerable) – no records exist for this species within the Flora and Fauna Search Area. It is associated with Box-stringybark Forest on sandy-loam soils, which does not occur within the Action Area. Given the absence of suitable forest type and lack of records, the species is considered unlikely to occur in the Action Area.

- Matted Flax-lily (*Dianella amoena)* (Endangered) – no records exist for this species within the Flora and Fauna Search Area. It occurs mainly in drier lowland grasslands and grassy woodlands on fertile sandy loams to heavy cracking soils. Soils in the Action Area are largely non-clay, with no grassland habitat and woodlands dominated by heath, indicating the species is unlikely to occur there.

- Spiral Sun-orchid (*Thelymitra matthewsii)* (Vulnerable) – no records exist for this species within the Flora and Fauna Search Area. It prefers well-drained sandy flats and open forest, often in coastal or low-elevation areas, but the Action Area is dominated by poorly draining lowland soils. Given the absence of records and lack of suitable soil conditions, the species is considered unlikely to occur in the Action Area.

- Swamp Everlasting (*Xerochrysum palustre)* (Vulnerable) – while there are records from the Flora and Fauna Search Area, this species grows on heavy black clay soils in wetlands dominated by particular sedge and grass genera, which are absent from the Action Area. Given the lack of suitable wetland habitat and the absence of records from the Action Area, the species is considered unlikely to occur there.

- Swamp Fireweed (*Senecio psilocarpus)* (Vulnerable) – no records exist for this species within the Flora and Fauna Search Area. It occurs in herb-rich Winter-wet swamps on volcanic clays or peaty soils, but wetland habitats in the Action Area are degraded and not derived from volcanic clay. The species is considered unlikely to occur in the Action Area.

4.3.4 Listed threatened fish species

The following two threatened fish species were identified as having the potential to occur within the Flora and Fauna Search Area and are discussed further below:

- Australian Grayling (*Prototroctes maraena)* (Vulnerable)

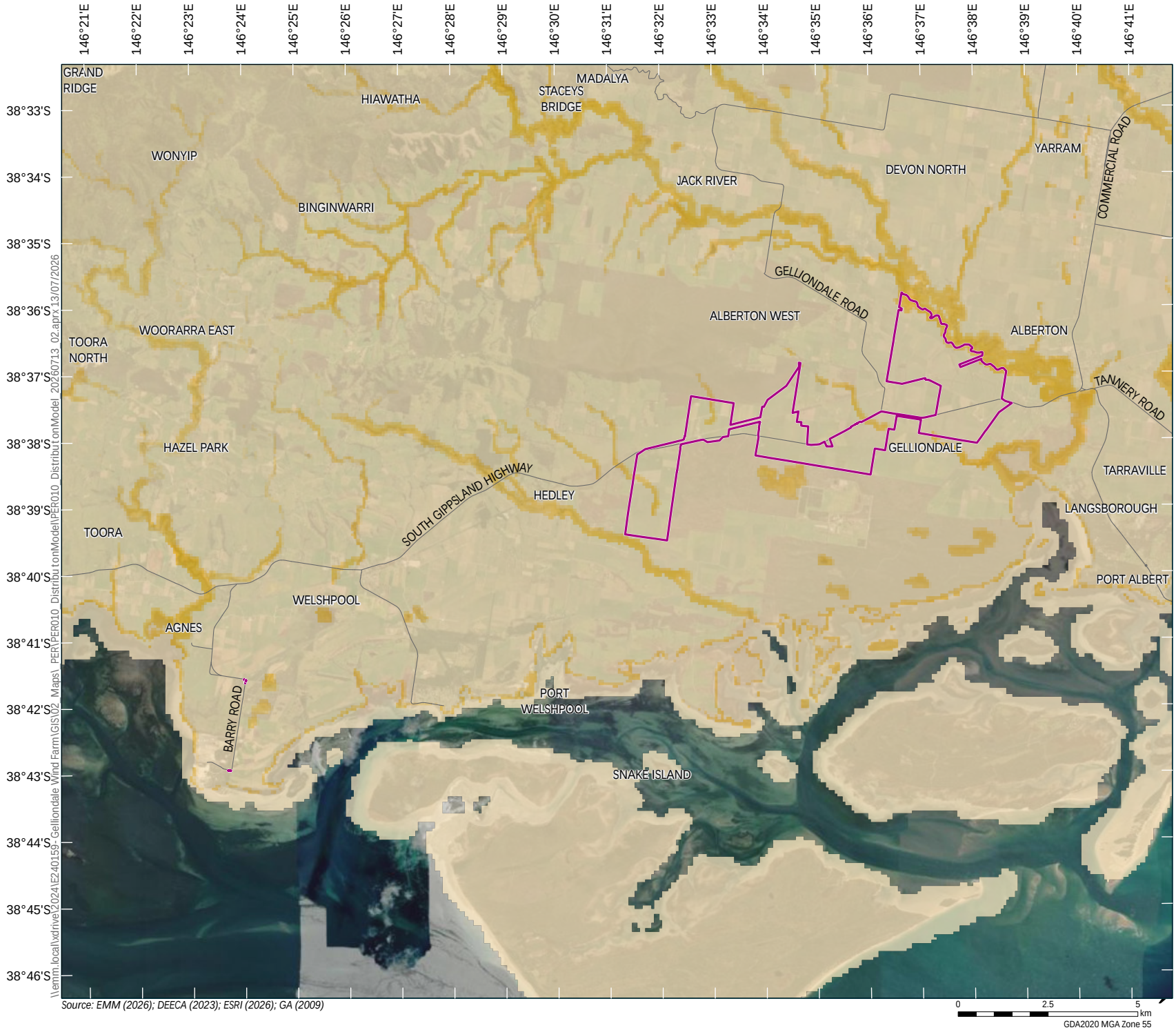
- Dwarf Galaxias (*Galaxiella pusilla)* (Endangered).

i Australian Grayling *Prototroctes maraena* (Vulnerable)

The Australian Grayling is listed as *Vulnerable* under the EPBC Act due to a range of threats including barriers to fish passage, altered hydrological regimes, habitat degradation, introduced predators and competitors, and climate-induced changes. The population of Grayling is declining or fluctuating in Victoria, Tasmania, and New South Wales.

A number of waterbodies within the modelled range of this fish are within the 2 km buffer of the Action Area, including the Tarwin, Barwon, Albert, and Thomson Rivers. Impacts on this species would be expected if there were any introduction of barriers for fish passage, removal of riparian vegetation and associated increase in siltation, introduction of invasive species or disease, or increase in recreational fishing

These impacts are not expected and a detailed Significant Impact Assessment for this species is provided in Chapter 6.



KEY

Action area

Habitat

Most appropriate habitat

Least appropriate habitat

Existing environment

Major road

Source: EMM (2026); DEECA (2023); ESRI (2026); GA (2009)

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Australian Grayling habitat distribution model

Gelliondale Wind Farm
Public Environment Report
Figure 4.5

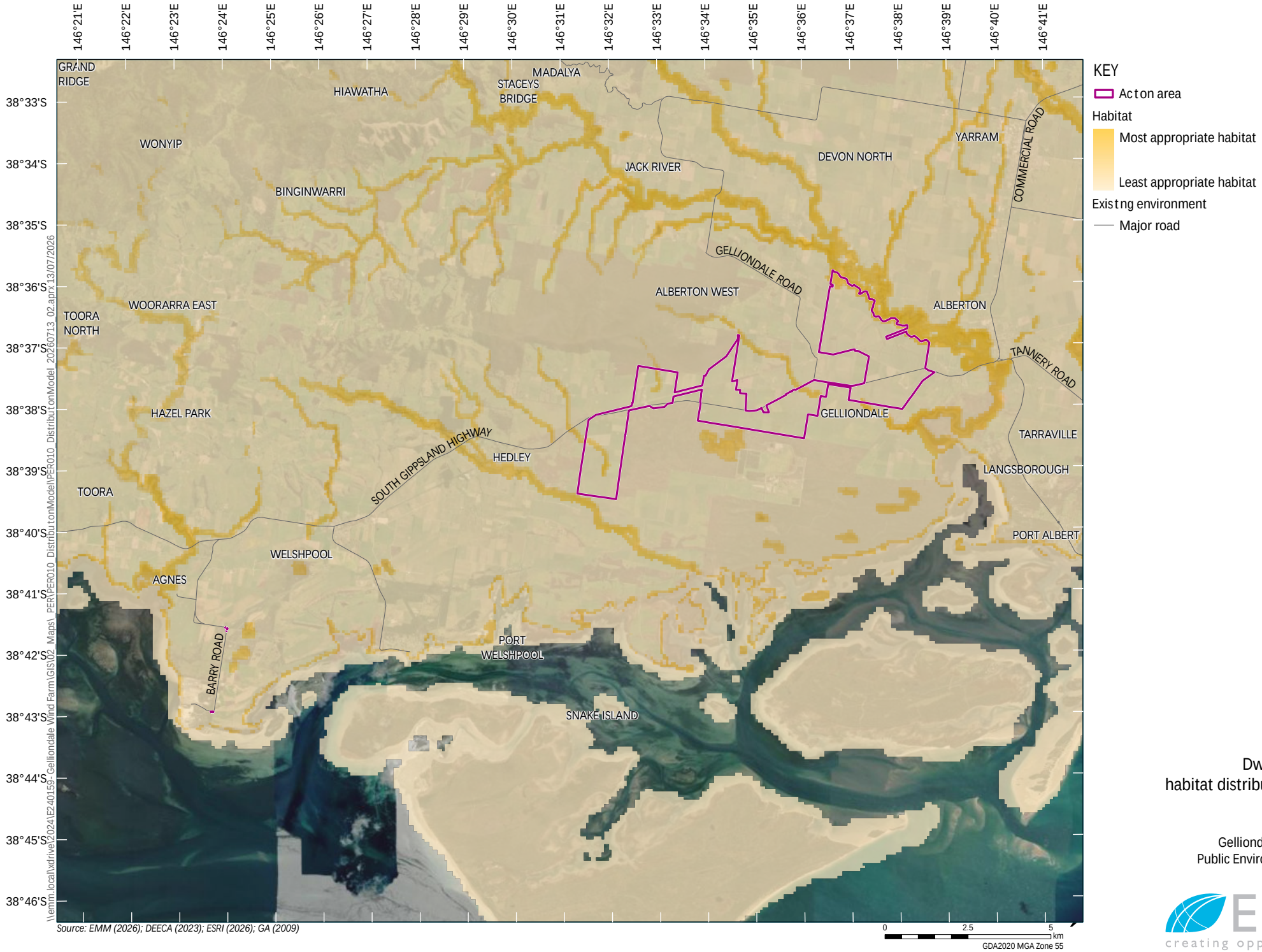
EMM creating opportunities

ii Dwarf Galaxias *Galaxiella pusilla* (Endangered)

The Dwarf Galaxias is listed as *Endangered* under the EPBC Act due to its restricted distribution, fragmented populations, and ongoing habitat degradation driven by altered hydrology, climate change, and invasive species. The species inhabits shallow, slow-flowing freshwater systems such as swamps, creeks, and marshes, often with dense aquatic vegetation.

The Action occurs within the modelled range of the Dwarf Galaxias, and the species has potential to occur. A number of waterbodies within the modelled range of this fish are within the 2 km buffer of the Action Area, including the Tarwin, Albert, Barwon and Thomson Rivers. Impacts on this species would be expected if there were any introduction of barriers for fish passage, removal of riparian vegetation and associated increase in siltation, altered hydrological regimes, introduction of invasive species and/or disease, or an increase in recreational fishing.

These impacts are not expected and a detailed Significant Impact Assessment for this species is provided in Chapter 6.



Source: EMM (2026); DEECA (2023); ESRI (2026); GA (2009)

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Dwarf Galaxias
habitat distribution model

Gelliondale Wind Farm
Public Environment Report
Figure 4.6

EMM
creating opportunities

iii Listed threatened fish species considered unlikely to occur within Action Area

There are recorded sightings of the following two fish species included in the PER Guidelines for the Action; however, they have been deemed unlikely to occur within the Action Area:

- Macquarie Perch (*Macquaria australasica)* (Endangered) – there are two recorded sightings within the Flora and Fauna Search Area, the most recent being in 1981 and neither of these are from the same catchment as the Project Area. There are some low-quality habitats present in the Albert River however the lack of sightings of this large species indicates that it is unlikely to occur in the Flora and Fauna Search Area.

- Murray Cod (*Maccullochella peelii)* (Vulnerable) - there was one recorded sighting within the Flora and Fauna Search Area from 1970 but none from the same catchment as the Project Area. The lack of recent sightings and the lack of modelled habitat for this species means that it is unlikely to occur in the Flora and Fauna Search Area.

4.3.5 Listed threatened amphibian and reptile species

The following three amphibian and reptile species included in the PER Guidelines for the Action have been deemed unlikely to occur within the Action Area for the reasons listed below:

- Swamp Skink (*Lissolepis coventryi)* (Endangered) – there is one recorded sighting in 2004 in the broader region, however the Action Area is outside likely habitat, which is mostly confined to adjacent State forests. This species inhabits densely vegetated freshwater and saltwater wetlands with natural hydrological regimes, typically in areas of poorly drained peaty soils or coastal saltmarsh with sandy substrates. No such densely vegetated wetlands have been recorded within the Project Area, and only low-quality habitat is mapped across the region. Given the lack of nearby records and absence of suitable habitat, the species is considered unlikely to occur in the Action Area.

- Growling Grass Frog (*Litoria raniformis)* (Vulnerable) – there is one recorded sighting in 1977 within the Flora and Fauna Search Area, but little suitable habitat exists within the Action Area. This species typically inhabits permanent, still or slow-flowing waterbodies with fringing and emergent vegetation, including streams, swamps, lagoons and artificial wetlands. Most farm dams on site were accessible to stock and had minimal or no vegetation, and ephemeral drainage lines were in poor condition. While the broad area is mapped as suitable habitat, the lack of quality aquatic environments and few historical records indicate the species is unlikely to occur in the Action Area.

- Martin's Toadlet (*Uperoleia martini)* (Endangered) – no records exist for the species within the Flora and Fauna Search Area, which lies on the edge of its typical range along the Gippsland coast. This species inhabits dry forest and coastal heath and breeds in flooded grassy depressions. Habitat modelling indicates some low-quality habitat in Gelliondale State Park, but little elsewhere. Given the absence of nearby observations and limited suitable habitat within the Action Area, the species is considered unlikely to occur here.

4.3.6 Listed threatened mammal species

The following four threatened mammal species have potential to occur within the Action Area and are discussed further below:

- Grey-headed Flying-fox (*Pteropus poliocephalus)* (Vulnerable)

- Long-nosed Potoroo (*Potorous tridactylus trisulcatus)* (Vulnerable)

- Southern Brown Bandicoot (*Isoodon obesulus obesulus)* (Endangered)
- Swamp Antechinus (*Antechinus minimus maritimus)* (Vulnerable).

i Grey-headed Flying-fox *Pteropus poliocephalus* (Vulnerable)

The Grey-headed Flying-fox is listed as *Vulnerable* under the EPBC Act. Grey-headed Flying-foxes are endemic to the south-eastern forested areas of Australia, principally east of the Great Dividing Range, and have an estimated population of just over half a million individuals. The Action is within the range for the species, with several potential and confirmed camps within 100 km.

A desktop assessment assessed the presence of seasonal and long-term camps for the Grey-headed Flying-fox within 50 km vicinity of the Project Area. Habitat modelling shows there are some smaller patches of low-quality potential habitat within the immediate surrounds (Figure 4.7), with more high-quality habitat on Wilsons Promontory.

On-ground investigations of possible camps occurred January and May 2025, and ongoing liaison with the University of Western Sydney (UWS) will continue to access data from their Flying-fox tracking program. Information from the UWS Animal Ecology Lab indicated two new roost locations have been identified relatively close to Gelliondale:

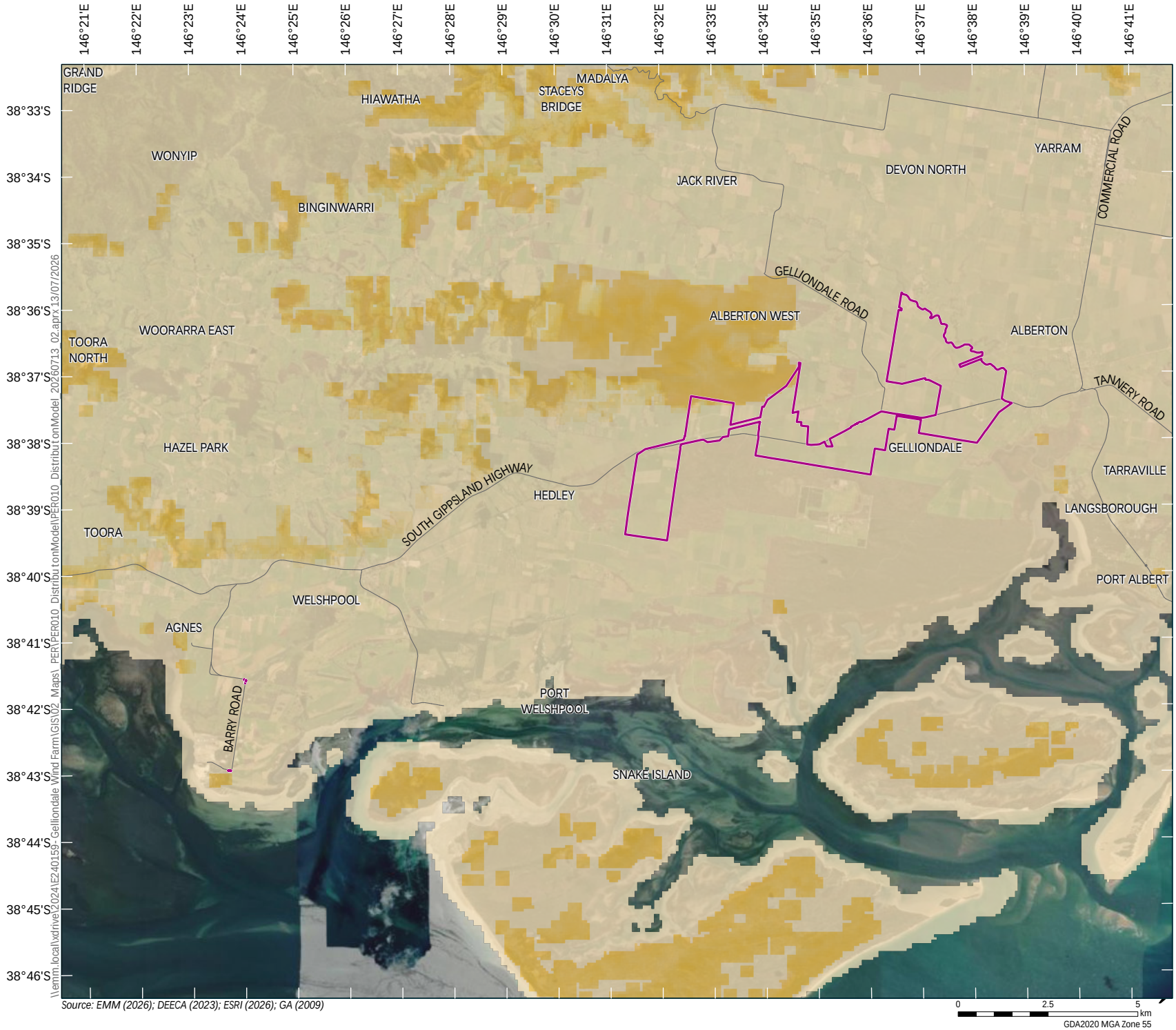
A forested site north of Port Welshpool was used for around a month by one tracked female in January 2024. As this location was occupied for a longer period, UWS assume that it is likely that it is a new colony (i.e. more than one animal is likely to have roosted there) but this has not been confirmed. A small forest north of Agnes was used by one animal roosting here for two nights in December 2023. Both sites are well within the foraging distance to Gelliondale as site 1 is approximately 7.5 km away and site 2 is approximately 13 km.

The closest confirmed colony per the National Flying-fox Monitoring program (NFFMP) is Woodside, Bruthen Crescent, approximately 23 km east of the wind farm site.

DEECA has provided a broad indication of possible flying-fox activity at Snake Island and Woodside, which corresponds with the UWS tracking data, and a location near McLoughlins Beach.

Preliminary investigations at the camps noted that only the Port Welshpool camp (Telegraph Road) occurred between 8:56 pm to 9:22 pm, with all (approximately 2,000 individuals) departing to access foraging resources on Snake Island. A re-assessment of these camps in May 2025 noted all sites were inactive, suggesting a seasonal departure of flying-foxes from the area. Long-term seasonal monitoring, described in the draft BAMP that has been prepared for the Action, will likely help inform a broader understanding of how flying-foxes are using the landscape. A phenological review of flora within the wind farm's vicinity may also assist this understanding. This information can then be used to inform the adaptive management approach detailed in the BAMP.

A detailed Significant Impact Assessment for this species is provided in Chapter 6.



Source: EMM (2026); DEECA (2023); ESRI (2026); GA (2009)

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Grey-headed Flying-fox habitat distribution model

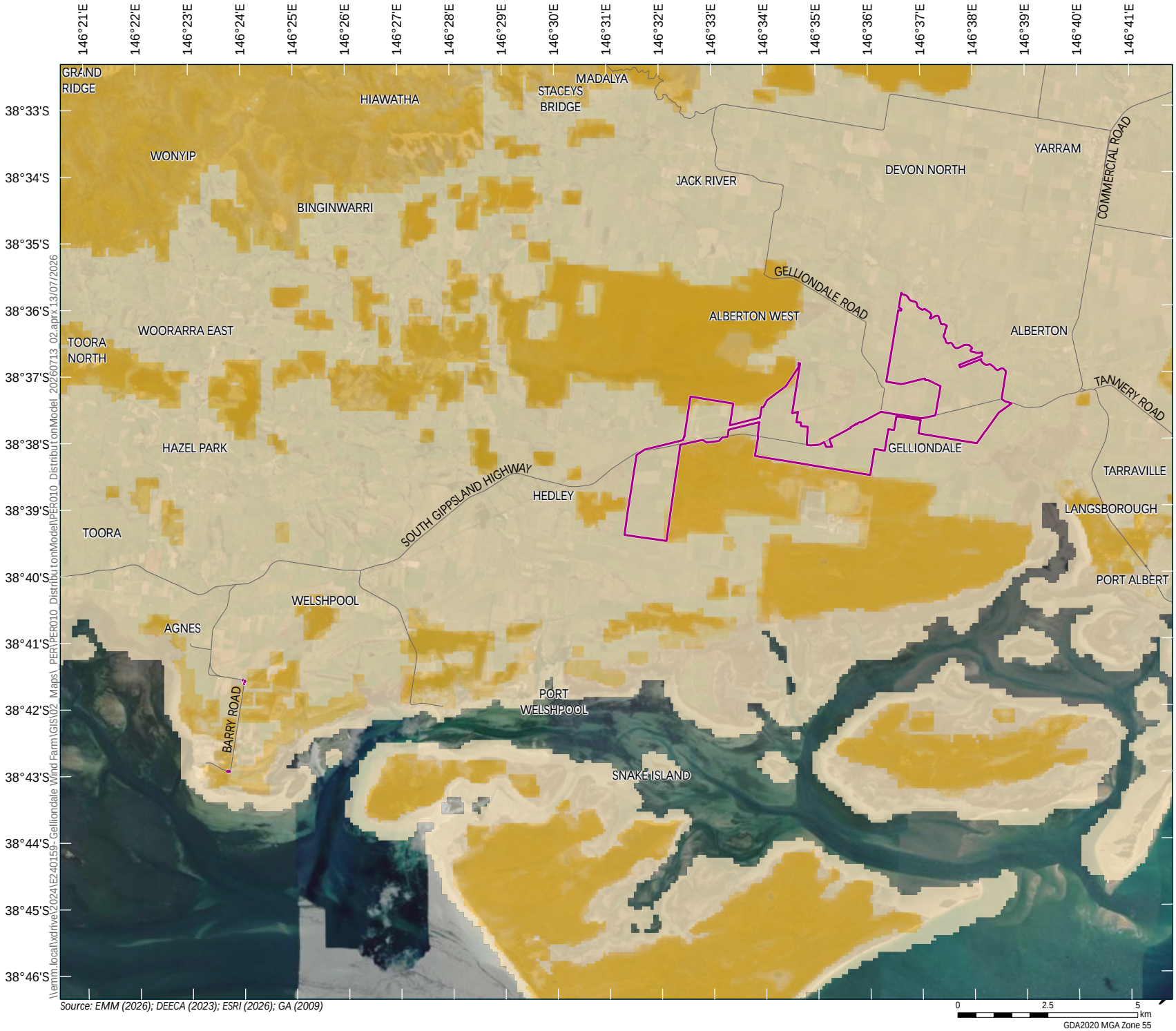
Gelliondale Wind Farm
Public Environment Report
Figure 4.7

EMM creating opportunities

ii Long-nosed Potoroo *Potorous tridactylus trisulcatus* (Vulnerable)

The Long-nosed Potoroo is listed as *Vulnerable* under the EPBC Act. The species was listed as threatened in 2022 when a population decline was predicted as a result of broadscale bushfires in Summer 2019/20 along with an increase in introduced predators such as foxes and cats. The low confidence estimated population of the Long-nosed Potoroo is 20,000 individuals. The Action is within the species' modelled range, and the species was assessed as having potential to occur, although no historical records occur within 10 km of the wind farm site.

There are substantial pockets of modelled habitat to the north and south of the Action where bushland reserves provide high-quality habitat (Figure 4.8). Potoroo habitat consists of scrub, heathy woodland to forests, with structure consisting of a dense understorey with some cleared areas for foraging. The major threat to Long-nosed Potoroos is habitat clearing and fragmentation. However, no habitat suitable for potoroos is being impacted by the Action, which is being constructed almost entirely in pastures. A detailed Significant Impact Assessment for this species is provided in Chapter 6.



Source: EMM (2026); DEECA (2023); ESRI (2026); GA (2009)

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Long-nosed Potoroo habitat distribution model

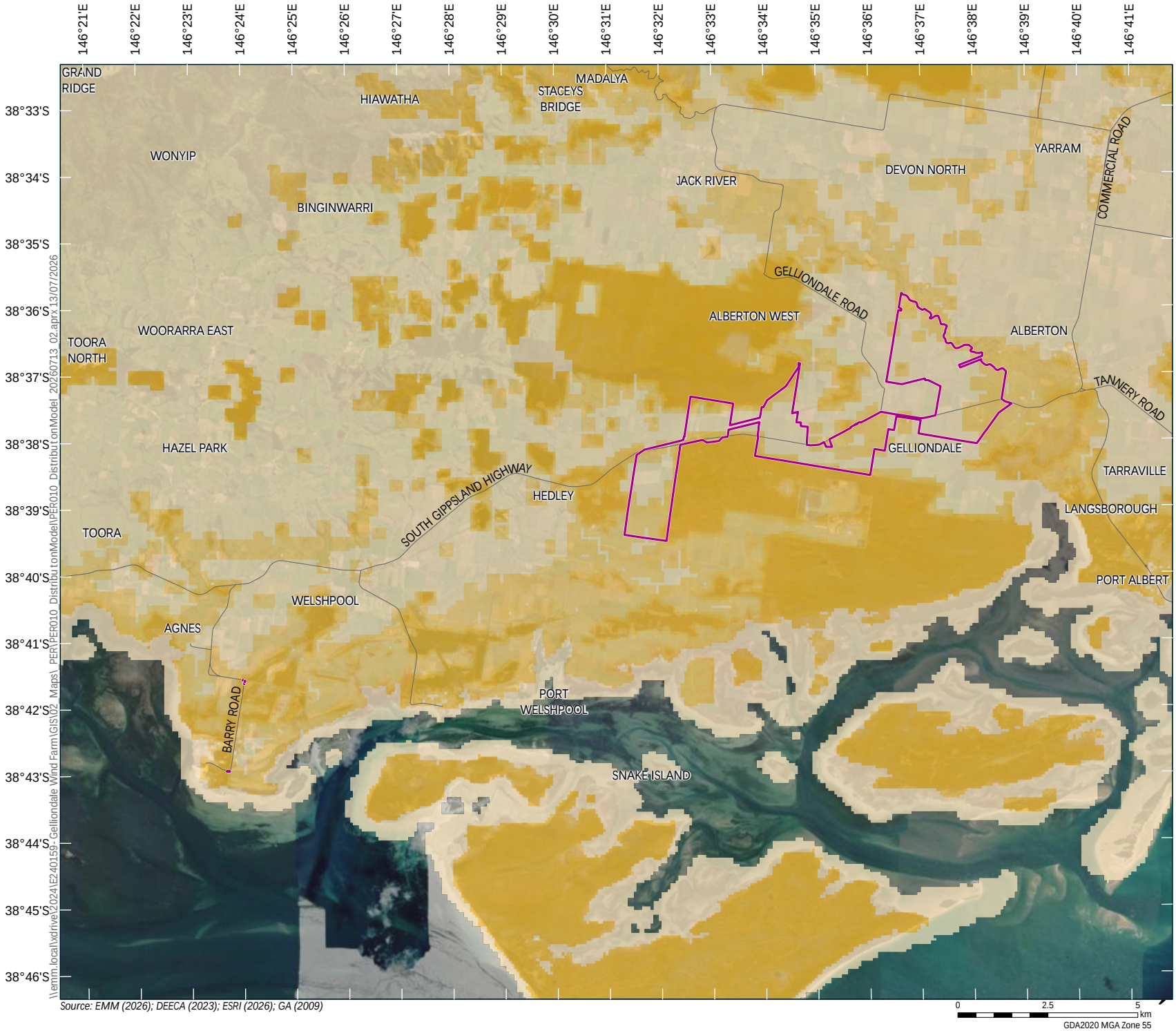
Gelliondale Wind Farm
Public Environment Report
Figure 4.8

EMM
creating opportunities

iii Southern Brown Bandicoot *Isoodon obesulus obesulus* (Endangered)

The Southern Brown Bandicoot is listed as *Endangered* under the EPBC Act due to introduced predators, habitat loss and altered fire regimes. The population has declined drastically through the last two centuries and there are no reliable estimates of its current population. The Action is within the species' modelled range, and the species was assessed as having the potential to occur, with only one historical record within 10 km of the wind farm site from 1962.

There are substantial pockets of modelled habitat to the north and south of the Action where bushland reserves provide adequate ground cover and potential for high-quality habitat (Figure 4.9). Bandicoots' habitat includes areas of dense vegetation such as wetland fringes and heathland. The major threat to Southern Brown Bandicoots relevant to this Action is habitat clearing and fragmentation but as no habitat suitable for Bandicoots is being impacted by the Action impacts are unlikely. A detailed Significant Impact Assessment for this species is provided in Chapter 6.



Source: EMM (2026); DEECA (2023); ESRI (2026); GA (2009)

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Southern Brown Bandicoot habitat distribution model

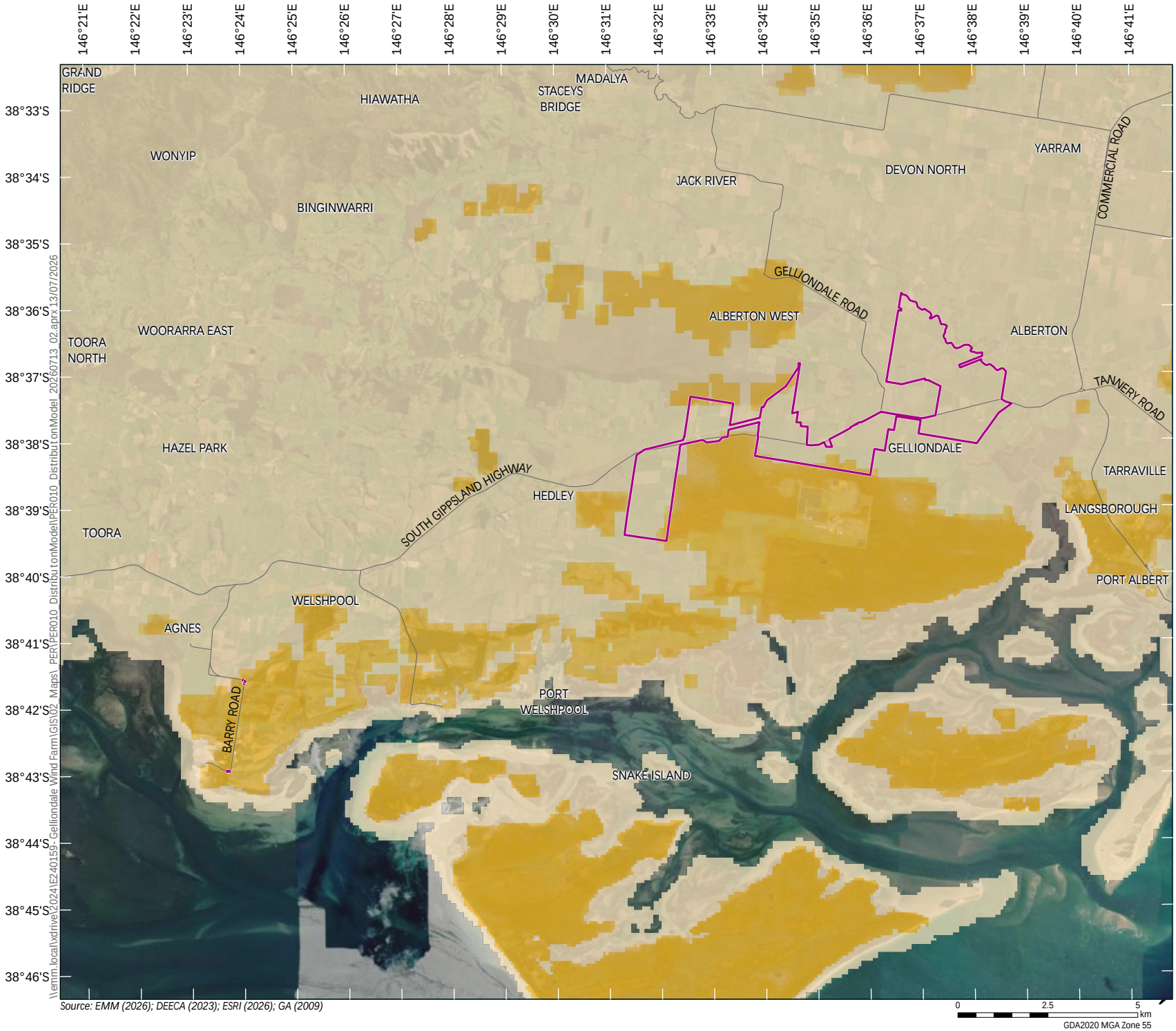
Gelliondale Wind Farm
Public Environment Report
Figure 4.9

EMM
creating opportunities

iv Swamp Antechinus *Antechinus minimus maritimus* (Vulnerable).

The Swamp Antechinus is listed as *Vulnerable* under the EPBC Act as a result of altered fire regimes, habitat loss and by introduced predators with a low confidence estimated of a population at 100,000 individuals. The Action is within the species' modelled range, and the species was assessed as having potential to occur.

