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

REFERRAL FORM

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

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

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

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

In completing a Referral Form, the following should occur:

- Mark relevant boxes by changing the font colour of the 'cross' to black and provide additional information and explanation where requested.
- As a minimum, a brief response should be provided for each item in the Referral Form, with a more detailed response provided where the item is of particular relevance. Cross-references to sections or pages in supporting documents should also be provided. Information need only be provided once in the Referral Form, although relevant cross-referencing should be included.
- Responses should honestly reflect the potential for adverse environmental effects. A Referral will only be accepted for processing once IAU is satisfied that it has been completed appropriately.
- Potentially significant effects should be described in sufficient detail for a reasonable conclusion to be drawn on whether the project could pose a significant risk to environmental assets. Responses should include:
    - a brief description of potential changes or risks to environmental assets resulting from the project;
    - available information on the likelihood and significance of such changes;
    - the sources and accuracy of this information, and associated uncertainties.
- Any attachments, maps and supporting reports should be provided in a secure folder with the Referral Form.
- A USB copy of all documents will be needed, especially if the size of electronic documents may cause email difficulties. **Individual documents should not exceed 10MB as they will be published on the Department's website.**

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

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

Postal address

Minister for Planning
PO Box 500
EAST MELBOURNE VIC 8002

Couriers

Minister for Planning
Level 16, 8 Nicholson Street
EAST MELBOURNE VIC 3002

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

PART 1 PROPONENT DETAILS, PROJECT DESCRIPTION & LOCATION

1. Information on proponent and person making Referral

Name of Proponent:	Southern Winds OWP Project Pty Ltd ACN 662 232 895 as trustee for the Southern Winds OWP Project Trust on behalf of BlueFloat Energy International S.L.U is the proponent for the Project.
Authorised person for proponent: **Position:** **Postal address:** **Email address:** **Phone number:** **Facsimile number:**	Deb Neumann Director, Environment and Planning BlueFloat Energy International S.L.U on behalf of Southern Winds OWP Project Pty Ltd ACN 662 232 895 as trustee for the Southern Winds OWP Project Trust The Commons, 11 Wilson Street, South Yarra, 3141 dneumann@bluefloat.com 0414 811 290 N/A
Person who prepared Referral: **Position:** **Organisation:** **Postal address:** **Email address:** **Phone number:** **Facsimile number:**	Caroline Funnell Principal Environmental Consultant Umwelt Australia Pty Ltd Level 7 / 180 Flinders Street, Melbourne VIC 3000 cfunnell@umwelt.com.au 0449 947 686 N/A
Available industry & environmental expertise: (areas of 'in-house' expertise & consultancy firms engaged for project)	**The Proponent** Southern Winds OWP Project Pty Ltd ACN 662 232 895 as trustee for the Southern Winds OWP Project Trust is the proponent for the Southern Wind Offshore Wind Project on behalf of BlueFloat Energy International S.L.U. In Australia, BlueFloat Energy International S.L.U are developing three other offshore wind projects. These are Greater Gippsland Offshore Wind Project near Portland in Victoria and the Hunter Coast Offshore Wind Project and South Pacific Offshore Wind Project in New South Wales. BlueFloat Energy International S.L.U is a nimble and fast-growing offshore wind developer shaping the global energy transformation by bringing scaled decarbonization solutions to new markets. Leveraging the team's extensive knowledge and hands-on experience in bottom-fixed and floating offshore wind project development and execution, they are at the forefront of the emerging global market for offshore wind. Their portfolio of both bottom-fixed and floating wind farm projects comprises over 22 GW of planned capacity in nine countries across the globe. **The Consultant** Umwelt Australia Pty Ltd (Umwelt) were engaged as the Lead Consultant to prepare and coordinate specialist environmental and planning desktop assessments and referrals under the Victorian *Environment Effects Act 1978*

	and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* for this Project. Umwelt is experienced in undertaking environmental impact assessments, conducting specialist impact studies, and obtaining approvals for complex energy and infrastructure developments. BMT Global (BMT) and Biosis were also engaged to provide specialist technical assessment and advice. BMT completed a preliminary marine environmental risk assessment. BMT have over 35 years of experience and a rich heritage of marine research and are highly experienced in environmental impact assessments in complex marine environments in Australia. Biosis completed a preliminary terrestrial biodiversity assessment. Biosis have over 40 years of experience in ecological assessments and are currently undertaking biodiversity assessments for other offshore wind projects in Victoria, including the Greater Gippsland Offshore Wind Project. This referral is supported by the following figures and technical studies: • Attachment 1 – Referral figures • Attachment 2 – Preliminary Desktop Biodiversity Constraints Assessment (Biosis, 2022) • Attachment 3 – Preliminary Desktop Hydrology Constraints Assessment (Umwelt, 2022) • Attachment 4 – Summary of Impacts Report (Umwelt, 2022) • Attachment 5 – Preliminary Desktop Marine Environmental Assessment (BMT, 2022) • Attachment 6 –Social Risks and Opportunities Analysis (Umwelt, 2022) • Attachment 7 – Preliminary Desktop Cultural Heritage Constraints Assessment (Umwelt, 2022)

2. Project – brief outline

Project title: Southern Winds Offshore Wind Project (the Project)
Project location: (describe location with AMG coordinates and attach A4/A3 map(s) showing project site or investigation area, as well as its regional and local context) The Southern Winds Offshore Wind Project (the Project) is comprised of an offshore wind farm component and supporting transmission infrastructure located onshore and offshore, off the coast of south-west Victoria and south-east South Australia. See **Figure 1** in **Attachment 1** for the Project location context and **Figure 2** in **Attachment 1** for the Project Area and Study Area applied to the desktop assessments. This referral presents the whole Project for full context including offshore components in Commonwealth Waters however, the area subject to assessment and approval under Victorian law is located onshore and within State Waters (up to 3 nautical miles from the low water line on the coastline). This is shown in **Figure 3** in **Attachment 1.** The offshore wind turbine component of the Project is located in Commonwealth waters approximately 8 - 20 kilometres (km) off the coastline between Cape Douglas in South Australia and Nelson in Victoria, approximately 60 km west of Portland.

Approach to presenting and assessing transmission route options in this referral

For the purposes of completeness and to allow for flexibility in the selection of a preferred connection to the electricity grid that minimises environmental, heritage and social impacts and best meets the Project objectives, two transmission route options have been presented in this referral. To allow for flexibility as the Project develops, the existing environmental, heritage and social conditions along each route option have been presented along with a summary of the potential impacts associated with construction and operation of a new transmission line.

It is noted that the transmission line options proposed as part of the Project were identified prior to release of the Victorian State Governments *Offshore Wind Implementation Statement 1* (October 2022) and accordingly the location of the grid connection may be subject to further review and consideration.

Onshore transmission infrastructure will be located within the Glenelg Local Government Area (LGA), with the grid connection point at either the existing switchyard for the Portland Aluminium Smelter (transmission route option 1) or via a new dedicated transmission line to the existing Heywood Terminal Station (transmission route option 2) (see **Figure 2** in **Attachment 1**). Refer to **Section 3** for further information on the Project description.

Proposed transmission route options (see Figure 2 in Attachment 1)

Transmission route option 1

Transmission route option 1 as presented in this referral is the preferred option for connecting the Project to the National Electricity Market (NEM). For transmission route option 1, it is assumed that the Project will terminate at the Portland Aluminium Smelter switchyard and that no works will be required along the existing 500 kV transmission line between the Portland Aluminium Smelter switchyard and the existing Heywood Terminal Station. For completeness and flexibility as the Project evolves, the desktop studies have been conducted to include the existing transmission route up to Heywood Terminal Station within the Study Area for option 1.

Transmission route option 1 proposes a landfall site to the south of the Portland Aluminium Smelter. Subsea export cables will travel southeast from the more easterly offshore substation and land near the north-west corner of the Narrawong Coastal Reserve, where they will connect to onshore cables in a transition joint bay. The onshore cables will then connect into the existing Portland Aluminium Smelter switchyard. Works may be required to connect the Project into the switchyard.

Transmission route option 2

Transmission route option 2 proposes a landfall site near the south-eastern corner of Glenelg Estuary and Discovery Bay Ramsar Wetlands site. Subsea export cables will travel southeast from the more easterly offshore substation and land on the shoreline to the north of Discovery Bay Marine National Park. The subsea cables will be connected to onshore cables in a transition joint bay. These onshore cables will then continue underground or overhead north-east through Gorae West for approximately 29 km to the Heywood Terminal Station).

The Project will use existing port facilities in the broader Victorian and South Australian region (expected to be expanded/upgraded) to support construction and operational activities including the transport and delivery of equipment and Project components, and to facilitate the use of maintenance vessels for offshore activities. Port expansion and/or upgrade activities are not included within the scope of the Project (and this referral) and are expected to be delivered by a third party to service multiple offshore wind projects in the broader region.

The Australian Map Grid (AMG) coordinates of the Project are shown in **Table 1**.

Table 1 Project coordinates

Location point	Easting	Northing
Offshore Wind Project Area - South	476723.4	5768248.0
Offshore Wind Project Area - East	498797.2	5772821.9
Offshore Wind Project Area - North	476922.2	5785549.1
Offshore Wind Project Area - West	454450.7	5777594.6
Option 1 beach landing point of cable (Portland Aluminium Smelter)	553498.3	5750107.7
Option 2 beach landing point of cable (Discovery Bay)	534468.4	5757209.1
Option 1 Portland Aluminium Smelter switchyard connection	554441.0	5750698.4
Option 2 indicative transition joint bay location	535715.5	5757641.9
Option 2 onshore overhead transmission route – termination at the existing Heywood Terminal Station	554441.0	5773570.1

The following terminology is used throughout the referral:

- **Offshore** - refers to all areas from the low water line along the coast out to sea (both Commonwealth and State Waters (see definitions below))
- **Onshore** - refers to all land-based areas above the low water line along the coast
- **State Waters** – from the low water line along to the coast to 3 nautical miles seaward
- **Commonwealth Waters** – any waters inside the seaward boundary of the Exclusive Economic Zone (200 nautical miles from the low water mark of the coastline) but excluding the State Waters.

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

The Project is a fixed-bottom offshore wind farm consisting of 77 turbines, two offshore substations and associated infrastructure with the capacity to generate up to 1.155 GW of electricity.

The offshore wind turbine component of the Project is located in Commonwealth waters approximately 8 - 20 km off the coastline between Cape Douglas in South Australia and Nelson in Victoria, approximately 60 km west of Portland.

The components of the Project which are subject to assessment and approval under Victorian law are located onshore and within State Waters (see **Figure 3** in **Attachment 1**) and are described as follows.

- Two subsea export cables will connect the two offshore substations to the onshore transition joint bay (sections will traverse State Waters to land) (see **Figure 2** in **Attachment 1**)
- The connection to the National Energy Market (NEM) from the onshore transition joint bay will be via an overhead or underground line via:
    - Option 1 - the existing Portland Aluminium Smelter switchyard. Works may be required to connect the Project into the switchyard. While the existing Portland-Heywood transmission line is located within the Study Area, no works will be required to be undertaken to this infrastructure, or
    - Option 2 - the existing Heywood Terminal Station via a new dedicated transmission line for the Project travelling 29 km north-east through Gorae and Gorae West to Heywood.

Key offshore components are located within Commonwealth Waters and will be assessed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). These are:

- 77 offshore wind turbines fixed to the seabed with foundations. The turbines would have a capacity 15 MW to 20 MW, a hub height between 165 m and 190 m, and a rotor diameter of between 250 m to 275 m.
- Two (2) offshore substations fixed to the seabed with foundations.
- A network of inter-array subsea cabling connecting the offshore wind turbines together and to the offshore substations.

Sections of the export subsea cables between the offshore substations to the point where they meet State Waters.

Further information about the Project is provided in **Section 3**.

3. Project description

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

The primary objective of the Project is to develop an offshore wind farm that will generate and supply renewable energy into the NEM to supplement Victoria's energy supply, and to support Victoria's and Australia's transition to renewable energy. The Project will be a key contributor to mitigating the projected impacts of climate change by providing renewable sources of energy and subsequently reducing greenhouse gas emissions from fossil fuel energy generation.

Key objectives of the Project include:

- Generate and supply up to 1.155 GW of renewable electricity into the NEM, equivalent of powering approximately 600,000 Victorian homes
- Contribute to the decarbonisation of Australia's energy market
- Bring BlueFloat Energy's overseas expertise in the offshore wind sector to Australia
- Support the Victorian Government's offshore wind target of at least 2 GW by 2032, 4 GW by 2035 and 9GW by 2040
- Support the Victorian Government's legislated renewable energy target of 50 percent by 2030 (DELWP, 2021)
- Contribute to Victoria's greenhouse gas reduction target of net zero emissions by 2050 by displacing approximately 4 million tonnes of carbon dioxide
- Support the Commonwealth Government's commitment to achieve up to 43 percent emission reductions below 2005 levels by 2030 and net zero emissions by 2050 (Australia's Long Term Emission Plan, DISER, 2021).

The Project is anticipated to result in the following broader benefits:

- Support the transition from retiring coal fired energy generation facilities
- Generate significant direct and indirect economic expenditure and benefits at a State, regional and local level
- Utilise the existing highly skilled offshore workforce from the oil and gas industry within Australia
- Provide opportunities for local employment and procurement during construction and operation of the Project
- Provide greater energy security by contributing to protecting the State's energy network from power outages

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

There is widespread consensus that decarbonising the energy market and transitioning to renewable energy is critical to reducing Australia's greenhouse gas emissions. Australia's greenhouse gas emissions are among the highest in the world, with Australia ranking tenth for greenhouse gas emissions on a per capita basis in 2019, at approximately 15.2 tonnes per capita (The World Bank, 2022). Just over half of Australia's greenhouse gas emissions in 2019 were attributed to stationary energy (fossil fuel combustion for generation of electricity and use in manufacturing and construction) (DISER, 2021). Emissions from electricity production accounted for 64% of emissions from stationary energy (DISER, 2021). Development of large-scale offshore wind projects, including the Southern Winds Offshore Wind Project, has potential to play a key

role in the decarbonisation of Australia's energy market and supporting both Victoria and Australia's transition to renewable energy.

Offshore wind is known to be a viable source of renewable energy that has been widely developed across Europe and is anticipated to play a significant part in Victoria's renewable energy transition. Victoria has some of the world's best offshore wind resources, with coastal regions hosting the potential to support 13 GW capacity by 2050 (DELWP, 2022). BlueFloat Energy bring their experience and expertise from developing offshore wind projects overseas to this Project.

Offshore wind farms have a number of advantages, including:

- Wind turbines can be sited offshore, where the wind is stronger for longer periods of time. Small increases in wind speed yield large increases in energy production.
- Larger offshore wind turbines can be installed offshore, which means they can capture high wind flows at a higher altitude.
- Offshore wind speeds tend to be higher and steadier than on land as there is nothing around to interfere with wind flow such as trees, buildings, and topographic highs. Offshore wind turbines therefore capture more wind energy.
- Due to the larger offshore wind turbines and greater expanse that offshore wind farms can cover, they can produce substantially greater energy outputs than onshore wind and solar farms.

The Commonwealth *Offshore Electricity Infrastructure Act 2021* (OEI Act) commenced on 2 June 2022. The Commonwealth Government has recently consulted and is seeking to declare the Bass Strait off Gippsland as the nation's first priority area to be assessed for suitability for offshore wind developments. The Commonwealth Minister for Climate Change and Energy has also announced the Government's intention to commence consultation on five other offshore areas in Australia including the Southern Pacific Ocean region off Portland in Victoria.

Victoria has some of the world's best offshore wind resources. Victoria is spearheading Australia's offshore wind sector, with offshore wind proposed to support its switch to renewables and play a vital role in Victoria's clean energy transition. Victoria has set ambitious targets of 2 GW of offshore generation by 2032, 4 GW of offshore wind capacity by 2035 and 9 GW by 2040.

In addition to the Commonwealth, both the Australian Energy Market Operator (AEMO) and the Victorian Government have also declared Portland as being suitable for offshore wind farms and have identified them as being within a future Renewable Energy Zone (REZ). The establishment of REZs is intended to facilitate an increase in renewable energy development. The Victorian Government has committed to developing REZs, including the South West REZ, to bring in 10 GW of new renewable energy capacity into the Victorian grid (DELWP, 2021).

The onshore components of the Project (the new substation and overhead transmission line) are located within the South West REZ (V4), which is one of Victoria's six Renewable Energy Zones identified in AEMO's Integrated System Plan (ISP). The selected site for the Project is an ideal location to develop an offshore wind farm for a number of reasons including, but not limited to:

- Consistent strong wind patterns
- Relatively shallow water depths that are favourable for installing fixed-bottom offshore wind infrastructure (i.e. wind turbines and substations)
- Proximity to the existing electricity transmission network
- Suitable onshore infrastructure such as the Portland Aluminium Smelter switchyard and Heywood Terminal Station
- Suitable locations for onshore infrastructure for construction and ongoing operations and maintenance including but not limited to the Port of Portland, Barry Beach Marine Terminal, Port Anthony, Port of Hastings and Port of Geelong in Victoria and Bell Bay in Tasmania
- Opportunity to collaborate with other renewable energy developers to share common infrastructure and reduce potential environmental and community effects
- A long history of industrial development in Portland and Mount Gambier and the broader region

- Presence of a political will for energy transition within the region
- Opportunity to engage with the local manufacturing industry within the region and contribute to significant economic benefits to Victoria and South Australia
- Opportunity to re-skill the workforce in the region into renewable-associated employment

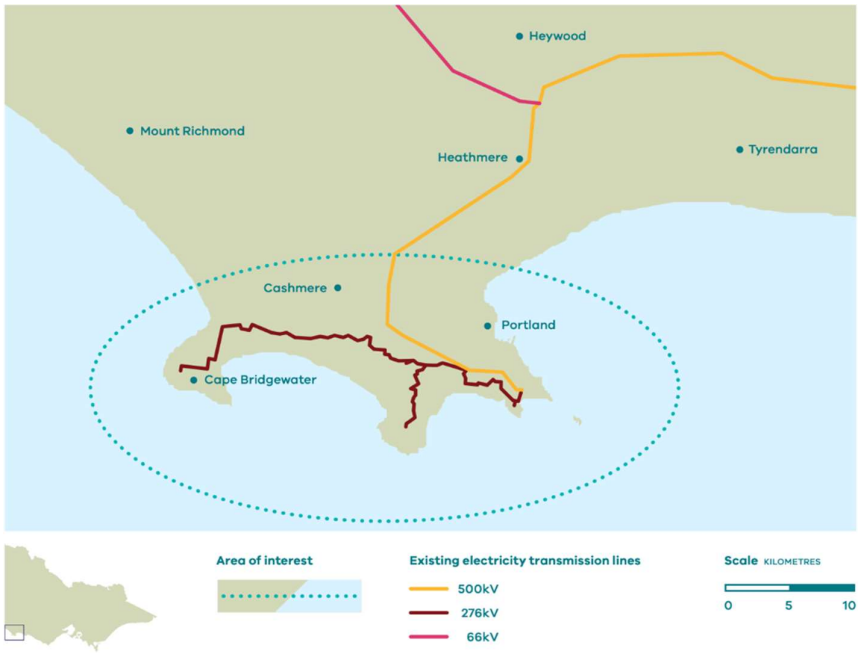
In October 2022, the Victorian Government released the *Offshore Wind Implementation Statement 1* which outlines the government's plans for the establishment of an offshore wind industry. This is the first in a series of implementation statements that will be released over the coming years and is designed to provide certainty and facilitate ongoing collaboration.

The Statement 1 includes announcements and updates on transmission; Ports; Offshore Wind Energy Victoria; boosting the capability of local industry; and working with the Commonwealth to deliver streamlined regulation and legislation. Of relevance to this Project, the Statement says:

> *Notice 2, VicGrid will lead the development of transmission infrastructure that provides a coordinated connection point near the Gippsland Coast and Portland.*

The Statement includes an area of interest for investigation and consultation, and existing transmission infrastructure as shown in the image below. It also states:

> *Notice 3, VicGrid-led transmission will facilitate connection of up to 2-2.5 GW capacity in both Gippsland Coast and Portland.*
>
> *The Victorian Government has committed to a first offshore wind target of at least 2 GW by 2032. To accommodate this, transmission infrastructure will be developed to facilitate connection of up to 2-2.5 GW generation capacity in both Gippsland and Portland respectively.*



It is noted that the transmission line options nominated as part of the Project were identified prior to release of the Statement and accordingly the location of the grid connection may be subject to further review and consideration.

It is also noted that the State Governments *Offshore Wind Implementation Statement 1* (October 2022) states that the Port of Hastings is likely to be the preferred port to support offshore wind construction, subject to the necessary community and industry consultation and environment and planning approvals. It also notes that there are significant opportunities for commercial ports in Victoria to benefit from offshore wind.

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

As noted earlier, this referral presents the whole Project for full context including offshore components in Commonwealth Waters however, the area subject to assessment and approval under Victorian law are located onshore and within State Waters.

The Project design is continuing to develop and evolve as further technical investigations (environmental and engineering), stakeholder and community consultation and commercial and technological considerations are completed.

The Project for consideration in this referral consists of the following main components as shown in **Figure 2 in Attachment 1.**

Onshore Components in the State jurisdiction

The onshore transmission route is subject to ongoing consideration, with two transmission route options considered in this referral. Information about each option is provided in **Table 2**. The indicative corridors for each option are shown in **Figure 2** in **Attachment 1**.

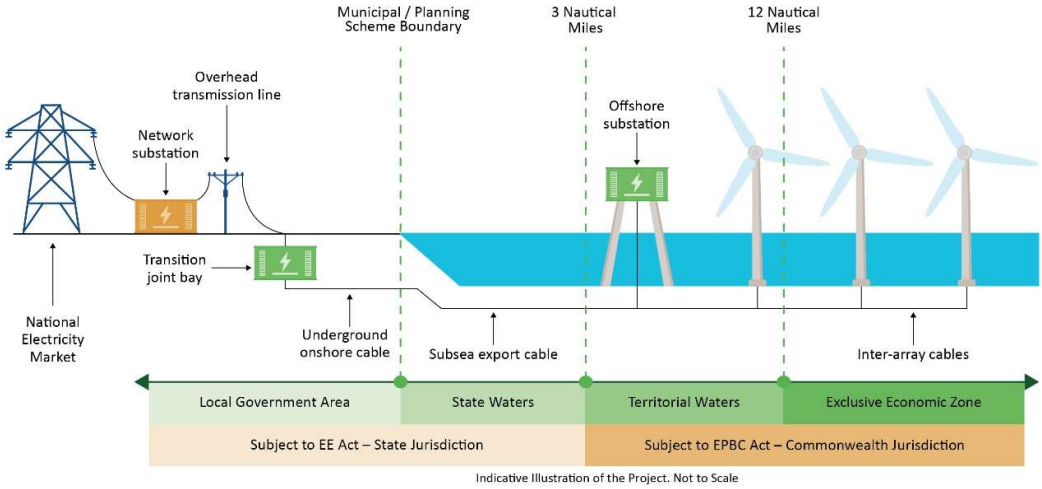
As noted earlier, the preferred transmission line connection for the Project is option 1, however this is subject to further investigation and consultation with the Portland Aluminium Smelter operators.

Table 2 Onshore transmission route options

Option	Description
Option 1	Option 1 involves subsea export cables to travel southeast from the more easterly offshore substation for approximately 72 km, landing near the north west corner of the Narrawong Coastal Reserve, approximately 1.5 km from the Portland Aluminium Smelter. The subsea cables will connect to onshore cables in a transition joint bay and then continue to the existing Portland Aluminium Smelter switchyard. While the existing Portland-Heywood transmission line is located within the Study Area, no works are currently expected to be required to upgrade this infrastructure.
Option 2	Option 2 involves subsea export cables to travel southeast from the more easterly offshore substation for approximately 42 km, landing near the south-eastern corner of the Glenelg Estuary and Discovery Bay Ramsar Wetlands site at Cape Bridgewater (avoiding the Discovery Bay Marine National Park). The subsea cables will connect to onshore cables in a transition joint bay and then continue underground or overhead north-east through Gorae West for approximately 29 km to the existing Heywood Terminal Station. A transition point to an overhead line, if applicable, will be located within 5 km of the coast. A new project-dedicated transmission line (overhead or underground) and easement will be required for transmission route option 2. Transmission options are being investigated but an overhead line has been assumed for the purpose of this referral and early desktop assessments. This will include land required for the transmission infrastructure plus ongoing maintenance and operations. The average easement width for double circuit 500 kV transmission lines is expected to be 80 m to 100m. The steel lattice towers for a 500 kV line are expected to be between 65 m and 80 m high.

The construction and use of transition joint bays, approximately 1 - 2 km inland of the cable landing at the shore, will be required for both transmission route options. The four buried joint bays where each of four 3-phase sea cables are joined to the three 1-ph land cables will occupy up to 0.1 hectares. The workspace required to install them will be up to 0.6 hectares including areas for civil plant and truck movements around the excavation(s). The approximate location of the transition joint bays for each option is shown on **Figure 2** in **Attachment 1**.

The main components of the Project are illustrated in the indicative drawing below based on transmission route option 2, whilst transmission route option 1 will connect from the transition joint bay direct to the Portland Aluminium Smelter switchyard (not to scale).



Indicative Illustration of the Project. Not to Scale

Offshore Components traversing the Commonwealth and State jurisdiction

Subsea export cables extending from the offshore substations to the onshore landing locations would traverse both Commonwealth and State waters (option 1 and option 2 are shown in **Figure 2** in **Attachment 1**). These options are subject to ongoing investigation but are designed to avoid direct interaction with the Glenelg Estuary and Discovery Bay Ramsar Wetlands site. Construction activities associated with the offshore subsea cabling would include:

- Trenching of the seabed to allow for the laying of subsea export cables
- Laying and burying (trenching) or mechanical protection of the subsea export cables
- These will be either trenched or bored.

Offshore Components in the Commonwealth jurisdiction

- 77 offshore wind turbines and two offshore substations fixed to the seabed with foundations
- A network of inter-array subsea cabling connecting the offshore wind turbines together and to the offshore substations
- Those parts of the export subsea cables between the offshore substations to the point where they meet State Waters.

The exact location and specification of the turbines will be determined following site investigations, supply chain considerations and completion of further environmental assessment. For the purposes of this referral, each offshore wind turbine will have a capacity between 15 MW and 20 MW, a hub height of 165 m to 190 m and a rotor diameter of between 250 m to 275 m.

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

Onshore

Existing port and harbour modifications

The Project will use existing port facilities in the region to support construction and operational and maintenance (O+M) activities including, but not limited to, activities including the transport and delivery of equipment and Project components, and to facilitate the use of maintenance vessels for offshore activities. It is anticipated that the existing port(s) will require upgrades and/or expansion which will be delivered by a third party, separate to this Project, and will likely service several offshore wind projects. The port works will be subject to their own independent assessments and approvals.

Studies into suitable port facilities and port development plans are ongoing, with several ports currently being investigated to support the Project (subject to various port upgrades required)

including, but not limited to, the Port of Portland, Barry Beach Marine Terminal, Port Anthony, Port of Hastings and Port of Geelong in Victoria and Bell Bay in Tasmania.