There are substantial pockets of modelled habitat to the south of the Action where bushland reserves and the Corner Inlet Ramsar site provide adequate ground cover for the species (Figure 4.10). Antechinus inhabit dense wet heath, tussock grassland, sedgeland heathy woodland, coastal heath and scrub requiring mature, dense vegetation with thick ground cover, none of which will be impacted by the Action which is being constructed almost entirely in pastures. A detailed Significant Impact Assessment for this species is provided in Chapter 6.



Source: EMM (2026); DEECA (2023); ESRI (2026); GA (2009)

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Swamp Antechinus habitat distribution model

Gelliondale Wind Farm
Public Environment Report
Figure 4.10

EMM creating opportunities

v Listed threatened mammal species considered unlikely to occur within Action Area

The following listed threatened mammal species are considered unlikely to occur within the Action Area:

- Broad-toothed Rat (mainland) (*Mastacomys fuscus mordicus)* (Endangered) – no records exist for this species within the Flora and Fauna Search Area. It is a specialist herbivore found in high rainfall areas in the eastern highlands, south Gippsland highland, Wilsons Promontory and the Otway Ranges. Habitats include alpine herb fields, heath, woodland, sedgeland and coastal tussock grassland, and it can also occur in dense heathy vegetation in disturbed sites. The nearest high-quality habitat is in Wilsons Promontory or the highlands to the north, and no suitable habitat occurs within the Action Area. Accordingly, the species is considered unlikely to occur there.

- New Holland Mouse (*Pseudomys novaehollandiae)* (Vulnerable) – no records exist for this species within the Flora and Fauna Search Area. It occupies coastal heath and scrub, heathy woodland, open forest and vegetated sand dunes, with regenerating dry heath preferred. Modelled habitat of moderate to high quality occurs in Gelliondale State Park, but none is present to the north. Given its small dispersal range and absence of suitable habitat within the Action Area, the species is considered unlikely to occur there.

- Greater Glider (southern and central) (*Petauroides volans)* (Endangered) – some moderate-quality habitat is modelled in Alberton State Park to the north of the Action Area, but little to the south. This species occurs mainly in forest dominated by peppermint, stringybark, ash and gum eucalypts in high rainfall regions, and is rare in dry forest types. As the Action Area lacks suitable habitat and lies beyond the core forest areas, the species is considered unlikely to occur there.

- Spot-tailed Quoll (*Dasyurus maculatus maculatus)* (Endangered) – no records exist for this species within the Flora and Fauna Search Area. It inhabits rainforest, wet and dry forest, coastal heath and scrub, and River Red Gum woodlands along inland rivers. With no modelled habitat nearby and the Action Area lying outside the species' modelled range, it is considered unlikely to occur there.

- Yellow-bellied Glider (south-eastern) (*Petaurus australis australis)* (Vulnerable) – no records exist for this species within the Flora and Fauna Search Area. It has a patchy distribution from south-eastern Queensland to far south-eastern South Australia, with most Victorian records in the eastern portion of the State. With no suitable habitat in the area and the Action Area well outside the species' typical range, it is considered unlikely to occur there.

4.3.7 Listed threatened bird species

The bird species described in this section are divided into four groups, recognising that the PER Guidelines call for differing levels of information and assessment to be provided for some groups and species.

i Listed threatened bird species with potential to occur within the Action Area but unlikely to be impacted

The following threatened bird species that have the potential to occur within the Action Area and wind farms located in migration or movement pathways are listed as a potential threat for this species. Habitat for these species is confined to the Corner Inlet Ramsar site, and therefore it is unlikely that the species will regularly fly over the wind farm, but they may traverse the area as they depart northwards on their annual migration.

The species unlikely to be impacted by the Action are:

- Black-tailed Godwit (*Limosa limosa)* (Endangered, Migratory)

- Common Greenshank (*Tringa nebularia)* (Endangered, Migratory)

- Curlew Sandpiper (*Calidris ferruginea)* (Critically Endangered, Migratory)
- Far Eastern Curlew (*Numenius madagascariensis)* (Critically Endangered, Migratory)
- Great Knot (*Calidris tenuirostris)* (Vulnerable, Migratory)
- Greater Sand Plover (*Charadrius leschenaultii)* (Vulnerable, Migratory)
- Grey Plover (*Pluvialis squatarola)* (Vulnerable, Migratory)
- Lesser Sand Plover (*Charadrius mongolus)* (Endangered, Migratory)
- Nunivak Bar-tailed Godwit (*Limosa lapponica baueri)* (Endangered)
- Red Knot (*Calidris canutus)* (Vulnerable, Migratory)
- Ruddy Turnstone (*Arenaria interpres)* (Vulnerable, Migratory)
- Terek Sandpiper (*Xenus cinereus)* (Vulnerable, Migratory).

This section excludes marine birds; however, includes migratory birds that are also listed as threatened under the EPBC Act. The section below provides further information on each species that is unlikely to occur to in the Action Area.

a Black-tailed Godwit *Limosa limosa* (Endangered, Migratory)

The Black-tailed Godwit breeds in the northern hemisphere and only visits Australia over the austral Summer. Its non-breeding habitat is mainly intertidal mudflats and sand flats, but it is also known to use shallow salt pans and salt marsh. The East Asian-Australasian Flyway population is estimated at 160,000 with a Nationally important number of 160 birds. Wind farms that are located within migration or movement pathways are listed as a potential threat for this species. The Black-tailed Godwit is mainly a coastal species, usually found in sheltered bays, estuaries and lagoons with large intertidal mudflats or sandflats and mainly around Port Phillip Bay in Victoria.

There is one existing record of this species within the Flora and Fauna Search Area, from 1987. This species is regularly recorded within the Corner Inlet Ramsar site and has been observed in large numbers during migratory shorebird surveys by BirdLife Australia.

b Common Greenshank *Tringa nebularia* (Endangered, Migratory)

The Common Greenshank breeds in the northern hemisphere, only visiting Australia over the austral Summer. Its non-breeding habitat is mainly intertidal mudflats and sand flats, but it is also known to use shallow salt pans, salt marsh, and artificial waterbodies such as dams. The East Asian-Australasian flyway population is estimated at 110,000 with a Nationally important number of 110 birds.

There are 26 existing records of this species within the Flora and Fauna Search Area, with the most recent from 2018. This species is regularly recorded within the Corner Inlet Ramsar site and has been observed in large numbers during migratory shorebird surveys by BirdLife Australia.

c Curlew Sandpiper *Calidris ferruginea* (Critically Endangered, Migratory)

The Curlew Sandpiper breeds in the northern hemisphere, only visiting Australia over the austral Summer. Its non-breeding habitat is mainly intertidal mudflats, saltpans, ephemeral wetlands, and dams with relatively flat edges of bare ground. The East Asian-Australasian flyway population is estimated at 90,000 (Wetlands International 2021), with a Nationally important number of 90 birds.

There are 16 existing records of this species within the Flora and Fauna Search Area, with the most recent from 2004. This species is regularly recorded within the Corner Inlet Ramsar site and has been observed in large numbers during migratory shorebird surveys by BirdLife Australia.

d Far Eastern Curlew *Numenius madagascariensis* (Critically Endangered, Migratory)

The Far Eastern Curlew breeds in the northern hemisphere, only visiting Australia over the austral Summer with its non-breeding habitat mainly coastal estuaries, swamps, salt marshes, and mudflats. The East Asian-Australasian flyway population is estimated at 35,000, with a Nationally important number of 35 birds.

There are 61 existing records of this species within the Flora and Fauna Search Area, with the most recent from 2020. This species is regularly recorded within the Corner Inlet Ramsar site and has been observed in large numbers during migratory shorebird surveys by BirdLife Australia.

e Great Knot *Calidris tenuirostris* (Vulnerable, Migratory)

The Great Knot breeds in the northern hemisphere and only visits Australia over the austral Summer. Its non-breeding habitat is mainly sheltered coastal habitats with large intertidal mudflats or sandflats. This includes inlets, bays, harbours, estuaries and lagoons. The species is occasionally found on exposed reefs or rock platforms, shorelines with mangrove vegetation, ponds in saltworks, swamps near the coast, salt lakes and non-tidal lagoons. However, it rarely occurs on inland lakes and swamps. The East Asian–Australasian Flyway population is estimated at 425,000, with a Nationally important number of 430 birds.

There are four existing records of this species within the Flora and Fauna Search Area, with the most recent from 1988. This species is regularly recorded within the Corner Inlet Ramsar site, and has been observed in large numbers during migratory shorebird surveys by BirdLife Australia.

f Greater Sand Plover *Charadrius leschenaultii* (Vulnerable, Migratory)

The Greater Sand Plover breeds in the northern hemisphere and only visits Australia over the austral Summer. Its non-breeding habitat is entirely coastal, mainly on sheltered sandy, shelly or muddy beaches with large intertidal mudflats or sandbanks. The East Asian–Australasian Flyway population is estimated at 200,000 to 300,000, with a Nationally important number of 240 birds.

There are five existing records of this species within the Flora and Fauna Search Area, with the most recent from 1988. This species is regularly recorded within the Corner Inlet Ramsar site and has been observed in large numbers during migratory shorebird surveys by BirdLife Australia.

g Grey Plover *Pluvialis squatarola* (Vulnerable, Migratory)

The Grey Plover breeds in the northern hemisphere and visits Australia over the austral Summer. Its non-breeding habitat includes intertidal mudflats and sandflats, sandy beaches, estuaries, and coastal lagoons. The East Asian–Australasian Flyway population is estimated at 97,000, with a Nationally important number of 97 birds.

There are 12 existing records of this species within the Flora and Fauna Search Area, with the most recent from 2004. This species is regularly recorded within the Corner Inlet Ramsar site and has been observed in large numbers during migratory shorebird surveys by BirdLife Australia.

h Lesser Sand Plover Charadrius mongolus (Endangered, Migratory)

The Lesser Sand Plover breeds in the northern hemisphere and visits Australia over the austral Summer. Its non-breeding foraging habitat consists of beaches of sheltered bays, harbours, and estuaries with large intertidal sandflats or mudflats. The East Asian–Australasian Flyway population is estimated at 25,500, with a Nationally important number of 26 birds.

There are three existing records of this species within the Flora and Fauna Search Area, with the most recent from 1988. This species is semi-regularly recorded within the Corner Inlet Ramsar site and has been observed in numbers during migratory shorebird surveys by BirdLife Australia.

i Nunivak Bar-tailed Godwit *Limosa lapponica baueri* (Endangered)

The Nunivak Bar-tailed Godwit is a subspecies of the Bar-tailed Godwit, which breeds in the northern hemisphere and visits Australia over the austral Summer. Its non-breeding habitat is mainly intertidal mudflats and sandflats, but it is also known to use shallow salt pans and salt marsh. The East Asian–Australasian Flyway population is estimated at 126,000, with a Nationally important number of 130 birds. Wind farms located in migration or movement pathways are listed as a potential threat for this species.

There are no existing records of this subspecies within the Flora and Fauna Search Area. This subspecies is generally recorded as the broader species, Bar-tailed Godwit, which is regularly observed within the Corner Inlet Ramsar site and has been recorded in Nationally important numbers during migratory shorebird surveys by Nature Advisory and BirdLife Australia.

j Red Knot *Calidris canutus* (Vulnerable, Migratory)

The Red Knot breeds in the northern hemisphere and visits Australia over the austral Summer. It tends to use salt marshes and brackish wetlands. The East Asian–Australasian Flyway population is estimated at between 50,500 and 62,000, with a Nationally important number of 56 birds.

There are ten existing records of this species within the Flora and Fauna Search Area, with the most recent from 2004. This species is regularly recorded within the Corner Inlet Ramsar site and has been observed in large numbers during migratory shorebird surveys by BirdLife Australia.

k Ruddy Turnstone *Arenaria interpres* (Vulnerable, Migratory)

The Ruddy Turnstone breeds in the northern hemisphere and visits Australia over the austral Summer. It inhabits shallow fresh to saline wetlands, usually coastal to near coastal, but occasionally farther inland. These wetlands often have open fringing mudflats and low emergent or fringing vegetation. The East Asian–Australasian Flyway population is estimated at 30,000, with a Nationally important number of 30 birds. Wind farms located in migration or movement pathways are listed as a potential threat for this species.

There are three existing records of this species within the Flora and Fauna Search Area, with the most recent from 1988. This species is semi-regularly recorded within the Corner Inlet Ramsar site during migratory shorebird surveys conducted by BirdLife Australia.

l Terek Sandpiper *Xenus cinereus* (Vulnerable, Migratory)

The Terek Sandpiper breeds in the northern hemisphere and visits Australia over the austral Summer. It uses shallow wetlands and inundated areas (fresh, brackish, and saline), typically with some emergent vegetation. The East Asian–Australasian Flyway population is estimated at 85,000, with a Nationally important number of 85 birds.

There is one existing record of this species within the Flora and Fauna Search Area, from 1987. This species has been recorded within the Corner Inlet Ramsar site during migratory shorebird surveys by BirdLife Australia, in numbers approaching National significance.

ii Listed threatened bird species with potential to occur within the Action Area and at risk of impacts unless mitigated

The following threatened bird species have both the potential to occur within the Action Area and have some potential to be impacted by the Action. They are discussed further below:

- Blue-winged Parrot (*Neophema chrysostoma)* (Vulnerable)
- Gang-gang Cockatoo (*Callocephalon fimbriatum)* (Endangered)
- Latham's Snipe (*Gallinago hardwickii)* (Vulnerable, Migratory)
- Swift Parrot (*Lathamus discolor)* (Critically Endangered)
- White-throated Needletail (*Hirundapus caudacutus)* (Vulnerable, Migratory).

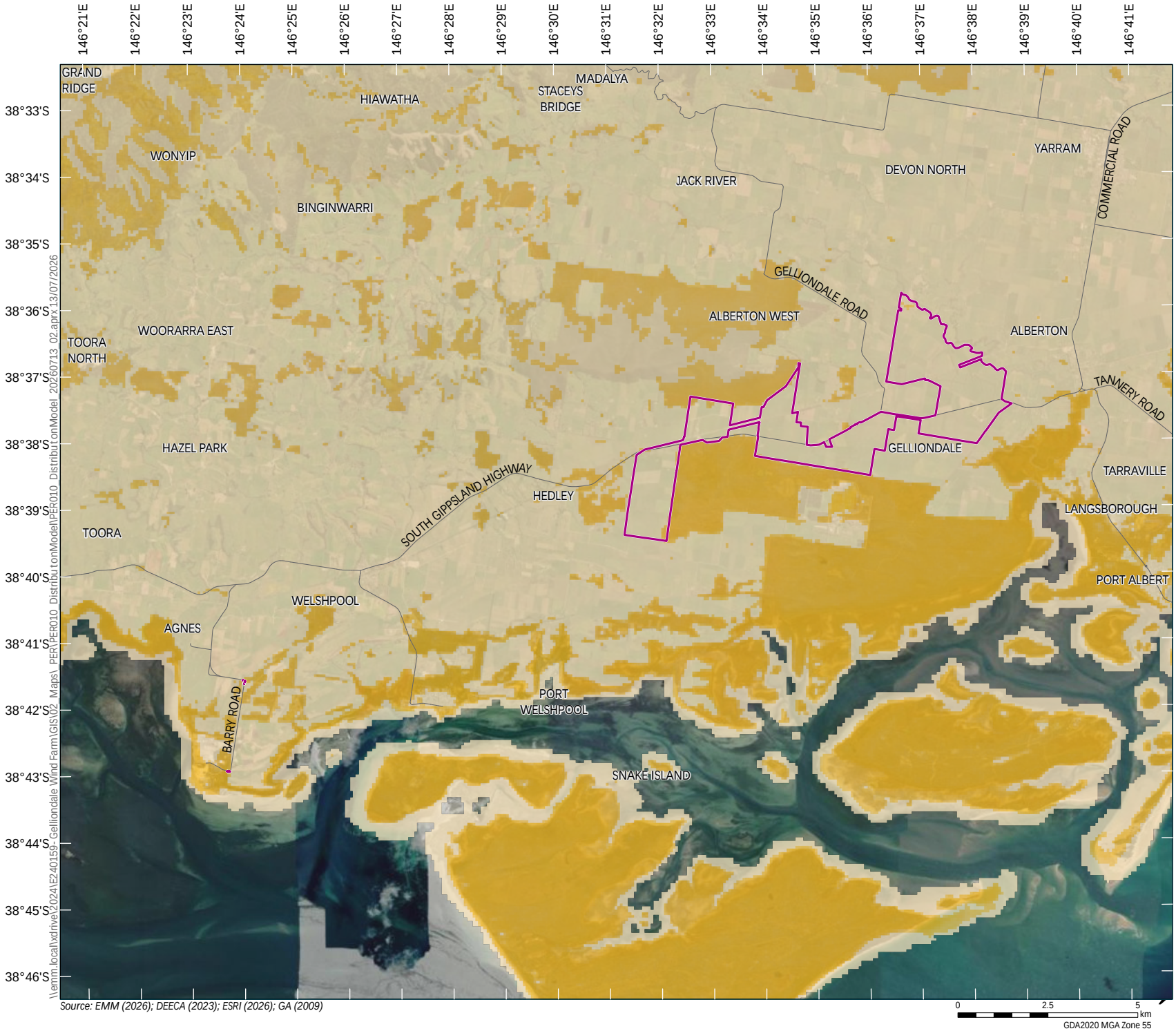
The Latham's Snipe and White-throated Needletail are also listed as migratory under the EPBC Act and several international migratory species agreements.

a Blue-winged Parrot *Neophema chrysostoma* (Vulnerable)

The Blue-winged Parrot is listed as *Vulnerable* under the EPBC Act. The species was once common in south-eastern Australia and Tasmania but has undergone a population decline in recent decades. The estimated population of the Blue-winged Parrot is 10,000 individuals. Blue-winged Parrots are a partial migrant, where a portion of the population migrates across Bass Strait each Spring/Summer to breed in Tasmania, while smaller portions remain to overwinter in Tasmania or remain to breed in south-eastern mainland Australia. The Action is within the modelled range, and the species has been recorded in moderately-sized flocks (up to 39 birds) during Autumn surveys, and smaller flocks (up to eight birds) in Spring/Summer (Figure 4.11).

Much modelled habitat is present in the area, though most high-quality areas are further to the south in the Corner Inlet Ramsar site (Figure 4.11). Habitat for the species consists of a variety of habitat types used for foraging, breeding, roosting, and 'staging' areas. Foraging habitats typically are diverse natural habitats, including salt marsh, heathland, sedgeland, grassy woodland, sparse grassland, and chenopod shrubland. The species appears to have adapted to more modified landscapes and is now frequently observed foraging in cleared agricultural areas dominated by exotic pasture grasses. Staging habitats are those foraging areas near the coast, where birds congregate before migrating across the Bass Strait. Breeding and roosting habitat typically consists of Eucalypt woodlands or heathlands with hollow-bearing trees, with nearby foraging habitats.

A detailed Significant Impact Assessment for this species is provided in Chapter 6.



Source: EMM (2026); DEECA (2023); ESRI (2026); GA (2009)

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Blue-winged Parrot habitat distribution model

Gelliondale Wind Farm
Public Environment Report
Figure 4.11

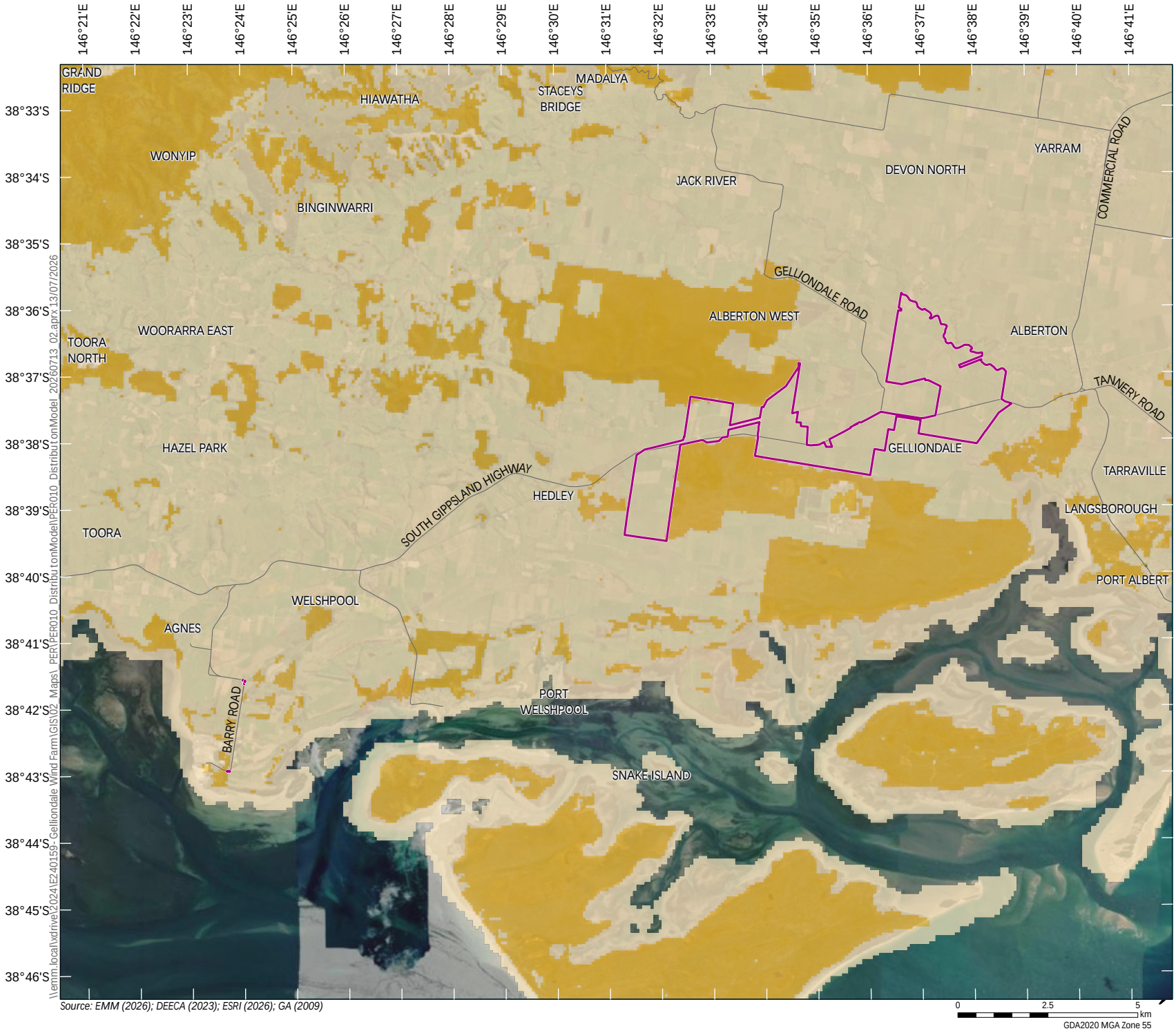
EMM creating opportunities

b Gang-gang Cockatoo *Callocephalon fimbriatum* (Endangered)

The Gang-gang Cockatoo is listed as *Endangered* under both the EPBC Act and *Flora and Fauna Guarantee Act 1988* (FFG Act). Gang-gangs are endemic to coastal regions of south-eastern Australia; the National population of the species is estimated at 17,600 to 35,200 individuals. The species is an altitudinal migrant, with summers spent in alpine areas and birds dispersing widely to lower elevations during Winter. All habitats, including Winter foraging areas, are listed as critical habitat for the species.

Notably, there is no modelled habitat within the Action Area. Much modelled habitat exists in the area surrounding the Action Area (Figure 4.12), which likely represents areas only used during the non-breeding Winter period when the birds migrate to drier lowland areas. During Winter months, Gang-gang Cockatoos rely on drier, more open eucalypt forests and woodland assemblages at lower altitudes. Open eucalypt assemblages such as box-ironbark make up their habitat during this period. The species also relies on assemblages of river red gum (*Eucalyptus camaldulensis*), dense coastal thickets of *Leptospermum* or *Casuarina*, or heathland and occurs in parks, gardens, and trees beside roads. All habitats, including Winter foraging areas, are listed as critical habitat for the species. There are patches of foraging habitat in the nearby forest reserves, with two potential foraging trees, moderately-sized Manna Gum, proposed to be removed.

A detailed Significant Impact Assessment for this species is provided in Chapter 6.



Source: EMM (2026); DEECA (2023); ESRI (2026); GA (2009)

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Gang-gang Cockatoo habitat distribution model

Gelliondale Wind Farm
Public Environment Report
Figure 4.12

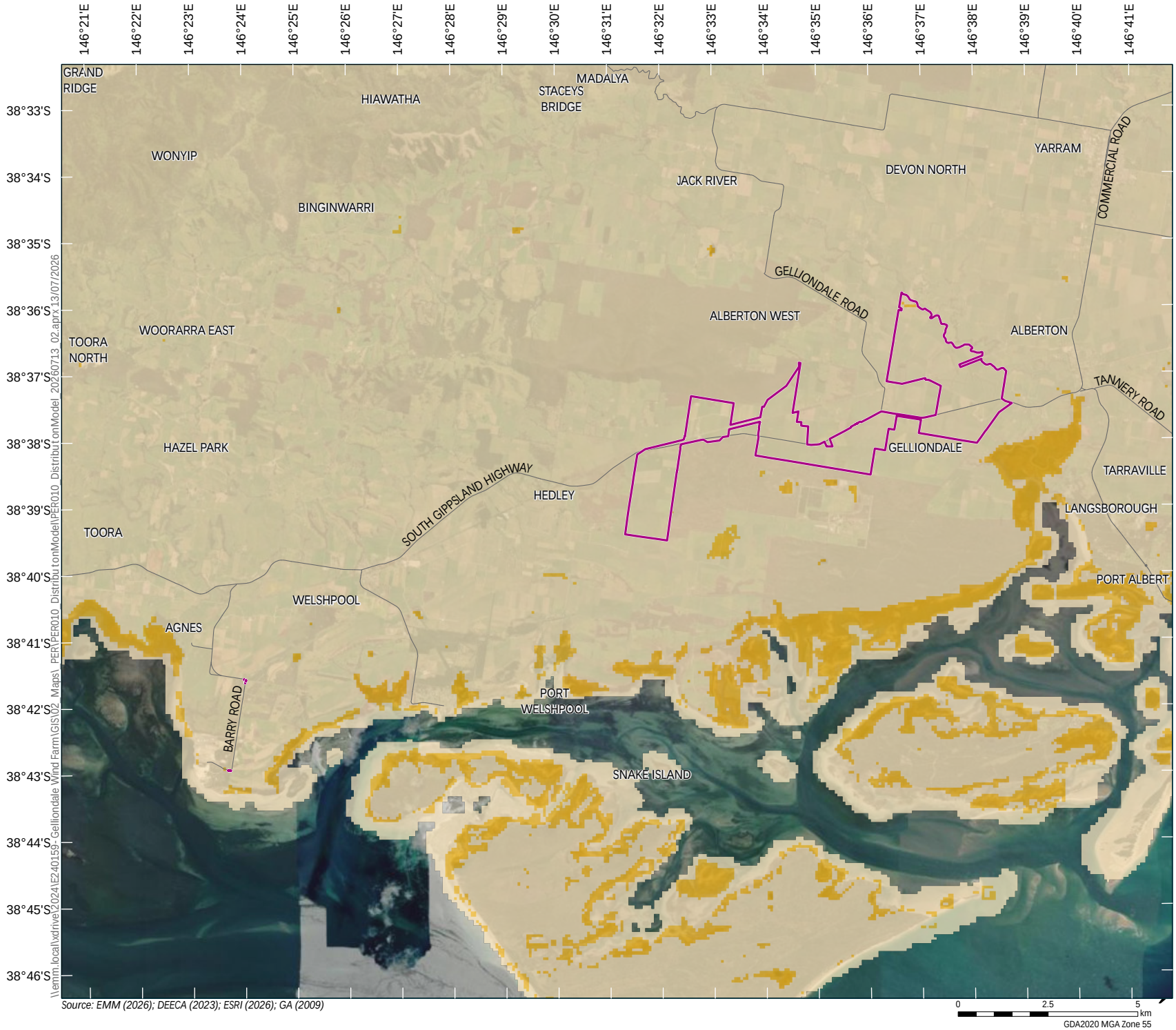
EMM creating opportunities

c Latham's Snipe *Gallinago hardwickii* (Vulnerable, Migratory)

The Latham's Snipe is listed as *Vulnerable* and *Migratory* under the EPBC Act, with additional protections under International migratory agreements between the co-signatories of the Bonn Convention, Japan-Australia (JAMBA), and Korea-Australia (ROKAMBA). The species was listed as vulnerable in 2024 after consistent declines were picked up in breeding flocks in Japan. The estimated population of the Latham's Snipe is 30,000 individuals, with a Nationally important population being 18 birds. Latham's Snipe migrate between breeding grounds in Japan and Russia to foraging grounds on the east coast of Australia. The species is present in Australia from approximately September to February. The Action is within the species' modelled range, and four single Latham's Snipe were recorded incidentally during the 2023/24 BUS (Figure 4.13).

There are small pockets of modelled habitat mostly to the south of the Action, though most high-quality areas are further to the south in the Corner Inlet Ramsar site (Figure 4.13). Foraging habitat for the species consists of soft mudflats or shallow water wetlands whilst they are known to roost in small wetlands, urban water bodies, saltmarshes, creek edges and even pastures, particularly when inundated. Very little wetland habitat is present on the Project Area, though pastures may provide some low to moderate-quality habitat, especially in wetter times.

A detailed Significant Impact Assessment for this species is provided in Chapter 6.



Source: EMM (2026); DEECA (2023); ESRI (2026); GA (2009)

KEY

Acton area

Habitat

Most appropriate habitat

Least appropriate habitat

Existing environment

Major road

Latham's Snipe
habitat distribution model

Gelliondale Wind Farm
Public Environment Report
Figure 4.13

EMM
creating opportunities

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d Swift Parrot *Lathamus discolor* (Critically Endangered)

The Swift Parrot is listed as *Critically Endangered* under the EPBC Act. The species has undergone a sharp decline, with the most recent estimate using genetic data showing an effective population of 60 to 338 individuals (Olah et al. 2020). This species undertakes an annual migration across Bass Strait to breed in Tasmania, with the breeding season varying between years depending on food availability. The species overwinters on the Australian mainland, from South Australia, Victoria, New South Wales and into south-eastern Queensland. The Action is within the modelled range, and where they are known to occur.

DEECA's Strategic Management Prospect Habitat Distribution Models do not show the area or the surrounding landscape to provide important habitat for the Swift Parrot. Field surveys, however, have identified some habitat in the area consisting of patches of foraging habitat in variable quality. These patches consisted of a mix of known foraging species such as the Southern Blue Gum, Spotted Gum, Swamp Gum, Manna Gum, Stringy Bark, and Saw Banksia. Of the identified habitat, one patch partially intercepts the proposed layout, which represents 0.1% of that identified habitat in the area (0.42 ha of 375.66 ha). There are two potential foraging trees, moderately-sized (67 to 68 cm DBH) Manna Gum, proposed to be removed. In addition, the proposal also removes 0.134 ha of heathy woodland and 0.03 ha of plains grassy forest, which contain a low density of suitable foraging habitat in the form of sparse canopies of Manna Gum and/or Swamp Gum (refer to figures 3.1 to 3.11 in Appendix A for the mapping of these areas).

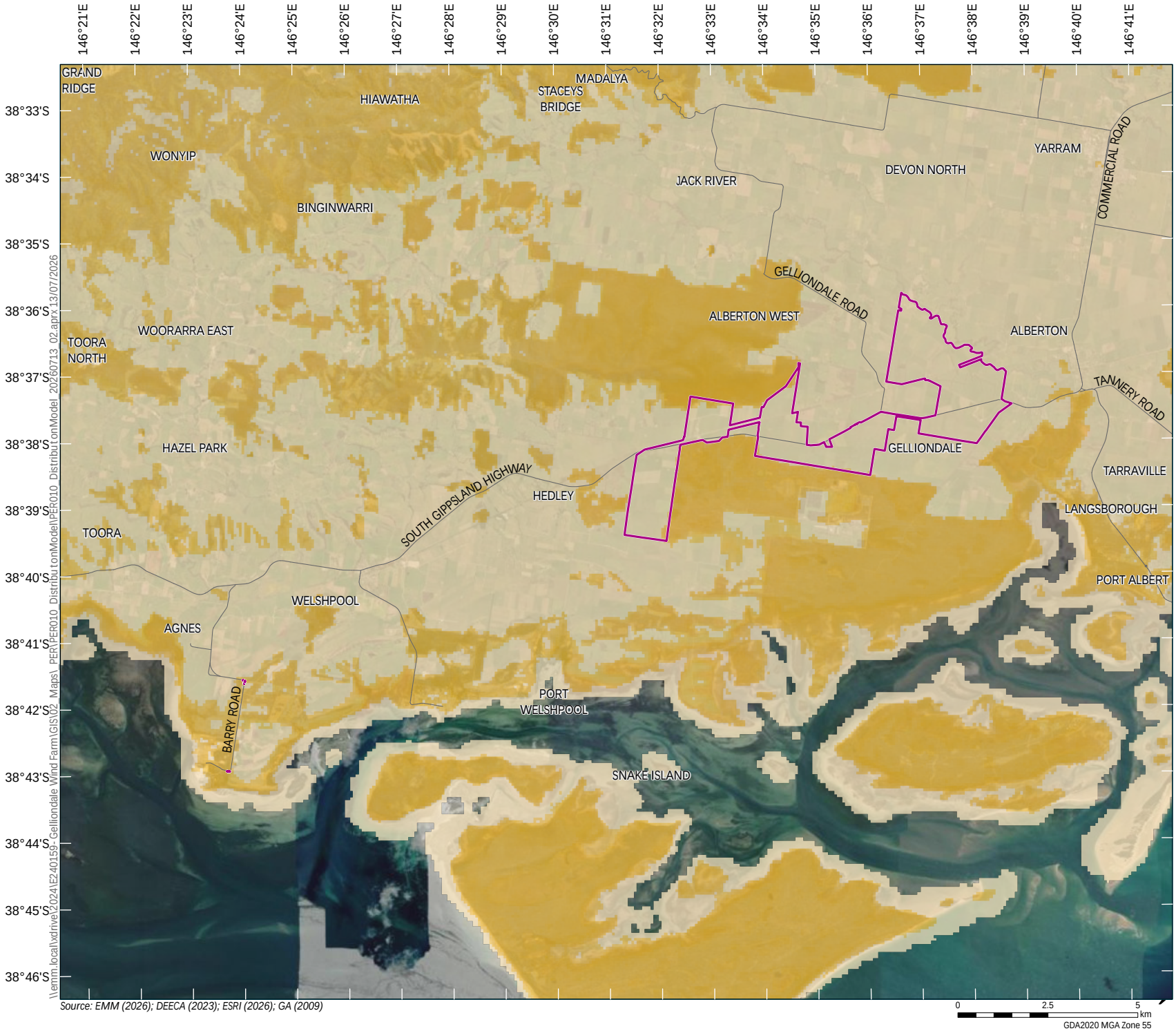
A detailed Significant Impact Assessment for this species is provided in Chapter 6.

e White-throated Needletail *Hirundapus caudacutus* (Vulnerable, Migratory)

The White-throated Needletail is listed as *Vulnerable* and *Migratory* under the EPBC Act, with additional protections under International migratory agreements between the co-signatories of the Bonn Convention, China-Australia (CAMBA), JAMBA, and ROKAMBA. The species has undergone an apparent decline over recent years, with current population estimates of 41,000. The species is a long-distance migrant – breeding in Siberia and Japan over the austral Winter and migrating through South-East Asia to reach Australia in late Spring. They typically have migrated north by mid-Autumn. The Gelliondale Wind Farm is located within their non-breeding range, where they were recorded during Summer and Autumn BUS and targeted surveys (Figure 4.14).