The requirements for the port facility include:

- Being in proximity to the offshore wind farm to enable efficient transportation, installation and construction activities
- Having sufficient water depth to facilitate a variety of construction and/ or operation vessels
- Having adequate quayside facilities to enable construction and installation activities including sufficient bearing capacity, vehicle parking, offices, refuelling and waste handling etc.
- Having sufficient land availability nearby to enable construction laydown areas, assembly, storage and potentially manufacturing of Project components
- Having capacity to facilitate marine transportation volumes associated for the Project and adequate staffing / ability to supply additional workforce from local/regional community

It is noted that the State Governments *Offshore Wind Implementation Statement 1* (October 2022) states that the Port of Hastings is likely to be the preferred port to support offshore wind construction, subject to the necessary community and industry consultation and environment and planning approvals and that there are significant opportunities for commercial ports in Victoria to benefit from offshore wind.

Onshore transport will be primarily associated with the movement of workers and construction of the transmission line. The Project will use existing public roads, access points and intersections, however where necessary, upgrades will be undertaken to accommodate construction vehicles. These will be subject to identification through further environment and transport assessment, consultation with private landowners and Councils (if affecting public land).

Offshore

The following offshore ancillary devices are required for the Project for safety purposes or to obtain further data to inform design and approvals, the number and location of these will be confirmed during development of the Project however it is anticipated that these will be located predominantly in Commonwealth Waters but also in State Waters to ascertain conditions for the export cables:

- Metocean measurement devices including wave buoys and floating Light Detection and Ranging (LiDAR) equipment
- Ecological monitoring devices including buoyed acoustic monitoring equipment
- Safety Aids to Navigation such as safety buoys

Three EPBC Act are currently being prepared. Alongside a referral for the Project, a separate referral under the EPBC Act has been prepared for the marine field activities required for the Project during the assessment stage to inform the approvals. This includes devices indicated in the list above. An EPBC referral for geotechnical and other intrusive investigations is also currently being prepared and is expected to be lodged in early 2023.

Key construction activities:

- Construction program (start and end date, duration)
- Key stages of construction and methodologies for each main Project component onshore and offshore

Construction of the onshore and offshore components is expected to start in 2027 and take approximately two years each (overlapping) with an overall duration of approximately two years.

Pre-construction works will be required both offshore and onshore including vegetation clearance, potential relocation of services and seabed preparation.

Onshore

Transmission line

The option selection and siting of the onshore transmission line will determine the required vegetation clearance. Where possible, existing transmission infrastructure will be used (option 1) and/or works will be undertaken within existing cleared areas such as roadways and access tracks to avoid the need to impact on any vegetation.

Construction activities associated with the onshore transmission line will include:

- Removal, destruction and lopping of native and non-native vegetation
- Construction and use of access tracks and laydown areas for construction and/or maintenance
- Establishment of site offices and operations and maintenance buildings
- Site preparation for the pylons, assembly of a temporary crane, installation/ pouring of the foundations and assembly of the pylons (for overhead configuration)
- Trenching and horizontal directional drilling) activities for laying underground cabling (for an underground configuration)
- Excavation of transition pits and temporary storage of excavated materials
- Civil and electrical works at the point of interconnection to the grid, with works dependent on the exact location and existing infrastructure
- Progressive rehabilitation of the sites and landscaping

Transition joint bay and subsea cable crossing

Construction activities associated with the onshore transition joint bay and subsea cabling will include:

- Landfall of the offshore export cable and connection to the transition joint bay (option 1 or 2) will involve either HDD or trenching.
- Laying and burying of underground cable from the transition joint bay to the Portland Aluminium Smelter switchyard for option 1 (construction methodology of cable trenching or boring, subject to further technical feasibility and environmental studies)
- Construction of the onshore transition joint bay will require general civil works including site preparation, pouring of concrete foundations, assembly of the structure (will require temporary cranes), fit out and installation of electrical items.

Offshore

Subsea export cabling (only infrastructure in Victorian jurisdiction included here).

Construction activities associated with the offshore subsea cabling will include:

- Trenching of the seabed to allow for the laying of subsea export cables
- Laying and burying (trenching) or mechanical protection of the subsea export cables

Other activities that will occur offshore within Commonwealth Waters include:

- Installation of foundations, scour protection, and subsea electrical array cables at wind turbines and offshore substation locations
- Laying, burying and/or mechanical protection of the subsea export cable
- Installation and commissioning of the wind turbines and offshore substations.

Key operational activities:

The operational life of the Project is indicatively 40 years which aligns with the Commercial Licence duration proposed under the *Offshore Electricity Infrastructure Act 2021*. During this period, operational activities will include:

- Operation and maintenance of the onshore infrastructure including the onshore transition joint bay, overhead transmission line (if transmission route option 2) and underground cable.
- Operation and maintenance of the offshore infrastructure including the offshore wind turbines generators, foundations, offshore substations and subsea cables.
- The use and maintenance of buildings and facilities associated with the Project such as a marine coordination centre (expected to service several offshore wind projects) likely located at the main port. Port options are still being investigated for this role.

- Ongoing environmental management and monitoring in accordance with approval conditions which may involve onshore and offshore activities.

Key decommissioning activities (if applicable):

Decommissioning activities are not all known at this stage but will be further refined as the Project development progresses and licensing and financial security is set under the Commonwealth *Offshore Electricity Infrastructure Act 2021.* Consultation with the transmission operator and regulator towards the end of the Project life will be undertaken to discuss potential further use.

The following activities are proposed at the end of the operation phase:

- Removal of offshore structures (offshore wind turbines and substations) above the seabed (within Commonwealth jurisdiction).
- Offshore cabling (inter-array and export cables) both buried and mechanically protected are likely to be left in situ to avoid impacts to the environment.
- Onshore underground cables will also potentially be left in the ground with cable end cut, sealed and buried as a precautionary measure.
- The transmission components associated with transmission route option 2 (if it is an overhead configuration) will be dismantled and repurposed where possible.

Areas of hard standing onshore such as near the transition joint bay will be remediated.

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

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

The onshore and offshore components of the Project will be delivered as a single Project, therefore, for completeness this referral describes all Project components including those in Commonwealth jurisdiction. It is noted however that this referral only relates to those Project components within the Victorian jurisdiction (land and water).

The Project has been referred in parallel to the Commonwealth DCCEEW under the EPBC Act to consider the potential for significant impacts to matters of national environmental significance onshore and offshore including in Commonwealth Waters.

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

X No Yes If yes, please identify related proposals.

The Project may result in commercial relationships with other projects however the Southern Winds Offshore Wind Project is an independent Project and not dependent on other projects proceeding.

Synergies will continue to be investigated where they offer mutual benefit and/or improved environmental and social outcomes.

What is the estimated capital expenditure for development of the project?

The Project has an estimated capital expenditure of USD $2.9 billion based on USD $2.5 million / megawatt (MW).

4. Project alternatives

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

Alternative offshore sites

Various potential offshore wind sites within Australia have been identified and explored by the Proponent. Several options were assessed in Victoria and South Australia with consideration of a range of factors including potential environment and social effects, potential grid connection opportunities, as well as constructability and design issues.

The current proposed site was selected due to the following:

- Consistent strong wind patterns
- Suitable nearby port infrastructure at the Port of Portland
- The limited number of communities along the adjacent with views to the turbines
- Available capacity for the proposed transmission grid connection point and transmission route options including ease of access to the grid
- Suitable water depths providing reduced associated construction costs (fixed turbines rather than floating technology)

Turbine layout

The preliminary design for the offshore wind farm component of the Project consists of 77 offshore wind turbines covering an area of approximately 295 km^2. The findings of several desktop assessments undertaken for the Project resulted in the wind turbine layout being consistent throughout where no major changes have been required.

Alternative onshore transmission infrastructure

Two potential shoreline crossing points for the subsea cabling and onshore connections to grid have been identified and are being considered for the Project. Further information about these is provided below.

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

Alternative shoreline crossing and onshore transmission infrastructure

The Project is currently considering two potential subsea cable routes, shoreline crossing options and onshore transmission routes. These will be subject to further investigations and environmental assessments to determine the preferred option.

The overall electrical concept design of the wind farm is still under development. Therefore, the options shown here are preliminary. The electrical design selected will consider proven design from operational OWPs overseas, whilst considering the local environmental and grid connection context. In addition, as noted above, the transmission line options nominated as part of the Project were identified prior to release of the State Governments *Offshore Wind Implementation Statement 1* (October 2022) and accordingly the grid connection may be subject to further review and consideration.

Option 1 – As shown on **Figure 2** in **Attachment 1,** this option proposes subsea export cables from the two offshore substations to travel south easterly to land near the north-west corner of the Narrawong Coastal Reserve, where they will connect to onshore cables in a transition joint bay. From here the onshore cables will connect into the existing Portland Aluminium Smelter switchyard. Works may be required to connect the Project into the switchyard. Use of the existing Portland to Heywood transmission line to connect to the NEM is proposed with no works anticipated for the Project beyond connecting into the Portland Aluminium Smelter switchyard.

Option 2 - As shown on **Figure 2** in **Attachment 1,** this option proposes subsea export cables from each of the offshore substations will travel east to land near the south-eastern corner of the Glenelg Estuary and Discovery Bay Ramsar Wetlands site and north of the Discovery Bay Marine National Park**.** These will be connected at the landfall site to onshore cables in a transition joint bay and continue either underground or overhead north-east through Gorae West for approximately 29 km to the existing Heywood Terminal Station.

Construction activities associated with the offshore subsea cabling would include:

- Trenching of the seabed to allow for the laying of subsea export cables
- Laying and burying (trenching) or mechanical protection of the subsea export cables

These cables will be either under bored or trenched between the offshore environment and the new substation. The use of horizontal directional drilling (HDD) is the preferred method of construction but will depend on the outcome of the further environmental investigations.

Turbine generating capacities

Typical offshore wind turbines currently have a generating capacity of 10 MW. The next generation of offshore wind turbines will increase to 15 MW for installation in 3 to 5 years and it is expected that even larger turbines will be introduced over this time, potentially up to 20 MW. As technology progresses, the Project will seek to utilise the latest offshore wind turbine options available. Therefore, for the purpose of this referral offshore turbine generators with a capacity of up to 20 MW will be considered as alternatives for the Project The final offshore wind turbine model/technology will be determined prior to construction and as well as commercial and supply chain considerations.

For the foundation substructures, a number of potential concepts are being evaluated. This includes for example monopiles, pre-piled jackets, suction bucket jackets and/ or gravity base foundations.

The final turbine model selected will also inform the number of turbines and the wind farm layout. Larger turbines with a greater generation capacity may result in fewer turbines and an alternative layout for the offshore wind farm. Using a smaller number of larger turbines with a greater generation capacity may also result in other environmental benefits (such as reduced seabed foundations required). Turbines with a greater hub height allows for a larger passage underneath the turbine blades for birds to pass through safely. Larger turbines also move slower, which may reduce the potential for collision risk with birds that fly through the area. The potential mitigation effects of this requires further investigation and will be considered during the assessment phase of the Project.

Port options

Port options for servicing the Project during construction, operation and decommissioning are continuing to be investigated and refined.

The Project would use existing port facilities in the region to support construction and operational and maintenance (O+M) activities including, but not limited to, the transport and delivery of equipment and Project components, and to facilitate the use of maintenance vessels for offshore activities. Studies into suitable port facilities and port development plans are ongoing, with the following ports currently being investigated, but not limited to, to support the Project (subject to various port upgrades required).

These include the Port of Portland, Barry Beach Marine Terminal, Port Anthony, Port of Hastings, Port of Geelong as well as Bell Bay in Tasmania. It is noted that the State Governments *Offshore Wind Implementation Statement 1* (October 2022) states that the Port of Hastings is likely to be the preferred port to support offshore wind construction, subject to the necessary community and industry consultation and environment and planning approvals and that there are significant opportunities for commercial ports in Victoria to benefit from offshore wind.

It is anticipated that the existing port(s) will require upgrades and/or expansion which will be delivered by a third party, separate to this Project, and will likely service several offshore wind projects. The port works will be subject to their own independent assessments and approvals.

5. Proposed exclusions

Statement of reasons for the proposed exclusion of any ancillary activities or further project stages from the scope of the project for assessment:

The Project will be located in State and Commonwealth Waters (see **Figure 2** and **3** in **Attachment 1**). Direct impacts of the offshore wind turbines and offshore cables that are located within the Commonwealth jurisdiction are excluded from this referral and will be subject to separate assessment under the *EPBC Act 1999*.

Indirect impacts experienced within State Waters and land, that are associated with Project components located in Commonwealth Waters, are addressed in this referral under the *Environment Effects Act 1978* (e.g., visual amenity impacts, water quality impacts and underwater noise impacts).

Works associated with non-intrusive investigations considered to have no significant effect on the environment have also been excluded from this referral, including activities such as:

- Works associated with investigating, testing, and surveying the on and offshore environment associated with designing the Project
- Service proving to identify third party assets
- LiDAR onshore and offshore data collection
- Works at existing terminal stations and switchyards where planning permission is not required
- Removal, destruction or lopping of vegetation, including native vegetation where required.

These investigations are required to inform Project design, to secure all necessary statutory approvals for the Project and to prepare the land for the construction of the project and therefore will proceed ahead of the main Project being referred within this application.

6. Project implementation

Implementing organisation (ultimately responsible for project, ie. Not contractor)**:**

Southern Winds OWP Project Pty Ltd ACN 662 232 895.

Implementation timeframe:

The onshore construction will commence first, currently targeting starting Q3 2027. It will take one to two years and will be overlapping with the offshore construction.

The offshore construction will likewise be planned to take approximately two years, with earliest start Q1 2028. To the extent it is possible, the offshore construction will be scheduled in the summer months, when weather is favourable.

A key driver of the programme will be the grid connection and the establishment of the full end-to-end electrical system. Once the offshore substations have been energised, the commissioning of the offshore wind turbines can commence.

The exact programme will need to be developed, subject to various Project aspects, but as an example:

- Year 1 may typically include all the onshore civil and electrical works and possibly also installation of the offshore foundations and/ or offshore substations
- Year 2 may typically include energisation of the offshore substations, installation of the array cables and installation and commissioning of the offshore wind turbines
- Further development of the construction phasing will occur as additional technical studies are completed, commercial viability and supply chain tested, and impact assessments undertaken.

Proposed staging (if applicable):
N/A

7. Description of proposed site or area of investigation

Has a preferred site for the project been selected?

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

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

The Project Area as shown in **Figure 2** in **Attachment 1** reflects the Project infrastructure footprint for which approval will be sought. The desktop environmental assessments applied a Study Area which extends beyond the Project Area to provide additional context and to create flexibility should the Proponent choose to relocate the Project within this Study Area. **Section 2** and **Section 3** of this referral provide information on Project infrastructure and where it will be located within the Study Area.

The Study Area, as applied to the assessments can be defined as:

- Onshore Study Area – an extension of 2.5 km either side of the transmission route options, transition joint bay or underground cable (centre point)
- Offshore Study Area – an extension of 5 km from the Project Area including offshore wind turbines, substation and export cables.

The offshore component of the Project is located approximately 8 - 20 km off the coastline of Cape Douglas in South Australia and Nelson in Victoria, approximately 60 km west of Portland.

Onshore

The onshore Study Area extends along the coastline from Cape Bridgewater to Portland, and then extends north-east inland towards Heywood. Land within the onshore Study Area is predominantly used for agriculture with some areas of conservation and nature reserves (see **Figure 4** in **Attachment 1**). Transmission route option 1 is located within proximity to the Portland township and the Portland Aluminium Smelter. Transmission route option 2 is located within proximity to several small townships including Cape Bridgewater, Cashmore, Gorae West and Heathmere.

The onshore Study Area for terrestrial, aquatic and coastal biodiversity values are located within three Bioregions: Bridgewater, Glenelg Plain and the Victorian Volcanic Plain. The majority of the Study Area falls within the Glenelg Plain bioregion, which is characterised by a series of long narrow ridges running parallel to the coastline in the south-west of Victoria (DELWP 2021). It is dominated by Damp Sands Herb-rich Woodland, Heathy Woodland and Herb-rich Heathy Woodland. The majority of the Study Area is used for wool, livestock, and dairy production (VicFlora n.d.), along with several small plantations. The extent and quality of native vegetation present within the Study Area has not yet been determined through field investigations, however preliminary desktop mapping identified 26 Ecological Vegetation Classes (EVCs) within the Study Area and include a range of forest, woodland, wetland and scrub communities (see **Figure 5** in **Attachment 1** and **Attachment 2**).

Desktop searches identified 94 flora species, 107 threatened terrestrial and marine fauna species, and 2 threatened ecological communities (TEC) listed under the *Flora and Fauna Guarantee Act 1988* (FFG Act) that are likely to occur in the Study Area (onshore and offshore) (see **Figures 6 - 8** in **Attachment 1** for threatened species and TEC records within the Study Area).

The Glenelg Estuary and Discovery Bay Ramsar Wetland site intersects with the onshore Study Area (not the Project Area) near Cape Bridgewater and provides habitat for nationally and internationally threatened flora and fauna. The Piccanninnie Ponds Karst Wetlands Ramsar site in South Australia is located 10 km north of the offshore wind turbines and is a known winter roosting and foraging location for the Orange-bellied Parrot *Neophema chrysogaster* (see **Figure 9** in **Attachment 1** and **Attachment 2**).

The onshore Study Area is located within the Portland Coast catchment system (See **Figure 10** in **Attachment 1**), with the northern part of the onshore Study Area located within the catchment system for Surry River which generally drains towards the north-east, discharging at Narrawong (see **Attachment 3**). The southern part of the onshore Study Area is located within the catchment system for Wattle Hill Creek and drains generally toward the south-east, discharging at Portland. These catchments are part of the larger Portland Coast catchment system. The onshore Study Area intersects with Wattle Hill Creek and Surry River and their tributaries.

A review of the Victorian Coastal Acid Sulfate Soil (VCASS) maps for south-west Victoria indicates the coastline where option 2 of the subsea cabling lands has potential to contain acid sulfate soils, as this area is mapped as 'prospective' (see **Figure 11** in **Attachment 1** and **Attachment 4**). This area is the southernmost point of the Glenelg Estuary and Discovery Bay Ramsar Wetland site. The subsea cable landing location of option 1 is not mapped as having potential to contain acid sulfate soils. Australian Soil Resource Information System (ARIS) Atlas of Australian Acid Sulfate Soils (AAASS) mapping indicates the potential for acid sulfate soil occurrence is extremely low probability (with very low confidence) across most of the onshore Study Area. The area north of Heathmere to Heywood, and some small areas on the coast within the Glenelg Estuary and Discovery Bay Ramsar Wetland site, is mapped as having low probability (with very low confidence) of acid sulfate soils occurring (see **Figure 12** of **Attachment 1**).

Offshore

The offshore Study Area intersects with the Glenelg biounit which is located within Victorian coastal waters. The biounit is characterised by extreme exposure to prevailing weather. It is dominated by infralittoral rock and sublittoral sediment (Victorian Environmental Assessment Council, 2019) (see **Attachment 5**). The natural values of this biounit include:

- One of only 12 sites worldwide that is a feeding area for the Blue Whale *Balaenoptera musculus*.
- Contains extensive habitat for the Hooded Plover *thinornis cucullatus*, which nests along the coastline.

- Contains the Nelson Reefs on the South Australian border which harbour important giant kelp beds.
- Contains the Noble Rocks which are unique as the only rocky reef along an otherwise sandy coastline.

The Study Area is also situated within the Cape Nelson Biounit (near the option 1 subsea cable shore landing) characterised by high-energy, wave dominated beaches and rocky shores, sublittoral reef and sediments, coastal cliffs and lagoons (see **Attachment 5**). Dominant benthic profiles are infralittoral fine sand, high energy lower infralittoral zone and high energy common kelp communities. The natural values of this biounit include:

- Aggregation area for the Southern Right Whale *Eubalaena australis*.
- Deen Maar supports an Australian fur seal breeding colony *Arctocephalus pusillus* and White Sharks are also located near this area.
- Important area for seabirds (common diving-petrel *Pelecanoides urinatrix*, Fairy Prion *Pachyptila turtur*, Caspian tern *Hydroprogne caspia*, Little Penguin *Eudyptula minor*, White-bellied Sea Eagle *Haliaeetus leucogaster*, and Shy Albatross *Thalassarche cauta*) and migratory shorebird breeding area. The biounit also supports the highest breeding density of hooded plovers.
- Rocky reefs support diverse fish, invertebrate and macroalgae communities.
- Seagrass meadows in Portland Bay supports populations of kingfish, whiting, flathead, mulloway and snapper, as well as rare brown algae *Cystophora cymodocea*
- Dutton Way beach supports rare Snapping Shrimp *Alpheus australosulcatus*.
- Highest breeding density of hooded plovers and migratory shorebird breeding area.
- Port Fairy Boulder shores include basalt boulders with steep drop support high biodiversity of micro- off and protected lagoons which support high biodiversity of micro- habitats, and associated flora and fauna.
- Protected listed communities and species (e.g. Orange-bellied Parrot *Neophema chrysogaster*) endemic or rare species particularly vulnerable to environmental change.

The adjacent Discovery Bay biounit (east of the offshore wind turbines) is dominated by infralittoral fine sand, with some low-profile reef communities (Victorian Environmental Assessment Council, 2019). The natural values of this biounit include:

- One of only 12 sites worldwide that is a feeding area for the Pygmy Blue Whale *Balaenoptera musculus.*
- High numbers of Southern Right Whales and the Southern Elephant Seal *Mirounga leonine* recorded.
- A haul out (a location on land where seals come ashore to rest) and occasional breeding site for the Australian Fur-seal *Arctocephalus pusillus doriferus.*
- Contains extensive habitat for the hooded plover along the shoreline.
- Provides feeding and roosting habitat for endangered seabirds (including the southern giant petrel *macronectes giganteus* and Wandering Albatross *Diomedea exulans.*
- Provides nursery habitat for the Great White Shark *Carcharadon carcharias* and Grey Nurse Shark *Carcharias taurus.*
- Provides nursery habitat for the Southern Bluefin Tuna *thunnus maccoyii.*
- Contains the most productive abalone habitat in Victoria (west of Cape Bridgewater).
- Provides reef for sessile invertebrates (sponges, ascidians, bryozoans, gorgonians).

The eastern marine region is generally considered to have low productivity, except for localised hotspots such as the Bonney Coast Upwelling which is a Key Ecological Feature (KEF) of the marine environment (Department of Environment, 2015) and lies in proximity to the Study Area. Low productivity refers to a low production of organic matter by phytoplankton.

The current generally flows in an easterly direction towards Bass Strait. Generally, the area has a very active wave environment with high winds. Deakin University maintain a wave and current buoy at Cape Bridgewater that reports wave heights of up to 8 m in the winter months, with summer providing calmer conditions. The water temperature varies, but averages around 14°C in winter and 16 to 17°C in summer.

The Study Area is within the Otway coast. The shallow inshore areas of the Otway continental margin predominantly include limestone substrates that support a variety of assemblages (molluscs,

sponges and algae) (Butler et al. 2002). Deeper areas are dominated by mega-rippled bryozoan sands while deep areas of the shelf have bioturbated, fine bioclastic sands (Butler et al. 2002).

The navigational chart for Discovery Bay identifies the substrate in the nearshore area as mainly being rock, with sand beyond the 60 m – 90 m depth contour.

Site area (if known): …NA……. (hectares)

Onshore Study Area: 29,842 ha (approx.)
Offshore Study Area: 174,069 ha (approx.)

Route length (for linear infrastructure)

Approximately 1.5 km for option 1 transmission route, expected to be an underground cable to and from a transition joint bay after the shore landing and leading on to the Portland Aluminium Smelter switchyard. Works may be required to connect the Project into the switchyard. The existing Portland-Heywood transmission line associated with option 1 is approximately 31 km (from the Portland Aluminium Smelter up to the Heywood Terminal Station), however, no works will be undertaken to this infrastructure.

Approximately 29 km for option 2 transmission route, which may be overhead or underground transmission line. The length of the alignment and development footprint will be calculated once a preferred corridor is selected. If an overhead configuration is selected for transmission route option 2, the easement is expected to be between 80 m and up to 100 m wide in sections for construction purposes. This is typical for a 500 kV transmission line. A final easement width will be set for the purpose of ongoing maintenance and operational activities based on the final design. A construction area that extends beyond the easement will be required in areas for temporary laydown and access requirements. An easement can only be applied to private land – in these circumstances, the easement will be a private agreement between the landowner and the Proponent (as opposed to a regulatory easement).

The form of agreement to identify infrastructure on public land will be determined in consultation with DELWP and is dependent on the tenure of the land. The Proponent has been working with DELWP to identify the relevant tenure and the relevant form of agreement.

Current land use and development:

Refer to **Attachments 2, 4, 5** and **6** in this section.

Onshore

As shown on **Figure 4** in **Attachment 1,** land uses within the onshore Study Area and surrounds are predominantly used for agriculture, with areas of conservation and nature reserves.

The onshore Study Area for transmission route option 1 intersects with the western outskirts of the Portland township. The subsea cable for transmission route option 1 will cross the shoreline at the Nelson Bay Coastal Reserve and Narrawong Coastal Reserve. It will then connect into the existing switchyard at the Portland Aluminium Smelter and use the existing Heywood-Portland 500 kV transmission line that runs inland north/north-east to the existing Heywood Terminal Station, through agricultural land and the Mount Clay State Forest and Narrawong Flora Reserve to the south of the Heywood Terminal Station.

The subsea cable for transmission route option 2 crosses the shoreline at the Discovery Bay Coastal Park and just south of the Glenelg Estuary and Discovery Bay Ramsar Wetlands site and north of the Discovery Bay Marine National Park. Transmission route option 2 then crosses freehold agricultural land, passing to the west of Portland Airport, until it meets and crosses through the Cobboboonee Forest Park for approximately seven kilometres. From there, the transmission line crosses agricultural land, Surry River and the Portland Railway Line until it reaches the existing Heywood Terminal Station. There are several other small parcels of land located within the transmission route option 2, predominantly set aside for conservation purposes.

Figure 13 of **Attachment 1** shows the location of sensitive receptors, including dwellings, within the onshore Study Area. Transmission route option 1 and 2 have been sited to avoid the urbanised areas of Portland.

Within the Study Area, there are coastal walking tracks including the Great South West Walk, inland walking tracks and horse riding trails through the Cobboboonee Forest Park. In addition, there are nature conservation and features reserves and other areas also used for recreational purposes (see **Attachment 4 and 6**).

There is one campsite within the Study Area, the Tarragal Campsite which is located adjacent to transmission route option 2. Additional campsites along the Victorian coastline within proximity to the Study Area include Mallee Camp, Springs Camp, Trewalla Camping Area, Swan Lake and Lake Mombeong (see **Figure 13** of **Attachment 1**).

The arterial roads that intersect with the onshore Study Area are Portland Nelson Road, Bridgewater Road, Henty Highway, Madeira Packet Road and Princes Highway. The Study Area also intersects with sealed and unsealed local roads. The Portland Railway Line runs north to south within the Study Area, between Maroona through Hamilton to Portland (see **Figure 14** of **Attachment 1**). The Portland City Gate to Portland Smelter gas pipeline, owned by Ausnet Gas Services Pty Ltd, intersects with the transmission route r option 1.

Transmission route option 2 is located approximately 1 km from the Portland Airport at its closest point. The inner horizontal surface of the Portland Airport Obstacle Limitation Surface (OLS) may infringe on acceptable clearance limits of the OLS and will require further investigation to determine the implications for the Project.

Offshore

The Discovery Bay Marine National Park is located within the offshore Study Area (see **Figure 4** of **Attachment 1**). The marine park is recognised as an important habitat for commercial fish, including tuna and mackerel (Director of National Parks, 2013), and is a key migratory area for whales, including humpback, fin, blue and sei whales. Both options for the subsea cabling avoid the Discovery Bay Marine National Park.