Being largely aerial, the species has no known critical habitat within Australia. Observations in the Action Area support the notion that White-throated Needletails do not roost in the forests surrounding the Action; were they roosting in nearby woodland, they would likely have been observed more often as they commuted to and from their roost site. They are most frequently observed above wooded areas, and while known to fly above farmland, they appear to prefer partially cleared pasture or patches of trees at the edge of the paddocks. In coastal areas, they fly over sandy beaches, mudflats and at times offshore. DEECA's Habitat Distribution Model shows that habitat suitable for the species, and flyways, are centred around treed areas, with a particular hotspot in Alberton State Park to the north (Figure 4.14). Targeted survey results confirm these patterns, with most birds observed above or near wooded areas such as the State forests to the north and south (Figure 4.14). It is likely, however, that the entire area may be used on occasion as birds traverse between preferred habitats.

A detailed Significant Impact Assessment for this species is provided in Chapter 6.



Source: EMM (2026); DEECA (2023); ESRI (2026); GA (2009)

\\emm.local\xdrive\2024\E240159-Gelliondale Wind Farm\GIS\02_Maps_PER\PER010_DistributionModel\PER010_DistributionModel_20260713_02.aprx 13/07/2026

White-throated Needletail habitat distribution model

Gelliondale Wind Farm
Public Environment Report
Figure 4.14

EMM
creating opportunities

iii Listed threatened bird species unlikely to occur within the Action Area

The following listed threatened bird species have been assessed as being unlikely to occur within the Action Area (noting that a more detailed assessment is provided in the MNES Assessment at Appendix A):

- Australasian Bittern (*Botaurus poiciloptilus)* (Endangered)
- Australian Fairy Tern (*Sternula nereis nereis)* (Vulnerable)
- Australian Painted-snipe (*Rostratula australis)* (Endangered)
- Brown Treecreeper (south-eastern) (*Climacteris picumnus)* (Vulnerable)
- Diamond Firetail (*Stagonopleura guttata)* (Vulnerable)
- Grey Falcon (*Falco hypoleucos)* (Vulnerable)
- Hooded Plover (eastern) (*Thinornis cucullatus cucullatus)* (Vulnerable)
- Hooded Robin (south-eastern) (*Melanodryas cucullata cucullata)* (Endangered)
- Little Tern (*Sternula albifrons)* (Vulnerable, Migratory)
- Orange-bellied Parrot (*Neophema chrysogaster)* (Critically Endangered)
- Painted Honeyeater (*Grantiella picta)* (Vulnerable)
- Pilotbird (*Pycnoptilus floccosus)* (Vulnerable)
- Regent Honeyeater (*Anthochaera Phrygia)* (Critically Endangered).

iv Listed Marine bird species

This section lists marine bird species that strictly use marine environments outside of the breeding season. Several terrestrial activities are listed as threats to these species but are only relevant at breeding sites.

- Campbell Albatross (*Thalassarche impavida)* (Vulnerable, Migratory)
- Antipodean Albatross (*Diomedea antipodensis)* (Vulnerable, Migratory)
- Fairy Prion (southern) (*Pachyptila turtur subantarctica)* (Vulnerable)
- Gibson's Albatross (*Diomedea antipodensis gibsoni)* (Vulnerable)
- Indian Yellow-nosed Albatross (*Thalassarche carteri)* (Vulnerable, Migratory)
- Northern Royal Albatross (*Diomedea sanfordi)* (Endangered, Migratory)
- Shy Albatross (*Thalassarche cauta)* (Endangered, Migratory)
- Sooty Albatross (*Phoebetria fusca)* (Vulnerable, Migratory)
- Southern Royal Albatross (*Diomedea epomophora)* (Vulnerable, Migratory)
- Wandering Albatross (*Diomedea exulans)* (Vulnerable, Migratory)

- White-capped Albatross (*Thalassarche steadi)* (Vulnerable, Migratory).

The Action is fully land-based, with the above-listed species only using land around breeding sites. Breeding sites for these albatrosses are relatively well-known and consist of island habitats, with none within any proximity to the Project Area. Only two areas are known for breeding of the Fairy Prion (southern), both being near Macquarie Island. None of the species listed above are likely to occur over the Action Area.

4.3.8 Listed migratory bird Species

The birds listed in this section are those only listed as Migratory birds under the EPBC Act. Birds listed as both Migratory and Threatened are included in Section 4.3.7. In total, 21 bird species were assessed solely listed as Migratory birds:

- one is known to occur within the Action Area
- 11 are unlikely to occur within the Action Area
- nine have potential to occur within the Action Area.

i Listed migratory species known to occur within the Action Area

The following listed migratory bird species is known to occur in the Action Area, with a more detailed assessment provided below.

a Fork-tailed Swift *Apus pacificus* (Migratory)

The Fork-tailed Swift breeds in the northern hemisphere and visits Australia over the austral Summer. It is a long-distance migrant, breeding across Siberia, Japan, Korea, eastern China and the northernmost Philippines typically arriving in Australia in Spring and returning north in late Autumn. In southern Australia and Victoria, the Fork-tailed Swift is generally widespread but sparsely distributed.

The species is an aerial specialist, occurring above almost all terrestrial habitats, including coastal areas, grasslands and woodlands, and is almost exclusively aerial in Australia, even sleeping on the wing.

No critical habitat has been identified for the species, and no habitat distribution modelling is available.

Population estimates for this species are uncertain however BirdLife International reports the Australian population at around 10,000 bird and an ecologically significant proportion of the population as 1,000 individuals.

There is one record of this species within the Flora and Fauna Search Area, made incidentally during the Summer BUS 2015 at the associated Alberton Wind Farm; otherwise, there are no recorded sightings within the Flora and Fauna Search Area. The species is known to occur in the region, though its use of the area would be considered very infrequent.

The Fork-tailed Swift typically flies at heights that overlap with the rotor-swept zone of wind turbines, and collision has been documented. However, such events are very rare: the species has been recorded as a collision mortality only once in over 17 years of carcass monitoring at wind farms across south-eastern Australia (Nature Advisory unpublished mortality data). It is listed as a low-risk species for collision risk at Gippsland wind farms, largely due to the low portion (<2%) of the Australian population likely to occur in the area.

The Fork-tailed Swift is protected under international migratory agreements with China (CAMBA), Japan (JAMBA) and Korea (ROKAMBA).

A detailed Significant Impact Assessment for this species is provided in Chapter 6.

ii Listed migratory species unlikely to occur within the Action Area

The following listed migratory bird species have been assessed as being unlikely to occur within the Action Area, with a more detailed assessment provided in the MNES Assessment at Appendix A:

- Australian Gull-billed Tern (*Gelochelidon macrotarsa)*
- Caspian Tern (*Hydroprogne caspia)*
- Glossy Ibis (*Plegadis falcinellus)*
- Great Crested Tern (*Thalasseus bergii)*
- Little Curlew (*Numenius minutus)*
- Pectoral Sandpiper (*Calidris melanotos)*
- Pin-tailed Snipe (*Gallinago stenura)*
- Ruff (*Calidris pugnax)*
- Swinhoe's Snipe (*Gallinago megala)*
- Wood Sandpiper (*Tringa glareola)*
- Yellow Wagtail (*Motacilla flava).*

iii Listed migratory species with potential to, or known to, occur within the Action Area

- Common Redshank (*Tringa totanus)*
- Common Sandpiper (*Actitis hypoleucos)*
- Double-banded Plover (*Charadrius bicinctus)*
- Fork-tailed Swift (*Apus pacificus)*
- Grey-tailed Tattler (*Tringa brevipes)*
- Pacific Golden Plover (*Pluvialis fulva)*
- Red-necked Stint (*Calidris ruficollis)*
- Sanderling (*Calidris alba)*
- Whimbrel (*Numenius phaeopus)*
- Marsh Sandpiper (*Tringa stagnatilis).*

These species have been recorded within the Corner Inlet Ramsar site and the habitat for these species is largely confined to the Ramsar site. The species is unlikely to regularly fly over Action Area but may traverse the area during migration. There is potential for this species to occur over the Action Area and assessment has been undertaken in Section 6.9.4.

5 Impact assessment

This chapter provides an overview of the potential impacts during the construction, operational and decommissioning phases of the Action and responds to sections 8.1 to s8.3 of the PER Guidelines (DCCEEW 2024). This chapter also includes consideration of cumulative impacts from surrounding projects.

The following factors were considered, as relevant, when assessing potential impacts:

- The magnitude of the impact, taking into account the severity and scale of the impact.
- The timing, duration and frequency of the impact including whether it is temporary or permanent.
- The likelihood of any impact occurring.
- Whether any impacts are unknown, unpredictable or irreversible.
- The relevant component and stage of the Action.
- Benchmarks and requirements set by statutory requirements, policies and guidelines.
- The principles of ecologically sustainable development and the objects and requirements of the EPBC Act.

For some technical reports specific methods for impact assessment were developed by the technical specialists. Where this is the case, these are documented in the technical reports at Appendix A to Appendix I.

5.1 Construction phase impacts

The construction phase includes the following activities that could cause impacts to MNES:

- The installation or maintenance of temporary meteorological masts.
- Installing fencing and signage for demarcation of no-go areas.
- Establishing construction compound/laydown areas and O&M facilities.
- Carrying out road repairs or upgrades and establishing and upgrading access tracks for construction preparation.
- Preparing access point areas and establishment of firefighting water reserves at select access points.
- Clearing of native vegetation.
- Compaction of hardstand laydown areas adjacent to WTGs.
- Construction of reinforced concrete WTG foundations in situ.
- Trenching and/or directional drilling of underground electrical cabling.
- Mobilisation, assembly and installation of WTG, BESS and substation/switchyard componentry, including construction of 66 kV line cut-in (includes OSOM deliveries of major electrical equipment).

Further details on the construction of the Action are in Chapter 2 of this PER. The following section describes the potential impacts to the Action Area during the construction phase.

5.1.1 Vegetation clearance and habitat loss

A total of 1.244 ha of remnant patch native vegetation is proposed to be removed from the Action Area including two large trees. The vegetation proposed to be removed is located in areas with wind farm infrastructure as well as areas along the transport route from Port Anthony to accommodate the blade turning circles. Refer to figures 3.1 to 3.11 of Appendix A to see the detail of this vegetation removal.

Under the State planning permit application process, offsetting of this vegetation removal is proposed with an offset requirement of 0.432 General Habitat Units (GHUs) with a minimum Strategic Biodiversity Score of 0.3056 and two large trees, pursuant to the Victorian *Guidelines for the Removal, Destruction or Lopping of Native Vegetation* (Department of Environment, Land, Water and Planning 2017).

Table 5.1 below lists the MNES species that have been identified as either having the 'potential to occur' or that are 'known to occur' in or near the Action Area and provides an overview of potential impacts as a result of the proposed vegetation clearance and habitat loss. It is highlighted that minimal habitat loss is expected and that typically the impacts are not considered to be significant in the context of any of the listed threatened species discussed below.

Refer to Chapter 6 and Appendix A for more detailed discussion of the potential impacts to the species listed below.

Table 5.1 Habitat loss

Species	Habitat loss potential impacts
Blue-winged Parrot	There is no indication that habitat loss will result in impacts to the Blue-winged Parrot.
Gang–gang Cockatoo	The Action proposes the removal of approximately 0.13 ha of heathy woodland that may provide some level of suitable foraging habitat however impacts to the Gang-gang Cockatoo are considered unlikely.
Latham's Snipe	The Action proposes to remove of 0.05 ha of potential habitat; however potential impacts are considered unlikely.
Swift Parrot	The Action includes the removal of two moderately-sized potential foraging trees (both Manna Gums) and approximately 0.164 ha of vegetation that contains a low density of suitable foraging habitat in the form of sparse canopies of Manna Gum and/or Swamp Gum. Impacts to Swift Parrot from the vegetation removal and habitat loss are unlikely.
White-throated Needletail	The Action Area does not contain habitat that is considered critical as the species is mainly aerial.
Grey-headed Flying-fox	The Action Area does not contain high-quality foraging or roosting habitat, and very little native vegetation is being affected by the Action.
Long-nosed Potoroo	Modelling suggests potential high-quality habitat is located in the Flora and Fauna Search Area but no important population of the species is likely to occur.
Southern Brown Bandicoot	The Action is expected to remove habitat patches totalling 0.64 ha which is connected to sufficiently large areas of habitat that they could plausibly support the species. However, it is considered unlikely that the habitat removal will impact the species given the limited extent that is to be removed.
Swamp Antechinus	The habitat removal is not expected to impact this species.
Australian Grayling	No direct impacts to the species habitat will occur because of the Action as there is no habitat for the species within the Action Area.
Dwarf Galaxias	The habitat for the species is not anticipated to be significantly impacted by the Action.

Species	Habitat loss potential impacts
River Swamp Wallaby-grass / Strzelecki Gum	No suitable treed or wetland habitat will be removed by the Project Footprint.
Eastern Spider-orchid / Thick-lip Spider-orchid / Clover Glycine / Maroon Leek-orchid / Dense Leek-orchid / Metallic Sun-orchid	These species were not found during targeted surveys, and that the Project Footprint avoids areas of suitable habitat.
Fork-tailed Swift	The Action Area does not contain habitat that is considered important as the species is mainly aerial. Therefore, the vegetation removal will not impact this species.
Migratory shorebirds (23 species)	The habitats important for these migratory species are restricted to the Corner Inlet Ramsar site and not within the Action Area.

5.1.2 Habitat fragmentation

The Action is unlikely to lead to the long-term habitat fragmentation or fragmentation of a listed species population. This has been discussed further below in Table 5.2 and is further detailed in Chapter 6 and Appendix A.

Table 5.2 Habitat fragmentation

Fauna species	Habitat fragmentation assessment
Blue-winged Parrot	There is no indication that habitat fragmentation will result in impacts to the Blue-winged Parrot.
Gang-gang Cockatoo	The Action Area does not contain habitat corridors or breeding habitats therefore impacts through fragmentation are unlikely.
Latham's Snipe	It is unlikely the size and location of the Action Area will fragment the population of this migratory species.
Swift Parrot	The habitat within the Action Area is a foraging habitat that would only be used during the non-breeding season and only when suitable food plants are in flower. The Action will remove minimal foraging habitat (0.164 ha and two moderate-sized trees) and will not create any barriers for such a wide-ranging species as result of habitat fragmentation.
White-throated Needletail	Habitat fragmentation will not impact the species, noting again that there is no suitable habitat on site.
Grey-headed Flying-fox	It is unlikely that the Action will lead to fragmentation as the population is highly-mobile.
Long-nosed Potoroo	The Action has the potential to reduce habitat connectivity between Alberton and Gelliondale State Parks through the removal of roadside vegetation however this removal is unlikely to cause a significant impact.
Southern Brown Bandicoot	The Action will result in some fragmentation of suitable habitat The Action will cause a very small amount of habitat in their southern areas to be isolated from other connected patches to the north, by >50 m across a natural surface. However, the very small size of the isolated areas makes this a negligible impact. The removal of part of the vegetation along Coal Mine Road will cause a fragment to habitat between the Great Southern Rail Trail and Alberton State Forest. However, connectivity also exists between these two areas along Lanes Road (albeit lower in quality).
Swamp Antechinus	Impacts are expected that will break habitat connectivity between Alberton State Forest and the Great Southern Rail Trail along Coal Mine Road. Impacts to create large gaps in roadside vegetation will also cause habitat fragmentation. However, the size of removal is considered to be negligible (approximately 0.1 ha in total).

Fauna species	Habitat fragmentation assessment
Australian Grayling	No removal of riparian vegetation is expected, and therefore impacts are unlikely.
Dwarf Galaxias	No removal of riparian vegetation is expected, and therefore impacts are unlikely.
River Swamp Wallaby-grass / Strzelecki Gum	No suitable treed or wetland habitat will be removed by the Project Footprint.
Eastern Spider-orchid / Thick-lip Spider-orchid / Clover Glycine / Maroon Leek-orchid / Dense Leek-orchid / Metallic Sun-orchid	These species were not found during targeted surveys, and that the Project Footprint avoids areas of suitable habitat.
Fork-tailed Swift	The Action Area does not contain habitat that is considered important as the species is mainly aerial. Therefore, the vegetation removal will not impact this species.
Migratory shorebirds (23 species)	The habitats important for these migratory species are restricted to the Corner Inlet Ramsar site and not within the Action Area.

5.1.3 Bushfire

The construction phase of the Action could increase the risk of causing a fire or could be impacted by a fire. The Action Area is located within a designated Bushfire Prone Area and is partially within the Bushfire Management Overlay. If a fire is started within the Action Area because of the Action or if a fire enters the Action Area, this could impact MNES.

It is noted that a fire occurred at the Victorian Big Battery during the commissioning phase of that BESS. The reporting and investigations from that event led to development in guidance relating to the commissioning of batteries in Victoria and reducing fire risk. That guidance has been taken into account in the development of this Action.

Four hazards have been identified that could occur during either the construction or operation of the Action, which are as follows:

- A fire starts in the Action Area from the infrastructure and approaches the Ramsar site.
- A bushfire could ignite offsite and impact WTGs, BESS, or substation infrastructure via direct flame contact or radiant heat exposure.
- Ember attack from offsite bushfires.
- Fire suppression run-off or smoke exposure to the Ramsar site.

An initial risk rating was given to the four hazards based on the likelihood of them occurring and the consequence if they did occur. Controls were then identified for the hazards to reduce the risk rating. A summary of each of the hazards, proposed mitigation measures and the initial and then residual risk rating, is outlined below. Further detail of this assessment is provided in Appendix C.

i A fire starts in the Action Area from the infrastructure and approaches the Ramsar site

Proposed mitigation measures to address this hazard are focused on compliance with the Country Fire Authority Design Guidelines and Model Requirements for Renewable Energy Facilities v4 (Country Fire Authority 2023) (the CFA Guidelines) which includes vegetation and grassland management, the requirement for an Emergency Management Plan and site monitoring and procedures for when communications are restricted. Complying with these requirements will reduce the hazard of a fire starting within the Action Area due to the Action's infrastructure and reduce the initial risk rating from high to medium.

ii A bushfire could ignite offsite and impact WTGs, BESS, or substation infrastructure via direct flame contact or radiant heat exposure

Mitigation measures to minimise this hazard include requiring the Action's fire safety design to align with the CFA Guidelines as well as also ensuring that infrastructure is resilient to radiant heat exposure. The Emergency Management Plan which will be developed will include the requirements for vacating the site during construction and operations. Implementing the requirements will reduce the hazard of fire impacting the Action's infrastructure. Complying with these requirements will further reduce the hazard of an offsite fire starting and impacting Action infrastructure, noting that the initial risk rating was in any case low and remains low post mitigation.

iii Ember attack from offsite bushfires

Alignment with CFA Design Guidelines will also assist in mitigating risk from ember attack, which will include vegetation management. The battery will include ember protection, smoke- and heat-detection systems, and non-combustible surfaces will be used. These measures, combined with an Emergency Management Plan, will reduce the risk of embers from offsite impacting Action infrastructure from high to low.

iv Fire suppression run-off or smoke exposure to the Ramsar site

Mitigation measures, consistent with the CFA Guidelines, will include vegetation management and firebreak protocols and the use of fire run-off basins. The use of firefighting foam will be limited, and heat-detection systems will be used. Implementing the requirements will reduce the hazard from firefighting water and foam going offsite and impacting MNES.

By implementing the above controls, the Action can be developed and operated safely, with minimal impacts to MNES either through loss of habitat from bushfire or impacts to the Corner Inlet Ramsar site from fire suppression run-off.

5.1.4 Damage to Aboriginal cultural heritage

A cultural heritage management plan (CHMP) was prepared for the Alberton Wind Farm and has since been amended and approved by Gunaikurnai Land and Waters Aboriginal Corporation (as registered Aboriginal party (RAP)) on 27 October 2022.

It is highlighted that the Action Area has been subject to previous ground disturbances through agricultural practices and historic road construction including the South Gippsland Highway and the Action will avoid any Aboriginal Places. The CHMP contains management requirements that must be followed during the construction of the Action to ensure no damage occurs to Aboriginal cultural heritage.

5.1.5 Weeds and pests

Invasive pests such as cats, foxes, wild dogs and feral pigs can be threats to endangered or critically endangered species located in and around the Action Area. Construction of the Action will not introduce or attract any additional pests to the area therefore no proposed impacts from invasive pests are anticipated.

Six noxious weed species listed under the *Catchment and Land Protection Act 1994* were recorded in the Action Area including African Box-thorn (*Lycium ferocissimum*), Blackberry (*Rubus fruticosus* spp. agg.), Hawthorn (*Crataegus monogyna*), Sweet Briar (*Rosa rubiginosa*), Soursob (*Oxalis pes-caprae*), and Spear Thistle (*Cirsium vulgare*).

Weeds and pathogens can be transported to the Action Area if they are present on construction vehicles, construction equipment and on the footwear of construction workers. Vehicles, equipment and workers used or worked within the Action Area can also spread weeds and pathogens to other areas, causing potential infestations further afield.

Construction mitigation measures will be employed to prevent the spread of weeds and these mitigation measures have been discussed in Chapter 7 of this PER. If these mitigation measures are implemented, it is unlikely that weeds will be introduced or distributed within the Action Area as a result of the Action.

5.1.6 Soil or water contamination

Section 4.1.3 of this PER discusses existing and potential contaminated land in vicinity of Action Area. The following contamination impacts could occur as a result of the Action:

- contaminated soil on site (including acid sulfate soils (ASS))
- contaminated groundwater on site
- development activities leading to contamination on-site and off-site.

The key events that could lead to the above have been detailed in Table 5.3. The table describes the risk, the inherent risk rating, the controls that will be implemented to manage the risk and the residual risk rating post mitigation.

It is noted that the likelihood of encountering sources of contamination within the Action Area, or the wider study area is low. The briquette manufacturing site is the only onsite potential source of contamination. However, given it is a considerable distance from the disturbance footprint it is unlikely to be disturbed by the construction, operation or decommissioning of the Action. There is a potential for unknown sources of contamination to be present on site however if found it is likely to be small and limited.

Off-site sources of contamination, noting the significant separation of the off-site contamination sources to the Project Footprint, are also not expected to contribute to on-site contamination of land, waterways and groundwater during any of the construction, operation or decommissioning of the Action.

Notwithstanding the above, it is expected that ASS will be encountered during Action-related works. To manage any potential impacts from ASS, appropriate management measures and protocols will be implemented via the EMP that will be required for the Action. See Chapter 7 and Appendix F for further details.

It is highlighted that certain Action activities have an inherent risk to contaminate land, waterways or groundwater. However, the risks identified are common among a range of industry sectors, and standard industry practices are well established and understood to manage these risks. Contamination management measures will be implemented in the EMP documentation for all phases of the Action. By effectively implementing the management plans, measures and controls the Action is not expected to cause contamination of the Action Area.

Accordingly, it is not expected that the ecological character of the Corner Inlet Ramsar site, and listed threatened species and listed migratory species that depend on it, will be impacted by the Action as a result of contamination issues.

Table 5.3 Contamination risks

Action phase:	Risk event	Inherent risk rating	Mitigation methods	Residual risk rating
Construction, decommissioning	**Contaminated soil** Unknown contaminated soil may exist in the Project Footprint and disturbance of such soil could result in the release of contaminants into the wider environment.	Low	**Contaminated soil** Protocols will be put in place to identify potential contamination should suspected contaminated soils or hazardous materials be discovered during excavation. Management measures for soil and groundwater will include the implementation of a soil and water management plan which would have protocols such as: • actively monitoring excavations for the conditions/materials that may indicate contamination • a stop work procedure to be followed should potential contamination be identified • barriers to be put in place to prevent access to the potential contamination • characterisation and delineation of the contamination by a suitably qualified professional • appropriate storage and disposal of contaminated soil/water, in accordance with EPA requirements.	Low
Construction, decommissioning	**ASS** ASS may exist in the Project Footprint and disturbance of such soil could result in the release of contaminants into the wider environment.	Medium	Management measures will include the implementation and use of an ASS management plan (consistent with the Best Practice Management Guidelines, DSE 2010) which would have protocols such as: • actively monitoring excavations for the conditions/materials that may indicate ASS • a stop work procedure in place should potential ASS be identified • barriers put in place to prevent access to potential ASS • characterisation and delineation of the ASS by a suitably qualified professional • appropriate storage and disposal of ASS in accordance with regulatory requirements.	Low

Action phase:	Risk event	Inherent risk rating	Mitigation methods	Residual risk rating
Construction, decommissioning	**Contaminated groundwater** It is unlikely that unknown on-site and/or off-site sources of contamination have entered into the groundwater system and that, during subsurface works, this contaminated groundwater is intercepted.	Low	Same as management measures for Contaminated Soil.	Low
Construction, decommissioning	**Backfill** Excavations at the site will need to be backfilled. If soil is required to be imported onto the site for this purpose, there is the potential for contaminated soil or ASS to be used as fill and, if so, this would present a contamination risk to the broader environment.	Medium	Management measures will include the use of fill material that is certified as clean fill.	Low
All	**Spills or leaks** Fuels or chemicals, if incorrectly stored or used in the Project Area, could be a source of soil, water and/or groundwater contamination. Spills or leaks may occur if these substances: are stored in containers (e.g. drums) whose integrity may be compromised (e.g. by damage, rust, etc.) are transferred from one container to another or to equipment for use are disposed of inappropriately.	Medium	Management measures may include: • the use of appropriate storage facilities/containers • implementation of appropriate bunding around chemical storage facilities • the implementation and use of management plans such as a soil and water management plan that addresses chemical storage and include a spill response plan • provision of training in the storage, use and disposal of the chemicals and fuels and in the use of the management plans.	Low
Operation	**Dangerous goods (BESS)** As addressed in the Risk Management Plan at Appendix C, the dangerous goods that are stored within the BESS may leak and either ignite or require clean-up by on-site staff, contractors or firefighters. There is potential impact to soils and/or water following leaks from chemicals used by the BESS that may result in ecological harm to the environment.	Medium	Management measures may include: • the implementation of an Emergency Management Plan which includes details of the hazards associated with chemical spills or leakages • the implementation and use of management plans (such as a soil and water management plan) • appropriate training in the use of the management plans.	Low

Action phase:	Risk event	Inherent risk rating	Mitigation methods	Residual risk rating
Construction, decommissioning	**Construction activities** Construction activities, such as earthworks, the supply and installation of WTGs and operation of site generators, may result in oil, chemical and fuel spills that have the potential to contaminate land, surface and groundwater resources. This may occur from the use of chemicals (e.g. cleaning, preserving, servicing, paints, solvents), hydrocarbons (e.g. fuels, oils, lubricants), on-site refuelling of plant and machinery, bulk storage of fuels and other hazardous substances, and accidents during transportation.	Medium	Management measures will include: • the implementation of an Emergency Management Plan which includes details of the hazards associated with the generation of fire water • the implementation and use of management plans (such as a soil and water management plan) • appropriate training in the use of the management plans.	Low
All	**Firefighting** The use of firefighting chemicals and/or foams can lead to contamination in the broader environment, if not appropriately controlled and contained. As noted in their fire risk assessment (FRC 2023), in the event of a fire involving the BESS, firefighters will respond and use water to either extinguish or cool the surrounding area until the infrastructure is deemed safe. The fire water may be contaminated and, if not contained, may create environmental issues.	Medium	Management measures will include: • the implementation of an Emergency Management Plan which includes details of the hazards associated with the generation of fire water • the implementation and use of management plans (such as a soil and water management plan) • appropriate training in the use of the management plans.	Low
All	**Weed and/or pest control** The use of weed and/or pest control chemicals can lead to contamination in the broader environment, if not appropriately controlled and contained. Potential impacts to soils and/or water may occur during the storage and handling of these chemicals that may result in ecological harm to the environment.	Medium	Management measures will include: • the implementation of a weed and pest management plan • appropriate training in the use and application of the necessary chemicals and in the application of a management plan.	Low
Construction	**Raw materials** The raw materials stored on site for use by temporary concrete batching plants are likely to be placed in storage bunds, which will need to be appropriately covered to minimise the potential for environmental harm. Potential impacts to soils and/or water may occur during the storage and handling of these raw materials that may result in ecological harm to the environment.	Medium	Management measures will include: • constructing reinforced concrete hardstand areas below “wet” areas, including the truck washdown, agitator loading and slumping areas • using water and sediment pits to contain slurries and other wastewater • bunding around the temporary concrete batching plants • the implementation of a soil and water management plan.	Low

Action phase:	Risk event	Inherent risk rating	Mitigation methods	Residual risk rating
All	**Wastewater** Wastewater generated by the site workforce needs to be captured and disposed of appropriately, as uncontrolled and unapproved on-site disposal of wastewater can contaminate land and waterways. Potential impacts to soils and/or water may occur during the storage and handling of wastewater that may result in ecological harm to the environment.	Medium	Management measures will include protocols for wastewater to be captured and disposed off-site to an appropriately licensed waste disposal facility in accordance with EPA guidelines.	Low

5.1.7 Noise, vibration, dust and light

Increased noise, vibration, dust and light is expected during the construction phase of the Action. The increase of noise, vibration, dust and light will be temporary and can be managed through standard environmental mitigation measures.

5.1.8 Flooding, erosion and sedimentation

The following potential impacts from the Action were considered in relation to flooding, erosion and sedimentation:

- Increase in total annual volume of run-off entering waterways and the Ramsar wetland.
- Increased erosion of the bed and banks of waterways resulting in loss of in-stream habitat.
- Change in extent of local inundation at the junction between waterways and the Corner Inlet Ramsar site.
- Change in quantity or quality of instream, riparian or wetland habitat.
- Changes to salinity within receiving waterways and wetland affecting habitat.
- Increase in sediment laden run-off entering waterways during storm events and/or more frequent events.
- Changes to sediment volumes entering wetland during storm events and/or more frequent events.
- Increased sediment deposition within receiving waterways resulting in loss of stream habitat.
- Change in quantity of habitat as a result of altered sediment delivery regime.
- Increase in mobilisation of sediment within receiving waterways resulting in increased turbidity and affecting habitat.
- Mobilisation and delivery of contaminated material.

The flood, erosion and sediment run-off impact assessment included at Appendix B, undertook a risk and impact assessment for each of the above matters and determined that for all of the potential impacts the risk rating was low before mitigation measures were applied. The likelihood and consequence ratings for the risks were further lowered once mitigation measures were applied and the overall risk rating remained low for all risks. Further details on the risks have been discussed below and in Appendix B.

The Action Area is approximately 1,622 ha and makes up approximately 2.4% of the total Corner Inlet Ramsar site catchment area (67,193 ha). The Action is expected to increase the impervious area within the Action Area by approximately 19.3 ha and this will increase the impervious cover of the Action Area by 1.2%. Only a 0.03% increase is expected in the total impervious area of the Corner Inlet catchment. The baseline estimated peak surface run-off discharge within the Action Area is 0.064 cubic metres per second (m^3/s) and with increased impervious area because of the Action it becomes 0.066 m^3/s.

The Action is not expected to greatly impact the baseline surface flow patterns of the Action Area or the greater wetland catchment. The small changes to impervious surface cover will only minimally impact the surface hydrology of the Action Area or the wider Ramsar wetland.

The WTGs in the Action Area are not anticipated to significantly increase catchment imperviousness, and the only increases are due to impermeable development areas such as access tracks, and infrastructure on pads (site buildings, substations and BESS). The hydraulic model indicated that a localised increase in water levels could occur due to the proposed substations however only the immediate area will be impacted. Overall, there is generally negligible change expected in flood levels, flood extents and ponding because of the Action. Regarding the extended region, inundation is not expected at the junction between waterways and Corner Inlet Ramsar site as a result of the Action.

There are negligible changes in flow regimes, run-off volumes and inundation volumes as a result of construction of the Action. Changes in quantity or quality of instream, riparian or wetland habitat are not expected because of the Action.

There is a low potential for scour and low rates of sediment transport in both major and minor waterways within the Action Area. Any excess of fine sediment because of the construction of the Action is not expected due to the low velocity of the sediment that will drop out and settle prior to reaching the Ramsar wetland. The change in bed shear stress (BSS) generated by the new infrastructure with the Action is also negligible. The scour of sediment from minor waterways and the much smaller overland flow paths that feed them is therefore unlikely.

Some localised sediment run off and subsequent transport to existing minor and then major waterways is likely given the nature of construction works. However, the total area of freshly exposed soil that is susceptible to scour by run-off is limited and represents a small increase over and above that already exposed within the wider Ramsar wetland catchment. Natural variability in the environment is likely to result in more sediment to a major waterway and the Ramsar wetland than the Action. The Action is not likely to increase fine sediment deposition within the receiving environments to a level where a visible loss of stream habitat could be noticed.

Overall, the potential for the Action to result in material impact on habitat for birdlife or other species within Corner Inlet due to the mobilisation of sediment or contaminants is considered negligible as:

- The Action will contribute only very small amounts of fine sediment relative to natural background processes in the catchment. While some localised sediment run-off may occur during construction, the total area of disturbance is minor in the context of the wider catchment, and therefore the volume of sediment mobilised is very small. Natural events – such as riverbank erosion or high-flow events in upstream waterways – are likely to deliver orders of magnitude more sediment to the Ramsar wetland than the Action.

- The potential for sediment to be mobilised and transported to Corner Inlet is also inherently limited by low flow velocities and low shear stresses in receiving waterways, meaning sediments are unlikely to be scoured, transported far, or remain in suspension. Most sediment is expected to settle out before reaching the wetland. Any increases in sediment deposition within waterways are expected to be minor and localised, and effects on in-stream or wetland habitat are unlikely to be measurable at the scale of the inlet.

- In addition, the storage and use of high volumes of hazardous materials will not be required as a result of the Action, during either the construction or operation of the Action. The main risk of Action-related contaminant releases is associated with the potential disturbance of and mobilisation of ASS during construction. It is expected that this risk will be readily manageable by implementing an acid sulfate soils management plan (ASSMP) in accordance with Victorian guidelines (see Section 7.1).

5.1.9 Vehicle movements

At the time of peak construction activity the external traffic generated by the Action will add approximately 470 vehicles per day on the surrounding road network including 300 heavy vehicles and OSOM vehicles and 170 light vehicles. This increase will generate additional traffic on the external road network by around 20% to 30%.

The construction route that will be used for the Action includes Barry Road between Port Anthony and South Gippsland Highway and South Gippsland Highway between Barry Road and Main Street, Slades Hill Road and Port Welshpool Road, Port Welshpool Road and Saunders Street and Saunders Street and Yarram-Port Albert Road. Whilst there will be some increase in traffic on the external road network the theoretical capacity (1,700 passenger cars per hour) of both Barry Road and the South Gippsland Highway can sufficiently accommodate the increase.