A number of commercial fisheries also exist within the Commonwealth Waters of the offshore Study Area and nearby surrounding area including:

- Southern and eastern Scalefish and Shark Fishery
- Southern Squid Jig Fishery,
- Southern Tuna and Billfish Fishery.
- The Small Pelagic Fishery

Cape Bridgewater is a popular destination for whale watching, visiting seal colonies and bushwalking. Surfing and diving are also popular activities around the headland. There are recreational boat ramps at Portland and Nelson. There are several whale watching and fishing charters that launch from Portland and may visit the Study Area.

The 2021 vessel tracking information for the region shows the main shipping channel from the Port of Melbourne to the Port Adelaide is within proximity to the Study Area (Marine Traffic, 2022) (see **Section 4.28 of Attachment 5)**, with between 35,000 to 200,000 vessel movements per year (Marine Traffic, 2022). Further consultation with the major shipping ports and Harbor Masters will be required to understand if the any of the Project's components represent a navigational hazard.

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

Described under 'Current Land Use and Development' above.

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

The onshore component of the Study Area is subject to the provisions of the Glenelg Planning Scheme (the Planning Scheme).

The Planning Scheme sets out the relevant planning policies that a responsible authority must consider when administering the use and development of land.

Planning Policy Framework

The Planning Policy Framework (PPF) is the policy content of the Planning Schemes and is presented in a three-tier integrated policy structure as follows:

- **State-wide (S):** State Policies that apply in all planning schemes in Victoria
- **Regional (R):** Regional policies that apply to planning schemes based on geographic and thematic policy groupings
- **Local (L):** Local policies that apply in an individual local planning scheme.

The state policies within the PPF clauses that are most relevant to the Project are listed below:

Clause 11 Settlement
- **Clause 11.01-1S** Settlement – Victoria
- **Clause 11.03-4S** Coastal settlement
- **Clause 11.03-5S** Distinctive areas and landscapes

Clause 12 Environmental and Landscape Values
- **Clause 12.01-1S** Protection of biodiversity
- **Clause 12.01-2S** Native vegetation management
- **Clause 12.02-1S** Protection of the marine and coastal environment
- **Clause 12.02-2S** Marine and coastal Crown land
- **Clause 12.03-1S** River corridors, waterways, lakes, and wetlands
- **Clause 12.05-1S** Environmentally sensitive areas
- **Clause 12.05-2S** Landscapes

Clause 13 Environmental Risk and Amenity
- **Clause 13.01-1S** Natural hazards and climate change
- **Clause 13.01-2S** Coastal inundation and erosion
- **Clause 13.02-1S** Bushfire planning
- **Clause 13.03-1S** Floodplain management
- **Clause 13.04-1S** Contaminated and potential contaminated land
- **Clause 13.04-2S** Erosion and landslip
- **Clause 13.04-3S** Salinity
- **Clause 13.05-1S** Noise management
- **Clause 13.06-1S** Air quality management
- **Clause 13.07-1S** Land use compatibility

Clause 14 Natural Resource Management
- **Clause 14.01-1S** Protection of agricultural land
- **Clause 14.01-2S** Sustainable agricultural land use
- **Clause 14.02-1S** Catchment planning and management
- **Clause 14.02-2S** Water quality
- **Clause 14.03-1S** Resource exploration and extraction

Clause 15 Built Environment and Heritage
- **Clause 15.01-2S** Building design
- **Clause 15.01-6S** Design for rural areas
- **Clause 15.02-1S** Energy and resource efficiency
- **Clause 15.03-1S** Heritage conservation
- **Clause 15.03-2S** Aboriginal cultural heritage

Clause 17 Economic Development
- **Clause 17.01-1S** Diversified economy
- **Clause 17.03-2S** Sustainable industry
- **Clause 17.01-2S** Innovation and Research
- **Clause 17.04-1S** Facilitating tourism
- **Clause 17.04-2S** Coastal and maritime tourism and recreation

Clause 18 Transport
- **Clause 18.01-2S** Transport system
- **Clause 18.02-4S** Roads

- **Clause 18.02-5S** Freight
- **Clause 18.02-6S** Ports
- **Clause 18.02-7S** Airports and airfields

Clause 19 Infrastructure

- **Clause 19.01-1S** Energy supply
- **Clause 19.01-2S** Renewable energy

The regional policies in the PPF in the Glenelg Planning Scheme relevant to the Project are listed below:

- **Clause 11.01-1R** Settlement – Great South Coast
- **Clause 11.03-5R** The Great Ocean Road region
- **Clause 17.01-1R** Diversified economy – Great South Coast
- **Clause 17.04-1R** Tourism - Great South Coast
- **Clause 18.02-6R** Planning for ports – Great South Coast
- **Clause 19.01-2R** Renewable energy – Great South Coast

The policies of local significance in the PPF of Glenelg Planning Scheme most relevant to the Project are listed below:

- **Clause 11.01-1L** Settlement
- **Clause 11.03-4L** Coastal settlement
- **Clause 11.03-6L** Cape Bridgewater
- **Clause 12.01-1L** Protection of biodiversity
- **Clause 12.02-1L** Protection of coastal areas
- **Clause 12.05-2L** Landscapes
- **Clause 13.05-1L** Noise Abatement
- **Clause 14.01-1L** Protection of agricultural land
- **Clause 14.02-1L** Sustainable agricultural land use
- **Clause 15.01-2L** Building design
- **Clause 15.01-2L** Portland industrial building design
- **Clause 15.03-1L** Heritage conservation
- **Clause 17.01-1L** Diversified economy
- **Clause 17.03-2L** Industrial development siting
- **Clause 17.04-1L** Facilitating tourism
- **Clause 17.04-2L** Coastal and maritime tourism
- **Clause 18.02-7L** Planning for airports and airfields

Land Use Terms

In accordance with **Clause 73.03** (Land Use Terms) of the Planning Schemes, the onshore transmission route, transition joint bays and substations are defined as a *utility installation*:

> *land used:*
>
> *a) for telecommunications;*
>
> ***b) to transmit or distribute gas, oil or power;***
>
> *c) to collect, treat, transmit, store, or distribute water; or*
>
> *d) to collect, treat, or dispose of storm or flood water, sewage, or sullage.*
>
> *It includes any associated flow measurement device or a structure to gauge waterway flow.'*

As no portion of the offshore wind turbines used to generate power are located within the bounds of the Planning Scheme, the land use term relating to wind energy facilities is not relevant to this Project.

Planning Zones and Overlays

The zones and overlays that apply to the onshore components of the Project are listed in **Table 3** and shown in **Figure 15, Figure 16** and **Figure 17 of Attachment 1**.

Table 3 Planning Zones and Overlays

Planning Control	Description	Transmission Route	
		1	2
Glenelg Planning Scheme			
Planning Zones			
Clause 33.02 – Industrial 2 Zone (IN2Z)	The IN2Z covers the Portland Aluminium Smelter and associated switchyard where the option 1 transmission route will connect into.	✓	
Clause 35.03 – Rural Living Zone (RLZ)	The RLZ applies to areas of the onshore Study to south of Heathmere and west of Portland.	✓	
Clause 35.06 – Rural Conservation Zone (Schedule 1 - Conservation values) (RCZ1)	The RCZ1 applies to areas of the onshore Study Area surrounding Bridgewater Lakes along the coastline, where option 2 crosses the shoreline, and to west of the Portland Aluminium Smelter where transmission route option 1 crosses the shoreline.	✓	✓
Clause 35.06 – Rural Conservation Zone (Schedule 2 - Conservation values) (RCZ2)	The RCZ2 applies to a large portion of the onshore Study Area between Portland West and Heywood, including Gorae West and land surrounding Cobboboonee Forest Park.	✓	✓
Clause 35.07 – Farming Zone (FZ)	The FZ applies to a large portion of the onshore Study Area, near Cashmore and Gorae West, west of Portland and north of Heathmere.	✓	✓
Clause 36.01 – Public Use Zone (PUZ1 – Service & Utility)	The PUZ1 applies to the Heywood Terminal Station in the north of the onshore Study Area.	✓	✓
Clause 36.02 – Public Park and Recreation Zone (PPRZ)	The PPRZ applies to the coastline of the onshore Study Area at the Nelson Bay Coastal Reserve where option 1 crosses the shoreline and the Discovery Bay Coastal Park where option 2 crosses the shoreline. It also applies to the Mount Richmond National Park.	✓	✓
Clause 36.03 – Public Conservation and Resource Zone (PCRZ)	The PCRZ applies to land within the Study Area, including the Cobboboonee Forest Park, Portland H47 Bushland Reserve, Portland H46 Bushland Reserve and Narrawong Flora Reserve.		✓
Clause 36.04 – Transport Zone 1 (State transport infrastructure) (TRZ1)	The TRZ1 applies to the Portland Railway Line between Maroona through Hamilton to Portland within the onshore Study Area.	✓	✓
Clause 36.04 – Transport Zone 2 (Principal road network) (TRZ2)	The TRZ2 applies to the Princes Highway, Portland-Nelson Road, Bridgewater Road, and Madeira Packet Road.	✓	✓
Clause 36.04 – Transport Zone 4 (Other transport use) (TRZ4)	The TRZ4 applies to the Portland Airport which intersects within the transmission route option 2.		✓
Clause 37.09 – Port Zone (PZ)	The PZ applies to the Cape Grant Quarry located approximately 6 km south of Portland, on the eastern cliff of Cape Sir William Grant.	✓	
Planning Overlays			

Clause 42.01 – Environmental Significance Overlay (Schedule 1 - Coastal areas) (ESO1)	The ESO1 applies to the coastline of the onshore Study Area of option 1 and option 2 of the subsea cabling. The ESO1 identifies the significance of the coastal areas.	✓	✓	
Clause 42.01 – Environmental Significance Overlay (Schedule 2 - Waterway, wetland and estuary protection) (ESO2)	The ESO2 applies to small areas associated with waterways, wetland and estuary protection near Portland.	✓		
Clause 42.01 – Environmental Significance Overlay (Schedule 3 - South-eastern Red-tailed Black Cockatoo habitat areas) (ESO3)	The ESO3 applies to parts of the onshore Study Area in the north of the Study Area over Gorae West, parts of Cobboboonee Forest Park and Heathmere.	✓	✓	
Clause 42.03 – Significant Landscape Overlay (Schedule 1 - Glenelg River estuary and surrounds) (SLO1)	The SLO1 applies to coastal land extending from the South Australia-Victoria border east along Discovery Bay. The SLO1 does not apply to the onshore Study Area however, will require consideration as there will be views to the offshore wind turbines.	✓	✓	
Clause 42.03 – Significant Landscape Overlay (Schedule 2 - Bridgewater lakes and surrounds) (SLO2)	The SLO2 applies to the coastline where subsea cabling option 2 will cross.		✓	
Clause 42.03 – Significant Landscape Overlay (Schedule 3 - Cape Bridgewater and Cape Nelson) (SLO3)	The SLO3 applies to the coastline where the subsea cabling option 1 will cross.	✓		
Clause 43.02 – Design and Development Overlay (Schedule 1 - Airport environs) (DDO1)	The DDO1 covers a large portion of the onshore Study Area in the south and is associated with airport environs, specifically the Portland Airport.	✓	✓	
Clause 43.01 – Heritage Overlay (HO)	The HO applies to land in the transmission route options in the southern extent of the Study Area near the coastline area.	✓	✓	
Clause 44.03 – Floodway Overlay (FO)	The FO applies to a small section of onshore Study Area in Portland West.	✓		
Clause 44.04 – Land Subject to Inundation Overlay (LSIO)	The LSIO applies to a small section of onshore Study Area in Portland West.	✓		
Clause 44.06 – Bushfire Management Overlay (BMO)	The BMO applies to most of the onshore Study Area.	✓	✓	
Clause 45.02 – Airport Environs Overlay Schedule 2 (AEO2)	The AEO2 applies to the south of the onshore Study Area in and is associated with the Portland Airport.	✓	✓	
Clause 45.12 – Specific Controls Overlay (Schedule 5 - Portland Wind Energy Project: Cape Bridgewater Wind Energy Facility, Cape Nelson Wind Energy Facility, Cape Sir William Grant Wind Energy Facility (May 2004) (SCO5)	The SCO5 applies to the shoreline where the subsea cabling option 1 crosses.	✓		

Particular Provisions

The following particular provisions are likely to, or have potential to apply to the Project, subject to further investigation and detailed design:

- **Clause 52.02 – Easements, restrictions, and reserves**
  The clause seeks to enable the removal and variation of an easement or restrictions to enable a use or development that complies with the planning scheme after the interests of affected people are considered.
- **Clause 52.05 – Signs**
  The clause seeks to regulate the development of land for signs and associated structures, and to ensure signs are compatible with the amenity and visual appearance of an area. Zone provisions specify the category of sign control that applies to the zone.
- **Clause 52.17 – Native vegetation**
  This clause seeks to ensure that there is no net loss to biodiversity as a result of the removal, destruction or lopping of native vegetation, by applying the three-step approach in accordance with the native vegetation guidelines (avoidance of impact, minimisation of impacts, and provision of offsets). This clause requires a planning permit to remove, destroy or lop native vegetation, including dead native vegetation.
- **Clause 52.29 – Land adjacent to the principal road network**

  This clause seeks to ensure appropriate access to the Principal Road Network or land planned to form part of the Principal Road Network. This clause applies to land adjacent to a road in the Transport Zone 2.
- **Clause 53.02 – Bushfire planning**
  This clause seeks to ensure that the location, design and construction of development appropriately responds to the bushfire hazard and to ensure development is only permitted where the risk to life, property and community infrastructure from bushfire can be reduced to an acceptable level.

Operational Provisions

In accordance with Clause 72.01-1 (Minister is Responsible Authority), the Minister for Planning is the responsible authority for the use and development of land for a:

Utility installation used to:

a) transmit or distribute electricity.

b) Store electricity if the installed capacity is 1 megawatt or greater.

Management Plans

- The Ngootyoong Gunditj Ngootyoong Mara South West Management Plan is a strategic guide for management and protecting over 130 parks, reserves and Indigenous Protected Areas in south-west Victoria. The Management Plan defines goals and priorities across National, State, Coastal, Forest and Regional parks, and reserves and Indigenous Protected Areas, which covers over 116,000 hectares of public land and freehold Gunditjmara land.
- The Great South Coast Regional Growth Plan and the Great South Coast Regional Strategic Plan 2014–19 provides the land use planning framework to underpin the future of the region through supporting economic and population growth, building on regional strengths and opportunities. It is identified that infrastructure, services, and workforce will be needed to harness the potential and benefits of growth.

Coastal planning documents that are relevant to the Project include:

- The Victorian Marine and Coastal Policy (DELWP, 2020) provides an overarching framework and sets out policies for planning and managing the marine and coastal environments in Victoria.
- The Victorian Marine and Coastal Strategy (DELWP, 2022) supports sustainable use and improvements to how we manage the health of the marine and coastal environment.
- Coastal Spaces Landscape Assessment Study (Department of Sustainability and Environment, 2006) provides a thorough assessment of landscape characteristics and identification of visually significant landscape from State border to border.

- Siting and Design Guidelines for Structures on the Victorian Coast (Department of Environment, Land, Water and Planning, 2020)
- Victorian Best Practice Guidelines for Assessing and Managing Coastal Acid Sulfate Soils (DELWP, 2010)
- Victorian Coastal Acid Sulfate Soils Strategy (Department of Sustainability and Environment, 2009)

A comprehensive review of relevant plans and policies will be undertaken as part of the impact assessments in the next stage of the Project.

Local government area(s):
Glenelg

8. Existing environment

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

Preliminary desktop environmental assessments have been undertaken to characterise the existing baseline environment of the Study Area, identifying assets and sensitivities which may influence design or to be considered in the assessment of potential impacts associated with construction, operation, and decommissioning of the Project.

The following reports provide further information on the existing environment within the Study Area and are attached to this referral:

- Attachment 1 – Referral figures
- Attachment 2 – Preliminary Desktop Biodiversity Constraints Assessment (Biosis, 2022)
- Attachment 3 – Preliminary Desktop Hydrology Constraints Assessment (Umwelt, 2022)
- Attachment 4 – Summary of Impacts Report (Umwelt, 2022)
- Attachment 5 – Preliminary Desktop Marine Environmental Assessment (BMT, 2022)
- Attachment 6 –Social Risks and Opportunities Analysis (Umwelt, 2022)
- Attachment 7 – Preliminary Desktop Cultural Heritage Constraints Assessment (Umwelt, 2022)

Onshore

To inform this referral, a Preliminary Desktop Biodiversity Assessment was undertaken by Biosis (September 2022), as provided in **Attachment 2**.

The Study Area encompasses three Bioregions: Bridgewater, Glenelg Plain and the Victorian Volcanic Plain. The majority of the Study Area falls within the Glenelg Plain bioregion. It is dominated by Damp Sands Herb-rich Woodland, Heathy Woodland and Herb-rich Heathy Woodland.

The extent of native vegetation within the Study Area has not been determined, however preliminary desktop mapping of Ecological Vegetation Classes (EVCs) identified 26 EVCs are located within the Study Area, as shown in **Figure 5 of Attachment 1**. Most of the onshore Study Area is cleared for agricultural purposes and holds limited ecological value.

The Study Area contains public land with higher quality native vegetation and ecological values including flora reserves, bushland reserves, wildlife reserves, flora & fauna reserves, natural features reserves, nature conservation reserves and state forests. The Cobboboonee National Park, Discovery Bay Coastal Park, and Mount Richmond National Park are reserved under the *National Parks Act 1975*. Desktop searches identified 94 flora species and 107 fauna species listed under the FFG Act as likely to occur in the Study Area.

Landforms that occur within the Study Area include coastal and dune complexes, coastal cliffs, plains, low hills and the freshwater lakes system.

Based on DELWP's Victorian Wetland Inventory dataset (DELWP 2021), over 50 wetlands have been identified within the Study Area. In Victoria, the Glenelg Estuary and Discovery Bay Ramsar Wetlands site is intersected by the Study Area. Other major natural hydrological features within the Study Area and surrounds include Bridgewater Lakes, which is considered a site of state significance as they are one of the longest freshwater coastal lake systems in Victoria, and Fawthrop Lagoon (outside of the Study Area) which is considered a site of local significance.

The Ramsar listing for the Glenelg Estuary and Discovery Bay Ramsar site identifies that it provides habitat for nationally and internationally threatened flora and fauna. This includes over 90 waterbird species and 14 species of native fish which have diadromous life cycles (see **Attachment 2** and **4**). The Baumea sedgelands in the Ramsar site also support more that 1 % of the Ancient greenling *Hemiphlebia mirabilis* population. There is potential for the Project to indirectly impact the ecological values of the Glenelg Estuary and Discovery Bay Ramsar Wetlands site. In particular, this relates to the potential for impacts on avifauna, including listed threatened and migratory species that may cross the offshore wind turbine area, which may result in turbine collisions.

The Piccanninnie Ponds Karst Wetlands Ramsar Wetlands site in South Australia is located within 10 km of the offshore wind turbines. This site is a unique karst wetland system and provides habitat for diverse assemblages of native flora and fauna many of which are of conservation significance. Given that the Ramsar site is over 50 km from the onshore component of the Study Area, potential impacts to the ecological value of this wetland system is considered unlikely. However, the site is a known winter roosting and foraging location for Orange-bellied Parrot. This species is known to cross the marine environment between Tasmania and mainland Australia and may therefore be at risk of collision from the offshore wind turbines.

The onshore Study Area and Victorian State Waters falls within the jurisdiction of one Registered Aboriginal Party (RAP), the Gunditj Mirring Traditional Owners Aboriginal Corporation (GMTOAC), which is representative of the Gunditjmara People (see **Attachment 7**). The offshore Study Area also intersects with South Australian State Waters. The Traditional Owners of South Australian land and State Waters within, and adjacent to the Study Area, are the South East Aboriginal Focus Group, who are represented in business matters by the Burrandies Aboriginal Corporation through the Lartara-Wirkeri Cultural Governance Agreement.

There are 365 registered Aboriginal Places (Aboriginal cultural heritage sites registered on ACHRIS) located within the onshore Study Area, including artefact scatters, earth features, shell middens, low density artefact distributions (LDADs), an Aboriginal historical place, and two object collections (see **Figure 18** of **Attachment 1** (this figure will not be publicly available due to cultural sensitivity reasons). There are also multiple areas of cultural heritage sensitivity within the Study Area (see **Attachment 7**).

Offshore (State and Commonwealth Waters)

The Project is located off the South Australian and Victorian coastline, within the south-eastern marine region. The region is generally considered to have low productivity, except for localised hotspots such as the Bonney Coast Upwelling KEF (see **Attachment 5**). This is a seasonal upwelling that brings cold nutrient rich water to the sea surface and is a high productivity area near the Project. This in turn attracts a high diversity of species, in particular it is a key feeding area for blue whales and other listed species. The abundance of krill in the upwelling is a food source for many seabirds and fish which then attracts penguins and seals which feed on them. It occurs annually between November/December and March/April (CSIRO, 2004).

The offshore Study Area intersects with the Glenelg, Discovery Bay and Cape Nelson biounits which are located within Victorian coastal waters (refer to **Section 7** of this referral and **Attachment 5**). The biounits are characterised by a range of environmental features from infralittoral rock and sublittoral sediment to infralittoral fine sand, with some low-profile reef communities (Victorian Environmental Assessment Council, 2019).

The Study Area is nominated as a Biologically Important Area (BIA) for the following species:

- Whales: foraging habitat and high use area for Pygmy Blue Whale *Balaenoptera musculus brevicauda*, aggregation, migration, and resting areas for Southern Right Whale *Eubalaena australis*
- Seabirds (foraging only): Antipodean Albatross *Diomedia exulans antipodensis*, Wandering Albatross *Diomedea exulans*, Wedge-tailed Shearwater *Ardenna pacifica*, Common Diving-

petrel *Pelecanoides urinatrix*, Buller's Albatross *Thalassarche bulleri*, Indian Yellow Nosed Albatross *Thalassarche chlorohynchos bassi*, Black-browed Albatross *Thalassarche melanophris* and Campbell Albatross *Thalassarche melanophris impavida*.

- Sharks: foraging area for the White Shark *Carcharodon carcharias*.

A BIA is an indication that an area has a high level of importance for a species, either threatened or migratory under the EPBC Act. BIAs are typically areas where aggregations of individuals of a species are known to display biologically important behaviour such as breeding, foraging, resting, or migrating.

9. Land availability and control

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

☐ No ☒ Yes If yes, please provide details.

It should be noted the onshore Study Area does not represent the Project Area (infrastructure footprint). The Study Area expands beyond the Project Area to allow for flexibility in Project design, as different transmission route options are being considered and assessed further. However, placement of onshore infrastructure and transmission route options would look to avoid Crown land as far as reasonably practicable.

There are several areas of Crown land located within the onshore Study Area. These are described in **Table 4** and shown in **Figure 4** of **Attachment 1.** Crown land in the Study Area is primarily reserved for conservation and/or recreational purposes under the *Crown Land (Reserves) Act 1978*. There are also some parcels of unreserved Crown land, also primarily used for conservation and/or recreation purposes.

A summary of Crown land within the onshore Study Area is provided in **Table 4.**

Table 4 Crown land within the Study Area

Name	Description	Managing Agency and Legislation
Glenelg Estuary and Discovery Bay Ramsar site	The onshore Study Area intersects with the Glenelg Estuary and Discovery Bay Ramsar site as it crosses the shoreline	Management of Ramsar sites in Victoria is coordinated by DELWP. Implementation of the Glenelg Estuary and Discovery Bay Ramsar Site Management Plan is coordinated by the Glenelg Hopkins Catchment Management Authority. Ramsar wetlands are protected and managed under the EPBC Act.
Discovery Bay Coastal Park	Discovery Bay Coastal Park covers the shoreline of the transmission route option 2	Managed by Parks Victoria and reserved under the *National Parks Act 1975.*
Mount Richmond National Park Cobboboonee National Park	The southern extent of transmission route corridor option 2 intersects with the Mount Richmond National Park (but not the transmission line itself). Transmission route option 2 intersects with a small section of Cobboboonee National Park in the north adjacent to the Cobboboonee Forest Park.	Managed by Parks Victoria and reserved under the *National Parks Act 1975.*
Cobboboonee Forest Park	Both transmission route corridor options intersect with the Cobboboonee Forest Park, with option 2 crossing the middle of the park. Transmission route option 1 does not directly intersect with Cobboboonee Forest Park.	Managed by DELWP and reserved under the *Crown Land (Reserves) Act 1978,* for conservation and recreation.

Mount Clay State Forest Portland West State Forest	Mount Clay State Forest surrounds the Heywood Terminal Station. and Transmission route option 1 intersects with the Portland West State Forest to the south-west of Portland.	Managed by DELWP and reserved under the *Forests Act 1958.*
Nelson Bay Coastal Reserve	Subsea cabling option 1 crosses the shoreline at Nelson Bay Coastal Reserve.	Unreserved Crown land under the *Land Act 1958*, managed by Parks Victoria.
Narrawong Coastal Reserve Point Danger Reserve	Option 1 crosses the shoreline at Narrawong Coastal Reserve. Point Danger is south of the Aluminum Smelter at Portland.	Managed by Committee of Management and reserved under the *Crown Land (Reserves) Act 1978.*
Narrawong Flora Reserve	Narrawong Flora Reserve intersects with the transmission route for option 1 south of Heywood Terminal Station.	Managed by Parks Victoria and reserved under the *Forests Act 1958.*
Nine Mile Flora and Fauna Reserve	The Nine Mile Flora and Fauna Reserve, south-east of Narrawong Flora Reserve, is located within the transmission route corridor option 1	Managed by Parks Victoria and reserved under the *Crown Land (Reserves) Act 1978,* for conservation and recreation.
Tarragal Education Area Dry Hole Recreation and Water Reserve Nelson Park – Portland Yarraman Park – Portland	Tarragal Education Area is located within the transmission line corridor option 2, near Mount Richmond National Park. Dry Hole Recreation and Water Reserve is located adjacent to Cobboboonee Forest Park. Nelson and Yarraman Parks are located to the south-west of Portland. None of these areas are directly intersected by the transmission route options.	Managed by DELWP and reserved under the *Crown Land (Reserves) Act 1978,* for conservation and recreation.
Heathmere Recreation & Flora/Fauna Reserve Trewalla Recreation Reserve Fawthrop Lagoon – Portland Alexandra Park – Portland Henty Park - Portland	Heathmere Recreation & Flora/Fauna Reserve is located within both transmission route corridors south of the Heywood Terminal Station. Trewalla Recreation Reserve, Fawthrop Lagoon, Alexandra Park, and Henty Park are located within transmission route option 1 r. None of these areas are directly intersected by the transmission route options.	Managed by Committees of Management, and/or Council. Reserved under the *Crown Land (Reserves) Act 1978* for conservation and recreation.
Stream Frontages Surrey River Water Frontage	Surry River Water Frontage traverses the Study Area from east to west, south of the Heywood Terminal Station. It is intersected by both transmission route options.	Unreserved Crown land under the *Land Act 1958*, managed by DELWP.
Heywood Bushland Reserve	Located north-west of the Heywood Terminal Station.	Unreserved Crown land under the *Land Act 1958*, managed by Parks Victoria.