Swept path diagrams were completed to understand the impacts to the roads in order to transport OSOM vehicles between Port Anthony and the Action Area. The following intersections were reviewed and will be impacted to facilitate the Action:

- Barry Road – corner at Port Anthony entry gates
- Barry Road – corner north of *Barry Beach Engineering*
- Barry Road / South Gippsland Highway
- South Gippsland Highway / Site Access 1
- South Gippsland Highway / Site Access 5
- South Gippsland Highway / Site Access 7
- South Gippsland Highway / Old Alberton West Road
- Old Alberton West Road / Site Access 8
- Old Alberton West Road – corner near 174 Old Alberton West Road
- Old Alberton West Road / Site Access 6.

The above intersections will require some median and/or roadside infill works, potential roadside signage or furniture removal and traffic management works. In addition, 0.65 ha of native vegetation, including two large trees will also need to be removed to facilitate the blade turning circles when being transported to the Action Area. Further details on the transport route and impacts can be found in Appendix G.

5.1.10 Marine invasive species

Marine invasive species are non-native marine organisms that can threaten native ecosystems and pose a significant risk to biodiversity. Most of the marine invasive species in Victoria occur in Port Phillip Bay as this is where the most commercial shipping routes are located and there have been relatively few marine invasive species recorded in Gippsland.

In regard to this Action, there is the potential that marine invasive species could increase in Port Anthony as a result of the additional shipping vessel required to facilitate the Action. Four marine invasive species have been recorded within the Corner Inlet Ramsar site, two of which are on the Australian Priority Marine Pest List.

The Marine Invasive Species Risk Assessment (Appendix D) was prepared to understand the risks, potential impacts and the mitigation measures that will be implemented. This assessment highlights that Mitigation measures associated with modern commercial shipping are mature and generally effective in preventing major marine invasive species incursions globally. Accordingly, whilst the risk of the Action resulting in a marine species incursion that results in establishment and spread is considered as medium, the likelihood of the risk is rare, however the magnitude is higher, which increases the risk rating. That notwithstanding, the overall risk of the Action resulting in an incursion of marine species is considered low.

5.2 Operational phase impacts

The operational phase of the Action has an estimated 35-year lifespan. Key operational activities will include regular inspection and scheduled maintenance of WTGs, internal access roads, substations and associated infrastructure. Maintenance of wind turbines may from time to time require use of cranes and heavy vehicles for larger components or unscheduled repairs. Site control rooms and operations and maintenance facilities will be used throughout the operational period, and periodic access will be required to inspect and maintain the Action's electrical transmission infrastructure.

Potential impacts in the Operational Phase in relation to bushfire, contamination and flooding, erosion and sedimentation have all already been considered in Section 5.1. Accordingly, potential impacts in relation to these matters are not repeated in the following sections.

5.2.1 Collision risk and barotrauma

During the operation of the wind farm, birds and bats flying within the rotor swept area (RSA) are at risk of being impacted due to colliding with a turbine. For the purpose of assessing impacts from the Action the bird heights were classified into three categories if they fly under 40 m they are below the RSA, if they fly between 40 to 210 m they were classified as being within the RSA and higher than 210 m they are above the RSA height.

Most birds recorded flew below RSA height at the impact (91%), and reference (89%) points. Birds observed flying at RSA height accounted for 8.2% of all birds recorded at impact points and accounted for 9.6% of records at reference points, 0.66% of all birds at impact points and 1.1% of all birds observed at reference points flew above RSA height. The main five bird species found flying within the RSA height were unlisted species and not protected under the EPBC Act.

The Blue-winged Parrot is the only listed species observed in the RSA during the project surveys t with 87 or 14.8% of flights recorded between 40 to 210 m. Flight heights differed between seasons, with 8.3% in Spring (three birds), 54.5% in Summer (18 birds), 13.1% in Autumn (68 birds), and 11.8% in Winter (six birds). The species is known elsewhere to fly at 40 m as Nature Advisory has observed approximately 60% of all flights at other wind farms in Victoria and Tasmania occurring at this height. Further detail on the impact likelihood for the Blue-winged Parrot can be found in Chapter 6 and Appendix A.

Impact trauma from direct collision and barotrauma are the two leading theories to explain the high fatality rates of bats around operating wind turbines. Barotrauma occurs when a bat encounters sudden and extreme changes in atmospheric pressure. It has been proposed that bats succumb to this rapid change in pressure when they fly within close proximity to an operating turbine. The research regarding barotrauma has been varied however it is considered unlikely that bats would be able to fly in close enough proximity to the turbine blades to experience such a change in pressure, without being struck by the blade. Due to the above findings, it is considered unlikely that barotrauma poses a major risk to bats from the Action.

Automated bat detectors (SongMeter Mini Bat, Wildlife Acoustics) were deployed close to the proposed turbine sites, plus two additional reference sites along the border of the native wooded vegetation areas nearby. Nine bat species that were recorded are all common and secure farmland species that are widespread throughout south-eastern Australia. Nine calls over 1,213 detector nights were attributed to the Eastern Bent-wing Bat and Large Forest Bat complex, given the calls were rare they are unlikely to regularly use the Action Area.

5.2.2 Noise, vibration and light

The Action does not require aviation obstacle lighting and therefore lighting is not considered to cause any impacts to MNES. There are 227 noise sensitive receivers located within 5 km of the Action including 12 where a noise agreement is in place or proposed between the landowners and Synergy. The noise from the WTGs is not expected to impact MNES.

5.2.3 Weeds and pests

The operations of the Action will not introduce or attract any additional pests to the area therefore no proposed impacts from invasive pests are anticipated.

Weeds and pathogens can be transported to the Action Area if they are present on maintenance vehicles, and on the footwear of maintenance workers. Vehicles, equipment and workers used or worked within the Action Area can also spread weeds and pathogens to other areas, causing potential infestations further afield.

Mitigation measures will be employed to prevent the spread of weeds; these mitigation measures have been detailed in Chapter 7. If these mitigation measures are implemented it is unlikely that weeds will impact the Action Area.

5.2.4 Transport impacts

The likely traffic generation during the operational phase includes:

- fortnightly minor maintenance to be carried out by a team of generally less than 10 people with up to five vehicles
- major maintenance works will occur occasionally when larger components of the development need to be replaced. This is expected to only occur very occasionally and will be subject to approval processes with the relevant authorities
- ad hoc visitors to the site such as office-based staff and courier delivers, etc.

Once in operation the Action can function with limited staff and generate minimal traffic movements. The Action will therefore have a negligible traffic impact on the local road network.

5.3 Decommissioning phase impacts

Decommissioning would take approximately 12 months and be carried out similarly to, but in reverse order of construction, with wind turbines dismantled and removed, and the site rehabilitated to enable a return to agricultural use. Decommissioning will include similar activities to the construction phase however will require a smaller workforce and far fewer vehicle movements (e.g. 50% to 75% fewer truck movements) overall. Other environmental impacts are likely to occur during the construction and operations stages of the Action and have been discussed previously in Section 5.1. Any specific decommissioning mitigation measures (for example a resource recovery plan) will be reviewed and resolved at the time of planning for decommissioning.

5.4 Cumulative impacts

The assessments completed to support the PER considered the existing impacts to the Action Area and broader region prior to assessing the impacts from the Action.

Cumulative impacts arise from the aggregation of residual and, to a lesser extent, unforeseen effects across multiple developments.

The following sections provide an overview of potential cumulative impacts, which are discussed in greater detail in the MNES report at Appendix A.

5.4.1 Habitat loss, fragmentation and barrier effects

The MNES report at Appendix A makes the assessment that the Action is not expected to result in a meaningful rise in cumulative habitat loss or fragmentation. The Project Footprint is largely confined to modified landscapes (e.g. open paddocks) and does not require the removal of significant amounts of habitat. As such, the Action does not remove or isolate substantial areas of native vegetation and therefore does not materially alter habitat connectivity at a landscape scale.

Regionally, the impacts on habitat loss from the Action in combination with other wind farms will be low, due to the typical home ranges and movement distances for land- and water-based MNES not extending as far as the closest neighbouring wind farm (Toora Wind Farm, 16 km away). More mobile MNES (i.e. avifauna) typically use broad movement corridors which feature significant forested and coastal environments that will remain intact and undisturbed by tall infrastructure such as WTGs.

Accordingly, the likelihood of the Project contributing to cumulative habitat fragmentation or creating functional barriers to movement, either independently or in combination with other developments, is considered to be low.

5.4.2 Avifauna collision mortality

In relation to cumulative impacts from other wind farms in the area surrounding the Gelliondale Wind Farm, the MNES report at Appendix A considers three wind farms within 50 km of the Project Area. These wind farms are:

- Delburn Wind Farm: 40 km from the project site, 33 turbines (under construction)
- Toora Wind Farm: 16 km from the project site, 12 turbines (operational)
- Bald Hills Wind Farm: 43 km from the project site, 52 turbines (operational).

The MNES report notes that any cumulative impact of avifauna collision risk will be low, but is also difficult to quantify, because:

- mobile bird and bat species in the area tend to move between forest patches and/or along the coasts, rather than inland to the elevated locations of the wind farms
- the separation distance between neighbouring wind farms is significant.

Notwithstanding these limitations, studies have attempted to quantify cumulative avifauna collision mortality risk for wind farms in this part of Australia. Smales' (I. Smales 2005) quantitative assessment of cumulative collision risk to the Swift Parrot considered 39 wind farms across Tasmania and south-eastern Australia (representing a collective 1,226 turbines). While this assessment relied on surrogate data from similar parrot species (due to a lack of species-specific flight data), it predicted a total annual mortality of approximately 0.08 to 0.13 individuals across all 39 developments.

The same author's assessment of cumulative collision risk at five wind farms in Gippsland (I. a. Smales 2005) found that, for several MNES relevant to this assessment (e.g. Grey-headed Flying-fox, White-throated Needletail, and migratory shorebirds), the risk of collision was low to negligible. Not all wind farms proposed at that time and assessed under either study were subsequently approved or constructed, indicating that the realised level of regional wind farm development—and therefore associated collision risk—has likely remained within or below that assessed scenario.

In addition, this latter study used older-generation turbines with lower RSA, generally extending to approximately 30 m above ground level. In contrast, the Action incorporates modern turbine designs with a higher minimum blade clearance of 40 m, which increases the separation between RSA and typical flight heights for many species. This is expected to lead to a reduced collision risk relative to earlier wind farm developments.

While the conservation status of some species has changed since that work was undertaken, with some species 'uplisted' since that assessment, the findings nonetheless provide useful context, indicating that wind farm development in the region has historically been associated with low cumulative collision risk for these species. Accordingly, the Action is not expected to represent a step-change increase in cumulative collision risk at a regional scale.

Within this regulatory and management context, cumulative collision risk is expected to comprise the aggregation of small, managed contributions from individual projects. Given the low level of predicted mortality associated with the proposed Action, and the application of standard mitigation and adaptive management measures, the incremental contribution of the Action to regional cumulative collision risk is not expected to be significant.

5.4.3 Ecosystem resilience

The MNES report at Appendix A makes the assessment that as the Action is located within a highly modified environment, it represents only an incremental change and does not pose a threat to the resilience of ecosystems, which are chiefly supported by the remnant vegetation, wetlands and riparian corridors that the Action has been designed to avoid. The preservation of these natural features in and around the Action Area will facilitate the ongoing operation of core ecological functions, including the provision of breeding/foraging habitats, movement pathways, and refuge. The retention of these features provides certainty that the Action will not materially diminish ecosystem resilience or compromise the long-term ecological integrity of the landscape.

Accordingly, the cumulative impacts of the Action in combination with other wind farms operating in the surrounding region in terms of disrupting ecosystem resilience are assessed as low. The capacity of the surrounding environment is expected to continue effectively functioning and to preserve the ability to recover from natural or anthropogenic disturbances.

In relation to cumulative impacts associated with the Corner Inlet Ramsar site, the likelihood of harm to ecosystem resilience, can be summarised as follows:

- No cumulative impacts are expected from land, soil or water contamination – the Contamination Assessment at Appendix F notes that no existing on-site or off-site sources of contamination are likely to be disturbed by construction, and that the ecological functions of the Corner Inlet Ramsar site would be resilient even in the highly unlikely event of the release of contaminated soil or water from the Action Area.

- Sedimentation and other water quality impacts to watercourses will be minimal – any cumulative impacts would be negligible compared to the existing sedimentation and water quality issues that the catchment experiences, as noted in the Flood, Erosion and Sediment Run-off Impact Assessment at Appendix B. This assessment notes that cumulative effects of climate change, other land use and development within the catchment, in addition to the Action, may affect some sensitive parts of the Corner Inlet Ramsar site such as seagrass beds. However, the contribution of the Action to these impacts would be negligible. Other than this caveat, the critical components, processes and services of the Corner Inlet Ramsar site would be resilient to such minor impacts.

- Cumulative marine invasive species impacts are expected to be marginal, given that the Marine Invasive Species Risk Assessment at Appendix D determined that the risk of the Action increasing marine invasive species is low in the context of measures to prevent the spread of pests, and in the context of Action-related shipping constituting a very small proportion of the total marine traffic in the Corner Inlet Ramsar site.

This assessment demonstrates that the Action would not substantially reduce the availability, quality, or connectivity of habitat required to sustain local or regional populations. Nor does it introduce barriers or disturbances at a scale likely to disrupt key ecological processes.

6 Significant impact assessment

This chapter responds to section 8.2 to section 8.4 of the PER Guidelines and provides an overview of the potential impacts to MNES, see Appendix A for further information.

6.1 Guidance and obligations relating to significant impact assessment

This section summarises the guidance considered when assessing possible impacts on MNES, in addition to the requirements of the EPBC Act and the PER Guidelines which provide the framework for the assessment in this chapter.

6.1.1 Significant impact guidelines

As discussed in the MNES Assessment (Appendix A) the Significant Impact Guidelines provide guidance on assessing whether an action taken under the EPBC Act is likely to have a "significant impact" on a matter protected by the same. Key concepts from the Significant Impact Guidelines are defined in Table 6.1 and have been used to assess the significance of impacts to MNES.

Table 6.1 Key concepts from the Significant Impact Guidelines

Term	Definition
Significant impact	A 'significant impact' is an impact which is important, notable, or of consequence, having regard to its context or intensity. Whether or not an action is likely to have a significant impact depends upon the sensitivity, value, and quality of the environment which is impacted, and upon the intensity, duration, magnitude and geographic extent of the impacts. All of these factors should be considered when determining whether an action is likely to have a significant impact on MNES.
Indirect and offsite impacts	When considering whether or not an action is likely to have a significant impact on a matter of National environmental significance, it is relevant to consider all adverse impacts which result from the action, including indirect and offsite impacts. These include: • 'downstream' or 'downwind' impacts (e.g. sediment, fertiliser or chemical runoff into wetlands or reefs) • upstream' impacts (e.g. extraction of raw materials) • facilitated' impacts from actions made possible by the initial action (e.g. development following construction of basic infrastructure).
Population of a species	This term is defined under the *EPBC Act* as an occurrence of the species in a particular area. In relation to critically endangered, endangered or vulnerable threatened species, occurrences include but are not limited to: • a geographically distinct regional population, or collection of local populations; or • a population, or collection of local populations, that occurs within a particular bioregion.
Invasive species	An 'invasive species' is an introduced species, including an introduced (translocated) native species, which out-competes native species for space and resources or which is a predator of native species. Introducing an invasive species into an area may result in that species becoming established. An invasive species may harm listed threatened species or ecological communities by direct competition, modification of habitat or predation.
Important population of a species	An 'important population' is a population that is necessary for a species' long-term survival and recovery. This may include populations identified as such in recovery plans, and/or that are: • key source populations either for breeding or dispersal • populations that are necessary for maintaining genetic diversity; and/or • populations that are near the limit of the species' range.

Term	Definition
Important habitat for a migratory species	An area of 'important habitat' for a migratory species is: • habitat utilised by a migratory species occasionally or periodically within a region that supports an ecologically significant proportion of the population; and/or • habitat that is of critical importance to the species at particular life-cycle stages; and/or • habitat utilised at the limit of the species' range; and/or • habitat within an area where the species is declining.
Ecologically significant proportion	The term 'ecologically significant proportion' varies with the species and context. It refers to a proportion of a migratory species' population that is important to the species' ecology. Factors to consider include the population status, genetic distinctiveness, and behavioural patterns such as site fidelity and dispersal rates.
Population of a migratory species	'Population', in relation to migratory species, means the entire population or any geographically separate part of the population of any species or lower taxon of wild animals, a significant proportion of whose members cyclically and predictably cross one or more National jurisdictional boundaries including Australia.
Declared Ramsar wetland	An area that has been designated under Article 2 of the *Ramsar Convention* or declared by the Minister to be a declared Ramsar wetland under section 16 of the *EPBC Act*.
Ecological character (in relation to wetlands)	The combination of the ecosystem components, processes and benefits/services that characterise a wetland at a given point in time. The phrase 'at a given point in time' refers to the time of designation for the Ramsar List.

6.1.2 International obligations

i Statutory requirements under the Ramsar Convention

The Ramsar Convention is an international intergovernmental treaty which came into force in 1975 and was established to halt and, where possible reverse, the loss of wetlands. The Convention's mission is "the conservation and wise use of all wetlands through local, regional and National actions and international cooperation, as a contribution towards achieving sustainable development throughout the world". This means ensuring that activities which might affect wetlands will not lead to the loss of biodiversity or diminish the many ecological, hydrological, cultural or social values of wetlands.

To realise these aims domestically, the "Australian Ramsar management principles" at Clause 1.0 of Schedule 6 of the Environment Protection and Biodiversity Conservation Regulations 2025 establishes a framework for the management of Australian Ramsar wetlands. Table 6.2 provides an assessment against these principles.

Table 6.2 Action response to the Australian Ramsar management principles

Australian Ramsar management principles – General Principles	Action response
To describe and maintain the ecological character of the wetland	The ecological character of the Corner Inlet Ramsar site is described in Chapter 4 of this PER. The findings of this PER indicate that the on-going maintenance of the ecological character will not be impacted by the Action.
To formulate and implement planning that promotes conservation of the wetland, and wise and sustainable use of the wetland	The environmental investigations undertaken to date demonstrate that the Action can be undertaken without any significant direct or indirect impacts on the Corner Inlet Ramsar site, demonstrating that appropriate planning has occurred for the Action
Wetland management that allows for public consultation on decisions and actions that may have significant impact on the wetland	Chapter 9 of this PER summarises the extensive public consultation that has been undertaken to date in relation to the Action and the Approved Action, both through statutory consultation processes associated with the Action's planning and EPBC approval processes, and independently by the Proponent.

Australian Ramsar management principles – General Principles	Action response
Wetland management should make special provision for the involvement of people who have a particular interest in the wetland and may be affected by the management of the wetland including First Nations people and organisations	Chapter 9 of this PER summarises the consultation of First Nations people undertaken to date in relation to the Action and the Approved Action, both through statutory consultation processes associated with the Action's cultural heritage approval processes, and independently by the Proponent. The Proponent continues to actively seek to deepen the partnership between First Nations people and the Action through progressing a partnership with GLaWAC.
Wetland management should provide for continuing community and technical input	The environmental investigations undertaken to date demonstrate that the Action can be undertaken without any significant direct or indirect impacts on the Corner Inlet Ramsar site. Notwithstanding this, there will be continued opportunities for community input on the Action through the Proponent's feedback processes, and for technical input, for example, through avifauna mortality monitoring and any adaptive mitigation controls required as a result of this.

The significant impact assessment following concludes that the Action is unlikely to cause significant impacts to the Corner Inlet Ramsar site or modify its ecological character, in accordance with Australia's obligations as a signatory to the Ramsar Convention.

ii Obligations under Biodiversity Convention

Australia is a signatory to the 1992 Convention on Biological Diversity, which has three central objectives:

- The conservation of biological diversity.
- The sustainable use of the components of biological diversity.
- The fair and equitable sharing of benefits arising from the use of genetic resources.

In line with its obligations under this Convention, Australia has adopted *Australia's Strategy for Nature 2024–2030* (Department of Climate Change, Energy, the Environment and Water 2024). This strategy functions as the country's Biodiversity Strategy and Action Plan (NBSAP) and provides a National framework for coordinated action to reverse biodiversity loss, promote restoration, and improve the health and resilience of ecosystems.

The Action is consistent with the targets of *Australia's Strategy for Nature*, as summarised below in Table 6.3, which themselves are aligned to the Global Biodiversity Framework established at the Convention. The Action has addressed biodiversity threats through design refinement, implementation of mitigation measures, and offset strategies. It also contributes to climate change mitigation, which is identified in the Strategy as both a direct and compounding threat to biodiversity.

Table 6.3 Action response to targets in *Australia's Strategy for Nature 2024–2030*

National targets	Action response
Protect and conserve at least 30% of Australia's land and 30% of Australia's marine areas by 2030	Biodiversity offsets associated with the Action will support the long-term conservation of native vegetation and threatened species habitat in South Gippsland, contributing to Australia's protected area commitments.
Priority degraded areas are under effective restoration by 2030	Temporarily disturbed areas within the development footprint will be rehabilitated progressively post-construction. Offset sites will be actively managed to restore ecological structure, function and resilience, with targeted actions to improve habitat condition.
No new extinctions	The Action avoids key habitats and implements mitigation measures for listed threatened species. Monitoring and adaptive management will inform the effectiveness of these measures.

National targets	Action response
Minimise the impact of climate change on biodiversity	By displacing fossil-fuel-based energy with renewable wind power, the Action contributes to reducing greenhouse gas emissions. This directly addresses one of the key drivers of biodiversity decline and helps build ecosystem resilience to climate impacts.
Eradicate or control invasive species in priority landscapes and further minimise their introduction by 2030	An environmental management plan will be implemented during construction and operation that will include requirements for preventing the incursion and spread of invasive species. This includes hygiene protocols, control measures for priority invasive species, and ongoing monitoring to prevent establishment and spread.
Increase Australia's circularity rate and reduce pollution and its impacts on biodiversity by 2030	The Action will prioritise reuse, recycling and responsible disposal of waste during construction. Measures to prevent pollution (e.g. erosion control, hazardous materials handling, and spill response) will reduce impacts on soil, water and biodiversity. Upon the decommissioning of the Action, the materials from WTGs and other infrastructure will be repurposed or recycled insofar as is practical.

The Action responds appropriately to Australia's commitments under the Convention on Biological Diversity. The Action contributes to biodiversity conservation by limiting habitat disturbance, applying best practice mitigation and management strategies, and supporting ecosystem resilience through renewable energy production.

iii Obligations under Apia Convention

The Convention on Conservation of Nature in the South Pacific (the Apia Convention) relates to creating and protecting the land of National parks, maintaining lists of native fauna and flora and allowing for native species use for cultural practices. The Action will not impact on National park land and accordingly is not inconsistent with the Apia Convention.

iv Obligations under CITES

The Convention on International Trade in Endangered Species of Wild Fauna and Flora to protect animals and plants from unauthorised trade and is implemented in Australia under the EPBC Act. The Action does not propose to trade or move flora and fauna and therefore the obligations of this convention are met.

v Migratory bird agreements

Australia has signed a range of migratory bird agreements that aim to protect species in terms of their removal, impacts to habitat, and obstacles to migration. These have been previously discussed in Chapter 4 and comprise:

- the Bonn Convention
- China-Australia Migratory Bird Agreement
- Japan-Australia Migratory Bird Agreement
- Republic of Korea-Australia Migratory Bird Agreement.

These obligations are implemented via the EPBC Act and the species listed under these agreements are captured under the EPBC Act. The following species are protected under the EPBC Act and/or International migratory species specified in these agreements:

- Fork-tailed Swift
- Latham's Snipe

- Migratory shorebirds (22 species)
- White-throated Needletail.

The Action is unlikely to cause significant impacts to the Fork-tailed Swift, Latham's Snipe and the 22 migratory shorebirds, as discussed further in this chapter. The Action has been identified as having a possible likelihood of impacting the White-throated Needletail, see Section 6.6 for further information. However, with the implementation of mitigation measures the potential for significant impacts to this species are also considered to be unlikely. Accordingly, it is considered that the obligations of these migratory bird agreements have been addressed.

6.2 Recovery plans

The following recovery plans have been considered in the MNES Assessment for the Action:

- National Recovery Plan for Australian Grayling (*Prototroctes maraena)*
- National Recovery Plan for the Grey-headed Flying-fox (*Pteropus poliocephalus)*
- National Recovery Plan for albatrosses and petrels
- National Recovery Plan for the Australasian Bittern (*Botaurus poiciloptilus*)
- National Recovery Plan for the Swift Parrot (*Lathamus discolor*)
- National Recovery Plan for the Orange-bellied Parrot *(Neophema chrysogaster).*

6.3 Relevant MNES

As described in Chapter 4, a large number of MNES were reviewed in preparation of the MNES Assessment (Appendix A), initially commencing with a search of the Flora and Fauna Search Area using the *Protected Matters Search Tool* (Department of Climate Change, Energy, the Environment and Water 2025). Surveys were then completed for the Action and it was concluded that not all MNES are potentially present. As also discussed in Chapter 4, a final list of the relevant MNES (that is, those that have the potential to occur or are known to occur in the Flora and Fauna Search Area), is included below.

Ramsar wetlands

- Corner Inlet Ramsar site

Listed threatened flora species

- Clover Glycine (*Glycine latrobeana)* (Vulnerable)
- Dense Leek-orchid (*Prasophyllum spicatum)* (Vulnerable)
- Eastern Spider-orchid (*Caladenia orientalis)* (Endangered)
- Maroon Leek-orchid (*Prasophyllum frenchii)* (Endangered)
- Metallic Sun-orchid (*Thelymitra epipactoides)* (Endangered)
- River Swamp Wallaby-grass (*Amphibromus fluitans)* (Vulnerable)
- Strzelecki Gum (*Eucalyptus strzeleckii)* (Vulnerable)

- Thick-lip Spider-orchid (*Caladenia tessellata)* (Vulnerable)

Listed threatened fish species

- Australian Grayling (*Prototroctes maraena)* (Vulnerable)
- Dwarf Galaxias (*Galaxiella pusilla)* (Endangered)

Listed threatened mammal species

- Grey-headed Flying-fox (*Pteropus poliocephalus)* (Vulnerable)
- Long-nosed Potoroo (*Potorous tridactylus trisulcatus)* (Vulnerable)
- Southern Brown Bandicoot (*Isoodon obesulus obesulus)* (Endangered)
- Swamp Antechinus (*Antechinus minimus maritimus)* (Vulnerable)

Listed threatened bird species

- Blue-winged Parrot (***Neophema chrysostoma)*** (Vulnerable)
- Gang-gang Cockatoo (*Callocephalon fimbriatum)* (Endangered)
- Latham's Snipe (*Gallinago hardwickii)* (Vulnerable, Migratory)
- Swift Parrot (*Lathamus discolor)* (Critically Endangered)
- White-throated Needletail (*Hirundapus caudacutus)* (Vulnerable, Migratory)
- Fork-tailed Swift (*Apus pacificus)* (Migratory)
- Migratory shorebirds (22 species, excluding Latham’s Snipe)

6.4 Ramsar wetlands

The significant impact assessment in the following section, concludes that the Action is unlikely to cause significant impacts to the Corner Inlet Ramsar site or modify its ecological character.

An action is likely to have a significant impact on the ecological character of a declared Ramsar wetland if there is a real chance or possibility that it will result in any of the significant impact criteria listed in Table 6.4.

Table 6.4 Significant Impact Assessment – Corner Inlet Ramsar site

Significant impact criterion	Assessment	Significant impact likelihood
Areas of the wetland being destroyed or substantially modified	The Project Footprint of the Action does not intersect with the Corner Inlet Ramsar site. As such, no direct impacts to the wetland are anticipated. The only potential pathways to impacts are through indirect impacts. The most likely possible indirect impacts from the Action on the wetland are: • increased sediment deposition within waterways causing loss of stream habitats (mangroves, saltmarsh and seagrass beds) • sediment-driven increases in turbidity impacting seagrass meadows and benthic microalgae (and indirectly through them, waterbirds) • mobilisation of ASS • contamination from oil, fuel or chemical spills (inc. from weed/pest control) • disturbance of contaminated soil. All other indirect impacts are considered to be "unlikely". Whilst an increase in annual runoff as a result of the Action is possible, it would be by a minor amount when compared to the size of the catchment. Sediment-laden and contaminated runoff could spread from points where proposed access tracks intersect with waterways within the impact footprint, unless appropriate mitigation measures are taken to prevent this. The EMP will include these mitigation measures to further reduce potential impacts. Impacts on seagrass meadows and benthic microalgae are expected to be low in extent, and highly localised around waterways that had received sediment from the Action. There is some limited potential for ASS to be disturbed, mobilised, and flow into waterways and the wetland because of the Action. However, impacts from these can be controlled with appropriate, standard mitigation measures, as described in the Draft EMP at Appendix H. An EMP that addresses both construction and operational phases will include these mitigation measures and outline items such as appropriate sediment control measures to prevent impacts from occurring. The above analysis indicates that the Action is unlikely to result in areas of the wetland being destroyed or substantially modified.	Unlikely
A substantial and measurable change in the hydrological regime of the wetland, for example, a substantial change to the volume, timing, duration and frequency of ground and surface water flows to and within the wetland	Increases in the total annual volume of runoff entering the Corner Inlet Ramsar site are considered possible. However, the expected increase in volume is negligible when compared to the volume of runoff from the whole catchment (which also flows into the wetland). The increase in volume is also highly likely to be within the range of regular natural variation. The flood, erosion and sediment run-off impact assessment undertaken for the Action Area (refer Appendix B) considered all other changes in the hydrological regime to be unlikely to occur because of the Action. This is consistent with the MNES Assessment (Appendix A) with both assessments concluding that the Action is unlikely to result in a substantial and measurable change in the hydrological regime of the wetland.	Unlikely

Significant impact criterion	Assessment	Significant impact likelihood
The habitat or lifecycle of native species, including invertebrate fauna and fish species, dependent upon the wetland being seriously affected	Sedimentation (both sediment deposition and sediment-driven increases in turbidity) is considered to be the most likely potential impact from the Action. Large increases in sediment deposition have the potential to smother mangroves (burying their pneumatophores in sediment so they no longer function), saltmarsh and seagrass (blocking sunlight so photosynthesis is inhibited). Increases in turbidity could also reduce sunlight levels available for seagrass and benthic microalgae, adversely impacting both. The latter forms the base of the food chain, so impacts of that nature could cause waterbirds and fish to be indirectly impacted as well. In extreme cases, increases in turbidity could cause sediment to clog the gills of fish and interfere with their gas exchange processes, resulting in direct mortality. However, the above impacts are considered unlikely. Any increase in turbidity is likely to be small, and the rating of "moderate" severity assigned in the flood, erosion and sediment run-off impact assessment is simply a reflection of the degraded and highly threatened status of seagrass beds and their low ability to withstand increasing pressures against their survival. Any sediment runoff and deposition resulting from the Action is also likely to be highly localised around point sources where proposed tracks intersect waterways; and potential widespread impacts are not anticipated. Finally, both of the above impacts can largely be prevented and managed by the adoption of appropriate sediment control measures in the EMP for the Action. The above analysis indicates that the Action is unlikely to result in the habitat or life cycle of native species dependent on the wetland being seriously affected.	Unlikely
A substantial and measurable change in the water quality of the wetland – for example, a substantial change in the level of salinity, pollutants, or nutrients in the wetland, or water temperature which may adversely impact on biodiversity, ecological integrity, social amenity or human health	An increase in the total annual volume of runoff entering the Corner Inlet Ramsar site is considered possible, which would result in a decrease in salinity in the wetland. However, this increase in volume is negligible when compared to the volume of runoff from the whole catchment that flows into the wetland. The increase in volume is also highly likely to be within the range of regular natural variation. By extension, the decrease in salinity in the wetland caused by the Action is likely to be negligible and within the range of regular natural variation. The flood, erosion and sediment run-off impact assessment identified that it is possible that chemicals used during the construction process may wash into the wetland if spilled, disposed of incorrectly or inappropriately used in sensitive locations. These may include substances toxic to aquatic life, and/or nutrients that could prompt undesirable biotic processes like eutrophication. However, the EMP will include appropriate mitigation measures to prevent this impact from occurring, and to quickly clean and contain any chemical spills that do occur. Given the very large size of the Corner Inlet Ramsar Site relative to the localised scale of any spill that could conceivably occur, it is unlikely a substantial change in water quality across the Ramsar site would occur because of the Action. The Flood, Erosion and Sediment Run-Off Impact Assessment also concluded that no other aquatic pollutants were identified as plausibly entering the wetland and did not identify any substantial changes in water due to the Action. Accordingly, it is unlikely the Action would result in a substantial and measurable change in the water quality of the wetland.	Unlikely

Significant impact criterion	Assessment	Significant impact likelihood
An invasive species that is harmful to the ecological character of the wetland being established (or an existing invasive species being spread) in the wetland	The following invasive species are considered to be potentially or actually harmful to the ecological character of the wetland: Cord Grass, Sea Spurge, Northern Pacific Seastar, European Shore Crab, rabbits, black rats, foxes, and European Fanworm. The Action could plausibly cause the invasive plants and invertebrates to establish and/or spread, by introducing or spreading these species in contaminated soil, sediments or runoff. However, the risk of the Action causing an increase in marine invasive species is considered low and the risk of weeds and terrestrial pests can be managed through the mitigation measures to be documented and detailed in the EMP. The Marine Invasive Species Risk Assessment (Appendix D) determined that the risk of the Action increasing marine invasive species is considered low. Standard measures used to prevent impacts from construction on environmentally sensitive areas are widely considered to work and typically include the disinfection of footwear, vehicles, tools and equipment prior to entry to sensitive areas (particularly areas where the impact footprint intersects with waterways). It is therefore unlikely the Action would result in an invasive species harmful to the ecological character of the wetland, establishing or spreading.	Unlikely
Overall assessment		**Unlikely**

6.5 Listed threatened flora species

The following flora species have the *potential* to be impacted by the Action, however based on the assessment below, no significant impacts are expected from the Action.

6.5.1 River Swamp Wallaby-grass, Strzelecki Gum

Analysis showed that these species were likely to occur within the study area (refer Section 4.3.3). However, no individual plants were identified in targeted flora surveys undertaken for the Alberton Wind Farm (which extended over a larger area) and no suitable treed or wetland habitat will be removed by the currently proposed layout. Surveys took place at a suitable time (2 to 4 November 2016) to identify Strzelecki Gum noting that this species can only be differentiated from similar Swamp Gum during late Spring, when it displays distinctly glaucous (waxy) new growth. As such, no significant impacts to these species are expected from the Action.

6.5.2 Clover Glycine, Dense Leek-orchid, Eastern Spider-orchid, Maroon Leek-orchid, Metallic Sun-orchid, River Swamp Wallaby-grass, Strzelecki Gum, Thick-lip Spider-orchid

These species were likely to occur only in the adjacent State forests (refer Section 4.3.3), areas which have been excluded following design changes to mitigate impacts. None of these species were found during targeted surveys undertaken for the Alberton Wind Farm, which were conducted in early November and which is an appropriate time of year to survey for them. Given that none of these species were found during targeted surveys, and that the layout avoids areas of suitable habitat, it is unlikely that any of these species occur in the impact area. Therefore, no significant impacts to these species are expected from the Action.