Gorae Bushland Reserve Bolwarra H43 Bushland Reserves Bolwarra H44 Bushland Reserve Trewalla H48 Bushland Reserve Trewalla H49 Bushland Reserve Portland H46 Bushland Reserve Portland H47 Bushland Reserve	Located adjacent to the transmission route option 2in Gorae. These bushland reserves are scattered throughout the transmission route option 1, but are not directly intersected.	Managed by Parks Victoria and reserved under the *Crown Land (Reserves) Act 1978*.for conservation and recreation.
Water and sewerage services Cemetery Reserve Portland Railway Line Drains	Small areas of crown land used for services and utilities are scattered throughout the Study Area.	Unreserved Crown land under the *Land Act 1958*, managed by DELWP.
Other reserves and public land	Small areas of uncategorised public land are scattered throughout the Study Area.	Unreserved Crown land under the *Land Act 1958*, managed by DELWP.

The Crown land parcels directly affected will be confirmed during the detailed design phase, and the relevant agreements, leases or licenses sought.

Current land tenure (provide plan, if practicable):

Current land tenure within the onshore Study Area is a mix of Crown land and freehold land (**Figure 4** of **Attachment 1)**.

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

Most of the onshore Project components will be located within freehold land. Agreements to use some public land may also be required. Freehold land required for the Project will be secured through commercial agreements negotiated with relevant landholders.

Where public land will be used, public land manager consent may be required to achieve planning approval. Additional consents, leases and licences will also be required under relevant Acts (such as the *Forests Act 1958* and the *Crown Land (Reserves) Act 1978*) to construct on and use Crown land.

Native Title has been declared in parts of the onshore Study Area (see **Figure 19** of **Attachment 1**). Compliance with the *Native Title Act 1993* (Cth) or the *Traditional Owner Settlement Act 2010* (Vic) (if a Land Use Activity Agreement is in place at the relevant time) is also likely to be required for the grant of any rights and interests over Crown land.

In addition, a lease or licence will be established with the State to allow occupation of the seabed within Victorian coastal waters once planning approval has been obtained.

Land and/or facilities required for port operations will be leased or licensed directly from port operators during the relevant phases of the Project.

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

An easement will be required for transmission route option 2 if an overhead configuration is selected, which will include land required for the transmission infrastructure and ongoing maintenance and operations. The average easement width for the 500 kV transmission route is expected to be 80 m to 100 m. The infrastructure within the easement is largely overhead electricity transmission with earth return and fibre optic cable suspended in catenary (the curve that a hanging cable assumes under its own weight).

Transmission route option 1 will connect to the existing Portland-Heywood transmission route via the Portland Aluminium Smelter switchyard. A new transmission line is not likely to be required. This is the Project's preferred grid connection option.

Pacific Hydro's Portland Wind Farm is located within proximity to, and within parts of the onshore Study Area. It consists of three segments on Cape Bridgewater, Cape Nelson and Cape Sir William Grant and has been in operation since 2010. The Kentbruck Green Power Hub is proposed to be located inland of the Glenelg Estuary and Discovery Bay Ramsar Wetland site within a pine plantation and is also proposed to connect into the Heywood Terminal Station. The Cape Grant Quarry is located approximately 6 km south of Portland, on the eastern cliff of Cape Sir William Grant (Port of Portland, 2022). This quarry is covered by Work Authority WA74, granted to the Port of Portland Pty Ltd under the *Mineral Resources (Sustainable Development) Act 1990*.

The onshore Study Area is located within the following areas of Native Title (as shown on **Figure 19** in **Attachment 1**):

- Parts of the Study Area fall within the boundaries of the Gunditjmara People native title claim (Tribunal No. VCD2007/001), for which the registered native title body corporate is the GMTOAC.
- Parts of the Study Area overlap with three registered Indigenous Land Use Agreements (ILUA) (Tribunal No. VI2006/004, VI2010/001, VI2015/002).
- Parts of the Study Area overlap with a Future Act Notice (Tribunal No. VS2000/0025).

10. Required approvals

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

Commonwealth

- Referral under the EPBC Act for a decision as to whether the Project is a 'controlled action' requiring assessment and approval under the EPBC Act. Alongside a referral for the Project, a separate referral under the EPBC Act has been prepared for the geophysical marine activities required for the Project during the assessment stage to inform the approvals. An EPBC referral for geotechnical and other intrusive investigations is also currently being prepared and is expected to be lodged in late 2022.
- Licences and approvals under the *Offshore Electricity Infrastructure Act 2021*:
    - A **feasibility licence** which authorises the licence holder to assess the feasibility of a proposed commercial offshore infrastructure project and subsequently apply for a commercial licence for the project. Feasibility licences can only be granted in a declared area.
        - If feasibility activities include the construction, installation, commissioning, operation, maintenance or decommissioning of offshore renewable energy infrastructure as defined under this Act, a management plan is required to be approved by the Regulator before licence holders can commence those feasibility activities.
    - A **management plan** needs to be submitted by the feasibility licence holder and assessed and approved by the Regulator before a commercial licence can be granted under this Act. Management plans are required for the construction, installation, operation, maintenance and decommissioning of offshore renewable energy infrastructure and offshore electricity transmission infrastructure.
    - A **commercial licence** can only be granted to the holder of a feasibility licence and can only be granted within an area that is a declared area. A **commercial licence** enables a licence holder to carry out an offshore infrastructure project (commercial project) in the licence area for the purpose of exploiting renewable energy resources.
    - A **transmission and infrastructure licence** is required under this Act to provide for the licence holder to assess the feasibility and to store, transmit, or convey electricity or a renewable energy product in, or through, the licence area.

- Compliance with the *Native Title Act 1993* for the grant of any permits, approvals or other rights and interests over areas where native title has been determined to exist in favour of the Gunditjmara People (unless a Land Use Activity Agreement under the *Traditional Owner Settlement Act 2010* is in place – see further below and **Attachment 7**)
- Permit under the *Underwater Cultural Heritage Act 2018* may be required to interfere or damage underwater cultural heritage
- Notification to, and potentially consent(s) from, the Civil Aviation Safety Authority (CASA) may be required dependent on the height of the proposed infrastructure and its proximity to the Portland Airport. The requirement for this will be confirmed during the assessment phase and as the design of the transmission route develops.

Victorian

- Amendment to the Glenelg Planning Scheme to facilitate use and development of the onshore transmission infrastructure, removal of native vegetation and associated activities under the *Planning and Environment Act 1987*
- Cultural Heritage Management Plan (CHMP) under the *Aboriginal Heritage Act 2006*
- Compliance with any Land Use Activity Agreement that is negotiated by the State with GMTOAC under the *Traditional Owner Settlement Act 2010* for the grant of rights and interests over Crown land (which would replace any compliance requirements under the *Native Title Act 1993*)
- Consent for works on marine and coastal Crown land under the *Marine and Coastal Act 2018,* including investigations and laying of the cable
- Potential permit to remove protected flora on public land under the *Flora and Fauna Guarantee Act 1988*
- Potential consent under the *Heritage Act 2017* for impact on any sites on the Victoria Heritage Register and / or the Victorian Heritage Inventory and to impact on archaeological relics (non-Aboriginal archaeological relics more than 50 years old)
- Potential licence under the *Water Act 1989* to construct, alter, operate or decommission works on, over or under a waterway, to construct a bore or to extract groundwater
- Potential authorisation to relocate wildlife under the *Wildlife Act 1975*
- Consent under the *Road Management Act 2004* to conduct works in, on, under or over a road from the coordinating road authority (Department of Transport or Council, depending upon the category of road)
- Consent, lease and/or licence under the *Crown Land (Reserves) Act 1978* to use and develop Crown land
- Consents, leases and/or licenses under the *National Parks Act 1975* and/or *Forests Act 1958* to construct a transmission route through Crown land reserved under either Act.

Have any applications for approval been lodged?

☐ No ☒ Yes If yes, please provide details.

Two referrals under the EPBC Act have been lodged. Alongside a referral for the Project (EPBC 2022/09435), a separate referral under the EPBC Act has been prepared for the marine field activities (EPBC 2022/09436) required for the Project during the assessment stage to inform the approvals. A third referral will be lodged for geotechnical activities.

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

Commonwealth

- National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA)
- National Offshore Petroleum Titles Administrator (NOPTA)
- Department of Climate Change, Energy, the Environment and Water (DCCEEW)

Victoria

- Department of Environment, Land, Water and Planning (DELWP)
- Gunditj Mirring Traditional Owners Aboriginal Corporation (GMTOAC)
- First Peoples – State Relations
- Environment Protection Agency
- Department of Transport, including Ports Victoria
- Heritage Victoria
- Glenelg Shire Council
- Moyne Shire Council
- Warrnambool Shire Council
- Parks Victoria
- Country Fire Authority
- Regional Development Victoria Barwon South West

South Australia

- City of Mount Gambier
- District Council of Grant
- Wattle Range Council
- Department for Energy and Mining
- Department for Transport and Infrastructure
- Department of Primary Industries and Regions
- Heritage SA
- Regional Development Australia – Limestone Coast

We are due to meet with the following organisations:

- Burrandies Aboriginal Corporation
- National Parks and Wildlife Service, SA

Other agencies consulted:

- Department of Jobs, Precincts and Regions (DJPR)
- Australian Energy Market Operator (AEMO)

Other organisations consulted:

- Port of Portland
- Portland Aluminium Smelter
- Department of Treasury and Finance (DTF) – Invest Victoria
- Keppel Prince, Portland
- AusNet
- Bluescope Steel
- Qube – Barry Beach Marine Terminal
- Port of Hastings Authority
- TasPorts – Bell Bay

Further information about the consultation that has been undertaken is provided in Section 20.

PART 2 POTENTIAL ENVIRONMENTAL EFFECTS

11. Potentially significant environmental effects

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

A preliminary impact identification and screening has been undertaken to identify potential impacts associated with construction, operation, and decommissioning of the Project, as presented in **Attachments 1-7** (listed in Section 8 of this referral). The reports will also inform design development as well as the further works required to inform the assessment and approval of the Project.

Marine - Attachment 5

This assessment provides an overview of the existing marine environmental conditions and a preliminary impact assessment.

This referral addresses the marine environment in Victorian waters between the shoreline and three nautical miles from the shoreline. The marine environment in Victorian waters includes a range of benthic habitats, and fish, marine reptiles, mammals, invertebrates, and bird species. The potential significant impacts to Commonwealth Waters have also been assessed in the marine report (Attachment 5) and included in the referral under the EPBC Act submitted to DCCEEW.

The Study Area includes the Discovery Bay Marine National Park. The purpose of this park is to protect its reef and macroalgae habitats. The park supports a high diversity of marine life including whales, seabirds, fish and Australian fur seals. No infrastructure will be located within the park boundaries.

There are 62 threatened marine fauna species that are likely to occur within the offshore Study Area. The FFG Act listed species likely to occur in the offshore Study Area include 6 whale, dolphin, and seal species, 1 turtle species, 5 shark and fish species and 13 marine benthic species (see **Table 10** in **Section 12** of this referral). The Study Area is nominated as a BIA for several species as identified in **Section 8**.

The main shipping channel between the Port of Melbourne and Port Adelaide is within proximity to the Study Area (Marine Traffic, 2022) with between 35,000 to 200,000 vessel movements per year (Marine Traffic, 2022). Further consultation with the major shipping ports and Harbor Masters will be required to understand if the offshore wind turbines represent a navigational hazard.

Cape Bridgewater is a popular destination for whale watching, visiting seal colonies and bushwalking. Surfing and diving are also popular activities around the headland. There are recreational boat ramps at Portland and Nelson. There are several whale watching and fishing charters that launch from Portland and may visit the Study Area.

During construction, operation and decommissioning of the Project, potential impacts on the marine environment include:

- Fauna strike by vessels
- Habitat loss or disturbance from installation of the subsea export cable and cable landing at the shoreline
- Increased turbidity and suspended sediment from cable burying or shore landing works
- Displacement of marine fauna from habitat disturbance such as underwater noise, lights during works, vessel disturbance and potential electromagnetic fields (EMF)
- Changes to the composition of the marine community due to introduced invasive marine species
- Disruptions to existing recreational and commercial activities such as shipping and navigation, tourism and fishing.

Further studies will be undertaken to map the benthic habitat, obtain metocean data and undertake marine fauna surveys to inform an impact assessment and design development.

Terrestrial Biodiversity - Attachment 2

This report provides an overview of the baseline conditions of the terrestrial environment within the onshore Study Area. Based on database and mapping searches, records of flora and fauna within the Study Area were identified and an assessment of their likelihood of occurrence was undertaken.

This section includes ecological values associated with the portion of the existing 500 kV overhead transmission line between the Portland Aluminium Smelter at Portland and the Heywood Terminal Station at Heywood. They are presented here for completeness. However, as described in **Section 3** should transmission route option 1 be used by the Project, no works would be carried out along this section of the existing transmission route, and therefore there would be no potential for direct impacts on the corresponding ecological values.

Native Vegetation

A total of 26 Ecological Vegetation Classes (EVCs) across the Bridgewater, Glenelg Plain and Victorian Volcanic Plain Bioregions are modelled to occur within the Study Area. Of these, nine EVCs have a Bioregional Conservation Status (BCS) of Endangered, 10 EVCs with a BCS of Vulnerable, three EVCs with a BCS of Rare and two EVCs with a BCS of Depleted (refer to **Figure 5** of **Attachment 1**). The EVCs include forest, woodland, grassland, wetland, scrub, and freshwater marsh communities (see **Table 5** in **Section 12** of this referral).

The modelled area of the following four EVCs combined represents approximately 74% of the native vegetation extent within the Study Area:

- 25.1% EVC 858 – Coastal Alkaline Scrub
- 23.5% EVC 16 – Lowland Forest
- 14.3% EVC 23 – Herb-rich Foothill Forest
- 11.2% EVC 650 – Heathy Woodland/Damp heathy woodland/Damp heathland Mosaic

The majority of the native vegetation within the Study Area is located on public land, designated for nature reserves, forest parks and State Parks.

The primary impacts on native vegetation would be direct, through vegetation clearing to facilitate the construction and operation of the onshore transmission assets. Vegetation removal will be required in any areas of the Project Area where groundworks are required for the construction of Project infrastructure or laydowns/tracks to facilitate the works. Construction methods have not been confirmed for the onshore Project components so further investigation will occur to identify opportunities to avoid and minimise vegetation removal. The extent of vegetation clearance required for the transmission route will be determined once the corridor and the final alignment and associated construction footprint is confirmed.

Six EPBC Act listed and two FFG Act listed threatened ecological communities occur within the Study Area. The exact location and extent of FFG Act listed ecological communities and species will be determined through field surveys and other studies as required. The outcomes of the surveys will inform design and the assessment of potential impacts. Endangered or vulnerable, sensitive, or isolated vegetation types will be avoided through detailed design.

The principles set out in the *Guidelines for the removal, destruction or lopping of native vegetation* (Guidelines) (DELWP, 2017) will be applied to first avoid, then minimise and finally consider offsets for any native vegetation removal from the Project. A 100 m wide corridor is anticipated for the transmission route option 2 to allow for construction and associated activities. The final transmission easement will be located within this corridor (approximately 80 m -100 m wide), however clearing of native vegetation would not be required for the entire easement. Overhead transmission route poles will be sited to avoid native vegetation where possible. Any native vegetation losses will be offset in accordance with the Guidelines.

Threatened Flora

The report identified 99 threatened flora species with a medium to high likelihood of occurring within the Study Area. Of these, 17 flora species are listed under the EPBC Act and 94 flora species are listed under the FFG Act (these do not equal 99 as some species are listed under both Acts). Threatened flora records within 10 km of the Study Area are shown in **Figure 6** of **Attachment 1** (See **Table 6** of **Section 12** of this referral). An ecological inspection and where required, targeted surveys are required in the future to confirm their presence. **Appendix 1** of

Attachment 2 contains the FFG Act listed flora species with a medium to high likelihood of occurring within the Study Area.

Areas of value for threatened flora species within the Study Area are Bridgewater Lakes, Discovery Bay Coastal Park, Point Danger Coastal Reserve and Cobboboonee National Park.

Due to the large number of FFG Act listed flora species and the breadth of habitats that these species occupy throughout the Study Area, it is likely that several of these species will need to be considered further. Detailed assessments including field surveys will be undertaken to determine the extent of each species.

As with native vegetation, the main potential impact to threatened flora is from vegetation removal during groundworks to facilitate the construction of the onshore Project components such as transmission tower bases and the transmission joint bay. Works may also include construction laydown areas and access tracks. The outcomes of field surveys and further impact assessment on threatened flora will recommend design measures, such as micro-siting or alternative construction methodologies. Construction methodologies are yet to be confirmed and will be further investigated to reduce flora impacts where possible.

Other potential impacts include sedimentation to watercourses and wetland areas, altering the water quality and turbidity resulting in indirect impacts to the flora located there. Potential impacts from the introduction and spread of weed, pests and pathogens by the Project will also be considered further. Construction and operation management plans will be developed to control and minimise or remove the risk of these impacts occurring.

Threatened Avifauna, Terrestrial, and Aquatic Fauna

The report identified 82 threatened terrestrial and avifauna fauna species with a medium to high likelihood of occurring within the Study Area. Of these, 42 fauna species are listed under the EPBC Act and 82 fauna species are listed under the FFG Act (these do not equal 82 as some species are listed under both Acts). Threatened fauna records within 10 km of the Study Area are shown in **Figure 7** of **Attachment 1**. An ecological site inspection and where required, targeted surveys is required in the future to confirm their presence. **Appendix 2** of **Attachment 2** contains the EPBC Act and FFG Act listed fauna species likely to occur within the Study Area. See **Tables 7-11** of **Section 12** of this referral for all listed fauna including migratory species.

Threatened fauna have the potential to be impacted during both construction and operation of the Project. Hollow-dependent fauna, sedentary fauna, or fauna with relatively defined ecological niches and / or small home ranges are considered most likely to be impacted during construction of the Project due to their ecology and habitat requirements and the nature of the activities, which may involve habitat loss and disturbance. Highly mobile and/or volant fauna (i.e. species that primarily fly or glide) are most likely to be impacted during operation as their aerial movements place them at risk of collision with wind turbines. In addition, these species may also be impacted during construction if foraging or roosting/nesting habitat is directly or indirectly affected.

Threatened fauna which are considered likely to occur within the Study Area may warrant further consideration during detailed design, and the assessment and approvals phase of the Project. These species occupy a variety of habitats ranging from wetlands, saltmarshes, and coastal dunes, to forests, woodlands, and heathlands as well as open ocean environments. This also places species at different levels of risk in relation to the various aspects of the Project.

Terrestrial birds

The report identified 16 terrestrial bird species with a medium or higher likelihood of occurring within the Study Area. Of these, five species are listed under the EPBC Act and 15 species are listed under the FFG Act (these do not equal 16 as four species are listed under both Acts). Disturbance of, or removal of habitat during construction are the most likely potential impacts. **Appendix 2** of **Attachment 2** and **Table 7** in **Section 12** of this referral, identifies the FFG Act listed terrestrial avifauna likely to occur within in the Study Area.

For avifauna that traverse the offshore Project Area during operation, there is a risk of collision with turbines. There is also collision risk for terrestrial birds which are known to migrate between Tasmania and mainland Australia in large numbers at certain times of the year.

EPBC and FFG Act listed species of particular concern include the Orange-bellied Parrot *Neophema chrysogaster* (critically endangered), Swift Parrot *Lathamus discolour* (critically endangered) and White-throated Needletail *Hirundapus caudacutus* (vulnerable). Although approximate timelines for arrival and departure have been documented, there is still a paucity of

information on the migratory routes taken across the marine environment, as well as the flight heights during these large-scale movements. As such, it is not possible to discount the effects of offshore wind turbines on these species, and further assessment is required.

Shorebirds, Wetland Birds and Terns

Thirty-four (34) listed shorebird species have a medium or higher likelihood of occurring within the Study Area. Of these, 9 are listed under the EPBC Act and 32 are listed under the FFG Act. Of the nine EPBC Act listed species, seven are also FFG Act listed. Eighteen (18) of these threatened shorebird and tern species are also listed as migratory. **Appendix 2** of **Attachment 2** and **Table 7** in **Section 12** of this referral, contains the FFG Act listed shorebird species likely to occur within the Study Area. Impacts are most likely to occur from construction, impacting the integrity of surrounding wetlands and waterways causing either sedimentation, water quality changes, direct habitat loss or disturbance.

Subsea cables and onshore transmission route may also pose a threat to shorebird species that are known to occur along the coastal regions of the Study Area. Potential effects include habitat loss, reduced water quality or sedimentation impacting habitat and construction disturbance/ deterrence. Particular shorebird hotspots within the Study Area include the Glenelg Estuary and Discovery Bay Ramsar Wetlands site, which is globally recognised as an important habitat for resident and migratory shorebirds.

Migratory shorebirds may be at risk of collision with offshore wind turbines, especially during their departure and arrival. The offshore location of wind turbines may place them well beyond the departure and arrival ranges of migratory shorebirds. However, given their mobility and the relatively poor understanding of migration routes and flight heights, migratory shorebirds cannot be discounted from occurring within the Study Area and may require further consideration during the detailed design and assessment stage of the Project.

Seabirds

Seabirds are of particular concern as there is a risk of collision with offshore wind turbines. Seventeen (17) listed seabird species have a medium or higher likelihood of occurring within the Study Area. Of these 15 are listed under the EPBC Act and 11 are listed under the FFG Act. Of these 17 seabird species, 12 are also listed as migratory. The Study Area has the potential to overlap with the at-sea distributions of 10 threatened Albatross species and six threatened *Procellarriidae* (Petrels and Shearwaters) that are EPBC Act listed. **Appendix 2** of **Attachment 2** and **Table 9** in **Section 12** of this referral, contains the listed shorebird species likely to occur within the Study Area.

The marine environment off Portland is known to provide productive foraging habitats for a number of seabird species. In addition to the listed threatened seabird species, additional seabirds that may warrant further attention include:

- Australasian Gannet *Morus serrator* – The species breeds has breeding colonies at Point Danger and Lawrence Rocks, both of which are located within the Study Area.
- Short-tailed shearwater *Ardenna tenuirostris* – The most numerically abundant seabird species in south-eastern Australia which has a breeding colony at Griffith Island in Port Fairy, approximately 50 km from the most eastern point of the Study Area.

Albatross and petrel species largely breed in Antarctica and islands south of Australia (Australian Government, 2016). Albatross and giant petrel species exhibit a broad range of diets and foraging behaviours, and hence their at-sea distributions are diverse. Combined with their ability to cover vast oceanic distances, all waters within Australian jurisdiction can be considered foraging habitat, however the most critical foraging habitat is considered to be those waters south of 25 degrees where most species spend the majority of their foraging time.

Seabirds are known to feed on fish, cephalopod and/or crustaceans within the marine environment, diving to the surface water level or just below. Butler et al. 2002 describes the Bonney Upwelling as being a significant attractant for seabirds. This potentially makes foraging seabirds vulnerable to turbine strike.

Seabirds are particularly at risk of turbine collision during operations. A program of seabird surveys will be conducted from early 2023 for a two year period with monthly boat-based observation and aerial digital monitoring to capture sufficient data to inform the collision risk modelling and impact assessment. Two years of bird utilisation surveys is consistent with the *Onshore Wind Farms – interim guidance on bird and bat management* (DAWE, 2021) which state at least 24 months of site

utilisation surveys must be undertaken to provide sufficient baseline data about a relevant species' potential to utilise the Project site and its surrounds. The Survey guidelines for Australia's threatened birds (DEWHA, 2010) will also be used to inform the bird utilisation and monitoring program for the Project.

Other terrestrial and Aquatic Fauna

Twenty-four terrestrial and aquatic fauna species have a medium or higher likelihood of occurring within the Study Area. Of these, 13 are listed under the EPBC Act listed and 24 are listed under the FFG Act listed. All thirteen (13) EPBC Act listed species are also FFG Act listed. These species include terrestrial ground-dwelling and arboreal species, and species inhabiting freshwater streams and waterbodies throughout the Study Area. **Appendix 2** of **Attachment 2** and **Table 8** in **Section 12** of this referral, contains the listed terrestrial fauna species likely to occur within the Study Area.

Construction and operation of offshore wind turbines is unlikely to pose any inherent risk to these terrestrial fauna species. However, impacts to the terrestrial environment and waterbodies throughout the local area associated with the construction of the transition joint bay and siting of transmission lines is likely to warrant consideration.

Removal and impact to large trees and native vegetation may impact roosting and foraging habitat for arboreal species such as Grey-headed Flying-fox *Pteropus poliocephalus* and Southern Bent-winged Bat *Miniopterus orianae bassanii*. In addition, under boring or trenching activities associated with cable routing may impact the habitat of ground-dwelling fauna such as Swamp Antechinus *Antechinus minimus maritimus*, Long-nosed Potoroo *Potorous tridactylus trisulcatus*, Heath Mouse *Pseudomys shortridgei* and Southern Brown Bandicoot *Isoodon obesulus obesulus potentially* through habitat removal or fragmentation.

Wetlands and waterways within the Study Area and surrounds are likely to provide important habitat for the nationally listed Growling Grass Frog *Litoria raniformis* as well as several EPBC listed ichthyofauna and aquatic invertebrate species. In addition to habitat removal and possible fragmentation, any indirect impacts to aquatic habitats associated with the works during the developmental phase (e.g. runoff, altering of the natural course of waterways, etc.) should also be taken into consideration.

Threatened Ecological Communities (TEC)

Two (2) FFG Act-listed TEC are likely to occur within the Study Area:

- Coastal Moonah (Melaleuca lanceolata subsp. Lanceolata) Woodland Community
- Western (Basalt) Plains Grasslands Community

The modelled extent of these TECs is shown in **Figure 8** of **Attachment 1**. The Coastal Moonah Woodlands are modelled to occur along the coastline near Bridgewater Lakes and further inland, north of Cape Nelson. The extent of Western Basalt Plains Grasslands throughout the Study Area is restricted to a 20 ha patch made up of several small, disjunct patches. Field surveys will be required to ground truth the mapped data.

Potential impacts on TECs primarily concern vegetation clearance for onshore infrastructure. The exact location and extent of FFG Act listed TECs and species will be determined through field surveys and other studies as required. The outcomes of the surveys will inform design development and the assessment of potential impacts. Endangered or vulnerable, sensitive or isolated vegetation types will be avoided through detailed design to minimise the overall impact of the Project.

Potentially Threatening Processes – FFG Act

Potentially threatening processes, as defined in the FFG Processes List (DELWP 2016), that are either already present or likely to be present within the Study Area and could be exacerbated by the Project are summarised below:

- Alteration to the natural flow regimes of rivers and streams
- Alteration to the natural temperature regimes of rivers and streams
- Degradation of native riparian vegetation along Victorian rivers and streams
- Habitat fragmentation as a threatening process for fauna in Victoria
- Increase in sediment input into Victorian rivers and streams due to human activities

- Input of petroleum and related products into Victorian marine and estuarine environments
- Input of toxic substances into Victorian rivers and streams
- Invasion of native vegetation by 'environmental weeds'
- Loss of hollow-bearing trees from Victorian native forests
- Spread of *Pittosporum undulatum* in areas outside its natural distribution
- The discharge of human-generated marine debris into Victorian marine or estuarine waters
- The introduction of exotic organisms into Victorian marine waters
- The spread of *Phytophthora cinnamomi* from infected sites into parks and reserves, including roadsides, under the control of a state or local government authority
- Use of Phytophthora-infected gravel in construction of roads, bridges and reservoirs
- Wetland loss and degradation as a result of change in water regime, dredging, draining, filling and grazing

A detailed assessment and field studies of FFG Act listed species and threatening processes will be undertaken and environmental management measures developed as well as the Construction Environmental Management plan (CEMP) to manage and mitigate impacts from the Project.

Cultural Heritage - Attachment 7

Aboriginal cultural heritage

This report identified 365 registered Aboriginal Places (Aboriginal cultural heritage sites registered on the Aboriginal Cultural Heritage Register and Information System (ACHRIS)) located in the Study Area, as shown in **Figure 18** of **Attachment 1**. The places identified include artefact scatters, earth features, shell middens, low density artefact distributions (LDADs), an Aboriginal historical place, and two object collections. The Study Area also includes various 'areas of cultural heritage sensitivity' (areas deemed likely to hold Aboriginal cultural heritage values under the *Aboriginal Heritage Act 2006*).

The Study Area is likely to contain a range of non-registered Aboriginal and non-Aboriginal cultural heritage material, especially near the coastline and watercourses including the offshore area which historically would have been above-water.

There are intangible cultural values associated with the Study Area including its cultural and spiritual significance to the Gunditjmara people. Recorded intangible cultural values include the traditionally held belief of the spirits of Gunditjmara ancestors crossing the sea to Deen Maar (Lady Julia Percy Island), 8km off the coast to the east of Portland. The traditional burial practices of the Gunditjmara people are directly associated with this belief.

Potential impacts from Project-related activities on known and/or currently unknown tangible and intangible Aboriginal cultural heritage and heritage values may occur. These are likely to include disturbance or direct impacts from groundworks such as vegetation clearance, topsoil stripping, subsoil trenching / excavation, the construction of foundations and hardstands for Project infrastructure.

Where possible, groundworks in areas of cultural heritage sensitivity will be avoided or minimised. A range of construction methods (e.g. boring) will be considered to minimise impacts on Aboriginal cultural heritage where possible.

A cultural heritage management plan (CHMP) will be prepared in accordance with the *Aboriginal Heritage Act 2006* to characterise the existing environment, assess potential impacts and set out management measures to address any significant effects of the Project on Aboriginal cultural heritage. The Proponent will consult and engage closely with the RAP for the Study Area, GMTOAC, in developing the CHMP and GMTOAC approval of the CHMP will be required for compliance with the *Aboriginal Heritage Act 2006*. Consultation with the Burrandies Aboriginal Corporation in South Australia will also be undertaken for inclusion in the CHMP.

Non-Aboriginal cultural heritage

A desktop review of historic heritage places recorded within the Study Area included a review of the Victorian Heritage Register, National and Commonwealth Heritage Lists and Planning Scheme Heritage Overlays.

Multiple non-Aboriginal cultural heritage values are present within the onshore Study Area including 7 sites on the Victorian Heritage Register (VHR), 20 sites on the Victorian Heritage Inventory (VHI), and 13 sites on the Glenelg Planning Scheme Heritage Overlay (HO) (see **Figure 12** of **Attachment 1**). There are also 6 sites on the National Trust Heritage Register, which is a non-statutory register.

A search of the Australasian Underwater Cultural Heritage Database (AUCHD) confirmed that there are six non-Aboriginal cultural heritage sites listed on the AUCHD within the Study Area. These comprise five shipwrecks located offshore, and one shipwreck located onshore, as shown in **Figure 21** of **Attachment 1**. Detailed design of project infrastructure will ensure these shipwrecks are avoided.

Hydrology - Attachment 3

This report identified the onshore Study Area intersects with Wattle Hill Creek and Surry River and their tributaries. The catchment system for Surry River generally drains towards the north-east. The catchment system for Wattle Hill Creek drains generally toward the south-east. **Figure 10** of **Attachment 1** provides hydrological context to the Study Area.

The onshore Study Area intersects with low, moderate, and high potential Groundwater Dependent Ecosystems (GDEs).

Existing flood studies were reviewed alongside existing elevation data and stream gauge data for Surry River, to understand potential flood risk of the Study Area. It is expected that Surry River has the potential to spread out into a floodplain approximately 1 km wide, while it is expected that flow within Wattle Hill Creek and other tributaries to be relatively contained within localised riparian corridors along the channel alignments.

Potential impacts to surface waters, ground water and soils may include removal of habitat, disturbance of water flows, groundworks causing sedimentation or reduced water quality due to turbidity or contaminated runoff or spills from the construction area.

These impacts can be mitigated or avoided through design development consideration of minimising waterway crossings and adopting best practice erosion and sediment control and spill management. These with be developed through environmental management measures and described within a CEMP to manage and mitigate impacts from the Project.

Works within the marine environment at the cable landing points, trenchless techniques will also be considered to limit potential effects to the hydro-morphology and water quality from seabed and beach disturbance. The Project CEMP will require specific measures to control water quality impacts and this information will also be required for the *Marine and Coastal Act 2018* consent.

Landscape and Visual – Attachment 4

The offshore wind turbines will be located approximately 8-20 off the coastline between Cape Douglas and Nelson, approximately 60 km west of Portland.

There are several conservation and nature reserves along this coastline that are known for their scenic values and recreational activities. The Discovery Bay Coast, Cape Bridgewater and Cape Nelson are classified as landscapes of State significance in the *Coastal Spaces Landscape Assessment Study* (Department of Sustainability and Environment, 2006). The significance of the potential landscape and visual impacts of the Project will be evaluated as part of a comprehensive seascape, landscape and visual assessment. A preliminary desktop assessment is included in **Attachment 4**.

There are potential cumulative landscape and visual impacts associated with the wind turbines and the transmission infrastructure alongside neighbouring projects. These will be assessed in a coordinated and integrated manner to the extent possible, having regard to information availability and timing.

12. Native vegetation, flora and fauna

Native vegetation

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

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

Native vegetation clearing is likely to be required to facilitate the construction of the onshore transmission infrastructure (subsea cable landing, transition joint bay, and transmission route) in order to connect the offshore wind turbines into the existing electricity network. However, the preferred transmission route, transition joint bay location and subsea cable crossing is yet to be determined, with two options currently being investigated (as described in earlier sections). The extent of native vegetation clearance required will be determined once a preferred alignment has been selected and the construction methodology has been determined.

Transmission route option 1 proposes to land the subsea export cable 1.5 km south of the Portland Aluminium Smelter and connect into the existing switchyard at the Smelter, resulting in a very short new transmission route. Transmission route option 2 will land the subsea export cable to the south of the Glenelg Estuary and Discovery Bay Ramsar Wetlands site and run an overhead or underground transmission line approximately 29 km northeast to the Heywood Terminal Station. This will require a new project-dedicated transmission corridor to be cleared. Hence, transmission route option 2 would require more native vegetation removal than option 1.

The onshore Study Area allows for a five-kilometre buffer around the subsea cable landing options and a two and a half -kilometre buffer around the transmission route options. The EVCs mapped within the Study Area are provided below but are not representative of the actual native vegetation present within the Study Area or the amount that will require removal. The actual amount of native vegetation likely to require clearing will be determined as the Project design is refined, applying the principles of avoiding and minimising vegetation loss where possible. Where practical, the transmission route will utilise existing cleared easements and avoid high value conservation areas.

Clearing of native vegetation may result in vegetation fragmentation and associated edge effects, such as creating opportunities for the invasion of new pests and weeds, erosion and reducing core habitat for species. Avoiding and minimising native vegetation will be a key consideration in selection of the preferred transmission route.

Further information on potential impacts on native vegetation is provided in **Attachment 2.**

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

The Preliminary Desktop Biodiversity and Constraints Assessment was prepared by Biosis (2022) to identify potential ecological values and constraints, assess risks and potential impacts on ecological values, and identify possible mitigations. The desktop assessment broadly characterised the EVCs within the onshore Study Area. No field studies have been undertaken to date.

The Study Area encompasses three bioregions: Bridgewater, Glenelg Plain and the Victorian Volcanic Plain. A total of 26 EVCs are modelled to occur within the Study Area (see **Figure 5 of Attachment 1**). These EVCs are outlined in Table 5 and include forest, woodland, wetland and scrub communities.

Detailed native vegetation mapping and vegetation quality assessments will be undertaken once the preferred onshore transmission line infrastructure and associated construction footprint is determined.

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

☒ NYD Estimated area …….(hectares)

The maximum area of native vegetation that may be cleared has not yet been determined, as a preferred transmission route and construction footprint have not been finalised and field studies to confirm the presence and extent of native vegetation within the Project Area have not been conducted to date. Initial Project design indicates that the total length of the transmission routes onshore are approximately 1.5 km (option 1) or 29 km (option 2) and will likely have a construction corridor width of approximately 80 m to 100 m.

Detailed assessments of the Project will include field investigations and ground truthing to determine the maximum area of native vegetation that may need to be cleared. Avoidance and minimisation measures will be applied through the design and impact assessment evolution to

mitigate impacts and retain native vegetation where possible, however the Project will result in areas of removal.

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

☒ N/A ..... approx. percent (if applicable)

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

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

Based on the preliminary desktop assessment, there are 26 EVCs mapped within the onshore Study Area, as shown in **Table 5.** It is likely that some of these EVCs may be impacted due to vegetation clearing required to facilitate the construction of the onshore transmission infrastructure, however the amount of potential vegetation loss is not yet known yet.

Table 5 Modelled EVCs within the Study Area

EVC	Bioregional Conservation Status	Modelled extent (ha)
EVC 03 – Damp Sands Herb-rich Woodland	Vulnerable	2,508.6
EVC 05 – Coastal Sand Heathland	Rare	32.74
EVC 06 – Sand Heathland	Rare	89.42
EVC 10 – Estuarine Wetland	Endangered	19.49
EVC 16 – Lowland Forest	Least Concern	7,257.46
EVC 23 – Herb-rich Foothill Forest	Vulnerable	4,436.69
EVC 48 – Heathy Woodland	Least Concern	1,169.72
EVC 53 – Swamp Scrub	Vulnerable and Endangered	175.81
EVC 132 – Plains Grassland	Endangered	4.75
EVC 160 – Coastal Dune Scrub	Least Concern	1,295.01
EVC 161 – Coastal Headland Scrub	Vulnerable and Endangered	605.33
EVC 198 – Sedgy Riparian Woodland	Vulnerable	0.52
EVC 200 – Shallow Freshwater Marsh	Endangered	59.65
EVC 650 – Heathy Woodland/Damp Heathy Woodland/Damp Heathland Mosaic	Vulnerable	3,472.62
EVC 651 – Plains Swampy Woodland	Endangered	7.08
EVC 664 – Limestone Ridge Woodland	Vulnerable	4.9
EVC 680 – Freshwater Meadow	Endangered	57.35
EVC 681 – Deep Freshwater Marsh	Vulnerable	219.73
EVC 682 – Permanent Open Freshwater	N/A	70.71
EVC 684 – Permanent Saline	N/A	17.09
EVC 713 – Damp Sands Herb-rich Woodland/Damp Heathland/Damp Heathy Woodland Mosaic	Vulnerable	982.13
EVC 746 – Damp Heathland/Damp Heathy Woodland Mosaic	Depleted and Vulnerable	459.37
EVC 762 – Damp Heathland/Sand Heathland Mosaic	Depleted	97.22
EVC 797 – Coastal Landfill/Sand Accretion	N/A	36.58
EVC 858 – Coastal Alkaline Scrub	Endangered and Least Concern	7,762.69
EVC 876 – Spray-zone Coastal Shrubland	Rare and Endangered	101.85
Total		**30,944.51**

Further information on EVCs present within the Study Area is provided in **Section 4.2** of **Attachment 2.**

Have potential vegetation offsets been identified as yet?

☒ NYD ☒ Yes If yes, please briefly describe.

Offsets for the removal of native vegetation will likely be required. As the final transmission route and construction method is yet to be determined, the amount of vegetation clearing and offsets required cannot be determined at this stage.

Other information/comments? (eg. accuracy of information)

Refer to **Attachment 2** - Preliminary Desktop Biodiversity and Constraints Assessment (Biosis, 2022) for further information.

NYD = not yet determined

Flora and fauna

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

A Preliminary Desktop Marine Environmental Assessment was undertaken by BMT (2022) (see **Attachment 5**) to provide an initial characterisation of the existing marine environment within the offshore Study Area and to identify potentially sensitive marine ecological values including flora and fauna species that have potential to occur. The desktop assessment also provided an initial assessment of the potential impacts on marine environmental values as a result of the Project.

Publicly available information relating to the marine environmental features and values for the offshore Study Area was collated and reviewed. The primary data sources included:

- EPBC Act Protected Matters Search Tool, undertaken for the offshore Study Area
- Species sightings records and/or benthic habitat mapping:
    - Victorian Biodiversity Atlas
    - Atlas of Living Australia
    - South Australia Nature Maps
    - Sea Maps Australia
- Marine Park, Ramsar Wetland and National Park listing criteria and/or Management Plans, which include descriptions of the values of these areas
- Species Profile and Threats Database (SPRAT) for mapping of the distribution and occurrence of species and/or their habitats, together with life-history information
- Species Recovery Plans for various threatened species prepared under the EPBC Act

Following the desktop and database review, an assessment of the likelihood of listed species occurring in the offshore Study Area was undertaken. Where known, important life-history functions supported by the Study Area (i.e., breeding, foraging, nesting etc.) and other notable values supported were identified based on mapping of *Biologically Important Areas for regionally significant marine species* (BIAs) and Important Bird Areas (IBAs).

The Preliminary Desktop Biodiversity and Constraints Assessment prepared by Biosis (2022) (see **Attachment 2**) provided an initial characterisation of the existing terrestrial and aquatic ecological values, assess risks and potential impacts on ecological values and identify potential mitigations within the Study Area.

A background review of databases and literature was undertaken to identify ecological values that may be present. This involved database searches using a 10 km buffer of the Study Area (referred to as the 'search area') of the following:

- DELWP's Victorian Biodiversity Atlas (VBA), including the 'VBA_FLORA25, FLORA100 & FLORA Restricted' and 'VBA_FAUNA25, FAUNA100 & FAUNA Restricted' datasets

- DCCEEW's Protected Matters Search Tool for matters protected by the EPBC Act

Other spatial datasets and sources of biodiversity information were reviewed including:

- DELWP's NatureKit mapping tool
- DELWP's Habitat Importance maps
- Topographic data including roads, waterways, contours, cadastre
- Land tenure (public and private)
- Ecological Vegetation Classes (EVC) (NV2005_EVCBCS) (DELWP, 2018)
- Flora and Fauna Guarantee Act Listed Communities (NV2005_FFG_COMM) (DELWP, 2018)
- Ecological Communities of National Environmental Significance Distributions (DAWE, 2020)
- Victorian Biodiversity Atlas (VBA) flora and fauna records
- Ramsar Wetlands of Australia (DoEE, 2018)
- Victorian Wetland Inventory (Current) (WETLAND_CURRENT) (DELWP, 2021)

Following the desktop and database review, an assessment of the likelihood of listed flora and fauna species occurring in the Study Area was undertaken, as well as an assessment of potential impacts from the Project on terrestrial ecological values.

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

☒ NYD ☒ No ☒ Yes If yes, please:

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

Based on **Attachments 2** and **5**, the following threatened species, migratory species, and ecological communities listed under the FFG Act and EPBC Act, are likely to occur within the Study Area:

- 99 threatened flora species
- 153 threatened fauna species, including
    - 50 avifauna species (16 terrestrial birds and 34 shorebirds)
    - 24 terrestrial and aquatic fauna species
    - 17 seabird species
    - 62 marine fauna species
- 84 listed migratory species
- 2 threatened ecological communities

Threatened Flora

A search of the Protected Matters Search Tool (PMST) and Victorian biodiversity databases identified 99 threatened flora species with a medium to high likelihood of occurring within the Study Area, as listed in **Table 6**. Of these, 17 flora species are listed under the EPBC Act, 94 listed flora species are listed under the FFG Act (these do not equal 99 as some species are listed under both Acts). Threatened flora records within 10 km of the Study Area are shown in **Figure 6** of **Attachment 1**.

Several of these listed species are terrestrial orchids which are cryptic species, emerging from the ground and flowering for only short periods of time each year. To identify the potential presence and extent of these species throughout the Study Area, targeted assessments will be necessary.

Areas of greatest value for threatened flora species within the Study Area are:

- Bridgewater Lakes and the surrounding Discovery Bay Coastal Park vegetation. Known to support populations of Coast Ballart *Exocarpus syrticola* (FFG e), Leafy Greenhood

Pterostylis cucullata subsp. *cucullata* (FFG e) and Coast Helmet Orchid *Corybas despectans* (FFG e).

- Point Danger Coastal Reserve. Known to support populations of Mellblom's Spider Orchid *Caladenia hastata* (EPBC EN, FFG cr), Shiny Tea-tree *Leptospermum turbinatum* (FFG e) and Oval-leaf *Logania ovata* (FFG e).
- Cobboboonee National Park. Known to support populations of Swamp Fireweed *Senecio psilocarpus* (EPBC VU) and Western Peppermint *Eucalyptus falciformis* (FFG v).

Table 6 Threatened flora with a medium to high likelihood of occurring within the Study Area

Common name	Species name	Conservation status	
		EPBC	FFG
River Swamp Wallaby-grass	*Amphibromus fluitans*	VU	
Limestone Spider-orchid	*Caladenia calcicola*	VU	Cr
Colourful Spider-orchid	*Caladenia colorata*	EN	Cr
Mellblom's Spider-orchid	*Caladenia hastata*	EN	Cr
Ornate Pink-fingers	*Caladenia ornata*	VU	E
Wrinkled Cassinia	*Cassinia rugata*	VU	Cr
Clover Glycine	*Glycine latrobeana*	VU	v
Coast Ixodia	*Ixodia achillaeoides subsp. arenicola*	VU	
Maroon Leek-orchid	*Prasophyllum frenchii*	EN	e
Dense Leek-orchid	*Prasophyllum spicatum*	VU	cr
Green-striped Greenhood	*Pterostylis chlorogramma*	VU	e
Leafy Greenhood	*Pterostylis cucullata subsp. cucullata*	VU	
Swamp Greenhood	*Pterostylis tenuissima*	VU	
Swamp Fireweed	*Senecio psilocarpus*	VU	
Coast Dandelion	*Taraxacum cygnorum*	VU	Cr
Metallic Sun-orchid	*Thelymitra epipactoides*	EN	E
Swamp Everlasting	*Xerochrysum palustre*	VU	Cr
Broad-leaf Prickly Moses	*Acacia verticillata subsp. ruscifolia*		E
Coast Ground-berry	*Acrotriche cordata*		E
Coast Bitter-bush	*Adriana quadripartita*		E
Silver Everlasting	*Argentipallium dealbatum*		E
Glistening Saltbush	*Atriplex billardierei*		X
Neat Spear-grass	*Austrostipa mundula*		E
Velvet Apple-berry	*Billardiera scandens s.s.*		E
Hairy Boronia	*Boronia pilosa subsp. torquata*		E
Wiry Bossiaea	*Bossiaea cordigera*		E
Lizard Orchid	*Burnettia cuneata*		E
Limestone Ridge Spider-orchid	*Caladenia bicalliata subsp. bicalliata*		E
Christmas Spider-orchid	*Caladenia flavovirens*		Cr
Scented Spider-orchid	*Caladenia fragrantissima*		Cr
Robust Spider-orchid	*Caladenia valida*		Cr
Large White Spider-orchid	*Caladenia venusta*		E
Slender Pink-fingers	*Caladenia vulgaris*		V
Forest Bitter-cress	*Cardamine papillata*		E
Curly Sedge	*Carex tasmanica*		E

Leafy Twig-sedge	*Cladium procerum*		E
Coast Colobanth	*Colobanthus apetalus var. apetalus*		E
Pale Swamp Everlasting	*Coronidium gunnianum*		Cr
Velvet White Correa	*Correa alba var. pannosa*		E
Tiny Midge-orchid	*Corunastylis nuda*		V
Coast Helmet-orchid	*Corybas despectans*		E
Late Helmet-orchid	*Corybas sp. aff. diemenicus (Coastal)*		Cr
Spotted Hyacinth-orchid	*Dipodium pardalinum*		E
Swamp Diuris	*Diuris palustris*		E
Coast Gum	*Eucalyptus diversifolia subsp. megacarpa*		V
Western Peppermint	*Eucalyptus falciformis*		V
Bog Gum	*Eucalyptus kitsoniana*		Cr
Apple Jack	*Eucalyptus splendens*		cr
Coast Ballart	*Exocarpos syrticola*		e
Tight Bedstraw	*Galium curvihirtum*		v
Western Golden-tip	*Goodia medicaginea*		e
Silky Golden-tip	*Goodia pubescens*		e
Dwarf Brooklime	*Gratiola pumilo*		e
Small-flower Grevillea	*Grevillea micrantha*		cr
Eichler's Raspwort	*Haloragis eichleri*		v
Prickly Raspwort	*Haloragis myriocarpa*		e
Pale Guinea-flower	*Hibbertia pallidiflora*		e
Tufted Club-sedge	*Isolepis wakefieldiana*		e
Rough Blown-grass	*Lachnagrostis rudis subsp. rudis*		e
Drooping Velvet-bush	*Lasiopetalum schulzenii*		cr
Hoary Rapier-sedge	*Lepidosperma canescens*		e
Shiny Tea-tree	*Leptospermum turbinatum*		e
Slender Stylewort	*Levenhookia sonderi*		e
Showy Lobelia	*Lobelia beaugleholei*		v
Oval-leaf Logania	*Logania ovata*		e
Lax Twig-sedge	*Machaerina laxa*		e
Salt Paperbark	*Melaleuca halmaturorum*		e
Hairy Shepherd's Purse	*Microlepidium pilosulum*		cr
Swamp Onion-orchid	*Microtis orbicularis*		e
Coastal Lignum	*Muehlenbeckia gunnii*		e
Rough Daisy-bush	*Olearia asterotricha*		e
Lax Marsh-flower	*Ornduffia umbricola var. umbricola*		e
Morning Flag	*Orthrosanthus multiflorus*		e
Forked Rice-flower	*Pimelea hewardiana*		e
Lime Fern	*Pneumatopteris pennigera*		e
Coast Fescue	*Poa billardierei*		e
Scaly Poa	*Poa fax*		e
Dwarf Coast Poa	*Poa halmaturina*		e
Dune Poa	*Poa poiformis var. ramifer*		e
Coastal Leek-orchid	*Prasophyllum litorale*		cr

Long-tongue Shell-orchid	*Pterostylis dolichochila*		cr
Small Sickle Greenhood	*Pterostylis lustra*		e
Coast Bush-pea	*Pultenaea canaliculata*		e
Otway Bush-pea	*Pultenaea prolifera*		e
Coast Twin-leaf	*Roepera billardierei*		e
Coast Saltwort	*Salsola tragus subsp. pontica*		e
Dune Fan-flower	*Scaevola calendulacea*		e
Wiry Bog-sedge	*Schoenus carsei*		e
Small Bog-sedge	*Schoenus deformis*		v
Branching Scale-rush	*Sporadanthus tasmanicus*		e
Clustered Lily	*Thelionema umbellatum*		v
Blotched Sun-orchid	*Thelymitra benthamiana*		e
Winter Sun-orchid	*Thelymitra hiemalis*		cr
Inflated Sun-orchid	*Thelymitra inflata*		e
Coast Speedwell	*Veronica hillebrandii*		e
Tiny Violet	*Viola sieberiana s.s.*		E
One-flower Early Nancy	*Wurmbea uniflora*		V
Parsley Xanthosia	*Xanthosia leiophylla*		E
Southern Xanthosia	*Xanthosia tasmanica*		E

Threatened Fauna

A search of the PMST and Victorian biodiversity databases identified 153 threatened fauna species with a medium to high likelihood of occurring within the Study Area. Of these, 83 fauna species are listed under the EPBC Act and 107 fauna species are listed under the FFG Act (these do not equal 154 as some species are listed under both Acts). Threatened fauna records within 10 km of the Study Area are shown in **Figure 7 of Attachment 1.**

Threatened fauna species have been categorised into the following:

- Avifauna (terrestrial birds, shorebirds, wetland birds and tern species).
- Non-avian terrestrial and aquatic fauna.
- Seabirds
- Marine fauna.

Avifauna

Sixteen (16) listed terrestrial bird species have a medium or high likelihood of occurring within the Study Area, as listed in **Table 7.** Of these, five are listed under the EPBC Act and 15 are listed under the FFG Act (these do not equal 16 as some species are listed under both Acts). Species of particular concern include the Orange-bellied Parrot and Swift Parrot, that are known to traverse Bass Strait at certain times of the year when migrating from Tasmania to mainland Australia. White-throated Needletail is also migratory (a trans-equatorial migrant).

Thirty-four (34) listed shorebird species have a medium or higher likelihood of occurring within the Study Area, as listed in **Table 7**. Of these, nine are listed under the EPBC Act listed and 32 are listed under the FFG Act (these do not equal 34 as some species are listed under both Acts). Eighteen (18) of these threatened shorebird and tern species are also listed as migratory.

Table 7 Threatened terrestrial and shorebird species most likely to occur within the Study Area

Common Name	Species name	Conservation Status	
		EPBC	FFG
Terrestrial bird species			
Red-tailed Black-Cockatoo (south-eastern)	*Calyptorhynchus banksii graptogyne*	EN	e

Gang-gang Cockatoo	*Callocephalon fimbriatum*	EN	
Orange-bellied Parrot	*Neophema chrysogaster*	CR	cr
Swift Parrot	*Lathamus discolor*	CR	cr
White-throated Needletail	*Hirundapus caudacutus*	VU, Migratory	v
Grey Goshawk	*Accipiter novaehollandiae*		e
Little Eagle	*Hieraaetus morphnoides*		v
White-bellied Sea-Eagle	*Haliaeetus leucogaster*		e
Black Falcon	*Falco subniger*		cr
Barking Owl	*Ninox connivens*		cr
Powerful Owl	*Ninox strenua*		v
Masked Owl	*Tyto novaehollandiae*		cr
Ground Parrot	*Pezoporus wallicus*		e
Chestnut-rumped Heathwren	*Calamanthus pyrrhopygius*		v
Diamond Firetail	*Stagonopleura guttata*		v
Rufous Bristlebird (Coorong)	*Dasyornis broadbenti broadbenti*		e
Shorebird, wetland and tern species			
Australian Painted-snipe	*Rostratula australis*	EN	cr
Australasian Bittern	*Botaurus poiciloptilus*	EN	cr
Australian Fairy Tern	*Sternula nereis nereis*	VU	
Bar-taield Godwit (baueri)	*Limosa lapponica baueri*	VU, Migratory	
Hooded Plover	*Thinornis cucullatus*	VU	v
Eastern Curlew	*Numenius madagascariensis*	CR, Migratory	cr
Curlew Sandpiper	*Calidris ferruginea*	CR, Migratory	cr
Red Knot	*Calidris canutus*	EN, Migratory	e
Great Knot	*Calidris tenuirostris*	CR, Migratory	cr
Lewin's Rail	*Lewinia pectoralis*		v
Brolga	Antigone rubicunda		e
Little Egret	*Egretta garzetta*		c
Eastern Great Egret	*Ardea alba modesta*		v
Australian Little Bittern	*Ixobrychus dubius*		e
Magpie Goose	*Anseranas semipalmata*		v
Australasian Shoveler	*Spatula rhynchotis*		v
Freckled Duck	*Stictonetta naevosa*		e
Hardhead	*Aythya australis*		v
Blue-billed Duck	*Oxyura australis*		v
Musk Dusk	*Biziura lobata*		v
Australian Gull-billed Tern	Gelochelidon macrotarsa		e
Caspian Tern	*Hydroprogne caspia*	Migratory	v
Little Tern	*Sternula albifrons*	Migratory	cr
Ruddy Turnstone	*Arenaria interpres*	Migratory	e
Grey Plover	*Pluvialis squatarola*	Migratory	v
Pacific Golden Plover	*Pluvialis fulva*	Migratory	v
Whimbrel	*Numenius phaeopus*	Migratory	e
Wood Sandpiper	*Tringa glareola*	Migratory	e
Grey-tailed Tattler	*Tringa brevipes*	Migratory	cr
Common Sandpiper	*Actitis hypoleucos*	Migratory	v
Common Greenshank	*Tringa nebularia*	Migratory	e
Marsh Sandpiper	*Tringa stagnatilis*	Migratory	e

Terek Sandpiper	*Xenus cinereus*	Migratory	e
Black-tailed Godwit	*Limosa limosa*	Migratory	cr

Non-avian terrestrial and aquatic fauna

As listed in **Table 8,** twenty-four (24) listed terrestrial and aquatic fauna have a medium or higher likelihood of occurring within the Study Area. Of these, 13 are listed under the EPBC Act and 24 are listed under the FFG Act, with some species listed under both Acts. These species include terrestrial ground-dwelling and arboreal species, and species inhabiting freshwater streams and waterbodies throughout the Study Area.