6.6 Listed threatened bird species

6.6.1 Blue-winged Parrot

The significant impact assessment for the Action found that it is possible that the Action could cause significant impacts to the Blue-winged Parrot, without any mitigation measures. However, with the implementation of mitigation measures a significant impact is considered unlikely, as discussed below.

An action is likely to have a significant impact on this vulnerable species if there is a real chance or possibility that it will meet any of the significant impact criteria listed in Table 6.5.

Table 6.5 Significant Impact Assessment – Blue-winged Parrot

Significant impact criterion	Assessment	Significant impact likelihood
Lead to a long-term decrease in the size of an important population of a species	The Blue-winged Parrot population is roughly estimated at 10,000 mature individuals. They are highly mobile, with their population spreading across a vast range in mainland Australia that extends up to north-eastern South Australia, south-western Queensland, and western New South Wales. As detailed in the MNES Assessment (Appendix A), the species was frequently observed and observed in higher numbers near wooded areas. In Spring/Summer, flocks consisted of up to eight birds, with larger flocks up to 39 in Autumn. The species was semi-regularly seen at height, with 95 or 14.8% of flights recorded at RSA height. Flight heights differed between seasons, with 8.3% in Spring (three birds), 54.5% in Summer (18 birds), 13.1% in Autumn (68 birds), and 11.8% in Winter (six birds). The species is known elsewhere to fly at 40 m (approximately 60% of all observed flights from Nature Advisory at other wind farms in Victoria and Tasmania) and collision mortalities are known from other wind farms. If collision mortalities do occur, they are anticipated to be more frequent during Summer and Autumn. These may represent a sufficiently large portion of the population to cause a long-term decline. However, the potential for collisions can be proactively managed through the Project's BAMP (refer to the draft BAMP at Appendix I), which will detail adaptive strategies for mitigating risk and collision events to Blue-winged Parrots. It is expected that the implementation of the mitigation measures will reduce the likelihood of a significant impact to the species to be unlikely.	Possible (if no mitigation measures are implemented) or Unlikely (if mitigation measures are implemented)
Reduce the area of occupancy of an important population	The study area comprises mostly highly modified farmland. The small amount of native vegetation planned to be removed (less than 2 ha), including the removal of few trees, is unlikely to have any impact on the Blue-winged Parrot occupancy. The level of clearance is not expected to directly or indirectly impact on-site habitat and the nearby woodland, likely used for breeding, will not be impacted by the Action. The Action will not reduce the area of occupancy of the Blue-winged Parrot population.	Unlikely
Fragment an existing important population into two or more populations	Although farmland activities such as livestock grazing can degrade grassland habitat and reduce food resource availability, the Action activities during construction, operations and decommissioning are not expected to worsen these impacts or contribute further to habitat fragmentation. In Victoria, the Blue-winged Parrot is typically seen in small flocks using a range of open habitats with broad post-breeding dispersal across the State and no evidence of defined migratory routes through the Action Area. There is little evidence that wind farms pose a barrier for this species. It is not expected that the local or migratory population in the area would be impacted through fragmentation.	Unlikely

Significant impact criterion	Assessment	Significant impact likelihood
Adversely affect habitat critical to the survival of a species	The habitat critical to the survival of this species includes foraging, roosting, breeding, and staging habitats, including grasslands, grassy woodland and semi-arid chenopod shrubland, and nearby hollow-bearing trees and stumps. Breeding habitat in the study area is confined to the nearby State parks, with none present within the Project Footprint. Further, no mature trees with hollows are proposed for removal. Foraging habitat in the Action Area is mainly comprised of grazing paddocks and cleared farmland, which is abundant throughout the Action Area and wider region. It is not anticipated that the impacts to foraging/staging habitats within the Project Footprint represent an adverse impact to habitat critical to the survival of this species. There is no indication that the Action will affect habitat critical to the Blue-winged Parrot.	Unlikely
Disrupt the breeding cycle of a population	There is a potential small breeding population (eight birds) that forages within the Action Area and nests in the nearby wooded State parks. It is unlikely that the breeding habitat will be disturbed through the Action. Impacts to the breeding cycle may occur through collision mortality of nesting birds. However, due to the low number of nesting birds (up to eight), the loss of these breeding pairs would not be considered a Nationally significant size (if that did occur).	Unlikely
Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	Blue-winged Parrot habitat in the Action Area is largely associated with foraging areas and potential staging areas, consisting of grazed paddocks and cleared farmland. These areas will not be further altered in a way that would significantly impact the availability or quality of the species' food plants or the availability of the habitat in general. There is no indication that the Action will affect Blue-winged Parrot habitat availability or quality.	Unlikely
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	The Action will implement an EMP that addresses both construction and operational phases to control the spread and proliferation of invasive species and disease. It is unlikely that the Action will introduce or cause the proliferation of an invasive species that could cause the species to decline.	Unlikely
Introduce disease that may cause the species to decline	The Action will implement an EMP that addresses both construction and operational phases to control the spread and proliferation of invasive species and disease. It is unlikely that the Action will introduce or cause the proliferation of a disease that may cause the species to decline.	Unlikely
Interfere substantially with the recovery of the species	A recovery plan for this species has not been prepared, though it is noted as required by DCCEEW. To make an assessment against these criteria the MNES Assessment (Appendix A) utilised the listed threats to the species and concluded that the Action is unlikely to substantially increase any of the identified threats.	Unlikely
Overall assessment		**Possible (if no mitigation measures are implemented)** **or** **Unlikely (if mitigation measures are implemented)**

6.6.2 Gang–gang Cockatoo

The significant impact assessment found that the Action is unlikely to cause significant impacts to the Gang-gang Cockatoo. The development of adaptive mitigation measures included within a BAMP will reduce impacts further.

An action is likely to have a significant impact on this endangered species if there is a real chance or possibility that it will meet any of the significant impact criteria listed in Table 6.6.

Table 6.6 Significant Impact Assessment – Gang-gang Cockatoo

Significant impact criterion	Assessment	Significant impact likelihood
Lead to a long-term decrease in the size of a population	Three observations of Gang-gang Cockatoo flocks during field surveys coupled with numerous records from the region suggest the species is an infrequent but regular visitor to the site. Lower numbers would be expected in the warmer months when the species migrate into the highlands to the north. The species may occasionally fly through the Action Area during the colder months when traversing between foraging habitat or from its Summer highland range. The majority of historical records and modelled habitats are constrained to the heavily treed areas, such as Alberton and Gelliondale State parks, where suitable food resources exist (for example flowers, seed pods, etc.). The species was too scarce in the Action Area to have sufficient data to run a collision risk model. Collisions with wind turbines are known though Nature Advisory's collision mortality database, noting that it contains very few records of Gang-gang Cockatoo from over 17 years of monitoring. Whilst there is a potential for the species to interact with the turbines in the Action Area however the frequency and likelihood of impacts are considered low. Notwithstanding the risks, collision risks are able to be proactively managed through the BAMP which details adaptive strategies for mitigating risk and collision events to Gang-gang Cockatoos.	Unlikely
Reduce the area of occupancy of the species	Gang-gang Cockatoo occupancy is closely tied to the availability of foraging habitat, which is tall eucalypt woodland. The highest quality patches are within the adjacent State parks. The Action proposes the removal of approximately 0.13 ha of heathy woodland that may provide some level of suitable habitat and two manna gums. The habitat removal includes three patches near Port Anthony, several kilometres away from the known suitable habitat at Alberton and Gelliondale State parks. A removal of this extent, particularly considering the infrequent occurrence of the species and abundance of nearby high-quality habitat, is unlikely to impact the area of occupancy for the species.	Unlikely
Fragment an existing population into two or more populations	The Gang-gang Cockatoo is a broad-ranging species that is present across much of Victoria. No key habitat corridors exist in the Action Area at a scale that would be impacted or cause fragmentation. The study area represents a non-breeding habitat for the species and thus it is unlikely that the Action will cause a fragmentation of the species' movement or breeding habitat.	Unlikely
Adversely affect habitat critical to the survival of a species	Habitat critical for Gang-gang cockatoos includes both breeding and foraging habitat and largely comprises tall eucalypt forest. The study area does not contain breeding habitat for the species. The Action proposes the removal of approximately 0.13 ha of heathy woodland that may provide some level of suitable foraging habitat. The removal of this woodland, considering the infrequent occurrence of the species and abundance of nearby high-quality habitat, is unlikely to impact habitat critical to the survival of the species.	Unlikely
Disrupt the breeding cycle of a population	The Gang-gang Cockatoo breeds in tall, mature, wet sclerophyll forests which are not present in the study area therefore the Action is unlikely to disrupt the breeding cycle of the Gang-gang Cockatoo.	Unlikely

Significant impact criterion	Assessment	Significant impact likelihood
Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	As noted above, the Action proposes the removal of a small area of heathy woodland that may provide some level of suitable foraging habitat. The Action's impacts upon native vegetation are unlikely to result in the decline of the Gang-gang Cockatoo.	Unlikely
Result in invasive species that are harmful to an endangered or critically endangered species becoming established in the endangered or critically endangered species' habitat	The Action is unlikely to result in the introduction or proliferation of an invasive species that may be harmful to these species. A number of invasive species are already established, including cats, European honeybees and a range of birds such as Common Myna and European Starlings. These species may have some impact on the Gang-gang Cockatoo, but their impacts will not be promoted by the Action. As previously discussed, an EMP will be implemented that addresses both construction and operational phases to control the spread and proliferation of invasive species and disease. Therefore, it is unlikely that the Action will introduce or cause the proliferation of an invasive species that could cause the species to decline.	Unlikely
Introduce disease that may cause the species to decline	The EMP that will be implemented will address both construction and operational phases to control the spread and proliferation of disease. Accordingly, it is unlikely that the Action will introduce or cause the proliferation of a disease that may cause the species to decline.	Unlikely
Interfere with the recovery of the species	The Action may reduce the availability of foraging habitat. However, this is very small (0.13 ha) in the context of the wider areas of habitat. No impacts are expected on the breeding or movement of the species. Thus, it is unlikely the Action will interfere with the recovery of the species.	Unlikely
Overall assessment		**Unlikely**

6.6.3 Latham's Snipe

The significant impact assessment found that the Action is unlikely to result in significant impacts to the Latham's Snipe. The development of adaptive mitigation measures included within a BAMP will reduce impacts further.

An action is likely to have a significant impact on this vulnerable species if there is a real chance or possibility that it will meet any of the significant impact criteria listed in Table 6.7.

Table 6.7 Significant Impact Assessment – Latham's Snipe

Significant impact criterion	Assessment	Significant impact likelihood
Lead to a long-term decrease in the size of an important population	An important population of Latham's Snipe is defined as an area supporting 18 or more birds. No such habitat has been identified in the study area, with the species observed four times in a maximum flock size of one. There is no identified important population in the Action Area, and the nearest population is likely to be within the Corner Inlet Ramsar site, which is unlikely to be impacted. No impacts are expected on habitat that could lead to a long-term decrease in the size of an important population. Latham's Snipe are a typically low-flying species with flights between roosts and foraging habitat typically below 40 m. Migratory and other longer distances flights are often well over 1,000 m in height. No Latham's Snipe have been recorded in publicly available bird mortality datasets in Victoria, or in Nature Advisory's own dataset of bird mortalities at wind farms over the last 17 years. Collisions are considered unlikely to lead to a long-term decrease in the size of an important population of Latham's Snipe.	Unlikely
Reduce the area of occupancy of an important population	No important population or important habitat has been identified within the Action Area. The only area of wetland habitat that occurs in the Project Footprint is in a Habitat Zone (HZ) that includes an area of Aquatic Herbland (EVC 653) that is one of several semi-permanent wetlands occurring in low-lying areas of paddocks and drainage lines. Vegetation in these wetlands consists of rushes, aquatic herbs, and exotic tussock-forming grasses, which provide structurally suitable daytime roosting habitat for the species. This HZ appears to be an area that could plausibly be used by Latham's Snipe, although this was not where the species was observed. The area that will be removed by the Action is approximately 0.05 ha of this potentially suitable habitat. It is considered unlikely that the Action will reduce the area of occupancy of an important population of the species.	Unlikely
Fragment an existing important population into two or more populations	The Australian population of Latham's Snipe is considered the one population, East Asian-Australasian Flyway population, which spreads across Australia during their non-breeding season in the austral Summer. Wind farms are considered a barrier to migratory species however it is unlikely that the size and location of Action will fragment the flyway population. Further, the habitat of the species will not be impacted through the Action. The Action is therefore unlikely to fragment an existing important population into two or more populations.	Unlikely
Adversely affect habitat critical to the survival of a species	Areas of Nationally or internationally important habitat are considered habitat critical and defined as areas supporting more than 18 birds at once. The maximum number of birds observed at once was one, all being around a dam which is not considered high-quality habitat. Impacts to potential habitat includes removal of 0.05 ha, the extent of these impacts are unlikely to affect the survival of the species and unlikely to affect habitat defined as critical.	Unlikely
Disrupt the breeding cycle of an important population	This species does not breed in Australia, and the Action is unlikely to disrupt the breeding cycle of an important population of the species.	Unlikely

Significant impact criterion	Assessment	Significant impact likelihood
Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The Action includes the removal of 0.05 ha of potential habitat. No other areas of habitat will be modified, destroyed, isolated, or experience a decrease in quality or availability. It is considered unlikely that the Action will cause the species to decline as a very small area of potentially important Latham's Snipe habitat will be removed and the Corner Inlet Ramsar site is nearby and provides abundant higher-quality habitat.	Unlikely
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	The invasive species identified as threats to Latham's Snipe in the *Conservation Advice* for the species (DCCEEW 2024) are cats and foxes. Both predators already exist in the area and there is no reason why the Action would result in increase in numbers of these predators. As discussed, the Action will implement an EMP that addresses both construction and operational phases to control the spread and proliferation of invasive species. It is unlikely that the Action will introduce or cause the proliferation of an invasive species that could cause the species to decline.	Unlikely
Introduce disease that may cause the species to decline	No diseases have been identified as threats to Latham's Snipe in the Conservation Advice for the species. Further, the Action will implement an EMP to control the spread and proliferation of invasive species. It is therefore unlikely that the Action will introduce or cause the proliferation of a disease that may cause the species to decline.	Unlikely
Interfere substantially with the recovery of the species	MNES Assessment (Appendix A) shows that modelling and data suggest that the Action is not situated in an area where important habitat is known to occur. A very small amount of potential habitat (0.05 ha) is proposed for removal. The extent of impacts is not considered sufficient to interfere substantially with the recovery of the species, as it is unlikely to result in any observable or measurable changes to the population.	Unlikely
Overall assessment		**Unlikely**

6.6.4 Swift Parrot

The significant impact assessment found that the Action is unlikely to cause significant impacts to the Swift Parrot. The development of adaptive mitigation measures included within a BAMP will reduce impacts further.

An action is likely to have a significant impact on this critically endangered species if there is a real chance or possibility that it will meet any of the significant impact criteria listed in Table 6.8.

Table 6.8 Significant Impact Assessment – Swift Parrot (EPBC Act: Critically Endangered)

Significant impact criterion	Assessment	Significant impact likelihood
Lead to a long-term decrease in the size of a population	Few records for Swift Parrot exist in the area. During field surveys a single observation of a Swift Parrot occurred and a single historical record was found that suggests the Swift Parrot is an infrequent visitor to the Action Area. Because of the extremely low population of the species, the removal of any individuals could have an impact on the population size. However, as described in the MNES Assessment (Appendix A) the likelihood of collision is very low and is able to be proactively managed through the BAMP. The draft BAMP will detail adaptive strategies for mitigating risk and collision events to the Swift Parrot.	Unlikely
Reduce the area of occupancy of the species	The Action is not located within a key biodiversity area for Swift Parrot however, they are known to use the area to some degree. The Action includes the removal of two moderately sized Manna Gums which are potential foraging trees and approximately 0.164 ha of vegetation that contains a low density of suitable foraging habitat. 0.1% (0.42 ha of 375.66 ha) of the Swift Parrot habitat is to be removed by the Action. Considering the dispersive nature of the species in the area, its apparent low use of the local area, and the small percentage of foraging habitat being removed – the Action is unlikely to reduce the area of occupancy of the Swift Parrot.	Unlikely
Fragment an existing population into two or more populations	The MNES Assessment (Appendix A) explains that the Swift Parrot represents a single broad-ranging migratory population, which breeds exclusively in Tasmania. The species may visit the Action Area between March and October during their non-breeding season. As previously discussed, the habitat found onsite represents a foraging habitat that would only be used during the non-breeding season and only when suitable food plants are in flower. The Action will remove minimal foraging habitat (0.164 ha and two moderate-sized trees) and will not create any barriers for such a wide-ranging species. Therefore, it is considered very unlikely the Action would result in the fragmentation of the Swift Parrot population.	Unlikely
Adversely affect habitat critical to the survival of a species	The National Recovery Plan for the Swift Parrot explains that critical foraging habitat for the species on mainland Australia includes Yellow Gum (E. *leucoxylon*); Red Ironbark (*E. tricarpa*); Mugga Ironbark (*E. sideroxylon*); Grey Box (*E. macrocarpa*); White Box (*E. albens*); Yellow Box (*E. melliodora*); Swamp Mahogany (*E. robusta*); Forest Red Gum (*E. tereticornis*); Blackbutt (*E. pilularis*); and Spotted Gum (*Corymbia maculata*). The MNES Assessment (Appendix A) concluded that only the Spotted Gum was recorded in the Action and will not be impacted by the Action. Other species that are potential foraging trees but are not listed as critical habitat are located within the Action Area, including the planted Blue Gum, Swamp Gum, and Manna Gum. Two moderately sized Manna Gums will be removed, along with 0.164 ha of habitat that may contain smaller trees. The removal of this habitat is minimal considering the surrounding context, where the majority of identified habitat was avoided during the design phase of the Action. The Action is therefore considered unlikely to adversely affect habitat critical for the survival of the Swift Parrot.	Unlikely
Disrupt the breeding cycle of a population	Swift Parrots breed exclusively in Tasmania and the Action is very unlikely to disrupt the species' breeding cycle.	Unlikely

Significant impact criterion	Assessment	Significant impact likelihood
Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	As noted above, the Action includes the removal of two potentially suitable trees and 0.164 ha of potentially suitable foraging habitat. It is unlikely to contribute to the species' declines as the removal is such a small area of habitat and the Action Area is not identified as a key area for the species and is infrequently utilised.	Unlikely
Result in invasive species that are harmful to an endangered or critically endangered species becoming established in the endangered or critically endangered species' habitat	The Action is unlikely to result in the introduction or proliferation of an invasive species that could be harmful to the Swift Parrot. The Swift Parrot is susceptible to predation by Sugar Gliders in Tasmania when using nesting hollows but only during breeding season The Action Area already has a number of invasive species including cats, European honeybees, and a range of birds however none of these species are identified as key threats to the Swift Parrot. It is unlikely the Action will result in an increase in invasive species. Further, the Action will implement an EMP to prevent and control the spread and proliferation of invasive species.	Unlikely
Introduce disease that may cause the species to decline	The species appears to be susceptible to psittacine beak and feather disease however, the Action will not engage in any activities known or likely to introduce or spread this or any other disease harmful to this species. In addition, the EMP will be implemented to prevent and control the spread and proliferation of disease.	Unlikely
Interfere with the recovery of the species	The Action has a small degree of habitat loss in an area rarely frequented by these species and is unlikely to interfere with the recovery plan objectives	Unlikely
Overall assessment		**Unlikely**

6.6.5 White-throated Needletail

The significant impact assessment found that the Action is unlikely to cause significant impacts to the White-throated Needletail.

An action is likely to have a significant impact on this vulnerable species if there is a real chance or possibility that it will meet any of the significant impact criteria listed in Table 6.9.

Table 6.9 Significant Impact Assessment – White-throated Needletail (EPBC: Vulnerable)

Significant impact criterion	Assessment	Significant impact likelihood
Lead to a long-term decrease in the size of an important population of a species	The MNES Assessment (Appendix A) reviewed the historical records and completed observations during field surveys for the species. The assessment suggests that the White-throated Needletails (WTNT) are regular visitors to the Action Area during the warmer months. WTNT are known to regularly fly at height and experience turbine collisions however the extent to which collision mortality impacts upon their total population is not known. The WTNT population is estimated to be 41,000, with a Nationally significant number of 41 birds. Collision risk modelling suggests an average mortality of 1.4 birds and is well below the mortality rates predicted to have a serious disruption of the species. The potential for collision is able to be proactively managed through the Project's BAMP, which will detail strategies for mitigating risk and collision events to WTNT.	Unlikely
Reduce the area of occupancy of an important population	The WTNT critical habitat includes breeding grounds in the northern hemisphere and potential roosting sites in Australia however no critical habitat is currently identified within Australia. The Action will not reduce the extent of the species' range in any meaningful way.	Unlikely
Fragment an existing important population into two or more populations	There is one population of WTNT that visits Australia and the population uses the Action Area and surrounding areas however the WTNT are known to move between, under and around the turbine blades. There are no clear mechanisms by which the Action will fragment the Australian population of WTNT.	Unlikely
Adversely affect habitat critical to the survival of a species	No critical habitat for the WTNT has been identified within Australia and the habitat that has been modelled in the region does not constitute habitat critical for the species.	Unlikely
Disrupt the breeding cycle of a population	WTNT breed in the Northern Hemisphere and therefore the Action is not able to disrupt the breeding cycle of the species.	Unlikely
Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The WTNT is mainly aerial and the MNES Assessment (Appendix A) explains that it prefers airspace over wooded habitats. This habitat exists largely in the adjacent State parks and other wooded areas, which are largely retained by the Action. The reduction of any small aspects of preferred habitat (such as the few trees proposed for removal) is unlikely to result in the species decline due to the abundance nearby and the species dispersive nature across most of south-eastern Australia.	Unlikely
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	The Action will implement an EMP that addresses both construction and operational phases to control the spread and proliferation of invasive species and disease. It is unlikely that the Action will introduce or cause the proliferation of an invasive species that could cause the species to decline.	Unlikely

Significant impact criterion	Assessment	Significant impact likelihood
Introduce disease that may cause the species to decline	The Action will implement an EMP to control the spread and proliferation of disease. It is unlikely that the Action will introduce or cause the proliferation of a disease that may cause the species to decline.	Unlikely
Interfere substantially with the recovery of the species	The recovery of this species likely relies upon protection and revegetation of WTNP breeding grounds in Asia and will not be impacted by the Action. The impacts to the preferred habitat are minimal and no critical habitat is to be impacted by the Action.	Unlikely
Overall assessment		**Unlikely**

6.7 Listed threatened mammal species

Based on the likelihood of occurrence assessment detailed in Chapter 4, the following mammal species listed under the EPBC Act are likely to occur or have the potential to occur in the Action Area and so have some potential to be impacted by the Action.

- Grey-headed Flying-fox *Pteropus poliocephalus* (Vulnerable)
- Long-nosed Potoroo *Potorous tridactylus trisulcatus* (Vulnerable)
- Southern Brown Bandicoot *Isoodon obesulus obesulus* (Endangered)
- Swamp Antechinus *Antechinus minimus maritimus* (Vulnerable).

6.7.1 Grey-headed Flying-fox

The significant impact assessment found that the Action is unlikely to cause significant impacts to the Grey-headed Flying-fox.

An action is likely to have a significant impact on this vulnerable species if there is a real chance or possibility that it will meet any of the significant impact criteria listed in Table 6.10.

Table 6.10 Significant Impact Assessment – Grey-headed Flying-fox

Significant impact criterion	Assessment	Significant impact likelihood
Lead to a long-term decrease in the size of an important population of a species	The Grey-headed Flying-fox is considered to be a single mobile population extending across Queensland, New South Wales, Victoria, South Australia, Tasmania and the Australian Capital Territory and estimates put the population at 680,000 individuals. The criteria of a Nationally important camp are those that contain more than10,000 Flying-foxes in more than one year over the last 10 years or those that are occupied by more than 2,500 permanently or seasonally every year for the last 10 years. The MNES Assessment (Appendix A) identified the closest colony per the National Flying-fox Monitoring program is at Woodside, approximately 23 km east of the Action Area and seasonally camps are located to the west and southwest (7.5 to 13 km). Surveys in January 2025 estimated that 2,000 individuals use these camps and the seasonal camps do not currently meet the criteria of a Nationally important camp. The Action Area is within 100 km of the camps. It is therefore within the daily foraging range, however the MNES Assessment (Appendix A) suggests the habitat is unlikely to be high-quality and the Action does not present any meaningful mechanism to disturb known camps or remove any high-quality foraging habitat. There is potential for collision with the operating turbines and the species is known to experience mortalities from other wind farms. Therefore, there is some level of risk on impacting a camp approaching a Nationally important number of individuals. However, a systematic monitoring program and mitigation measures will be employed, and their effectiveness assessed, during the operational phase through implementation of a BAMP, which will reduce any such risk.	Unlikely
Reduce the area of occupancy of an important population	The Action is situated in an area modelled as no habitat, with some low-quality areas present in the adjacent State parks and Ramsar wetlands. The Action avoids the removal of suitable habitat and it is unlikely that the Action will reduce the area of occupancy of an important population.	Unlikely

Significant impact criterion	Assessment	Significant impact likelihood
Fragment an existing important population into two or more populations	The species is considered a single highly mobile population extending from Queensland to South Australia. It is known to move upwards of 1,000 km seasonally and make daily movements of over 140 km. It is therefore unlikely that the proposed development will lead to a fragmentation of the population.	Unlikely
Adversely affect habitat critical to the survival of a species	A camp is not located within the Action Area. In addition, the Action Area does not contain high-quality foraging or roosting habitat and very little native vegetation is being affected by the Action. The Action is therefore unlikely to affect habitat critical to the survival of the species.	Unlikely
Disrupt the breeding cycle of a population	Roosts are the only breeding sites for the species and while the Action is located in the vicinity of several camps and poses a level of collision impacts to individuals using these camps, it is unlikely to critically disrupt the breeding cycle.	Unlikely
Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The Action Area does not contain high-quality foraging or roosting habitat. Although the Action plans to remove some native vegetation, none constitutes an important foraging resource for the species. The Action will unlikely modify, destroy, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.	Unlikely
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	The Action will implement an EMP that addresses both construction and operational phases to control the spread and proliferation of invasive species and disease. It is therefore unlikely that the Action will introduce or cause the proliferation of an invasive species that could cause the species to decline.	Unlikely
Introduce disease that may cause the species to decline	As previously discussed, the Action will implement an EMP that addresses the construction and operational phases to control the spread and proliferation of disease. It is unlikely that the Action will introduce or cause the proliferation of a disease that may cause the species to decline.	Unlikely
Interfere substantially with the recovery of the species	The site is not considered an important habitat for the recovery of this species. It will likely continue to be used for intensive grazing by landholders. Though there may be some potential level of impact from collision, it is unlikely to have a substantial impact on the recovery of the species.	Unlikely
Overall assessment		**Unlikely**

6.7.2 Long-nosed Potoroo

The significant impact assessment found that the Action is unlikely to cause significant impacts to the Long-nosed Potoroo.

An action is likely to have a significant impact on this vulnerable species if there is a real chance or possibility that it will meet any of the significant impact criteria listed in Table 6.11.

Table 6.11 Significant Impact Assessment – Long-nosed Potoroo

Significant impact criterion	Assessment	Significant impact likelihood
Lead to a long-term decrease in the size of an important population	The nearest important population of the species is located in Wilsons Promontory. No connectivity exists between the study area and this important population, or any other identified important population. Any population of the species in the study area is unlikely to be a key source population for breeding or dispersal, as this species is not highly mobile. Any individuals using the study area could not reasonably be considered part of any important population and therefore the Action is unlikely to lead to a long-term decrease in the size of an important population.	Unlikely
Reduce the area of occupancy of an important population of the species	The MNES Assessment (Appendix A) suggests that while the Action Area contains potential high-quality habitat, no important population of the species is likely to occur in the study area. The Action is therefore unlikely to lead to a long-term decrease in the area of occupancy of an important population of the species.	Unlikely
Fragment an existing important population into two or more populations	No important population of the species is likely to occur in the study area; therefore the Action is unlikely to fragment an existing important population into two or more populations. There is potential that the Action will reduce connectivity between Alberton and Gelliondale State parks through the removal of roadside vegetation however such removal is unlikely to have a significant impact.	Unlikely
Adversely affect habitat critical to the survival of a species	All potentially suitable habitat patches in the study area are less than10 ha and none are considered to be critical to the survival of the species, see MNES Assessment (Appendix A). The species is not known to have occurred in the study area, or from the adjacent modelled high-quality habitats in the State parks and Ramsar sites. The Action is therefore considered unlikely to adversely affect habitat critical to the survival of the species.	Unlikely
Disrupt the breeding cycle of an important population	No important population of the species is likely to occur in the study area therefore the Action is unlikely to disrupt the breeding cycle of an important population.	Unlikely
Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	Habitat patches in the study area have some level of connectivity to larger areas of potentially high-quality habitat. The area of habitat to be removed from these habitat patches is around 0.3 ha and well below the minimum home range size of 19 ha. As the area of habitat to be removed comprises only a small fraction of the area required to support a single individual, it is considered unlikely that the Action would modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.	Unlikely

Significant impact criterion	Assessment	Significant impact likelihood
Result in invasive species that are harmful to an endangered or critically endangered species becoming established in the endangered or critically endangered species' habitat	The invasive species identified in the MNES Assessment (Appendix A) as threats to Long-nosed Potoroo are cats, foxes, wild dogs, feral pigs, livestock and invasive weeds. There is no apparent mechanism or clear reason why the Action would result in the proliferation of these species. Cats, foxes, and livestock are already present in the study area and are widespread across South Gippsland. Further, the Action will implement an EMP that addresses both construction and operational phases to control the spread and proliferation of invasive species and disease. Therefore, it is considered unlikely that the Action would result in invasive species harmful to the Long-nosed Potoroo becoming established in its habitat.	Unlikely
Introduce disease that may cause the species to decline	Toxoplasmosis is identified as a disease threatening Long-nosed Potoroo and this disease is spread by feral cats. There is no apparent mechanism for the Action to result in an increased presence of feral cats in the study area. *Phytophthora cinnamomi* is a fungus that causes dieback in plants, and this disease can damage the habitat of Long-nosed Potoroo. The Action will implement an EMP that addresses both construction and operational phases to control the spread and proliferation of invasive species and disease. Therefore, it is considered unlikely that the Action would introduce disease that may cause the species to decline.	Unlikely
Interfere with the recovery of the species	There is no apparent or clear mechanism for the Action to interfere with the recovery of the species.	Unlikely
Overall assessment		**Unlikely**

6.7.3 Southern Brown Bandicoot

The significant impact assessment found that the Action is unlikely to cause significant impacts to the Southern Brown Bandicoot.

An action is likely to have a significant impact on this endangered species if there is a real chance or possibility that it will meet any of the significant impact criteria listed in Table 6.12.

Table 6.12 Significant Impact Assessment – Southern Brown Bandicoot

Significant impact criterion	Assessment	Significant impact likelihood
Lead to a long-term decrease in the size of a population	There are some habitat patches in the Activity Area (with a combined total area of 0.64 ha) that are proposed to be removed that are connected to sufficiently large areas of habitat that could plausibly support the species. The low end of home range size for the species is 0.5 ha. It is therefore theoretically possible that the carrying capacity of the study area will be reduced by 1 individual, which would constitute a long-term decrease in the size of the local Southern Brown Bandicoot population. However, the areas of connected habitat include Alberton State Forest, which is more than 100 ha. As 5% of 100 ha is 5 ha, and the amount of habitat removed falls below this threshold, it is considered unlikely the Action will significantly impact the species under this criterion.	Unlikely
Reduce the area of occupancy of the species		Unlikely
Fragment an existing population into two or more populations	The Action will not result in a reduction in the width of any vegetation corridors for the Southern Brown Bandicoot, as the Project Footprint does not intersect with areas of plausible habitat in the manner required to do so. The Action does technically result in fragmentation of suitable habitat removing a very small amount of habitat in their southern areas to be isolated from other connected patches to the north, by more than 50 m across a natural surface. However, the very small size of the isolated areas makes this a negligible consideration. The removal of habitat along Coal Mine Road causes a link between the Great Southern Rail Trail and Alberton State Forest to be broken by a gap of more than 50 m across a natural surface. However, connectivity also exists between these two areas along Lanes Road. It is considered unlikely that the Action will fragment an existing population into two or more populations.	Unlikely
Adversely affect habitat critical to the survival of a species	Habitat critical to the survival of the species has not been formally defined by the Commonwealth but is likely to be considered habitat with an understorey vegetation structure of 50 to 80% density in the 0.2 to 1 m height range. Based on this, 0.64 ha of total vegetation proposed to be removed by the Action is considered habitat. The areas of connected habitat include Alberton State Forest, which is more than 100 ha. As, 5% of 100 ha is 5 ha, and the amount of habitat removed falls well below this threshold - it is considered unlikely the Action will significantly impact the species under this criterion.	Unlikely
Disrupt the breeding cycle of a population.	There is no clear or apparent mechanism for how the Action might disrupt the breeding cycle of a population of Southern Brown Bandicoot. Habitat use in this species is not segregated between sexes or life stages, and a specific breeding habitat is not required. Olfactory cues are likely the main form of breeding-related communication in this species, and there is no apparent reason the Action would interfere with their function. Therefore, it is considered that the Action is unlikely to disrupt the breeding cycle of the Southern Brown Bandicoot population.	Unlikely
Modify, destroy, remove or isolate or decrease the availability or quality	See Assessment for the criterion “Lead to a long-term decrease in the size of a population”. For the same reasons, it is considered unlikely the Action will modify,	Unlikely

Significant impact criterion	Assessment	Significant impact likelihood
of habitat to the extent that the species is likely to decline	destroy, remove or isolate, or decrease the availability or quality of habitat to the extent that the species is likely to decline.	
Result in invasive species that are harmful to an endangered or critically endangered species becoming established in the endangered or critically endangered species' habitat	The invasive species identified in the MNES Assessment (Appendix A) as being potentially harmful to the Southern Brown Bandicoot are foxes, feral cats, and feral rabbits. All three of these species are likely already present in the study area, being widespread across South Gippsland. There is no clear or apparent mechanism for the Action to cause an increased presence of foxes or feral cats. The soil disturbance resulting from construction could result in higher densities of rabbits, as they find it easier to burrow in the loose, disturbed soil. The EMP that is to be implemented for the Action will address this potential issue. It is considered unlikely that the Action would result in invasive species harmful to the Southern Brown Bandicoot becoming established in its habitat.	Unlikely
Introduce disease that may cause the species to decline	Toxoplasmosis is identified as a disease threatening the Southern Brown Bandicoot and this disease is spread by feral cats. There is no apparent mechanism for the Action to result in an increased presence of feral cats in the study area. *Phythophthora cinnamomi* is a fungus that causes dieback in plants, and this disease can damage the habitat of the Southern Brown Bandicoot. As previously noted, the Action will implement an EMP that addresses both construction and operational phases to control the spread and proliferation of invasive species and disease. Therefore, it is considered unlikely that the Action would introduce a disease that may cause the species to decline.	Unlikely
Interfere with the recovery of the species	There is no apparent mechanism for the Action to interfere with the recovery of the species.	Unlikely
Overall assessment		**Unlikely**

6.7.4 Swamp Antechinus

The significant impact assessment found that the Action is unlikely to cause significant impacts to the Swamp Antechinus.

An action is likely to have a significant impact on this vulnerable species if there is a real chance or possibility that it will meet any of the significant impact criteria listed in Table 6.13.

Table 6.13 Significant Impact Assessment – Swamp Antechinus

Significant impact criterion	Assessment	Significant impact likelihood
Lead to a long-term decrease in the size of an important population	No important populations for Swamp Antechinus have formally been defined by the Commonwealth. The easternmost records of the species are from Snake and Sunday Islands within Corner Inlet. It has not previously been recorded in the study area, Alberton or Gelliondale State forests, or the Albert River riparian corridor. However, if a local population were present, it would form the easternmost limit of the species' known distribution and would therefore be considered important. Within the study area, 0.64 ha of impacted habitat patches are connected to sufficiently large areas of habitat that they could plausibly support the species. The low end of home range size for the species on the mainland is 1.1 to 1.3 ha and therefore 0.64 ha comprises a substantial fraction of such a home range. It is therefore theoretically possible that the carrying capacity of the study area will be reduced by up to one individual, which could constitute a long-term decrease in the size of the local Swamp Antechinus population. However, there is a low confidence estimate of 100,000 mature individuals and the reduction in carrying capacity of the study area by less than one individual is a negligible impact. Therefore, it is considered unlikely that the species will be significantly impacted under this criterion.	Unlikely
Reduce the area of occupancy of an important population of the species	As any population present in the study area would constitute the eastern limit of the species range, it would be considered an important population. As noted above, within the study area, 0.64 ha of impacted HZ are connected to sufficiently large areas of habitat that they could plausibly support the species and this would constitute a reduction in the area of occupancy of the local Swamp Antechinus population. This impact would not be considered significant to the species considering the surrounding abundance of habitat. For the above reasons, it is considered unlikely that the species will be significantly impacted under this criterion.	Unlikely
Fragment an existing important population into two or more populations	As any population present in the study area would constitute the eastern limit of the species range, it would be considered an important population. Within the study area, 0.64 ha of impacted HZ are connected to sufficiently large areas of habitat that they could plausibly support the species and this would constitute a reduction in the area of occupancy of the local Swamp Antechinus population. Some impacts will narrow the existing corridor, but enough of it remains for connectivity to continue. The impacts will break connectivity between Alberton State Forest and the Great Southern Rail Trail along Coal Mine Road however an alternative connecting corridor exists along Lanes Road. Other HZ impact will create sufficiently large gaps in roadside vegetation strips that Swamp Antechinus movement is likely to be inhibited, causing fragmentation. However, the size of the isolated fragments is small enough to be considered negligible (approximately 0.1 ha in total). A larger fragment will be isolated however it is anticipated that all these impacts will be temporary. It is therefore considered unlikely that Swamp Antechinus will be significantly impacted under this criterion.	Unlikely

Significant impact criterion	Assessment	Significant impact likelihood
Adversely affect habitat critical to the survival of a species	As detailed in MNES Assessment (Appendix A) habitat critical to the survival of the Swamp Antechinus has not been formally defined by the Commonwealth but is likely to be damp areas of dense vegetation 1-2 m high that is at a relatively late stage of vegetative succession (more than15 years post-disturbance). The species could occupy several HZs in the study area that appear to have been disturbed too recently to be critical to the survival of the species. These are areas of Swamp Scrub where the Swamp Paperbark canopy was generally sparse or absent, and most woody species were recruiting. Additionally, the grassy or sedgy understory in these areas is likely too short. There are other HZs that are less disturbed, with more late-succession vegetation, that are more likely to be suitable for the species. Shrubbery, likely in the 1-2 m height range, also appears to be denser and more prominent in some of these areas. However, as these areas are Heathy Woodland (EVC 48), and rushes and sedges are only distributed in patches, they may not be damp enough to be considered habitat critical to the survival of the species. Accordingly, it is considered unlikely that Swamp Antechinus will be significantly impacted under this criterion.	Unlikely
Disrupt the breeding cycle of an important population	As any population present in the study area would constitute the eastern limit of the species range, it would be considered an important population. Olfactory cues are likely the main form of breeding-related communication in this species, and there is no apparent reason the Action would interfere with their function. It is considered unlikely that Swamp Antechinus will be significantly impacted under this criterion.	Unlikely
Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	See Assessment for the criterion “Lead to a long-term decrease in the size of a population”. For the same reasons, it is considered unlikely the Action will modify, destroy, remove or isolate, or decrease the availability or quality of habitat to the extent that the species is likely to decline.	Unlikely
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species’ habitat	MNES Assessment (Appendix A) details the invasive species identified as threats to the Swamp Antechinus including foxes, feral cats, livestock and feral herbivores (presumably ungulates). All of these species are known to be widespread across South Gippsland and likely already occur in the study area. There is no clear or apparent mechanism for the Action to result in an increased presence of these species. As previously discussed, the Action will implement an EMP that addresses both the construction and operational phases to control the spread and proliferation of invasive species and disease. It is unlikely that the Action will introduce or cause the proliferation of an invasive species that could cause the species to decline.	Unlikely
Introduce disease that may cause the species to decline	*Phythophthora cinnamomi* is a fungus that causes dieback in plants, and this disease can damage the habitat of Swamp Antechinus. The Action will implement an EMP that addresses both construction and operational phases to control the spread and proliferation of invasive species and disease. Therefore, it is considered unlikely that the Action would introduce a disease that may cause the species to decline.	Unlikely
Interfere with the recovery of the species	There is no apparent mechanism for the Action to interfere with the recovery of the species.	Unlikely
Overall assessment		**Unlikely**

6.8 Listed threatened fish species

Based on the likelihood of occurrence assessment detailed in Chapter 4, the following fish species listed under the EPBC Act are likely to occur or have the potential to occur onsite and therefore have potential to be impacted by the Action:

- Australian Grayling *Prototroctes maraena* (Vulnerable)
- Dwarf Galaxias *Galaxiella pusilla* (Endangered).

6.8.1 Australian Grayling

The significant impact assessment found that the Action is unlikely to cause significant impacts to the Australian Grayling.

An action is likely to have a significant impact on this vulnerable species if there is a real chance or possibility that it will meet any of the significant impact criteria listed in Table 6.14.

Table 6.14 Significant Impact Assessment – Australian Grayling

Significant impact criterion	Assessment	Significant impact likelihood
Lead to a long-term decrease in the size of an important population	The Albert River catchment is not listed as one of the Victorian population's known as historical strongholds of the species and the Albert River population is also not near the limits of the species' range. The Australian Grayling populations across Victoria appear connected because their larvae are highly dispersive during the marine phase of their life cycle, allowing them to move into different river systems. Victorian populations have been identified as a single genetic population and it does not appear that the area's local Australian Grayling population is a key source population for breeding and dispersal. It is therefore unlikely that the Action will lead to a long-term decrease in the size of an important population of the species.	Unlikely
Reduce the area of occupancy of an important population	The local Australian Grayling population does not appear to be an important population and the Action is unlikely to reduce the area available downstream in the Ramsar wetland. Hydrological downstream impacts to the Corner Inlet Ramsar site have been assessed in the Flood, Erosion and Sediment Run-Off Impact Assessment (Appendix B) and minimal impacts are expected. There is a risk of contamination of waterways, but it is considered to be minimal provided appropriate measures are taken such as those outlined in the EMP outline and discussed further at Chapter 7. It is therefore unlikely the Action will reduce the area of occupancy of an important population of the species.	Unlikely
Fragment an existing important population into two or more populations	The local Australian Grayling population does not appear to be an important population and it is unlikely the Action will fragment an existing important population of the species into two or more populations.	Unlikely

Significant impact criterion	Assessment	Significant impact likelihood
Adversely affect habitat critical to the survival of a species	No habitat critical to the survival of the species has formally been defined by the Commonwealth, and no habitat for the species occurs directly within the Project Footprint of the Action. The Corner Inlet Ramsar site downstream of the study area may meet criteria for critical, as it forms an extensive estuarine system and plausibly could form a crucial refuge for larvae to grow and for juveniles to slowly transition from marine to freshwater habitat. As noted above, the hydrological and contamination downstream impacts to the Corner Inlet Ramsar site have been assessed by the Flood, Erosion and Sediment Run-Off Impact Assessment (Appendix B) and Contamination Assessment (Appendix F) and the ecological impacts on critical habitats are anticipated to be minor. Localised sedimentation is anticipated as a potential impact. The Action will implement an EMP that addresses both construction and operational phases to control such sedimentation risks. The Action is considered unlikely to adversely affect habitat critical to the survival of the species.	Unlikely
Disrupt the breeding cycle of an important population	The local Australian Grayling population does not appear to be an important population and the Action is unlikely to impact potentially important areas downstream in the Ramsar wetland. Hydrological and contamination downstream impacts to the Corner Inlet Ramsar site have been assessed by the Flood, Erosion and Sediment Run-Off Impact Assessment (Appendix B) and Contamination Assessment (Appendix F), with minimal impacts expected. It is unlikely the Action will disrupt the breeding cycle of an important population of the species.	Unlikely
Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The MNES Assessment (Appendix A) suggests some intersection with potential habitat and the Project Footprint, however no waterway is visible from satellite imagery and no signs of regular inundation (i.e. no riparian vegetation). It is likely that this area will not qualify as habitat for the species. No direct impacts to the species habitat will occur because of the Action. Some limited indirect impacts are possible (e.g. localised sedimentation), but can be controlled using appropriate mitigation measures (see Assessment for "Adversely affect habitat critical to the survival of the species" above). It is unlikely the Action will modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.	Unlikely
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	Trout, Redfin, Carp, and Mosquitofish have been identified as invasive species that are harmful to Australian Grayling. There is no clear or apparent mechanism for how the Action could result in the establishment of these species in areas of habitat for Australian Grayling. The Action will implement an EMP that addresses both construction and operational phases to control the spread and proliferation of invasive species and disease. It is considered unlikely that the Action would result in invasive species harmful to Australian Grayling becoming established in its habitat.	Unlikely
Introduce disease that may cause the species to decline	The Anchor Worm, Cotton Mould, Asian Fish Tapeworm, the ENHV virus, and Goldfish Ulcer are diseases that have been identified in MNES Assessment (Appendix A) as threats to Australian Grayling. These diseases were concluded as being unlikely to already occur in the study area and surrounding region. The Action will implement an EMP that addresses both construction and operational phases to control the spread and proliferation of invasive species and disease. It is considered unlikely that the Action would introduce disease that may cause the species to decline.	Unlikely
Interfere with the recovery of the species	There is no apparent mechanism for the Action to interfere with the recovery of the species.	Unlikely
Overall assessment		**Unlikely**

6.8.2 Dwarf Galaxias

The significant impact assessment found that the Action is unlikely to cause significant impacts to the Dwarf Galaxias.

An action is likely to have a significant impact on this endangered species if there is a real chance or possibility that it will meet any of the significant impact criteria listed in Table 6.15.

Table 6.15 Significant Impact Assessment – Dwarf Galaxias

Significant impact criterion	Assessment	Significant impact likelihood
Lead to a long-term decrease in the size of a population	The Action will not directly impact an important population or habitat of this species. Hydrological downstream impacts to the main waterways in the surrounding region (Albert River, Jack River, Muddy Creek and Nine Mile Creek – the primary downstream habitats for the species) have been assessed in the Flood, Erosion and Sediment Run-Off Impact Assessment (Appendix B) with minimal impacts expected. There is a risk of contamination of waterways, but the Contamination Assessment (Appendix F) concluded that impacts will be minimal provided appropriate measures are taken. Localised sedimentation is anticipated as a potential impact however appropriate mitigation measures will be fully documented and detailed in the EMP. Other than potential impacts to habitat, there is no clear or apparent mechanism for the Action to result in long-term declines of any local populations of the species. The Action is therefore considered unlikely to lead to the long-term decline of any local Dwarf Galaxias population	Unlikely
Reduce the area of occupancy of the species	Other than impacts to habitat, there is no clear or apparent mechanism for the Action to reduce the area of occupancy of the species. See Assessment for "Lead to a long-term decrease in the size of a population" for information on why significant impacts to habitat are not anticipated. The Action is considered unlikely to reduce the area of occupancy of the species.	Unlikely
Fragment an existing population into two or more populations	Other than impacts to habitat, there is no clear or apparent mechanism for the Action to fragment an existing population of the species. Accordingly, the Action is considered unlikely to fragment an existing population of Dwarf Galaxias into two or more populations.	Unlikely
Adversely affect habitat critical to the survival of a species	No significant direct or indirect impacts to habitat for the species are anticipated. Given that habitat for the species is not anticipated to be significantly impacted, the Action is considered unlikely to adversely affect habitat critical to the survival of the species.	Unlikely

Significant impact criterion	Assessment	Significant impact likelihood
Disrupt the breeding cycle of a population	The MNES Assessment (Appendix A) has identified that the Dwarf Galaxias is likely an annual species with a short lifespan that renders them particularly sensitive to disruptions to breeding. The species is non-migratory – it does not undertake breeding-related movements, and habitat required for breeding does not differ from that which is normally used in other stages of the life cycle. The main mechanism by which the breeding cycle of Dwarf Galaxias could be disrupted is by the disruption of likely chemical and/or visual cues used by individuals to communicate breeding activity to each other. These could be disrupted by chemical pollution, or by changes in visibility due to sedimentation. The construction mitigation measures will be fully documented and detailed in the EMP. Standard measures used to prevent impacts from construction to environmentally sensitive areas are widely considered to work and will be implemented for the Action. Provided the EMP for the Action is appropriately drafted and implemented, the Action is unlikely to disrupt the breeding cycle of any local Dwarf Galaxias populations.	Unlikely
Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	See Assessment for the criterion "Lead to a long-term decrease in the size of a population". It is considered unlikely the Action will modify, destroy, remove or isolate, or decrease the availability or quality of habitat to the extent that the species is likely to decline.	Unlikely
Result in invasive species that are harmful to an endangered or critically endangered species becoming established in the endangered or critically endangered species' habitat	Invasive fish species have been identified as threats to the Dwarf Galaxias in the MNES Assessment (Appendix A). There is also no apparent mechanism for how the Action could result in the establishment of invasive fish species in Dwarf Galaxias habitat. It is considered unlikely that the Action will result in invasive species harmful to Dwarf Galaxias establishing in its habitat.	Unlikely
Introduce disease that may cause the species to decline	No diseases are identified as threats to the Dwarf Galaxias; it is therefore considered unlikely that the Action will introduce disease that may cause the species to decline.	Unlikely
Interfere with the recovery of the species	There is no apparent mechanism for the Action to interfere with the recovery of the species.	Unlikely
Overall assessment		**Unlikely**

6.9 Migratory species

Based on the likelihood of occurrence assessment detailed in Chapter 4, the following migratory species listed under the EPBC Act and/or international migratory species agreements (Bonn, CAMBA, JAMBA, ROKAMBA) are likely to occur or have the potential to occur onsite and therefore have some potential to be impacted by the Action.

- Fork-tailed Swift
- Latham's Snipe
- Migratory shorebirds (22 species)
- White-throated Needletail.

The White-throated Needletail and Latham's Snipe are also listed as threatened. Impacts on these species are considered in accordance with their status as threatened species as discussed in the previous sections.

Obligations under International agreements (Bonn, CAMBA, JAMBA, ROKAMBA) address the protection of the above species in terms of their removal, impacts to habitat, and obstacles to migration. These obligations are included under the EPBC Act and associated significant impact assessments.

This section also includes an assessment of endangered / critically endangered migratory shorebirds (6 species) and vulnerable migratory shorebirds (7 species, excluding Latham's Snipe).

6.9.1 Fork-tailed Swift

The significant impact assessment found that the Action is unlikely to cause significant impacts to the Fork-tailed Swift.

An action is likely to have a significant impact on this migratory species if there is a real chance or possibility that it will meet any of the significant impact criteria listed in Table 6.16.

Table 6.16 Significant Impact Assessment – Fork-tailed Swift (EPBC Act: Migratory)

Significant impact criterion	Assessment	Significant impact likelihood
Substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles or altering hydrological cycles), destroy or isolate an area of important habitat for a migratory species	The species is almost exclusively aerial in Australia, even sleeping on the wing, and does not breed in Australia. The species tend to be widespread and dispersive across a range of habitats. No particular type of habitat has been identified as important to the species in Australia, therefore the Action will not impact important habitat for the species. The potential for collision will be proactively managed through the BAMP which details strategies for mitigating risk and collision events,	Unlikely
Result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species	The species does not have any habitat identified as important in Australia and therefore no invasive species can be harmful in areas of important habitat. The species is widespread and sparse throughout its Victorian range and it is unlikely that any invasive species infestations will occur in a concentrated area such that it has a significant impact on the species. The adoption of best-practice construction environmental management measures in the EMP will ensure monitoring and adaptive control of any infestation of invasive plant or animal species.	Unlikely

Significant impact criterion	Assessment	Significant impact likelihood
Seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species	Fork-tailed Swifts do not breed in Australia and therefore breeding will not be disrupted. Direct mortality by collisions with turbines may disrupt the local population's feeding and migration. However, the high manoeuvrability of the species suggest that wind farms are unlikely to be a barrier for the species and historically very few Fork-tailed Swifts collide with wind farms. If collisions were to occur, it would be expected very infrequently, with less than 2% of the Australian population found in the region near the Action Area. The lack of important habitat, lack of breeding in Australia, their low abundance in the area and their use of a wide diversity of landscapes, indicates that the Action will not disrupt the lifecycle of the Fork-tailed Swift.	Unlikely
Overall assessment		**Unlikely**

6.9.2 Endangered / Critically Endangered migratory shorebirds (six species)

The significant impact assessment following provides a combined assessment of the migratory shorebirds that have an endangered or critically endangered listing status under the EPBC Act, and which share the same listing status, impact pathways and similar use and likelihood of migrating through the Action Area. This comprises:

- Bar-tailed Godwit subsp. *baueri* – Endangered
- Black-tailed Godwit – Endangered
- Common Greenshank – Endangered
- Curlew Sandpiper – Critically Endangered
- Far Eastern Curlew – Critically Endangered
- Lesser Sand Plover – Endangered.

The Action is unlikely to cause significant impacts to these threatened migratory shorebirds. The development of adaptive mitigation measures included within a BAMP will reduce impacts further.

An action is likely to have a significant impact on threatened species if there is a real chance or possibility that it will meet any of the significant impact criteria listed in Table 6.17.

Table 6.17 Significant Impact Assessment – Endangered / Critically Endangered migratory shorebirds (6 species)

Significant impact criterion	Assessment	Significant Impact likelihood
Lead to a long-term decrease in the size of a population of a species	The six species that may be impacted if a Nationally important size of the population is impacted, includes: • 130 Bar-tailed Godwit subsp. *baueri* • 160 Black-tailed Godwit • 110 Common Greenshank • 90 Curlew Sandpiper • 35 Far Eastern Curlew • 26 Lesser Sand Plover.	Unlikely

Significant impact criterion	Assessment	Significant Impact likelihood
	The Action Area does not contain habitat or any records of these six species, with their presence confined to the nearby Corner Inlet Ramsar site. However, they may fly over the Action Area whilst migrating to/from the Ramsar wetland, where they may be at risk of collision with turbines. The MNES Assessment (Appendix A) showed these species generally reside in areas of Corner Inlet that are more than 10 km away from the Action Area and the use of that site appears to have been stable over the last 45 years. Shorebirds migrating from over 10 km away will be above the 210 m RSA height when reaching the Action. These species were either rarely observed in numbers approaching Nationally significant or not within 10 to 11 km of the Action Area. Accordingly, flight scenarios coupled with the presence of Nationally significant numbers, their spatial use of Corner Inlet, and their temporal consistency of use, suggest that it is unlikely that birds will interact with turbines in the Action Area. If their migration path does intersect with the turbines, they are likely to be above RSA height by the time they reach the Action Area. It is therefore unlikely that the Action will lead to a long-term decrease in the size of the population of these species. Detected shorebird collisions will be proactively managed through the BAMP which will detail adaptive strategies for mitigating risk and collision events.	
Reduce the area of occupancy of the species	The area of occupancy for these six species is not in the Action Area, being confined to the nearby Corner Inlet Ramsar site and coastal areas. The Flood, Erosion and Sediment Run-Off Impact Assessment (Appendix B) and Contamination Assessment (Appendix F) found that while there may be some contaminants, sedimentation and mobilisation of ASS, it is unlikely to greatly impact the area, particularly if appropriate mitigation measures are taken to prevent this, such as those proposed to be implemented by the EMP.	Unlikely
Fragment an existing population into two or more populations	Each of these six species of critically endangered or endangered migratory shorebirds is represented in Australia by a single population, the East Asian-Australasian Flyway (EAAF) population, each with large distributions across the country. They are highly mobile, and utilise a broadly distributed range of habitats, with site choice likely influenced by environmental conditions like rainfall, tide and weather. There is no clear mechanism by which the Action will fragment the EAAF population of any of these six species.	Unlikely
Adversely affect habitat critical to the survival of a species	The development of the Action will not directly impact upon the six species' habitat. As discussed in Flood, Erosion and Sediment Run-Off Impact Assessment (Appendix B) and Contamination Assessment (Appendix F) there is some limited potential for contaminants, sediments and ASS to be disturbed, mobilised, and flow into waterways that drain into the Corner Inlet Ramsar site as a result of the Action. Impacts from these can be controlled with appropriate, standard mitigation measures as outlined in an EMP. It is therefore unlikely that the GWF will adversely affect habitat critical to the survival of any of the migratory shorebird species.	Unlikely
Disrupt the breeding cycle of a population	None of the species of critically endangered or endangered migratory shorebirds breed in Australia. There is therefore no clear mechanism by which the Action will disrupt the breeding cycle of these species.	Unlikely
Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The development of the Action will not directly impact the six species of critically endangered or endangered migratory shorebird habitat, aside from potential impacts from sediment runoff, which has been addressed above. It is unlikely that the Action will modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that any of the migratory shorebird species are likely to decline.	Unlikely

Significant impact criterion	Assessment	Significant Impact likelihood
Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the vulnerable species' habitat	The Action will implement an EMP that addresses both construction and operational phases to control the spread and proliferation of invasive species and disease. Therefore, it is unlikely that the Action will introduce or cause the proliferation of an invasive species that could cause any of the species of migratory shorebird to decline.	Unlikely
Introduce disease that may cause the species to decline	As noted above, the Action will implement an EMP that addresses both construction and operational phases to control the spread and proliferation of invasive species and disease. It is therefore unlikely that the Action will introduce or cause the proliferation of a disease that may cause the species to decline.	Unlikely
Interfere substantially with the recovery of the species	The recovery of migratory shorebirds in Australia is identified as the need to avoid habitat loss, habitat degradation, disturbance, and direct mortality. The Action is unlikely to impact upon migratory shorebird habitat and direct mortality, particularly with the implementation of a BAMP and EMP. As the Action area is several kilometres away from the areas used by these species, it is unlikely that the Action will result in disturbance of these species or interfere with these species' recovery.	Unlikely
Overall assessment		**Unlikely**

6.9.3 Vulnerable migratory shorebirds (seven species, excluding Latham's Snipe)

The significant impact assessment following provides a combined assessment of those migratory shorebirds that have a threatened listing status under the EPBC Act, and which also share the same listing status, impact pathways and similar likelihood of migrating through the Action Area. This comprises:

- Great Knot – Vulnerable
- Greater Sand Plover – Vulnerable
- Grey Plover – Vulnerable
- Red Knot – Vulnerable
- Ruddy Turnstone – Vulnerable
- Sharp-tailed Sandpiper – Vulnerable
- Terek Sandpiper – Vulnerable.

The Action is unlikely to cause significant impacts to these threatened migratory shorebirds. It should be noted that for migratory shorebird species, an important population is defined as either internationally important (1% of the East Asian-Australasian Flyway estimate) or Nationally important (0.1% of the East Asian-Australasian Flyway population estimate). None of the above seven species have been observed in Nationally or internationally important numbers at the nearby Corner Inlet Ramsar site.

An action is likely to have a significant impact on threatened species if there is a real chance or possibility that it will meet any of the significant impact criteria listed in Table 6.18.

Table 6.18 Significant Impact Assessment – vulnerable migratory shorebirds (7 species, excluding Latham's Snipe)

Significant impact criterion	Assessment	Significant impact likelihood
Lead to a long-term decrease in the size of a population of a species	These seven vulnerable species may be impacted if a Nationally important size of the population is impacted, including: • 430 Great Knot • 240 Greater Sand Plover • 80 Grey Plover • 56 Red Knot • 30 Ruddy Turnstone • 85 Sharp-tailed Sandpiper • 85 Terek Sandpiper. The Action area does not contain habitat or any records of these seven species, with their present confined to the nearby Corner Inlet Ramsar site. They may fly over the Action whilst migrating to/from the Ramsar wetland, where they may be at risk of collision with turbines. MNES Assessment (Appendix A) showed these species generally reside in areas of Corner Inlet that are more than 10 km away from the Action Area and the site appears to have been stable over the last 45 years. Shorebirds migrating from over 10 km away will be above the 210 m RSA height when reaching the Action Area. These species were either rarely observed in numbers approaching Nationally significant or not within 10 to 11 km of the Action Area and it is unlikely that birds will interact with turbines in the Action Area as if their migration path does intersect with the turbines, they are likely to be above RSA height by the time they reach the Action Area. It is therefore unlikely that the Action will lead to a long-term decrease in the size of the population of these species. Detected shorebird collisions will be proactively managed through the BAMP, which will detail adaptive strategies for mitigating risk and collision events.	Unlikely
Reduce the area of occupancy of the species	The area of occupancy for these seven species does not occur in the Action Area, being confined to the nearby Corner Inlet Ramsar site and coastal areas. The Flood, Erosion and Sediment Run-Off Impact Assessment (Appendix B) and Contamination Assessment (Appendix F) concluded that some contaminants, sedimentation and mobilisation of acid sulfate soils is possible however it is unlikely to greatly impact the Action Area. If appropriate mitigation measures are taken to prevent this, as will be required by the EMP, it is unlikely that the Action will reduce the area of occupancy for these species.	Unlikely
Fragment an existing population into two or more populations	Each of these seven species of critically endangered or endangered migratory shorebirds is represented in Australia by a single population, the East Asian-Australasian Flyway (EAAF) population, each with large distributions across the country. They are highly mobile, and utilise a broadly distributed range of habitats, with site choice likely influenced by environmental conditions like rainfall, tide and weather. There is no clear mechanism by which the Action will fragment the EAAF population of any of these seven species.	Unlikely
Adversely affect habitat critical to the survival of a species	The development of the Action will not directly impact upon the seven species' habitat. Flood, Erosion and Sediment Run-Off Impact Assessment (Appendix B) and Contamination Assessment (Appendix F), concluded there is some limited potential for contaminants, sediments and ASS to be disturbed, mobilised, and flow into waterways that drain into the Corner Inlet Ramsar site. The impacts from these can be controlled with appropriate, standard mitigation measures as outlined in an EMP	Unlikely

Significant impact criterion	Assessment	Significant impact likelihood
	and it is therefore unlikely that the Action will adversely affect habitat critical to the survival of any of the migratory shorebird species.	
Disrupt the breeding cycle of a population	None of these species of migratory shorebirds breed in Australia. There is therefore no clear mechanism by which the Action will disrupt the breeding cycle of these species.	Unlikely
Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	The development of the Action will not directly impact the seven species of Vulnerable migratory shorebird habitat, aside from potential impacts from sediment runoff, which are addressed above. It is therefore unlikely that the Action will modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that any of the migratory shorebird species are likely to decline.	Unlikely
Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the vulnerable species' habitat	The Action will implement an EMP that addresses both construction and operational phases to control the spread and proliferation of invasive species and disease. Therefore, it is unlikely that the Action will introduce or cause the proliferation of an invasive species that could cause any of the species of migratory shorebird to decline.	Unlikely
Introduce disease that may cause the species to decline	The Action will implement an EMP that addresses both construction and operational phases to control the spread and proliferation of invasive species and disease. It is unlikely that the Action will introduce or cause the proliferation of a disease that may cause the species to decline.	Unlikely
Interfere substantially with the recovery of the species	The recovery of migratory shorebirds in Australia is identified as the need to avoid habitat loss, habitat degradation, disturbance, and direct mortality and the Action is unlikely to impact upon migratory shorebird habitat and direct mortality, particularly with the implementation of a BAMP and EMP. As the Action Area is several kilometres away from the areas used by these species, it is unlikely that the Action will result in disturbance of these species.	Unlikely
Overall assessment		**Unlikely**

6.9.4 Migratory shorebirds (9 species)

The significant impact assessment following provides a combined assessment of those migratory shorebirds that are not listed with a threatened species status under the EPBC Act, and which also share the same impact pathways and similar likelihood of migrating through the Action Area. They comprise:

- Common Redshank
- Common Sandpiper
- Double-banded Plover
- Grey-tailed Tattler
- Marsh Sandpiper
- Pacific Golden Plover
- Red-necked Stint
- Sanderling
- Whimbrel.

The significant impact assessment found that the Action is unlikely to cause significant impacts to the migratory shorebirds.

An action is likely to have a significant impact on these migratory species if there is a real chance or possibility that it will meet any of the significant impact criteria listed in Table 6.19.

Table 6.19 Significant Impact Assessment – non-threatened migratory shorebirds (9 species)

Significant impact criterion	Assessment	Significant impact likelihood
Substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles or altering hydrological cycles), destroy or isolate an area of important habitat for a migratory species	The migratory shorebirds' important habitat is wholly contained in the Corner Inlet Ramsar site. Hydrological and contamination downstream impacts to the main waterways in the surrounding region (Albert River, Jack River, Muddy Creek and Nine Mile Creek – the primary downstream habitats for the species) have been assessed in the Flood, Erosion and Sediment Run-Off Impact Assessment (Appendix B) and Contamination Assessment (Appendix F). Localised sedimentation is anticipated as a potential risk however standard measures used to prevent impacts are widely considered to work and will be implemented by the EMP. There is no clear or apparent mechanism for the Action to substantially modify, destroy or isolate an area of important habitat for any of the 9 migratory shorebird species.	Unlikely

Significant impact criterion	Assessment	Significant impact likelihood
Result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species	The habitats important for these migratory species are restricted to the Corner Inlet Ramsar site. So invasive species that impact the wetlands may also impact the habitats for these species. The MNES Assessment (Appendix A) concluded the following invasive species are harmful to the ecological character of the Corner Inlet Ramsar site, Cord Grass, Sea Spurge, Northern Pacific Seastar, European Shore-crab, rabbits, black rats, foxes, and European fan-worm. The Marine Invasive Species Risk Assessment (Appendix D) determined that the risk of the Action increasing marine invasive species is considered low. There is no clear or apparent mechanism for the Action to cause any invasive vertebrate species listed above to establish in the wetland to such an extent that it would cause harm to the habitat of migratory shorebirds as all of all of them are already considered present.	Unlikely
Seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species	The migratory shorebirds known to use the nearby Corner Inlet Ramsar site have an ecologically significant portion of their population listed between 18 and 430 birds. Those with a lower threshold include Double-banded Plover (23) and Sanderling (30). These species were not found in these numbers within 10 km of the Action Area. The migratory shorebirds using the nearby Corner Inlet Ramsar site are present but non-breeding and use the habitat for feeding, resting behaviour, and as staging areas for migration. The Action has no clear or apparent mechanisms to disrupt the use of the habitat. Migration may be interrupted if the Action poses a barrier or risk to a significant portion of the population and a barrier would only be feasible if a wind farm were to result in a collision with migrating species. It is very unlikely migratory shorebirds will be at RSA height if/when passing over the Action Area. The most abundant migratory shorebirds are 10 to 11 km away from the Action and it is unlikely that birds will experience the Action as a barrier that disrupts their migration. Collision should be proactively managed through the BAMP, which details strategies for mitigating risk and collision events.	Unlikely
Overall assessment		**Unlikely**

6.10 Impacts to listed threatened and migratory bird and bat species associated with wind turbines

Details on the bird and bat utilisation surveys completed for the Action and site characteristics of the Action Area have been described in Chapter 4 and Chapter 5 of the PER. In particular it is highlighted that the collision risk relating to bird and bat species has been discussed in Section 5.2.1 of the PER and an assessment of the impacts to the Blue-winged Parrot has been provided in Table 6.5, noting that this is the only listed species that flies within the Action's RSA.

7 Mitigation measures and management plans

The following chapter includes a summary of the mitigation measures that have been recommended for the Action and responds to section 9 of the PER Guidelines. The mitigation measures are in addition to the avoidance measures discussed in Chapter 3. The mitigation measures are primarily management plans that will be drafted for the Action.

The following technical reports prepared to support the PER made recommendations to mitigate and manage impacts:

- Matters of National Environmental Significance Assessment (Appendix A)
- Flood, Erosion and Sediment Run-Off Impact Assessment (Appendix B)
- Public Environment Response (Bushfire Assessment) (Appendix C)
- Marine Invasive Species Risk Assessment (Appendix D)
- Socio-economic Assessment (Appendix E)
- Contamination Assessment (Appendix F).

The mitigation and management recommendations of these assessments are summarised in the following sections.

7.1 Environmental management plan

An Environmental Management Plan (EMP) will be prepared for the Action and a draft outline of the EMP has been provided with the PER (refer Appendix H). As required by the PER Guidelines, the EMP will:

- set out the framework for management, mitigation and monitoring of relevant impacts of the action, including any provisions for independent environmental auditing
- address all Action phases (construction, operation, decommission), including stating the environmental objectives, performance criteria, monitoring, reporting, corrective action, responsibility and timing for each environmental issue; and describe contingencies for events such as failure of sewerage systems, heavy or prolonged rainfall, or saltwater intrusion into groundwater.

The draft EMP outline sets out different requirements for each of the construction, operations and rehabilitation phases.

The EMP for the Action, will specifically address the potential risks and impact pathways on MNES, including the following:

- Pollutants affecting water and habitat quality, such as hydrological alteration, sedimentation, mobilisation of ASS and contaminated materials.
- Management of hygiene and control measures to mitigate the spread and introduction of invasive species and diseases.

The following specific measures have been identified in the technical reports and will be included in the EMP:

- Management measures for wastewater including protocols that wastewater is captured and disposed off-site to an appropriately licensed waste disposal facility in accordance with EPA guidelines.