Table 8 Threatened non-avian terrestrial and freshwater fauna most likely to occur within the Study Area

Common Name	Species Name	Conservation Status	
		EPBC	FFG
Spot-tailed Quoll	*Dasyurus maculatus maculatus* (SE mainland population)	EN	e
Swamp Antechinus	*Antechinus minimus maritimus*	VU	v
Long-nosed Potoroo	*Potorous tridactylus trisulcatus*	VU	v
Heath Mouse	*Pseudomys shortridgei*	EN	e
Southern Brown Bandicoot	*Isoodon obesulus obesulus*	EN	e
Grey-headed Flying-fox	*Pteropus poliocephalus*	VU	v
Southern Bent-winged Bat (southern ssp.)	*Miniopterus orianae bassanii*	CR	cr
Growling Grass Frog	*Litoria raniformis*	VU	v
Australian Grayling	*Prototroctes maraena*	VU	e
Dwarf Galaxias	*Galaxiella pusilla*	VU	e
Yarra Pygmy Perch	*Nannoperca obscura*	VU	v
Variegated Pygmy Perch	*Nannoperca variegata*	VU	e
Glenelg Spiny Crayfish	*Euastacus bispinosus*	EN	e
White-footed Dunnart	*Sminthopsis leucopus*		v
Platypus	*Ornithorhynchus anatinus*		v
Striped Worm-Lizard	*Aprasia striolata*		e
Bearded Dragon	*Pogona barbata*		v
Swamp Skink	*Lissolepis coventryi*		e
Southern Toadlet	*Pseudophryne semimarmorata*		e
Little Galaxias	*Galaxiella toourtkoourt*		e
Ancient Greenling Damselfly	*Hemiphlebia mirabilis*		e
Southern Hooded Shrimp	*Athanopsis australis*		e
Portland Burrowing Crayfish	*Engaeus strictifrons*		e
Hairy Burrowing Crayfish	*Engaeus sericatus*		v

Seabirds

Seventeen (17) listed seabird species have a medium or higher likelihood of occurring within the Study Area, as listed in **Table 9**. Of these, 15 are listed under the EPBC Act and 11 are listed under the FFG Act. Of these 17 seabird species, 12 are also listed as migratory. The Study Area has the potential to overlap with the at-sea distributions of 10 threatened Albatross species and six threatened *Procellarriidae* species (Petrels and Shearwaters) that are EPBC Act listed.

The marine environment off Portland is known to provide productive foraging habitats for a number of seabird species. In addition to the listed threatened seabird species, additional seabirds that may warrant further attention include:

- Australasian Gannet *Morus serrator* – The species breeds has breeding colonies at Point Danger and Lawrence Rocks, both of which are located within the Study Area.
- Short-tailed shearwater *Ardenna tenuirostris* – The most numerically abundant seabird species in south-eastern Australia which has a breeding colony at Griffith Island in Port Fairy, approximately 50 km from the Study Area.

Given the high mobility and dispersal capabilities of seabirds, particularly outside of the breeding period, it is highly likely that these species' ranges overlap with the Study Area.

Table 9 Threatened Seabird species most likely to occur within the Study Area

Common Name	Species Name	Conservation Status	
		EPBC	FFG
Fairy Prion (southern)	*Pachyptila turtur subantarctica*	VU	
Soft-plumaged Petrel	*Pterodroma mollis*	VU	
Gould's Petrel	*Pterodroma leucoptera*	EN	
Blue Petrel	*Halobaena caerulea*	VU	
Wandering Albatross	*Diomedea exulans*	VU, Migratory	cr
Black-browed Albatross	*Thalassarche melanophris*	VU, Migratory	
Indian Yellow-nosed Albatross	*Thalassarche carteri*	VU, Migratory	e
Grey-headed Albatross	*Thalassarche chrysostoma*	EN, Migratory	e
Shy Albatross	*Thalassarche cauta*	EN, Migratory	e
Sooty Albatross	*Phoebetria fusca*	VU, Migratory	cr
Southern Giant-Petrel	*Macronectes giganteus*	EN, Migratory	e
Buller's Albatross	*Thalassarche bulleri*	VU, Migratory	e
Northern Giant-Petrel	*Macronectes halli*	VU, Migratory	e
Southern Royal Albatross	*Diomedea epomophora*	VU, Migratory	cr
White-capped Albatross	*Thalassarche steadi*	VU, Migratory	
White-faced Storm-Petrel	*Pelagodroma marina*		e
Light-mantled Sooty Albatross	*Phoebetria palpebrata*	Migratory	Cr

Marine fauna

Sixty-two (62) listed threatened marine fauna species are likely to occur within the offshore Study Area based on a search of the EPBC PMST undertaken by BMT (2022), as listed in **Table 10**. Of these, 41 are listed under the EPBC Act and 25 are listed under the FFG Act (these do not equal 62 as some species are listed under both Acts). These include:

- 12 whale, dolphin, and seal species
- 3 turtle species
- 34 shark and fish species
- 13 marine benthic species

The offshore Study Area supports potential foraging habitat for a range of threatened/migratory marine species, including cetaceans (whales/dolphin species), pinnipeds, sharks, and marine turtles. The marine environment within the Study Area is nominated as a BIA for a number of species including White Shark, Pygmy Blue Whale, Southern Right Whale, and several Albatross species.

Table 10 Marine fauna with potential to occur within the Study Area

Common Name	Scientific Name	Conservation Status	
		EPBC	FFG
Whale, Dolphin, and Seal Species			
Long-nosed fur-seal	*Arctocephalus forsteri*	Marine	v
Australian fur seal	*Arctocephalus pusillus*	Marine	
Sei Whale	*Balaenoptera borealis*	VU, Migratory	
Blue Whale	*Balaenoptera musculus*	EN, Migratory	cr
Fin Whale	*Balaenoptera physalus*	VU, Migratory	
Pygmy right whale	*Caperea marginate*	Migratory	
Southern Right Whale	*Eubalaena australis*	EN, Migratory	cr
Humpback Whale	*Megaptera novaeangliae*	Migratory	v
Killer Whale	*Orcinus orca*	Migratory	
Australian Sea Lion	*Neophoca cinerea*	EN	e
Dusky Dolphin	*Lagenorhynchus obscurus*	Migratory	
Sperm Whale	*Physeter macrocephalus*	Migratory	
Turtles			
Loggerhead Turtle	*Caretta caretta*	EN, Migratory	
Green Turtle	*Chelonia mydas*	VU, Migratory	
Leatherback Turtle	*Dermochelys coriacea*	EN, Migratory	cr
Sharks and fish			
Shortfin mako	*Isurus oxyrinchus*	Migratory	
Australian grayling	*Prototroctes maraena*	VU	e
White shark	*Carcharodon carcharias*	VU, Migratory	e
Grey nurse shark	*Carcharias taurus*		cr
Porbeagle	*Lamna nasus*	Migratory	
Eastern dwarf galaxias	*Galaxiella pusilla*	VU	e
Yarra pygmy Perch	*Nannoperca obscuras*	VU	
School shark	*Galeorhinus galeus*	CD	
Blue warehou	*Seriolella brama*	CD	cd
Southern bluefin tuna	*Thunnus maccoyii*	CD	cd
Upside down fish	*Heraldia nocturna*	Marine	
Big bellied seahorse	*Hippcampus abdominalis*	Marine	
Short-headed seahorse	*Hippocampus breviceps*	Marine	
Crested pipefish	*HIstiogamphelus briggsii*	Marine	
Rhino pipefish	*Histiogampehlus cristatus*	Marine	
Deepbody pipefish	*Kaupus costatus*	Marine	
Brushtail pipefish	*Leptiochthys fistularius*	Marine	
Australian smooth pipefish	*Lissocampus caudalis*	Marine	
Javelin pipefish	*Lissocampus runa*	Marine	
Sawtooth pipefish	*Maroubra perserrata*	Marine	
Tuckers pipefish	*Mitotichys tuckeri*	Marine	
Red pipefish	*Notiocampus ruber*	Marine	
Leafy seadragon	*Phycodurus eques*	Marine	
Common seadragon	*Phyllopteryx taeniolatus*	Marine	
Pugnose pipefish	*Pugnaso curtirostris*	Marine	
Robust pipehorse	*Solegnathus robustus*	Marine	
Spiny pipehorse	*Solegnathus spinosissimus*	Marine	

Spotted pipefish	*Stigmatopora argus*	Marine	
Wide-bodied pipefish	*Stigmatopora nigra*	Marine	
Ringback pipefish	*Stipecampus cristatus*	Marine	
Hairy pipefish	*Urocampus carinirostris*	Marine	
Mother of pearl pipefish	*Vanacampus margaritifer*	Marine	
Port Phillip pipefish	*Vanacampus phillipi*	Marine	
Longsnout pipefish	*Vanacampus peocilolaemus*	Marine	
Marine benthic species			
Ghost shrimp species	*Eucalliax tooradin*		e
Ghost shrimp species	*Michelea microphylla*		v
Brittle star species	*Amphiura trisacantha*		cr
Sea-cucumber species	*Apsolidium densum*		e
Sea-cucumber species	*Apsolidium handrecki*		e
Brittle star species	*Ophiocomina australis*		cr
Sea-cucumber species	*Pentocnus bursatus*		cr
Sea-cucumber species	*Thyone nigra*		e
Sea-cucumber species	*Trochodota shepherdi*		cr
Stalked hydroid species	*Ralpharia coccinea*		cr
Chiton species	*Bassethullia glypta*		cr
Marine opisthobranch species	*Platydoris galbana*		e
Marine opisthobranch species	*Rhodope rousei*		cr

Migratory Species

A search of the Study Area with a 10 km buffer of the PMST and Victorian databases indicates 84 migratory species are predicted to occur within the search area. Of these, 46 are also listed under the EPBC and/or FFG Act and are listed in **Table 7, Table 9,** and **Table 10**. The remaining 38 listed migratory species that are not listed as threatened under the EPBC and/or FFG Act are identified in **Table 11**.

Table 11 Listed migratory species under the EPBC Act that are predicted to occur within the search area

Common Name	Species Name
Pin-tailed Snipe	*Gallinago stenura*
Swinhoe's Snipe	*Gallinago megala*
Broad-billed Sandpiper	*Limicola falcinellus*
Latham's Snipe	*Gallinago hardwickii*
Glossy Ibis	*Plegadis falcinellus*
Eastern Osprey	*Pandion cristatus*
Fork-tailed Swift	*Apus pacificus*
Osprey	*Pandion haliaetus*
Wilson's Storm-Petrel	*Oceanites oceanicus*
Sooty Shearwater	*Ardenna grisea*
Short-tailed Shearwater	*Ardenna tenuirostris*
Flesh-footed Shearwater	*Ardenna carneipes*
Grey Petrel	*Procellaria cinerea*
Common Tern	*Sterna hirundo*
Arctic Jaeger	*Stercorarius parasiticus*
Bulwer's Petrel	*Bulweria bulwerii*
White-chinned Petrel	*Procellaria aequinoctialis*

Long-tailed Jaeger	*Stercorarius longicaudus*
Pomarine Jaeger	*Stercorarius pomarinus*
South Polar Skua	*Catharacta maccormicki*
Northern Royal Albatross	*Diomedea antipodensis*
New Zealand Wandering Albatross	*Diomedea antipodensis*
Salvin's Albatross	*Thalassarche salvini*
Campbell Albatross	*Thalassarche impavida*
Crested Tern	*Thalasseus bergii*
Lesser Sand Plover	*Charadrius mongolus*
Double-banded Plover	*Charadrius bicinctus*
Oriental Plover	*Charadrius veredus*
Little Curlew	*Numenius minutus*
Red-necked Stint	*Calidris ruficollis*
Sharptailed Sandpiper	*Calidris acuminata*
Sanderling	*Calidris alba*
Pectoral Sandpiper	*Calidris melanotos*
Yellow Wagtail	*Motacilla flava*
Rufous Faintail	*Rhipidura rufifrons*
Satin Flycatcher	*Myiagra cyanoleuca*
Black-faced Monarch	*Monarcha melanopsis*

Threatened Ecological Communities
Two TECs listed under the FFG Act are likely to occur within the Study Area, as listed in **Table 12**.

Table 12 TECs likely to occur within the Study Area

Community Name	Conservation Status (FFG Act)	Modelled extent within the Study Area
Coastal Moonah (*Melaleaula lanceolata* subsp. *lanceolata*) Woodland Community	Threatened	These TECs are modelled to occur along the coastline near Bridgewater Lakes and further inlands, north of Cape Nelson. The extent of Western Basalt Plains Grasslands throughout the Study Area is restricted to a 20 ha patch made up of several small, disjunct patches.
Western (Basalt) Plains Grasslands Community	Threatened	

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

The following threatening processes identified under the FFG Act, have potential to be exacerbated by construction and operation of the Project.

Onshore

Alteration to the flow of rivers and streams

The onshore Study Area intersects with a few watercourses for the transmission route option 2 route. While transmission route option 1 is currently preferred, further studies will be required before this can be confirmed. Option 1 will not interact with a watercourse and therefore not present a threatening process to associated freshwater species.

While a preferred transmission route has not been selected, it is likely that a number of waterways will be crossed by the Project. However, waterways are likely to be avoided with appropriate placement of transmission line infrastructure. Potential impacts could include removal of habitat, sedimentation, reduced water quality and disturbance of water flows. Any effects on waterway flows and water quality will be expected to be temporary during construction and of short duration.

Degradation of native riparian vegetation along Victorian rivers and streams

There is potential for native riparian vegetation along rivers and streams that are intersected by transmission route option 2 to be impacted during construction. The siting of the transmission route will avoid native reparation vegetation where possible, and mitigation will be implemented to avoid and minimise the potential for impacts on ecological values along riparian corridors.

Habitat fragmentation as a threatening process for fauna in Victoria

As it is likely removal of native vegetation will be required for construction of the onshore transmission infrastructure, there is potential for works to result in habitat fragmentation for threatened fauna species relying on vegetation within the onshore Study Area. This can impact the ability of species to forage and breed depending on the location and severity of the fragmentation. Where practical, the overhead transmission route will use existing cleared easements and avoid and minimising vegetation loss where possible.

Increase in sediment input into Victorian rivers and streams due to human activities

Design and mitigation will aim to avoid and minimise potential impacts on rivers and streams – this includes use of trenchless construction methods under important ecological values along riparian corridors, and ensuring sediment loaded runoff does not reach nearby waterways. Best-practice construction methods will be adopted for the Project and implemented in accordance with the Construction Environmental Management Plan (CEMP). The CEMP will identify key waterways where runoff and sedimentation may result in down-stream impacts to significant waterways and aquatic fauna.

Input of petroleum and related products into Victorian marine and estuarine environments / Input of toxic substances into Victorian rivers and streams

Construction of the onshore transmission infrastructure has the potential to result in fuel or chemical spills, which could end up in nearby waterways, waterbodies and coastal areas leading to contamination of marine and estuarine environments. Appropriate methods for storing and managing chemicals and fuels during construction will be described in the Project's CEMP.

Invasion of native vegetation by 'environmental weeds'

The Project has the potential to introduce 'environmental weeds' during construction. This includes introducing exotic weeds to areas of high-quality vegetation where weeds are not a dominant component of the community, as well as facilitating the invasion of native environmental weeds by removing structural components of the vegetation community that allow for native weeds to become prolific.

Loss of hollow-bearing trees from Victorian native forests

Coarse woody debris and hollow-bearing trees may be present within the onshore Study Area. The onshore transmission infrastructure will aim to avoid any high value conservation or forest areas that are present within the onshore Study Area. Where identified, hollow-bearing trees will be avoided as a priority during the design and development process.

Wetland loss and degradation as a result of change in water regime, dredging, draining, filling and grazing

Potential impacts to waterbodies and wetlands will be identified and addressed during further assessments to be undertaken for the Project. No dredging or draining of wetlands is to be undertaken as part of Project works, however any potential for impacts associated with wetland loss and degradation will be identified and avoided and/or minimised where possible.

The spread of *Phytophtora cinnamomi* from infected sites into parks and reserves, including roadsides, under the control of a state or local government authority

Field assessments are yet to be undertaken for the Project, however, there is potential for *Phytophtora cinnamomic* (cinnamon fungus) to be present within the onshore Study Area. Best practice techniques for reducing the introduction and spread of cinnamon fungus during construction will be identified in the CEMP. Material and fill for the Project will be sourced from a reputable clean-waste company to reduce the instance of cinnamon fungus-infected gravel and material being introduced to sites.

Offshore

Habitat fragmentation as a threatening process for flora and fauna in Victoria.

Habitat fragmentation is considered low risk for marine flora and fauna due to the connectivity of adjacent parts of the coast and the ability of migrating fauna to find alternative routes if disturbed. The relatively small areas of disturbance in the offshore Study Area associated with the Project are unlikely to affect the ecological connection between marine habitats along the Portland coast. Therefore, offshore marine fauna species are not likely to be impacted by habitat fragmentation.

Input of petroleum and related products into Victorian marine and estuarine environments

There is potential for spills to occur during construction and operation associated with vessel collisions, grounding, or refuelling incidents. While such an event can occur, they are highly unlikely. Depending on location, nature, and scale of the spill, this could impact on protected marine parks and reserves, Ramsar wetlands and threatened species. With the implementation of the appropriate legislative and standard control measures, it is unlikely a substantial spill will occur.

The discharge of human-generated marine debris into Victorian marine waters or estuarine waters

Human-generated debris has potential to enter Victorian marine waters during construction and operation of the Project. Floating non-degradable debris (e.g., plastics) are often mistaken by turtles for prey species and ingested, or accidentally ingested by other marine species. No planned discharge of human-generated debris will occur, and the Project will develop practices to prevent dropped objects, develop waste and equipment storage and handling procedures and procedures to recover dropped objects or wastes wherever practicable.

The introduction of exotic organisms into Victorian marine waters

There is potential for pest species to be introduced to Victorian marine waters through biofouling of a vessel hull, or the release of pests into the marine environment via ballast waters. Turbines may also provide a surface for fouling pest species. The risk of introduction or spread of these is expected to be minimal, assuming the implementation of industry standard mitigation measures (use of local vessels where practicable, ballast water management, hull inspections, adherence to legislative requirements for biofouling).

The following potential indirect impacts of the Project on Commonwealth Waters have also been identified in association with the Project works and components within Victorian Waters (see **Attachment 5** for more information):

- Generation of underwater noise during construction and operations
- Introduction of pest species through vessel movements, construction etc.
- Deterioration in water quality as a result of spills or generation of turbid plumes during construction or operations
- Vessel strike from vessels moving to and from Commonwealth waters
- Light pollution (Maybe on the edge of the area, but should be unlikely)

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

☒ NYD ☒ No ☒ Yes If yes, please:

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

As identified above, the Preliminary Desktop Biodiversity and Constraints Assessment (Biosis, 2022) (**Attachment 2**) and the Preliminary Desktop Marine Environmental Assessment (BMT, 2022) (**Attachment 5)** identified the following EPBC Act and FFG Act listed threatened species, migratory species, and ecological communities as likely to occur, or have potential to occur within the Study Area:

- 99 threatened flora species
- 153 threatened fauna species, including
    - 50 avifauna species (16 terrestrial birds and 34 shorebirds)
    - 24 terrestrial and aquatic fauna species
    - 17 seabird species
    - 62 marine fauna species
- 84 listed migratory species
- 2 threatened ecological communities

Field assessments have not yet been undertaken to confirm the presence or occurrence of these species, however, both construction and operation of the Project have potential to impact on these threatened species, migratory species and ecological communities should they be present. Further information on the assessment of potential impacts is provided in **Attachment 2, 4** and **5**, with a summary of the key potential impacts provide below.

Threatened flora species

There is potential for threatened flora species listed under both the FFG Act and EPBC Act to be subject to direct removal and indirect habitat loss during construction of the onshore transmission infrastructure. Threatened flora are at a heightened risk of impact during construction works due to their sedentary nature. Field assessments have not yet been undertaken to determine if and what threatened flora species are present, and to what extent any species will be impacted.

The 94 FFG Act listed flora species with a medium or higher likelihood of occurring within the Study Area cover a range of lifeforms including Orchids, Graminoids, Shrubs and trees species and occur in a range of habitat throughout the Study Area. Of the species most likely to occur within the Study Area, 20 are listed as critically endangered under the FFG Act and are facing a high risk of extinction in Victoria. Works will be planned / altered to avoid impacting all threatened species where possible, and to mitigate the impacts where they cannot be avoided. Particular attention should be paid to critically endangered flora, given they are at the highest risk of extinction in Victoria.

Due to the large number of FFG Act listed flora species and the breadth of habitats that these species occupy, it is likely that several of these species will need to be considered further. This will require detailed flora assessments to determine the extent of each species throughout the Study Area.

The Project will seek to avoid areas of greatest value for threatened flora species within the Study Area that are known to support and/or have suitable habitat for FFG Act listed flora species.

In general, the potential for significantly impacting threatened flora can be reduced through a combination of detailed assessment and subsequent design response, as well as mitigation controls during construction. Consideration will need to be given to potential habitat for threatened flora species at the detailed design and assessment phase for all works associated with the Project.

Appendix 1 of **Attachment 4** provides a complete list of threatened flora species and their potential to occur within the onshore Study Area.

Threatened avifauna, seabird, and migratory bird species

Impacts to terrestrial birds are likely to arise during construction, particularly if construction of transmission route infrastructure results in the disturbance of, or the removal of suitable habitat. Threatened terrestrial birds in the Study Area occupy a range of habitat types, and careful consideration should be given to the impacts on individual species, associated with habitat loss.

Wind farms have the potential to be a threat to avifauna given the risk of collisions with turbines. The positioning of wind turbines offshore places them well outside of the flight range of many terrestrial birds and as such collision risks during operation may be considered negligible for most of these species. However, there is a concern for terrestrial birds which are known to traverse Bass Strait in large numbers at certain times of the year when moving between Tasmania and mainland Australia. Species of particular concern include Orange-bellied Parrot *Neophema chrysogaster*, Swift Parrot *Lathamus discolour* and Whitethroated Needletail *Hirundapus*

caudacutus. These species and other non-listed species are collectively termed Bass Strait migrants. Although, rough timelines for arrival and departure have been documented, there is still a lack of information on the migratory routes taken across the marine environment, as well as the flight heights during these large-scale movements. As such, it is not possible to discount the effects of an offshore wind project on these species, and further consideration is warranted.

Impacts to shorebirds, wetland birds and terns have potential to occur if construction of onshore transmission infrastructure impacts on the integrity of surrounding wetlands and waterways which provide critical habitat for a number of these species. Onshore cable routing may also pose a threat to shorebird species that are known to occur along the coastal regions of the Study Area. Particular shorebird hotspots within the Study Area include the Glenelg Estuary and Discovery Bay Wetlands which is a Ramsar site and globally recognised as an important habitat for resident and migratory shorebirds.

Migratory shorebirds may also be impacted during operation of the Project. Migratory shorebirds may be at risk of collisions with offshore wind turbines, especially during their departure and arrival. The offshore location of wind turbines may place them well beyond the departure and arrival ranges of migratory shorebirds. However, given their mobility and the relatively poor understanding of migration routes and flight heights, migratory shorebirds cannot be discounted from occurring within the Study Area and may require further consideration during the detailed design and assessment stage of the project.

Seabirds are of particular concern as there is a risk of collision with offshore wind turbines. A total of 15 nationally listed and two state listed seabird species are considered likely to occur within the Study Area (**Table 9**). Of these 17 seabird species, 12 are also listed as migratory. Given the high mobility and dispersal capabilities of seabirds, particularly outside of the breeding period, it is highly likely that range of these and other species may overlap with the offshore Study Area.

Threatened terrestrial and aquatic fauna species

Construction and operation of the offshore wind turbines is unlikely to pose any inherent risk to terrestrial and aquatic fauna. However, impacts to the terrestrial environment and waterbodies throughout the local area associated with the construction of the transition joint bay and routing of transmission lines is likely to warrant consideration. The key potential impact on threatened terrestrial and aquatic fauna species that may occur is associated with disturbance of, or the removal of suitable habitat.

Removal and impact on large trees and native vegetation may impact roosting and foraging habitat for arboreal species such as Grey-headed Flying-fox *Pteropus poliocephalus* and Southern Bent-winged Bat *Miniopterus orianae bassanii*. In addition, under boring or trenching activities associated with cable routing may impact the habitat of ground-dwelling fauna such as Swamp Antechinus *Antechinus minimus maritimus*, Long-nosed Potoroo *Potorous tridactylus trisulcatus*, Heath Mouse *Pseudomys shortridgei*, and Southern Brown Bandicoot *Isoodon obesulus obesulus* through habitat removal or fragmentation.

Wetlands and waterways within the onshore Study Area and surrounds are likely to provide important habitat for the EPBC Act listed Growling Grass Frog *Litoria raniformis* as well as several EPBC listed ichthyofauna and aquatic invertebrate species. In addition to habitat removal and possible fragmentation, any indirect impacts to aquatic habitats associated with the works during the developmental phase (e.g. runoff, altering of the natural course of waterways, etc.) will be avoided and/or minimised through the implementation of industry standard mitigation measures within a CEMP.

Appendix 2 of **Attachment 4** provides a complete list of threatened fauna species and their potential to occur within the onshore Study Area.

Threatened and migratory marine fauna

The Southern Right Whale *Eubalaena australis*, listed as Endangered under the EPBC Act, migrates between summer feeding areas in the Southern Ocean to inshore coastal waters off Australia. The western coastal areas of Victoria are classified as a large established aggregation area where calving occurs for the Southern Right Whale.

The Blue Whales are regularly present in the Bonney Coast Upwelling between November/December and April/May, and their presence has been linked to surface swarms of coastal krill that form in response to the upwelling of nutrient rich, cool water (CSIRO, 2004). The area is recognised as one of only 12 locations in the world where this species is regularly observed in high numbers.

Construction of the offshore components of the Project have potential to impact on benthic habitats and the threatened marine benthic species they support. Activities that may directly impact benthic habitat disturbance are piling (for foundation installation this will depend on the final foundation concept chosen), installation of the foundations and scour protection, installation of the inter-turbine array cables and laying of the main subsea transmission cable. Although the exact disturbance footprint within the offshore Study Area is not yet known, it is likely that areas of sensitive habitat can be avoided. It is unlikely that habitat loss will physically fragment habitats to the extent that major flow-on impacts to benthic communities and the threatened species they support will occur. Benthic habitat mapping will be undertaken to determine the presence or absence of threatened marine benthic species and their associated habitats, and the potential for impacts.