- The requirement for protocols to be put in place to identify potential contamination should suspected contaminated soils or hazardous materials be discovered during excavation.
- Management measures for soil, waterways and groundwater which will include the implementation of a soil and water management plan which should have protocols such as:
  - actively monitoring excavations for the conditions/materials that may indicate contamination
  - a stop work procedure to be followed should potential contamination be identified
  - barriers to be put in place to prevent access to potential sources of contamination
  - characterisation and delineation of the contamination by a suitably qualified professional
  - appropriate storage and disposal of contaminated soil/water, in accordance with EPA requirements.
- Management measures for raw material handling and storage which will include:
  - constructing reinforced concrete hardstand areas below “wet” areas, including the truck washdown, agitator loading and slumping areas
  - using water and sediment pits to contain slurries and other wastewater
  - bunding around the temporary concrete batching plants.
- Management measures for backfill which will include the use of fill material that is certified as clean fill.
- Management measures for spills and leaks.
- Management measures for weed and pest control.

The following recommended subplans will be prepared for the Action which will include the requirements outlined above, as relevant to the individual subplan.

- A soil and water management plan that outlines the regulatory requirements, approval conditions, management responsibilities and procedures to maintain or if possible, enhance, environmental values related to soil and water. The plan should also address chemical storage and include a spill response plan.
- An erosion and sediment control plan (ESCP) to outline procedures and processes to capture and manage excess sediment generated from construction and other activities. The ESCP will map locations of exposed soil and list the location of infrastructure such as drainage, silt fences, sediment settling ponds and discharge zones (where water and sediment is dispersed onto the floodplain).
- An acid sulfate soils management plan (ASSMP), prepared in accordance with Victorian Best Practice Guidelines for Assessing and Managing Coastal Acid Sulfate Soils (DSE 2010), which will include protocols such as:
  - actively monitoring excavations for the conditions/materials that may indicate ASS
  - a stop work procedure in place should potential ASS be identified
  - barriers put in place to prevent access to potential ASS
  - characterisation and delineation of the ASS by a suitably qualified professional

- appropriate storage and disposal of ASS in accordance with regulatory requirements
- the following hierarchy for managing waste acid sulfate soil (WASS):
    - Avoid disturbance
    - Minimise disturbance
    - Prevent oxidation
    - Treat on-site to reduce or neutralise acidity
    - Off-site reuse or disposal.

- An emergency management plan which includes details of the hazards associated with the generation of fire water, potential use of firefighting chemicals and/or foam, chemical spills and other hazards. It should include the provision of training in dealing with hazards and emergencies
- A weed and pest management plan that will include measures to ensure appropriate training in the use and application of the necessary chemicals.

7.2 Monitoring and inspection plan

The Action will develop an appropriate monitoring and inspection plan to assess and, if necessary, adapt the effectiveness of management measures and/or Action infrastructure including the requirement for:

- regular inspections of areas of exposed soils and/or stockpiles
- regular inspections of prescribed protection measures, e.g. upholding of minimum buffer distances, timely rehabilitation and/or revegetation of exposed soils
- regular inspections of relevant infrastructure, e.g. drainage, silt fences, sediment settling ponds and discharge zones (where water is dispersed into the floodplain)
- regular inspections of changes to bank and bed vegetation along with any signs of erosion
- ad hoc inspections triggered by storm events (e.g. 25 mm or greater within 24 hours) or other events to assess effectiveness of management and protection measures, relevant infrastructure
- water quality monitoring for parameters including pH, dissolved oxygen, salinity, turbidity and total suspended sediments to be undertaken pre-construction, mid-construction and post-construction at a location on the Albert River. The location will be at an accessible point downstream of the Project Footprint, as near as practicable to Corner Inlet
- water quality monitoring as required (on-site and in adjacent waterways) if contaminated runoff is suspected to occur or might have occurred and/or significant spills or leakages have occurred.

The monitoring and inspection plan will include as a minimum:

- clear responsibilities and reporting requirements
- clear outcome and performance parameters, thresholds, spatial and temporal requirements of the monitoring and inspection

- parameters, frequency, durations of water quality monitoring (as required)
- clear training and induction requirements for responsible staff
- relevant templates, checklists and references to applicable guidelines and standards to assess and confirm effectiveness of management measures.

The monitoring and inspection plan will outline or make reference to conditions under which effectiveness of mitigation measures / environmental controls need to be assessed, when works on-site need to be stopped in response to changes in parameters and what action is required to rectify changes.

7.3 Bird and Avifauna Management Plan

A draft Bird and Avifauna Management Plan (BAMP) has been prepared for the Action and is included at Appendix I. The draft BAMP aims to:

- minimise the impacts from the Action on threatened fauna listed under the Commonwealth EPBC Act
- provide an informed understanding of the turbine collision risk to listed threatened fauna that occurs on-site
- create an understanding of how threatened fauna use of the site changes in response to wind farm construction and operation
- provide monitoring requirements for the timely identification of turbine collisions and the timely collection and analysis of data
- provide responsive updates to, and regular validation of, the impact assessment framework for listed fauna regularly recorded on site, using monitoring data to support a robust adaptive management approach to reducing impacts, where possible
- where applicable, the development and implementation of tangible, on-ground management actions to promote a long-term collision risk reduction on listed threatened and migratory bird and bat species.

The draft BAMP specifically addresses the following key species of concern:

- Blue-winged Parrot
- Gang-gang Cockatoo
- Grey-headed Flying Fox
- Latham's Snipe
- Migratory shorebird species
- Swift Parrot
- White-throated Needletail.

7.4 Bushfire control measures

The Public Environment Report Response (Bushfire Assessment) included at Appendix C identifies a series of measures to mitigate and manage bushfire risk. One of these measures is the preparation and implementation of an emergency management plan. This will be prepared as a subplan as part of the EMP and has been discussed in Section 7.1.

However, Appendix C also identifies a series of additional measures to mitigate bushfire risk, and thus potential impacts from bushfire, as follows:

- Maintain 10 m fuel breaks around all WTGs, BESS, substation and key infrastructure.
- Where the construction phase occurs within the fire danger period, manage grass within 100 m of all infrastructure (where realistically possible) to be less than 100 mm in height.
- Construct and maintain static water tanks in accordance with the following:
  - at least 45,000 litres (L) at each entrance to the wind farm areas
  - 288,000 L with hardstand CFA access at the BESS site.
- Tanks should be able to be refilled within 24 hours of being used.
- Smoke detection and fire suppression systems to be provided within the nacelles.
- Implementation of a Supervisory Control and Data Acquisition system that will enable remote operation in the event that the Action Area needs to be closed to personnel.
- Include fire water runoff containment at the BESS site of at least 288,000 L.
- Utilise BESS technology that is UL9540A tested (which is a test method for evaluating thermal runaway fire propagation) and maintains an IP rating suitable to withstand ember ingress.
- Restrict Action Area works on days of Catastrophic fire danger. No hot works (or other ignition sources) should be permitted while a Total Fire Ban is declared.

7.5 Marine invasive species control measures

The Marine Invasive Species Risk Assessment included at Appendix C identifies a series of measures to mitigate and manage the risks posed by marine invasive species, including:

- the selection of shipping contractors that have a strong biosecurity record, including evidence of hull inspections and systems for complying with Australian ballast water and biofouling requirements
- working with the Barry Beach Marine Terminal port operator to make sure any support vessels used for the Action, including vessels based outside Barry Beach Marine Terminal, are checked and managed in line with best-practice biosecurity guidance
- keeping clear project records of shipping movements and evidence that vessels have complied with relevant ballast water and biofouling management requirements, including use of a biofouling record book
- coordinating with port operators and the Victorian Government so that existing marine invasive species monitoring continues to be used, with a clear document trail linking vessel movements, inspections and monitoring results.

7.6 Socio-economic assessment control measures

The Socio-economic Assessment included at Appendix E identifies a series of measures to mitigate and manage any socio-economic impacts from the Action. Measures include:

- communicate regularly and clearly with local residents, businesses and other stakeholders through the Action's community and stakeholder engagement plan, particularly about workforce, traffic, accommodation and amenity impacts
- plan worker accommodation well before construction starts, using a mix of accommodation options to avoid placing extra pressure on local and regional rental housing
- reduce the need for non-local worker accommodation where possible, including by hiring local workers, investigating local and regional accommodation options early, and adjusting the construction schedule to reduce peak workforce demand
- manage the expectations and behaviour of non-local workers, including how they use local services such as healthcare, to minimise pressure on the community
- work with local training providers to help build the local workforce for renewable energy jobs and reduce reliance on non-local workers
- maximise opportunities for local businesses to participate in the Action
- publicise the community benefit sharing program so the local community understands the broader benefits available from the Action.

7.7 Victorian planning permit requirements

The additional approval processes that apply to the Action are discussed at Chapter 8 'Other Approvals and Conditions'. Planning permit PA2503835 provides approval for the Action under the Victorian *Planning and Environment Act 1987*, and includes conditions that require the following:

- Preparation of an operational EMP and a construction EMP.
- Preparation of a BAMP.
- Preparation of an Emergency Management Plan, Fire Management Plan and Risk Management Plan in relation to fire and emergency risk management.

Therefore, the requirements highlighted in this chapter to specifically manage impacts to MNES will overlap with, and are also expected to be captured in relevant secondary consent documents required by planning permit PA2503835.

8 Other approvals and conditions

The primary legislative instruments for the Action are the Commonwealth EPBC Act, for which this PER has been prepared, and the Victorian *Planning and Environment Act 1978*. The requirements under other Commonwealth and State legislation are discussed below. This Chapter responds to section 10 of the PER Guidelines (DCCEEW 2024).

8.1 Commonwealth legislation

8.1.1 Native Title Act 1993

The *Native Title Act 1993* provides a National system for the recognition and protection of native title for Aboriginal and Torres Strait Islander peoples and for its coexistence with the National land management system. Native Title may exist in areas where it has not been extinguished by an act of government and typically applies to Crown land but not to freehold land.

There are no current Native Title applications or determinations which affect the freehold land that forms part of the Action Area. However, the Gunaikurnai people have been recognised to hold native title over much of east Gippsland, including the public land which is included in the Action Area (VID6007/1998, VID482/2009).

As part of the licensing process of Crown land from the Victorian State government, its Native Title status is being confirmed, and appropriate tenure options regarding this are being explored in consultation with GLaWAC. This is because GLaWAC holds ongoing Native Title rights and interests across the region and is responsible for protecting these on behalf of the Gunaikurnai people.

8.1.2 Civil Aviation Act 1988

The *Civil Aviation Act 1988* is to establish a regulatory framework for maintaining, enhancing and promoting the safety of civil aviation. This Act establishes the Civil Aviation Safety Authority (CASA) and CASA's functions, including conducting safety regulation relating to civil aviation.

An aviation impact assessment has been prepared for the Action and was submitted with the planning permit application.

8.1.3 Heavy Vehicle (Adoption of National Law) Act 2013

Approvals under the *Heavy Vehicle (Adoption of National Law) Act 2013* could be required for transportation of the wind turbines and other oversized components by OSOM vehicles. Relevant approvals will be sought in accordance with the secondary consent requirements.

8.2 Victorian legislation

8.2.1 Planning and Environment Act 1987

The *Planning and Environment Act 1987* (P&E Act) establishes the statutory framework for land use planning in Victoria. Under the P&E Act, the Victorian Planning Provisions (VPP) provide a Statewide template for the development of planning schemes. Relevant clauses in the VPP include, among others, Clause 53.22 and Clause 52.32.

Clause 53.22 of the Wellington Planning Scheme establishes a fast-tracked planning assessment pathway, the Development Facilitation Program (DFP), for significant economic development projects that provide a substantial contribution to Victoria's economy and public benefit. This clause introduces specific benefits, including

exemption from third-party review rights and designates the Minister for Planning as the responsible authority for these applications. Key eligible projects include renewable energy facilities and utility installations.

Clause 52.32 sets out the planning provisions and requirements for planning permit applications for wind energy facilities. The use and development of land for a wind energy facility requires a planning permit under Clause 52.32-2.

The Victorian Minister for Planning is designated as the responsible authority for these applications.

The *Development of wind energy facilities policy and planning guidelines* (Department of Transport and Planning 2023) provide a framework for impact management by establishing setbacks for sensitive receivers to reduce visual impacts, requiring environmental assessments and management plans to address risks to flora and fauna, implementing noise regulations and management plans to control noise impacts, and using post-construction audits and ongoing monitoring to ensure compliance with impact mitigation measures. Planning permit conditions must be consistent with the provisions in Clause 52.32 and should be generally consistent with these guidelines.

A planning application for the Action (Beveridge Williams & Co Pty Ltd 2025) was lodged with the DFP in July 2025. It demonstrated that the Action gives effect to the objectives of planning in Victoria and relevant State Planning Policy and positively responds to the requirements of the Wellington Planning Scheme. It also demonstrated that the Action is consistent with the Wellington Planning Scheme's Municipal Planning Strategy (MPS). The planning application was supported by a suite of technical assessments and concluded that the Action does not result in any significant impacts on cultural heritage, bushfire risk, traffic and access, flora and fauna or local amenity (associated with noise, shadow flicker and visual impacts). Planning permit PA2503835 issued for the Action on 7 May 2026.

It is highlighted that, as previously discussed in Chapter 1, the Alberton Wind Farm was also considered to be consistent with the requirements of the Wellington Planning Scheme, with a planning permit issuing for that earlier project in 2019.

8.2.2 Environment Effects Act 1978

The *Environment Effects Act 1978* (EE Act) is the overarching environmental legislation in Victoria and, where applicable, assessment under this Act must occur before any other approvals can be issued.

The EE Act sets out the process for when the Victorian Minister for Planning requires a project's proponent to prepare an environmental effects statement (EES). The EES is a comprehensive assessment of environmental effects and impacts and enables management measures to be put forward for achieving acceptable environmental outcomes. The EES is not an approval but an assessment of the environmental effects of the project which informs statutory decision-makers when assessing the approvals required for a project.

When a proposed project could potentially have significant environmental effects, a written referral is sent to the Minister for Planning requesting a decision on whether an EES is required. The *Ministerial Guidelines for Assessment of Environmental Effects Under the Environment Effects Act 1978* set out the types of potential effects that would warrant the referral of a project under the EE Act.

The Action was referred to the Minister for Planning on 19 December 2022 for a decision as to whether an EES should be prepared. It was determined by the Department of Transport and Planning (DTP) that an EES was not required because a larger wind farm proposal (Alberton Wind Farm) over the same study area had already been assessed as not warranting the preparation of an EES.

8.2.3 Environment Protection Act 2017

The *Environment Protection Act 2017* (the Environment Protection Act) and subordinate legislation provides a legal framework for the protection of human health and the environment from pollution and waste in Victoria.

Central to the Environment Protection Act is the general environmental duty (GED). Under the GED, risks from activities which may harm the environment or human health, through pollution or waste, must be eliminated or minimised as far as reasonably practicable.

Subordinate legislation includes the Environment Reference Standard and the *Environment Protection Regulations 2021* (the Regulations), which set out the requirements for the management of pollution and waste.

The Regulations set out requirements for wind turbine noise and describe what wind energy facilities must do to make sure noise is not unreasonable and meets the GED. DTP sets planning permit conditions for noise during construction and manages compliance. EPA Victoria regulates wind turbine noise once it becomes operational. This includes the requirements for post-construction noise assessments and periodic monitoring during the operational life.

8.2.4 Flora and Fauna Guarantee Act 1988

The *Flora and Fauna Guarantee Act 1988* (FFG Act) provides a framework for biodiversity conservation in Victoria. The FFG Act provides for the listing of threatened species, communities of flora and fauna and potentially threatening processes. Several non-threatened flora species are also listed as protected under the FFG Act. A 'permit to take' is required to take species protected under the Act from public land (and may also be required to remove protected species from private land in certain circumstances).

i Fauna

The Swift Parrot, Powerful Owl, White-bellied Sea-eagle, White-throated Needletail, Grey-headed Flying-fox and Eastern Bent-wing Bat are also FFG Act-listed and need to be considered under this Act. There are no legislative implications for impacts to these species on private land under the FFG Act, these values should be avoided, and impacts minimised wherever possible, in recognition of their threatened status at a State level.

Any application for a planning permit may also be assessed by the responsible or referral authority for potential impacts to FFG threatened values as part of broader considerations of impacts to biodiversity, irrespective of land tenure.

A permit would be required from the Department of Environment, Energy and Climate Action (DEECA) for impacts to listed flora threatened species and/or communities on public land.

ii Protected Flora

The Common Beard-heath is protected flora which is to be impacted by the proposed development on public land and will require approval from DEECA.

8.2.5 National Parks Act 1975

The *National Parks Act 1975* provides for the protection and management of National parks, State parks, wilderness, marine National parks and sanctuaries, landscape conservation areas and other significant parklands. The Action is located adjacent to the Gelliondale State Forest; however, the Action Area does not intersect this area.

8.2.6 Water Act 1989

The *Water Act 1989* promotes the orderly, equitable and efficient use of water resources to make sure that water resources are conserved and properly managed for sustainable use for the benefit of present and future Victorians. The Water Act regulates impacts on surface water and groundwater.

The Water Act is administered by DEECA and regional water authorities.

8.2.7 Aboriginal Heritage Act 2006

The *Aboriginal Heritage Act 2006* and associated *Aboriginal Heritage Regulations 2018* aim to protect Aboriginal cultural heritage and broaden Aboriginal community involvement in decision-making in Victoria. Under the *Aboriginal Heritage Act 2006*, it is an offence to do something that will harm, or is likely to harm, Aboriginal cultural heritage including Aboriginal places, objects, and human remains, unless the action is done in accordance with a CHMP or a cultural heritage permit issued under the *Aboriginal Heritage Act 2006*.

Along with the State-level administration of the *Native Title Act 1993* (Cth), the *Aboriginal Heritage Act 2006* and associated *Aboriginal Heritage Regulations 2018* are the primary regulatory tools at the State level in Victoria that seek to impose obligations and conditions on the use and development of land, in relation to First Nations people and their interests.

CHMP 15167 was prepared for the project and was approved by GLaWAC as the RAP in January 2018 for the Alberton Wind Farm. The CHMP was amended in 2022 to be relevant to the Gelliondale Wind Farm, including the smaller construction footprint. The CHMP contains heritage management requirements (conditions) which must be followed during the construction and operation of the Action.

8.2.8 Heritage Act 2017

The *Heritage Act 2017* (Heritage Act) provides for the identification, protection and conservation of heritage places and objects that are of significance to the State of Victoria. Such sites include historical buildings and gardens, historical places and objects, historical archaeological sites and historical shipwrecks.

The Heritage Act establishes the Victorian Heritage Register (VHR), which lists items of State significance, and the Victorian Heritage Inventory (VHI), which lists items with significant historical archaeological heritage values.

Any works to a registered place on the VHR, including on registered land, or to a registered object, require a permit under the Heritage Act, unless specifically determined to be exempt from the requirement for a permit.

As an alternative to a permit, minor works which do not have an adverse impact on the heritage values of a registered place or object may be approved by way of a permit exemption.

Under the Heritage Act it is an offence to knowingly or negligently damage, interfere with, or carry out an act likely to endanger a site recorded in the VHI or an archaeological site which is not recorded in the VHI without the appropriate consent.

The Gelliondale Briquette Plant is located within the Action Area along Coal Mine Road and the South Gippsland Highway, Gelliondale, and is registered on the Victorian Heritage Register (H1058) and Victorian Heritage Inventory (H8220-0008).

Gelliondale Briquette Plant does not spatially overlap with the Action Area and therefore, there are no approval requirements under the Heritage Act.

8.2.9 Road Management Act 2004

The *Road Management Act 2004* (Road Management Act) provides a framework for DTP and local government to manage the public road network in a safe and efficient manner. The Minister for Roads and Road Safety is responsible for administering the Road Management Act. The Head, Transport for Victoria is responsible for the management of arterial roads and freeways, while local councils are responsible for most other roads.

8.2.10 Crown Land (Reserves) Act 1978

The *Crown Land (Reserves) Act 1978* provides for the temporary or permanent reservation of Crown land. The underground cabling crosses the South Gippsland Highway in three locations, and the former South Gippsland Railway reservation (now a rail trail) in two locations, both being Crown land reserves. A crown land license will be required to use these Crown land reserves for the Action. The licencing and tenure agreement processes have been initiated and will be finalised as part of secondary consents.

8.2.11 Wildlife Act 1975

The *Wildlife Act 1975* (Wildlife Act) establishes procedures for the protection and conservation of wildlife; the prevention of wildlife becoming extinct; and the sustainable use of, and access to, wildlife. The Wildlife Act includes procedures to prohibit or regulate the conduct of persons engaged in activities concerning or related to wildlife.

Under the *Wildlife Act 1975*, it is an offence to wilfully damage, disturb or destroy wildlife habitat, disturb protected wildlife, or take or destroy threatened or protected wildlife (including listed fish) without authorisation. Authorisation will be sought under the *Wildlife Act 1975* if required. This approval will occur during the secondary consent phase of the Action.

8.2.12 Climate Change Act 2017

The *Climate Change Act 2017* provides a legislative foundation to manage climate change risks, to maximise the opportunities that arise from decisive action, and to drive the transition to a climate-resilient community and economy with net-zero emissions by 2050.

While no approval is required under the *Climate Change Act 2017*, Section 20 of the Act requires Victorian governments to ensure that decisions, policies, processes, and programs appropriately take account of climate change, guided by statutory policy objectives and principles set out in the Act. The *Climate Change Act 2017* therefore has an indirect influence on the Victorian Government's assessment and approval of the Action, for example under the P&E Act.

8.3 Monitoring, enforcement and review procedures

EMPs will be required for the Action as part of the secondary consent phase for the State planning permit application, which will be required to include an OEMP and a CEMP. The EMPs must be endorsed by the Minister for Planning prior to construction activity commencing and will be developed in consultation with the relevant key stakeholders (such as the local Catchment Management Authority). The CEMP will include the implementation of environmental inspection, monitoring, auditing and incident response procedures to verify that environmental management procedures are working effectively. Where practicable, these measures will be refined and improved during each construction stage.

Monitoring and review procedures will be contained in pre- and post-construction survey and monitoring programs (e.g. the BAMP), as required by the conditions of any planning permit that issues for the Action.

9 Consultation

This chapter provides an overview of the consultation that has been undertaken to date. The chapter responds to section 10 of the PER Guidelines and provides details on the consultation undertaken for the Approved Action (the Alberton Wind Farm), the consultation completed for the Action both prior and since the referral has been submitted.

9.1 Identification of the affected parties

The Action Area is located within a rural community that includes a broad range of stakeholders with varied interests. Synergy Wind has overseen development of a Community Engagement Strategy (CES) for the Action to ensure targeted, timely and genuine engagement with these stakeholders, who may potentially be impacted by the Action. The CES has been continually revised so that it engages effectively with the most relevant affected parties within the local community, to understand their views and address concerns.

Table 9.1 summarises the most relevant affected parties and provides reasoning for their interest in the Action, methods used to engage these stakeholders to date, and what has been learned about their views of the Action. It is noted that affected Traditional Owner and First Nations people are discussed in Section 9.3.1.

Table 9.1 Consultation undertaken and views of affected parties

Affected party	Relation to Action	Engagement methods	Views of parties
Participating landowners	Host the Action on their land alongside ongoing farming activities Benefit financially from the Action	Face-to-face meetings	N/A
Near neighbours (immediately adjacent properties and dwellings within 2 km)	Nearest non-participants	Phone calls Door knocks	Approximately half of immediate neighbours oppose the Action
Neighbours within 3 km (includes near neighbours)	Potentially affected local residents	Delivery of hardcopy project information materials	N/A
Broader community (approximately 5 km from Action Area, extended to include Yarram and surrounds, includes neighbours within 3 km)	Benefit from community benefits sharing program (CBSP)	Information centre in Yarram Public information sessions Public enquiries by phone, mail and email Public opinion survey	Approximately equal levels of support and opposition, based on Proponent experience of direct engagement and opinion survey
Guardians of Nooramunga Coastal Community	Advocate to protect Gelliondale district's biodiversity	Information centre in Yarram Face-to-face meeting Written correspondence	Generally opposed to development of wind energy facilities
Wellington Shire Council	Manager of local (i.e. non-arterial) roads and represents community interests	Project presentation Courtesy and formal notifications	N/A
Planning and Building Manager - Wellington Shire Council	Manager of statutory planning services and building regulations in Wellington Shire	Face-to-face meetings Phone calls Written correspondence	

Affected party	Relation to Action	Engagement methods	Views of parties
Economic Development Manager - Wellington Shire Council	Promotes employment and sustainable economic opportunities in Wellington Shire	Renewable Energy Forums	Supportive of renewable energy development generally, with focus on employment, training and other local opportunities
Councillors of the Coastal Ward - Wellington Shire Council	Represent interests of community of Wellington Shire	Courtesy notification Face-to-face meeting	N/A
South Gippsland Shire Council	Represent interests of community of South Gippsland Shire	Courtesy and formal notifications Project presentation	
Danny O'Brien MP, Member for Gippsland South	State Member of Parliament	Courtesy notification Written correspondence	
Darren Chester MP, Member for Gippsland	Federal Member of Parliament	Courtesy notification	
AusNet Services	Operator of distribution network, including 66kV powerlines that Action connects to	Direct engagement on electrical connection matters	
DEECA	Manager of Crown land (South Gippsland Rail Trail) State-level biodiversity impacts regulator	Direct engagement on ecological, biodiversity, and Crown land tenure matters	
DTP	Planning and environmental approvals regulator Manager of arterial roads	Direct engagement on Victorian planning and regulatory matters	
CFA	Fire safety regulator Emergency services responder	Statutory referral agency Engagement on fire safety matters	
West Gippsland Catchment Management Authority	Manages land, water and biodiversity within regional catchment areas	Statutory referral agency Engagement on matters affecting surface water and general hydrology matters	
Victoria Police	Law enforcement agency	Courtesy notification	
DCCEEW and National EPA	Environmental approvals regulator Responsible for safeguarding MNES	Referral of Action under EPBC Act Correspondence regarding PER information requirements Online meeting to discuss PER requirements	Has required preparation of a PER to assess the Action's management of environmental impacts, especially to MNES.

9.2 Overview of consultation with Traditional Owners and First Nations people

Within Victoria, RAP groups are established through an application process to the Victorian Aboriginal Heritage Council (VAHC) to be registered as the Traditional Owners of a delineated area. Under the *Aboriginal Heritage Act 2006*, the RAPs are recognised as the primary keepers, guardians, and knowledge holders of Aboriginal Cultural Heritage. The VAHC outlines the core functions and responsibilities of the RAPs as:

- evaluating CHMPs
- assessing Cultural Heritage Permit applications
- providing advice on applications for interim or ongoing Protection Declarations
- making decisions about Cultural heritage agreements
- nominating Aboriginal intangible heritage to the Victorian Aboriginal Heritage Register and managing intangible heritage agreements
- entering into Aboriginal Cultural Heritage Land Management Agreements with public land managers.

The appointed RAP for the activity area of the Action is Gunaikurnai Land and Waters Aboriginal Corporation (GLaWAC). GLaWAC is the primary authority for cultural heritage, land, water and Country-related matters with cultural values extending across the landscape and not limited to only mapped sites. GLWAC are consulted on all matters relating to approvals, access, tenure, and any land use changes that intersect with Gunaikurnai rights. Should other Traditional Owners need to be consulted GLaWAC will advise where relevant.

9.2.1 Culturally appropriate engagement

Consultation will occur in accordance with the Pathway to Partnership framework which outlines GLaWAC's expectations for transparency, FPIC-aligned processes and respectful partnership. Consultation on the Action (as described at Sections 9.4.2 and 9.5.2) and the Approved Action (as described at Section 9.3.1) with Traditional Owners and First Nations people has sought to be undertaken in a culturally appropriate manner, in accordance with First Nations peoples' preferences, and in accordance with the following principles from the DCCEEW guide *Interim Engaging with First Nations People and Communities on Assessments and Approvals under the Environment Protection and Biodiversity Conservation Act 1999.*

i Ensuring cultural safety

The Proponent has welcomed input from First Nations on the Action in the forms and on the terms that are chosen by First Nations people. The CHMP process provides for the preservation of archaeological cultural heritage in the manner deemed appropriate by the RAP. The attendance of the Proponent at the Deadly in Gippsland Aboriginal Business Expo (October 2024) and at meetings at GLaWAC's Morwell office demonstrates a readiness to engage with First Nations peoples in ways that are most convenient for and led by those peoples.

ii Building and maintaining trust

Trust has been supported through continued and repeated engagement points over multiple years, rather than one-off consultation tied only to statutory approval processes. The Proponent has engaged with GLaWAC for the best part of a decade since the preparation of the CHMP for the Alberton Wind Farm was initiated. This engagement has continued onto the Action through updates, meeting requests, and follow-up discussions. This pattern of re-engagement indicates the Proponent has invested in maintaining a relationship and ensuring GLaWAC has opportunities to provide input as the project develops.

Trust-building is also evident in the Proponent's stated intention to work within established First Nations-led processes, including confirming a desire to enter into a Partnership Agreement aligned with GLaWAC's 'Pathways to Partnership' program. In addition, engagement with Wulgunggo Ngalu Learning Place (October 2025) about supporting existing social and community activities through a Community Benefit Program indicates a broader relationship approach that can contribute to trust when pursued respectfully and in a community-led manner.

iii Engaging early and often

As per the response to "building and maintaining trust" above, engagement has been long-running and consistent throughout the development of the Action and Approved Action.

iv Negotiating suitable timeframes

The Proponent is aware of cultural obligations that may extend the time needed by First Nations peoples to engage with the Action and its approval processes. Overall, the development of the Action and Approved Action over almost a decade has allowed sufficient time for consultation with First Nations peoples, including to accommodate any need for discussion at the community level.

v Negotiating suitable submission formats

The Proponent has been mindful of the preferences of First Nations peoples in the format of documentation associated with consultation on the Action. There was no indication during engagement with First Nations people and organisations that the documents being used to consult on the Action needed adaptation to aid communication or engagement. The open communication and engagement by the Proponent to date has been recognised by GLaWAC.

9.3 Consultation on the Approved Action

Extensive consultation was undertaken throughout the planning and environmental approvals process for the Approved Action, the Alberton Wind Farm.

Initial engagement occurred in 2014 when a landowner approached Synergy with interest in hosting a wind farm and introduced Synergy to neighbouring landholders. Informal landowner-to-landowner discussions followed to gauge interest and facilitate the required consents for residences within 1 km of turbines.

In early 2015, preliminary environmental and cultural heritage studies were undertaken to identify site constraints. Landowners provided input to minimise impacts on agricultural use and guide early layout development.

Starting in late 2015, meetings were held with participating landowners and nearby residents to present findings from detailed studies (environmental, cultural heritage, and noise), explain potential impacts, and discuss the conceptual turbine layout. Feedback from residents, including concerns about the noise impacts of turbines, led to refinement of the layout and further noise assessments.

A community day was held in August 2017 to provide information to the community of the Approved Action with further information sessions held for targeted environmental topics (noise and shadow flicker) in 2019.

9.3.1 First Nations consultation

Biosis (2018, ed. 2022) prepared a voluntary CHMP (No. 15167) for the Approved Action on behalf of Synergy Wind Pty Ltd. GLaWAC responded with the intent to evaluate the CHMP on 20 July 2017. The RAP was consulted as per the CHMP consultation process through meetings, fieldwork, and emails. This consultation was reinstated during the amendment process in July 2022 with the proposed wind farm layout changes.

Due to the presence of Aboriginal cultural heritage identified during the original CHMP 15167 process, the Action will impact an area of cultural heritage sensitivity which required the CHMP to be altered from voluntary to mandatory. As part of the consultation process, management conditions were discussed and agreed upon regarding site-specific conditions to avoid harm to registered Aboriginal cultural heritage places. In addition, general conditions such as a cultural heritage induction for site worker/contractors, a copy of CHMP 15167 to be kept on site, and avoidance of sensitive areas identified within the activity area were also included. The amended CHMP was approved on 27 October 2022.

9.3.2 Public notice of planning permit application PA1700284

Extensive public notice was given of planning permit application PA1700284, including by mail to owners and occupiers of all land within 5km of the Alberton Wind Farm site, the Wellington and South Gippsland shire councils, and a wide range of State government agencies. Notices were published in four local and one National newspaper, and public notices were erected in eight locations in the local vicinity.

The (then) Department of Environment, Land, Water and Planning (DELWP) received 154 submissions to the application, 150 objections, three letters of support, and one neutral submission.

i Key concerns

The key concerns raised in objections to the Approved Action included the following:

- Amenity impacts including noise, shadow flicker, electromagnetic interference, blade glint and proximity to dwellings and townships.
- Landscape and visual amenity impacts, including that these cannot be mitigated by landscaping.
- Impacts on birds and bats, especially listed threatened species and listed migratory species, as well as that surveys and assessments that have been undertaken are deficient.
- Native vegetation impacts, including loss of habitat and unacceptability of offset approach.
- Impacts on wetlands, including Ramsar values.
- Aviation impacts, including on aerial agriculture and requirements for obstacle lighting.
- Traffic safety impacts, including road surface degradation and driver distraction.
- Cultural heritage and historic heritage impacts.
- Economic impacts, including a lack of local jobs and reduced local population growth.
- Hazards such as flooding and other geotechnical risks as well as increased risk of bushfire.

ii Letters of support

Letters of support highlighted the Approved Action's contribution to renewable energy generation, its role in strengthening energy supply and helping to lower electricity costs were also submitted to DELWP. They also acknowledged the potential benefits for the local community, including job creation, increased economic activity, a dedicated community fund, and opportunities for landowners to diversify their income streams.

iii Neutral submission

A 'neutral' submission was submitted by Wellington Shire Council and expressed general support for renewable energy development. It supported the Approved Action in principle, but also outlined a number of concerns that it considered should be managed through planning permit conditions. These related to issues such as noise, aviation safety, traffic impacts, complaint management, decommissioning, shadow flicker, the environmental management plan, and electrical infrastructure.

9.4 Consultation on the Action prior to referral

This section describes consultation undertaken with the general public, First Nations people, government and other community organisations following the redesign of the project as the Gelliondale Wind Farm, but prior to the referral of the Action under the EPBC Act on 12 June 2023.

9.4.1 Public consultation

Table 9.2 provides an overview of the consultation completed prior to the referral with the general public and the community.