Pile driving may be required (depending on the final foundation concept chosen). This generates pulses of noise and vibration. This has the potential to impact marine fauna including threatened and listed migratory species such as cetaceans (whales/dolphin species), pinnipeds, sharks and marine turtles. The Study Area is a BIA for the Blue Whale (present in summer months), Southern Right Whale (present in winter months) and White Shark, which may be at risk of noise and vibration impacts. Noise impacts can be permanent (death/injury), long-term (e.g. permanent hearing loss) or short-term (behavioural, including avoidance), depending on exposure and sensitivity of species. The degree of noise exposure depends on the nature of works and local environmental conditions. Mitigation measures to reduce potential pile driving impacts on threatened/migratory marine fauna include seasonal construction windows (dependent on species) and safety zones/lookouts. It is expected that marine fauna would return to the area following installation and it is not expected that impacts would affect species population in the long term.

Vessel movements pose a risk of fauna strike, especially for large, slow-moving fauna near the surface such as whales. It is known that a number of whale species utilise the Study Area for either foraging, nursing or migration activity. Whales are vulnerable due to their slow swimming speed and lack of awareness of the threats posed by vessel (DoEE 2017). Pinnipeds and dolphins are also at risk of collision with high speed vessels. Further information will be required to determine vessel traffic intensities, but it will be higher during the construction and decommissioning stages than operations.

Noise and vibration levels generated by turbines during operation will be lower than pile driving and unlikely to cause acute impacts (injury/ mortality) to marine fauna. The noise and vibration generated by turbines is persistent (but dependent on wind speeds) which may result in changes to the behaviour of fauna. This may result in avoidance or attraction responses, increases in intensity of vocal communication, and masking of noises used by fauna.

The degree of impact is dependent on cumulative noise and vibration levels generated by the offshore wind turbine layout, background noise levels, and the sensitivity of fauna. Further work will be required to characterise background noise levels and the anticipated Project generated noise, and to identify the potential for impacts on marine fauna.

There are no long- term studies that confirm whether whales are likely to avoid areas with operating offshore wind turbines and it is likely to depend on a range of cumulative impacts from factors such as increased shipping, fishing, oil and gas projects.

Potential impacts on threatened marine fauna are further discussed in **Attachment 4**.

Threatened ecological communities

Two TECs listed under the FFG Act are modelled to occur within the onshore Study Area. Potential impacts on TECs are primarily associated with direct removal and indirect habitat loss during construction of the onshore transmission infrastructure. Field assessments have not yet been undertaken to determine if, and to what extent, any of these TECs are present and if they will be impacted. The onshore transmission infrastructure will be designed and sited to avoid direct impacts on TECs as far as practicable.

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

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

The following preliminary mitigation measures have been developed to avoid and minimise potential impacts on terrestrial flora and fauna species:

- Avoiding / minimising unnecessary duplication of infrastructure e.g. utilise existing easements to connect to existing transmission network, co-locate Project components with other infrastructure.
- Aligning the impact footprint through existing cleared land including agricultural land and plantations.
- Strategic use of horizontal directional drilling (HDD) / boring rather than open trenching methods for underground cables where possible, particularly in sensitive areas such as beach landings and when crossing waterways.
- Further assessment to identify which avifauna species are likely to be at risk of collisions with wind turbines, to allow further exploration of mitigation options and design reconfiguration.
- Careful timing of activities around periods or areas of ecological significance (e.g. breeding sites and breeding seasons) to further minimise and/or avoid impacts.
- Development of a project specific Construction Environmental Management Plan (CEMP) and Operational Environmental Management Plan (OEMP).
- Undertake further assessments and field surveys, including potential targeted surveys, to inform the general Project Area and recommend design refinement where possible to further avoid and minimise impacts.

The following preliminary mitigation measures have been developed to avoid and minimise potential impacts on marine fauna:

- Undertake habitat mapping and avoid locating project infrastructure within areas on sensitive benthic habitats
- Implement soft start procedures
- Utilise seasonal construction windows (this will vary dependent on species)
- Use safety zones/lookout
- Use go-slow procedures for vessels
- Use trained spotters for marine fauna for high-risk activities
- Undertake hull inspections of vessels used for construction and operation
- Source local vessels where practicable
- Implement standard ballast water management procedures
- Adhere to industry standard chemical storage, handling, and maintenance procedures
- Bury the subsea cabling at a sufficient depth (e.g. 1 - 1.5 m)
- Minimise lighting where possible
- Use lights that appear res to the eye
- Avoid lighting the water surface
- Adhere to relevant water quality guidelines
- Compliance with maritime legislation for discharges to the marine environment
- Adhere to legislative requirements for biofouling
- Use vessel exclusion zones around operations
- Develop a spill response plan
- Standard hazardous material storage and management in accordance with best practice and associated maritime legislation
- Recovery of dropped object/waste where possible

Other potential mitigation measure opportunities will be explored and identified, particularly in regard to mitigating the collision risk of bird species with turbines. This will involve exploring the latest industry guidance and findings from other offshore wind projects.

Mitigation measures will be further defined during detailed design and further environmental assessments, including any findings from further biodiversity and marine field surveys. Detailed and impact-specific mitigation measures will be developed to protect FFG Act listed threatened species and ecological communities. A Project CEMP will be developed to inform approvals and the *Offshore Electricity Infrastructure Act 2021* licensing.

Other information/comments? (eg. accuracy of information)

The information presented in this section is based on desktop assessment only (refer to **Attachment 5 –** Preliminary Marine Desktop Environmental Assessment**)**.

Field surveys will be undertaken to verify the species present and a detailed assessment of potential Project impacts will be undertaken following confirmation of the Project design.

13. Water environments

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

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

The Project is not anticipated to require significant volumes of fresh water, with the main use of fresh water being for dust suppression, and concrete production during construction.

Water requirements during operation are expected to be substantially less than one gigalitre per year (< 1GL/yr).

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

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

There is the potential for small volumes of water to be discharged to receiving water environments during construction. This would primarily be run-off from work sites and access track surfaces during rainfall events. Appropriate sediment and erosion control measures will be developed within the CEMP in accordance with best practice to avoid sedimentation of waterways. Protocols regarding spill response and use of spill kits on site will also be included in the CEMP.

There is a negligible risk of wastewater runoff due to the relatively low volumes of wastewater that will be generated during construction and with the implementation of industry standard mitigation measures typical for Projects of this scale and complexity. Any planned discharges from vessels into the marine environment will occur in compliance with the Commonwealth *Biosecurity Act 2015,* as well as the Australian Ballast Water Management Requirements.

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

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

Onshore

Two Ramsar wetlands are located within proximity to, and adjacent to, the offshore Study Area (see **Figure 9** of **Attachment 1**). No Project infrastructure will be located within either of the Ramsar sites, however, there is potential for the Project to indirectly impact on the ecological values of the nearby Ramsar sites. Particularly with regard to collision risk for listed threatened and migratory species that use these Ramsar sites and may traverse the offshore wind farm.

Other hydrological features within the Study Area and surrounds include Bridgewater Lakes and Fawthrop Lagoon. The onshore Study Area also intersects with the Surry River and Wattle Hill Creek and their tributaries. Construction works have potential to impact on these hydrology values.

Refer to **Section 8** and **Attachment 3** for further information on existing hydrological features within the Study Area.

Best practice construction activities will be adopted for the Project and implemented in accordance with the CEMP. This will ensure that any potential impacts to waterways, waterbodies and nearby wetlands are avoided and minimised as far as practicable. Environmentally sensitive construction measures will be implemented to ensure the Project's construction does not discharge wastewater and runoff to water environment. This will involve ensuring construction activities are effectively managed in accordance with EPA publications *1834: Civil construction, building and demolition guide* and *275: Construction Techniques for Sediment Pollution Control.* Further mitigation measures include the use of sediment control fences downstream of work areas, as well as constructing sediment basins to collect silty runoff and allow sediment to settle out prior to discharging.

Offshore

Construction and operation of the offshore component of the Project has potential to impact on the marine environment and associated values. The Project is located within the south-eastern marine region which has for localised hotspots including the Bonney Coast Upwelling KEF that brings cold nutrient rich water to the sea surface and is a high productivity area (see **Attachment 5**).

The offshore Study Area intersects with the Glenelg, Discovery Bay and Cape Nelson biounits which are located within Victorian coastal waters. The biounits are characterised by a range of environmental features from infralittoral rock and sublittoral sediment to infralittoral fine sand, with some low-profile reef communities (Victorian Environmental Assessment Council, 2019).

The Discovery Bay Marine National Park is located within the Study Area. The subsea cabling options avoid the Discovery Bay Marine National Park and will be located to its north and south. The Study Area also intersects with the South Australian Lower South East Marine Park to the north of the offshore wind turbines, however no infrastructure will be located within the park.

Refer to **Section 8** for further information on existing values within the offshore Study Area that have potential to be affected.

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

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

Onshore

As identified in **Section 12**, a range of threatened shorebirds, wetland birds, seabirds, and migratory bird species have potential to occur within the Study Area. The Glenelg Estuary and Discovery Bay Ramsar site provides habitat for nationally and internationally threatened flora and fauna. Refer to **Section 12** for further information on the threatened or migratory species likely to be supported by these water environments.

Bridgewater Lakes form part of the Glenelg Estuary and Discovery Bay Ramsar site and is considered a site of state significance as they comprise one of the longest freshwater coastal lake systems in Victoria. The lakes are not stream fed - annual variation in the level of the lake indicates the influence of groundwater drainage. Targeted surveys will be required to determine whether or not suitable habitat is present within the Study Area and if threatened species are supported.

Offshore

The marine environment within the offshore Study Area is likely to provide habitat for a number of threatened marine fauna and migratory marine species, and is a nominated BIA for several species as identified in **Section 12**.

In the east of the Study Area at Cape Bridgewater, there is a known colony of Australian sea lions and long-nose fur seal. It is likely that individual animals forage within the Study Area and may be sensitive to physical disturbance and underwater noise or vibration. The Australian fur seal is also known to occur in the Study Area, although breeding is restricted to a small number of rocky islands or headlands mostly in Bass Strait.

The Southern Right Whale migrates between summer feeding areas in the Southern Ocean to inshore coastal waters off Australia. The western coastal areas of Victoria are classified as a large established aggregation area where calving occurs for this species (DSEWPC 2012). The Portland area is a BIA for these whales and has been highlighted as a key area for breeding females. Nine Southern Right Whale sightings were reported in 2020 within the vicinity of the Study Area (SWIFFT 2020).

Blue Whales are regularly present in the Bonney Coast Upwelling between November/December and April/May, and their presence has been linked to surface swarms of coastal krill that form in response to the upwelling of nutrient rich, cool water (CSIRO, 2004). The area is recognised as one of only 12 locations in the world where this species is regularly observed in high numbers. To the west of Portland, where the upwelling surfaces, whales often aggregate in a relatively narrow band around a mean depth of 86 m, along or near surface temperature fronts. Noise interference is cited in the Blue Whale Conservation Plan (Australian Government, 2015) as being a potential threat to the species, causing avoidance behaviour. Potential forms of noise interference include seismic and drilling operations, mining, some types of dredging, infrastructure construction and operation, vessel noise and low flying planes, chronic vessel noise.

Other threatened whale species may occur occasionally in the Study Area (i.e. fin and sei whales) however, these are infrequently recorded and tend to occur further offshore (i.e. 20-60km) (Species Profile and Threats Database (SPRAT), 2021) with no known mating or calving activity in Australian waters.

Sightings of threatened turtle species along the shoreline are uncommon, although they would be using the nutrient rich waters surrounding the Study Area for feeding purposes on occasion. The Study Area is not likely to be considered key habitat for turtles.

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

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

As discussed previously, two Ramsar wetlands are located within proximity to, and adjacent to, the Study Area that have potential to be affected by the Project. The Glenelg Estuary and Discovery Bay Ramsar site is intersected by the onshore Study Area) and the Piccaninnie Ponds Karst Ramsar site is located approximately 3.5 km from the offshore Study Area (within 10km of the offshore wind turbines). Refer to **Section 8** for further information on the two Ramsar sites.

No Project infrastructure will be located within either of the Ramsar sites, however, there is potential for the Project to indirectly impact on the ecological values of these Ramsar sites. Particularly with regard to collision risk for listed threatened and migratory species that utilise these Ramsar sites and may traverse both the onshore transmission route and the offshore wind turbines. Indirect impacts such as sedimentation from ground disturbance works also have potential to alter the ecological conditions in downstream Ramsar sites and are more likely to affect option 2 which lies in proximity to the Glenelg Estuary and Discovery Bay Ramsar site.

Could the project affect streamflows?

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

The Project is not expected to affect stream flows as the Project infrastructure such as transmission towers can be sited to avoid waterways.

Could regional groundwater resources be affected by the project?

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

The onshore Study Area intersects with low, moderate, and high potential Groundwater Dependent Ecosystems (GDEs) from the coast to approximately 30 km along transmission route option 2, and low to moderate GDEs further west.

A groundwater impact assessment will be required to determine the depth to groundwater within the Study Area and the potential for transmission route construction works to intersect with groundwater.

The Project is not anticipated to impact on regional groundwater resources as only shallow excavations (typically less than 2 m) will be required for construction of the onshore transmission infrastructure. Any potential impacts would be highly localised and temporary.

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

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

Based on Visualising Victoria's Groundwater mapping, the Study Area is classified as predominantly Segment A2 and B, based on groundwater salinity (total dissolved solids (TDS)) according to the EPA Environment Reference Standard (ERS). Environmental values (previously known as beneficial uses) associated with these segments are outlined in **Table 13.**

Table 13 Groundwater environmental values

Environmental value	Segment (TDS mg/l)	
	A2 (601-1,200)	B (1,201-3,100)
Water dependent ecosystems and species	ü	ü
Potable water supply (desirable)		
Potable water supply (acceptable)	ü	
Potable mineral water supply	ü	ü

Agriculture and irrigation (irrigation)	ü	ü
Agriculture and irrigation (stock watering)	ü	ü
Industrial and commercial use	ü	ü
Water-based recreation (primary contact recreation)	ü	ü
Traditional Owner cultural values	ü	ü
Buildings and structures	ü	ü
Geothermal properties	ü	ü

According to the ERS, surface waters within and surrounding the onshore Study Area are classified as part of the Murray and Western Plains segment for inland waters. Environmental values associated with this segment include:

- Water dependent ecosystems and species that are slightly to moderately modified
- Agriculture and irrigation
- Human consumption of aquatic foods
- Industrial and commercial
- Water-based recreation (primary contact, secondary contact, and aesthetic enjoyment)
- Traditional Owner cultural values

Surface waters within the offshore Study Area (both Victorian coastal waters and Commonwealth waters) are classified as the Open Coast Otway segment for marine and estuarine waters. Environmental values associated with this segment include:

- Water dependent ecosystems and species that are largely unmodified
- Human consumption of aquatic foods
- Industrial and commercial
- Water based recreation (primary contact, secondary contact and aesthetic enjoyment)
- Traditional Owner cultural values
- Navigation and shipping

Groundwater environmental values are not likely to be affected by the Project due to the shallow excavations (typically less than 2 m) that will be required for construction of the onshore transmission infrastructure.

It is unlikely the Project would impact on environmental values of inland surface water however, further assessment will be required to determine the potential for the Project to impact on marine and estuarine surface water environmental values.

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

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

Construction of the onshore transmission infrastructure may result in temporary impacts on aquatic, estuarine, or marine ecosystems, such as sedimentation and increased turbidity, however potential impacts will be avoided and minimised with the implementation of industry standard mitigation measures. Waterway crossings will be avoided where possible and impacts will be minimised.

The Project has potential to impact on coastal and estuarine ecosystems through the shoreline crossing of the subsea cabling. Trenching of this shoreline crossing and associated earthworks may also result in sedimentation and increased turbidity.

Impacts to marine ecosystems would primarily be associated with construction of the offshore component of the Project, such as disturbance of benthic habitat, decline in water quality and

increased sedimentation from piling, potential noise and vibration impacts on marine fauna, as well as planned and unplanned discharges from vessels causing decline in water and sediment quality. During operation, the physical presence of subsea infrastructure may change sedimentation processes from scour.

Further assessment will be undertaken to determine potential impacts of the Project on aquatic, estuarine and marine ecosystems.

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

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

Extensive and major effects on aquatic, estuarine or marine ecosystems are not expected over the long-term, with most significant impacts expected during the construction phase and being localised and short term.

Potential impacts would be primarily related to construction of onshore transmission infrastructure, shoreline crossing activities, establishing turbine foundations and the laying of subsea cables. Ongoing operation of the Project will not result in long term impacts to these ecosystems.

Is mitigation of potential effects on water environments proposed?

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

Mitigation measures outlined in **Section 12** are also relevant to mitigating the potential effects on terrestrial aquatic and water environments, in particular:

- Avoid locating onshore transmission infrastructure within proximity to any waterways or wetlands.
- Avoiding / minimising unnecessary duplication of infrastructure e.g. utilise existing easements to connect to existing transmission network, co-locate Project components with other infrastructure.
- Strategic use of horizontal directional drilling / boring rather than open trenching methods for underground cables, particularly in sensitive areas such as beach landings and when crossing waterways.
- Development of a Project specific CEMP which includes measures to avoid and minimise potential surface water impacts, such as sedimentation and surface water runoff.

Mitigation measures outlined in **Section 12** are also relevant to mitigating the potential effects on marine water environments, in particular:

- Undertake habitat mapping and avoid locating Project infrastructure within areas on sensitive benthic habitats
- Implement soft start procedures
- Utilise seasonal construction windows (this will vary dependent on species)
- Use safety zones/lookout
- Use go-slow procedures for vessels
- Undertake hull inspections of vessels used for construction and operation
- Source local vessels where practicable
- Implement standard ballast water management procedures
- Adhere to industry standard chemical storage, handling, and maintenance procedures
- Adhere to relevant water quality guidelines
- Compliance with maritime legislation for discharges to the marine environment
- Adhere to legislative requirements for biofouling
- Use vessel exclusion zones around operations

- Develop a spill response plan
- Standard hazardous material storage and management in accordance with best practice and associated maritime legislation
- Recovery of dropped object/waste where possible

Other information/comments? (eg. accuracy of information)

The information presented in this section is based on desktop assessment only. Field surveys will be undertaken to verify the species present, and a detailed assessment of potential Project impacts will be undertaken following confirmation of the Project design.

14. Landscape and soils

Landscape

Has a preliminary landscape assessment been prepared?

☒ No ☐ Yes If yes, please attach.

No preliminary landscape assessment has been undertaken. However, a preliminary desktop visual assessment has been undertaken which included GIS mapping of sensitive receptors that are likely to be subject to views of the Project (see **Attachment 2 - Summary of Impacts Report**).

An overview of these key viewpoints and simulated views from these locations is provided in **Table 14** and are shown on **Figure 22** in **Attachment 1**.

Table 14 Key viewpoints

Key viewpoint	Description
Glenelg Estuary and Discovery Bay Ramsar Wetlands site	The Glenelg Estuary and Discovery Bay Ramsar site is a popular area for recreational and tourism activities, including sightseeing, walking, camping, and recreational fishing.
Discovery Bay Coastal Park	The Discovery Bay Coastal Park stretches from the Victorian – South Australian border in the west, along the coastline past Cape Nelson. It covers the Glenelg Estuary and Discovery Bay Ramsar site up until Cape Bridgewater. The Discovery Bay is known to offer a range of coastal environments with scenic views. The Great South West Walk traverses much of the Discovery Bay Coastal Park, and follows the coastline around Cape Bridgewater, Cape Nelson, and Portland. The walk is a popular hiking trail for visitors to the area. A number of campgrounds are also located within Discovery Bay Coastal Park including Lake Mombeong, Swan Lake, and Springs Camp. The closest campground is approximately 15 km from the nearest turbine.
Nelson Township	The Nelson township is located at the mouth of the Glenelg River and Discovery Bay, a few kilometres east of the Victorian – South Australian border. Nelson is a popular spot for visitors offering a range of recreational activities including hiking, fishing, and boating (Nelson Tourist Association, 2020).
Piccaninnie Ponds Karst Wetlands Ramsar site	Each year around 20,000 people visit Piccaninnie Ponds Karst Wetlands. One of the main attractions is cave diving, with other activities including bushwalking, bird watching, education, nature observation, and recreational fishing on the nearby beaches. Visitors can walk along the beach areas or follow a trail through coastal wattle and bearded heath to the pond's outlet. There are inland boardwalks to a lookout which provides views over the wetlands (Department of Environment and Water (SA), 2022).
Port MacDonnell	Port MacDonnell is a port and popular holiday destination valued for its surrounding coastline and rich maritime history. Port MacDonnell offers a number of recreational activities including cave diving, snorkelling, fishing, hiking and four-wheel driving (Mount Gambier Point, 2021).
Brown Bay/Browns Beach	Brown Bay/Brown Beach is a popular location for fishing and surfing, as well as a range of other water sports. The bay spans approximately 6km and offers white-sand beaches making it a popular and ideal location for visitors (Mount Gambier Point, 2021).
South Australia's Southern Most Point	South Australia's Southern Most Point, also known as Cape Northumberland, provides wide swept panoramic views of the coastline. It is a popular destination for visitors and tourists to capture sunrises and sunsets as well as four-wheel driving along the beaches. At dusk and dawn each day, fairy penguin sightings may be seen from the Penguin Viewing Platform (South Australian Tourism Commission, 2022).

A detailed landscape and visual assessment will be undertaken to further inform design and as part of the environmental assessment.

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

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

The onshore Study Area is affected by the Significant Landscape Overlay (SLO) under the Glenelg Planning Scheme (see **Figure 17**) as follows:

- Schedule 2 - Bridgewater Lakes and Surrounds recognises that the Bridgewater Lakes is of State significance for its outstanding visual and scenic qualities. The schedule notes the undulating topography of Bridgewater Lakes and surrounds lends itself to fine views across cleared pastures.
- Schedule 3 - Cape Bridgewater and Cape Nelson recognises the spectacular cliffs, pristine bays and dramatic coastal scenery of Cape Bridgewater and Cape Nelson are unique in Victoria and combine to make a landscape of state significance. The schedule notes the coastal landscape has recently experienced significant visual change due to wind turbines in this locality, being the Portland Wind Energy Project.

Schedule 1 to the Significant Landscape Overlay (Glenelg River Estuary and Surrounds) applies to coastal land extending from the South Australia-Victoria border east along Discovery Bay. It has several objectives, including 'to protect locally significant views and vistas, to the ocean, the Glenelg River Estuary and other natural landforms from Nelson-Portland Road, the Great South West Walk and other publicly accessible locations'.

The Project will be required to consider this overlay and the associated landscape character objectives to be achieved when seeking planning approval for the transmission route and transition joint bay.

Figure 17 in **Attachment 1** shows the Overlays that apply to the onshore Study Area and surrounds.

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

The Discovery Bay Coast, Cape Bridgewater and Cape Nelson are classified as landscapes of State significance in the Coastal Spaces Landscape Assessment Study (Department of Sustainability and Environment, 2006).

The Discovery Bay Coast is visually significant for the dramatic sweep of its long, dune backed bay with its rugged open beaches and sense of remoteness. It is characterised by a vast mobile dune system, extending approximately 3 km inland. It is valued by the community for its wild, untamed character (Department of Sustainability and Environment, 2006). Cape Bridgewater and Cape Nelson are visually significant for spectacular high cliffs, pristine bays and dramatic coastal scenery. They are characterised by towering coastal forms, separated by low lying Bridgewater Bay. These landscapes are values by the community for geological features such as blowholes, shore platforms, petrified forests, and sea caves, and for the Blue, Hump, and Southern Right whales that frequent the area (Department of Sustainability and Environment, 2006).

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

The following areas of land reserved under the *National Parks Act 1975* are located within the onshore Study Area:

- Discovery Bay Coastal Park
- Mount Richmond National Park
- Cobboboonee National Park

- **Within or adjoining other public land used for conservation or recreational purposes?**
  ☐ NYD ☐ No ☒ Yes If yes, please specify.

The following areas of public land used for conservation or recreational purposes are located within the Study Area:

- Cobboboonee Forest Park

- Mount Clay State Forest
- Nelson Bay Coastal Reserve
- Narrawong Coastal Reserve
- Point Danger Reserve
- Narrawong Flora Reserve
- Nine Mile Flora and Fauna Reserve
- Tarragal Education Area
- Dry Hole Recreation and Water Reserve
- Heathmere Recreation & Flora/Fauna Reserve
- Surrey River Water Frontage
- Heywood Bushland Reserve
- Gorae Bushland Reserve

Development and refinement of the onshore transmission route will seek to avoid these areas of public land used for conservation and recreation purposes as much as practicable.

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

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

The extent of vegetation clearing required for the Project has not yet been determined however, some vegetation clearing is likely for construction of the onshore transmission infrastructure. The Project will seek to avoid impacting on native vegetation as far as practicable, through detailed design and siting of Project infrastructure.

This has the potential to affect landscape values in surrounding areas. The Project is not expected to involve the alteration of landforms with significant impacts to landscape values. A detailed landscape and visual assessment will be undertaken to determine the potential of the Project to affect landscape values.

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

☐ NYD ☐ No ☒ Yes Please briefly explain response.

The offshore wind turbines will be located in Commonwealth Waters, however there is potential for landscape and visual impacts to occur within Victoria and South Australia. Preliminary desktop assessment prepared for the Project indicates that the wind farm will be visible from a number of areas along the coastline.

A detailed landscape and visual impact assessment will be undertaken following design development to determine the potential for significant changes to landscape values.

There is potential for some effects on landscape values of regional or State importance associated with State parks, forests and reserves within the onshore Study Area from the onshore transmission infrastructure. However, it is not considered likely these effects will be significant. The potential for impacts will be assessed through a detailed landscape and visual impact assessment.

Is mitigation of potential landscape effects proposed?

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

The Project is still in the preliminary stages of development and has not been subject to a detailed landscape and visual assessment.

Mitigation of potential landscape effects will be carried out in response to the detailed landscape and visual impact assessment and may include for the onshore components consideration of transmission line siting and transmission line tower design, including height. The offshore component of the Project will be designed to mitigate visual amenity impacts as much as possible, including height, placement, and array size of offshore wind turbines.

Other information/comments? (eg. accuracy of information)

A landscape and visual impact assessment will be undertaken once the preferred project layout is finalised to assess potential impacts of the Project on visual amenity and landscape values.

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

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

Soils

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

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

A preliminary desktop assessment identified that coastal acid sulfate soils may be encountered by project works both onshore and offshore depending on geological and historical conditions of the site (see **Attachment 2 – Summary of Impacts Report**).

Coastal acid sulfate soils (CASS) occur naturally along many parts of Victoria's coastal zone, including Gippsland, and are largely benign if left undisturbed. However, if disturbed they can react with oxygen and produce sulfuric acid. This can be detrimental to the environment through impacts such as acidification of water and soil, de-oxygenation of water, and poor water quality. The generation of acid through inappropriate management of acid sulfate soils can also result in damage to concrete and steel. Coastal acid sulfate soils may be encountered both onshore and offshore depending on geological and historical conditions of the site.

A review of the Victorian Coastal Acid Sulfate Soil (VCASS) maps for Portland Coast indicates the coastline within the onshore Study Area has potential to contain coastal acid sulfate soils, as this area is mapped as 'prospective'. **Figure 11** of **Attachment 1** shows the location of prospective coastal acid sulfate soils within the Study Area. Additionally, a review of the National ASS Atlas (CSIRO, 2013) indicates that there is a low to extremely low probability of other Potential Acid Sulfate Soils (PASS) within Study Area (see **Figure 12** of **Attachment 1**).

Detailed investigations into acid sulfate soils and highly erodible soils are required to be undertaken.

There is no mapping available to identify the presence of acidic or contaminated soils within the Victorian marine environment. Further environmental and geotechnical investigations will be required to determine the presence of offshore contamination and/or acid sulfate soils, and if so, the potential for impacts to occur.

Construction activities such as excavation and trenching have potential to disturb acid sulfate soils, which can result in impacts on the surrounding environment such as leaching of acidic water into soil and groundwater.

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

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

There are no known geotechnical hazards that may affect the Project or be affected by it.

Further geotechnical investigations in the onshore and marine environment are in the process of being commissioned.

Other information/comments? (eg. accuracy of information)

15. Social environments

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

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

A traffic impact assessment has not yet been undertaken for the Project however, it is not considered likely the Project would generate significant volumes of road traffic.

The Project is unlikely to generate significant volumes of road traffic during construction of the offshore component of the Project as the bulk of the equipment and materials required for the offshore components will be transport by ship and unloaded and loaded from a nearby Port. However, some traffic would be generated during construction of the onshore components and shoreline crossings, which have potential to impact on the local road network (including both State and local road) surrounding the Project. As transmission route option 2 is longer, its construction would generate a greater amount of road traffic compared to transmission route option 1.

Construction of the Project will generate some traffic, including heavy vehicles and over dimensional vehicles during material delivery, which has potential to impact on the local traffic and transport network. It is anticipated that main arterial roads, as well as some smaller roads, will primarily be used during construction. Large equipment that will be required for construction of the offshore component will be transported via ships or vessels, removing the need to use the local road network.

Operation of the Project will not generate significant volumes of road traffic, with traffic likely to be limited to light vehicles conducting maintenance activities.

An assessment of the existing road network's capacity to support increased traffic associated with the Project will be undertaken. The need for any road upgrades will be identified and a Traffic Management Plan will be developed and implemented to ensure the Project's impacts on the road network are appropriately managed throughout both construction and operation. Mitigation measures will be developed and implemented in order to avoid and minimise impacts imposed on transport networks which will form environmental performance requirements (EPRs) of the planning approval.

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

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

The Project is unlikely to have a significant effect on the amenity of residents, due to emissions of dust or odours or changes in visual, noise or traffic conditions. Amenity impacts may relate to noise and dust, primarily associated with the construction period.

Construction of Project components including the onshore transmission infrastructure, the subsea cable shoreline crossing, and any required road upgrades/modifications, have the potential to generate dust emissions. Potential dust impacts will be managed through implementation of a CEMP and relevant dust suppression mitigation measures and are not likely to result in significant impacts on the amenity of residents. Vessels and barges used for construction of the offshore Project components will generate some exhaust emissions, however due to the distance offshore from any residents or sensitive receptors it is unlikely to result in amenity impacts.

Noise generating construction works have potential to impact on the amenity of surrounding residents and users of the area, however it is not anticipated that noise will cause significant amenity effects. Background (ambient) noise levels are expected to be low in the Study Area due to a high portion of the land use being agricultural and nature reserves rather than urban settings. As such, receptor sensitivity to noise generated by the Project for locations along transmission route option 2 will be higher than those receptors near the Portland Aluminium Smelter (industrial noise contributions will raise the background) along transmission route option 1. Due to the length of transmission route option 2, a significantly higher number of sensitive receptors have potential to be impacted by noise, particularly through the Gorae West area. An assessment on the potential for construction noise to impact on the amenity of nearby residents will be undertaken as part of the next phase of the environmental investigations.

Temporary restrictions on road and/or property access may occur during construction of the onshore transmission infrastructure, however, this will not cause significant effects on residents and will only be for short periods of time. Potential changes to access and traffic conditions during construction will be undertaken in the next phase of assessment. Any changes will be managed through a Traffic Management Plan, including providing alternative access options and ensuring advanced communication with residents is undertaken.

It is likely construction will result in temporary visual changes to local residents, however, is not likely to result in significant effects on amenity.

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

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

There is limited potential for exposure of a human community to health or safety hazards, due to emissions to air or water or noise or chemical hazards or associated transport.

As discussed above, there is potential for air and noise emissions to occur during construction of the Project however, these will be managed through a CEMP. This, accompanied with the implementation of industry standard mitigation measures, it is not expected that impacts on the health of the community will occur.

Any hazardous materials or chemicals used during construction and/or operation will be managed through a CEMP and is not considered to pose a threat to the health and safety of the community.

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

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

The onshore transmission infrastructure will not displace any residences or sever any residential access to community resources, however temporary access disruptions may occur during construction works.

Any disruptions will be managed through a Traffic Management Plan and are not likely to be significant.

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

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

No non-residential land use activities are likely to be displaced as a result of the Project.

Land uses within the onshore Study Area are predominantly agricultural with some areas of conservation and nature reserves. While some land will need to be occupied, this is limited. Most agricultural practices will be able to continue within the easement.

Displacement of these activities is not anticipated to occur as a result of the Project. However, there is potential for a small loss of land to the transmission line easement to occur (for transmission route option 2) and will be assessed within a land use impact assessment and agricultural land assessment to determine the potential for any significant impacts on continued land use operations and any loss of productivity.

Safety exclusion zones will be established around infrastructure within the marine environment (wind turbines, substations) during construction and operation. Exclusion zones would be much smaller during operation and are not likely to have a significant effect on marine users. The coexistence of activities in the marine environment is a core principle of the operation of offshore wind farms.

During construction, there may be some restrictions on boating and recreational activities during construction of the shoreline crossing and installation of the subsea cables. An assessment of potential impacts on marine users and potential exclusion zones during construction and operation will be undertaken in the next phase of assessment.

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

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

There is unlikely to be changes in non-residential land use activities that have a potential to cause adverse effects on local residents/communities, social groups or industries.

A socio-economic impact assessment will be undertaken to determine the potential for adverse effects on non- residential land use activities within the Study Area. Potential impacts on the local community from construction worker accommodation and service needs will form part of this assessment and consider cumulative effects from other proposed projects in the locality.

Is mitigation of potential social effects proposed?

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

Mitigation of potential social effects will be identified and assessed through impact assessments to be undertaken in the next phase of the Project. Potential amenity-related impacts will be mitigated through implementation of a CEMP, a Traffic Management Plan and Worker Accommodation Plan alongside active, regular engagement with the local community.

Further assessment of potential social impacts will be undertaken through a socio-economic impact assessment, with the development of tailored mitigation measures specific to the Project and local region to manage potential social effects.

Other information/comments? (eg. accuracy of information)

Refer to **Attachment 6** – Social Risks and Opportunities Assessment for further information.

Cultural heritage

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

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

The Study Area contains various cultural heritage sensitivity including coastal Crown land and Sea Country.

The Proponents have commenced consultation with the GMTOAC as part of the preliminary cultural heritage constraints assessment, and no oral history or ethnographic information has been reviewed. A comprehensive consultation process with GMTOAC will be undertaken and coordinated with the production of the CHMP in accordance with *Aboriginal Heritage Act 2006* and the requirements of the Commonwealth *Underwater Cultural Heritage Act 2018*.

The Project is not located within South Australian jurisdiction (either onshore or offshore) however, the offshore Study Area intersects with South Australian State Waters. The Traditional Owners of South Australian land and State Waters within, and adjacent to the Study Area will be consulted. These Traditional Owners are the South East Aboriginal Focus Group, who are represented in business matters by the Burrandies Aboriginal Corporation through the Lartara-Wirkeri Cultural Governance Agreement.

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

A Preliminary Desktop Cultural Heritage Constraints Assessment (**Attachment 7**) has been undertaken by Umwelt (2022) to identify potential Aboriginal and non-Aboriginal cultural heritage constrains present within the Study Area and to provide a preliminary assessment of potential impacts. No field surveys were undertaken for this assessment.

The Preliminary Desktop Cultural Heritage Constraints Assessment involved the following key steps:

- Review of Commonwealth and Victorian state legislative and statutory requirements and non-statutory considerations regarding Aboriginal and non-Aboriginal cultural heritage, as relevant to the Project
- Review of relevant statutory (Commonwealth, State and Local government) and non-statutory cultural heritage database and mapping systems to identify the existing registered cultural heritage values within the Study Area. This includes online searches of:
    - The Victorian Aboriginal Heritage Register (VAHR) for registered Aboriginal sites and areas of cultural heritage sensitivity within the Study Area
    - Register of Native Title Claims for any current Native Title applications/determinations or relevant Indigenous Land Use Agreements (ILUAs) that may cover the Study Area
    - The Australasian Underwater Cultural Heritage Database, Australian Heritage Database, Victorian Heritage Register and Inventory, Victorian War Heritage Inventory and relevant Heritage Overlays for registered non-Aboriginal ('historical') cultural heritage sites within the Study Area. The National Trust Heritage Register (Victoria) was also reviewed although this is non statutory register.
- Preparation of a brief general site context for the Study Area covering environmental and archaeological backgrounds, including extent and nature of previous disturbance undertaken via a review of available historical aerial imagery
- Preparation of a predictive statement identifying the potential for non-registered cultural heritage values to exist within the Study Area, based on the provided site context
- Identification of potential impacts on existing heritage values within the Study Area, including registered values as well as non-registered (predicted/potential) heritage values identified within the predictive statement.

Refer to **Attachment 5** for further information on the Preliminary Desktop Cultural Heritage Constraints Assessment.

Is any Aboriginal cultural heritage known from the project area?

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

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

A total of 365 registered Aboriginal Places (Aboriginal cultural heritage sites registered on the Victorian Aboriginal Heritage Register (VAHR)) are located within the Study Area. The types of sites within the Study Area include artefact scatters, earth features, shell middens, low density artefact distributions (LDADs), object collections, and an Aboriginal historical place. A summary of these sites is presented in **Table 15,** and shown in **Figure 18** of **Attachment 1**.

Table 15 Summary of Registered Aboriginal Places within the Study Area

Site Type	Number of Sites
Aboriginal Historical Place	1
Artefact Scatter	244
Earth Feature (Hearth)	2
Earth Feature (Soil Deposit)	27
Low Density Artefact Distribution	49
Object Collection	2
Shell Midden	40
Total Sites	**365**

The desktop assessment also identified multiple areas of cultural heritage sensitivity (CHS) within the Study Area, shown in **Figure 18** of **Attachment 1**. As per criteria set out in Division 3 of Part 2 of the Aboriginal Heritage Regulations 2018, areas of CHS within the Study Area include:

- The Aboriginal Places listed in Appendix B of **Attachment 5** (registered cultural heritage places) plus land within 50 m of them (Reg 25).
- Several named waterways including Bridgewater Lakes, Knights Swamp, Wattle Hill Creek, Wild Dog Creek, Surry River, and Fawthrop Lagoon plus land within 200 m of them (Reg 26).
- The Glenelg Estuary and Discovery Bay Ramsar site (declared Ramsar wetlands) plus land within 200 m of it (Reg 29).
- Land within 200 m of the high-water mark of the coastal waters (coastal land) (Reg 31).
- The Discovery Bay Coastal Park, Tarragal Education Area and Mount Richmond National Park (parks) (Reg 32).
- The Koo Wee Rup Plain, as identified in the Surface Geology of Victoria 1:250 000 map book by unit code “Qm1” (Reg 34).
- Volcanic cones of western Victoria, as identified in the Surface Geology of Victoria 1:250 000 map book by unit code “Ne” and “Nes” (Reg 37).
- Coastal dune deposits, as identified in the Surface Geology of Victoria 1:250 000 map book by unit code “Qdl1” (dunes) (Reg 40).
- The Bridgewater Formation sand sheet, as identified in the Surface Geology of Victoria 1:250 000 map book by unit code “Qxr” (sand sheets) (Reg 41).

There are intangible cultural values associated with the Study Area including its cultural and spiritual significance to the Gunditjmara people.

Recorded intangible cultural values include the traditionally held belief of the spirits of Gunditjmara ancestors crossing the sea to Deen Maar (Lady Julia Percy Island), 8km off the coast to the east of Portland. The traditional burial practices of the Gunditjmara people are directly associated with this belief.

In addition, there is potential for further intangible heritage and significant cultural values to be associated with the Project Area. Consultation with the Gunditjmara people is required to ascertain these values.

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

☐ NYD ☒ No ☐ Yes If yes, please list.

A search of the Australian Heritage Database (AHD) confirmed there are no non-Aboriginal cultural heritage values listed on the World Heritage List, National Heritage List, or Commonwealth Heritage List located within the Study Area.

A search of the Victorian Heritage Database (VHD) confirmed multiple non-Aboriginal cultural heritage values within the Study Area listed including 7 sites on the Victorian Heritage Register (VHR), 20 sites on the Victorian Heritage Inventory (VHI), and 13 sites on the Glenelg Planning Scheme Heritage Overlay (HO). There are also 6 sites listed on the National Trust Heritage Register (Victoria) – this is a non-statutory register and does not provide any protection. These are listed in **Table 17.**

Table 16 Non-Aboriginal cultural heritage sites within the onshore Study Area

Site Name	Location	VHD Place ID	Listing Number
Victorian Heritage Register Listings – statutory			
Burswood	15 Cape Nelson Road, Portland	938	H0240
Stanton Drew	89 Wellington Road, Portland	954	H0243
Prospect	2 Prospect Court and 3 Prospect Court, Portland	948	H0241
Blair Mona	37 Malings Road, Portland West	6167	H1897
Briery	83 Bridgewater Road, Portland	5258	H2126
Gun (32 Pounder)	Victoria Parade, Portland	165588	H2290
Gun (68 Pounder)	Victoria Parade, Portland	165587	H2289

Victorian Heritage Inventory Listings			
Usaf - B57 Aircraft	Offshore Portland	12242	H7221-0301
Battery Point	Victoria Parade, Portland	6655	H7221-0183
Windsor Cottage, Portland	170 Must Street and Cnr Fawthrop Street, Portland	6648	H7221-0090
World War II Complex, Cape Nelson Road, Portland West	Cape Nelson Road, Portland	12692	H7221-0298
Sexton's Cottage Site, South Portland Cemetery	229 Cape Nelson, Road Portland	6635	H7221-0044
Dawkin House, Malings Road, Portland	Mcneillys Road, Portland West	6663	H7221-0210
Oak Park, Dalwood Lane, Portland	Trangmar Road Portland	6662	H7221-0209
Shaston	50 Wattle Hill Road, Portland West	6661	H7221-0208
The White House	Malings Road, Portland	6664	H7221-0211
Malings Cart Track	171 Malings Road and 104 Kobo Creek Road, Portland West	12693	H7221-0299
Wattle Hill Methodist Chapel, Bridgewater Road, Portland	Portland	6632	H7221-0039
Wattle Hill House, Wilsons Road, Portland West	195 Wilsons Road Portland	6660	H7221-0204
Woolwash 1	Heath Road Portland West	6659	H7221-0203
Oakley's Kiln, Davies Lane, Portland West	15 Davies Lane, Portland West	6692	H7221-0275
Mt Pleasant Homestead, Kittson Road, Cape Bridgewater	Bridgewater Lakes Road, Cape Bridgewater	6187	H7121-0034
Old Nelson Road	Bridgewater Lakes Road, Cape Bridgewater	6609	H7121-0038
Kittson Cemetery, Kitson Road, Cape Bridgewater	Bridgewater Lakes Road, Cape Bridgewater	6607	H7121-0035
Kittson House, Cape Bridgewater	Bridgewater Lakes Road Cape Bridgewater	6188	H7121-0036
Bryant Hut	Off Bridgewater Lakes Road, Cape Bridgewater	6608	H7121-0037
Log Bridge Site, Discovery Bay Coastal Park, Cape Bridgewater	535 Bridgewater Lakes Road, Cape Bridgewater	6610	H7121-0040
Glenelg Planning Scheme Heritage Overlay – Schedule Listings – statutory			
Kingsley	6 Kingsley Court, Portland		HO88
Residence	61 Bancroft Street, Portland		HO90
Residence	1/8 Barkly Street, Portland		HO91
Residence	6 Jones Street, Portland		HO92
Residence	74A Findlay Street, Portland		HO93
Residence	2 Pattersons Lane, Portland		HO113
Windsor Cottage ruins	170 Must Street, Portland		HO119
Bridgewater Lakes	Bridgewater Lakes Road Cape Bridgewater, Glenelg Shire		HO141, HO147

Portland heritage precinct	Henty Highway, Portland		HO165
Caxton	481 Portland-Nelson Road Cashmore, Glenelg Shire		HO311
South Portland Cemetery	229 Cape Nelson Road, Portland		HO288
Johnstone River and Swam Lake	Bridgewater Lakes Road, Glenelg Shire		HO156
Wattle Hill House	195 Wilsons Road, Portland West		HO319
National Trust Heritage Register (Victoria) Listings – non-statutory			
Kingsley	Property No. B2157, Bancroft Street, Portland	64673	
The Corney House	Property No. B3970, 61 Bancroft Street, Portland	64886	
Burswood House & Garden	Property No. B0052, 15 Cape Nelson Road, Portland	68064	
House	Property No. B5799, 58 Barkly Street, Portland	67890	
Cottage	Property No. B0869, Botanic Gardens, Portland	68058	
Bridgewater Lakes	Property No. L10142, Bridgewater Lakes Road, Cape Bridgewater	70393	

A search of the Australasian Underwater Cultural Heritage Database (AUCHD) confirmed that there are six non-Aboriginal cultural heritage sites listed on the AUCHD within the Study Area. These comprise five shipwrecks located offshore, and one shipwreck located onshore, as listed in **Table 8**.

Table 18 Sites on the AUCHD within the Study Area

Name of Ship	Shipwreck ID Number	Year Wrecked
The Triumph	6654	1863
Jane	6303	1863
Captain Cook	6042	1850
Isabella	6286	1837
Merope	6429	1839
Unknown French Whaler (Onshore)	6758	1841

The location of these shipwrecks is shown on **Figure 21** of **Attachment 1**.

Is mitigation of potential cultural heritage effects proposed?

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

Mitigation measures will be developed to address potential impacts on Aboriginal and non-Aboriginal cultural heritage values during the impact assessment phase. Preliminary mitigation for potential impacts on cultural heritage include:

- Design the onshore transmission infrastructure to avoid areas of cultural heritage sensitivity, in particular proximity to waterways, as waterways plus land within 200 m of them are considered areas of cultural heritage sensitivity.
- Consult with heritage specialists in relation to construction methods within areas of cultural heritage sensitivity to limit impacts.

A CHMP will be prepared for the Project which will contain site-specific procedures to be implemented to manage impacts on known Aboriginal cultural heritage material, as well as measures to implement should unexpected Aboriginal cultural heritage material be encountered during Project works.

A cultural values assessment will also be undertaken for the Project, to be agreed with the RAP group, to assess the potential impacts of the Project on the cultural values of the area.
Other information/comments? (eg. accuracy of information) The information presented in this section is based on desktop assessment only – Refer to **Attachment 7**. An assessment of potential Project impacts on cultural heritage will be undertaken following confirmation of the Project design.

16. Energy, wastes & greenhouse gas emissions

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

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

Please add any relevant additional information.

The Project will generate up to 1.155 GW of renewable electricity to supply into the NEM.

The onshore transition joint bay may consume a minimal amount of electricity for operations such as lighting and security, which will be drawn from the NEM. During construction, some energy may need to be generated onsite (e.g., along the transmission line corridor) to power machinery/equipment. If required, this is likely to be in the form of temporary diesel generators.

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

- [x] Wastewater. Describe briefly.
- [x] Solid chemical wastes. Describe briefly.
- [x] Excavated material. Describe briefly.
- [x] Other. Describe briefly.

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

Majority of waste associated with the Project will be generated during construction and is likely to include drilling spoil from offshore and general construction waste (mixed materials such as woods, plastics, building chemicals, wastewater). Material excavated during construction will be either reused on site where practicable or taken to an off-site licenced waste facility.

The Project is not anticipated to generate any significant volumes of waste during operation, however, some hazardous and chemical wastes may be generated during construction and maintenance activities associated with the Project (e.g., oily filters/rags, waste oil etc.).

Marine vessels required for construction will likely generate a stream of wastewater including effluent and bilge pump sources. A waste management plan will be developed and implemented for the Project. Potential quantities and management techniques for waste will be determined during Project design.

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

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

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

Greenhouse gas emissions are expected to be generated by the Project during manufacturing, construction, transport and shipping, and decommissioning. However, the operation of the project will not generate greenhouse gas emissions and is anticipated to displace approximately 4 million tonnes of carbon.

17. Other environmental issues

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

- [x] No
- [ ] Yes If yes, briefly describe.

18. Environmental management

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

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

Add any relevant additional information.

At this stage in the Project the location and design have been largely influenced by wind resource and proximity to electricity network connections, whilst key environmental assets such as Ramsar sites have been avoided. The environmental and technical studies intended to be undertaken in the future will provide much greater information on the environmental constraints and opportunities. As with the desktop assessment outcomes, design risks and opportunities will continue to be considered at each stage, to enable a suitable design response to avoid, minimise and manage environmental effects, where possible. The commencement of field surveys to ground-truth the desktop assessments and completion of impact assessments will provide further opportunity for project development incorporating mitigation and management.

The Project is currently investigating the following design and construction approaches to avoid and minimise environmental effects which will be further informed by field studies, impact assessments and construction assessments:

- Utilising existing infrastructure corridors (pre-cleared) where possible
- Prioritising shared infrastructure routes where possible
- Prioritising a bored shore crossing for the subsea cable to land transition (not open trenched)
- Investigating underground cabling from the shore landing to the transition joint bay (rather than overhead transmission) with the potential to bore rather than open trench within the sensitive coastal dune and wetland habitats nearby
- Investigating bored (trenchless) crossings of sensitive waterways and habitats
- Utilising existing facilities for construction offices, laydown areas and parking where available in the local area to avoid need for additional infrastructure

A Construction and Operation Environmental Management Plan (CEMP and OEMP) will be prepared and implemented for the Project including all components onshore and offshore. This will include measures to continue to avoid and minimise environmental impacts, including ongoing monitoring and management measures, responsibility, training of staff and reporting.

Construction compounds, offices, laydowns, access tracks and other requirements will be developed further at detailed design, with assumptions included in the impact assessment for planning purposes. Adequate allowance along the transmission corridor, cable route and at the transition joint bay will be considered in the impact assessment. This will be influenced by land use and ownership, technical requirements and environmental constraints.

A mandatory CHMP will be required to be prepared under the *Aboriginal Heritage Act 2006* for the Project as the Project will entail high impact activities (as that term is defined in the Act) in areas of cultural heritage sensitivity. A CHMP will also be mandatory if an EES is required for the Project. The CHMP will be prepared in consultation with the GMTOAC, who will need to approve the CHMP to enable compliance with the *Aboriginal Heritage Act 2006*. Mitigation measures to manage the impacts of the Project on any Aboriginal cultural heritage present in the Project Area are not yet proposed however will be included as part of the CHMP.

A preliminary marine assessment identified a collection of mitigation measures which will be implemented throughout the Project to reduce the environmental impacts identified. Ongoing environmental management and monitoring will be required in accordance with *Offshore Electricity Infrastructure Act 2021* conditions and will be defined at a later stage.

19. Other activities

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

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

Development of the Project, the Vic Offshore Wind Project, Kentbruck Green Power Hub, Spinifex Offshore Wind Farm, in addition to the existing Portland Wind Farm has the potential to result in cumulative visual, heritage, social and environmental impacts during construction and operation.

All of these projects will be subject to their own EES process.

There is potential for cumulative impacts to occur, and an assessment will be undertaken for the Project that will identify all relevant projects and the potential for cumulative impacts

20. Investigation program

Study program

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

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

Has a program for future environmental studies been developed?

☒ No X Yes If yes, briefly describe.

A program for future environmental and technical studies is currently being developed for the Project and will include (but not be limited to) the following:

- Terrestrial biodiversity field studies: commencing with a site inspection (habitat mapping) then targeted surveys including seabirds, shorebirds, terrestrial birds, fauna and flora
- Terrestrial biodiversity impact assessment
- Marine field studies: commencing with benthic habitat mapping, water quality and metocean data, followed by sediment quality, benthic flora, invertebrate, fish and marine megafauna studies
- Marine environmental impact assessment
- Marine geotechnical investigations
- Underwater noise and vibration monitoring and assessment
- Noise and vibration (onshore) monitoring and impact assessment
- Seascape, landscape and visual impact assessment (with photomontages)
- Social impact assessment
- Economic impact assessment
- Agricultural impact assessment
- Cultural heritage management plan (CHMP)
- Cultural values assessment
- Aboriginal cultural heritage and historic heritage impact assessment
- Surface water impact assessment
- Contaminated land and soil impact assessment

- Land use and planning impact assessment
- Air quality impact assessment
- Traffic and transport impact assessment
- EMI impact assessment
- Bushfire risk assessment
- Greenhouse gas and climate change impact assessment
- Aviation impact assessment
- Safety, hazard and risk assessment
- Shipping and Navigation assessment

Consultation program

Has a consultation program been conducted to date for the project?

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

Authentic and respectful partnerships and consultation with all stakeholders will form an integral and vital role in the development of the Project. The Project will prepare a Stakeholder and Engagement Strategy will enable genuine partnerships and open communication between the Proponents, Traditional Owners and all stakeholders over the life of the Project. It will also seek to create social value by delivering outcomes that benefit Traditional Owners and local communities, through social, economic, and environmental means.

The Project will carry out extensive consultation with relevant stakeholders. These stakeholders include host landholders, proximal landholders and communities, ocean users, Traditional Owners, local and state government agencies, local business and service providers, community and development groups and environmental groups.

Consultation has been undertaken with the DELWP and DCCEEW through pre-referral meetings and the various State Government Departments in South Australia.

The Project is committed to exploring partnerships with stakeholders which include (but are not limited to) commercial and investment arrangements, skills and jobs training, community funds, scholarships and apprenticeships, and opportunities for local supply chains, businesses and service providers.

The Project's approach to Traditional Owners is one of partnership as well as consultation. Preliminary consultation has also been undertaken with the RAP for the area, the GLaWAC. It is focussed on communication and providing updates, on exploring partnerships and opportunities, understanding their relationship to the land and sea and hear their stories, minimise impacts on the cultural and heritage importance and ensuring involvement in project design, construction and procurement.

Engagement activities will include, but not be limited to:

- Website, Project email address, mobile number and postal address
- Community advisory group
- Flyers and newsletters and information material including FAQs and Fact sheets
- Milestone site events
- Community and Public Information sessions and open days
- Digital stakeholder platform (engagement register and issues tracker)
- Local office
- Incident and complaint mechanism and register

- Local supplier, talent and contractor database
- Maps and visual aids including a preliminary visual impact simulation
- Media releases
- Posters and signage
- Social media
- Sponsorship
- Telephone calls

Has a program for future consultation been developed?

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

A program is in the process of being developed although a number of activities are currently underway including engagement with regulators and a website and email address developed.

The Proponents recognise that there are a number of other projects, both onshore and offshore, that are currently proposed for the region. We recognise that there will be significant demands placed upon communities in regards to concurrent consultations and large volumes of information being produced for each of these Projects.

Authorised person for proponent:

I, …Deb Neumann……(full name),

……Director, Environment and Planning, BlueFloat Energy……(position), confirm that the information contained in this form is, to my knowledge, true and not misleading.

Signature ____ _____

Date 15/12/2022

Person who prepared this referral:

I, …Caroline Funnell……(full name),

……Principal Environmental Consultant, Umwelt……(position), confirm that the information contained in this form is, to my knowledge, true and not misleading.

Signature ____ _____

Date 15/12/12