Table 9.2 Public consultation prior to referral

Date	Method	Comments
May 2021	A4 project brochure developed for stakeholder consultation	N/A
May 2021	Community contact details established – phone and email	N/A
August 2021	Initial contact campaign (phone) with nearest residential neighbours	N/A
September 2021	A5 project brochure developed for community distribution	N/A
October 2021	Updated project brochure delivered to residents/businesses within 3 km of project site by Australia Post and project team	Project brochure delivered to approx. 400 recipients
October 2021	Project website launched	N/A
October 2021	Meetings with landowners	N/A
November 2021	Face-to-face and phone meetings with community members	Recorded sentiments ranging from support to opposition, discussed noise, setback distances, shadow flicker, project impacts and mitigations, local environmental issues
February 2022	Ongoing landowner discussions	N/A
March 2022	Project website updated to include Q&A section.	N/A
May 2022	Community notice advertisements placed in three local newspapers	Informing of investigative studies underway and ongoing. Circulation of approx. 12,000 plus online editions
May 2022	Project website updated with 'News' page	N/A
July 2022	Registered mail correspondence with near neighbours.	Background noise monitoring and precision distance survey offer

Date	Method	Comments
August 2022	Direct written response to communication from community member	Near neighbour acting on behalf of other neighbours in relation to background noise monitoring and design of project layout
August 2022	Direct written response to enquiry from The Gippsland Times newspaper	Seeking Proponent statement on project status, environmental assessments and timeline to construction. Circulation of approx. 5,000 plus online edition
September 2022	Correspondence and conversations with landowners (turbine hosts)	
October 2022	Project update – community notice advertisements placed in three local newspapers	Informing of investigative studies drawing to a close. Circulation of approx. 12,000 plus online editions
October 2022	Project update posted on 'News' section of website	Informing of investigative studies drawing to a close
November 2022	Project Information Centre opens in Yarram at 310 Commercial Road to exhibit information and further facilitate community feedback, initially open every Thursday afternoon, and fortnightly since April 2024	N/A
December 2022	Community survey prepared and available through project website and from Information Centre	Survey posed questions about participant's perceived distance from the project site, their attitude to the project and main reasons for interest, as well as gauging funding targets for the Community Benefit Program
December 2022	Project update posted on 'News' section of website; new 'Survey' website page established and survey banner on 'Home' page	N/A
December 2022	Major project mail out including project update, Information Centre details and community 'Public Opinion Survey'. Addressed mail to near neighbours and all stakeholders and non-addressed mail to local residents. The 'Public Opinion Survey' has remained live since this time on the project website and at the Project Information Centre in Yarram.	Approx. 400 contacts - contains new layout information
February 2023	Project update media release distributed (published in Gippsland Times and The Bridge)	Included reference to 'Noise Information Session' to be held in March
February 2023	Project update flyer distributed in local community	N/A
February 2023	Project update posted on 'News' section of website	N/A
February 2023	'Public Opinion Survey' prize draw period closes	Survey left open for subsequent entries
March 2023	'Noise Information Session' held at Project Information Centre, with Marshall Day Acoustics present to answer community questions	Approx. 25 attendees. Current and predicted noise level information for selected dwellings provided directly to residents
April 2023	Short on-air interview with ABC Radio Gippsland	Responded to questions about the size and capacity of the project, as well as its assessment and construction timelines
April 2023	New 'Project Background' brochure developed	N/A

Date	Method	Comments
April 2023	Sponsorship and attendance at Tarra Festival in Yarram (Easter weekend)	About 150 individual enquiries fielded from festival attendees. Overwhelmingly positive response.
May 2023	Project update media release distributed	Included reference to 'Flora and Fauna Information Session' to be held later in May
May 2023	Project update media release posted on 'News' section of website	N/A
May 2023	'Flora and Fauna Information Session' held at Project Information Centre	Ecological assessment expert from Nature Advisory available to discuss and respond to questions. Only two attendees, and no questions asked of Nature Advisory representative.

9.4.2 First Nations consultation

Table 9.3 provides an overview of the consultation completed prior to the referral with First Nations.

Table 9.3 First nations consultation prior to the referral

Date	Method	Comments
July 2022	Meeting with GLaWAC to discuss amendment of the Cultural Heritage Management Plan	N/A
February 2023	Provide project briefing to GLaWAC	

9.4.3 Government and other organisations

Table 9.4 provides an overview of the consultation completed prior to the referral with the Government and other organisations.

Table 9.4 Government and other organisations consultation prior to referral

Date	Method	Comments
June 2021	Pre-application meeting with DELWP	N/A
August 2021	Notification messages sent to LGA Councillors and local elected representatives (State and Federal)	
September 2021	Provide project briefing to Councillors of Wellington Shire	
March 2022	Communication with key stakeholder AusNet	
May 2022	Communication to DELWP and Wellington Shire with project update	
May 2022	Meeting with Wellington Shire councillor and members of the Guardians of Nooramunga Coastal Community	
May 2022	Follow-up correspondence to the Guardians of Nooramunga Coastal Community	
July 2022	Meeting with Wellington Shire Economic Development Manager in relation to proposed Community Benefit Program	

Date	Method	Comments
August 2022	Meeting with DELWP in relation to site assessments and liaison with VicRoads and Wellington Shire.	
September 2022	Liaison with Wellington Shire staff and local police with project update	
December 2022	Submitted a referral to the Minister for Planning, seeking a determination as to whether an EES is required for the project	
February 2023	Provide project briefing to Councillors of South Gippsland Shire	
February 2023	Correspondence with CFA regarding fire safety expectations and design advice	
March 2023	Pre-referral meeting held with DCCEEW for Commonwealth EPBC referral	
March 2023	Confirmed status of EES referral submission with DEECA/IAU (after comprehensive review of referral material submitted; no re-assessment, no statement required)	Published on project website 'Project Timeline' page in April
April 2023	Meeting with West Gippsland Catchment Management Authority	Discussed construction methodologies for access tracks in or adjacent to areas subject to inundation in seasonal and 1-in-100-year flood events

9.5 Consultation since referral

This section describes consultation with the general public, First Nations people, government and other community organisations undertaken since the referral of the Action under the EPBC Act on 12 June 2023.

9.5.1 Public consultation

Table 9.5 provides an overview of the consultation completed after the referral with general public and community.

Table 9.5 Public consultation since referral

Date	Method	Comments
August 2023	Media release regarding submission of State-level planning permit application (PA2302394)	Published in *The Bridge*, *South Gippsland Sentinel-Times*, and *Gippsland Times* newspapers
September 2023	Follow-up advertising regarding submission of State-level planning permit application (PA2302394)	Published in *The Bridge*, *South Gippsland Sentinel-Times*, and *Gippsland Times* newspapers
November 2023	Sponsorship of Strzelecki Koala Festival, Sale	N/A
December 2023	Advertising assessment process status	Published in *The Bridge*, *South Gippsland Sentinel-Times*, and *Gippsland Times* newspapers. Circulation of approx. 12,000 plus online editions
January 2024	Sponsorship of Yarram Chalk-Art Festival	N/A
March 2024	Notice period for State-level planning permit application (PA2302394) commenced	Formal notification and advertising of planning permit application and submission information

Date	Method	Comments
April 2024	Sponsorship and attendance at Rotary Art Show and Tarra Festival in Yarram (Easter weekend)	About 100 individual enquiries fielded from festival attendees. Majority positive response.
April 2024	Notice period for State-level planning permit application (PA2302394) concludes	Total of 85 submissions received, including referral agency responses, summarised below.
October 2024	Advertisements calling for feedback on the draft Community Benefit Program	Published in *The Bridge*, *South Gippsland Sentinel-Times*, and *Gippsland Times* newspapers. Circulation of approx. 12,000 plus online editions
November 2024	Sponsorship of Strzelecki Koala Festival, Sale	N/A
May 2025	Project status update regarding ongoing ecological studies and EPBC PER	Published on project website
July 2025	Advertisements announcing resubmission and conclusion of field studies, forecast August for draft PER submission	Published in *The Bridge*, *South Gippsland Sentinel-Times*, and *Gippsland Times* newspapers. Circulation of approx. 12,000 plus online editions
July 2025	Project status update by email to members of update register	Announcing resubmission and project status, including EPBC PER progress
January 2026	Notice period for State-level planning permit application (PA2503835) commenced	Formal notification and advertising of planning permit application and submission information
January 2026	Sponsorship of Yarram Chalk-Art Festival	N/A
February 2026	Notice period for State-level planning permit application (PA2503835) concludes	About 100 submissions received, including referral agency responses; submissions not yet available for review
April 2026	Sponsorship of Strzelecki Koala Festival, Yarram	N/A

i Comments received through public advertising of planning permit application PA2302394

The public provided comment on the planning permit application (PA2302394) which included a range of supportive submissions as well as objections. The supporting submissions focused on the need to produce clean energy locally and supported the application as it would provide for employment and other local opportunities.

Submitters raised concerns relating to noise impacts from wind turbines, the substation and BESS on wildlife in the vicinity of the project. This concern extended to noise impacts to users of the Great Southern Rail Trail and Gelliondale State Forest.

Objectors also raised concerns on the impacts on migratory birds due to the proximity to State forests and the Corner Inlet Marine and Coastal Park. Submissions were concerned about impacts of the project on surface water flow and subsequent impacts on nearby forests, wetlands, and downstream impacts at Corner Inlet.

9.5.2 First Nations consultation

Table 9.4 provides an overview of the consultation completed with First Nations peoples and organisations after the referral.

Table 9.6 First Nations consultation since referral

Date	Method	Comments
October 2024	Attended *Deadly in Gippsland* Aboriginal Business Expo, Moe	Provided update to representatives of Gunaikurnai Land and Waters Corporation, and invited further discussion in due course on matters raised in previous consultation.
May 2025	Written request	Requested to meet to provide project status update and seek GLaWAC feedback on PER Guideline matters.
August 2025	In-person meeting at GLaWAC Morwell office	Project status update provided to new Major Projects Senior Management representatives, and discussed feedback being requested from GLaWAC in relation to PER matters.
September 2025	Email	Continued discussion with new Major Projects representatives on GLaWAC requirements and expectations, and confirmation of desire to enter into a Partnership Agreement in accordance with GLaWAC 'Pathways to Partnership' program.
October 2025	Phone and email	Introduced project to Wulgunggo Ngalu Learning Place (WNLP) and discussed potential for Community Benefit Program to support existing WNLP social and community activities.
February 2026	Attended Deadly in Gippsland Aboriginal Business Expo, Sale	Engaged with GLaWAC, service providers, workforce training establishments (such as TAFE Gippsland and Federation University) and the local workforce about opportunities with the Action.

GLaWAC provided the following summary of its aspirations in relation to the Action, specifically for incorporation into this PER:

- GLaWAC is the primary and appropriate First Nations authority for engagement.
- Cultural considerations extend beyond mapped sites and require ongoing oversight.
- Native title and broader Gunaikurnai rights must be integrated into project planning and approvals processes.
- Our aspirations include long-term partnership, procurement, cultural access, and alignment with self-determination goals.
- Engagement so far is positive, with further work required to establish a formal partnership aligned with Pathways to Partnership.
- GLaWAC holds cultural and environmental interests in the Corner Inlet and Nooramunga areas and expects involvement in relevant assessments.

Through the engagement summarised in Table 9.7, the following additional matters were discussed:

- GLaWAC was hopeful that the Action would provide training opportunities for First Nations people, to upskill and provide readiness to work on similar projects in the future.
- The Proponent is willing to facilitate any kind of social or cultural activity that the GLaWAC may see as beneficial on or near the project site.

- GLaWAC is interested in opportunities to enter into strategic partnerships aligned with its Whole of Country Plan.
- GLaWAC has long-standing cultural, environmental and historical ties to the broader Corner Inlet and Nooramunga region and they expect involvement in planning activities with potential impacts on cultural or environmental values connected to these areas.

GLaWAC has recognised the efforts made by the Proponent to maintain open and culturally appropriate communication to date. It is expected that by working towards entering into a Partnership Agreement with GLaWAC, greater awareness of the rights, interests, views, aspirations and other concerns expressed by the Traditional Owners and other First Nations people in relation to the project can be fostered, and this knowledge used to leverage outcomes beneficial to Traditional Owners and other First Nations people.

9.5.3 Government and other organisations

Table 9.7 provides an overview of the consultation completed with government and other organisations since the referral.

Table 9.7 Consultation with government and other organisations since referral

Date	Method	Comments
18 October 2023	Meeting with DEECA to discuss their biodiversity advice to DTP in relation to State planning application PA2302394.	Additional survey requirements to satisfy DEECA concerns discussed in detail.
17 January 2024	In-person meeting with DEECA and DTP regarding biodiversity matters and continuation of ecological surveys.	Confirmed survey program will be adequate to address concerns.
26 March 2024	Meeting with DEECA to provide update on ongoing ecological surveys.	
2 September 2024	Meeting with DEECA to provide update on ongoing ecological surveys.	
13 September 2024	Meeting with DCCEEW to discuss EPBC Public Environment Report information requirements.	DCCEEW answered questions on notice regarding survey requirements and interpretation of the PER Guidelines by email on 29 October 2024.
7 November 2024	Pre-application meeting with DTP and DEECA ahead of resubmission of planning application.	
13 March 2025	Meeting with Yarram Chalk-Art Festival organiser.	Discussed ongoing sponsorship for 2026 event.
22 July 2025	Meeting with DCCEEW to discuss EPBC Public Environment Report progress and submission timeline.	
12 August 2025	Attended meeting with Strzelecki Koala Foundation regarding proposed Kola Coast Biolink project.	Proponent in attendance to offer potential funding support.
3 March 2026	Meeting with DCCEEW to discuss PER adequacy review feedback.	Discussed feedback received in December 2025 and discussed timing for submission of the PER.
8 May 2026	E-mail update on Victorian permit approval to key contacts at Wellington Shire, South Gippsland Shire, State elected representatives and the local MP.	Courtesy update

Date	Method	Comments
18 May 2026	Meeting with Wellington Shire Economic Development Manager to discuss supply chain logistics, 'hyper-local' business opportunities and construction scheduling	Proponent invited to present to Gippsland Local Content Clean Economy Working Group in September 2026.
July 2026	Meeting with National EPA to discuss PER adequacy review feedback.	Discussed feedback received in June 2026 in preparation for exhibition.

9.6 Consultation on the Draft PER

This section will be written following exhibition of the draft PER, which will be promoted to the affected parties listed above as an opportunity for further consultation.

9.6.1 Public display

This section will be written following exhibition of the draft PER.

9.6.2 Feedback received

This section will be written following exhibition of the draft PER.

9.6.3 Response to feedback

This section will be written following exhibition of the draft PER.

9.7 Ongoing and future consultation

This section will be written following exhibition of the draft PER.

10 Environmental record of the Proponent

Alberton Renewable Energy Pty Ltd (the Proponent) is a special-purpose vehicle established for the development and permitting of the Gelliondale Wind Farm. It is a wholly owned subsidiary of Synergy Wind Pty Ltd, an Australian-based renewable energy development company founded in 2004.

Synergy Wind has over 20 years' experience identifying and progressing utility-scale renewable energy projects in Victoria, with a particular focus on responsible site selection, minimising environmental impacts, and engagement with local communities.

The Proponent aims to conduct its operations in a way that is environmentally responsible, legally compliant and focused on continual improvement. Environmental sustainability considerations are embedded in all stages of Action planning, design, procurement, construction, operation and rehabilitation.

To uphold these commitments, the Proponent monitors and reports on environmental performance through structured internal processes. This includes identifying and addressing incidents and areas for improvement, ensuring all personnel are trained to high standards to recognise and understand their responsibilities and duties towards protecting the environment, and dedicating the necessary resources to manage impacts effectively. The approach is proactive, transparent and based on accountability and continual learning.

10.1 Legal proceedings

There are no past or present proceedings under Commonwealth, State or territory law for the protection of the environment or the conservation and sustainable use of natural resources against Alberton Renewable Energy Pty Ltd or its sole owner, Synergy Wind Pty Ltd. The Proponent maintains a record of responsible environmental management and is committed to meeting or exceeding its obligations under applicable legislation and planning frameworks.

It's noted that Synergy Wind Pty Ltd successfully appealed the decision of Wellington Shire Council to refuse a planning permit for a wind energy facility in Devon North in 2007 (Synergy Wind Pty Ltd v Wellington SC [2007] VCAT 2454). Synergy Wind Pty Ltd was a respondent in the successful third-party objector appeal of the Minister for Planning's decision to issue a planning permit for the Alberton Wind Farm in 2020 (*Hopkins v Minister for Planning (Red Dot) [2020] VCAT 1124*), which was overturned on the basis of the Minister for Planning making a legally invalid (on a technicality) decision in approving the wind farm.

11 Economic and social matters

A socio-economic assessment of the Action was undertaken by Accent Environmental which is included at Appendix E. The socioeconomic assessment established a baseline for pre-determined local and regional study area to describe the existing socioeconomic characteristics of the people within each area and their living conditions. The changes associated with the Action were then assessed against this baseline to determine the impacts (both positive and negative). Mitigation and management strategies were developed to address any residual or cumulative impacts. This chapter addresses Section 13 of the PER Guidelines.

11.1 Public consultation and outcomes

Details of public consultation activities undertaken and a summary of the views by various affected groups are described in detail in Chapter 9.

The public opinion survey launched in December 2022 identified five key priorities for consideration when finalising the Action's Community Benefit Fund sharing program:

- Upgrade of local infrastructure (roads, water supply, climate resilience, telecommunication networks).
- Local industry and employment.
- Environmental programs.
- Support for local tourism.
- Support for local community groups and sports clubs.

These priorities will be considered in further detail when finalising the Community Benefit Fund sharing program for the Action. The Action will continue to conduct community surveys as required, and these will continue to inform appropriate Action responses to community issues and priorities. The proponent has actively supported community activities including the 2024 Rotary Art Show and Tarra Festival, the 2024 and 2025 Yarram Chalk Art Festival, and the 2023 and 2024 Strzelecki Koala Festival. The Action has been supporting the last two activities on an ongoing annual sponsorship.

In addition to the public opinion survey, consultation with GLaWAC representatives during the CHMP development and amendment processes resulted in an overall agreement and mutual understanding that no recorded cultural heritage would be impacted by the Action, and that it was unlikely that any undetected cultural heritage would be impacted by Action-related activities. It was agreed that a requirement for a cultural heritage induction for all contractors will be included as a condition (management measure) in the CHMP.

11.2 Economic impacts

The long-term economic costs are expected to be minimal. The Action results in economic benefits throughout its lifecycle at the local, regional and State level with no residual socioeconomic impacts, subject to the implementation of industry-standard management and control measures. The direct and indirect economic benefits significantly outweigh the expected economic costs, and include:

- investment of approximately A$388 million over the 24-month construction phase; 15 to 30% is expected to flow directly to the regional study area economy through direct contracts and labour wages
- no significant loss of productive agricultural land or provision of agricultural produce. Associated landholders are expected to benefit from diversifying existing land use and providing supplementary, guaranteed income

- annual CO_2 abatement of 320,000 tonnes per year, which amounts to an estimated greenhouse gas emissions value of approximately A$2.4 billion over the 35-year operational life, contributing to National and State goals of reducing greenhouse gas emissions

- employment of an average of 60 full-time equivalent (FTE) workers during construction; supporting up to 85 FTE workers at the peak. It is anticipated that 50% of these workers will be sourced locally, providing opportunities for businesses and workers in the regional study area to develop skills in renewables construction creating efficiencies for future renewable energy projects in the surrounding regions. Significant indirect jobs will also be supported during both the construction and operational phases

- engagement with providers of local training programs designed to upskill workers and increase pathways to employment in the renewable energy sector. This includes local providers in the Gippsland region as well as the First Nations Clean Energy Network – Jobs Pathway Initiative

- once operational, up to 5 FTE (all locally based) will be supported, generating A$17.1 million in wages over the 35-year operational life

- non-local construction workers relocating to the regional study area are expected to spend up to $1.7 million over the construction phase

- Community Benefit Fund sharing of over A$180,000 per annum will be dispensed, amounting to A$6.3 million worth of funds over 35 years of operations. Refer to Section 11.2.1 for more information on the Community Benefit Fund.

It is expected that any potential impacts can be mitigated and managed through the implementation of industry-standard management and control measures. Mitigation and management measures include:

- completion of a portfolio of accommodation options for non-local workers in advance of the construction start to avoid and/or minimise potential impacts and competing needs

- consideration of recommendations from the landscape and visual impact assessment undertaken as part of the State planning permit application process when designing and implementing appropriate landscaping and screening solutions to minimise long-term changes in landscape character and visual amenity

- minimisation of short-term access, amenity and potential health and safety impacts from construction and decommissioning activities through the implementation of standard technical assessments and industry-standard management and control measures.

The implementation of appropriate monitoring and adaptive management measures to ensure impacts are effectively minimised will be accompanied by ongoing engagement with key stakeholders including the Wellington Shire Council, GLaWAC, industry bodies and platforms, local communities and community organisations. Opportunities to optimise potential economic and social benefits at the local, regional and State level will be sought proactively together with other nearby project proponents and other relevant stakeholders.

11.2.1 Community Benefit Fund sharing program

The Proponent has committed to sharing the benefits of the Action with local and regional communities through a Community Benefit Fund once the Action is operational. Key community priorities in the Community Benefit Fund were identified through an initial public opinion survey in 2022 to inform the draft Community Benefit Fund sharing program (CBFSP). The draft CBFSP was released, and public and community feedback was sought on the document.

Subject to outcomes of further direct consultation to refine the final program structure and benefits, annual payments are in the order of:

- neighbours and near-neighbour funds component of A$80,000 per annum
- community funds component of A$100,000 per annum.

This amounts to payments in the order of A$6.3 million (as of April 2025) that will be invested in the community throughout the 35-years of operations. The community funds component will be used to support local projects and programs, First Nations programs, including community, educational and environmental initiatives.

11.3 Social impacts

A social impact assessment was undertaken as part of the socioeconomic assessment (Appendix E). In the absence of Victorian guidance, it drew on a combination of international and NSW guidance. A series of questions was developed to inform social and economic indicators using data from established sources such as ABS Census data 2021, government reports and public information. A likelihood and magnitude matrix methodology was applied to assess the significance of social impacts from the perspective of those likely to be affected.

Potential social impacts were identified across the Action lifecycle (i.e. design, construction, operation and decommissioning) to represent short-and long-term impacts. The social impacts were identified through a review of stakeholder engagement outcomes, feedback from First Nations consultation (refer to Chapter 9) data review and analysis, and with reference to the technical assessments. The significance of benefits and impacts were assessed pre-and post-mitigation and ranked low, medium, high or very high. Mitigation and management strategies to address impacts with a significance rating of medium, high or very high were presented.

The social impact assessment identified the following positive impacts:

- Direct employment benefit at construction stage (short term) that will positively impact the regional study area labour force by providing opportunities for workers to upskill and gain experience, thereby growing the renewable energy workforce and skills base in the region.
- Long term employment benefit through the operational phase.
- Opportunities for increased and ongoing local business participation.
- Additional expenditure (retail, housing – short- and long-term accommodation, recreational, personal, medical and other services) at the local and regional levels.
- Increased access to renewable energy and security of energy during the operational phase.
- Improved accessibility due to public road upgrades along the turbine transport route (a positive, indirect impact).
- Support for community development activities and resources through the CBFSP, to be implemented during the operational phase.

Negative impacts included both short-term (temporary) and long-term (over the operational life of the Action):

- Temporary changes in traffic conditions on local roads / road upgrades that may disrupt people’s freedom of movement and result in frustration.
- Temporary reduction in access to a section of the Great Southern Rail Trail that traverses the Action Area.

- Temporary reduction in availability of accommodation normally used by tourists (resulting in potential impacts on the tourism industry during holiday periods and local or regional events) caused by the non-local construction or decommissioning workforce.
- Potential contribution to reduced housing and/or rental affordability at the local and regional scale.
- Visual impacts associated with long-term changes in landscape character and visual amenity.

No residual impacts (those with a significance rating of medium or higher after mitigation has been applied) are expected from the Action. Potential benefits with a high significance include:

- increased investment through CBFSP
- increased local employment including prosperity with potential for underrepresented groups
- opportunity for local and regional workers to upskill and address employment barriers to increase pathways to employment in the renewable energy sector.

Cumulative impacts associated with the construction and decommissioning phases include construction workforce sourcing, temporary accommodation, service needs such as medical care, utility demands, workforce and infrastructure transport movements. Cumulative impacts associated with the operational phase are longer in duration (35 years) but less intense due to a smaller workforce and fewer transport movements. The assessment considered 10 other renewable energy projects within a 40 km radius of the Action and concluded that minimal cumulative impacts are expected.

The mitigation and management strategies include:

- development of management plans
- adherence to the conditions of the existing CHMP 15167 (27 October 2022)
- implementation of recommendations in the relevant technical reports (refer to Appendix A to Appendix I)
- timely and appropriate communication with relevant stakeholders, including GLaWAC
- implementation of a CBFSP
- development of a Community and Stakeholder Engagement Plan
- implementation of a rigorous complaints management system.

These strategies will assist in reducing the social impacts associated with the Action and will be updated as required in consultation with key stakeholders.

11.4 Socio-economic impacts on First Nations people

The socio-economic impacts and benefits were assessed pre- and post- mitigation and were informed by the outcomes of engagement with GLaWAC representatives, available data, GLaWAC's "Pathways to Partnership – Gunaikurnai and Major Projects" guideline and Recognition Settlement Agreement.

Given the projected shortfall in renewable energy workforce requirements, several training programs and forums have been established both Nationally and specifically to the Gippsland region. For example, the First Nations Clean Energy Network – Jobs Pathway Initiative, which aims to identify clear pathways for jobs and careers for First Nations people through a First Nations Clean Energy Jobs Strategy. The Proponent has committed to engaging with providers of local programs designed to train workers in skills relevant to the renewable energy sector.

In addition to the short- and long-term impacts and benefits listed in Sections 11.2 and 11.3, the loss or impact on items or locations of Aboriginal cultural and / or heritage value were assessed as low, subject to adherence to the approved CHMP, appropriate communication with GLaWAC representatives and implementation of recommendations in technical reports.

Consultation with GLaWAC representatives during the CHMP development and amendment processes resulted in an overall agreement and mutual understanding that no recorded cultural heritage would be impacted by the Action, and that it was unlikely that any undetected cultural heritage would be impacted by Action-related activities. It was agreed that a requirement for a cultural heritage induction for all contractors should be included as a condition (management measure) in the CHMP.

Other social benefits, training and employment opportunities for First Nations people are an ongoing topic of engagement with GLaWAC and other First Nations organisations. This includes social and business opportunities through the CBFSP.

The Proponent is in ongoing discussions with GLaWAC in relation to establishing a partnership agreement with them, as part of their 'Pathways to Partnership' program.

The Proponent is also in discussions with Wulgunggo Ngalu Learning Place (WNLP) regarding the potential for the CBFSP to support their social and community activities. WNLP, an initiative of the Victorian Aboriginal Justice Agreement, is a Corrections Victoria facility in Yarram where Aboriginal men can learn new skills, reconnect with, or further strengthen, their culture and participate in programs and activities at the facility or in the community. WNLP is already engaged with various groups and programs in the local community, and any collaboration with the Proponent would seek to support and maintain these activities.

12 Conclusion

The Action is a proposed wind energy facility located approximately 210 km south-east of Melbourne, in Victoria. The Action comprises 13 WTGs and supporting infrastructure including a 40 MW BESS, meteorological masts, construction compounds and operation and maintenance areas, hardstand areas, unsealed tracks and underground cabling. The Action will also require minor upgrades to local roads and the clearing of 1.244 ha of native vegetation, as well as ancillary signage and fire safety design requirements.

The Action is broadly based upon, albeit at a reduced scale, the previously proposed Alberton Wind Farm (the Approved Action) which was approved under the EPBC Act (reference 2017/7854). The Approved Action was a larger wind farm that included 32 turbines. It did not proceed due to the planning approval being ruled invalid by the Victorian Civil and Administrative Tribunal (VCAT) in October 2020.

This chapter provides an overview of how the Action is environmentally acceptable under the EPBC Act, as demonstrated in greater detail in the preceding chapters of this PER.

12.1 Environmental acceptability of the Action

The following tables outline how the Action is consistent with the objects of the EPBC Act and the principles of ecologically sustainable development. The Action has been developed having regard to both of these matters and an overview assessment of each is provided in Table 12.1 and Table 12.2.

Table 12.1 Assessment of the Action's compliance with the objects of the EPBC Act

Object	
(a) to provide for the protection of the environment, especially those aspects of the environment that are matters of National environmental significance; and	To support the development of the PER a MNES Assessment (Appendix A) was prepared which identifies the MNES within the Action Area and how potential impacts from the Action have been avoided. The conclusion of the MNES Assessment is that no MNES species would be significantly impacted by the Action. This PER has also demonstrated there will be no significant impacts to MNES, including the Ramsar site at Corner Inlet. It is therefore considered that these objects have been appropriately considered and that the Action complies with their key directions.
(b) to promote ecologically sustainable development through the conservation and ecologically sustainable use of natural resources; and	
(c) to promote the conservation of biodiversity; and	
(ca) to provide for the protection and conservation of heritage; and	The PER has considered the relevant heritage impacts for the Action, and, consistent with this object, will not impact matters of heritage significance.
(d) to promote a co-operative approach to the protection and management of the environment involving governments, the community, land-holders and indigenous peoples; and	As part of the approvals process to date, there has been consultation with a large range of community members, land holders, government departments (Commonwealth, State and local) and First Nations peoples in the development of the Action. A Community Engagement Strategy (CES) for the Action was prepared to ensure targeted, timely and genuine engagement with these stakeholders. The CES has been continually revised so that it engages effectively with the most relevant affected parties within the local community, to understand their views and address concerns, see Chapter 9 for further information.

Object	
(e) to assist in the co-operative implementation of Australia's international environmental responsibilities; and	The Action supports Australia's commitments under the Paris Agreement as it is expected to export 300 GWh of renewable electricity annually and supports the broader Statewide and National energy transition. Other relevant international environmental obligations have also been considered as outlined at Chapter 6 which confirms that the Action responds appropriately to these obligations.
(f) to recognise the role of indigenous people in the conservation and ecologically sustainable use of Australia's biodiversity; and	The appointed RAP for the Action Area is GLaWAC. The RAP was consulted during the Cultural Heritage Management Plan process through meetings, fieldwork, and emails. Management conditions have also been discussed and agreed with the RAP regarding site-specific conditions to avoid harm to registered Aboriginal cultural heritage places, and general conditions such as a cultural heritage induction for site worker/contractors. Further information on the consultation undertaken is in Chapter 9.
(g) to promote the use of indigenous peoples' knowledge of biodiversity with the involvement of, and in co-operation with, the owners of the knowledge.	

Table 12.2 Assessment of the Action's compliance with the principles of ecologically sustainable development

Principles	
(a) decision-making processes should effectively integrate both long-term and short-term economic, environmental, social and equitable considerations;	Consistent with this principle, the Action has been assessed taking into account economic, environmental, social and equitable matters in this PER and supporting technical reports. The Action will result in an investment of approximately $388 million over the 24-month construction phase with 15 to 30% expected to flow directly to the regional economy through direct contracts and labour wages. It is also expected to provide direct employment benefits during the construction and operation of the Action which will provide long and short term positive social and economic impacts to the local region. As previously discussed, these economic and social benefits will occur whilst also ensuring MNES are not significantly impacted.
(b) if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation;	The PER and MNES Assessment (Appendix A) have concluded that the Action will not lead to any serious or irreversible environmental damage, see Chapter 5 and Chapter 6 for further information.
(c) the principle of inter-generational equity--that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations;	The Action contributes to the reduction of 320,000 t of CO2 per year, which amounts to an estimated greenhouse gas emissions value of approximately A$2.4 billion over the 35-year operational life, contributing to National and State goals of reducing greenhouse gas emissions. By contributing to the reduction of CO2 the Action will benefit future generations and support the Victorian Renewable Energy Target (VRET) and Australian Government targets.
(d) the conservation of biological diversity and ecological integrity should be a fundamental consideration in decision-making;	The PER and MNES Assessment (Appendix A) has been completed to understand biological diversity and ecological values of the region. The assessment concludes that the potential environmental impacts from the Action are manageable and that the biological diversity and ecological integrity of the Action Area and its surrounds (including the Ramsar wetlands) will not be impacted. Refer to Chapter 6 for an overview of the MNES assessment and to Chapter 7 for identified mitigation and management measures.

Principles	
(e) improved valuation, pricing and incentive mechanisms should be promoted.	The Action will play a vital role in meeting anticipated energy supply shortfalls as Gippsland's older coal-fired power plants, such as the Yallourn Power Station, are retired in coming years. Additionally, it supports the Australian Energy Market Operator's (AEMO) Integrated System Plan by providing consistent, renewable energy from a strategically located site with strong wind resources and existing transmission capacity. The Action promotes sustainable pricing by using natural resources (wind energy).

12.2 Summary of the Action

The following provides a summary of the impacts on MNES by the Action:

- The Project Footprint of the Action does not intersect with the Corner Inlet Ramsar site. As such, no direct impacts to the wetland are anticipated. The only potential pathways to impacts are through indirect impacts. An EMP that addresses both construction and operational phases will include mitigation measures and outline items that prevent indirect impacts from occurring. The significant impact assessment concluded that the Action is unlikely to cause significant impacts to the Corner Inlet Ramsar site or modify its ecological character.

- The significant impact assessment for the Action found that it is possible that the Action could cause significant impacts to the Blue-winged Parrot, without any mitigation measures. However, with the implementation of a BAMP as a mitigation measure, a significant impact on the species is considered unlikely.

- The Clover Glycine (*Glycine latrobeana)* (Vulnerable), Dense Leek-orchid (*Prasophyllum spicatum)* (Vulnerable), Eastern Spider-orchid (*Caladenia orientalis)* (Endangered), Maroon Leek-orchid (*Prasophyllum frenchii)* (Endangered), Metallic Sun-orchid (*Thelymitra epipactoides)* (Endangered), River Swamp Wallaby-grass (*Amphibromus fluitans)* (Vulnerable), Strzelecki Gum (*Eucalyptus strzeleckii)* (Vulnerable) and Thick-lip Spider-orchid (*Caladenia tessellata)* (Vulnerable) are all listed threatened flora species that have the potential to occur or are known to occur. However, these species were not identified during field surveys and no sustainable habitat is known to occur in the Action Area. Accordingly, it is concluded that no significant impacts for all of these species are expected from the Action.

- The Grey-headed Flying-fox (*Pteropus poliocephalus)* (Vulnerable), Long-nosed Potoroo (*Potorous tridactylus trisulcatus)* (Vulnerable), Southern Brown Bandicoot (*Isoodon obesulus obesulus)* (Endangered) and Swamp Antechinus (*Antechinus minimus maritimus)* (Vulnerable) are all mammal species listed under the EPBC Act and are likely to occur or have the potential to occur in the Action Area. The significant impact assessments for all of these species found that the Action is unlikely to cause significant impacts.

- The Gang-gang Cockatoo (*Callocephalon fimbriatum)* (Endangered), Latham's Snipe (*Gallinago hardwickii*) (Vulnerable, Migratory), Swift Parrot *Lathamus discolor* (Critically Endangered), White-throated Needletail (*Hirundapus caudacutus*) (Vulnerable, Migratory), Fork-tailed Swift *Apus pacificus* (Migratory) and 22 migratory shorebirds species are all listed threatened bird species that have potential to occur or are known to occur in the Action Area. The significant impact assessments for all of these species found that the Action is unlikely to cause significant impacts. A collision risk model was developed for the White-throated Needletail based on observations of this species. The BAMP will incorporate this model and will provide mitigation measures to ensure impacts are avoided.

- The Australian Grayling (*Prototroctes maraena)* (Vulnerable) and Dwarf Galaxias (*Galaxiella pusilla)* (Endangered) are listed threatened fish species that are likely to occur or have the potential to occur onsite. The significant impact assessments for all of these species found that the Action is unlikely to cause significant impacts.

In summary, subject to the implementation of management and mitigation measures outlined in this PER and as further detailed in the supporting technical assessments, the Action is not expected to have a significant impact on MNES. It represents an appropriate environmental outcome that is consistent with the objects of the EPBC Act and the principles of ecologically sustainable development.

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